

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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METHODS OF OPERATING THE  
SAME

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**CONTINUING PATENT APPLICATION**  
**TRANSMITTAL LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Transmitted herewith for filing under 37 C.F.R. § 1.53(b) is a:

☒ Continuation    ☐ Division    ☐ Continuation-In-Part (CIP)

of the above-identified copending prior application in which no patenting, abandonment, or termination of proceedings has occurred. Priority to the above-identified prior application is hereby claimed under 35 U.S.C. § 120 for this continuing application. The entire disclosure of the above-identified prior application is considered as being part of the disclosure of the accompanying continuing application and is hereby incorporated by reference therein.

☒ Applicant claims small entity status under 37 CFR 1.27.

Enclosed are:

- [ X ] Description, Claim(s), and Abstract (56 pages).
- [ X ] Formal drawings (20 sheets, Figures 1-38).
- [ X ] Executed Declaration (7 pages).
- [ X ] Information Disclosure Statement (2 pages).
- [ X ] Form PTO-SB08 with 97 listed reference(s) (5 pages).
- [ X ] Application Data Sheet (37 CFR 1.76) (9 pages).
- [ X ] PTO/SB/424 - Request for Prioritized Examination (2 pages).

The adjustment to the number of sheets for EFS-Web filing follows:

Number of Sheets		EFS-Web Adjustment	Number of Sheets for EFS-Web
76	x	75%	57

The filing fee is calculated below at the small entity rate:

	<b>Number Filed</b>		<b>Included in Basic Fee</b>	<b>Extra</b>		<b>Rate</b>	<b>Fee Totals</b>
Basic Filing Fee						\$70.00 =	\$70.00
Search Fee						\$300.00	\$300.00
Examination Fee						\$360.00	\$360.00
Size Fee	57	-	100	= 0	x	\$200.00	\$0.00
Total	20	-	20	= 0	x	\$40.00 =	\$0.00
Claims:							
Independents	3	-	3	= 0	x	\$210.00 =	\$0.00
:							
If any Multiple Dependent Claim(s) present:					+	\$390.00 =	\$0.00
Surcharge under 37 CFR 1.16(e) for late filing of Executed Declaration or late payment of filing fee					+	\$70.00 =	\$0.00
Prioritized Examination fee (Track I) under 37 C.F.R. § 1.17 (c)							\$2,000.00
Processing Fee (Track I) under 37 C.F.R. § 1.17 (i)							\$70.00
<b>TOTAL FILING FEE:</b>						=	<b>\$2,800.00</b>
Assignment Recordation Fee:					+	\$40.00 =	\$0.00
Processing Fee under 37 CFR 1.17(i) for Late Filing of English Translation of Application:					+	\$70.00 =	\$0.00
Publication Fee							\$0.00
<b>TOTAL FEE</b>						=	<b>\$2,800.00</b>

The above-identified fees of \$2,800.00 are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

Date: April 2, 2014

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## **MANUAL TREADMILL AND METHODS OF OPERATING THE SAME**

### **CROSS-REFERENCE TO RELATED PATENT APPLICATIONS**

**[0001]** This application claims the benefit of priority as a continuation of U.S. Patent Application No. 13/235,065, filed September 16, 2011, which is a continuation-in-part of prior international Application No. PCT/US10/27543, filed March 16, 2010, which claims priority to U.S. Provisional Application Serial No. 61/161,027, filed March 17, 2009, all of which are incorporated herein by reference in their entireties.

### **BACKGROUND**

**[0002]** The present invention relates generally to the field of treadmills. More specifically, the present invention relates to manual treadmills. Treadmills enable a person to walk, jog, or run for a relatively long distance in a limited space. It should be noted that throughout this document, the term “run” and variations thereof (e.g., running, etc.) in any context is intended to include all substantially linear locomotion by a person. Examples of this linear locomotion include, but are not limited to, jogging, walking, skipping, scampering, sprinting, dashing, hopping, galloping, etc.

**[0003]** A person running generates force to propel themselves in a desired direction. To simplify this discussion, the desired direction will be designated as the forward direction. As the person's feet contact the ground (or other surface), their muscles contract and extend to apply a force to the ground that is directed generally rearward (i.e., has a vector direction substantially opposite the direction they desire to move). Keeping with Newton's third law of motion, the ground resists this rearwardly directed force from the person, resulting in the person moving forward relative to the ground at a speed related to the force they are creating.

**[0004]** To counteract the force created by the treadmill user so that the user stays in a relatively static fore and aft position on the treadmill, most treadmills utilize a belt that is driven by a motor. The motor operatively applies a rotational force to the belt, causing that portion of the belt on which the user is standing to move generally rearward. This force must be sufficient to overcome all sources of friction, such as the friction between the belt and other

treadmill components in contact therewith and kinetic friction, to ultimately rotate the belt at a desired speed. The desired net effect is that, when the user is positioned on a running surface of the belt, the forwardly directed velocity achieved by the user is substantially negated or balanced by the rearwardly directed velocity of the belt. Stated differently, the belt moves at substantially the same speed as the user, but in the opposite direction. In this way, the user remains at substantially the same relative position along the treadmill while running. It should be noted that the belts of conventional, motor-driven treadmills must overcome multiple, significant sources of friction because of the presence of the motor and configurations of the treadmills themselves.

**[0005]** Similar to a treadmill powered by a motor, a manual treadmill must also incorporate some system or means to absorb or counteract the forward velocity generated by a user so that the user may generally maintain a substantially static position on the running surface of the treadmill. The counteracting force driving the belt of a manual treadmill is desirably sufficient to move the belt at substantially the same speed as the user so that the user stays in roughly the same static position on the running surface. Unlike motor-driven treadmills, however, this force is not generated by a motor.

#### SUMMARY

**[0006]** One embodiment of the disclosure relates to a manually operated treadmill comprising a treadmill frame having a front end and a rear end opposite the front end, a front shaft rotatably coupled to the treadmill frame at the front end, a rear shaft rotatably coupled to the treadmill frame at the rear end, a running belt including a curved running surface upon which a user of the treadmill may run, and a one-way bearing assembly coupled to at least one of the front shaft and the rear shaft, wherein the one-way bearing assembly prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction. The running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft. The

treadmill is configured to allow the user to manually control the speed of the running belt and to facilitate maintenance of a contour of the curved running surface.

**[0007]** Another embodiment of the disclosure relates to a manually operated treadmill comprising a treadmill frame, a front shaft rotatably coupled to the treadmill frame, a rear shaft rotatably coupled to the treadmill frame, a running belt including a contoured running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running belt to rotate about the front shaft and the rear shaft without the rotation of the running belt being generated by a motor, and a one-way bearing assembly configured to prevent rotation of the running surface of the running belt in one direction.

**[0008]** Another embodiment of the disclosure relates to a manually operated treadmill comprising a frame supported on a substantially horizontal surface, a front shaft assembly supported by the frame and comprising a front shaft and at least one front running belt pulley supported by the front shaft, a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising a rear shaft and at least one rear running belt pulley supported by the rear shaft, a running belt supported at least in part by the front shaft assembly and the rear shaft assembly, and a one-way bearing assembly cooperating with one of the front shaft and the rear shaft to permit rotation of said one of the front shaft and the rear shaft in only one direction. The running belt includes a front portion adjacent the front shaft assembly, a rear portion adjacent the rear shaft assembly, and a central portion intermediate the front portion and the rear portion, the front portion and the rear portion being positioned vertically higher than a lowest point found in the central portion to form a non-planar running surface upon which a user of the treadmill may walk or run, wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor.

**[0009]** Another embodiment of the disclosure relates to a manually operated treadmill comprising a treadmill frame having a front end and a rear end opposite the front end, a front shaft rotatably coupled to the treadmill frame at the front end, a rear shaft rotatably coupled to

the treadmill frame at the rear end, and a running belt including a curved running surface upon which a user of the treadmill may run. The running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft. The treadmill is configured to control the speed of the running belt to facilitate the maintenance of the contour of the curved running surface.

**[0010]** Another embodiment of the disclosure relates to a manually operated treadmill comprising a treadmill frame, a front support member rotatably coupled to the treadmill frame, a rear support member rotatably coupled to the treadmill frame, a running belt including a curved running surface upon which a user of the treadmill may run, wherein the running belt is supported by the front support member and the rear support member, and a synchronizing system configured to cause the front support member and the rear support member to rotate at substantially the same speeds. The force generated by the user causes rotation of the front support member and the rear support member and also causes the running belt to rotate relative to the treadmill frame.

**[0011]** Another embodiment of the disclosure relates to manually operated treadmill comprising a treadmill frame, a running belt including a running surface upon which a user of the treadmill may run, a front support member rotatably coupled to the treadmill frame, the front support member comprising the forwardmost support for the running belt, a rear support member rotatably coupled to the treadmill frame, the rear support member comprising the rearwardmost support for the running belt. The running surface comprises at least in part a complex curve located intermediate the front support member and the rear support member and incorporating a minimum of two geometric configurations.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0012]** FIG. 1 is a perspective view of an exemplary embodiment of a manual treadmill having a non-planar running surface.

**[0013]** FIG. 2 is a left-hand partially exploded perspective view of a portion of the manual treadmill according to the exemplary embodiment shown in FIG. 1.

**[0014]** FIG. 3 is a right-hand partially exploded perspective view of a portion of the manual treadmill according to the exemplary embodiment shown in FIG. 1.

**[0015]** FIG. 4 is a perspective view of the right-hand side of the manual treadmill of FIG. 1 with a portion of the rear of the treadmill cut-away to show a portion of the arrangement of elements.

**[0016]** FIG. 5 is a cross-sectional view of a portion of the manual treadmill taken along line 5-5 of FIG. 1.

**[0017]** FIG. 6 is an exploded view of a portion of the manual treadmill of FIG. 1 having the side panels and handrail removed.

**[0018]** FIG. 7a is a side schematic view of the profile of the running surface of the manual treadmill according to an exemplary embodiment.

**[0019]** FIGS. 7b-7j are sides schematic views of alternative profiles of the running surfaces of manual treadmills according to alternative exemplary embodiments.

**[0020]** FIG. 8 is a partially exploded, perspective view of a bearing rail for the manual treadmill according to the exemplary embodiment shown in FIG. 1.

**[0021]** FIG. 9 is a side elevation view of the bearing rail of FIG. 6.

**[0022]** FIG. 10 is a top elevation view of a front shaft assembly for the manual treadmill according to the exemplary embodiment shown in FIG. 1.

**[0023]** FIG. 11 is a top elevation view of a rear shaft assembly for the manual treadmill according to the exemplary embodiment shown in FIG. 1.

**[0024]** FIG. 12 is a partial, cross-sectional view of the manual treadmill taken along line 12-12 of FIG. 1.

**[0025]** FIG. 13 is an alternative exemplary embodiment of the partial, cross-sectional view of the manual treadmill similar to FIG. 12.

**[0026]** FIG. 14 is a perspective view of an alternative embodiment of a synchronizing system integrated into a manual treadmill.

**[0027]** FIG. 15 is a partial, cross-sectional view of a manual treadmill including an exemplary embodiment of a braking system taken along line 15-15 of FIG. 4.

**[0028]** FIG. 16 is a partial, cross-sectional view of a manual treadmill including another exemplary embodiment of a braking system taken along line 16-16 of FIG. 4.

**[0029]** FIG. 17 is a perspective side view of a portion of the manual treadmill according to the exemplary embodiment shown in FIG. 1 including a plurality of rollers used in place of bearing rails.

**[0030]** FIG. 18 is a side perspective view of a track system for use with the exemplary embodiment of a manual treadmill shown in FIG. 1 and configured to help induce and maintain a running belt in a desired non-planar shape to define a running surface.

**[0031]** FIG. 19 is a detail view of the track system of FIG. 18 taken along line 19-19.

**[0032]** FIG. 20 is a partial cross-sectional view of the track system of FIG. 18 taken along line 20-20.

**[0033]** FIG. 21 is a detail view of the track system of FIG. 20 taken along line 21-21.

**[0034]** FIG. 22 is a side perspective view of another exemplary embodiment of a track system for use with the exemplary embodiment of a manual treadmill shown in FIG. 1 and configured to help induce and maintain a running belt in a desired non-planar shape to define a running surface.

**[0035]** FIG. 23 is a detail view of the track system of FIG. 22 taken along line 23-23.

**[0036]** FIG. 24 is a partial cross-sectional view of the track system of FIG. 18 taken along line 24-24.

**[0037]** FIG. 25 is a side perspective view of another exemplary embodiment of a track system for use with the exemplary embodiment of a manual treadmill shown in FIG. 1 and configured

to help induce and maintain a running belt in a desired non-planar shape to define a running surface.

**[0038]** FIG. 26 is a detail view of the track system of FIG. 25 taken along a line 26-26.

**[0039]** FIG. 27 is a partial cross-sectional view of the track system of FIG. 25 taken along line 27-27.

**[0040]** FIG. 28 is a detail view of the track system of FIG. 27 taken along line 28-28.

**[0041]** FIG. 29 is a partially exploded, right-hand perspective view of a track system for use with the exemplary embodiment of a manual treadmill shown in FIG. 1 and configured to help induce and maintain a running belt in a desired non-planar shape to define a running surface.

**[0042]** FIG. 30 is a detail view of the track system of FIG. 29 taken along line 30-30.

**[0043]** FIG. 31 is a side perspective view of another exemplary embodiment of a track system for use with the exemplary embodiment of a manual treadmill shown in FIG. 1 and configured to help induce and maintain a running belt in a desired non-planar shape to define a running surface.

**[0044]** FIG. 32 is a detail view of the track system of FIG. 31 taken along a line 32-32.

**[0045]** FIG. 33 is a partial cross-sectional view of the track system of FIG. 31 taken along a line 33-33.

**[0046]** FIG. 34 is a detail view of the track system of FIG. 32 taken along a line 34-34.

**[0047]** FIG. 35 is a perspective view of an exemplary embodiment of a manual treadmill according to another embodiment having a substantially planar running surface.

**[0048]** FIG. 36 is a perspective view of a one-way bearing for the manual treadmill according to the exemplary embodiment shown in FIG. 1.

[0049] FIG. 37 is a left-hand partially exploded perspective view of a portion of the manual treadmill according to the exemplary embodiment shown in FIG. 1 including an incline adjustment system.

[0050] FIG. 38 is a perspective view of a one-way bearing for the manual treadmill shown in FIG. 1, according to another embodiment.

#### DETAILED DESCRIPTION

[0051] Referring to FIG. 1, a manual treadmill 10 generally comprises a base 12 and a handrail 14 mounted to the base 12 as shown according to an exemplary embodiment. The base 12 includes a running belt 16 that extends substantially longitudinally along a longitudinal axis 18. The longitudinal axis 18 extends generally between a front end 20 and a rear end 22 of the treadmill 10; more specifically, the longitudinal axis 18 extends generally between the centerlines of a front shaft and a rear shaft, which will be discussed in more detail below.

[0052] A pair of side panels 24 and 26 (e.g., covers, shrouds, etc.) are preferably provided on the right and left sides of the base 12 to effectively shield the user from the components or moving parts of the treadmill 10. The base 12 is supported by multiple support feet 28, which will be described in greater detail below. A rearwardly extending handle 30 is provided on the rear end of the base 12 and a pair of wheels 32 are provided at the front of the base 12, however, the wheels 32 are mounted so that they are generally not in contact with the ground when the treadmill is in an operating position. The user can easily move and relocate the treadmill 10 by lifting the rear of the treadmill base 12 a sufficient amount so that the multiple support feet 28 are no longer in contact with the ground, instead the wheels 32 contact the ground, thereby permitting the user to easily roll the entire treadmill 10. It should be noted that the left and right-hand sides of the treadmill and various components thereof are defined from the perspective of a forward-facing user standing on the running surface of the treadmill 10.

[0053] Referring to FIGS. 2–6, the base 12 is shown further including a frame 40, a front shaft assembly 44 positioned near a front end 48 of the frame 40, and a rear shaft assembly 46 positioned near the rear end 50 of frame 40, generally opposite the front end 48. Specifically, the front shaft assembly 44 is coupled to the frame 40 at the front end 48, and the rear shaft



assembly 46 is coupled to the frame 40 at the rear end 50 so that the frame supports these two shaft assemblies.

**[0054]** The frame 40 comprises longitudinally-extending, opposing side members, shown as a left-hand side member 52 and a right-hand side member 54, and one or more lateral or cross-members 56 extending between and structurally connecting the side members 52 and 54 according to an exemplary embodiment. Each side member 52, 54 includes an inner surface 58 and an outer surface 60. The inner surface 58 of the left-hand side member 52 is opposite to and faces the inner surface 58 of the right-hand side member 54. According to other exemplary embodiments, the frame may have substantially any configuration suitable for providing structure and support for the manual treadmill.

**[0055]** Similar to most motor-driven treadmills, the front shaft assembly 44 includes a pair of front running belt pulleys 62 interconnected with, and preferably directly mounted to, a shaft 64, and the rear shaft assembly 46 includes a pair of rear running belt pulleys 66 interconnected with, and preferably directly mounted to, a shaft 68. The front and rear running belt pulleys 62, 66 are configured to facilitate movement of the running belt 16. The running belt 16 is disposed about the front and rear running belt pulleys 62, 66, which will be discussed in more detail below. As the front and rear running belt pulleys 62, 66 are preferably fixed relative to shafts 64 and 68, respectively, rotation of the front and rear running belt pulleys 62, 66 causes the shafts 64, 68 to rotate in the same direction. The front and rear running belt pulleys 62, 66 are formed of a material sufficiently rigid and durable to maintain shape under load. Preferably, the material is of a relatively light weight so as to reduce the inertia of the pulleys 62, 66. The pulleys 62, 66 may be formed of any material having one or more of these characteristics (e.g., metal, ceramic, composite, plastic, etc.). According to the exemplary embodiment shown, the front and rear running belt pulleys 62, 66 are formed of cast aluminum. According to another embodiment, the front and rear running belt pulleys 62, 66 are formed of a glass-filled nylon, for example, Grivory® GV-5H Black 9915 Nylon Copolymer available from EMS-GRIVORY of Sumter, SC 29151, which may save cost and reduce the weight of the pulleys 62, 66 relative to metal pulleys. To prevent a static charge due to operation of the treadmill 10 from building on a pulley 62, 66 formed of electrically insulative materials (e.g.,

plastic, composite, etc.), an antistatic additive, for example Antistat 10124 from Nexus Resin Group of Mystic, CT 06355, maybe may be blended with the GV-5H material.

**[0056]** As noted above, the manual treadmill disclosed herein includes a force translation system that incorporates a variety of innovations to translate the forward force created by the user into rotation of the running belt and permit the user to maintain a substantially static fore and aft position on the running belt while running. One of the ways to translate this force is to configure the running belt 16 to be more responsive to the force generated by the user. For example, by minimizing the friction between the running belt 16 and the other relevant components of the treadmill 10, more of the force the user applies to the running belt 16 to propel themselves forward can be utilized to rotate the running belt 16.

**[0057]** Another way to counteract the user-generated force and convert or translate it into rotational motion of the running belt 16 is to integrate a non-planar running surface, such as non-planar running surface 70. Depending on the configuration, non-planar running surfaces can provide a number of advantages. First, the shape of the non-planar running surface may be such that, when a user is on the running surface, the force of gravity acting upon the weight of the user's body helps rotate the running belt. Second, the shapes may be such that it creates a physical barrier to restrict or prevent the user from propelling themselves off the front end 20 of the treadmill 10 (e.g., acting essentially as a stop when the user positions their foot thereagainst, etc.). Third, the shapes of some of the non-planar running surfaces can be such that it facilitates the movement of the running belt 16 there along (e.g., because of the curvature, etc). Accordingly, the force the user applies to the running belt is more readily able to be translated into rotation of the running belt 16.

**[0058]** As seen in FIGS 1 and 4-5, the running surface 70 is generally non-planar and shown shaped as a substantially complex curve according to an exemplary embodiment. The running surface can be generally divided up into three general regions each having a particular geometric configuration, the front portion 72, which is adjacent to the front shaft assembly 44, the rear portion 74, which is adjacent to the rear shaft assembly 46, and the central portion 76, which is intermediate the front portion 72 and the rear portion 74. In the exemplary embodiment seen in FIGS 1 and 4, the running surface 70 includes a substantially concave

curve 80 and a substantially convex curve 82. At the front portion 72 of the running surface 70, the relative height or distance of the running surface 70 relative to the ground is generally increasing moving forward along the longitudinal axis 18 from the central portion 76 toward the front shaft assembly 44. This increasing height configuration provides one structure to translate the forward running force generated by the user into rotation of the running belt 16. To initiate the rotation of the running belt 16, the user places her first foot at some point along the upwardly-inclined front portion 72 of the running surface 70. As the weight of the user is transferred to this first foot, gravity exerts a downward force on the user's foot and causes the running belt 16 to move (e.g., rotate, revolve, advance, etc.) in a generally clockwise direction as seen in FIGS 1 (or counterclockwise as seen in FIG. 4). As the running belt 16 rotates, the user's first foot will eventually reach the lowest point in the non-planar running surface 70 found in the central portion 76, and, at that point, gravity is substantially no longer available as a counteracting source to the user's forward running force. Assuming a typical gait, at this point the user will place her second foot at some point along the upwardly-inclined front portion 72 of the running belt 16 and begin to transfer weight to this foot. Once again, as weight shifts to this second foot, gravity acts on the user's foot to continue the rotation of the running belt 16 in the clockwise direction as seen in FIG. 1. This process merely repeats itself each and every time the user places her weight-bearing foot on the running belt 16 at any position vertically above the lowest point of central portion 76 of the running surface 70 of the of the running belt 16. The upwardly-inclined front portion 72 of the running belt 16 also acts substantially as a physical stop, reducing the chance the user can inadvertently step off the front end 20 of the treadmill 10.

**[0059]** A user can generally utilize the force translation system of the treadmill 10 to control the speed of the treadmill 10 by the relative placement of her weight-bearing foot along the running belt 16 of the base 12. Generally, the rotational speed of the running belt 16 increases as greater force is applied thereto in the rearward direction. The generally upward-inclined shape of the front portion 72 thus provides an opportunity to increase the force applied to the running belt 16, and, consequently, to increase the speed of the running belt 16. For example, by increasing her stride and/or positioning her weight-bearing foot vertically higher on the front portion 72 relative to the lowest portion of the running belt 16, gravity will exert a greater and greater amount of force on the running belt 16 to drive it rearwardly. In the configuration of

the running belt 16 seen in FIG 1, this corresponds to the user positioning her foot closer to the front end 20 of the treadmill 10 along the longitudinal axis 18. This results in the user applying more force to the running belt 16 because gravity is pulling her mass downward along a greater distance when her feet are in contact with the front portion 72 of the running surface 70. As a result, the relative rotational speed of the running belt 16 and the relative running speed the user experiences is increased. Accordingly, the force translation system is adapted to convert a variable level of force generated by the user into a variable speed of rotation of the belt.

**[0060]** FIG. 5 illustrates a number of possible locations where a user may position her feet. A-C indicate locations along the front portion 72 of the running surface 70 where a user may place their weight bearing foot. When the user positions her weight bearing foot at location A, she will be running with greater speed than if her weight bearing foot was positioned at locations B or C based upon the fact that the force of gravity is able to have a greater effect as the user's weight bearing foot moves from location A towards the rear of the non-planar running surface 70 as the running belt 16 rotates. At location A, gravity is able to have the greatest impact on the user so that the greatest amount of force is translated into rotation of the running belt 16. A user can decrease her relative running speed by positioning her weight bearing foot at locations B or C. As location B is relatively higher along the front portion 72 than C, gravity is able to exert a greater force on the user and the running belt 16 than if the user's weight bearing foot was positioned at location C.

**[0061]** Another factor which will increase the speed the user experiences on the treadmill 10 is the relative cadence the user assumes. As the user increases her cadence and places her weight-bearing foot more frequently on the upwardly extending front portion 72, more gravitational force is available to counteract the user-generated force, which translates into greater running speed for the user on the running belt 16. It is important to note that speed changes in this embodiment are substantially fluid, substantially instantaneous, and do not require a user to operate electromechanical speed controls. The speed controls in this embodiment are generally the user's cadence and relative position of her weight-bearing foot on the running surface. In addition, the user's speed is not limited by speed settings as with a driven treadmill.

**[0062]** In the embodiment shown in FIGS. 1-6, gravity is also utilized as a means for slowing the rotational speed of the running belt. At a rear portion 74 of the running surface 70, the distance of the running surface 70 relative to the ground generally increases moving rearward along the longitudinal axis 18 from the lowest point in the non-planar running surface 70. As each of the user's feet move rearward during her stride, the rear portion 74 acts substantially as a physical stop to discourage the user from moving too close to the rear end of the running surface. To this point, the user's foot has been gathering rearward momentum while moving from the front portion 72, into the central portion 76, and toward the rear portion 74 of the running surface 70. Accordingly, the user's foot is exerting a significant rearwardly-directed force on the running belt 16. Under Newton's first law of motion, the user's foot would like to continue in the generally rearward direction. The upwardly-inclined rear portion 74, interferes with this momentum and provides a force to counter the rearwardly-directed force of the user's foot by providing a physical barrier. As the user's non-leading foot moves up the incline (see position D in FIG. 5), the running surface 70 provides a force that counters the force of the user's foot, absorbing some of the rearwardly-directed force from the user and preventing it from being translated into increasing speed of the running belt 16. Also, gravity acts on the user's weight bearing foot as it moves upward, exerting a downwardly-directed force on the user's foot that the user must counter to lift their foot and bring it forward to continue running. In addition to acting as a stop, the rear portion 74 provides a convenient surface for the user to push off of when propelling themselves forward, the force applied by the user to the rear portion 74 being countered by the force the rear portion 74 applies to the user's foot.

**[0063]** One benefit of the manual treadmill according to the innovations described herein is positive environmental impact. A manual treadmill such as that disclosed herein does not utilize electrical power to operate the treadmill or generate the rotational force on the running belt. Therefore, such a treadmill can be utilized in areas distant from an electrical power source, conserve electrical power for other uses or applications, or otherwise reduce the "carbon footprint" associated with the operation of the treadmill 10.

**[0064]** A manual treadmill according to the innovations disclosed herein can incorporate one of a variety of shapes and complex contours in order to translate the user's forward force into rotation of the running belt or to provide some other beneficial feature or element. FIG. 7a

generally depicts the curve defined by the running surface 70 of the exemplary embodiment shown in FIG 1, specifically, substantially a portion of a curve defined by a third-order polynomial. The front portion 72 and the central portion 76 define a concave curve and the rear portion 74 of the running surface 70 defines a convex curve. As the central portion 76 of the running surface 70 transitions to the rear portion 74, the concave curve transitions to the convex curve. In the embodiment shown, the curvature of the front portion 72 and the central portion 76 is substantially the same; however, according to other exemplary embodiments, the curvature of the front portion 72 and the central portion 76 may differ. Please note, the description of the running surfaces as concave and convex provided herein is related to the relative curve which the user's foot would experience on the running surface 70.

**[0065]** FIGS. 7b-7h illustrate the side profiles of some exemplary non-planar, contoured running surfaces according to the innovations disclosed herein, each including a front portion, a central portion, and a rear portion. Each portion has a particular geometric configuration that is concave, convex, or linear; collectively, the portions define the non-planar running surface. For example, FIG. 7b shows an exemplary embodiment of the profile of a non-planar surface including a concave front portion 100, a concave central portion 102, and a concave rear portion 104 according to an exemplary embodiment. In this embodiment, the front portion 100, central portion 102, and rear portion 104 each have different curvatures. According to other exemplary embodiments, one or more of the front, central, and rear portions may have the same curvature.

**[0066]** FIG. 7c shows an exemplary embodiment of the profile of a non-planar surface including a convex front portion 110, a concave central portion 112, and a concave rear portion 114 according to an exemplary embodiment. Once again, this embodiment incorporates a smooth transition between the different curvatures of the front, central, and rear portions.

**[0067]** FIG. 7d shows an exemplary embodiment of the profile of a non-planar surface including a convex front portion 120, a concave central portion 122, and a convex rear portion 124 according to an exemplary embodiment. In this embodiment, the front portion 120 and the rear portion 122 have different curvatures, but these curvatures may be the same according to other exemplary embodiments.

**[0068]** FIG. 7e shows an exemplary embodiment of the profile of a non-planar surface including a convex front portion 130, a convex central portion 132, and a convex rear portion 134 according to an exemplary embodiment. In this embodiment, the front portion 130, the central portion 132, and the rear portion 134 each have the same convex curvature, but the curvature of one or more of the front portion 130, the central portion 132, and the rear portion 134 may differ according to other exemplary embodiments.

**[0069]** FIG. 7f shows an exemplary embodiment of the profile of a non-planar surface including a concave front portion 140, a convex central portion 142, and a convex rear portion 144 according to an exemplary embodiment. In this embodiment, the central portion 142 and the rear portion 144 having the same curvatures, but these curvatures may differ from each other according to other exemplary embodiments.

**[0070]** FIG. 7g shows an exemplary embodiment of the profile of a non-planar surface including a convex front portion 150, a convex central portion 152, and a concave rear portion 154 according to an exemplary embodiment. In this embodiment, the front portion 150 and the central portion 152 having the same curvatures, but these curvatures may differ from each other according to other exemplary embodiments.

**[0071]** FIG. 7h shows an exemplary embodiment of the profile of a non-planar surface including a concave front portion 160, a convex central portion 162, and a concave rear portion 164 according to an exemplary embodiment. In this embodiment, the front portion 160 and the rear portion 164 have different curvatures, but these curvatures may be the same according to other exemplary embodiments.

**[0072]** According to one exemplary embodiment, the non-planar running surface of the manual treadmill 10 is substantially curved, but that curve integrates one or more linear portions (e.g., that replace a “curved portion” or the curve or that are added/inserted into the curve). The linear portions may be substantially parallel to the longitudinal axis 18 or disposed at an angle relative thereto. FIG. 7i illustrates the profile of a non-planar surface wherein a substantially linear portion 170 has been integrated with a concave curve having a first concave portion 174 to one side of the linear portion 170 and a second concave portion 176 to the opposite side of the linear portion 170 according to an exemplary embodiment. In addition to

the linear portion 170, the first concave portion 174 and the second concave portion 176, the profile further includes a fourth portion shown as a convex portion 178. According to another exemplary embodiment, a linear portion may replace all or a portion of the curve. Alternatively, multiple linear portions may be included in a profile of a non-planar surface.

**[0073]** FIG. 7j illustrates a linear portion 180 provided at the front of the running surface which transitions into a concave curve 182 which then transitions into a convex curve 184.

**[0074]** According to an exemplary embodiment, the non-planar running surface of the manual treadmill 10 may include (or be so defined as to include) more or less than three portions. For example, FIG. 7g could be interpreted as defined two portions, the first portion including the front portion and the central portion, which comprise a convex curve having the same curvature throughout the front portion 150 and the central portion 152, and the second portion including the rear portion 154 which generally comprises a concave curve. According to some exemplary embodiments, some non-planar running surfaces include at least three or more portions.

**[0075]** According to an exemplary embodiment, the profile defined by the non-planar running surface is substantially a portion of a curve defined by any suitable second-order polynomial, but, as clearly demonstrated in FIGS. 7a-j, the profile defined by the non-planar running surface can be a portion of a curve that is a third-order polynomial or a fourth-order polynomial. According to yet another exemplary embodiment, the running surface profile can be substantially defined by a first-order polynomial, in other words, the running surface is substantially planar. An exemplary embodiment of a manual treadmill including a planar running surface will be discussed in more detail below (see e.g., FIG. 35).

**[0076]** According to an exemplary embodiment, the relative length of each portion of the running surface may vary. In the exemplary embodiment shown, the central portion is the longest. In other exemplary embodiments, the rear portion may be the longest, the front portion may be shorter than the intermediate portion, or the front portion may be longer than the rear portion, etc. It should be noted that the relative length may be evaluated based on the distance the portion extends along the longitudinal axis or as measured along the surface of the running belt itself. One of the benefits of integrating one or more of the various curves or contours into



the running surface is that the contour of the running surface can be used to enhance or encourage a particular running style. For example, a curve integrated into the front portion of the running surface can encourage the runner to run on the balls of her feet rather than having the heel strike the running belt 16 first. Similarly, the contour of the running surface can be configured to improve a user's running biomechanics and to address common running induced injuries (e.g., plantar fasciitis, shin splints, knee pain, etc.). For example, integrating a curved contour on the front portion of the running surface can help to stretch the tendons and ligaments of the foot and avoid the onset of plantar fasciitis.

[0077] One of the difficulties associated with using a running surface that has a non-planar shape is inducing the running belt 16 to assume the non-planar shape and then maintaining the running belt 16 in that non-planar shape when the treadmill is being operated. In addition to discussing this difficulty in more detail below, a number of running belt retention systems providing ways to induce and maintain a belt in a desired non-planar shape to define the running surface are discussed below. Generally, these running belt retention systems are adapted to control the relative contour of the running belt so that the running belt substantially follows the contour of the running surface

[0078] One embodiment of a running belt retention system used to induce the running belt 16 to take-on the non-planar shape and then maintaining that shape, as shown in FIG. 5, is discussed in reference to FIGS. 5-6 and 8-11 in which base 12 is shown further including a pair of opposed bearing rails 200 to support the running belt 16 along with a front synchronizing belt pulley 202, a rear synchronizing belt pulley 204, and a synchronizing belt 206 all of which are interconnected to the running belt 16. The front rear synchronizing belt pulleys 202, 204 may be formed of the same or different materials as the front and rear running belt pulleys 62, 66.

[0079] Referring to FIGS. 6 and 8-9, in particular, the bearing rails 200 are shown including a plurality of bearings 208 and an upper or top profile 210, shown shaped as a complex curve, according to an exemplary embodiment. The bearing rails 200 shown are supported by and preferably mounted to the frame 40 substantially between the front shaft assembly 44 and the rear shaft assembly 46, the support members or elements about which the running belt 16 is

disposed. One bearing rail 200 is coupled to one or more of the cross-members 56 proximate to the inner surface 58 of the left-hand side member 52 and the other bearing rail 200 is coupled to one of more of the cross-members 56 proximate to the inner surface 58 of the right-hand side member 54 thereby fixing the position of the bearing rails 200 relative to the frame 40.

**[0080]** The bearing rails 200 are preferably configured to facilitate movement of the running belt 16. In the exemplary embodiment seen in FIGS. 8–9, the running belt 16 moves substantially along the top profile 210 of the bearing rails 200. The running belt 16 contacts and is supported in part by the bearings 208 of the bearing rails and bearing 208 are configured to rotate, thereby decreasing the friction experienced by the running belt 16 as the belt moves along the top profile 210. The bearing rails 200 are configured to help achieve the desired shape of the running surface. The shape of the top profile 210 of the bearing rails 200 at least partially corresponds to the desired shape for the running surface 70. The at least somewhat flexible running belt 16 substantially assumes the shape of top profile 210 of the bearing rails 200 by being maintained substantially thereagainst, as will be discussed in more detail later. Accordingly, the running surface 70 has a shape that substantially corresponds to the shape of the top profile 210 of the bearing rails 200. It should be noted that the front and/or rear running belt pulleys may also help define a portion of the shape of the running surface. Also, other suitable shape-providing components may be used in combination with the bearing rails.

**[0081]** FIG. 9 provides a side view of one of the bearing rails 200 to more clearly show the top profile 210 according to an exemplary embodiment. Similar to the running surface 70, discussed above, the top profile 210 of the bearing rails 200 can be generally divided up into three general regions, the front portion 212 which is adjacent to the front shaft assembly 44 (see e.g., FIG. 5), the rear portion 214 which is adjacent to the rear shaft assembly 46 (see e.g., FIG. 5), and the central portion 216, intermediate the front portion 212 and the rear portions 214. The central portion 216 is shown as a concave curve 218 that has a radius of curvature  $R1$ . The front portion 212 is further shown as a continuation of the concave curve 218 of the central portion 216, and, thus, also has a radius of curvature of  $R1$ . The rear portion 214 is shown as a convex curve 220 that has a radius of curvature  $R2$ . The front portion 212 is shown disposed substantially tangential to the central portion 216, providing a smooth transition therebetween, and helping provide a smooth shape for the running surface 70. The shape of the rear portion

214 also helps provide a smooth transition for the running belt 16 from the bearing rails 200 onto the rear running belt pulleys 66, which helps ensure as much contact as possible between the running belt 16 and the rear running belt pulleys 66. As the shape of the running surface substantially corresponds to the shape of top profile the bearing rails, the shape of the top profile of the bearing rails can necessarily be any of the shapes and/or have any of the variations (e.g., in length of portions, etc.) discussed above in FIGS. 7a through 7j with reference to possible shapes of the running surface.

**[0082]** According to an exemplary embodiment, each portion of the top profile is disposed substantially tangential to the portions adjacent thereto. According to other exemplary embodiments, less than all of the adjacent portions are disposed substantially tangential to the portions adjacent thereto, meaning the profile does not have an entirely smooth contour.

**[0083]** According to an exemplary embodiment shown in FIG. 9, R1 is approximately 7.26 feet. However, it is understood that a radius anywhere from 5 feet to 100-plus feet can be used. The size of the radius which can be used is typically a function of the length of the treadmill which can be accommodated. The range of possible radiuses for a convex bearing rail depends on the shaft-to-shaft distance of the treadmill (see e.g., measurement “x” in FIG. 5, discussed in more detail below). Assuming that the radius of curvature of the curve is  $R_C$ , the radius of the front running belt pulley is  $R_f$ , and the radius of the rear running belt pulley is  $R_r$ , the range of possible radiuses is approximately:  $\infty > R_C > (x - R_f - R_r)/2$ . For most commercial-available treadmills, x is approximately between 14 inches and 10 feet but the treadmill can certainly be as great as 25 feet in length. According to the exemplary embodiment shown in FIG. 5, x is approximately 57.8 inches in length. According to another exemplary embodiment, x is approximately 77.2 inches in length, with a radius R1 of approximately 8.67 feet, wherein the greater length x and radius R1 may facilitate use of the treadmill 10 by users with a longer running gait. The limiting factors in the length are the available space to accommodate the treadmill and the relative cost of constructing such a large treadmill.

**[0084]** When the treadmill 10 is being operated, the running belt 16 is driven rearwardly and the goal is to ensure that the running belt 16 follows the profile defined by a portion of the circumference of the front running pulleys 62, the contoured profile defined by the bearings

208 supported on the bearing rails 200 and finally by a portion of the circumference of the rear running belt pulleys 66. The particular contour which the running belt 16 assumes on the bottom of the base 12 between the rear running belt pulleys 66 and front running belt pulleys 62 is not terribly critical provided that the running belt continues to move with minimal friction and is not subject to excessive wear or obstruction.

**[0085]** Following the shape of the bearing rails 200 is not the natural tendency of the running belt for the particular contour seen in FIG. 5. Rather, without more, the running belt 16 tends to be pulled upward, away from the curved bearing rails and across the central portion 76 of the treadmill 10. Under the force of gravity, the weight of the running belt 16 coupled with the relative spacing between the front and rear running belt pulleys 62 and 66, respectively, would likely result in the top surface of the running belt 16 assuming a position of the shortest distance between the two pulleys, namely, a substantially straight line between the two pulleys with any excess length of the running belt 16 collecting on the bottom of the treadmill and hanging below the front and rear running belt pulleys 62 and 66, respectively. Therefore, a system of some sort needs to be integrated into a non-planar running surface treadmill to ensure that the running belt 16 follows the desired contour over the running surface.

**[0086]** Further referring to FIGS. 5–6 and 8–11, one way to ensure that the running belt 16 follows the contour of the bearing rails 200 and the front and rear running belt pulleys 62, 66 is to utilize the weight of the running belt 16 itself in addition to adjusting the relative size of the front and rear running belt pulleys 62, 66; and/or providing a synchronizing system 222 according to an exemplary embodiment.

**[0087]** As discussed above, the running belt 16 is disposed about the front and rear running belt pulleys 62, 66 which in turn are disposed about front and rear shafts 64, 68, respectively. Measured along the longitudinal axis 18 between the centerlines of the front and rear shafts 64, 68, the front and rear shafts 64, 68 are spaced a distance  $x$  from each other, as shown in FIG. 5. Accordingly, when positioning the running belt 16 about the front and rear running belt pulleys 62, 66, the length of the running belt 16 provided therebetween must be at least  $x$  (e.g., the straight-line distance therebetween). It follows that, when the profile of the running surface 70

is non-planar, the length of the running belt provided between the front and rear shafts 64, 68 will be greater than  $x$ .

**[0088]** In the exemplary embodiment shown in FIG. 5, when positioning the running belt 16 about the front and rear running belt pulleys 62, 66, a length of the running belt 16 sufficient to permit the running belt 16 to correspond to (e.g., follow, be positioned against or above, etc.) the desired contours of the bearing rails 200 and the front and rear running belt pulleys 62, 66 is generally disposed between the front and rear shafts 64, 68. At each location between the front and rear shafts 64, 68, the force of gravity pulls downward on the running belt 16. Generally, this force will help pull the running belt 16 downward and against the desired components of base 12. However, gravity can also cause slippage (e.g., over the front running belt pulley 62, over the rear running belt pulley 66, down along curves of the bearing rail 200, etc.) in an amount that is undesirable and the magnitude of these slippage-problems tends to increase when the treadmill 10 is being operated. Accordingly, the solution typically relies on more than the weight of the running belt alone.

**[0089]** Further referring to FIGS. 5–6 and 8–11, the preferred embodiment of the running belt 16 is shown including two reinforcing belts shown as endless belts 226 and a plurality of slats 228 according to an exemplary embodiment. The endless belts 226 are configured to provide support for the running belt 16 in order to support the weight of a user. The endless belts 226 are shown disposed on opposite sides of the running belt 16, generally interior to the outer, lateral edge of the slats 228. The endless belts 226 are themselves reinforced, and thus help stabilize the sides of the running belt and help prevent stretching of the running belt 16. For example, the endless belts may be reinforced with metal wiring, which is surrounded by a molded plastic coating. According to some exemplary embodiments, more or less than two endless belts may be used. According to other exemplary embodiments, other suitable support elements may be used to provide support for the running belt. Further details regarding the structure of the running belt and endless belt structure are seen in US Pat. No. 5,470,293, titled “Toothed-Belt, V-Belt, and Pulley Assembly, for Treadmills,” which is incorporated by reference herein.

**[0090]** The endless belts 226 are further configured to interact with the front running belt pulleys 62 and the rear running belt pulleys 66. The location of each endless belt 226 laterally, along the width of the running belt 16, substantially corresponds to the location of a longitudinally aligned front running belt pulley 62 and rear running belt pulley 66. Each endless belt 226 includes a first or inner portion 230 and a second or outer portion 232 at an interior surface 236 according to an exemplary embodiment. The inner portion 230 is in contact with an exterior surface 234 of the corresponding running belt pulleys 62, 66. According to some exemplary embodiments, the outer portion 232 is also in contact with the exterior surface 234 of the corresponding running belt pulleys 62, 66.

**[0091]** FIG. 12 illustrates a running belt and running belt pulley combination wherein the exterior surfaces 234 of the front running belt pulleys 62 are substantially smooth and are in contact with the interior surface 236 of the endless belts 226, which is also substantially smooth according to an exemplary embodiment. The outer portion 232 is shown substantially not in contact with the exterior surfaces 234 of the front running belt pulleys 62. The outer portion 232 is further shown including a plurality of teeth 238 (e.g., being toothed); however, according to other exemplary embodiments, the outer portion may be smooth or have any suitable texture and/or configuration. In this embodiment, both of the running belt pulleys come in contact with the inner, substantially smooth portion of the endless belts, and a toothed portion of the endless belts is disposed to the outside of the running belt pulleys on both sides.

**[0092]** FIG. 13 illustrates an alternative running belt and running belt pulley combination according to an exemplary embodiment. In this exemplary embodiment, the front running belt pulleys 62' include a first or inner portion 230' and a second or outer portion 232'. The inner portion 230' of the front running belt pulleys 62' is substantially smooth, while the outer portion 232' includes a plurality of teeth, to correspond to the inner and outer portions 230', 232', of the endless belts 226', respectively. In this embodiment, both of the running belt pulleys include an inner, smooth portion and an outer, toothed portion. These portions correspond to an inner, smooth portion of the endless belt and an outer, toothed portion of the endless belt. This endless belt/front running belt pulley configuration is discussed in more detail in U.S. Patent No. 5,470,293, titled "Toothed-Belt, V-Belt, and Pulley Assembly, for Treadmills," which is herein incorporated by reference in its entirety.

**[0093]** According to still another exemplary embodiment, a combination of the endless belt/front running belt pulley configurations shown in FIGS. 12 and 13 is used. In this exemplary embodiment, the smooth belt and pulley configuration shown in FIG. 12 is used for the front running belt pulleys and the combination of smooth and toothed belt and pulley configuration shown in FIG. 13 is used for the rear running belt pulleys. In another exemplary embodiment, the configuration shown in FIG. 13 is used for the front running belt pulleys and the configuration shown in FIG. 12 is used for the rear running belt pulleys.

**[0094]** The slats 228 of the running belt 16 are configured to help support a user of the treadmill 10. The slats 228 may be made of substantially any suitably sturdy material (e.g., wood, plastic, metal, etc.) and extend generally laterally between the endless belts 226. Each slat 228 is coupled at its ends 252, 254 to the second portions 232 of the endless belts 226 using fasteners. According to other exemplary embodiments, the slats may be otherwise coupled to the endless belts (e.g., adhered, welded, etc.) in the manner disclosed in US Pat. No. 5,470,293, titled "Toothed-Belt, V-Belt, and Pulley Assembly, for Treadmills," which is incorporated herein by reference. Each slat is shown to include a portion 229 (e.g., stem, web, etc.) extending inwardly from an interior surface 256 of the slat 228.

**[0095]** According to an exemplary embodiment, the running belt may be substantially any suitable, continuous loop element, including, but not limited to, a continuous urethane (e.g., polyurethane) loop, a continuous loop made of plastics other than polyurethane, a plastic belt reinforced with reinforcing elements (e.g., metal wire, a relatively harder plastic, wood, etc.), a continuous foam loop, a loop formed by a plurality of interconnected members (e.g., metallic members, wooden members, etc.) in a manner to provide at least some flexibility, etc.

**[0096]** Referring to FIGS. 6, 10 and 11, another aspect of the solution to ensuring the running belt 16 follows the desired contour involves the utilizing front running belt pulleys 62 that are slightly larger than the rear running belt pulleys 66. That is, the radius of the front running belt pulleys,  $R_f$ , is greater than the radius of the rear running belt pulleys,  $R_r$ . Assuming the front running belt pulleys 62 are rotating with the same rotational velocity (e.g., angular speed) as the rear running belt pulleys 66, the tangential velocity of the front running belt pulleys 62 is slightly greater than the tangential velocity of the rear running belt pulleys 66. Thus, as the

running belt 16 is driven, the portion of the running belt 16 disposed proximate the front end 20 of the treadmill 10 will be moved over the front running belt pulleys 62 and rearward with slightly greater speed than the rear running belt pulleys 66 move the portion of the running belt 16 proximate thereto. Thus, the front running belt pulleys 62 essentially “push” the running belt 16 rearward, creating a slight amount of excess running belt 16 in the area between the front running belt pulleys 62 and the rear running belt pulleys 66, which helps to counter the force of gravity which would attempt to gather any excess length of running belt 16 on the bottom of the treadmill 10 thereby causing the top surface of the running belt 16 to assume a position of the shortest distance between the two pulleys, namely, a substantially straight line between the two pulleys. Obviously the system cannot tolerate too much excess length of running belt feeding off the front running belt pulley 62 so periodically, a portion of this excess running belt 16 will slip over the rear running belt pulley 66. By specifically balancing the excess running belt 16 coming off the front running belt pulley 62 against the slippage allowed on the rear running belt pulley 66, the running belt 16 will follow the desired concave, convex or linear (or combinations thereof) contours of the running surface.

[0097] If the difference between the radius of the front running belt pulleys 62 and the radius of the rear running belt pulleys 66 is too large, the running belt 16 will begin to bunch up atop the base 12 as too much excess is generated. Accordingly, there is a practical limit of differences between the radius of each of the front running belt pulleys 62 and the radius of each of the rear running belt pulleys 66. Generally, this range may be dependent on the length of the running surface, as measured along the running belt, and/or the shape of the running surface. According to an exemplary embodiment, the size difference between the radii of the front and rear running belt pulleys,  $R_f - R_r$ , is within the range of approximately  $0 < R_f - R_r < 0.100$  inches. Preferably, the size difference between the radii of the front and rear running belt pulleys,  $R_f - R_r$ , is within the range of approximately  $0.005 < R_f - R_r < 0.035$  inches. In one embodiment, the radius of the front running belt pulleys is approximately  $7.00'' \pm 0.010''$  and the radius of the rear running belt pulleys is approximately  $6.985'' \pm 0.010$ . According to another exemplary embodiment, instead of using front and rear running belt pulleys having a radial size difference, the synchronizing belt pulleys may have a radial size difference. Similar to the differently sized front and rear running belt pulleys, the differently sized front and rear synchronizing pulleys would be used to essentially “push” the running belt rearward, creating a



slight amount of excess running belt 16 in the area between the front running belt pulleys and the rear running belt pulleys.

**[0098]** Another means for ensuring that the running belt 16 follows the desired complex curve is to match the rotational velocity of the front running belt pulleys 62 to that of the rear running belt pulleys 66 utilizing a synchronizing system 222. Further referring to FIGS. 5-6 and 8-11, the synchronizing system 222 is shown generally to comprise the front synchronizing belt pulley 202, the rear synchronizing belt pulley 204, and the synchronizing belt 206 according to an exemplary embodiment.

**[0099]** The front synchronizing belt pulley 202 is rotatably mounted relative to the front shaft 64, similar to the front running belt pulleys 62. Preferably, the front synchronizing belt pulley 202 is securely mounted directly to the front shaft 64. Similarly, the rear synchronizing belt pulley 204 is fixed relative to the rear shaft 68 and preferably securely mounted to the rear shaft 68. Accordingly, the front synchronizing belt pulley 202 will move with substantially the same rotational speed as the front running belt pulleys 62, and the rear synchronizing belt pulley 204 will move with the same rotational speed as the rear running belt pulleys 66. When the front shaft assembly 44 and the rear shaft assembly 46 are coupled to the frame 40, the front and rear synchronizing belt pulleys 202, 204 are shown disposed exterior to the outer surface 60 of the left-hand side member 52. According to another exemplary embodiment, the front and rear synchronizing belt pulleys may be placed exterior to the outer surface of the right-hand side member of the frame. According to other exemplary embodiments, the synchronizing system may be disposed substantially between the left-hand side member and the right-hand side member of the frame.

**[0100]** The synchronizing belt 206 is configured to provide a force that helps ensure that the front and rear shafts 64, 68 are rotating (e.g., moving, spinning, etc.) at the same rotational velocity. The synchronizing belt 206 is shown as an endless belt that is adapted to be supported in tension about the front synchronizing belt pulley 202 and the rear synchronizing belt pulley 204, as shown in FIGS. 4-5. As the running belt pulleys 62, 66 and the synchronizing belt pulleys 202, 204 are both substantially fixed relative to the front shaft 64 and the rear shaft 68, the rotation of the front shaft 64 and the rear shaft 68 causes the front synchronizing belt pulley

202 and the rear synchronizing belt pulley 204 to similarly rotate. In response to the motion of the front synchronizing belt pulley 202 and the rear synchronizing belt pulley 204, the synchronizing belt 206, which connects the front shaft assembly 44 and the rear shaft assembly 46, similarly rotates. Because of the tension in the synchronizing belt 206 and the fact that the synchronizing belt pulleys 202, 204 are the same size, the synchronizing belt 206 provides a counter force in response to any deviation in rotational velocity between the front shaft assembly 44 and the rear shaft assembly 46. For example, if the rear shaft assembly 46 was induced to start moving with greater rotational velocity than the front shaft assembly 44, the tension in the upper portion of the synchronizing belt (i.e., that portion of the synchronizing belt that extends generally between the tops of the synchronizing pulleys) would resist any differential rotation between the front and rear synchronizing belt pulleys 202, 204. Continuing with the example, any discrepancy between the rotational velocity of the front and rear shafts 64, 68 is similarly resisted by the engagement of the synchronizing belt 206. Thus, by constraining the relative motion of the front shaft assembly 44 and the rear shaft assembly 46, the synchronizing system 222 keeps their rotational velocity in sync, substantially preventing the front and rear running belt pulleys 62, 66 from becoming unsynchronized and moving at different rotational velocities.

**[0101]** So, in practice, the running belt 16 is initially installed on the front and rear running belt pulleys 62, 66 and the running belt 16 is manually positioned in the desired position so that a sufficient length of the running belt 16 is positioned along the top of the treadmill and the running belt 16 assumes the desired contour. While the running belt 16 is maintained in this position, the synchronizing belt 206 is mounted to the synchronizing belt pulleys 202, 204 and once the synchronizing belt 206 is installed, it effectively resists differential rotation of the running belt pulleys 62, 66 which could result in loss of the desired contour of the running belt 16.

**[0102]** It should be noted that the tension in the synchronizing belt 206 also helps maintain the position of the synchronizing belt 206 relative to the synchronizing belt pulleys 202, 204. The tension helps enhance friction between an interior surface 244 of the synchronizing belt 206 and exterior surfaces 246 of the synchronizing belt pulleys 202, 204, making it less likely that the synchronizing belt 206 will slip relative to the synchronizing belt pulleys 202, 204.

**[0103]** One or more tensioning assemblies 248 may be provided to adjust the tension in the synchronizing belt 206 (see e.g., FIGS. 3 and 6 illustrating tensioning assemblies 248). Tensioning assemblies 248 are configured to move portions of the synchronizing belt 206 relative to one another, stretching the synchronizing belt 206 and maintaining this stretch so that the synchronizing belt 206 can provide the necessary resistance to differential rotation of the front and rear running belt pulleys 62, 66. Alternatively, the tensioning assemblies 248 can be adjusted to release some of the tension in the synchronizing belt 206. Releasing some of the tension may be desirable if the synchronizing belt 206 is too tight, causing excess friction between the synchronizing belt 206 that makes it too difficult to rotate the front and rear shaft assemblies 44, 46 (e.g., greater than desired by the user, too great to function, etc.). The tensioning assemblies 248 are also used when the synchronizing belt 206 is being installed and removed. According to another exemplary embodiment, a single tensioning assembly is used in conjunction with one or more stationary idlers. According to still another exemplary embodiments, any devices or elements suitable for maintaining and/or adjusting the tension in the synchronizing belt may be used.

**[0104]** Referring to FIG. 14, a synchronizing system 300 is shown according to another exemplary embodiment. The synchronizing system 300 would typically be used in lieu of the previously described synchronizing system 222. In this next exemplary embodiment, the synchronizing system 300 is shown comprising a synchronizing shaft 302 mechanically connected at a first end 304 to a front gear 306 and at a second end 308 to a rear gear 310. The front gear 306 is interconnected with, and preferably directly mounted and fixed relative to, the front shaft 64, and the rear gear 310 is interconnected with, and preferably directly mounted and fixed relative to, the rear shaft 68. Accordingly, the front gear 306 will move with substantially the same rotational speed as the front running belt pulleys 62, and the rear gear 310 will move with the same rotational speed as the rear running belt pulleys 66. When the front shaft assembly 44 and the rear shaft assembly 46 are coupled to the frame 40, the front and rear gears 306, 310 are shown disposed exterior to the outer surface 60 of the right-hand side member 54. According to another exemplary embodiment, the front and rear gears 306, 310 may be placed exterior to the outer surface of the left-hand side member of the frame. According to other exemplary embodiments, the synchronizing system may be disposed substantially between the left-hand side member and the right-hand side member of the frame.

**[0105]** The synchronizing shaft 302 is configured to provide a force that helps ensure that the front and rear shafts 64, 68 are rotating (e.g., moving, spinning, etc.) at the same rotational velocity. The synchronizing shaft 302 is shown as an elongated, substantially cylindrical member that extends generally between the front shaft 64 and the rear shaft 68. A first threaded portion 312 including a plurality of threads 314 is shown located at the first end 304 of the synchronizing shaft 302 and is configured to mesh with a plurality of teeth 316 of the front gear 306 that is fixed relative to the front shaft 64. A second threaded portion 318 including a plurality of threads 320 is shown located at the second end 308 of the synchronizing shaft 302 and is configured to mesh with a plurality of teeth 322 of the rear gear 310 that is fixed relative to the rear shaft 68.

**[0106]** The synchronizing shaft 302 rotates in response to the motion of the front gear 306 and the rear gear 310. When the front shaft 64 and the rear shaft 68 rotate in response to the user driving the running belt 16, the front gear 306 and the rear gear 310, which are fixed relative to the front shaft 64 and the rear shaft 68, respectively, similarly rotate. The front gear 306 meshes with and imparts rotational motion to the first threaded portion 312, and, thereby, imparts rotational motion to the synchronizing shaft 302. The rear gear 310 meshes with and imparts rotational motion to the second threaded portion 318, and, thereby, imparts rotational motion to the synchronizing shaft 302.

**[0107]** Because the synchronizing shaft 302 is rigid and the front and rear gears 306, 310 are the same size, the synchronizing shaft 302 provides a counter force in response to any deviation in rotational velocity between the front shaft assembly 44 and the rear shaft assembly 46. For example, if the rear shaft assembly 46 was induced to start moving with greater rotational velocity than the front shaft assembly 44, the rear gear 310 would be prevented from moving with greater rotational velocity than the front gear 306 because of the synchronizing shaft 302. The second threaded portion 318 is meshed with the rear gear 310. The second threaded portion 318 is fixed relative to the first threaded portion 312. The first threaded portion 312 is meshed with the front gear 306, which is moving with less rotational velocity than the rear gear 310. The front gear 306, being fixed relative to the front shaft assembly 44 which is also traveling at the same rotational velocity, seeks to continue at this rotational velocity. Thus, the force transmitted to the front gear 306 from the rear gear 310 by the synchronizing shaft 302 is

met with a counter force. Specifically, the teeth 322 of the front gear 306 counter the force applied thereto by the threads 314 of the first threaded portion 312 at the first end 304. This counter force substantially prevents the rotational velocity of the synchronizing shaft 302, which includes the second threaded portion 318, from increasing. Stated otherwise, the force applied is sufficient to prevent the second end 308 of the synchronizing shaft 302 from rotationally advancing ahead of the first end 304. As the second threaded portion 318 is prevented from experiencing an increase in rotational velocity, the second threaded portion 318 provides a counter force to the rear gear 310. Specifically, the threads 320 of the second threaded portion 318 counter the force applied thereto by the teeth 322 of the rear gear 310. Thus, the synchronizing shaft 302 constrains the relative motion of the front gear 306 and rear gear 310, and, thereby constrains the relative motion of the front shaft assembly 44 and the rear shaft assembly 46.

**[0108]** Another embodiment of a running belt retention system used to induce and maintain the running belt in a desired non-planar shape to define the running surface is seen in FIG. 15, specifically a braking system 400 configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface is shown according to an exemplary embodiment. Please note, the section lines 15-15 shown in FIG. 4 do not necessarily suggest that the braking system 400 seen in FIG. 15 is integrated into the manual treadmill depicted in FIG. 4, rather, the section line 15-15 is included in FIG. 4 to show one potential location for the integration of a braking system into a manual treadmill according to the various innovations disclosed herein. The braking system 400 is shown in cooperation with the rear shaft assembly 402 and the synchronizing system 222. The rear shaft assembly 402 differs from the above-discussed rear shaft assembly 46 in that the rear shaft assembly 402 includes a pair of rear running belt pulleys 404 that are substantially the same size as the front running belt pulleys (not shown).

**[0109]** The braking system 400 has substantially the same effect as the differently sized front and rear running belt pulleys discussed above. That is, the braking system 400 causes a slight amount of excess running belt 16 in the area between the front running belt pulleys and the rear running belt pulleys. More specifically, the braking system 400 causes the rotational velocity of the rear shaft assembly 402 to be slightly lower than the rotational velocity of the front shaft

assembly by applying a frictional force to the rear synchronizing belt pulley 204. Thus, the braking system 400 acts on the synchronizing system 222 to force (e.g., urge, push, move, etc.) the rear shaft assembly 402 out of synch with the front shaft assembly.

**[0110]** The braking system 400 includes a generally elongated member 406 in cooperation with the synchronizing system 222. The elongated member 406 is coupled to the rear shaft assembly 402 by a bracket 408 having a first side 410 spaced a distance apart from an outer surface 250 of the rear synchronizing belt pulley 204. The elongated member 406 is disposed through an aperture 412 of the bracket 408 and includes a first end 414 disposed to the inside of the first side 410 and a second end 416 disposed to the outside of the first side 410. The first end 414 includes a surface 418 configured to contact the outer surface 250 of the rear synchronizing belt pulley 204. The second end 416 includes a knob 420 configured to be gripped by a person (e.g., a user, a trainer, etc.) and to have a rotational force imparted thereto. An exterior surface of the elongated member 406 is at least partially threaded to correspond to threading at an interior surface defining the aperture 412. Rotating the knob 420, and, thereby, the elongated member 406, in one direction, causes the surface 418 to be advanced toward the outer surface 250 of the rear synchronizing belt pulley 204, and rotating the knob 420 in the opposite direction causes the surface 418 to retreat or be moved away from the outer surface 250 of the rear synchronizing belt pulley 204.

**[0111]** During operation of the treadmill, the surface 418 of the elongated member 406 is substantially in contact with the outer surface 250 of the rear synchronizing belt pulley 204, creating friction therebetween. As the rear synchronizing belt pulley 204 of the synchronizing system 222 is fixed relative to the rear shaft assembly 402, some of the force directed to the rear shaft assembly 402 to impart rotation thereto must be used to overcome the frictional force between the surface 418 of the elongated member 406 and the outer surface of the rear synchronizing belt pulley 204. As the force needed to overcome the frictional force between the surface 418 of the elongated member 406 and the outer surface 250 of the rear synchronizing belt pulley 204 is no longer being directed into rotation of the rear shaft assembly 402, the rotational velocity of the rear shaft assembly 402 is less than the rotational velocity of the front shaft assembly. Thus, the front running belt pulleys of the front shaft assembly will “push” the running belt rearward, creating a slight amount of excess running belt

16 in the area between the front running belt pulleys and the rear running belt pulleys. This excess length of running belt 16 helps to counter the force of gravity, discussed in more detail above. It should be noted that, because the friction between the surface 418 of the elongated member 406 and the outer surface 250 of the rear synchronizing belt pulley 204 is substantially constant during operation, the rotational velocity will be substantially maintained at the lower rotational velocity.

**[0112]** The length of excess running belt “pushed” rearward by the front running belt pulleys can be varied by adjusting the position of the surface 418 relative to the outer surface 250 of the rear synchronizing belt pulley 204. If one moves the surface 418 laterally closer to the outer surface 250, the friction therebetween will increase, the differential between the rotational velocity of the rear shaft assembly and the front shaft assembly will increase, and the length of the excess will increase. If one moves the surface 418 away from the outer surface 250, the friction therebetween will decrease (or be removed if they are brought out of contact), the differential between the rotational velocity of the rear shaft assembly and the front shaft assembly will decrease, and the length of the excess will decrease.

**[0113]** According to another exemplary embodiment, the braking system 400 may be used with front and rear running belt pulleys that have a size differential. In such an embodiment, the braking system 400 would be used to fine tune the length of excess running belt pushed rearward with each rotation of the front and rear running belt pulleys.

**[0114]** FIG. 16 illustrates another exemplary embodiment of a braking system, shown as braking system 500, configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface. Please note, the section lines 16-16 shown in FIG. 4 do not necessarily suggest that the braking system 500 seen in FIG. 16 is integrated into the manual treadmill depicted in FIG. 4, rather, the section line 16-16 is included in FIG. 4 to show one potential location for the integration of a braking system into a manual treadmill according to the various innovations disclosed herein. The braking system 500 includes a pulley 502 mounted to a rear shaft assembly 504 generally opposite a front shaft assembly, both shaft assemblies having running belt pulleys that are substantially the same size. A belt 506 rotationally couples the pulley 502 to an idler pulley 508. The idler pulley 508 is configured to

be adjustable so that it may be moved towards or away from the pulley 502 along an axis generally parallel to the longitudinal axis 18. Though, it should be noted that the idler pulley may be moved relative to the pulley 502 mounted to the rear shaft assembly along an axis other than one generally parallel to the longitudinal axis 18.

**[0115]** By adjusting the position of the idler pulley 508 relative to the pulley 502, one can adjust the friction between the belt 506 and the pulleys 502, 508. Moving the idler pulley 508 away from the pulley 502, increases the tension in the belt 506, and, accordingly, increases the friction between the belt 506 and the pulleys 502, 508. Moving the idler pulley 508 toward the pulley 502, decreases the tension in the belt 506, and, accordingly, decreases the friction between the belt 506 and the pulleys 502, 508.

**[0116]** Similar to the discussion of braking system 400, increasing the friction between the belt 506 and the pulleys 502, 508, increases the differential between the rotation of the rear shaft assembly to which the braking system 500 is coupled and the front shaft assembly. As a corollary, decreasing the friction between the belt 506 and the pulleys 502, 508, decreases the differential between the rotational velocity of the rear shaft assembly 504 and the front shaft assembly. As discussed above, the greater the differential, the greater the length of the excess that the front running belt pulleys push rearward.

**[0117]** FIG. 17 illustrates another exemplary embodiment of a running belt retention system of the treadmill 10 used to help induce and maintain the running belt in a desired non-planar shape to define the running surface. The treadmill 10 is shown including a plurality of rollers 600 used to support the running belt 16 in place of bearing rails 200, discussed above.

**[0118]** The each roller 600 is shown extending laterally generally between the left-hand side member 52 and the right-hand side member 54 of the frame 40. Along the longitudinal axis 18, the rollers 600 are disposed adjacent to one another generally between one or more front running belt pulleys 604 and one or more rear running belt pulleys 606. Typically, the running belt used with this exemplary embodiment is a continuous polymer belt without slats; the use of a continuous polymer belt having greater flexibility in the lateral direction than running belt 16 improves the ease of movement of the running belt along the rollers 600. However, other suitable continuous belts may be used according to other exemplary embodiment



**[0119]** In the exemplary embodiment shown, the one or more front running belt pulleys is shown as a single, front running belt pulley 604 that is substantially a large roller, disposed at the front end 48 of the frame 40. Similarly, the one or more rear running belt pulleys is shown as a single, rear running belt pulley 606 that is a substantially a large roller, disposed at the rear portion of the frame 40. According to other exemplary embodiments, any multiple of running pulleys may be used at one or both of the front end and the rear end, such as front running belt pulleys 62.

**[0120]** Collectively, the rollers 600 define a top profile 608 similar to the top profile 210 defined by the bearing rails 200, discussed above, and provide for a running belt to move therealong. Similar to the top profile of the bearing rails, the top profile 608 defined by the rollers may be varied (e.g., may include a convex portion and a concave portion, may be modeled by a third-order polynomial, may be modeled by a fourth-order polynomial, etc.).

**[0121]** The front and rear running belt pulleys 604, 606 and the rollers 600 help define the running surface. In use, the running belt is disposed over the front running belt pulley 604, along the top profile 602 defined by the rollers 600, and over the rear running belt pulley 606. The running belt is maintained in a position substantially along these elements primarily by the weight of the running belt; however, according to other exemplary embodiments, a synchronizing system may also be used to ensure that the running belt is maintained in the desired position.

**[0122]** Referring to FIGS. 18-21, an embodiment of a running belt retention system including a track system 700 and configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface according to an exemplary embodiment.

**[0123]** A treadmill according to this exemplary embodiment does not include front and rear shaft assemblies or bearing rails, but, rather, includes a pair of opposed tracks 702 configured to provide for movement of a running belt 16 therealong. The tracks 702 are spaced apart, generally define the path that the running belt 16 will travel, and substantially replicate at least a portion of the running surface. Each track 702 includes a side support wall 708 and a guide portion 710 generally centrally-disposed along the side support wall 708. The guide portion 710 extends from an inner side 712 of the side support wall 708 towards the interior of the

treadmill frame, defined generally between the left-hand side member and the right-hand side member. The guide portion 710 generally defines the contour of the running surface that is defined by the running belt 16 when coupled to the tracks 702. An outer side 714 each side support wall 708 is disposed substantially adjacent to an inner surface of one of the side members of the treadmill frame.

**[0124]** A plurality of roller or wheel assemblies 716 are connected with, preferably mounted directly to or integral with, each of a plurality of slats 228 of the running belt 16. Each a laterally-oriented slat 228 includes a left-hand end 252 generally opposite a right-hand end 254. One of a plurality of wheel assemblies 716 is coupled at each end 252, 254 of each slat 228 at an interior surface 256. The wheel assemblies 716 are configured to be mated with the tracks 702 and provide for motion of the running belt 16 along the tracks 702.

**[0125]** Each wheel assembly 716 is shown including first roller or wheel 720 and a second roller or wheel 722 rotatably coupled to a support shown as an elongated connecting member 724. The connecting member 724 connects each wheel assembly 716 to a slat 228 and maintains the relative position of the first wheel 720 and the second wheel 722. When coupled to the track 702, the first wheel 720 of a wheel assembly 716 is disposed to one side the guide portion 710 and rotatably movable therealong, and the second wheel 722 of the wheel assembly 716 is disposed generally opposite the first wheel 720 to the other side of the central guide portion 710.

**[0126]** The wheels 720, 722 and the tracks 702 are shaped such that when they are mated, the wheels 720, 722 cannot be pulled inwardly off of or pushed outwardly off of the track 702. In the exemplary embodiment shown, the guide portion 710 is shown having a substantially-circular cross section 724 and the wheels 720, 722 are shown having circumferentially-disposed arcuate depressions 726 that receive and travel along an outer curved portion 728 and an inner curved portion 730 of the guide portion 710 of the track 702. According to other exemplary embodiments, the wheels and the track guide portion can have substantially any corresponding shapes that provide for the wheels and the track to mate and that provide for movement of the wheels therealong.

**[0127]** When the running belt 16 is being driven by a user, the interaction of the guide portion 710 and the first and second wheels 720, 722 helps maintain the belt in the desired non-planar shape. As mentioned above, the tracks 702 generally defines the contour of the running surface defined by the running belt 16. Being coupled to the guide portion 710 of the track 702, each wheel assembly 716 rotates about the track 702, following the contour defined thereby.

**[0128]** If the running belt 16 began to deviate from the desired path, the interaction between the wheels 720, 722 and the guide portion 710 would substantially prevent undesirable shifting. While being rotatably coupled to the elongated connecting member 724, the axes 732 and 734 of the first wheel 720 and second wheel 722, respectively, are a fixed distance apart. Further, the arcuate depressions 726 of the wheels 720, 722 are in contact with the outer curved portion 728 and inner curved portion 730, respectively. Thus, as a result the interactions between the arcuate depressions 726 and the curved portions 728, 730, any movement of a wheel assembly 716 relative to the track 702 other than along the path defined by the track 702 is countered by a force from the guide portion 710. It should also be noted that the interactions between the depressions 726 of adjacent wheel assemblies 716 and the curved portions 728, 730 of the track 702 may also help keep a wheel assembly 716 in place.

**[0129]** Referring to FIGS. 22-24, the treadmill 10 is shown including another exemplary embodiment of a track system configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface, shown as a track system 800. Similar to track system 700, a treadmill according to this exemplary embodiment does not include front and rear shaft assemblies or bearing rails, but, rather, includes a pair of tracks 802 configured to provide for movement of a running belt 16 therealong. In this exemplary embodiment, each track 802 is shown as an elongated member having a substantially C-shaped cross section that defines a channel 804 having an opening 806 that faces the interior of the frame 40. An outer wall 808 each of the tracks 802 is disposed substantially adjacent to an inner surface of a left-hand or right-hand side member 52, 54 (shown, e.g., in FIG. 2) such that the openings 806 face each other. The outer wall 808 is substantially opposite an inner wall 810

**[0130]** As discussed above, the running belt 16 includes a plurality of laterally-oriented slats 228 each having a left-hand end 252 generally opposite a right-hand end 254. One of a

plurality of roller or wheel assemblies 812 is coupled at each end 252, 254 of each slat 228 to mate with the tracks 802 and to provide for motion of the running belt 16 along the tracks 802.

**[0131]** Each wheel assembly 812 is shown including a support shown as a mounting block 814 and a wheel 816 rotatably coupled to the mounting block 814. The mounting block 814 mounted to an interior surface 256 of a slat 228. The wheel 816 is supported relative to the mounting block 814 by an axis 818 that extends substantially parallel to the slats 228 to facilitate positioning the wheel 816 in the channel 804. The wheel 816 is received in the channel 804 and is rotatably movable therewithin to facilitate travel of the running belt 16 along the contour defined by the channel 804. The shape of the channel 804 generally corresponds to the shape of the wheel 816.

**[0132]** When the running belt 16 is being driven by a user, the walls of the track 802 defining the C-shaped channel 804 help forcibly retain the wheel 816 therein, preventing the wheel from moving in any direction other than along the contour defined by the channel 804, and, thereby, maintaining the running belt 16 in the desired non-planar shape to define the running surface. The outer wall 808 and the inner wall 810 limit the side-to-side, lateral movement of the wheel 816 when it is disposed in the channel 804. Limiting the motion of the wheel 816, similarly limits the motion of the wheel assembly 812 and the slat 228 fixed relative thereto. Further, a first wall 820 substantially opposite a second wall 822 substantially limits the up-and-down motion of the wheel 816 relative to the channel 804. In circumstances where side-to-side and/or up-and-down motion of the wheel 816 occurs, the walls 808, 810, 820, 822 defining the channel 804, providing counter forces to maintain the wheel 816 in the desired position and help direct the wheel 816 along the desired path.

**[0133]** Referring to FIGS. 25-28, the treadmill 10 is shown including still another exemplary embodiment of a track system configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface, shown as a track system 900. Similar to track system 800, the treadmill according to this exemplary embodiment does not include bearing rails, but, rather, includes a pair of tracks 902 configured to provide for movement of a running belt 16 therealong. In this exemplary embodiment, each track 902 is shown as an elongated member having a substantially C-shaped cross section that defines a channel 904

having an opening 906 that faces the exterior of the track 902. Stated otherwise, each channels 904 extend about an outer periphery 908 of a tracks 902.

**[0134]** As discussed above, the running belt 16 includes a plurality of laterally-oriented slats 228 each having a left-hand end 252 generally opposite a right-hand end 254. One of a plurality of roller or wheel assemblies 910 is coupled at each end 252, 254 of each slat 228 to mate with the tracks 902 and to provide for motion of the running belt 16 along the tracks 902.

**[0135]** Each wheel assembly 910 is shown including a support shown as a connecting bar 912 that is substantially T-shaped and connected to a first wheel 914 and a second wheel 916. A first portion 918 of the connecting bar 912 is fixed relative to the interior surface 256 of a slat 228. A second portion 920 extends substantially perpendicular to the first portion 918 and away from the interior surface 256 of the slat 228. The first wheel 914 and the second wheel 916 are connected to the connecting bar 912 by an axis 922 that extends generally parallel to the first portion 918 and perpendicular to the second portion 920 of the connecting bar 912. The first wheel 914 is disposed to one side of the second portion 920 of the connecting bar 912 and the second wheel 916 is disposed opposite the first wheel 914 to the other side of the second portion 920.

**[0136]** When the wheel assemblies 910 are mated with the tracks 902, the second portion of the connecting bar 912 extends partially into the channel 904, the first wheel 914 is received within a first portion 924 of the channel 904 and the second wheel 916 is disposed within a second portion 926 of the channel 904. The first portion 924 of each channel 904 is disposed proximate to an outer surface 928 of the track 902 relative to the second portion 926.

**[0137]** When the running belt 16 is being driven by a user, the first wheel 914 and the second wheel 916 of a given wheel assembly rotate within the channel 904, facilitating motion of the running belt 16 in the path defined by the track 902. As the running belt 16 is rotated, the slats 228 are disposed generally exterior to the periphery 908 of the track 902. The walls of the track 902 defining the channel 904 help forcibly retain the wheels 914, 916. An outer wall 930 and an inner wall 932 limit the side-to side movement of the wheels 914, 916, either by coming into contact with the wheels 914, 916 themselves or by coming into contact with another part of the wheel assembly 910 (e.g., the connecting bar 912). Limiting the motion of the wheels 914,

916 and the wheel assembly 910 similarly limits the motion of the slat fixed relative thereto, helping each slat, and, thereby, the running belt 16 to follow the desired path. Further, a first wall 934 substantially opposite a second wall 936 substantially limits the up-and-down motion of the wheels 914, 916 relative to the channel 904. In circumstances where side-to-side and/or up-and-down motion of the wheel 916 occurs, the walls 930, 932, 934, 936 defining the channel 904, providing counter forces to maintain the wheels 914, 916 in the desired position and help direct the wheels 914, 916 along the desired path.

**[0138]** Referring to FIGS. 29-30, the treadmill 10 is shown including another exemplary embodiment of a track system configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface, shown as a track system 1000.

**[0139]** Instead of using wheel assemblies, such as 716 and 910, discussed above, the treadmill according to this exemplary embodiment utilizes a plurality of magnets 1002 to maintain the running belt 16 in the desired position. One or more magnets 1002 are fixed relative to the interior surface 256 of the slats 228 at locations substantially corresponding to the position of a track 1004, which is typically along the left-hand end 252 and the right-hand end 254 of the slats 228. The magnets 1002 may be coupled by any variety of fasteners or fastening mechanisms. Generally, it is preferable that, when the magnets 1002 are fixed relative to the slats, the fasteners do not directly contact the periphery 1006 of the tracks 1004 to avoid scratching and damage thereto. While it is generally desirable to mount a magnet 1002 to each slat, 228, the number of magnets used will vary depending upon a variety of factors such as the relative weight of the belt and the relative magnetic strength of each magnet.

**[0140]** The magnets 1002 are configured to magnetically couple the running belt 16 to the track 1004, which is made of metal (e.g., steel) or includes a peripheral metal portion. The magnets 1002 have strength suitable to maintain the running belt 16 in close proximity to a periphery 1006 of the tracks 1004.

**[0141]** When the treadmill is driven by a user, the force imparted to the running belt 16 is sufficient to permit the magnets to move relative bearing rails, but not to lose the magnetic connection therebetween. According to one exemplary embodiment, as the running belt 16 moves relative to the track 1004, the magnets 1002 are generally spaced a small distance from

the periphery 1006 of the track 1004, helping to further reduce the noise associated with operation of the treadmill. According to other exemplary embodiments, the magnets 1002 are in physical contact with the periphery 1006 of the track 1004 in addition to being magnetically coupled thereto.

**[0142]** According to an exemplary embodiment similar to track system 1000, a plurality of magnets may be positioned on the frame, track, or other fixed component of the treadmill base to apply a downwardly-directed force to the metal slats of the running belt as it passes over the magnets. For example, the magnets may be positioned on the cross-members 56. As the running belt rotates, the portion passing above the magnets will be drawn downward by the force of the magnets, helping maintain that portion of the running belt (i.e., defining the running surface) in the desired shape.

**[0143]** Referring to FIGS. 31-34, the treadmill 10 is shown including another exemplary embodiment of a track system configured to help induce and maintain the running belt in a desired non-planar shape to define the running surface, shown as a track system 1100.

**[0144]** The track system 1100 is substantially similar to track system 700, but configured to be operable with a running belt 1102 that is a conventional running belt rather than a slatted running belt 16. The track system 1100 includes a pair of tracks 702 and a wheel assemblies 1104 having substantially the same configuration as wheel assembly 716 with the exception that a securing device shown as a clip 1106 is used to connect the wheel assembly 1104 to the running belt 1102, rather than the elongated connecting member 724. The clip 1106 is shown extending and having a first portion 1108 and a second portion 1110 that opening towards the interior of the treadmill 10 before being secured. When the running belt 1102 shown as a continuous polymer (e.g., urethane) belt is in position, a first edge 1112 of the running belt 1102 is received between a first portion 1108 and a second portion 1110 of the clip 1106 and fixed relative thereto (e.g., by a fastener, etc.). The polymer belt is a urethane belt according to an exemplary embodiment. The urethane belt is desirable heavy enough to help assume the shape of the rollers, but not so thick or heavy that it undesirably impedes movement. The clips extend along the first edge 1112 and the second edge 1114 of the running belt 1102, substantially suspending the belt between the tracks 702. According to an exemplary

embodiment, the securing device may be any securing device suitable for securing an edge portion of the running belt 1102 relative thereto (e.g., a bolt, a clamp, etc.).

**[0145]** According to still another exemplary embodiment, a treadmill has a track system including a pair of tracks and wheel assemblies. The wheel assemblies include hangers (e.g., magnetic hangers) that are received in channels that are interior to the track, the hangers being slidably movable within the channels. According to one exemplary embodiment, the hangers are substantially I-shaped, having one transverse portion received in the channel and the other transverse portion fixed to an interior side of a slat. According to some exemplary embodiments, the system further includes bearing rails that facilitate motion of the running belt itself and the hangers within the track. The hangers and the channel of the track may have any configuration suitable for facilitating movement of the running belt and maintaining the running belt in the desired non-planar shape.

**[0146]** The above-described ways of inducing and maintaining the running belt in the desired non-planar shape can also be used with or adapted to a manual treadmill having a planar running surface, such as treadmill 1200 having planar running surface 1202 shown in FIG. 35. The treadmill 1200 is shown substantially similar to treadmill 10, but the running surface is substantially planar. Accordingly, the ability to manually drive the treadmill is substantially dependent on the incline of the running surface 1202 relative to the ground. Ways to adjust this incline for any treadmill disclosed herein will be discussed in more detail later.

**[0147]** In the exemplary embodiment shown, the running surface 1202 is defined by a running belt 1204 that is disposed about front and rear running belt pulleys of a front and rear shaft assembly, respectively. The running belt 1204 also travels along a pair of bearing rails having a substantially linear top profile that facilitate motion of the running belt 1204.

**[0148]** As discussed above, the speed controls for the manual treadmill 10 and the various embodiments thereof are generally the user's cadence and relative position of her weight-bearing foot on the running surface. More generally, the running belt 16 of the treadmill 10 is responsive to the weight of the user mounting, dismounting, or running on the treadmill 10. While it is generally desirable for the running belt 16 to be moved rearward, the running belt is capable of rotating forward. Forward rotation of the running belt can create safety concerns.



For example, if a user were to mount the treadmill by placing her weight bearing foot at a location (e.g., location D shown in FIG. 5) along the rear portion 74 of the running surface 70, the running belt 16 may move forward and cause them to lose their footing, resulting in an injury or simply an unpleasant user experience.

**[0149]** A number of safety devices may be used with the treadmill 10 to help prevent undesirable forward rotation of the running belt 16. FIG. 36 illustrates a safety device shown as a one-way bearing assembly 1300 according to an exemplary embodiment. The one-way bearing assembly 1300 is a motion restricting element that is configured to permit rotation of at least one of the front and rear shaft assemblies 44, 46 (and hence the running belt 16) in only one direction, preferably clockwise as seen in FIGS 1 and 5.

**[0150]** In the exemplary embodiment shown, the one way bearing assembly 1300 is disposed about and cooperates with the rear shaft 68 as shown in FIG. 2. The one-way bearing assembly 1300 comprises a housing 1302 which supports an inner ring 1304 that cooperates with the rear shaft 68 and supports an outer ring 1306 fixed relative to the housing 1302. A plurality of sprags (not shown) are disposed between the inner ring 1304 and the outer ring 1306. The sprags are asymmetric, and, thus, provide for motion in one direction and prevent rotation in the opposite direction. The housing 1302 is fixed to a bracket 1310 that is connected to, and preferably directly mounted to, the frame 40 to fix the location of the housing 1302 and prevent movement of the housing 1302 in response to the rotation of the rear shaft 68. It should be noted that the location at which the bracket 1310 is mounted to the frame 40 can be adjusted depending on the location of the rear shaft 68, which may change depending on the shape of the non-planar running surface or the desired tension in the running belt. According to another exemplary embodiment, the one-way bearing may be transitionally fit into the housing, rather than press fit. According to yet another exemplary embodiment, the one-way bearing may include rollers in addition to sprags.

**[0151]** The one-way bearing assembly 1300 further includes a key 1312 that is fixed relative to the inner ring 1304 and configured to cooperate with a keyway 1314 formed in the rear shaft 68. Viewed from the perspective shown in FIGS. 1 and 5, when the running belt 16 is moving rearward, rotating in the clockwise direction, the rear shaft 68 similarly rotates in the clockwise

direction. The inner ring 1304 of the one-way bearing assembly 1300 rotates with rotational velocity corresponding to the rotational velocity of the rear shaft 68 because of the interaction between the key 1312 and the keyway 1314. If a force is applied by the user to the running belt 16 that urges the rear shaft 68 to rotate counterclockwise, the one-way bearing assembly 1300 provides a counter force, preventing the counterclockwise rotation of the rear shaft 68 and the forward rotation of the running belt 16. Specifically, as the rear shaft 68 begins to move counterclockwise, the interaction of the key 1312 and the keyway 1314 begins to drive the inner ring 1304 of the one-way bearing assembly 1300 rearward. The sprags become wedged between the inner ring 1304 and the outer ring 1306, preventing the counterclockwise rotation of the inner ring and key 1312 disposed therein. The key 1312, by virtue of its inability to rotate, provides a counterforce to the keyway 1314 as the keyway continues to attempt to rotate counterclockwise. By preventing the keyway 1314 from moving counterclockwise, the one-way bearing assembly 1300 thus prevents the rear shaft 68, the rear running belt pulleys 66, and running belt 16 from rotating counterclockwise as seen in FIGS 1 and 5.

**[0152]** FIG. 38 illustrates another safety device that may be used with the treadmill 10, shown as a one-way bearing assembly 1500 according to an exemplary embodiment. The one-way bearing assembly 1500 is a motion restricting element that is configured to permit rotation of at least one of the front and rear shaft assemblies 44, 46 (and hence the running belt 16) in only one direction, preferably clockwise as seen in FIGS 1 and 5.

**[0153]** In the exemplary embodiment shown, the one-way bearing assembly 1500 is disposed about and cooperates with the rear shaft 68. The one-way bearing assembly 1500 comprises a housing 1502 which supports an inner ring 1504 that cooperates with the rear shaft 68 and supports an outer ring 1506 fixed relative to the housing 1502. A plurality of sprags (not shown) are disposed between the inner ring 1504 and the outer ring 1506. The sprags are asymmetric, and, thus, provide for motion in one direction and prevent rotation in the opposite direction. The one-way bearing assembly 1500 is further shown to include a first snap ring 1532 and a second snap ring 1534, which are configured to seat in a first circumferential groove 1536 and a second circumferential groove 1538 on the rear shaft 68, respectively. When installed, the first snap ring 1532 is supported inboard of and adjacent to the inner ring 1504, and the second snap ring 1534 is supported outboard of and adjacent to the inner ring

1504, thereby further restricting axial motion of the one-way bearing assembly 1500 relative to the rear shaft 68.

**[0154]** The housing 1502 is supported by a stud 1520 which is coupled to the frame 40. The stud 1520 may be separated or spaced apart from the housing 1502 by a spacer 1522 and a sleeve 1523 which may be restrained on the stud 1520 by a nut 1524 and a washer 1526. The sleeve 1523 of the embodiment shown is formed of rubber and is configured to reduce noise, wear, and shock load between the housing 1502 and the stud 1520 and/or the spacer 1522. The housing 1502 includes a plurality of legs, shown as a first leg 1516 and a second leg 1518, which extend on either side of the stud 1520. Accordingly, the stud 1520 resists rotational motion of the housing 1502 in response to rotation of the rear shaft 68 and may provide sufficient reactive or counter force to the housing 1502 to enable the one-way bearing assembly 1500 to prevent counterclockwise rotation of the rear shaft 68. Supporting the one-way bearing assembly 1500 in this manner negates the need for fixing the housing 1502 to the frame 40 or an intermediary bracket. Accordingly, the housing 1502 may move with the rear shaft 68 (e.g., the housing 1502 may pivot about the stud 1520) as the rear shaft 68 flexes under load, thereby reducing side loading on the inner ring 1504, which in turn reduces wear on, and extends the life of, the one-way bearing assembly 1500.

**[0155]** It should be noted that the location at which the stud 1520 is mounted to the frame 40 can be adjusted depending on the location of the rear shaft 68, which may change depending on the shape of the non-planar running surface or the desired tension in the running belt. Furthermore, the stud 1520 need not be positioned below or downward from the rear shaft 68, as shown, but may be located in any direction relative to the rear shaft 68. According to another exemplary embodiment, the one-way bearing may be transitionally fit into the housing, rather than press fit. According to yet another exemplary embodiment, the one-way bearing may include rollers in addition to sprags.

**[0156]** The one-way bearing assembly 1500 further includes a key 1512 that is fixed relative to the inner ring 1504 and configured to cooperate with a keyway 1514 formed in the rear shaft 68. Viewed from the perspective shown in FIGS. 1 and 5, when the running belt 16 is moving rearward, rotating in the clockwise direction, the rear shaft 68 similarly rotates in the clockwise

direction. The inner ring 1504 of the one-way bearing assembly 1500 rotates with rotational velocity corresponding to the rotational velocity of the rear shaft 68 because of the interaction between the key 1512 and the keyway 1514. If a force is applied by the user to the running belt 16 that urges the rear shaft 68 to rotate counterclockwise as seen in FIGS. 1 and 5, the one-way bearing assembly 1500 provides a counter force, preventing the counterclockwise rotation of the rear shaft 68 and the forward rotation of the running belt 16. Specifically, as the rear shaft 68 begins to move counterclockwise, the interaction of the key 1512 and the keyway 1514 begins to drive the inner ring 1504 of the one-way bearing assembly 1500 rearward. The sprags become wedged between the inner ring 1504 and the outer ring 1506, preventing the counterclockwise rotation of the inner ring and key 1512 disposed therein. The key 1512, by virtue of its inability to rotate, provides a counterforce to the keyway 1514 as the keyway continues to attempt to rotate counterclockwise. By preventing the keyway 1514 from moving counterclockwise, the one-way bearing assembly 1500 thus prevents the rear shaft 68, the rear running belt pulleys 66, and running belt 16 from rotating counterclockwise as seen in FIGS 1 and 5.

**[0157]** Other safety devices to help prevent undesirable forward rotation of the running belt 16 may include cam locking systems, which may be particularly well-suited for use in conjunction with track systems 700, 800, and 900. Also, taper locks, a user operated pin system, or a band brake system with a lever may be utilized.

**[0158]** Controlling the operation of the running belt 16 in ways in addition to preventing rearward rotation, can help improve the safety of the treadmill and/or help a user adjust the treadmill for a desirable level of performance. Including an incline or elevation adjustment system is one way to provide these benefits. As mentioned above, as the increasing or decreasing of the relative height or distance of the running surface relative to the ground is one way that the operation, most typically the speed, of the treadmill can be adjusted. Accordingly, adjusting the incline of the base of the treadmill results in an adjustment to the speeds a user can achieve and/or how easy or challenging it is for the user to achieve certain speeds.

**[0159]** Referring back to FIGS. 1-6, a plurality of nuts 270 are fixed, and more preferably welded, to the bottom of the frame 40 allow the feet 28 to be adjusted. The feet 38 include a

lower or base portion 272 and a threaded shaft 274 extending vertically upward from the base portion 272 according to an exemplary embodiment. Generally, by increasing the distance between the nuts 270 and the base portions 272 of the feet 28 at the front end 48 of the frame 40 relative to the rear end 50, the incline of the base 12 will increase. Stated otherwise, the angle between the longitudinal axis 18 and the ground will increase. Similarly, the distance between the nuts 270 and the base portions 272 of the feet at the rear end 50 may be decreased relative to the feet 28 at the front end 48, thereby increasing the incline. By increasing the incline, a user is typically able to achieve greater speeds on the treadmill 10.

**[0160]** Treadmill 1200 shown in FIG. 35 preferably has at least some incline (i.e., the longitudinal axis of the treadmill to be other than parallel to the ground) when in operation as the shape of the running surface, substantially planar, does not provide for increases and decreases in height in and of itself. On the other hand, the longitudinal axes of the treadmills having non-planar running surfaces may be parallel to the ground or at an incline thereto during operation. It should be noted that, while it is generally desirable to have the front shaft at a height at or above the height of the rear shaft, with some running surface configurations, desirable orientations can be achieved by raising the rear shaft to a location above the front shaft relative to the ground.

**[0161]** In some cases, the user may want to decrease the incline of the treadmill (e.g., to decrease the speeds the treadmill can achieve, etc.). For example, the user may want to utilize a relatively long stride, but does not want to be running at such high speeds. This can be accomplished by lowering the incline of the treadmill from the higher incline position. Once in the lowered position, the same stride the user was using at the higher incline position will typically result in the user running at lower speeds in the lower incline position. This same principle can also be applied for the purposes of safety. That is, keeping the front of the treadmill at a lower incline position or lowering the treadmill to a lower incline position can help prevent a user from achieving speeds that are too great for them (e.g., that would cause them to be off-balance, lose control, be injured, etc.).

**[0162]** Because the treadmill is preferably manually operated, it does not have an external power source which can be utilized to operate a height adjusting motor as is found in

conventional treadmills. Therefore, a manual height adjusting system is preferably integrated into the treadmill. Referring to FIG. 37, an example of a manual incline or elevation adjustment system 1400 is shown according to an exemplary embodiment. A hand crank 1402 configured to be operated by a person, such as the user, is provided allow a user to operate the incline adjustment system 1400 to adjust the incline of the base 12 of the treadmill 10 relative to the ground. The front shaft 64 may be lowered relative to the rear shaft 68 and/or the front shaft 64 may be raised relative to the rear shaft 68 using the hand crank 1402. In an alternative exemplary embodiment, the front shaft may be maintained at a position above the ground, and the rear shaft may be raised or lowered relative thereto adjust the incline.

**[0163]** Generally, the hand crank 1402 includes a handle portion 1404 disposed parallel to and spaced a distance from a shaft 1406 that is coupled to the frame 40 (e.g., with a bracket). When assembled, a drive belt or chain 1407 is disposed about a gear 1408 that is positioned about the shaft 1406 of the hand crank 1402. Rotational motion can be imparted to the gear 1408 by rotating the handle portion 1404. In response to rotation of the gear 1408, the drive belt 1407 causes a sprocket 1410 is fixed relative to an internal connecting shaft 1412 of the internal connecting shaft assembly 1414 to rotate. The internal connecting shaft assembly 1414 further includes a pair of drive belts or chains 1416 that are operably coupled to gears 1418 of rack and pinion blocks 1420. The rotation of the internal connecting shaft 1412 causes the drive belts or chains 1416 to rotate gears 1418. As the gears 1418 rotate, a pinion (not shown) disposed within the rack and pinion blocks 1420 imparts linear motion to the racks 1422, thereby operably raising or lowering the base 12 of the treadmill 10 depending on the direction of rotation of the handle portion 1404 of the hand crank 1402.

**[0164]** According to another exemplary embodiment, an incline adjustment system that is a gas assisted un-weighting incline adjustment system may be utilized. According to other exemplary embodiments, any suitable linear actuator may serve as an incline adjustment system for the manual treadmill disclosed herein.

**[0165]** According to an exemplary embodiments, the incline of one or more portions of the running surface may be adjusted independent of adjusting the incline of the base. For example, one or more portions of a bearing rail may be configured to be movable relative to one or more

other portion of the bearing rail. In one exemplary embodiment, a bearing rail is divided into a first portion and a second portion movable relative to each of the about a pivot point disposed therebetween. A person (e.g., a user, trainer, technician, etc.) can adjust the operational characteristics of the treadmill (similar to the discussion of using running surfaces having different curved profiles above) by merely adjusting the relative position of the bearing rail portions. If the user wants to achieve greater speeds, they may increase the incline of the front portion, while leaving the center and rear portions unchanged. If the user would like to alter the configuration of the treadmill to more strongly encourage running on the balls of their feet, they might increase the incline of the front and rear portions from a higher radius of curvature so that they collectively define a lower radius of curvature. Adjustments to the position of the bearing rails may be imparted using a crank, or other suitable device.

**[0166]** It is further contemplated that, because the treadmill 10 does not require an electric motor for operation, it is well suited for operation in an aquatic environment. For example, the treadmill 10 may be at least partially submerged in a pool, thereby providing added resistance due to hydrodynamic drag on a user and/or reducing footfall impact due to the buoyancy of the user. Accordingly, a submerged embodiment of the treadmill 10 may be used for training and/or rehabilitation purposes. Modifications may be made to the treadmill 10 for use in an aquatic environment. For example, the treadmill 10 may include sealed bearings and components formed of corrosion-resistant materials (e.g., plastic, composite, stainless steel, brass, etc.) to extend its useful life. Further, the shape of the running surface 70 may also be modified to compensate for the buoyancy of the user in water and to compensate for the effects of salinity on buoyancy. For example, it is contemplated that the shape of the running surface 70 may be different for a treadmill 10 used in a freshwater environment and a highly saline environment.

**[0167]** A number of other devices, both mechanical and electrical, may be used in conjunction with or cooperate with a treadmill according to this disclosure. FIG. 1, for example, shows a display 280 adapted to calculate and display performance data relating to operation of the treadmill according to an exemplary embodiment. The display 280 includes an independent power source (e.g., a battery) that provides for the display 280 to be electrically-operative. The feedback and data performance analysis from the display may include, but are

not limited to, speed, time, distance, calories burned, heart rate, etc. For example, a the display may include a sensor that is responsive to the position of a magnet on one of the running belt pulleys. The sensor is configured to recognize every time the magnet rotates past (e.g., moves past, crosses, etc.) a certain location. With this data, the display may calculate the speed at which the user is running and then provide this data to them via a user interface. According to other exemplary embodiments, other displays, cup holders, cargo nets, heart rate grips, arm exercisers, TV mounting devices, user worktops, and/or other devices may be incorporated into the treadmill.

**[0168]** As utilized herein, the terms “approximately,” “about,” “substantially,” and similar terms are intended to have a broad meaning in harmony with the common and accepted usage by those of ordinary skill in the art to which the subject matter of this disclosure pertains. It should be understood by those of skill in the art who review this disclosure that these terms are intended to allow a description of certain features described and claimed without restricting the scope of these features to the precise numerical ranges provided. Accordingly, these terms should be interpreted as indicating that insubstantial or inconsequential modifications or alterations of the subject matter described and are considered to be within the scope of the disclosure.

**[0169]** It should be noted that the term “exemplary” as used herein to describe various embodiments is intended to indicate that such embodiments are possible examples, representations, and/or illustrations of possible embodiments (and such term is not intended to connote that such embodiments are necessarily extraordinary or superlative examples).

**[0170]** For the purpose of this disclosure, the term “coupled” means the joining of two members directly or indirectly to one another. Such joining may be stationary or moveable in nature. Such joining may be achieved with the two members or the two members and any additional intermediate members being integrally formed as a single unitary body with one another or with the two members or the two members and any additional intermediate members being attached to one another. Such joining may be permanent in nature or may be removable or releasable in nature.



**[0171]** It should be noted that the orientation of various elements may differ according to other exemplary embodiments, and that such variations are intended to be encompassed by the present disclosure.

**[0172]** It is important to note that the constructions and arrangements of the manual treadmill as shown in the various exemplary embodiments are illustrative only. Although only a few embodiments have been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter recited in the claims. For example, elements shown as integrally formed may be constructed of multiple parts or elements, the position of elements may be reversed or otherwise varied, and the nature or number of discrete elements or positions may be altered or varied. The order or sequence of any process or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may also be made in the design, operating conditions and arrangement of the various exemplary embodiments without departing from the scope of the present disclosure.

**WHAT IS CLAIMED IS:**

1. A manually operated treadmill comprising:
  - a treadmill frame having a front end and a rear end opposite the front end;
  - a front shaft rotatably coupled to the treadmill frame at the front end;
  - a rear shaft rotatably coupled to the treadmill frame at the rear end;
  - a running belt including a curved running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft; and
  - a one-way bearing assembly coupled to at least one of the front shaft and the rear shaft, wherein the one-way bearing assembly prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction;

wherein the treadmill is configured to allow the user to manually control the speed of the running belt and to facilitate maintenance of a contour of the curved running surface.
2. The manually operated treadmill of claim 1, wherein the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft.
3. The manually operated treadmill of claim 2, further comprising:
  - a front pulley coupled to the front shaft; and
  - a rear pulley coupled to the rear shaft;

wherein the running belt is supported by and contacts the front pulley and the rear pulley, wherein the radius of the front pulley is greater than the radius of the rear pulley.
4. The manually operated treadmill of claim 3, wherein the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches.

5. The manually operated treadmill of claim 4, wherein the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

6. The manually operated treadmill of claim 2, further comprising a braking system configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

7. The manually operated treadmill of claim 1, further comprising a synchronizing system coupled to both the front and rear shafts, wherein the synchronizing system is configured to provide a force that acts to resist differential rotation of the front and rear shafts.

8. The manually operated treadmill of claim 1, wherein the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.

9. The manually operated treadmill of claim 1, wherein the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section.

10. A manually operated treadmill comprising:  
a treadmill frame;  
a front shaft rotatably coupled to the treadmill frame;  
a rear shaft rotatably coupled to the treadmill frame;  
a running belt including a contoured running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running belt to rotate about the front shaft and the rear shaft without the rotation of the running belt being generated by a motor; and  
a one-way bearing assembly configured to prevent rotation of the running surface of the running belt in one direction.

11. The manually operated treadmill of claim 10, wherein the one-way bearing assembly is rotatably coupled to the rear shaft and coupled to the treadmill frame.

12. The manually operated treadmill of claim 10, further comprising:  
at least one track supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface; and  
a plurality of roller assemblies supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface.

13. The manually operated treadmill of claim 10, further comprising:  
at least one magnet supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface.

14. A manually operated treadmill comprising:
  - a frame supported on a substantially horizontal surface;
  - a front shaft assembly supported by the frame and comprising:
    - a front shaft; and
    - at least one front running belt pulley supported by the front shaft;
  - a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising:
    - a rear shaft; and
    - at least one rear running belt pulley supported by the rear shaft;
  - a running belt supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front portion adjacent the front shaft assembly, a rear portion adjacent the rear shaft assembly, and a central portion intermediate the front portion and the rear portion, the front portion and the rear portion being positioned vertically higher than a lowest point found in the central portion to form a curved running surface upon which a user of the treadmill may walk or run, wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor; and
  - a one-way bearing assembly cooperating with one of the front shaft and the rear shaft to permit rotation of said one of the front shaft and the rear shaft in only one direction.
15. The manually operated treadmill of claim 14, wherein the one-way bearing assembly cooperates with the rear shaft.

16. The manually operated treadmill of claim 14, further comprising at least one bearing rail having a plurality of bearings forming a top profile, the top profile defined by a front portion adjacent the front shaft assembly, a rear portion adjacent the rear shaft assembly, and a central portion intermediate the front portion and the rear portion, the central portion having a concave curve, and the front portion and the rear portion being continuations of the concave curve;

wherein the running surface of the running belt is supported by the top profile of the at least one bearing rail such that the running surface substantially corresponds to the shape of the top profile of the at least one bearing rail.

17. The manually operated treadmill of claim 16, the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley.

18. The manually operated treadmill of claim 17, wherein the running belt comprises a plurality of laterally extending slats.

19. The manually operated treadmill of claim 18, wherein:

the front shaft assembly comprises a second front running belt pulley supported by the front shaft and spaced laterally from the at least one front running belt pulley;

the rear shaft assembly comprises a second rear running belt pulley supported by the rear shaft and spaced laterally from the at least one rear running belt pulley;

the at least one bearing rail further comprises a second bearing rail having a plurality of bearings forming a top profile matching the top profile of the first of the at least one bearing rail, the second bearing rail being longitudinally aligned with the second front running belt pulley and the second rear running belt pulley;

the running belt comprises a first endless belt and a second endless belt, wherein the first endless belt is supported by the at least one front running belt pulley, the first of the at least one bearing rail, and the at least one rear running belt pulley, and wherein the second endless belt is supported by the second front running belt pulley, the second bearing rail, and the second rear running belt pulley; and

the plurality of laterally extending slats extend between the first endless belt and the second endless belt.

20. The manually operated treadmill of claim 19, wherein the rear portion of the at least one bearing rail is positioned and shaped to provide a smooth transition for the running belt from the at least one bearing rail onto the at least one rear running belt pulley.

### ABSTRACT

A manually operated treadmill is provided. The treadmill includes a treadmill frame, a front shaft rotatably coupled to the treadmill frame, a rear shaft rotatably coupled to the treadmill frame, a running belt including a contoured running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running belt to rotate about the front shaft and the rear shaft without the rotation of the running belt being generated by a motor, and a one-way bearing assembly configured to prevent rotation of the running surface of the running belt in one direction.



**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN  
APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

097208-0193

**Title of  
Invention**

MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

As the below named inventor, I hereby declare that:

This declaration  
is directed to:



The attached application, or



United States application or PCT international application number \_\_\_\_\_  
filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

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Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**LEGAL NAME OF INVENTOR**

Inventor: Matthew J. Zank

Date (Optional): \_\_\_\_\_

Signature: \_\_\_\_\_

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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**LEGAL NAME OF INVENTOR**

Inventor: Scott D. Hoerig

Date (Optional): \_\_\_\_\_

Signature: 

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**LEGAL NAME OF INVENTOR**

Inventor: Vance E. Emons

Date (Optional):

4/2/2014

Signature:

Vance E Emons

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**LEGAL NAME OF INVENTOR**

Inventor: Nicholas A. Oblamski

Date (Optional): \_\_\_\_\_

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

097208-0193

**Title of  
Invention**

MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

As the below named inventor, I hereby declare that:

This declaration  
is directed to:

The attached application, or

United States application or PCT international application number \_\_\_\_\_  
filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**LEGAL NAME OF INVENTOR**

Inventor: Douglas G. Bayerlein

Date (Optional): \_\_\_\_\_

Signature: *Douglas G. Bayerlein*

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN  
APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

097208-0193

**Title of  
Invention**

MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

As the below named inventor, I hereby declare that:

This declaration  
is directed to:

The attached application, or

United States application or PCT international application number \_\_\_\_\_  
filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**LEGAL NAME OF INVENTOR**

Inventor: Robert L. Zimpel

Date (Optional): \_\_\_\_\_

Signature: \_\_\_\_\_

Note: An application data sheet (PTO/SD/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN  
APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

097208-0193

**Title of  
Invention**

MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

As the below named inventor, I hereby declare that:

This declaration  
is directed to:

The attached application, or

United States application or PCT International application number \_\_\_\_\_  
filed on \_\_\_\_\_.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**LEGAL NAME OF INVENTOR**

Inventor: Joel W. Richards

Date (Optional): 4-2-14

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

**Secrecy Order 37 CFR 5.2**

<input type="checkbox"/>	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

**Inventor Information:**

<b>Inventor 1</b>					<b>Remove</b>
<b>Legal Name</b>					
<b>Prefix</b>	<b>Given Name</b>	<b>Middle Name</b>	<b>Family Name</b>	<b>Suffix</b>	
	Douglas	G.	Bayerlein		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
<b>City</b>	Oconomowoc	<b>State/Province</b>	WI	<b>Country of Residence i</b>	US

**Mailing Address of Inventor:**

<b>Address 1</b>	34675 Bartlett Road				
<b>Address 2</b>					
<b>City</b>	Oconomowoc	<b>State/Province</b>	WI		
<b>Postal Code</b>	53066	<b>Country i</b>	US		

<b>Inventor 2</b>					<b>Remove</b>
<b>Legal Name</b>					
<b>Prefix</b>	<b>Given Name</b>	<b>Middle Name</b>	<b>Family Name</b>	<b>Suffix</b>	
	Vance	E.	Emons		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
<b>City</b>	Hartland	<b>State/Province</b>	WI	<b>Country of Residence i</b>	US

**Mailing Address of Inventor:**

<b>Address 1</b>	N79 W28251 Tourmaline Court				
<b>Address 2</b>					
<b>City</b>	Hartland	<b>State/Province</b>	WI		
<b>Postal Code</b>	53029	<b>Country i</b>	US		

<b>Inventor 3</b>					<b>Remove</b>
<b>Legal Name</b>					
<b>Prefix</b>	<b>Given Name</b>	<b>Middle Name</b>	<b>Family Name</b>	<b>Suffix</b>	
	Nicholas	A.	Oblamski		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					



<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number		097208-0193	
		Application Number			
Title of Invention		MANUAL TREADMILL AND METHODS OF OPERATING THE SAME			

<b>City</b>	Waukesha	<b>State/Province</b>	WI	<b>Country of Residence i</b>	US
-------------	----------	-----------------------	----	-------------------------------	----

**Mailing Address of Inventor:**

Address 1	W271N525 Jills Dr.				
Address 2					
City	Waukesha	State/Province	WI		
Postal Code	53188	Country i	US		
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Remove</div>					
<b>Inventor 4</b>					
<b>Legal Name</b>					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Scott	D.	Hoerig		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Brookfield	State/Province	WI	Country of Residence i	US

**Mailing Address of Inventor:**

Address 1	15755 Sky Cliff Drive				
Address 2					
City	Brookfield	State/Province	WI		
Postal Code	53005	Country i	US		
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Remove</div>					
<b>Inventor 5</b>					
<b>Legal Name</b>					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Matthew	J.	Zank		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Milwaukee	State/Province	WI	Country of Residence i	US

**Mailing Address of Inventor:**

Address 1	4677 N. 41st Street				
Address 2					
City	Milwaukee	State/Province	WI		
Postal Code	53209	Country i	US		
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Remove</div>					
<b>Inventor 6</b>					
<b>Legal Name</b>					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Robert	L.	Zimpel		
<b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Menomonee Falls	State/Province	WI	Country of Residence i	US

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		

**Mailing Address of Inventor:**

Address 1	N55 W21289 Logan Dr.		
Address 2			
City	Menomonee Falls	State/Province	WI
Postal Code	53051	Country i	US
Inventor 7			<input type="button" value="Remove"/>
<b>Legal Name</b>			
Prefix	Given Name	Middle Name	Family Name
	Joel	W.	Richards
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service			
City	Wauwatosa	State/Province	WI
		Country of Residence i	US

**Mailing Address of Inventor:**

Address 1	2145 N. 65th St.		
Address 2			
City	Wauwatosa	State/Province	WI
Postal Code	53213	Country i	US
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the <b>Add</b> button. <input type="button" value="Add"/>			

**Correspondence Information:**

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence Information of this application.	
Customer Number	26371
Email Address	IPDocketing@foley.com <input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

**Application Information:**

Title of the Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
Attorney Docket Number	097208-0193	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	20	Suggested Figure for Publication (if any)	1

**Filing By Reference :**

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

### Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

### Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	26371		

### Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the application number blank.

Prior Application Status		<a href="#">Remove</a>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
This Application	Continuation of	13/235065	2011-09-16
Prior Application Status		<a href="#">Remove</a>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13/235065	Continuation in part of	PCT/US10/27543	2010-03-16
Prior Application Status		<a href="#">Remove</a>	

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCT/US10/27543	Claims benefit of provisional	61/161027	2009-03-17
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the <b>Add</b> button.			<b>Add</b>

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			<b>Remove</b>
Application Number	Country <sup>i</sup>	Filing Date (YYYY-MM-DD)	Access Code <sup>j</sup> (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the <b>Add</b> button.			<b>Add</b>

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

☐ 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

## Authorization to Permit Access:

<input checked="" type="checkbox"/> Authorization to Permit Access to the Instant Application by the Participating Offices
--

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

## Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
<b>Applicant 1</b>			<a href="#">Remove</a>
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
<a href="#">Clear</a>			
<input checked="" type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Joint Inventor	
<input type="radio"/> Person to whom the inventor is obligated to assign.		<input type="radio"/> Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor : <input type="text"/>			
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	Woodway USA, Inc.		
<b>Mailing Address Information:</b>			
Address 1	W229 N591 Foster Court		
Address 2			
City	Waukesha	State/Province	WI
Country <sup>i</sup>	US	Postal Code	53186
Phone Number		Fax Number	

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

## Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

<b>Assignee 1</b>				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				<input type="button" value="Remove"/>
If the Assignee or Non-Applicant Assignee is an Organization check here.				<input type="checkbox"/>
Prefix	Given Name	Middle Name	Family Name	Suffix
<b>Mailing Address Information For Assignee including Non-Applicant Assignee:</b>				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

## Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications				
Signature	/R.J. McKenna/		Date (YYYY-MM-DD)	2014-04-02
First Name	Richard J.	Last Name	McKenna	Registration Number
				35610
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

<b>Application Data Sheet 37 CFR 1.76</b>		Attorney Docket Number	097208-0193
		Application Number	
Title of Invention	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE***

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND  
METHODS OF OPERATING THE  
SAME  
Appl. No.: Not yet assigned  
Filing Date: Herewith  
Examiner: Not yet assigned  
Art Unit: Not yet assigned  
Confirmation Number: Not yet assigned

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §1.56**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Applicant submits herewith documents for the Examiner's consideration in accordance with 37 CFR §§1.56, 1.97 and 1.98.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Applicant requests that, in accordance with 37 CFR §1.98(d), the Examiner review all applications relied on for an earlier effective filing date under 35 U.S.C. 120, including application no. PCT/US10/27543, filed 3/16/2010; and application no. 13/235,065, filed

9/16/2011, for copies of references of record therein that are not being provided here; although Applicant would be pleased to provide copies of any such documents at the Examiner's request.

The submission of any document herewith is not an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document submitted herewith.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(b), within three (3) months of the filing date of the application.

Although Applicant believes that no fee is required, the Commissioner is hereby authorized to charge any additional fees which may be due to Deposit Account No. 19-0741.

Respectfully submitted,

Date: April 2, 2014

By: /R.J. McKenna/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 297-5723  
Facsimile: (414) 297-4900

Richard J. McKenna  
Attorney for Applicant  
Registration No. 35,610

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein

Title: MANUAL TREADMILL AND  
METHODS OF OPERATING THE  
SAME

Prior Appl. No.: 13/235,065

Prior Appl. Filing  
Date: 9/16/2011

Examiner: Not yet assigned

Art Unit: Not yet assigned

**CONTINUING PATENT APPLICATION**  
**TRANSMITTAL LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Transmitted herewith for filing under 37 C.F.R. § 1.53(b) is a:

☒ Continuation   ☐ Division   ☐ Continuation-In-Part (CIP)

of the above-identified copending prior application in which no patenting, abandonment, or termination of proceedings has occurred. Priority to the above-identified prior application is hereby claimed under 35 U.S.C. § 120 for this continuing application. The entire disclosure of the above-identified prior application is considered as being part of the disclosure of the accompanying continuing application and is hereby incorporated by reference therein.

☒ Applicant claims small entity status under 37 CFR 1.27.

Enclosed are:

- [ X ] Description, Claim(s), and Abstract (56 pages).
- [ X ] Formal drawings (20 sheets, Figures 1-38).
- [ X ] Executed Declaration (7 pages).
- [ X ] Information Disclosure Statement (2 pages).
- [ X ] Form PTO-SB08 with 97 listed reference(s) (5 pages).
- [ X ] Application Data Sheet (37 CFR 1.76) (9 pages).
- [ X ] PTO/SB/424 - Request for Prioritized Examination (2 pages).

The adjustment to the number of sheets for EFS-Web filing follows:

Number of Sheets		EFS-Web Adjustment	Number of Sheets for EFS-Web
76	x	75%	57

The filing fee is calculated below at the small entity rate:

	<b>Number Filed</b>		<b>Included in Basic Fee</b>	<b>Extra</b>		<b>Rate</b>	<b>Fee Totals</b>
Basic Filing Fee						\$70.00 =	\$70.00
Search Fee						\$300.00	\$300.00
Examination Fee						\$360.00	\$360.00
Size Fee	57	-	100	= 0	x	\$200.00	\$0.00
Total	20	-	20	= 0	x	\$40.00 =	\$0.00
Claims:							
Independents	3	-	3	= 0	x	\$210.00 =	\$0.00
:							
If any Multiple Dependent Claim(s) present:					+	\$390.00 =	\$0.00
Surcharge under 37 CFR 1.16(e) for late filing of Executed Declaration or late payment of filing fee					+	\$70.00 =	\$0.00
Prioritized Examination fee (Track I) under 37 C.F.R. § 1.17 (c)							\$2,000.00
Processing Fee (Track I) under 37 C.F.R. § 1.17 (i)							\$70.00
<b>TOTAL FILING FEE:</b>						=	<b>\$2,800.00</b>
Assignment Recordation Fee:					+	\$40.00 =	\$0.00
Processing Fee under 37 CFR 1.17(i) for Late Filing of English Translation of Application:					+	\$70.00 =	\$0.00
Publication Fee							\$0.00
<b>TOTAL FEE</b>						=	<b>\$2,800.00</b>

The above-identified fees of \$2,800.00 are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

Date: April 2, 2014

By: /R.J. McKenna/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 297-5723  
Facsimile: (414) 297-4900

Richard J. McKenna  
Attorney for Applicant  
Registration No. 35,610

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				<b>First Named Inventor</b>	Douglas G. Bayerlein
				<b>Art Unit</b>	Not yet assigned
				<b>Examiner Name</b>	Not yet assigned
<b>Sheet</b>	1	of	5	<b>Attorney Docket Number</b>	097208-0193

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A1	2002/0147079-A1	10-10-2002	KALNBACH	
	A2	2006/0003871	01-05-2006	HOUGHTON ET AL.	
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	A39	7,560,822	07-14-2009	HOFFMANN, GREGORY C.	

Examiner Signature		Date Considered	
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				<b>Filing Date</b>	Herewith	
				<b>First Named Inventor</b>	Douglas G. Bayerlein	
				<b>Art Unit</b>	Not yet assigned	
				<b>Examiner Name</b>	Not yet assigned	
<b>Attorney Docket Number</b>	097208-0193					
Sheet	2	of	5			

U.S. PATENT DOCUMENTS					
Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant
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	A41	8,308,619-	11-13-2012	ASTILEAN, AUREL A.	
	A42	8,343,016-	01-01-2013	ASTILEAN, AUREL A.	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Application Document Serial Number-Kind Code <sup>2</sup> (if known)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>4</sup> -Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
	A43	DE 1020050 09 414	09-14-2006	SCHOENBORN-OLEK JURGEN		
	A44	EP 1 466 651-A1	10-13-2004	EGO S R L [IT]		
	A45	KR 2009007043	01-16-2009	KONYANG UNIVERSITY INDUSTRIAL COOPERATION GROUP		
	A46	WO 2010/057238-A2	05-27-2010	UNIV WIEN TECH [AT]		
	A47	CN 201006229	01-16-2008	DEWEI WU		
	A48	CN 201030178	03-05-2008	SHANDONG PHOENIX HEALTHY EQUIP		
	A49	CN 2860541	01-24-2007	SUN WEN		
	A50	JP 3148743	02-26-2009	CAI		

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>	
	A51	ANDREWS ET AL., The Effect of An 80-Minute Intermittent Running Protocol on Hamstrings Strength Abstract, NSCA Presentation, July 15, 2006, 1 page.		
	A52	BRUGHELLI ET AL., Effects of Running Velocity on Running Kinetics and Kinematics, Journal of Strength and Conditioning Research, April 2011, 7 pages.		

Examiner Signature		Date Considered	
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  Date Submitted: April 2, 2014  <i>(use as many sheets as necessary)</i>		<b>Application Number</b>	Not yet assigned
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		<b>First Named Inventor</b>	Douglas G. Bayerlein
		<b>Art Unit</b>	Not yet assigned
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<b>Attorney Docket Number</b>	097208-0193		
Sheet	3	of	5

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	A53	Complaint for Declaratory Judgment of Patent Invalidity and Correction of Inventorship, Woodway USA, Inc. v. Aurel A. Astilean, Civ. Dkt. No. 2:13-cv-00681-WEC (E.D. WI), June 13, 2013, 6 pages.	
	A54	Curvature, <a href="http://en.wikipedia.org/wiki/Curvature">http://en.wikipedia.org/wiki/Curvature</a> , March 3, 2010, 1 page.	
	A55	Decision and Order Denying Defendant's Motion to Dismiss or to Transfer and Staying Case Pending Decision from Eastern District New York District Court, Woodway USA, Inc. v. Aurel A. Astilean, Civ. Dkt. No. 2:13-cv-00681-WEC (E.D. WI), December 18, 2013, 7 pages.	
	A56	Docket Report, Speedfit LLC and Aurel A. Astilean v. Douglas G. Bayerlein, Civ. Dkt. No. 2:13-cv-01276-KAM-AKT (E.D.N.Y.), December 19, 2013, 8 pages.	
	A57	Docket Report, Woodway USA, Inc. v. Aurel A. Astilean, Civ. Dkt. No. 2:13-cv-00681-WEC (E.D. WI), December 19, 2013, 3 pages.	
	A58	EMS-Grivory Grivory GV-5H Black 9915 Nylon Copolymer, 50% Glass Fiber Filled, As Conditioned, believed to be publically available before September 16, 2011, 2 pages.	
	A59	First Amended Complaint (Jury Trial Demanded), Speedfit LLC and Aurel A. Astilean v. Douglas G. Bayerlein, Civ. Dkt. No. 2:13-cv-01276-KAM-AKT (E.D.N.Y.), June 17, 2013, 16 pages.	
	A60	HALL, The Rotary TREADWHEEL, 1 page.	
	A61	HERSHER, Perfect Landing, <a href="http://news.harvard.edu/gazette/story/2010/01/different-strokes/">http://news.harvard.edu/gazette/story/2010/01/different-strokes/</a> , January 27, 2010, 5 pages.	
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Examiner Signature		Date Considered	
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		<b>Art Unit</b>	Not yet assigned
		<b>Examiner Name</b>	Not yet assigned
<b>Attorney Docket Number</b>	097208-0193		
Sheet	4	of	5

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	A68	International Preliminary Report for Application No. PCT/US2010/027543, mail date September 29, 2011, 9 pages.	
	A69	International Search Report and Written Opinion for Application No. PCT/US2010/026731, mail date May 4, 2010, 8 pages.	
	A70	International Search Report and Written Opinion for Application No. PCT/US2010/027543, mail date May 12, 2010, 10 pages.	
	A71	Introducing the New Force 3 Treadmill Advanced Analysis Package, www.fittech.com.au, believed to be publically available before September 16, 2011, 3 pages.	
	A72	LIEBERMAN ET AL., Running Barefoot, Forefoot Striking & Training Tips, <a href="http://www.barefootrunning.fas.harvard.edu/5BarefootRunning&amp;TrainingTips.html">http://www.barefootrunning.fas.harvard.edu/5BarefootRunning&amp;TrainingTips.html</a> , February 26, 2010, 5 pages.	
	A73	LIEBERMAN ET AL., Running Barefoot: Biomechanics of Foot Strike, <a href="http://www.barefootrunning.fas.harvard.edu/4BiomechanicsofFootStrike.html">http://www.barefootrunning.fas.harvard.edu/4BiomechanicsofFootStrike.html</a> , February 26, 2010, 6 pages.	
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	A80	Nexus Resin Group, 10124 Antistat, believed to be publically available before September 16, 2011, 2 pages.	
	A81	Owners Manual, Force 1, November 29, 2007, 44 pages.	
	A82	Owners Manual, Force 3, January 28, 2009, 45 pages.	
	A83	Owners Manual, The Force, December 18, 2008, 68 pages.	

Examiner Signature		Date Considered	
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	A84	Plantar Fascia, <a href="http://en.wikipedia.org/wiki/Plantar_fascia">http://en.wikipedia.org/wiki/Plantar_fascia</a> , March 3, 2010, 3 pages.	
	A85	ROSS ET AL., The Effects of Treadmill Sprint Training and Resistance Training on Maximal Running Velocity and Power, National Strength and Conditioning Association, March 2009, 10 pages.	
	A86	SIROTIC ET AL., Physiological and Performance Test Correlates of Prolonged, High-Intensity, Intermittent Running Performance in Moderately Trained Women Team Sport Athletes, Journal of Strength and Conditioning Research, 2007, 7 pages.	
	A87	SIROTIC ET AL., The Reliability of Physiological and Performance Measures During Simulated Team-Sport Running on a Non-Motorised Treadmill, Journal of Science and Medicine in Sport, April 11, 2007, 10 pages.	
	A88	Soccer International, The Red Devil's in the Details, dated June 2010, 4 pages.	
	A89	The Woodway Force Brochure, The Best Way to Train for Speed & Athletic Power, dated May 5, 2005, 2 pages.	
	A90	Woodway, Curve 3.0 Specification, May 25, 2011, 1 page.	
	A91	Woodway, Curve Specification, May 24, 2011, 1 page.	
	A92	Woodway, Curve Specification, May 25, 2011, 1 page.	
	A93	Woodway, Curve XL Specification, May 18, 2011, 1 page.	
	A94	Woodway, Force Specification, April 8, 2008, 1 page.	
	A95	Woodway, Force Specification, May 2, 2011, 1 page.	
	A96	Woodway, Force Specification, May 2, 2012, 1 page.	
	A97	Woodway's Opposition to Defendant's Notice of Motion and Motion to Dismiss Case and Transfer Litigation to EDNY, Woodway USA, Inc. v. Aurel A. Astilean, Civ. Dkt. No. 2:13-cv-00681-WERC (E.D. WI), October 18, 2013, 22 pages.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP . if possible. and . The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by . This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

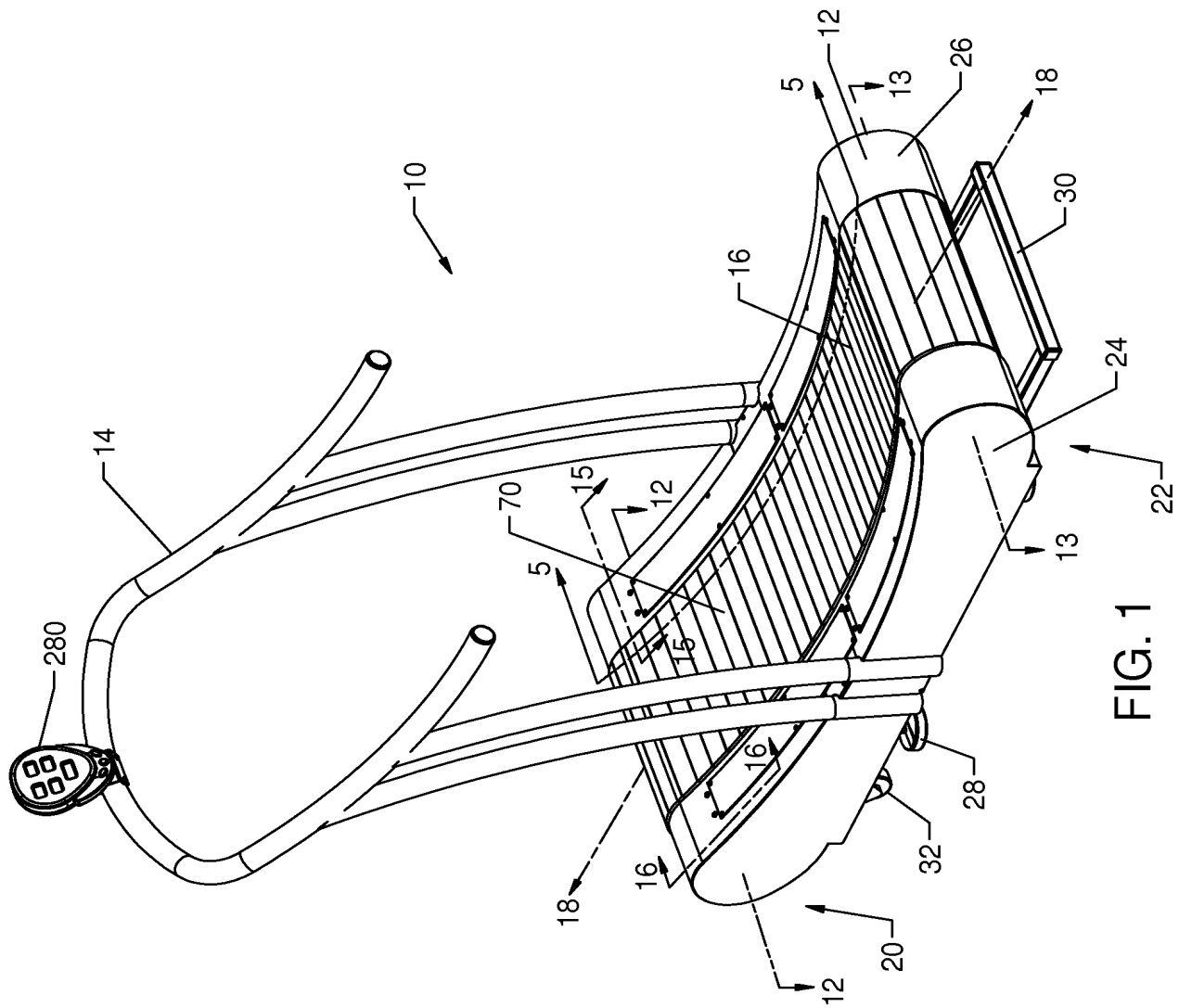


FIG. 1

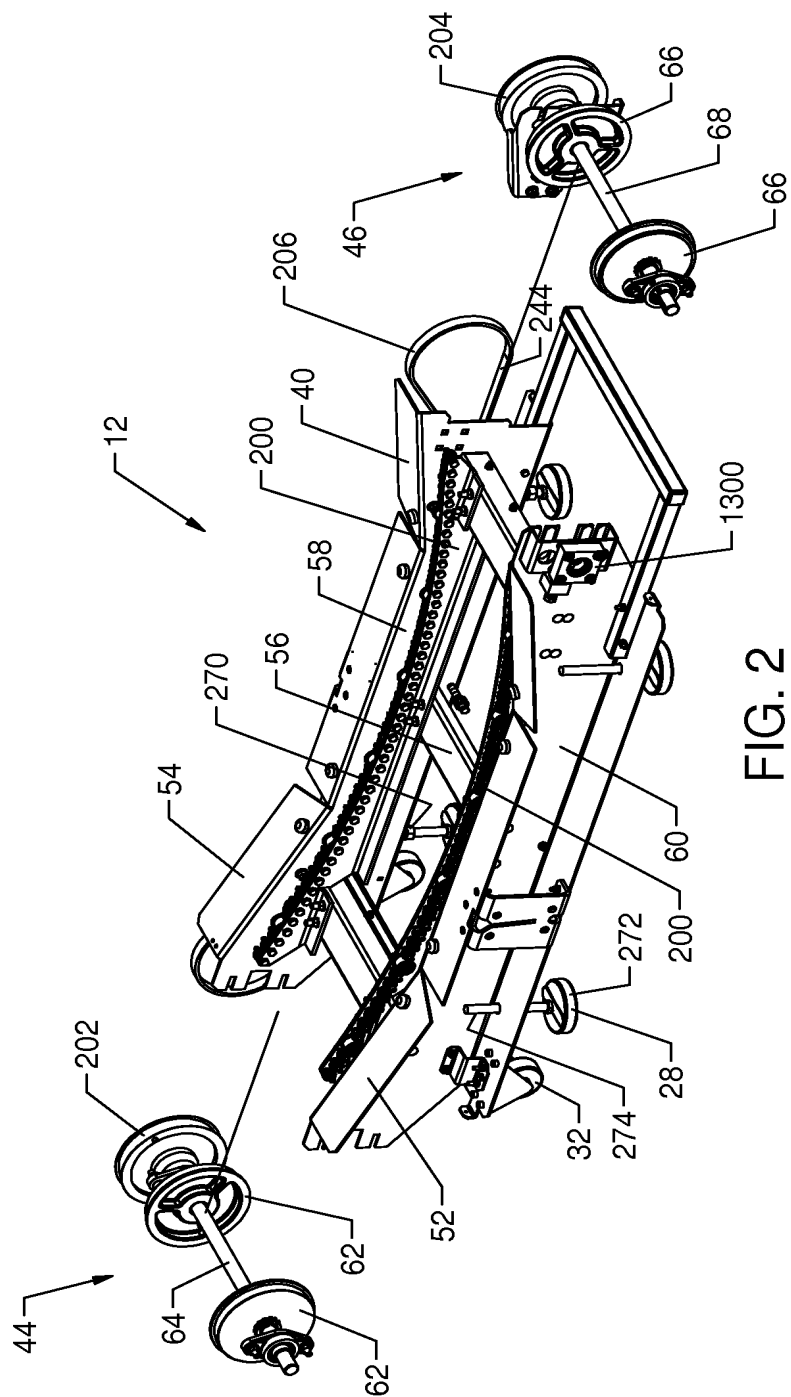
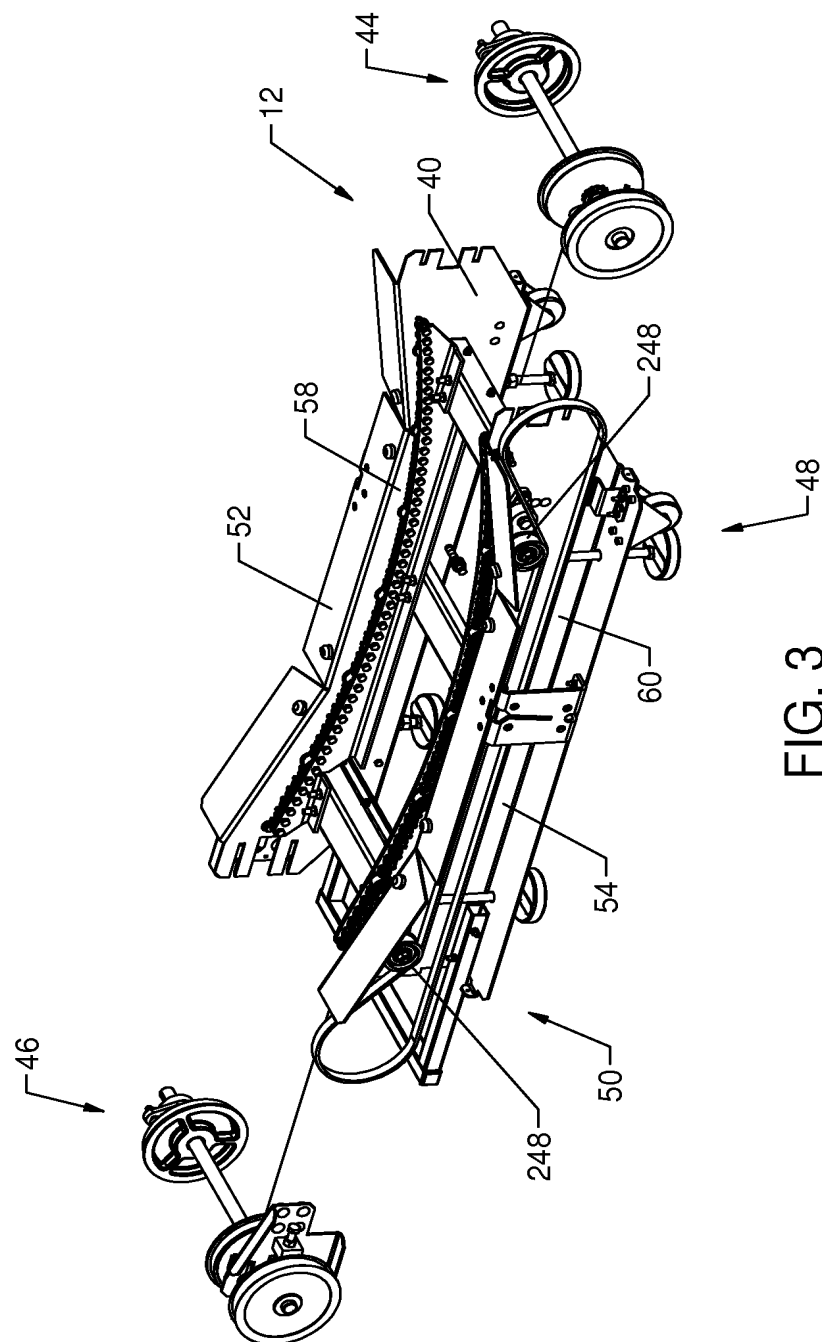
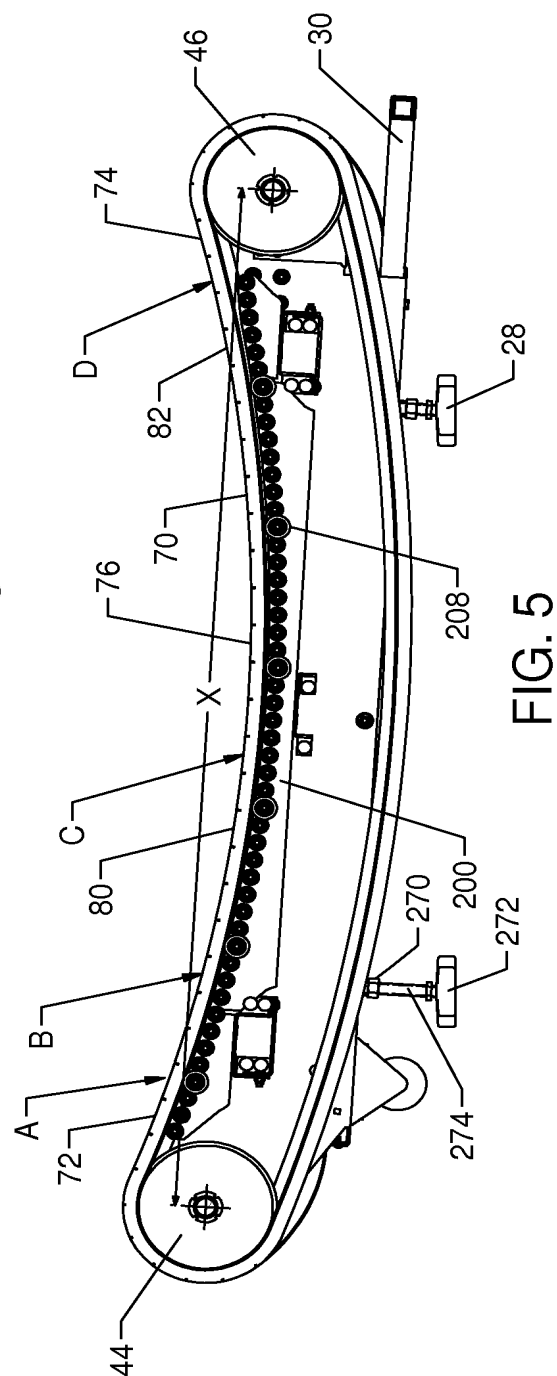
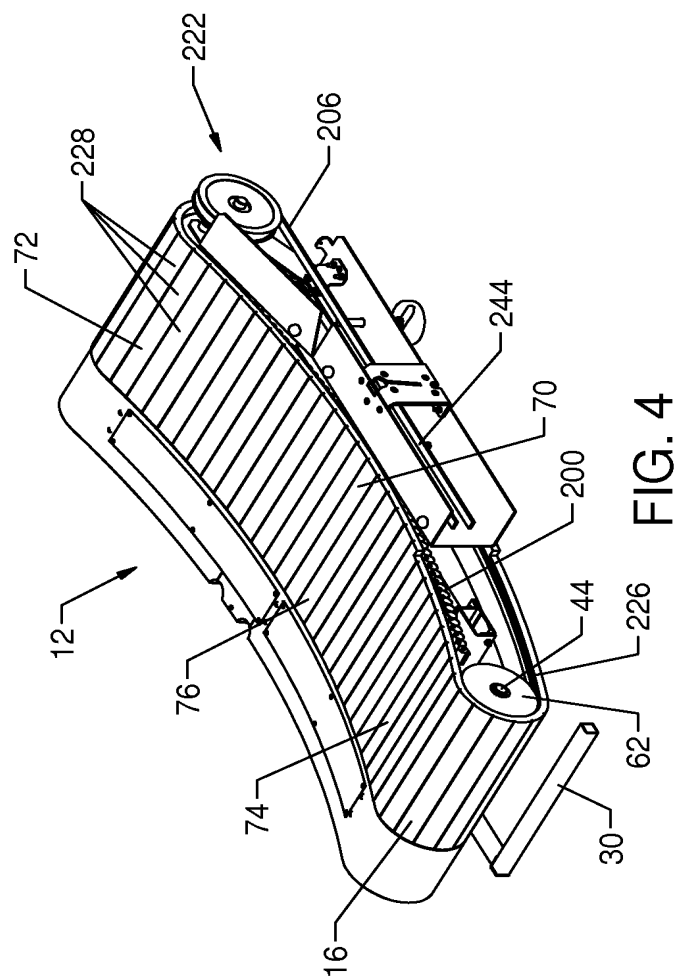


FIG. 2





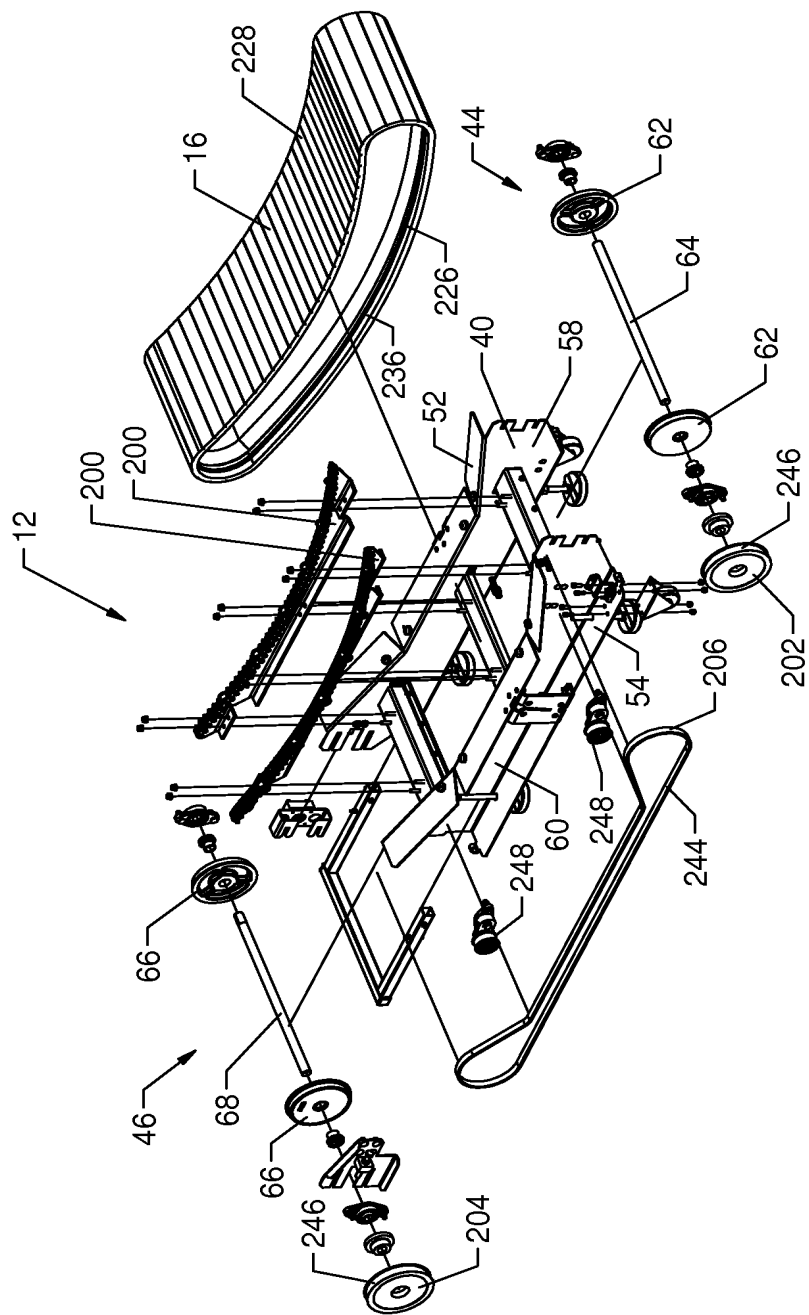


FIG. 6



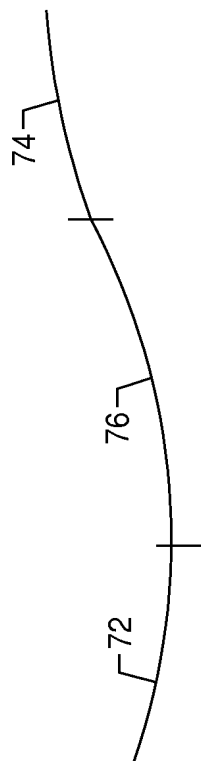


FIG. 7a



FIG. 7b

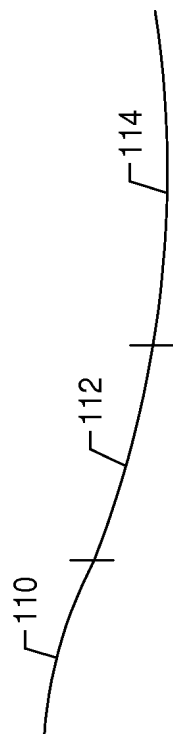


FIG. 7c



FIG. 7d

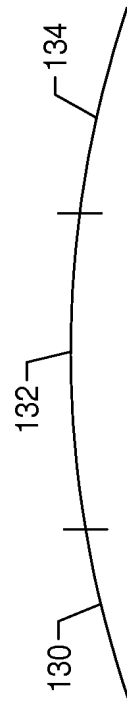


FIG. 7e

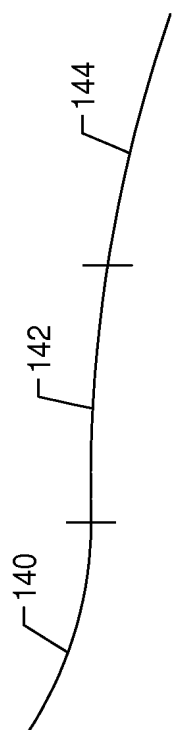


FIG. 7f

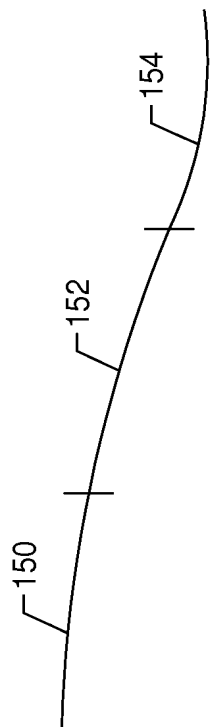


FIG. 7g

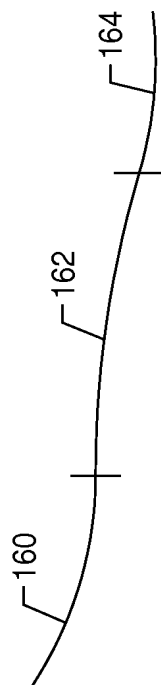


FIG. 7h

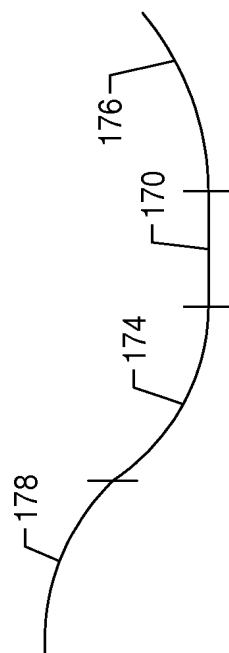
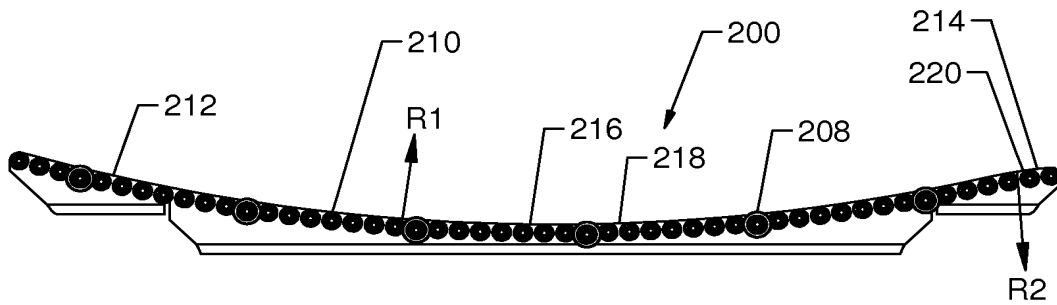
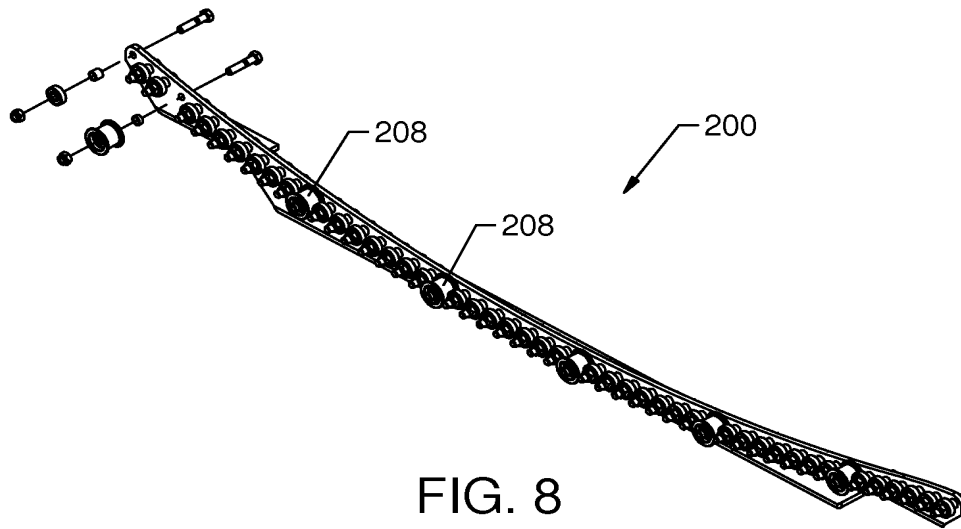


FIG. 7i



FIG. 7j



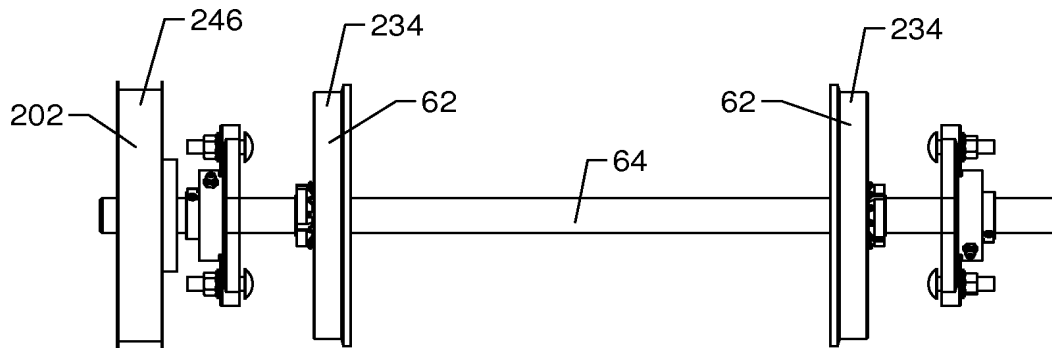


FIG. 10

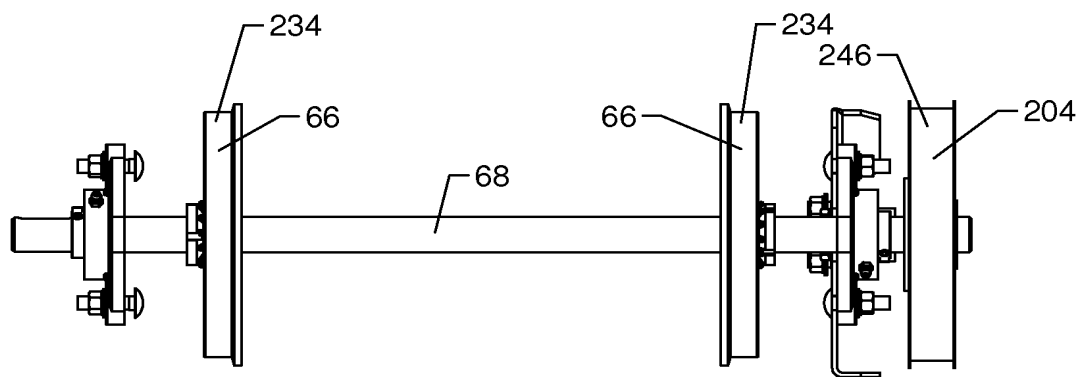


FIG. 11

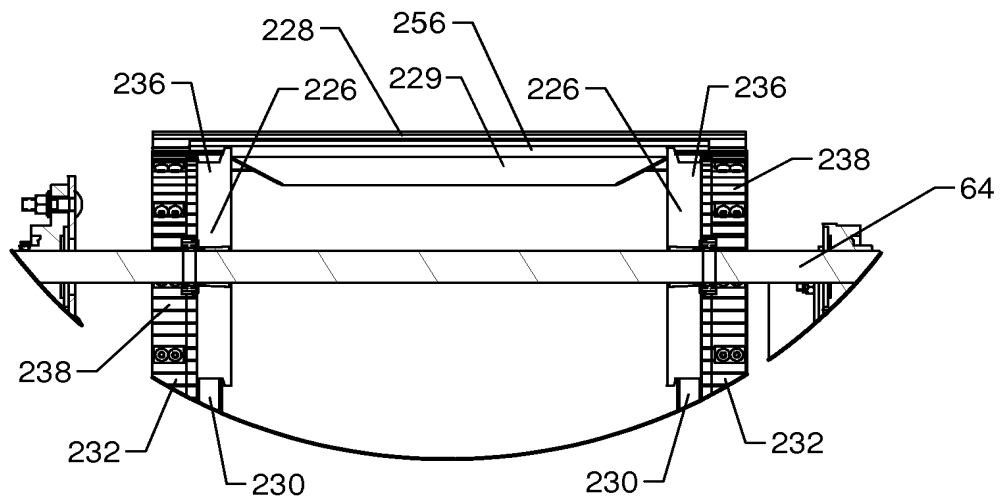


FIG. 12

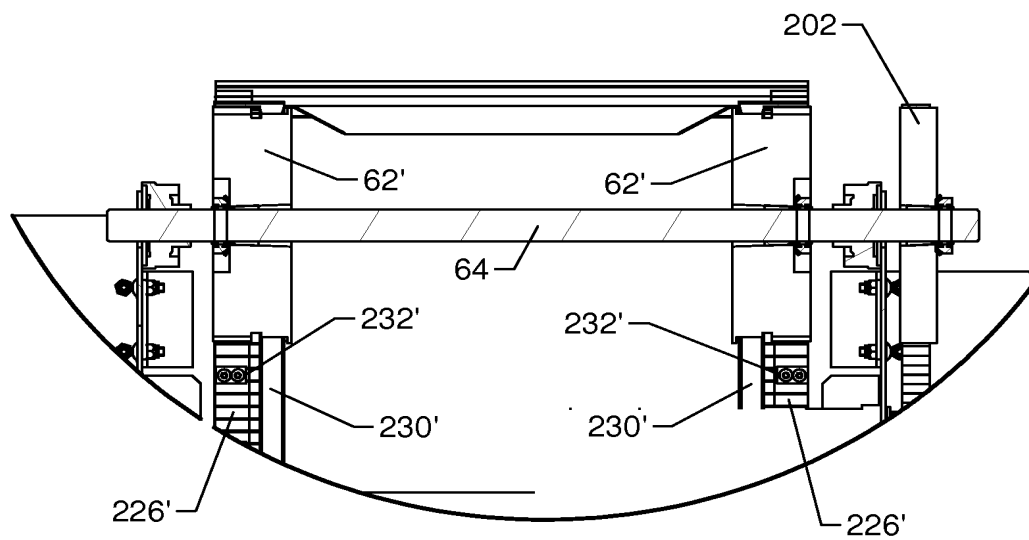


FIG. 13

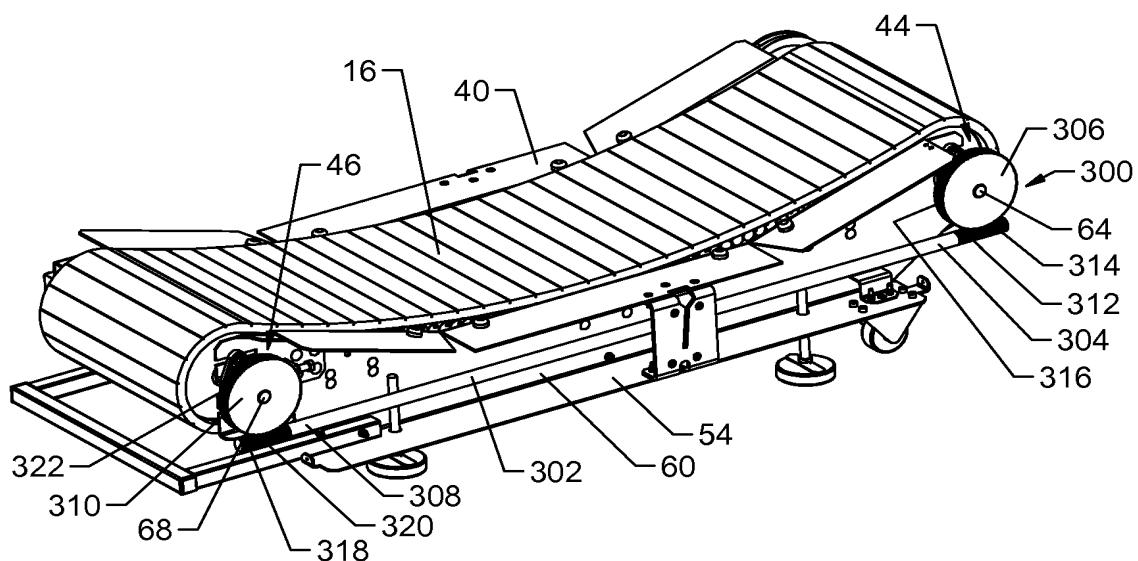


FIG. 14

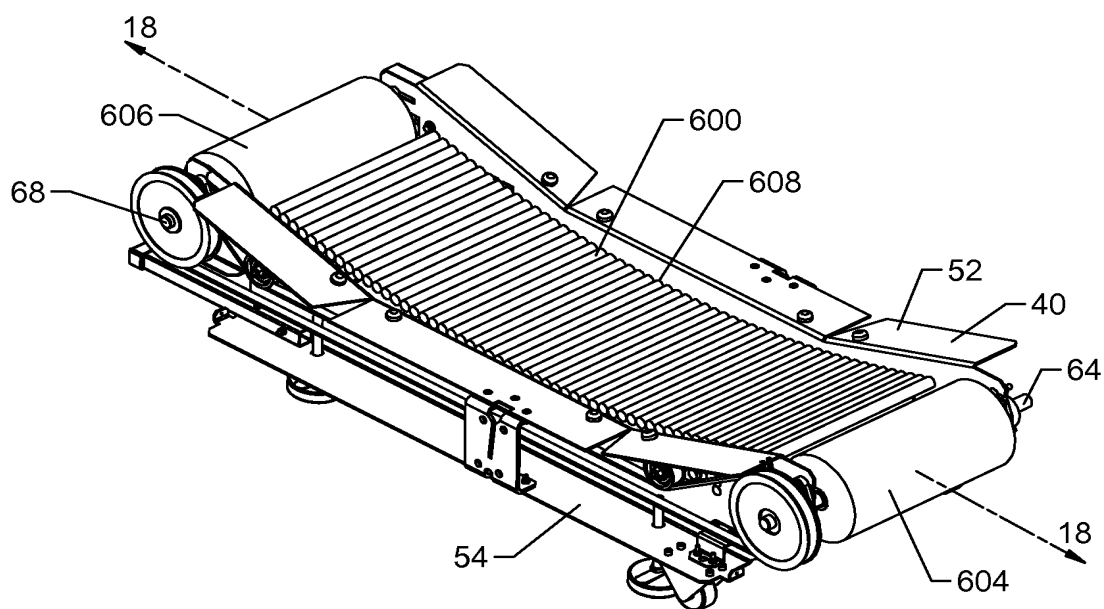


FIG. 17

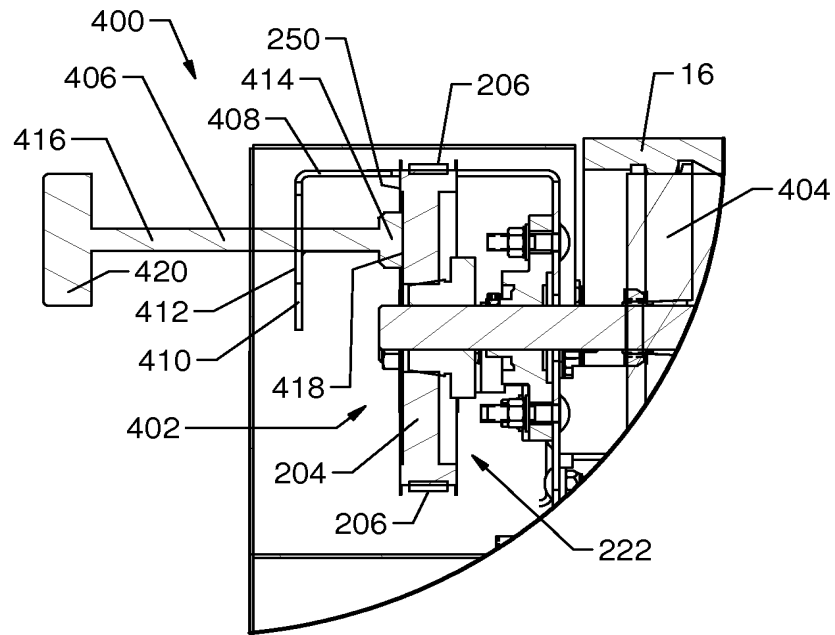


FIG. 15

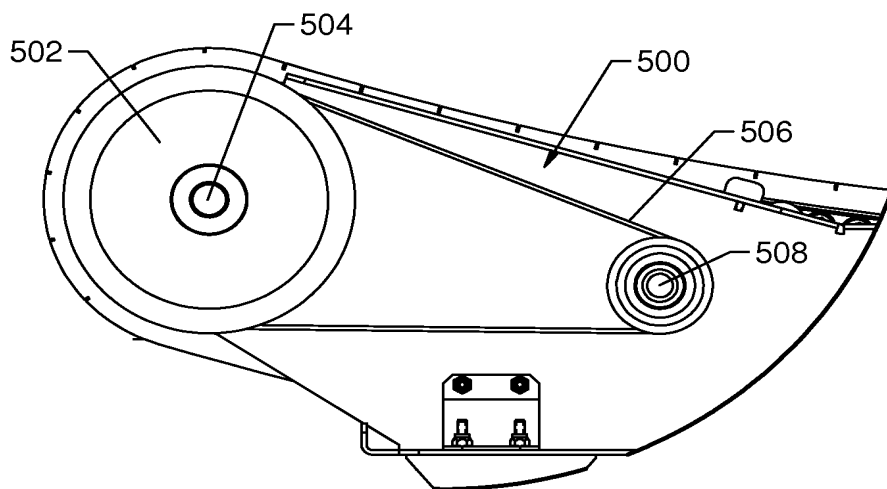


FIG. 16

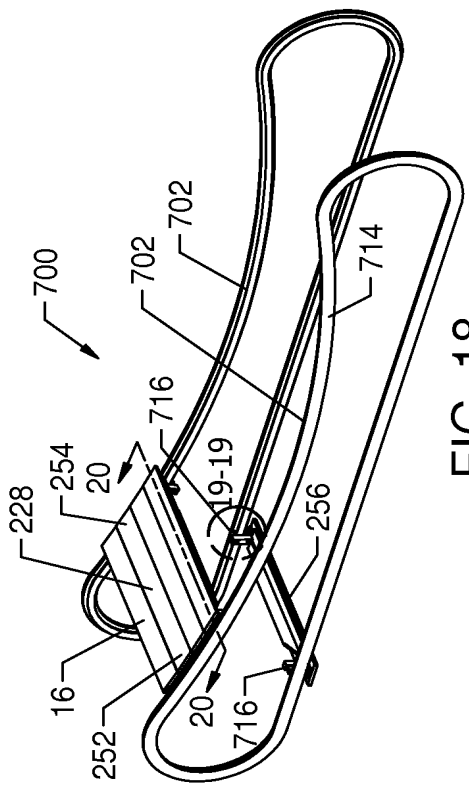


FIG. 18

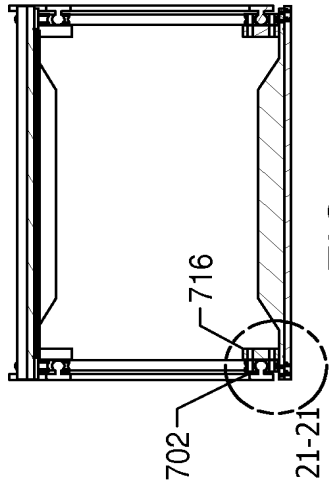


FIG. 20

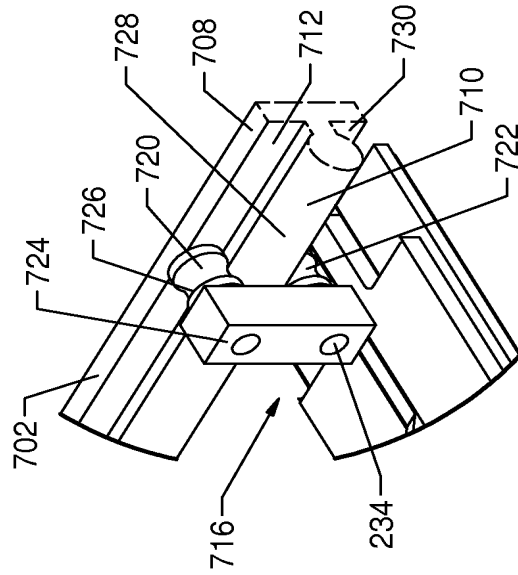


FIG. 19

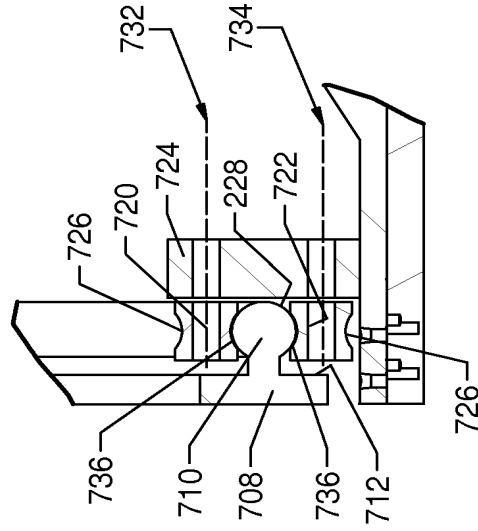


FIG. 21



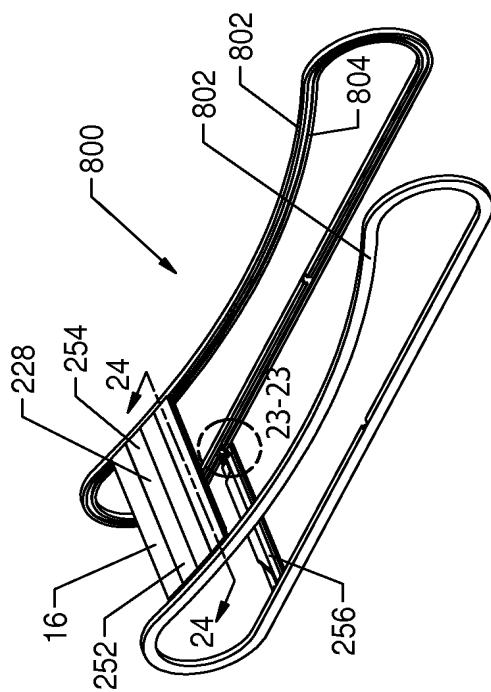


FIG. 22

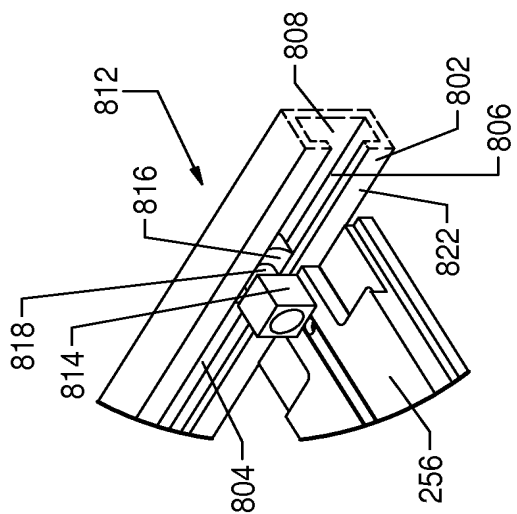


FIG. 23

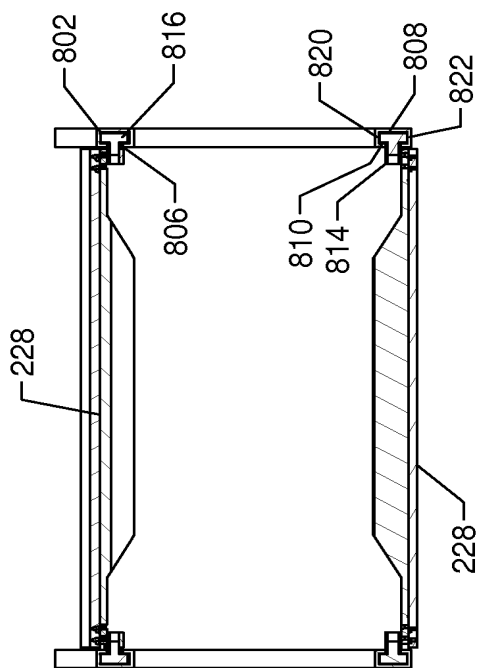


FIG. 24

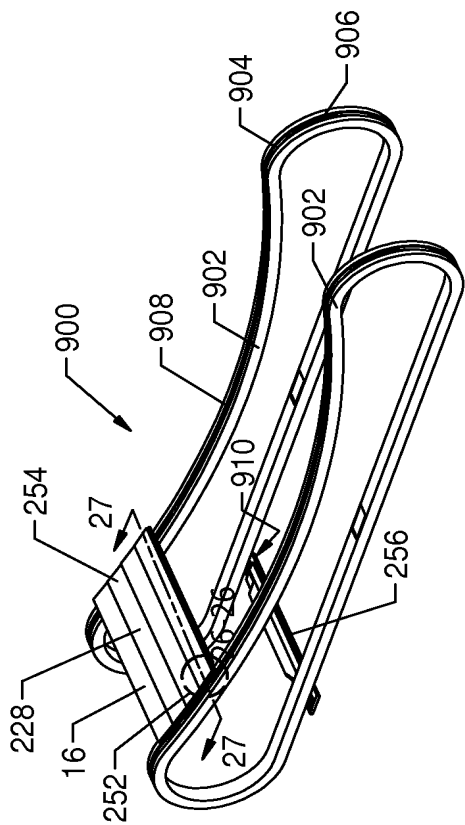


FIG. 25

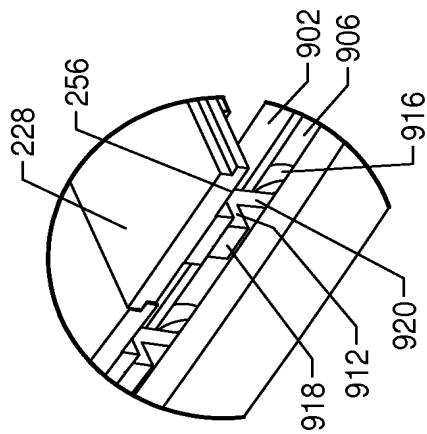


FIG. 26

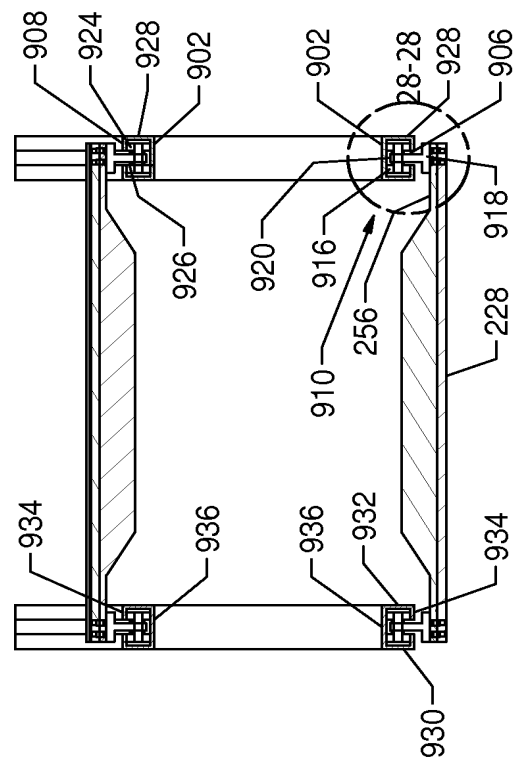


FIG. 27

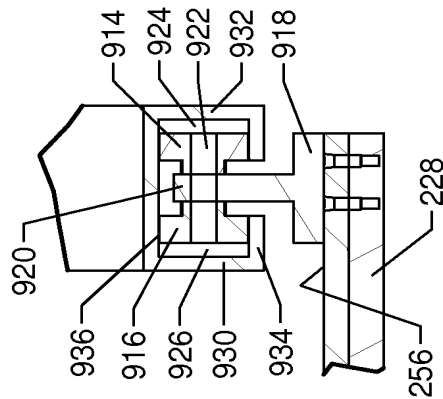


FIG. 28

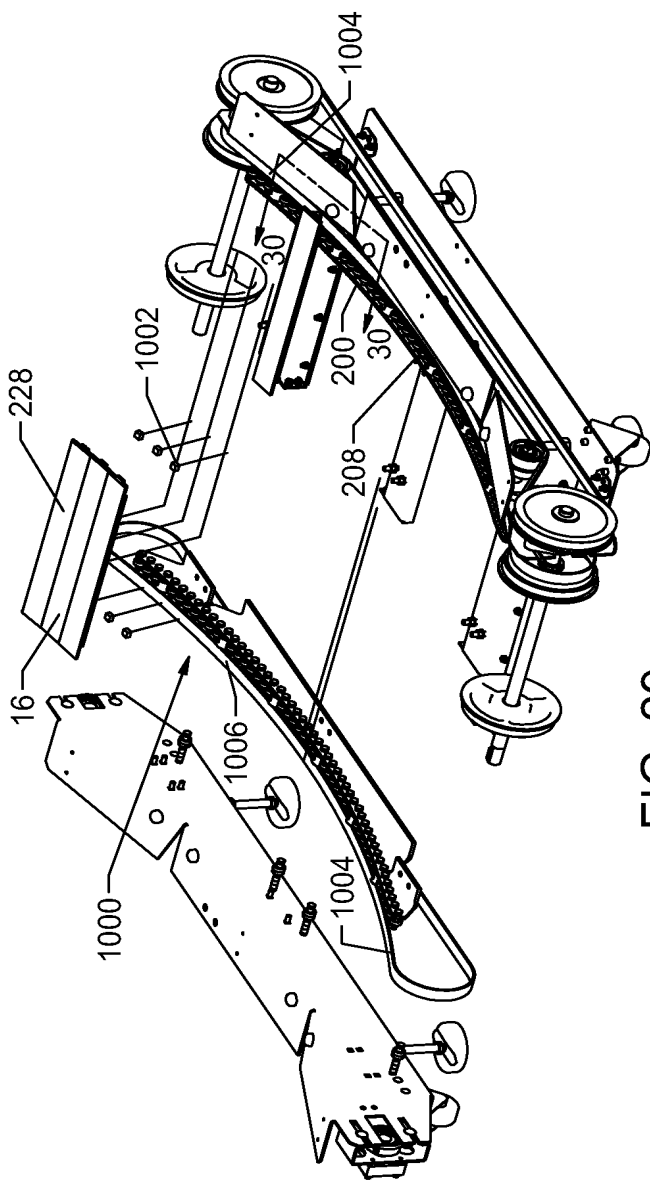


FIG. 29

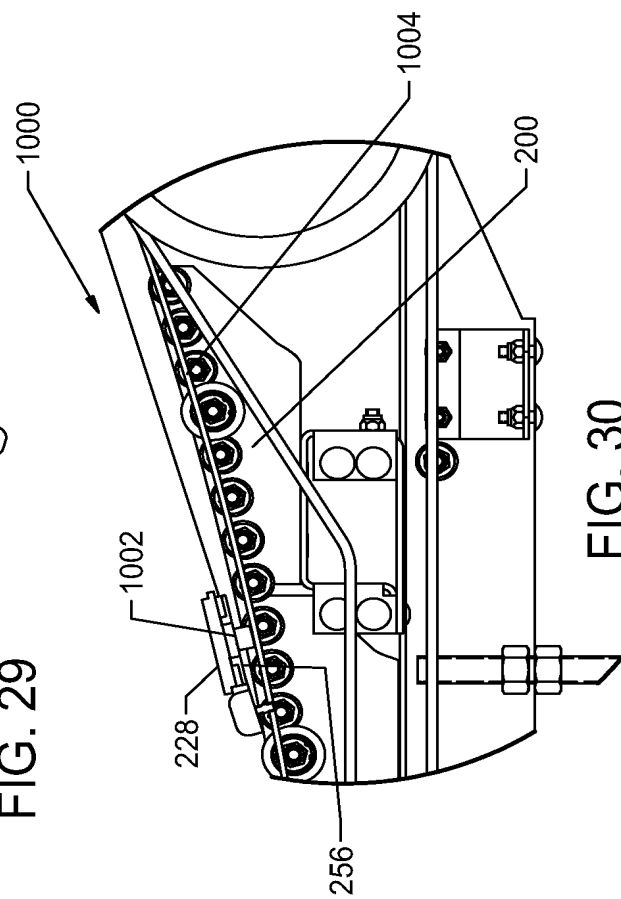


FIG. 30

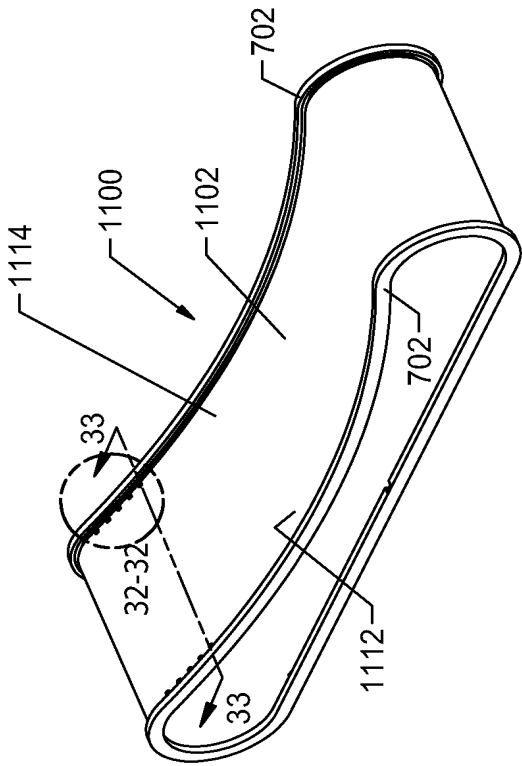


FIG. 31

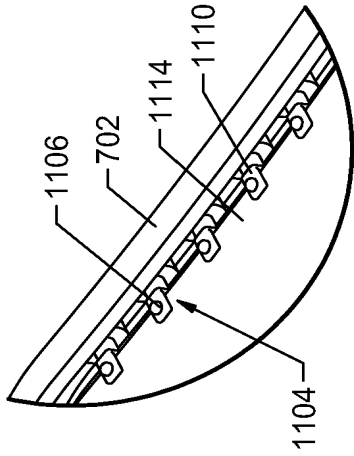


FIG. 32

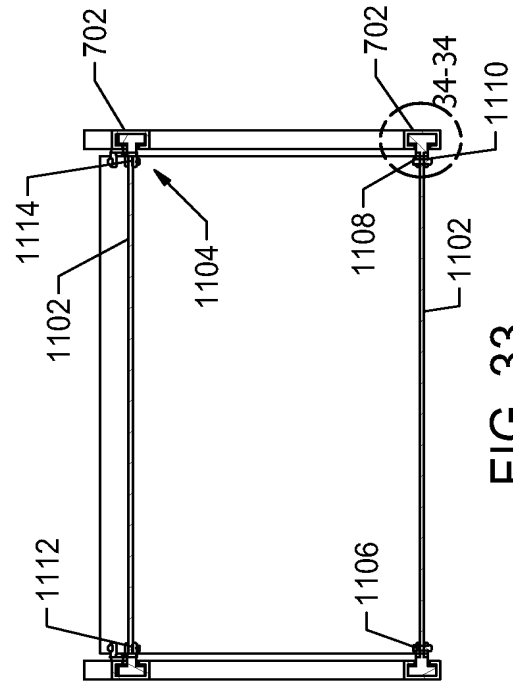


FIG. 33

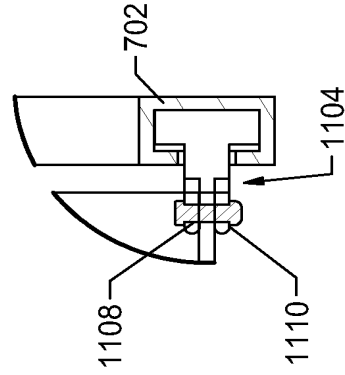


FIG. 34

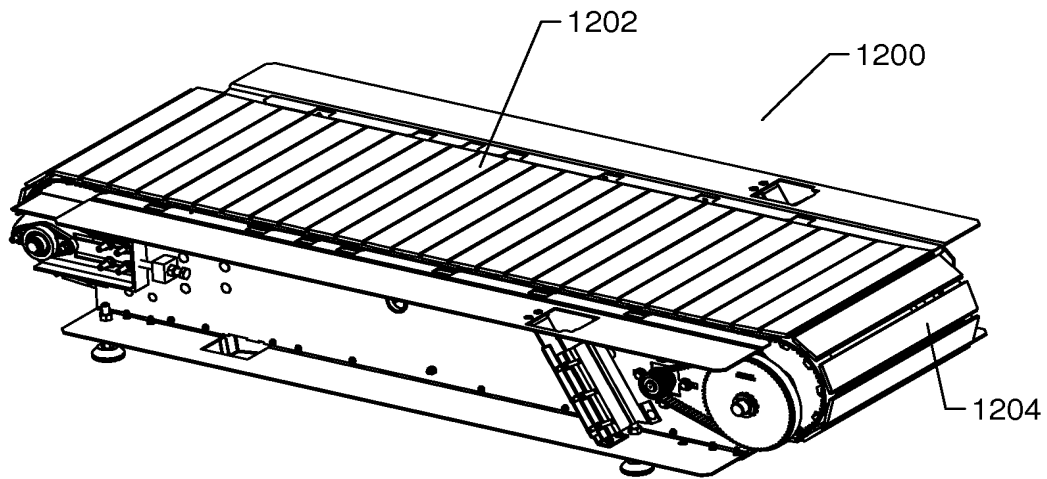


FIG. 35

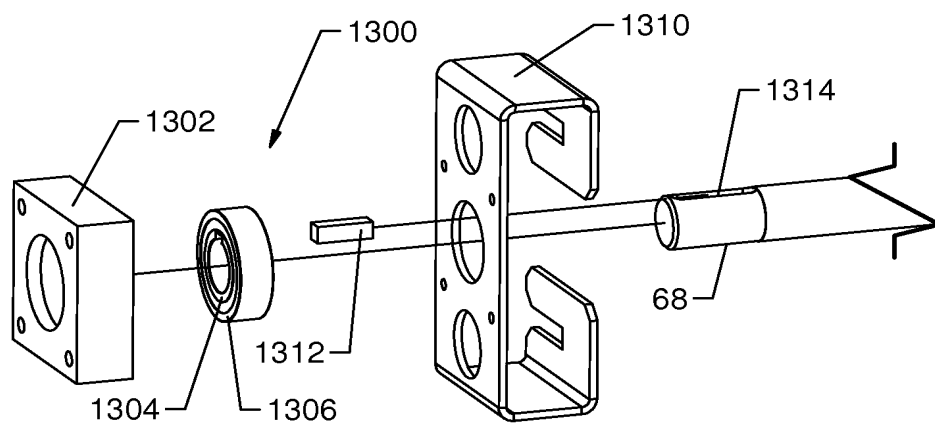


FIG. 36

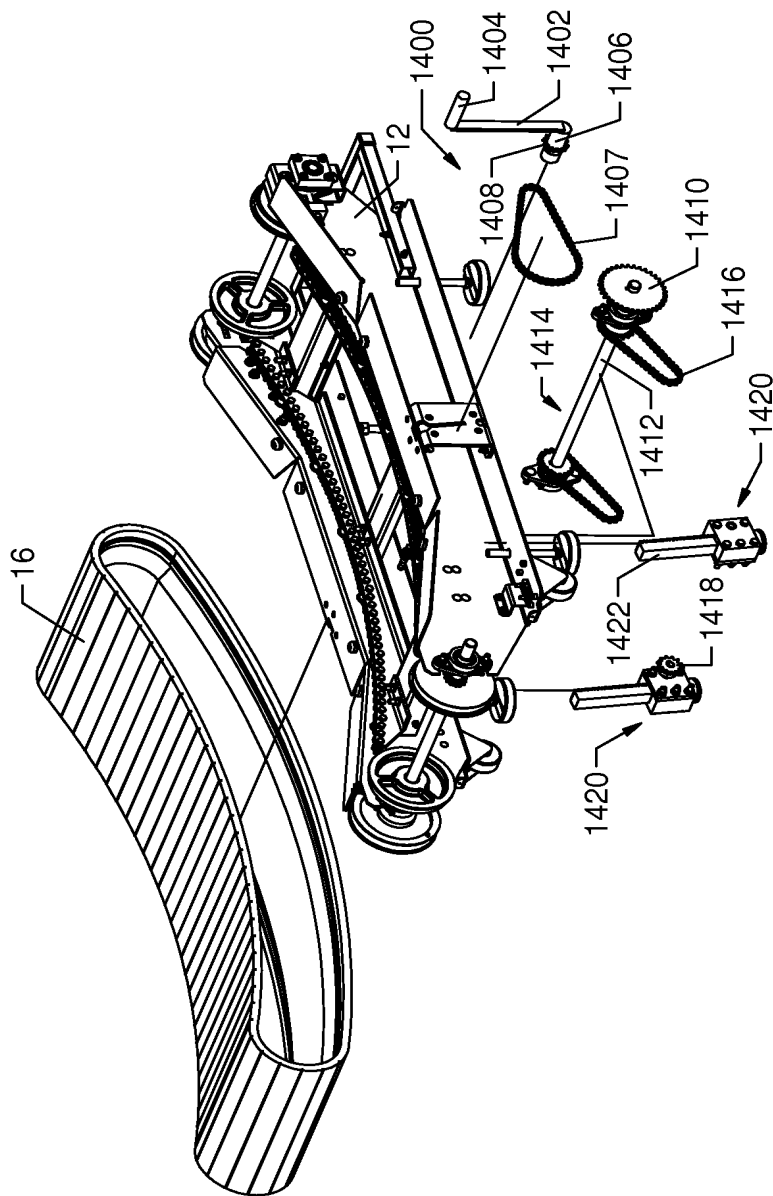


FIG. 37

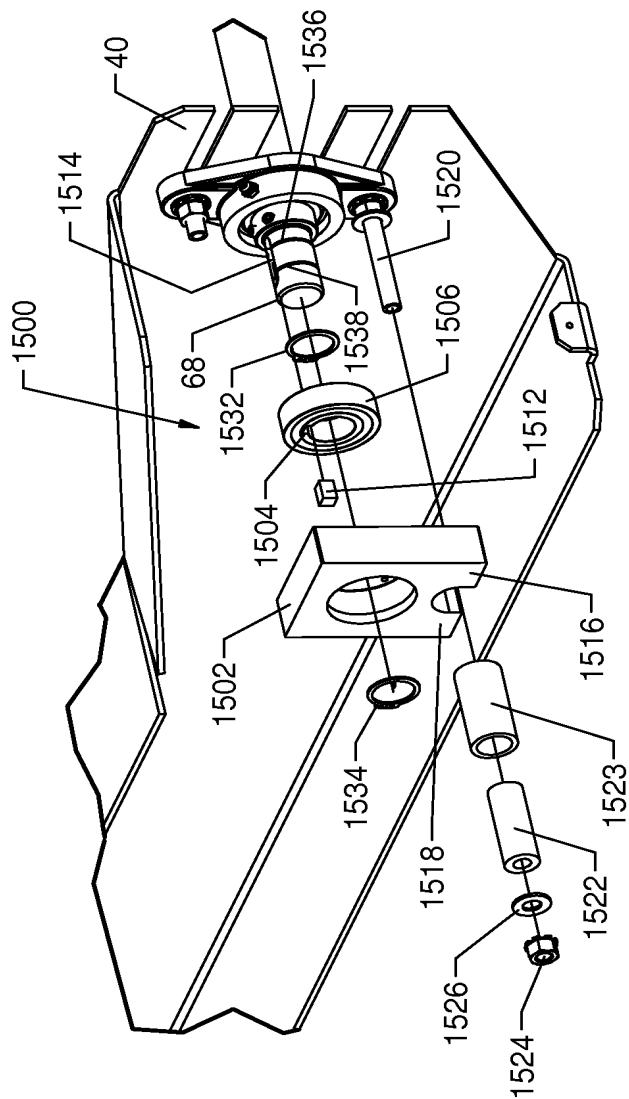


FIG. 38

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
First Named Inventor/Applicant Name:		Douglas G. BAYERLEIN		
Filer:		Richard J. McKenna/Michele Mathes		
Attorney Docket Number:		097208-0193		
Filed as Small Entity				
Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Basic Filing:</b>				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Request for Prioritized Examination	2817	1	2000	2000
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70



Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>2800</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	18656119
<b>Application Number:</b>	14243716
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	1677
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME
<b>First Named Inventor/Applicant Name:</b>	Douglas G. BAYERLEIN
<b>Customer Number:</b>	26371
<b>Filer:</b>	Richard J. McKenna/Michele Mathes
<b>Filer Authorized By:</b>	Richard J. McKenna
<b>Attorney Docket Number:</b>	097208-0193
<b>Receipt Date:</b>	02-APR-2014
<b>Filing Date:</b>	
<b>Time Stamp:</b>	18:29:42
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	TrackOne Request	097208-0193_Request_for_Prioritized_Examination.pdf	156099 6b31576870343103393c91d13e77427d26578b4b	no	2
Warnings:					
Information:					
2	Transmittal of New Application	097208-0193_Transmittal.pdf	98433 69a4a8ae95434d9178a6bb0d5a81be85e4a02a2e	no	4
Warnings:					
Information:					
3		097208_0193_Application.pdf	323528 0271c91cd43852df13142f3ad8e7fe6da6d5774c	yes	56
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	49	
	Claims		50	55	
	Abstract		56	56	
Warnings:					
Information:					
4	Oath or Declaration filed	097208-0193_Declarations.pdf	214052 65bef31165a63bcfa006aacb52504108d3aefc31	no	7
Warnings:					
Information:					
5	Application Data Sheet	097208-0193_ADS.pdf	1561384 9dcd9266def38669c47cdcac119077d81f079ddb	no	9
Warnings:					
Information:					
6	Transmittal Letter	097208-0193_IDS.pdf	101504 8e72b726aed5290a3c319123dd7cf9c86671803e	no	2
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	097208-0193_SB08.pdf	136184 3d3ff4e60d958a764ff597e6d1e6cb280b943933	no	5
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					

8	Drawings-only black and white line drawings	097208-0193_Figures_Processed.pdf	1201323 fc150f4b1baeabbd2648de3ff2504fce28e740a4	no	20
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<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			3831112		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION  
UNDER 37 CFR 1.102(e) (Page 1 of 1)**

First Named Inventor:	Douglas G. Bayerlein	Nonprovisional Application Number (if known):	Not yet Assigned
Title of Invention:	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		

**APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.**

1. The processing fee set forth in 37 CFR 1.17(i)(1), the prioritized examination fee set forth in 37 CFR 1.17(c), and if not already paid, the publication fee set forth in 37 CFR 1.18(d) have been filed with the request. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims.
3. The applicable box is checked below:

**I. ☒ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)**

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.  
---OR---  
(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

**II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)**

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /R.J. McKenna/	Date 04-02-2014
Name (Print/Typed) Richard J. McKenna	Practitioner Registration Number 35,610
<b>Note:</b> This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*	
<input type="checkbox"/> *Total of <u>1</u> forms are submitted.	

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<b>PATENT APPLICATION FEE DETERMINATION RECORD</b> Substitute for Form PTO-875						Application or Docket Number 14/243,716	
<b>APPLICATION AS FILED - PART I</b>							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	730		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
<b>APPLICATION AS AMENDED - PART II</b>							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/243,716	04/02/2014	3764	730	097208-0193	20	3

CONFIRMATION NO. 1677

26371  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

FILING RECEIPT



Date Mailed: 04/24/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

**Inventor(s)**

Douglas G. Bayerlein, Oconomowoc, WI;  
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Nicholas A. Oblamski, Waukesha, WI;  
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Joel W. Richards, Wauwatosa, WI;

**Applicant(s)**

Woodway USA, Inc., Waukesha, WI

**Assignment For Published Patent Application**

Woodway USA, Inc., Waukesha, WI

**Power of Attorney:** None

**Domestic Priority data as claimed by applicant**

This application is a CON of 13/235,065 09/16/2011  
which is a CIP of PCT/US10/27543 03/16/2010  
which claims benefit of 61/161,027 03/17/2009

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

*Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.*



Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

**If Required, Foreign Filing License Granted:** 04/24/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/243,716**

**Projected Publication Date:** 07/31/2014

**Non-Publication Request:** No

**Early Publication Request:** No

**\*\* SMALL ENTITY \*\***

**Title**

MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

**Preliminary Class**

482

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

## **PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

**LICENSE FOR FOREIGN FILING UNDER**  
**Title 35, United States Code, Section 184**  
**Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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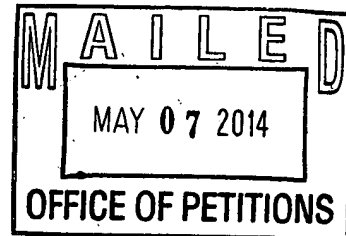
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Doc Code: TRACK1.GRANT

<b>Decision Granting Request for Prioritized Examination (Track I or After RCE)</b>	Application No.: 14/243,716
<p>1. THE REQUEST FILED <u>April 2, 2014</u> IS <b>GRANTED</b>.</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. <input checked="" type="checkbox"/> for an original nonprovisional application (Track I).</p> <p>B. <input type="checkbox"/> for an application undergoing continued examination (RCE).</p> <p>2. <b>The above-identified application will undergo prioritized examination.</b> The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a <b><u>petition for extension of time</u></b> to extend the time period for filing a reply;</p> <p>B. filing an <b><u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u></b>, or a multiple dependent claim;</p> <p>C. filing a <b><u>request for continued examination</u></b>;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to Irvin Dingle at (571)272-3210, Office of Petitions.</p> <p>Irvin Dingle <u>/Irvin Dingle/</u> [Signature]</p> <p><u>Paralegal Specialist</u> (Title)</p>	



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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14/243,716

04/02/2014

Douglas G. Bayerlein

097208-0193

1677

26371 7590 06/11/2014

FOLEY & LARDNER LLP

3000 K STREET N.W.

SUITE 600

WASHINGTON, DC 20007-5109

EXAMINER

GINSBERG, OREN ISAAC

ART UNIT

PAPER NUMBER

3764

MAIL DATE

DELIVERY MODE

06/11/2014

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 14/243,716	<b>Applicant(s)</b> BAYERLEIN ET AL.	
	<b>Examiner</b> OREN GINSBERG	<b>Art Unit</b> 3764	<b>AIA (First Inventor to File) Status</b> No

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/2/2014.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims\*

- 5) ☒ Claim(s) 1-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-18 is/are rejected.
- 8) ☒ Claim(s) 19 and 20 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 4/2/2014 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

#### Certified copies:

- a) ☐ All    b) ☐ Some\*\*    c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 3) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)<br>Paper No(s)/Mail Date <u>4/2/2014</u> . | 4) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Double Patenting***

A rejection based on double patenting of the “same invention” type finds its support in the language of 35 U.S.C. 101 which states that “whoever invents or discovers any new and useful process... may obtain a patent therefor...” (Emphasis added). Thus, the term “same invention,” in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 10-13 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 23-26 of copending Application No. 13/235,065 (in particular, see US PGPub 2012/0010053). This is a provisional statutory double patenting rejection since the claims directed to the same invention have not in fact been patented.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of 35 U.S.C. 112(b):

Art Unit: 3764

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-20 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

In claim 16, the limitations “the front portion”; “the central portion”; and “the rear portion” render the claim indefinite because it is unclear if these portions pertain to the corresponding portions of the running belt (see claim 14) or the top profile (see claim 16).

### ***Claim Rejections - 35 USC § 103***

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which



Art Unit: 3764

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin 2006/0287165 in view of Cutter 3,642,279 and further in view of Magid 5,538,489.

Regarding claims 1 and 10, Pasqualin discloses a manually operated treadmill comprising: a treadmill frame 10 having a front end and a rear end opposite the front end; a front shaft (the shaft within pulley 13) rotatably coupled to the treadmill frame at the front end; a rear shaft (the shaft within pulley 14) rotatably coupled to the treadmill frame at the rear end; a running belt 15 upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft without the rotation of the running belt being generated by a motor and also causes the running surface of the running belt to move from the front shaft toward the rear shaft (abstract).

Pasqualin teaches the invention as substantially claimed, see above. However, Pasqualin fails to disclose: the running belt including a curved/contoured running surface.

Cutter teaches a human-powered treadmill with a curved running surface (figure 1).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin's treadmill with Cutter's curved belt in order to assist the user in balance, as taught by Cutter (abstract).

Pasqualin in view of Cutter teach the invention as substantially claimed, see above. However, they fail to disclose: a one-way bearing assembly coupled to at least one of the front shaft and the rear shaft, wherein the one-way bearing assembly prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction.

Magid teaches a human-powered treadmill comprising a one-way bearing assembly 6' mounted to the front shaft (by way of the belt) to provide unidirectional movement of the belt.

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter's treadmill with Magid's unidirectional bearing assembly in order to prevent the user from accidentally propelling the belt the wrong direction.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above, and further teach wherein the treadmill is configured to allow the user to manually control the speed of the running belt (Pasqualin: abstract) and to facilitate maintenance of a contour of the curved running surface (as broadly construed, the structure of the Pasqualin/Cutter/Magid treadmill ensures this function).

Regarding claim 2, the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft (Pasqualin: 22, figure 1).

Regarding claim 3, a front pulley (Pasqualin: 13) coupled to the front shaft; and a rear pulley (Pasqualin: 14) coupled to the rear shaft; wherein the running belt is supported by and contacts the front pulley and the rear pulley (Pasqualin: figure 1), wherein the radius of the front pulley is greater than the radius of the rear pulley (Pasqualin: figure 1).

Regarding claims 4 and 5, Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches, the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

However, it has been held that “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” See MPEP 2144.05 II. In this case, applicant does not assign criticality to the claimed dimensions and the dimensions to not yield unexpected results. Thus, it would have been obvious to one of ordinary skill in the art at the time before the effective filing date of the claimed invention to arrive at the claimed dimensions through routine experimentation.

Regarding claim 6, a braking system (Pasqualin: 22) configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

Regarding claim 7, a synchronizing system (Pasqualin: 22) coupled to both the front and rear shafts, wherein the synchronizing system is configured to provide a force that acts to resist differential rotation of the front and rear shafts.

Regarding claim 8, the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft (Magid: 6').

Regarding claim 9, the curved running surface comprising at least a convex curved section (Cutter: adjacent 20 as seen in figure 3) and a concave curved section (Cutter: adjacent 10 as seen in figure 3), wherein the concave curved section is located between the front shaft and the convex curved section (Cutter: figure 3).

Regarding claim 11, Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the one-way bearing assembly is rotatably coupled to the rear shaft and coupled to the treadmill frame.

Although Magid's one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize - and thus find it obvious - that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of Lee 4,548,405.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: at least one track supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface; and a plurality of roller assemblies supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface.

Lee teaches a treadmill comprising at least one track 38 supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface (figure 3); and a plurality of roller assemblies 44/48 supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface (figure 4).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter/Magid's treadmill with Lee's track system in order to prevent lateral movement of the belt with respect to the frame.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of Abelbeck 6,042,514.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: at least one magnet supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface.

Abelbeck teaches a treadmill comprising at least one magnet 52/54 supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface (figure 11).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter/Magid's treadmill with Abelbeck's magnets in order to ensure belt stability.

Claims 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt 1,211,765 in view of Magid.

Regarding claim 14, Schmidt discloses a manually operated treadmill comprising: a frame A supported on a substantially horizontal surface; a front shaft assembly supported by the frame and comprising: a front shaft I; and at least one front running belt pulley F supported by the front shaft; a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising: a rear shaft I'; and at least one

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rear running belt pulley F' supported by the rear shaft; a running belt D supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front portion adjacent the front shaft assembly, a rear portion adjacent the rear shaft assembly, and a central portion intermediate the front portion and the rear portion, the front portion and the rear portion being positioned vertically higher than a lowest point found in the central portion to form a curved running surface upon which a user of the treadmill may walk or run (figure 1), wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor (figure 1).

Schmidt teaches the invention as substantially claimed, see above. However, Schmidt fails to disclose: a one-way bearing assembly cooperating with one of the front shaft and the rear shaft to permit rotation of said one of the front shaft and the rear shaft in only one direction.

Magid teaches a human-powered treadmill comprising a one-way bearing assembly 6' mounted to the front shaft (by way of the belt) to provide unidirectional movement of the belt.

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Schmidt's treadmill with Magid's unidirectional bearing assembly in order to prevent the user from accidentally propelling the belt the wrong direction.

Regarding claim 15, Schmidt in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the one-way bearing assembly cooperates with the rear shaft.

Although Magid's one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize - and thus find it obvious - that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).

Regarding claim 16, at least one bearing rail (Schmidt: M) having a plurality of bearings (Schmidt: I) forming a top profile, the top profile defined by a front portion adjacent the front shaft assembly, a rear portion adjacent the rear shaft assembly, and a central portion intermediate the front portion and the rear portion, the central portion having a concave curve (Schmidt: figure 6), and the front portion and the rear portion being continuations of the concave curve (Schmidt: figure 6); wherein the running surface of the running belt is supported by the top profile of the at least one bearing rail such that the running surface substantially corresponds to the shape of the top profile of the at least one bearing rail (Schmidt: figures 1 and 6).

Regarding claim 17, the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley (Schmidt: figure 6).

Regarding claim 18, the running belt comprises a plurality of laterally extending slats (Schmidt: E).



***Allowable Subject Matter***

Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OREN GINSBERG whose telephone number is (571)270-3074. The examiner can normally be reached on Mon-Thur, 8:00-4:30 EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LoAn Thanh can be reached on (571)272-4966. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/OREN GINSBERG/  
Primary Examiner, Art Unit 3764

<b>Search Notes</b>  	<b>Application/Control No.</b>  14243716	<b>Applicant(s)/Patent Under Reexamination</b>  BAYERLEIN ET AL.
	<b>Examiner</b>  OREN GINSBERG	<b>Art Unit</b>  3764

CPC- SEARCHED		
Symbol	Date	Examiner
A63B: 22/02; 69/0028,0035	5/31/14	OG

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
482	2,23,37,51-52,54-56,69-71,79	3/19/13	OG
119	700	3/19/13	OG
434	247,255	3/19/13	OG
D21	662,668-669	3/19/13	OG
A63B	22/02	3/19/13	OG
UPDATED		6/2/14	OG

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTOR SEARCHED IN PALM AND EAST	6/2/14	OG
PLUS SEARCH	3/19/13	OG
CONSULTED JOSIE BALLATO REGARDING INTERFERENCE PROCEDURE	3/12/13	OG
UPDATED	7/29/13	OG
UPDATED	6/2/14	OG

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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				<b>Filing Date</b>	Herewith
				<b>First Named Inventor</b>	Douglas G. Bayerlein
				<b>Art Unit</b>	Not yet assigned
				<b>Examiner Name</b>	Not yet assigned
<b>Sheet</b>	5	of	5	<b>Attorney Docket Number</b>	097208-0193

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	A84	Plantar Fascia, <a href="http://en.wikipedia.org/wiki/Plantar_fascia">http://en.wikipedia.org/wiki/Plantar_fascia</a> , March 3, 2010, 3 pages.	
	A85	ROSS ET AL., The Effects of Treadmill Sprint Training and Resistance Training on Maximal Running Velocity and Power, National Strength and Conditioning Association, March 2009, 10 pages.	
	A86	SIROTIC ET AL., Physiological and Performance Test Correlates of Prolonged, High-Intensity, Intermittent Running Performance in Moderately Trained Women Team Sport Athletes, Journal of Strength and Conditioning Research, 2007, 7 pages.	
	A87	SIROTIC ET AL., The Reliability of Physiological and Performance Measures During Simulated Team-Sport Running on a Non-Motorised Treadmill, Journal of Science and Medicine in Sport, April 11, 2007, 10 pages.	
	A88	Soccer International, The Red Devil's in the Details, dated June 2010, 4 pages.	
	A89	The Woodway Force Brochure, The Best Way to Train for Speed & Athletic Power, dated May 5, 2005, 2 pages.	
	A90	Woodway, Curve 3.0 Specification, May 25, 2011, 1 page.	
	A91	Woodway, Curve Specification, May 24, 2011, 1 page.	
	A92	Woodway, Curve Specification, May 25, 2011, 1 page.	
	A93	Woodway, Curve XL Specification, May 18, 2011, 1 page.	
	A94	Woodway, Force Specification, April 8, 2008, 1 page.	
	A95	Woodway, Force Specification, May 2, 2011, 1 page.	
	A96	Woodway, Force Specification, May 2, 2012, 1 page.	
	A97	Woodway's Opposition to Defendant's Notice of Motion and Motion to Dismiss Case and Transfer Litigation to EDNY, Woodway USA, Inc. v. Aurel A. Astilean, Civ. Dkt. No. 2:13-cv-00681-WERC (E.D. WI), October 18, 2013, 22 pages.	

<b>Examiner Signature</b>	/Oren Ginsberg/	<b>Date Considered</b>	06/02/2014
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP . if possible. and . The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by . This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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4835-3726-2106.1





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## BIB DATA SHEET

CONFIRMATION NO. 1677

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/243,716	04/02/2014	482	3764	097208-0193
<b>RULE</b>				

**APPLICANTS**  
 Woodway USA, Inc., Waukesha, WI, Assignee (with 37 CFR 1.172 Interest);

**INVENTORS**  
 Douglas G. Bayerlein, Oconomowoc, WI;  
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 Nicholas A. Oblamski, Waukesha, WI;  
 Scott D. Hoerig, Brookfield, WI;  
 Matthew J. Zank, Milwaukee, WI;  
 Robert L. Zimpel, Menomonee Falls, WI;  
 Joel W. Richards, Wauwatosa, WI;

**\*\* CONTINUING DATA \*\*\*\*\***  
 This application is a CON of 13/235,065 09/16/2011  
 which is a CIP of PCT/US10/27543 03/16/2010  
 which claims benefit of 61/161,027 03/17/2009

**\*\* FOREIGN APPLICATIONS \*\*\*\*\***

**\*\* IF REQUIRED, FOREIGN FILING LICENSE GRANTED \*\* \*\* SMALL ENTITY \*\***  
 04/24/2014

Foreign Priority claimed 35 USC 119(a-d) conditions met Verified and Acknowledged	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No /OREN ISAAC GINSBERG/ Examiner's Signature	<input type="checkbox"/> Met after Allowance  Initials	<b>STATE OR COUNTRY</b>  WI	<b>SHEETS DRAWINGS</b>  20	<b>TOTAL CLAIMS</b>  20	<b>INDEPENDENT CLAIMS</b>  3
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**ADDRESS**  
 FOLEY & LARDNER LLP  
 3000 K STREET N.W.  
 SUITE 600  
 WASHINGTON, DC 20007-5109  
 UNITED STATES

**TITLE**  
 MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

<b>FILING FEE RECEIVED</b> 730	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
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		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
		<input type="checkbox"/> 1.18 Fees (Issue)
		<input type="checkbox"/> Other _____
		<input type="checkbox"/> Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	8	((DOUGLAS) near2 (BAYERLEIN)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:48
L2	4	((VANCE) near2 (EMONS)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:52
L3	6	((NICHOLAS) near2 (OBLAMSKI)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:53
L4	3	((SCOTT) near2 (HOERIG)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:53
L5	2	((MATTHEW) near2 (ZANK)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:53
L6	4	((ROBERT) near2 (ZIMPEL)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:54
L7	86	((JOEL) near2 (RICHARDS)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2014/06/02 08:54
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S3	4	((NICHOLAS) near2 (OBLAMSKI)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2013/03/18 13:50
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		"6348025").PN.				
S9	46	ginsberg.xp.	US-PGPUB; USPAT; USOCR	OR	ON	2013/03/18 14:01
S10	5	astilean.in.	US-PGPUB; USPAT; USOCR	OR	ON	2013/03/18 14:01
S11	17	("1211765"   "20120010048"   "20120010053"   "20120157267"   "3489408"   "3637206"   "3642279"   "3669238"   "4614337"   "5470293"   "5577598"   "5709632"   "6053848"   "6146315"   "6348025").PN. OR ("8308619"   "8343016").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2013/03/18 14:43
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S15	1766	(482/51).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 08:23
S16	1370	(482/52).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 08:43
S17	1416	(482/54).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 08:59
S18	471	(482/55-56).CCLS.	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2013/03/19 09:36

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S22	123	(119/700).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 10:02
S23	995	(434/247,255).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 10:04
S24	619	(D21/662,668-669).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/19 11:16
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S27	63	S26 and treadmill and one with way with bearing	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/03/19 11:17
S28	0	S26 and treadmill and unidirectional with bearing	US-PGPUB; USPAT;	OR	ON	2013/03/19 11:23

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S34	0	((Aurel) near2 (ASTILIAN)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2013/04/23 11:18
S35	5	((ASTILeAN)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2013/04/23 11:18
S36	1	S35 and fin	US-PGPUB; USPAT; USOCR	OR	ON	2013/04/23 11:19
S37	216	treadmill and (remov\$4 detach\$4) with (grip rail handlebar handrail rail)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/04/23 12:10
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			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
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6/ 2/ 2014 10:24:14 AM

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2957	a63b22/02.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/31 12:03
S2	1950	a63b69/0028.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/31 20:16
S3	250	a63b69/0035.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/31 21:03

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/243,716	04/02/2014	Douglas G. Bayerlein	097208-0193

**CONFIRMATION NO. 1677**

## PUBLICATION NOTICE



\*OC00000069928862\*

26371  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

**Title:**MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

**Publication No.**US-2014-0213419-A1

**Publication Date:**07/31/2014

## NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS  
OF OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 04/02/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

**AMENDMENT AND REPLY UNDER 37 CFR 1.111**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

This communication is responsive to the Non-Final Office Action dated June 11, 2014, concerning the above-referenced patent application.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this document.

**Remarks** begin on page 8 of this document.

Please amend the application as follows:

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A manually operated treadmill comprising:
  - a treadmill frame having a front end and a rear end opposite the front end;
  - a front shaft rotatably coupled to the treadmill frame at the front end;
  - a rear shaft rotatably coupled to the treadmill frame at the rear end;
  - a running belt including a curved running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft; and
  - a ~~one-way bearing assembly~~ safety device coupled to at least one of the front shaft and the rear shaft, wherein the ~~one-way bearing assembly~~ safety device prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction;

wherein the treadmill is configured to allow the user to manually control the speed of the running belt and to facilitate maintenance of a contour of the curved running surface.
2. (Currently Amended) The manually operated treadmill of claim 1, wherein the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate the running belt maintaining the curved running surface.
3. (Original) The manually operated treadmill of claim 2, further comprising:
  - a front pulley coupled to the front shaft; and
  - a rear pulley coupled to the rear shaft;

wherein the running belt is supported by and contacts the front pulley and the rear pulley, wherein the radius of the front pulley is greater than the radius of the rear pulley.

4. (Original) The manually operated treadmill of claim 3, wherein the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches.

5. (Original) The manually operated treadmill of claim 4, wherein the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

6. (Original) The manually operated treadmill of claim 2, further comprising a braking system configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

7. (Currently Amended) The manually operated treadmill of claim 1, further comprising a synchronizing system ~~coupled to both~~ interconnecting the front and rear shafts, wherein the synchronizing system is configured to provide a force that acts to resist differential rotation of the front and rear shafts.

8. (Original) The manually operated treadmill of claim 1, wherein the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.

9. (Currently Amended) The manually operated treadmill of claim 8 ~~[[1]]~~, wherein the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section.

10. (Currently Amended) A manually operated treadmill comprising:  
a treadmill frame;  
a front shaft rotatably coupled to the treadmill frame;  
a rear shaft rotatably coupled to the treadmill frame;  
a running belt including a concavely contoured running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running belt to rotate about the front shaft and the rear shaft without the rotation of the running belt being generated by a motor; and  
~~a one-way bearing assembly~~ safety device rotatably coupled to the rear shaft,  
coupled to the treadmill frame, and configured to prevent rotation of the running surface of the running belt in one direction.

11. (Canceled)

12. (Original) The manually operated treadmill of claim 10, further comprising:  
at least one track supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface; and  
a plurality of roller assemblies supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface.

13. (Original) The manually operated treadmill of claim 10, further comprising:  
at least one magnet supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface.

14. (Currently Amended) A manually operated treadmill comprising:

a frame supported on a substantially horizontal surface;  
a front shaft assembly supported by the frame and comprising:  
    a front shaft; and  
    at least one front running belt pulley supported by the front shaft;  
a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising:  
    a rear shaft; and  
    at least one rear running belt pulley supported by the rear shaft;  
a running belt supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front belt portion adjacent the front shaft assembly, a rear belt portion adjacent the rear shaft assembly, and a central belt portion intermediate the front belt portion and the rear belt portion, the front belt portion and the rear belt portion being positioned vertically higher than a lowest point found in the central belt portion to form a curved running surface upon which a user of the treadmill may walk or run, wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor; and  
a ~~one-way bearing assembly~~ safety device cooperating with ~~one of the front shaft and the rear shaft~~ to permit rotation of ~~said one of the front shaft and the rear shaft~~ in only one direction.

15. (Canceled)

16. (Currently Amended) The manually operated treadmill of claim 14, further comprising at least one bearing rail having a plurality of bearings rotatably coupled to the at least one bearing rail and forming a top profile, the top profile defined by a front profile portion adjacent the front shaft assembly, a rear profile portion adjacent the rear shaft assembly, and a central profile portion intermediate the front profile portion and the rear profile portion, the central profile portion having a concave curve, and the front profile portion and the profile rear portion being continuations of the concave curve;

wherein the running surface of the running belt is supported by the top profile of the at least one bearing rail such that the running surface substantially corresponds to the shape of the top profile of the at least one bearing rail.

17. (Original) The manually operated treadmill of claim 16, the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley.

18. (Original) The manually operated treadmill of claim 17, wherein the running belt comprises a plurality of laterally extending slats.

19. (Original) The manually operated treadmill of claim 18, wherein:  
the front shaft assembly comprises a second front running belt pulley supported by the front shaft and spaced laterally from the at least one front running belt pulley;  
the rear shaft assembly comprises a second rear running belt pulley supported by the rear shaft and spaced laterally from the at least one rear running belt pulley;  
the at least one bearing rail further comprises a second bearing rail having a plurality of bearings forming a top profile matching the top profile of the first of the at least one bearing rail, the second bearing rail being longitudinally aligned with the second front running belt pulley and the second rear running belt pulley;  
the running belt comprises a first endless belt and a second endless belt, wherein the first endless belt is supported by the at least one front running belt pulley, the first of the at

least one bearing rail, and the at least one rear running belt pulley, and wherein the second endless belt is supported by the second front running belt pulley, the second bearing rail, and the second rear running belt pulley; and

the plurality of laterally extending slats extend between the first endless belt and the second endless belt.

20. (Original) The manually operated treadmill of claim 19, wherein the rear portion of the at least one bearing rail is positioned and shaped to provide a smooth transition for the running belt from the at least one bearing rail onto the at least one rear running belt pulley.

21. (New) The manually operated treadmill of claim 14, wherein the safety device comprises a one-way bearing.

22. (New) The manually operated treadmill of claim 1, wherein the safety device comprises a one-way bearing.

23. (New) The manually operated treadmill of claim 8, wherein the safety device cooperates with the rear shaft to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft

24. (New) The manually operated treadmill of claim 10, wherein the safety device comprises a one-way bearing.

**REMARKS**

This Amendment and Reply is intended to be completely responsive to the Non-Final Office Action dated June 11, 2014. Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 1-2, 7, 9-10, 14, and 16 have been amended. Claims 11 and 15 have been canceled without prejudice to further prosecution on the merits. New Claims 21-24 have been added. No new matter has been added. Accordingly, Claims 1-10, 12-14, and 16-24 will be pending in the present application upon entry of this Amendment and Reply.

A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

**Allowable Subject Matter**

On page 12 of the Office Action, the Examiner stated Claims 19 and 20 “would be able allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” Applicant thanks the Examiner for this notice of allowable subject matter.

**Double Patenting**

On page 2 of the Office Action, the Examiner provisionally rejected Claims 10-13 on the ground of statutory double patenting as being unpatentable over Claims 23-26 of co-pending Application No. 13/235,065.

Claims 23-26 of the '065 Application had been previously canceled. Accordingly, the rejection is now moot.

Accordingly, withdrawal of the rejection under 35 U.S.C. § 101 is respectfully requested.



**Claim Rejections – 35 U.S.C. § 112**

On pages 2-3 of the Office Action, the Examiner rejected Claims 16-20 under 35 U.S.C. § 112(b) for failing to particularly point out and distinctly claim the subject matter as the invention.

Applicant respectfully disagrees that the scope of Claim 16 was unclear; however, to move forward with prosecution on the merits, has been amended to recite, in part:

the top profile defined by a front profile portion adjacent the front shaft assembly, a rear profile portion adjacent the rear shaft assembly, and a central profile portion intermediate the front profile portion and the rear profile portion, the central profile portion having a concave curve, and the front profile portion and the profile rear portion being continuations of the concave curve;

This amendment of Claim 16 is a purely clarifying amendment and does not change the scope of Claim 16 as filed.

Reconsideration and withdrawal of the rejection of Claims 16-20 under 35 U.S.C. § 112(b) is respectfully requested.

**Safety Device**

Independent Claims 1, 10, and 14 have been amended to replace the term “one-way bearing” with the term “safety device”. Support for this amendment may be found in at least Paragraphs 0149 and 0152 of the Written Description. The scope of the Examiner’s search for a “one-way bearing” returned the unidirectional control means having a ratchet and pawl of Magid. Accordingly, it is believed that such amendments simply make the scope of the claims more in line with the scope of the Examiner’s search and should not require additional searching by the Examiner.

**Claim Rejections – 35 U.S.C. § 103**

*Claims 1-11*

On pages 3-7 of the Office Action, the Examiner rejected Claims 1-11 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2006/0287165 (“Pasqualin”) in view of U.S. Patent No. 3,642,279 (“Cutter”) and further in view of U.S. Patent No. 5,538,489 (“Magid”).

Regarding independent Claims 1 and 10, on page 4 of the Office Action, the Examiner asserts, “It would have been obvious ... to modify Pasqualin’s treadmill with Cutter’s curved belt to assist the user in balance, as taught by Cutter (abstract)”.

However, that is not what Cutter teaches. Cutter teaches:

A continuous belt has an upper course lying above and resting on these rollers, and a lower course below them, so that a person walking, jogging, or running on them automatically locates himself fore-and-aft of the exerciser by the balance between his weight, his speed, and the variation in inclination along the curved path of the continuous belt. (Cutter, Abstract. Emphasis added.)

In other words, the faster the user runs, the higher up the curved treadmill the user will footfall. This does not “assist the user in balance” as indicated by the Examiner. Accordingly, the Examiner has not provided an articulated reasoning with some rational underpinning to combine the references as required in MPEP 2142 and, therefore, has not established a prima facie case of obviousness.

On page 5 of the Office Action, the Examiner asserts, “It would have been obvious ... to modify Pasqualin/Cutter’s treadmill with Magid’s unidirectional control means in order to prevent the user from accidentally propelling the belt in the wrong direction.”

However, as described in the attached declaration, a person of skill in the art at the time of the invention would not have looked to Magid from the alleged combination of Pasqualin and Cutter.

Pasqualin teaches a “muscle-powered vehicle” comprising a treadmill having a belt wide enough to allow the running of one or more users. (Pasqualin, Paras. 0016, 0032.) Pasqualin teaches that running surface of the belt is flat. (Pasqualin, FIGS. 1, 3.)

Cutter teaches a treadmill having a belt that is wide enough for a runner to run on. (Cutter, FIG. 1.) The belt follows an arcuate path having a small acute angle to the horizontal at the rear and a steeper angle at the fore. (Cutter, 3:43-56.)

Accordingly, if there were a motivation to combine Pasqualin and Cutter, the result would be a treadmill having a single belt wide enough to run on and having an increasing angle relative to horizontal from rear to fore intended for use by coordinated individuals looking to exercise. As indicated in the office action, such alleged combination fails disclose, teach, or suggest a safety device.

In contrast, Magid teaches two flat, parallel foot belts that “move independently when treaded by the left and right feet of the user, thereby preventing the action of the user’s left foot from influencing the action of his right foot and vice-versa.” (Magid, 5:19-27.) This treadmill is specifically intended for use by “people with uncoordinated foot movements, such as small children, physically handicapped people and old people.” (Magid 1:30-35; 5:52-55.)

Thus, Magid provides the ratchet gear to prevent people with uncoordinated feet movements from propelling their feet in opposite directions on the independent belts (i.e. doing the splits). This may occur, for example in with infants sitting in the baby chairs of FIGS. 5-7 of Magid.

The Examiner’s only motivation to combine the Pasqualin/Cutter references and the Magid reference is “to prevent the user from accidentally propelling the belt in the wrong direction.” However, this motivation is only found in the Applicant’s disclosure, but “the legal conclusion must be reached on the basis of the facts gleaned from the prior art.” MPEP 2142, emphasis added.

Because Pasqualin and Cutter both teach a single belt, it is highly unlikely, if not impossible, for the user to propel their feet in opposite directions on the single belt. Further, because the alleged combination of Pasqualin and Cutter teaches a positively inclined running surface for the treadmill, the user's weight will naturally cause the running surface of the belt to drive in the front-to-rear direction.

Accordingly, the Examiner has not presented a *prima facie* case of obviousness under MPEP 2142, relying only on the prior art, and not relying on the present application.

Additionally, Magid specifically teaches away from the use of a single, wide belt because a twisting moment is applied to either the left foot or the right foot when treading the left-side or right side parts of the belt. (Magid 1:22-38). It is improper to combine references where the references teach away from their combination. MPEP 2145(X)(D)(2).

Further, a curved running surface would add difficulty walking for uncoordinated, thereby rendering Magid unsatisfactory for its intended purpose in violation of MPEP 2143.01(V).

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claims 1 and 10 because at least one element of such claim is not disclosed, taught or suggested by Pasqualin, Cutter, and/or Magid, alone or in any proper combination. Claims 2-6 and 8-9, as they variously depend from Claim 1, are allowable therewith without regard to the further patentable subject matter set forth in such claims. Reconsideration and withdrawal of the rejections of Claims 1-6 and 8-9 is respectfully requested.

Additionally, Claim 10 as amended recites, in part, "a safety device coupled to the rear shaft, coupled to the treadmill frame, and configured to prevent rotation of the running surface of the running belt in one direction." Support for this amendment may be found in Claim 11.

In rejecting the subject matter of Claim 11, the Examiner asserts that “Although Magid’s one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize – and thus find it obvious – that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).”

However, as described in the attached declaration, moving the safety device to the rear shaft does change the operation of the device.

Referring to Paragraph 0085 of the Written Description (reproduced below), a curved treadmill inherently has a greater belt length than a flat treadmill having the same shaft-to-shaft distance (labeled X in FIG. 5, reproduced below). Gravity causes the excess length of the belt to gather on and underside of the treadmill.

[0085] Following the shape of the bearing rails 200 is not the natural tendency of the running belt for the particular contour seen in FIG. 5. Rather, without more, the running belt 16 tends to be pulled upward, away from the curved bearing rails and across the central portion 76 of the treadmill 10. Under the force of gravity, the weight of the running belt 16 coupled with the relative spacing between the front and rear running belt pulleys 62 and 66, respectively, would likely result in the top surface of the running belt 16 assuming a position of the shortest distance between the two pulleys, namely, a substantially straight line between the two pulleys with any excess length of the running belt 16 collecting on the bottom of the treadmill and hanging below the front and rear running belt pulleys 62 and 66, respectively.

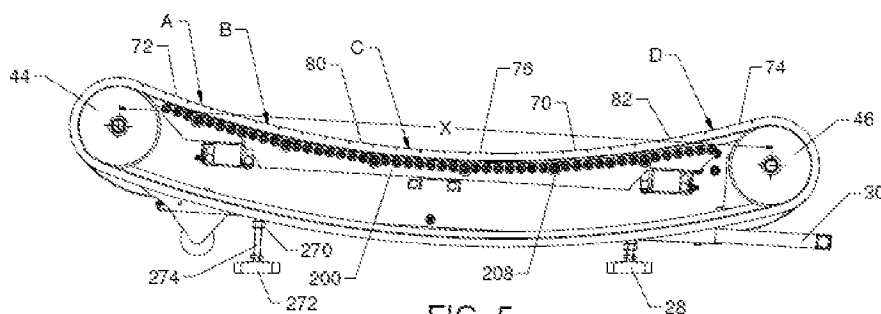


FIG. 5

Accordingly, if a user's foot were to drive the belt forward on a curved treadmill, and the unidirectional control means of Magid were coupled to the front shaft, the running surface of the belt would have to move forward until the slack below the belt was taken up to and the unidirectional control means was engaged. That is, the belt extending around the rear shaft and under the treadmill would have to be made taught before the unidirectional control means engaged.

In contrast, if a user were to drive the belt forward, and a safety device were coupled to the rear shaft as provided in Claim 10, the user's foot and corresponding belt portion would move forward until the slack between the user's foot and the rear shaft were taken up. And because gravity tends to pull the belt to be taught across the top of the running surface, the belt is likely to be pre-tensioned. Therefore, a safety device coupled to the rear shaft engages with minimal, if any, movement of the belt.

Thus, mounting the safety device to the rear shaft of the treadmill does change the operation of the treadmill versus the safety device coupled to the front shaft. Accordingly, this is not mere rearrangement of parts under MPEP 2144.04)(VI)(C), and therefore is not *prima facie* obvious.

Moreover, Magid never discloses, teaches, or suggest moving the unidirectional control means to the rear shaft. Because the treadmill of Magid is a flat running surface, the belt already follows the shortest-distance path, so the belt does not need the extra length required by a curved treadmill. Therefore, the unidirectional control means of Magid would engage with minimal movement because there is little slack to take up before engaging the unidirectional control means coupled to the front shaft.

Accordingly, reconsideration and withdrawal of the rejection of Claim 10 is respectfully requested.

Additionally, Claim 2 recites, in part, “wherein the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft.” (Emphasis added.) In rejecting Claim 2, the Examiner asserts, “the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft (Pasqualin: 22, figure 1).”

However, as discussed in the attached declaration, Pasqualin does not disclose, teach or suggest the speed of the running belt is greater at the front shaft than the rear shaft. In fact, Pasqualin makes no mention of the speed or velocity of the walkable belt 15a. Accordingly, one would expect that the larger front roller 13 of Pasqualin would simply spin slower than that the rear roller 14, but differential rotational velocities of the front and rear shaft is not what is claimed, it is “the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft” that is recited in Claim 2. Further, neither Cutter nor Magid cure the deficiencies of Pasqualin.

Accordingly, reconsideration and withdrawal of the rejection of Claim 2 is respectfully requested because at least one element of Claim 2 is not disclosed, taught, or suggested by Pasqualin, Cutter, and/or Magid, alone or in any proper combination.

Additionally, Claim 4 recites, in part, “wherein the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches,” and Claim 5 recites, in part, “wherein the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.”

In rejecting Claims 4 and 5, the Examiner acknowledges that the cited references fail to disclose the claimed difference in pulley size, but asserts that the claimed dimensions are not critical or provide unexpected results. Applicants respectfully disagree.

First, the belt of the Pasqualin treadmill extends linearly between the front and rear rollers. Accordingly, the belt is made sufficiently taught to maximize energy transmission from the user to the rear pulley and paddlewheel system. Thus, the alleged braking system of Pasqualin would not cause the belt to have different speeds around the front and rear rollers; instead, the tension in the belt of Pasqualin would cause the front and rear rollers to rotate at different speeds.

Second, referring to FIG. 3 of Cutter, even if Pasqualin were combined with Cutter to create a convex treadmill, the Examiner has not identified which roller of Cutter would be the enlarged front roller of Pasqualin, nor do any of the references provide a suggestion as to which roller it would be. One would presume roller 25; however, this would cause the excess length of belt to collect between the roller 25 and the top roller 18 (near reference numeral 12). Nothing in Pasqualin, Cutter, or Magid teaches how this would “facilitate maintenance of the contour of the curved running surface” as recited in Claim 2, from which Claim 6 depends.

Third, even if the excess length of belt in the Cutter/Pasqualin treadmill were to end up on the running surface, the extreme difference in front and rear roller size of Pasqualin would quickly cause the all of the excess belt length to pile up on the top of the treadmill. The extreme amount of excess length may create ripples of belt and loose sections that would make running on the running surface difficult for the user, thereby making the resulting product unsatisfactory for its intended purpose.

In contrast, as discussed in the attached declaration, the ranges of diameter differences recited in Claims 4 and 5 cause a sufficient amount of belt to accrue on the running surface to maintain the contour of the belt without causing the belt to pile up. That is, the increased speed of the belt around the front pulley puts sufficient excess belt on top of the treadmill to compensate for gravity pulling the belt below the treadmill, which would cause the belt to raise up (i.e., bounce, flop, etc.), during running. The prior art did not recognize the difference in diameter of the front and rear pulleys as being a result-effective variable. Pasqualin, Magid, Lee, and Abelbeck all teach flat running surfaces, and Pasqualin and Schmidt do not disclose, teach,



or suggest changing the diameters of the front and rear rollers. In fact, Pasqualin and Schmidt do not even address the problem of belt bounce in a curved treadmill. Because the difference in diameter of the front and rear pulleys was not recognized as being a result-effective variable, the determination of the optimum or workable ranges of said variable cannot be characterized as routine experimentation. MPEP 2144.05(II)(B).

Accordingly, reconsideration and withdrawal of the rejections of Claims 4 and 5 is respectfully requested because a *prima facie* case of obviousness has not been established.

Additionally, Claim 6 recites, in part, “a braking system configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.” In rejecting Claim 6, the Examiner merely states, “a braking system (Pasqualin: 22) configured to slow rotation of the rear shaft resulting in greater speed of the running belt at the front shaft.”

First, as discussed in the attached declaration, the belt of the Pasqualin treadmill extends linearly between the front and rear rollers. Accordingly, the belt is made sufficiently taught to maximize energy transmission from the user to the rear pulley and paddlewheel system. Thus, the alleged braking system of Pasqualin would not cause the belt to have different speeds around the front and rear rollers; instead, the tension in the belt of Pasqualin would cause the front and rear rollers to rotate at different speeds.

Second, as discussed in the attached declaration, referring to FIG. 3 of Cutter, even if Pasqualin were combined with Cutter to create a curved treadmill, the Examiner has not identified which roller of Cutter would be the enlarged front roller of Pasqualin, nor do any of the references provide a suggestion as to which roller it would be. One would presume roller 25; however, this would cause the excess length of belt to collect between the roller 25 and the top roller 18 (near reference numeral 12). Nothing in Pasqualin, Cutter, or Magid teaches how this would “facilitate maintenance of the contour of the curved running surface” as recited in Claim 2, from which Claim 6 depends.

It is respectfully submitted that the Examiner has provided “mere conclusory statements” instead of “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” as required by MPEP 2142.

Further, the braking system as used by an Examiner solves a problem only existing in a curved treadmill (i.e., when the Examiner combines Pasqualin and Cutter). But none of the references discuss the problem, provide proposed solutions to the problem, or suggest how to combine the references to address the problem. The motivation to use a braking system “to facilitate maintenance of the contour of the curved running surface” is only found in the Applicant’s disclosure. But MPEP 2142 requires that “the legal conclusion must be reached on the basis of the facts gleaned from the prior art.”

In other words, the Examiner has created a problem not existing in Pasqualin, to use an element in Pasqualin presented for a completely different purpose (locomotion) to solve a problem not disclosed, taught, or suggested in any of the references. Accordingly, reconsideration and withdrawal of the rejections of Claim 6 is respectfully requested because the Examiner has not presented a *prima facie* case of obviousness under MPEP 2142, relying only on the prior art, and not relying on the present application.

Additionally, Claim 7 as amended recites, in part, “a synchronizing system interconnecting the front and rear shafts.” In rejecting Claim 7, the Examiner averred that the propeller 22 of Pasqualin is a synchronizing system coupled to both the front and rear shafts.

Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 7 because Pasqualin, Cutter, and/or Magid, alone or in any proper combination disclose “a synchronizing system interconnecting the front and rear shafts,” as recited in Claim 7.

Additionally, Claim 9 has been amended to depend from Claim 8 and to recite, in part, “wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section.” In rejecting Claim 9, the Examiner cites the contour of Cutter; however, the contour of Cutter is continuously positively inclined as seen in Cutter, FIG. 3.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 9 because Pasqualin, Cutter, and/or Magid, alone or in any proper combination disclose “wherein the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section,” as recited in Claim 9.

#### *Claims 12-13*

On pages 7-8 of the Office Action, the Examiner rejected Claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of U.S. Patent No. 4,548,405 (“Lee”). On pages 8-9 of the Office Action, the Examiner rejected Claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of U.S. Patent No. 6,042,514 (“Abelbeck”).

Applicants respectfully submit that Claims 12 and 13 are allowable for at least the reasons set forth with respect to Claim 10, from which Claims 12 and 13 depend. Neither Lee nor Abelbeck cure the deficiencies of Pasqualin, Cutter, and Magid, as discussed with respect to Claim 10. Lee was only cited for allegedly disclosing a track and roller assemblies, and Abelbeck was only cited for allegedly disclosing magnetically attractive magnets.

Additionally, in regards to Claim 13, it is further noted that Abelbeck merely teaches, “permanent magnets 52 are mounted to the deck members 22 and the coils 54 generate the electromagnetic field to drive the permanent magnets 52.” (Abelbeck, 7:8-34.) Thus, Abelbeck

does not teach “at least one magnet supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface,” as recited in Claim 13 (underlining added for emphasis). Accordingly, reconsideration and withdrawal of the rejection of Claim 13 is respectfully requested.

*Claims 14-18*

On pages 9-11 of the Office Action, the Examiner rejected Claims 14-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 1,211,765 (“Schmidt”) in view of Magid.

Claim 14 has been amended to recite, in part, “a safety device cooperating with the rear shaft to permit rotation of the rear shaft in only one direction.” Support for this amendment can be found in at least Claim 15.

In rejecting the subject matter of Claim 15, the Examiner acknowledges that the treadmill of Schmidt in view of Magid fails to disclose “the one-way bearing assembly cooperates with the rear shaft.” The Examiner then asserts that “Although Magid’s one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize – and thus find it obvious – that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).”

However, as discussed in the attached declaration, moving the safety device to the rear shaft does change the operation of the device.

Referring to Paragraph 0085 of the Written Description (reproduced above), a convex treadmill inherently has a greater belt length than a flat treadmill having the same shaft-to-shaft

distance (labeled X in FIG. 5, reproduced above). Gravity causes the excesses length of the belt to gather on and underside of the treadmill.

Accordingly, if a user's foot were to drive the belt forward on the convex treadmill of Schmidt, and the unidirectional control means of Magid were coupled to the front shaft, the running surface of the belt would have to move forward until the slack below the belt was taken up to and the unidirectional control means was engaged. That is, the belt extending around the rear shaft and under the treadmill would have to be made taught before the unidirectional control means engaged.

In contrast, if a user were to drive the belt forward, and a safety device were coupled to the rear shaft as provided in Claim 14, the user's foot and corresponding belt portion would move forward until the slack between the user's foot and the rear shaft were taken up. And because gravity tends to pull the belt to be taught across the top of the running surface, the belt is likely to be pre-tensioned. Therefore, a safety device coupled to the rear shaft engages with minimal, if any, movement of the belt.

Thus, providing the safety device to the rear shaft of the treadmill does change the operation of the treadmill versus the safety device coupled to the front shaft. Accordingly, this is not mere rearrangement of parts under MPEP 2144.04)(VI)(C), and therefore is not *prima facie* obvious. Accordingly, reconsideration and withdrawal of the rejection of Claim 14 is respectfully requested.

Additionally, Claim 16 has been amended to recite, in part, "at least one bearing rail having a plurality of bearings rotatably coupled to the at least one bearing rail and forming a top profile." In rejecting Claim 16, the Examiner averred that Schmidt disclosed, "at least one bearing rail (Schmidt: M) having a plurality of bearings (Schmidt: l) forming a top profile.

Schmidt discloses that the “frictional, resilient suspension bars 1 are shown three in number” and that “[f]or the purposes of regulating the depression of suspension members 1, these members are preferably secured together by a transverse cleat M.” (Schmidt, 3:116-130.) Schmidt does not disclose, teach, or suggest the suspension bars 1 are rotatably coupled to the transverse cleat M. Magid does not cure the deficiencies of Schmidt.

Accordingly, reconsideration and withdrawal of the rejection of Claim 16 is respectfully requested because Schmidt, alone or in any proper combination with Magid, fails to disclose, teach, or suggest, “at least one bearing rail having a plurality of bearings rotatably coupled to the at least one bearing rail and forming a top profile,” as recited in Claim 16 as amended.

Additionally, Claim 17 recites, in part, “the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley.”

In rejecting Claim 17, the Examiner conclusorily states, “the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley (Schmidt: figure 6).” However, Schmidt expressly teaches that the suspension members 1 “are preferably secured together by a transverse cleat M.” (Schmidt 3:128-130.) Magid does not cure the deficiencies of Schmidt.

Accordingly, reconsideration and withdrawal of the rejection of Claim 16 is respectfully requested because Schmidt, alone or in any proper combination with Magid, fails to disclose, teach, or suggest, “the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley,” as recited in Claim 17.

### **New Claims**

Applicants have added new Claims 21-24 to provide claims of varying scope. New Claim 21, which depends from independent Claim 14, new Claims 22 and 23, which variously depend from independent Claim 1, and new Claim 24, which depends from independent Claim 10, are allowable therewith for at least the same reasons set forth above, without regard to the further patentable subject matter set forth in such claims. Accordingly, consideration and allowance of Claims 21-24 is respectfully requested.

Additionally, Claim 23 recites, in part, “wherein the safety device cooperates with the rear shaft to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.” As discussed above with respect to Claims 10 and 14, providing a safety device that cooperates with the rear shaft of the treadmill does change the operation of the treadmill versus a unidirectional control means coupled to the front shaft as taught by Magid. Accordingly, this is not mere rearrangement of parts under MPEP 2144.04(VI)(C), and therefore is not *prima facie* obvious. Accordingly, consideration and allowance of Claim 23 is respectfully requested.

\* \* \*

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. Applicants respectfully request favorable consideration and allowance of all pending claims.

It should also be noted that although arguments have been presented with respect to certain claims herein, the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons. Further, the failure to address any statement by the Examiner herein should not be interpreted as acquiescence or agreement with such statement. Applicants expressly reserve the right to set forth additional and/or alternative reasons for patentability and/or allowance with the present Application or in

any other future proceeding, and to rebut any statement presented by the Examiner in this or other papers during prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extension fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date September 11, 2014

By /John C. Geis/

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*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE*

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS  
OF OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 04/02/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

DECLARATION UNDER 37 CFR 1.132

Sir:

The undersigned, NICHOLAS A. OBLAMSKI, declare as follows:

1. I received my bachelor's degree in mechanical engineering in 2003 from the Milwaukee School of Engineering.
2. I have been employed for over 9 years at Woodway USA, Inc., for over 9 years where I have been responsible for the design and development of several treadmills. I am currently Engineering Manager at Woodway USA.
3. I am one of the inventors of the invention disclosed in U.S. Patent Application No. 14/243,716 ("the '716 application"). My employer, Woodway USA, Inc., owns the '716 application. Other than my regular salary, I have not been provided any additional compensation for preparing this declaration.
4. I have read and understood the references cited in the Office Action dated June 11, 2014, including:
  - a. U.S. Patent Application Publication No. 2006/0287165 to Pasqualin ("Pasqualin");

- b. U.S. Patent No. 3,642,279 to Cutter ("Cutter");
- c. U.S. Patent No. 5,538,489 to Magid ("Magid");
- d. U.S. Patent No. 4,548,405 to Lee ("Lee");
- e. U.S. Patent No. 6,042,514 to Abelbeck ("Abelbeck"); and
- f. U.S. Patent No. 1,211,765 to Schmidt ("Schmidt").

### Development

5. Prior to 2009, I was tasked by my superiors at Woodway USA with developing a manually powered treadmill, that is, a treadmill powered by the user's legs and not driven by a motor.

6. The engineering team decided to use a convex treadmill because, among other things, the convex running surface helps to "contain" a user as they speed or slow down. That is, a runner who speeds up will move up the sloped front end, but will not run off the front of the treadmill.

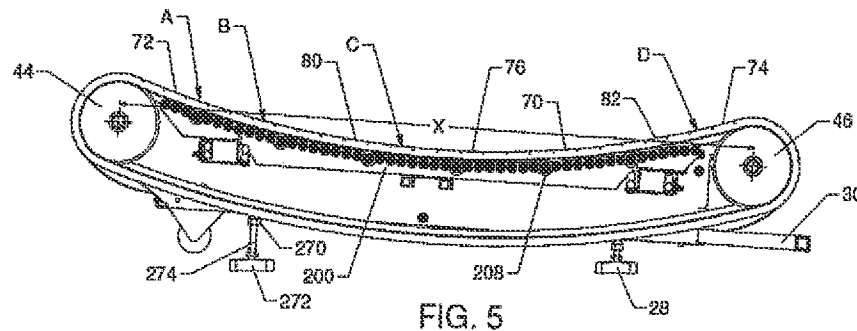
7. As seen in the Schmidt patent, the basic idea of a treadmills having convex running surface has been around for a while. But, the convex running surface had some problems that had not been solved.

8. First, the belt on a convex treadmill tends to bounce or flop as a user runs because the belt over the running surface tends to rise when the user is in mid-stride (i.e., in the air).

9. As discussed in Paragraph 0085 of the present application, gravity causes any slack in the running belt to gather at the bottom of the treadmill:

- a. [0085] Following the shape of the bearing rails 200 is not the natural tendency of the running belt for the particular contour seen in FIG. 5. Rather, without more, the running belt 16 tends to be pulled upward, away from the curved bearing rails and across the central portion 76 of the

treadmill 10. Under the force of gravity, the weight of the running belt 16 coupled with the relative spacing between the front and rear running belt pulleys 62 and 66, respectively, would likely result in the top surface of the running belt 16 assuming a position of the shortest distance between the two pulleys, namely, a substantially straight line between the two pulleys with any excess length of the running belt 16 collecting on the bottom of the treadmill and hanging below the front and rear running belt pulleys 62 and 66, respectively.



10. Because the shortest distance between two points is a straight line, the gathering of the belt towards the bottom of the treadmill is exacerbated in convex treadmills. In contrast, treadmills having a linear running surface do not experience this problem because the belt is already linear, so there is no slack to be straightened out.

11. Second, there is an increased chance of unexpected motion on a convex treadmill.

12. On a flat treadmill, or one having a positively sloped running surface, a user would not expect the treadmill belt to rotate in the reverse direction by force of gravity when the user first steps on the treadmill.

13. It is common for a user to enter the treadmill from the rear. Referring to Figure 5 (reproduced above), when a user steps on the rear of the treadmill, for example at the spots marked 74, 82, or D, the user's weight may cause the belt to unexpectedly rotate forward (the reverse of the normal operating direction). This may startle the user or create a temporary feeling of loss of control.

14. The Woodway USA engineering team set about solving these two problems.

**Solutions**

15. To address the increased chance of unexpected motion, the engineering team decided to place a safety device (e.g., one-way bearing, cam system, taper lock, band brake, etc.) on one of the front and/or rear shafts of the treadmill to prevent rotation of the treadmill in a reverse or unexpected direction.

16. Placing the safety device on the front shaft would require all of the slack from the user's foot to the front shaft (i.e., to the rear shaft, around the rear shaft, and underneath the treadmill) to be taken up before the safety device engaged to prevent rotation.

17. Placing the safety device on the rear shaft greatly reduces the amount of slack that needs to be taken up before the safety device engages. This reduces the amount of time and distance of unexpected motion. Moreover, because the treadmill belt naturally gathers to the bottom of the treadmill, the belt on the running surface is pre-tensioned, further reducing the time and distance of unexpected motion.

18. To address the bounce problem, the engineering team decided to make the belt move faster at the front shaft than the rear shaft so that the slack would accumulate on the top of the treadmill and follow the contour of the curve rather than lifting off of the curve (bouncing).

19. One way of doing this is to make the front pulleys slightly larger in diameter than the rear pulleys and to synchronize rotation. Simply making the front pulleys larger does not make the belt move faster. It would instead make the front pulleys have a slower angular velocity than the rear pulleys.

20. A synchronizing belt or synchronizing shaft may be used to interconnect the front and rear shafts so that the front pulley does not simply slow down. Instead, the larger front pulleys spinning at the same rotational speed as the rear pulleys will cause the belt to travel faster around the front pulleys and accumulate on the running surface.

21. Another way of making the belt move faster at the front shaft than the rear shaft is to apply a braking force to the rear shaft/pulley so that the rear pulley slows down.

**Office Action**

22. On page 5 of the Office Action, regarding Claim 1, the Examiner asserts, "It would have been obvious ... to modify Pasqualin/Cutter's treadmill with Magid's unidirectional control means in order to prevent the user from accidentally propelling the belt in the wrong direction."

23. I have reviewed the references, and a person of ordinary skill in the art would not have combined the treadmills of Pasqualin, Cutter, and Magid.

24. Pasqualin and Cutter are both single-belt treadmills intended for use by active individuals.

25. Because Pasqualin and Cutter are both flat or positively inclined, the risk of unexpected reverse motion of the belt is low. Pasqualin and Cutter both use a single belt, so there is no concern of a user doing the splits on the two belts. Neither Pasqualin nor Cutter mention reverse motion of the belt being a problem.

26. Magid is twin-belt treadmill intended for use by those with difficulty walking. So, no person of skill in the art would look to add the curved belt of Cutter to Magid because the uphill climb and the bounce problem of curved treadmills would unnecessarily increase the difficulty of walking for the user.

27. On pages 7 and 11 of the Office Action, regarding Claims 11 and 15 (Claims 10 and 14, as amended), the Examiner asserts that "Although Magid's one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize – and thus find it obvious – that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device)."

28. As discussed above, mounting the safety device to the rear shaft has a different and improved result than mounting the safety device to the front shaft.

29. Placing the safety device on the front shaft would require all of the slack from the user's foot to the front shaft (i.e., to the rear shaft, around the rear shaft, and underneath the treadmill) to be taken up before the safety device engaged to prevent rotation.

30. Placing the safety device on the rear shaft greatly reduces the amount of slack that needs to be taken up before the safety device engages, that is, it is only the slack from the user's foot to the rear shaft.

31. Reducing the amount of slack that needs to be taken up before the safety device engages reduces the amount of time and distance of unexpected motion. Moreover, because the treadmill belt naturally gathers to the bottom of the treadmill, the belt on the running surface is pre-tensioned, further reducing the time and distance of unexpected motion.

32. Reducing the amount of time and distance of unexpected motion enables the user to more quickly recover and maintain balance.

33. Neither Magid, nor any of the other cited references, discuss mounting the safety device to the rear shaft or even discuss the problem of the belt reversing direction. In fact, other than Schmidt, all of the other references are flat or positively inclined so that a user on any of those treadmills would either be unaffected by gravity or moved rearward on the treadmill by gravity, which would lend itself to an expected walking motion.

34. On Page 5 of the Office Action, regarding Claim 2, the Examiner asserts, "the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft (Pasqualin: 22, figure 1)."

35. As discussed above, Pasqualin simply shows different sized front and rear shafts. Pasqualin makes no mention of the speed of the belt at the front shaft is greater than the speed of the belt at the rear shaft.

36. A person of skill in the art reading Pasqualin would infer that the front and rear shafts of Pasqualin were rotating at different speeds, but that the belt at the front and rear shaft is moving at the same speed.

37. Moreover, Claim 2 has been amended to recite the “speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate maintenance of a contour of the curved running surface.” Because Pasqualin has a flat running surface, there is no need to vary the speed of the belt to maintain the contour of the convex running surface.

38. On Page 6 of the Office Action, regarding Claims 4 and 5, the Examiner asserts “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum workable ranges by routine experimentation. See MPEP 2144.05 II.”

39. But Pasqualin has not disclosed the “general conditions” of Claims 4 and 5.

40. Claims 4 and 5 depend from Claim 2, which has been amended to recite the “speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate maintenance of a contour of the curved running surface.” Because Pasqualin has a flat running surface, there is no need to vary the speed of the belt to maintain the contour of the convex running surface.

41. Pasqualin shows front and rear rollers of visibly different sizes, not less than a 0.1 inch difference, as in Claims 4 and 5, and Pasqualin makes no mention of the importance of the different sized rollers.

42. Without more, Pasqualin leaves a person of skill in the art with the understanding that the rollers of Pasqualin spin at different speeds, but that the belt moves at the same speed.

43. Moreover, if the rollers of Pasqualin were rotating at the same speed (which is not the case), the substantial size difference would cause the slack to quickly pile up on the running surface making an uneven running surface for the user.

44. Moreover again, there is no explanation by the Examiner, Pasqualin, or Cutter how the rollers of Paqualin and Cutter would be configured when the treadmills are combined. That is, without an understanding of the underlying mechanics (which is not taught by Pasqualin, Cutter, or any of the other cited references) a person of skill in the art would not know which of the rollers of Cutter should be make larger (18 or 25), and by how much larger.

45. On Page 6 of the Office Action, regarding Claim 6, the Examiner asserts, "a braking system (Pasqualin: 22) configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

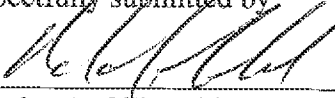
46. But because the belt extends linearly between the front and rear rollers of Pasqualin, there is minimal, if any excess slack. In fact, a person of skill in the art would expect the belt to be sufficiently taught to maximize energy transmission from the user to the rear pulley and paddlewheel system.

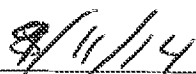
47. Therefore, the belt of Pasqualin would not move at different speeds, but would cause the front and rear rollers to spin at different speeds.

\* \* \*

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therein.

Respectfully submitted by

  
\_\_\_\_\_  
Nicholas A. Oblamski

  
\_\_\_\_\_  
Date



## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	14243716			
<b>Filing Date:</b>	02-Apr-2014			
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME			
<b>First Named Inventor/Applicant Name:</b>	Douglas G. Bayerlein			
<b>Filer:</b>	John C. Geis/Carla Epping			
<b>Attorney Docket Number:</b>	097208-0193			
Filed as Small Entity				
<b>Utility under 35 USC 111(a) Filing Fees</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
Claims in excess of 20	2202	2	40	80
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				80

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	20116491
<b>Application Number:</b>	14243716
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	1677
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME
<b>First Named Inventor/Applicant Name:</b>	Douglas G. Bayerlein
<b>Customer Number:</b>	26371
<b>Filer:</b>	John C. Geis/Carla Epping
<b>Filer Authorized By:</b>	John C. Geis
<b>Attorney Docket Number:</b>	097208-0193
<b>Receipt Date:</b>	11-SEP-2014
<b>Filing Date:</b>	02-APR-2014
<b>Time Stamp:</b>	17:51:30
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$80
RAM confirmation Number	4519
Deposit Account	
Authorized User	

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Transmittal Letter	0972089_0193_Transmittal.pdf	86179 94d53e39fde08b7c74f7ccd81e393f0ba863f87a	no	3
Warnings:					
Information:					
2		0972089_0193_Amendment.pdf	187264 ae567c1a5eb189078087e45e2052a3d996433b7e	yes	24
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	24	
Warnings:					
Information:					
3	Affidavit-traversing rejectns or objectns rule 132	0972089_0193_OblamskiDeclaration132.pdf	4185618 c23e99e42dd417ef4d297dbfbd79f81098c1ebec	no	8
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30424 458058695b6c77f7afba9390f1b303f6c6bd10dc	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			4489485		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS OF  
OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 4/2/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

**AMENDMENT TRANSMITTAL**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Transmitted herewith please find the following documents:

[ X ] Amendment and Reply (24 pages).

[ X ] Inventor 132 Declaration (8 pages).

[ X ] Small Entity status under 37 C.F.R. § 1.9 and § 1.27 has been established by a previous  
assertion of Small Entity status.

☒ The fee required for additional claims is calculated below:

	Claims As Amended		Previously Paid For		Extra Claims Present		Rate		Additional Claims Fee
Total Claims:	22	-	20	=	2	x	\$40.00	=	\$80.00
Independent Claims:	3	-	3	=	0	x	\$210.00	=	\$0.00
First presentation of any Multiple Dependent Claims:						+	\$390.00	=	\$0.00
CLAIMS FEE TOTAL									\$80.00

☐ Applicant hereby petitions for an extension of time under 37 C.F.R. §1.136(a) for the total number of months checked below:

<input type="checkbox"/> Extension for response filed within the first month:	\$100.00	\$0.00
<input type="checkbox"/> Extension for response filed within the second month:	\$300.00	\$0.00
<input type="checkbox"/> Extension for response filed within the third month:	\$700.00	\$0.00
<input type="checkbox"/> Extension for response filed within the fourth month:	\$1,100.00	\$0.00
<input type="checkbox"/> Extension for response filed within the fifth month:	\$1,500.00	\$0.00
EXTENSION FEE TOTAL:		\$0.00
<input type="checkbox"/> Statutory Disclaimer Fee under 37 C.F.R. 1.20(d):	\$160.00	\$0.00
CLAIMS, EXTENSION AND DISCLAIMER FEE TOTAL:		\$80.00
Extension Fees Previously Paid:		\$0.00
TOTAL FEE:		\$80.00

The above-identified fees of \$80.00 are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

Date September 11, 2014

By /John C. Geis/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 297-5788  
Facsimile: (414) 297-4900

John C. Geis  
Attorney for Applicant  
Registration No. 59,367

Richard J. McKenna  
Attorney for Applicant  
Registration No. 35,610



<b>PATENT APPLICATION FEE DETERMINATION RECORD</b> Substitute for Form PTO-875	Application or Docket Number <b>14/243,716</b>	Filing Date <b>04/02/2014</b>	<input type="checkbox"/> To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

**APPLICATION AS AMENDED – PART II**

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	09/11/2014	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 22	Minus	** 20	= 2	X \$40 =	80
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$210 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							<b>80</b>

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE  
/SANDRA GARNETT/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



# UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/243,716	04/02/2014	Douglas G. Bayerlein	097208-0193	1677

26371 7590 10/17/2014  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

EXAMINER
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GINSBERG, OREN ISAAC

ART UNIT	PAPER NUMBER
----------	--------------

3764

MAIL DATE	DELIVERY MODE
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10/17/2014

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 14/243,716	<b>Applicant(s)</b> BAYERLEIN ET AL.	
	<b>Examiner</b> OREN GINSBERG	<b>Art Unit</b> 3764	<b>AIA (First Inventor to File) Status</b> No

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/11/2014.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims\*

- 5) ☒ Claim(s) 1-10,12-14 and 16-24 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-6,8-10,12-14 and 21-24 is/are rejected.
- 8) ☒ Claim(s) 7 and 16-20 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

#### Certified copies:

- a) ☐ All    b) ☐ Some\*\*    c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 3) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)<br>Paper No(s)/Mail Date ____. | 4) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

Claims 10, 12, and 13 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 23-26 of copending Application No. 13/235,065 (in particular, see US PGPub 2012/0010053). Although the claims at issue are not identical, they are not patentably distinct from each other. It is clear that all the elements of the present claims are found in the claims of the patent. The difference between the present claims and the publication claims is latter includes more elements and is thus more specific (e.g., the latter recites a “one-way bearing assembly” whereas the present claims recite a “safety device”). Thus the invention of the claims of the publication is in effect a “species” of the “generic” invention of the present claims. It has been held that the generic invention is “anticipated” by the “species”. *See In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

This is a provisional nonstatutory double patenting rejection.

***Claim Rejections - 35 USC § 103***

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin 2006/0287165 in view of Cutter 3,642,279 and further in view of Magid 5,538,489.

Regarding claims 1, 10, 22, and 24, Pasqualin discloses a manually operated treadmill comprising: a treadmill frame 10 having a front end and a rear end opposite the front end; a front shaft (the shaft within pulley 13) rotatably coupled to the treadmill frame at the front end; a rear shaft (the shaft within pulley 14) rotatably coupled to the treadmill frame at the rear end; a running belt 15 upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft without the

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rotation of the running belt being generated by a motor and also causes the running surface of the running belt to move from the front shaft toward the rear shaft (abstract).

Pasqualin teaches the invention as substantially claimed, see above. However, Pasqualin fails to disclose: the running belt including a curved/contoured running surface.

Cutter teaches a human-powered treadmill with a curved running surface (figure 1).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin's treadmill with Cutter's curved belt in order to reduce user wallowing, as taught by Cutter (column 1 lines 54-56).

Pasqualin in view of Cutter teach the invention as substantially claimed, see above. However, they fail to disclose: a safety device/one-way bearing assembly coupled to at least one of the front shaft and the rear shaft, wherein the one-way bearing assembly prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction.

Magid teaches a human-powered treadmill comprising a one-way bearing assembly 6' mounted to the front shaft (by way of the belt) to provide unidirectional movement of the belt.

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter's treadmill with Magid's

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unidirectional bearing assembly in order to prevent the user from accidentally propelling the belt the wrong direction.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above, and further teach wherein the treadmill is configured to allow the user to manually control the speed of the running belt (Pasqualin: abstract) and to facilitate maintenance of a contour of the curved running surface (as broadly construed, the structure of the Pasqualin/Cutter/Magid treadmill ensures this function).

Regarding claim 2, the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate the running belt maintaining the curved running surface (Pasqualin: 22, figure 1).

Regarding claim 3, a front pulley (Pasqualin: 13) coupled to the front shaft; and a rear pulley (Pasqualin: 14) coupled to the rear shaft; wherein the running belt is supported by and contacts the front pulley and the rear pulley (Pasqualin: figure 1), wherein the radius of the front pulley is greater than the radius of the rear pulley (Pasqualin: figure 1).

Regarding claims 4 and 5, Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches, the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

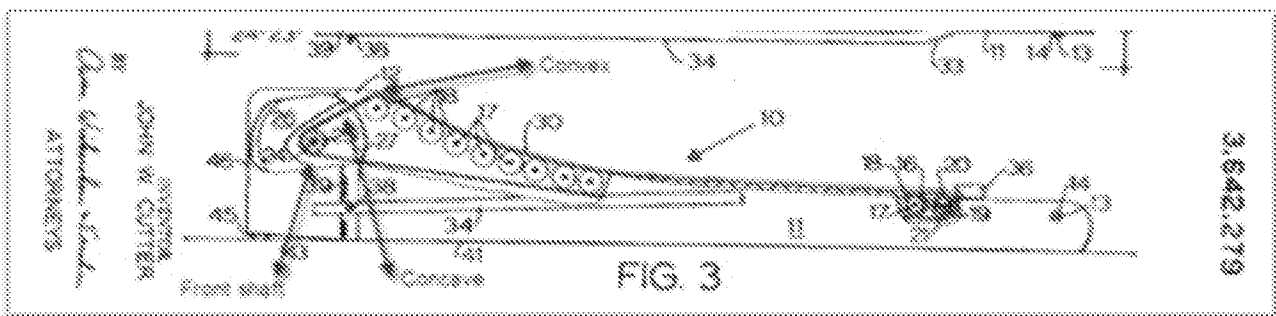


However, it has been held that “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” See MPEP 2144.05 II. In this case, applicant does not assign criticality to the claimed dimensions and the dimensions to not yield unexpected results. Thus, it would have been obvious to one of ordinary skill in the art at the time before the effective filing date of the claimed invention to arrive at the claimed dimensions through routine experimentation.

Regarding claim 6, a braking system (Pasqualin: 22) configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

Regarding claim 8, the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft (Magid: 6’).

Regarding claim 9, the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section (see annotated figure of Cutter below).



Regarding claims 10 and 23, Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the safety device/one-way bearing assembly is rotatably coupled to the rear shaft and coupled to the treadmill frame and cooperates with the rear shaft to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.

Although Magid's one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize - and thus find it obvious - that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of Lee 4,548,405.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: at least one track supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface; and a plurality of roller assemblies supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface.

Lee teaches a treadmill comprising at least one track 38 supported by the treadmill frame, at least a portion of the at least one track substantially replicating at least a portion of the contoured running surface (figure 3); and a plurality of roller assemblies 44/48 supporting the running belt, the plurality of roller assemblies being movably coupled to at least a portion of the at least one track so that the running belt may rotate relative to the at least one track and will follow a relative contour of at least a portion of the contoured running surface (figure 4).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter/Magid's treadmill with Lee's track system in order to prevent lateral movement of the belt with respect to the frame.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of Abelbeck 6,042,514.

Pasqualin in view of Cutter and further in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: at least one magnet supported by one of the treadmill frame and the running belt and the other of the treadmill frame and the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface.

Abelbeck teaches a treadmill comprising at least one magnet 52/54 supported by one of the treadmill frame and the running belt and the other of the treadmill frame and

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the running belt being magnetically attracted to the at least one magnet adjacent to the running surface so that the running belt substantially follows a contour of the contoured running surface (figure 11).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Pasqualin/Cutter/Magid's treadmill with Abelbeck's magnets in order to ensure belt stability.

Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt 1,211,765 in view of Magid.

Regarding claims 14 and 21, Schmidt discloses a manually operated treadmill comprising: a frame A supported on a substantially horizontal surface; a front shaft assembly supported by the frame and comprising: a front shaft I; and at least one front running belt pulley F supported by the front shaft; a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising: a rear shaft I'; and at least one rear running belt pulley F' supported by the rear shaft; a running belt D supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front belt portion adjacent the front shaft assembly, a rear belt portion adjacent the rear shaft assembly, and a central belt portion intermediate the front belt portion and the rear belt portion, the front belt portion and the rear belt portion being positioned vertically higher than a lowest point found in the central belt portion to form a curved running surface upon which a user of the treadmill may walk or run (figure 1), wherein gravitational force acting upon weight of the user's body on the running belt

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relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor (figure 1).

Schmidt teaches the invention as substantially claimed, see above. However, Schmidt fails to disclose: a safety device/one-way bearing assembly cooperating with the rear shaft to permit rotation the rear shaft in only one direction.

Magid teaches a human-powered treadmill comprising a one-way bearing assembly 6' mounted to the front shaft (by way of the belt) to provide unidirectional movement of the belt.

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Schmidt's treadmill with Magid's unidirectional bearing assembly in order to prevent the user from accidentally propelling the belt the wrong direction.

Schmidt in view of Magid teach the invention as substantially claimed, see above. However, they fail to disclose: the safety device/one-way bearing assembly cooperating with the rear shaft.

Although Magid's one-way bearing is mounted to the front shaft, one of ordinary skill in the art would recognize - and thus find it obvious - that mounting the bearing to the rear shaft would provide the same result. See MPEP 2144.04 VI C (stating that mere rearrangement of parts is a basis for obviousness if the rearrangement would not modify the operation of the device).

***Allowable Subject Matter***

Claims 7 and 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments filed 9/11/2014 have been fully considered but they are not persuasive.

Applicant's argument that combination with Cutter is unobvious is unpersuasive as a rational underpinning is furnished above.

Applicant's argument that it would be unobvious to move Magid's safety device to the rear roller is unpersuasive for the reasons set forth below.

Applicant asserts that "it is highly unlikely, if not impossible, for the user to propel their feet in opposite directions on the single belt." Arguments, 12. Notwithstanding that this assertion is unsupported by factual evidence, see MPEP 2145 ("[A]rguments of counsel cannot take the place of factually supported objective evidence."), Pasqualin's treadmill is human-powered and lacks a safety device. In other words, the belt is capable of rotating the wrong direction.

Applicant asserts that "Magid specifically teaches away from the use of a single, wide belt because a twisting moment is applied to either the left foot or the right foot when treading the left-side or right side parts of the belt. (Magid 1:22-38) . . . Further, a curved running surface would add difficulty walking for uncoordinated, thereby rendering

Magid unsatisfactory for its intended purpose.” Arguments, 12. This is unpersuasive because Magid does not explicitly reject using the safety device on a single-belt treadmill. As discussed above, there is a need for a safety device to prevent the user from accidentally or unexpectedly propelling the belt the wrong direction. By Applicant's own admission, Applicant acknowledges this risk. See Declaration, 5 (“[T]he risk of unexpected reverse motion is low.”).

Applicant’s argument that mounting the safety device to the rear shaft is a “different and improved result[,]” *id.* at 6, is unpersuasive. “A greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness ... of the claims at issue.” *In re Corkill*, 711 F.2d 1496, 226 USPO 1005 (Fed. Cir. 1985). Merely “[r]educing the amount of slack that needs to be taken up before the safety device engages[,]” Declaration, 6, does not change the fact that the safety device prevents the belt from rotating the wrong direction. Even assuming that mounting the safety device to the rear shaft may change the time/distance before it engages, Applicant has not furnished specific evidence that the reduction is relevant (e.g., within a range to prevent injury).

Applicant’s argument that Pasqualin fails to disclose claim 2 is unpersuasive. Applicant asserts that “Pasqualin makes no mention of the speed of the belt at the front shaft is greater than the speed of the belt at the rear shaft.” *Id.* However, Pasqualin furnishes the same structure as the claimed invention (i.e., larger front shaft), thus it follows that Pasqualin's device performs in the same manner. Applicant also asserts that “Because Pasqualin has a flat running surface, there is no need to vary the speed

of the belt to maintain the contour of the convex running surface.” *Id.* at 7. This is unpersuasive because Cutter teaches curving Pasqualin’s flat belt.

Applicant’s asserts that “Pasqualin has not disclosed ‘general conditions’ of Claims 4 and 5 . . . Pasqualin shows front and rear rollers of visibly different sizes, not less than a 0.1 inch difference, as in 1 Claims 4 and 5, as Pasqualin makes no mention of the importance of the different sized rollers.” *Id.* This is unpersuasive because “[w]hen the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value.” *See Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000).

In response to Applicant’s argument that “there is no explanation by the Examiner, Pasqualin, or Cutter how the rollers of Pasqualin and Cutter would be configured[.]” Declaration, 8, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Applicant’s argument that “the belt of Pasqualin would not move at different speeds, but would cause the front and rear rollers to spin at different speeds[.]” Declaration, 8, is unpersuasive because it does not consider that Cutter’s modification



curves Pasqualin's belt. *See id.* ("[B]ecause the belt extends linearly between the front and rear rollers of Pasqualin, there is minimal, if any excess slack.").

Applicant asserts that "The motivation to use a braking system 'to facilitate maintenance of the contour of the curved running surface' is only found in the Applicant's disclosure." Argument, 18. This argument is unpersuasive because the Examiner does not rely upon any of the secondary references to disclose the limitations of claim 6.

Applicant's argument with respect to claim 13 fails to comply with 37 CFR 1.111(b) because it amounts to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OREN GINSBERG whose telephone number is (571)270-3074. The examiner can normally be reached on Mon-Thur, 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LoAn Thanh can be reached on (571)272-4966. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/OREN GINSBERG/  
Primary Examiner, Art Unit 3764

<b>Search Notes</b>  	<b>Application/Control No.</b>  14243716	<b>Applicant(s)/Patent Under Reexamination</b>  BAYERLEIN ET AL.
	<b>Examiner</b>  OREN GINSBERG	<b>Art Unit</b>  3764

CPC- SEARCHED		
Symbol	Date	Examiner
A63B: 22/02; 69/0028,0035	5/31/14	OG

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
482	2,23,37,51-52,54-56,69-71,79	3/19/13	OG
119	700	3/19/13	OG
434	247,255	3/19/13	OG
D21	662,668-669	3/19/13	OG
A63B	22/02	3/19/13	OG
UPDATED		6/2/14	OG
UPDATED		9/24/14	OG

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTOR SEARCHED IN PALM AND EAST	6/2/14	OG
PLUS SEARCH	3/19/13	OG
CONSULTED JOSIE BALLATO REGARDING INTERFERENCE PROCEDURE	3/12/13	OG
UPDATED	7/29/13	OG
UPDATED	6/2/14	OG
UPDATED	9/4/14	OG

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS  
OF OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 04/02/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

AMENDMENT AND REPLY UNDER 37 C.F.R. § 1.116

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

This communication is responsive to the Final Office Action dated October 17, 2014, concerning the above-referenced patent application.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this document.

**Remarks** begin on page 7 of this document.

Please amend the application as follows:

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A manually operated treadmill comprising:  
a treadmill frame having a front end and a rear end opposite the front end;  
a front shaft rotatably coupled to the treadmill frame at the front end;  
a rear shaft rotatably coupled to the treadmill frame at the rear end;  
a running belt including a curved running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft; [[and]]  
a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction; and  
a synchronizing system interconnecting the front and rear shafts, wherein the synchronizing system is configured to provide a force that acts to resist differential rotation of the front and rear shafts;  
wherein the treadmill is configured to allow the user to manually control the speed of the running belt and to facilitate maintenance of a contour of the curved running surface.
2. (Previously Presented) The manually operated treadmill of claim 1, wherein the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate the running belt maintaining the curved running surface.
3. (Original) The manually operated treadmill of claim 2, further comprising:

a front pulley coupled to the front shaft; and  
a rear pulley coupled to the rear shaft;  
wherein the running belt is supported by and contacts the front pulley and the rear pulley, wherein the radius of the front pulley is greater than the radius of the rear pulley.

4. (Original) The manually operated treadmill of claim 3, wherein the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches.

5. (Original) The manually operated treadmill of claim 4, wherein the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

6. (Original) The manually operated treadmill of claim 2, further comprising a braking system configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

7. (Cancelled)

8. (Original) The manually operated treadmill of claim 1, wherein the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.

9. (Previously Presented) The manually operated treadmill of claim 8, wherein the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section.

10. – 13. (Canceled)

14. (Currently Amended) A manually operated treadmill comprising:
- a frame supported on a substantially horizontal surface;
  - a front shaft assembly supported by the frame and comprising:
    - a front shaft; and
    - at least one front running belt pulley supported by the front shaft;
  - a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising:
    - a rear shaft; and
    - at least one rear running belt pulley supported by the rear shaft;
  - a running belt supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front belt portion adjacent the front shaft assembly, a rear belt portion adjacent the rear shaft assembly, and a central belt portion intermediate the front belt portion and the rear belt portion, the front belt portion and the rear belt portion being positioned vertically higher than a lowest point found in the central belt portion to form a curved running surface upon which a user of the treadmill may walk or run, wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor; [[and]]
  - a safety device cooperating with the rear shaft to permit rotation of the rear shaft in only one direction; and
  - at least one bearing rail having a plurality of bearings rotatably coupled to the at least one bearing rail and forming a top profile, the top profile defined by a front profile portion adjacent the front shaft assembly, a rear profile portion adjacent the rear shaft assembly, and a central profile portion intermediate the front profile portion and the rear profile portion, the central profile portion having a concave curve, and the front profile portion and the profile rear portion being continuations of the concave curve;

wherein the running surface of the running belt is supported by the top profile of the at least one bearing rail such that the running surface substantially corresponds to the shape of the top profile of the at least one bearing rail.

15. (Canceled)

16. (Canceled)

17. (Currently Amended) The manually operated treadmill of claim ~~[[16]]~~ 14, the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley.

18. (Original) The manually operated treadmill of claim 17, wherein the running belt comprises a plurality of laterally extending slats.

19. (Original) The manually operated treadmill of claim 18, wherein:  
the front shaft assembly comprises a second front running belt pulley supported by the front shaft and spaced laterally from the at least one front running belt pulley;  
the rear shaft assembly comprises a second rear running belt pulley supported by the rear shaft and spaced laterally from the at least one rear running belt pulley;  
the at least one bearing rail further comprises a second bearing rail having a plurality of bearings forming a top profile matching the top profile of the first of the at least one bearing rail, the second bearing rail being longitudinally aligned with the second front running belt pulley and the second rear running belt pulley;  
the running belt comprises a first endless belt and a second endless belt, wherein the first endless belt is supported by the at least one front running belt pulley, the first of the at least one bearing rail, and the at least one rear running belt pulley, and wherein the second endless belt is supported by the second front running belt pulley, the second bearing rail, and the second rear running belt pulley; and  
the plurality of laterally extending slats extend between the first endless belt and the second endless belt.



20. (Original) The manually operated treadmill of claim 19, wherein the rear portion of the at least one bearing rail is positioned and shaped to provide a smooth transition for the running belt from the at least one bearing rail onto the at least one rear running belt pulley.

21. (Previously Presented) The manually operated treadmill of claim 14, wherein the safety device comprises a one-way bearing.

22. (Previously Presented) The manually operated treadmill of claim 1, wherein the safety device comprises a one-way bearing.

23. (Previously Presented) The manually operated treadmill of claim 8, wherein the safety device cooperates with the rear shaft to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft

24. (Canceled)

**REMARKS**

This Amendment and Reply is intended to be completely responsive to the Non-Final Office Action dated June 11, 2014. Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 7, 10, 12-13, 16, and 24 are requested to be canceled without prejudice to further prosecution on the merits. Claims 1, 14, and 17 are currently amended. No new matter has been added. This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate status identifier.

After amending the claims as set forth above, claims 1-6, 8, 9, 14, and 17-23 are pending for examination in the present Application

**Double Patenting**

On page 3 of the Office Action, the Examiner provisionally rejected Claims 10-13 on the ground of nonstatutory double patenting as being unpatentable over Claims 23-26 of co-pending Application No. 13/235,065.

Claims 23-26 of co-pending Application No. 13/235,065 have been cancelled and therefore, these claims no longer serve as a basis for a provisional rejection based upon nonstatutory double patenting. Accordingly, withdrawal of the provisional double patenting rejections is respectfully requested.

**Allowable Subject Matter**

On page 12 of the Office Action, the Examiner stated Claims 7 and 16-20 “would be able allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” Applicant thanks the Examiner for this indication of allowable subject matter.

Applicant has amended independent claim 1 to include the limitations of Claim 7.

Applicant has amended independent claim 14 to include the limitations of Claim 16.

Applicant has canceled independent Claim 10 and its dependent claims.

Applicant respectfully submits that, after amendment, the only claims pending in the present application have been indicated by the Examiner to be allowable.

**Claim Rejections – 35 U.S.C. § 103**

On page 4 of the Office Action, the Examiner rejected Claims 1-10 and 22-24 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2006/0287165 (“Pasqualin”) in view of U.S. Patent No. 3,642,279 (“Cutter”) and further in view of U.S. Patent No. 5,538,489 (“Magid”). On page 8 of the Office Action, the Examiner rejected Claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of U.S. Patent No. 4,548,405 (“Lee”). On page 9 of the Office Action, the Examiner rejected Claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Pasqualin in view of Cutter, in view of Magid, and further in view of U.S. Patent No. 6,042,514 (“Abelbeck”). On page 10 of the Office Action, the Examiner rejected Claims 14 and 21 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 1,211,765 (“Schmidt”) in view of Magid.

Applicant respectfully disputes each of these rejections, but in order to expedite the issuance of a patent in this patent family, Applicant is electing to move ahead with allowance of the claims remaining in this application and deemed allowable and will address the merits of the rejections listed above in subsequent filings in this patent family.

Because each remaining/amended independent Claim includes subject matter indicated by the Examiner to be allowable, Applicant respectfully submits that the rejections under 35 U.S.C. § 103 are now moot.

\* \* \*

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. Applicants respectfully request favorable consideration and allowance of all pending claims.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

It should also be noted that although arguments have been presented with respect to certain claims herein, the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons. Further, the failure to address any statement by the Examiner herein should not be interpreted as acquiescence or agreement with such statement. Applicants expressly reserve the right to set forth additional and/or alternative reasons for patentability and/or allowance with the present Application or in any other future proceeding, and to rebut any statement presented by the Examiner in this or other papers during prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extension fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date: January 16, 2015

By: /R.J. McKenna/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 297-5788  
Facsimile: (414) 297-4900

Richard J. McKenna  
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Alexander J. Neuworth  
Attorney for Applicant  
Registration No. 72,021

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	21241189
<b>Application Number:</b>	14243716
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	1677
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME
<b>First Named Inventor/Applicant Name:</b>	Douglas G. Bayerlein
<b>Customer Number:</b>	26371
<b>Filer:</b>	Richard J. McKenna/Carla Epping
<b>Filer Authorized By:</b>	Richard J. McKenna
<b>Attorney Docket Number:</b>	097208-0193
<b>Receipt Date:</b>	19-JAN-2015
<b>Filing Date:</b>	02-APR-2014
<b>Time Stamp:</b>	12:31:22
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		097208_0193_AmendmentAF.pdf	104060 ee53949d89bd6ad52676befb0bfe3e31624e95eb	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Response After Final Action	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	10
Warnings:			
Information:			
Total Files Size (in bytes):		104060	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

<b>PATENT APPLICATION FEE DETERMINATION RECORD</b> Substitute for Form PTO-875	Application or Docket Number <b>14/243,716</b>	Filing Date <b>04/02/2014</b>	<input type="checkbox"/> To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

### APPLICATION AS FILED – PART I

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

### APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	01/19/2015	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 16	Minus	** 20	= 0	X \$40 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$210 =	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))						
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						<b>0</b>	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))					
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE  
/RUTH LLOYD/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.





# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

26371 7590 02/02/2015  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

EXAMINER

GINSBERG, OREN ISAAC

ART UNIT

PAPER NUMBER

3764

DATE MAILED: 02/02/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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14/243,716

04/02/2014

Douglas G. Bayerlein

097208-0193

1677

TITLE OF INVENTION: MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/04/2015

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

26371 7590 02/02/2015  
**FOLEY & LARDNER LLP**  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/243,716	04/02/2014	Douglas G. Bayerlein	097208-0193	1677

TITLE OF INVENTION: MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/04/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
GINSBERG, OREN ISAAC	3764	482-054000

<b>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</b> <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. <b>Use of a Customer Number is required.</b>	<b>2. For printing on the patent front page, list</b> (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____ (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____ 3 _____
---	---

### **3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

#### **4a. The following fee(s) are submitted:**

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

#### **4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)**

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

#### **5. Change in Entity Status (from status indicated above)**

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29  
☐ Applicant asserting small entity status. See 37 CFR 1.27  
☐ Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

**NOTE:** This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/243,716	04/02/2014	Douglas G. Bayerlein	097208-0193	1677

26371 7590 02/02/2015  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

EXAMINER

GINSBERG, OREN ISAAC

ART UNIT	PAPER NUMBER
----------	--------------

3764

DATE MAILED: 02/02/2015

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

### Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<b>Notice of Allowability</b>	<b>Application No.</b> 14/243,716	<b>Applicant(s)</b> BAYERLEIN ET AL.	
	<b>Examiner</b> OREN GINSBERG	<b>Art Unit</b> 3764	<b>AIA (First Inventor to File) Status</b> No

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment dated 1/19/2015.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-6,8,9,14,17-23. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a) ☐ All    b) ☐ Some    \*c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.  
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.  
**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Examiner's Amendment/Comment                  |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 7. <input type="checkbox"/> Other _____.                                  |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____.                     |   |

/OREN GINSBERG/  
Primary Examiner, Art Unit 3764


EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(treadmill and shaft and curv\$4 with belt and safety).clm.	USPAT; UPAD	OR	ON	2015/01/21 09:14

1/ 21/ 2015 9:14:55 AM

C:\ Users\ oginsberg\ Documents\ EAST\ Workspaces\ Applications\ 13\ 13235065\ 13235065.wsp

<b>Search Notes</b>  	<b>Application/Control No.</b>  14243716	<b>Applicant(s)/Patent Under Reexamination</b>  BAYERLEIN ET AL.
	<b>Examiner</b>  OREN GINSBERG	<b>Art Unit</b>  3764

CPC- SEARCHED		
Symbol	Date	Examiner
A63B: 22/02; 69/0028,0035	5/31/14	OG

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
482	2,23,37,51-52,54-56,69-71,79	3/19/13	OG
119	700	3/19/13	OG
434	247,255	3/19/13	OG
D21	662,668-669	3/19/13	OG
A63B	22/02	3/19/13	OG
UPDATED		6/2/14	OG
UPDATED		9/24/14	OG
UPDATED		1/21/15	OG

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTOR SEARCHED IN PALM AND EAST	6/2/14	OG
PLUS SEARCH	3/19/13	OG
CONSULTED JOSIE BALLATO REGARDING INTERFERENCE PROCEDURE	3/12/13	OG
UPDATED	7/29/13	OG
UPDATED	6/2/14	OG
UPDATED	9/4/14	OG
UPDATED	1/21/15	OG

INTERFERENCE SEARCH
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US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	INTERFERENCE SEARCHED PGPUBS	1/21/15	OG

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**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A manually operated treadmill comprising:
  - a treadmill frame having a front end and a rear end opposite the front end;
  - a front shaft rotatably coupled to the treadmill frame at the front end;
  - a rear shaft rotatably coupled to the treadmill frame at the rear end;
  - a running belt including a curved running surface upon which a user of the treadmill may run, wherein the running belt is disposed about the front and rear shafts such that force generated by the user causes rotation of the front shaft and the rear shaft and also causes the running surface of the running belt to move from the front shaft toward the rear shaft; [[and]]
    - a safety device coupled to at least one of the front shaft and the rear shaft, wherein the safety device prevents rotation of at least one of the front shaft and the rear shaft in one direction and permits rotation of at least one of the front shaft and the rear shaft in the opposite direction to restrict rotation of the running belt in a single direction; and
    - a synchronizing system interconnecting the front and rear shafts, wherein the synchronizing system is configured to provide a force that acts to resist differential rotation of the front and rear shafts;
  - wherein the treadmill is configured to allow the user to manually control the speed of the running belt and to facilitate maintenance of a contour of the curved running surface.
2. (Previously Presented) The manually operated treadmill of claim 1, wherein the front shaft is configured such that the speed of the running belt at the front shaft is greater than the speed of the running belt at the rear shaft to facilitate the running belt maintaining the curved running surface.
3. (Original) The manually operated treadmill of claim 2, further comprising:

a front pulley coupled to the front shaft; and  
a rear pulley coupled to the rear shaft;  
wherein the running belt is supported by and contacts the front pulley and the rear pulley, wherein the radius of the front pulley is greater than the radius of the rear pulley.

4. (Original) The manually operated treadmill of claim 3, wherein the difference between the radius of the front pulley and the radius of the rear pulley is less than approximately 0.1 inches.

5. (Original) The manually operated treadmill of claim 4, wherein the difference between the radius of the front pulley and the radius of the rear pulley is between approximately 0.005 and 0.035 inches.

6. (Original) The manually operated treadmill of claim 2, further comprising a braking system configured to slow rotation of the rear shaft resulting in the greater speed of the running belt at the front shaft.

7. (Cancelled)

8. (Original) The manually operated treadmill of claim 1, wherein the treadmill is configured to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft.

9. (Previously Presented) The manually operated treadmill of claim 8, wherein the curved running surface comprising at least a convex curved section and a concave curved section, wherein the concave curved section is located between the front shaft and the convex curved section and wherein the highest point of the convex section is above the lowest point of the concave section.

10. – 13. (Canceled)

14. (Currently Amended) A manually operated treadmill comprising:
- a frame supported on a substantially horizontal surface;
  - a front shaft assembly supported by the frame and comprising:
    - a front shaft; and
    - at least one front running belt pulley supported by the front shaft;
  - a rear shaft assembly supported by the frame a spaced distance from the front shaft and comprising:
    - a rear shaft; and
    - at least one rear running belt pulley supported by the rear shaft;
  - a running belt supported at least in part by the front shaft assembly and the rear shaft assembly, the running belt including a front belt portion adjacent the front shaft assembly, a rear belt portion adjacent the rear shaft assembly, and a central belt portion intermediate the front belt portion and the rear belt portion, the front belt portion and the rear belt portion being positioned vertically higher than a lowest point found in the central belt portion to form a curved running surface upon which a user of the treadmill may walk or run, wherein gravitational force acting upon weight of the user's body on the running belt relative to the lowest point of the running belt causes rotation of the running belt, front shaft, and the rear shaft without the aid of a motor; [[and]]
  - a safety device cooperating with the rear shaft to permit rotation of the rear shaft in only one direction; and
  - at least one bearing rail having a plurality of bearings rotatably coupled to the at least one bearing rail and forming a top profile, the top profile defined by a front profile portion adjacent the front shaft assembly, a rear profile portion adjacent the rear shaft assembly, and a central profile portion intermediate the front profile portion and the rear profile portion, the central profile portion having a concave curve, and the front profile portion and the profile rear portion being continuations of the concave curve;

wherein the running surface of the running belt is supported by the top profile of the at least one bearing rail such that the running surface substantially corresponds to the shape of the top profile of the at least one bearing rail.

15. (Canceled)

16. (Canceled)

17. (Currently Amended) The manually operated treadmill of claim ~~[[16]]~~ 14, the at least one bearing rail extending along the frame and longitudinally aligned with one of the at least one front running belt pulley and one of the at least one rear running belt pulley.

18. (Original) The manually operated treadmill of claim 17, wherein the running belt comprises a plurality of laterally extending slats.

19. (Original) The manually operated treadmill of claim 18, wherein:  
the front shaft assembly comprises a second front running belt pulley supported by the front shaft and spaced laterally from the at least one front running belt pulley;  
the rear shaft assembly comprises a second rear running belt pulley supported by the rear shaft and spaced laterally from the at least one rear running belt pulley;  
the at least one bearing rail further comprises a second bearing rail having a plurality of bearings forming a top profile matching the top profile of the first of the at least one bearing rail, the second bearing rail being longitudinally aligned with the second front running belt pulley and the second rear running belt pulley;  
the running belt comprises a first endless belt and a second endless belt, wherein the first endless belt is supported by the at least one front running belt pulley, the first of the at least one bearing rail, and the at least one rear running belt pulley, and wherein the second endless belt is supported by the second front running belt pulley, the second bearing rail, and the second rear running belt pulley; and  
the plurality of laterally extending slats extend between the first endless belt and the second endless belt.

Atty. Dkt. No. 097208-0193

20. (Original) The manually operated treadmill of claim 19, wherein the rear portion of the at least one bearing rail is positioned and shaped to provide a smooth transition for the running belt from the at least one bearing rail onto the at least one rear running belt pulley.

21. (Previously Presented) The manually operated treadmill of claim 14, wherein the safety device comprises a one-way bearing.

22. (Previously Presented) The manually operated treadmill of claim 1, wherein the safety device comprises a one-way bearing.

23. (Previously Presented) The manually operated treadmill of claim 8, wherein the safety device cooperates with the rear shaft to prevent movement of the running surface of the running belt in a direction from the rear shaft toward the front shaft

24. (Canceled)

Atty. Dkt. No. 097208-0193

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS  
OF OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 04/02/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

AMENDMENT AND REPLY UNDER 37 C.F.R. § 1.116


Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

This communication is responsive to the Final Office Action dated October 17, 2014, concerning the above-referenced patent application.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this document.

**Remarks** begin on page 7 of this document.

Please amend the application as follows:

<b>Issue Classification</b> 	<b>Application/Control No.</b> 14243716	<b>Applicant(s)/Patent Under Reexamination</b> BAYERLEIN ET AL.	
	<b>Examiner</b> OREN GINSBERG	<b>Art Unit</b> 3764	


CPC						
Symbol					Type	Version
A63B		22	/	02	F	2013-01-01
A63B		21	/	0053	I	2013-01-01
A63B		21	/	157	I	2013-01-01
A63B		22	/	0285	A	2013-01-01
A63B		2021	/	0054	A	2013-01-01
A63B		2021	/	0055	A	2013-01-01
A63B		2022	/	0017	A	2013-01-01
A63B		2230	/	06	A	2013-01-01
A63B		2230	/	75	A	2013-01-01
			/			
			/			
			/			
			/			
			/			
			/			

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)		16	
(Date)			
/OREN GINSBERG/ Primary Examiner.Art Unit 3764		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)		1	5
(Date)			





<b>Issue Classification</b> 	<b>Application/Control No.</b> 14243716	<b>Applicant(s)/Patent Under Reexamination</b> BAYERLEIN ET AL.
	<b>Examiner</b> OREN GINSBERG	<b>Art Unit</b> 3764

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant															
<input type="checkbox"/> CPA															
<input type="checkbox"/> T.D.															
<input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
2	2														
3	3														
4	4														
5	5														
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8	9														
9	22														
10	23														
11	14														
12	17														
13	18														
14	19														
15	20														
16	21														

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	16	
/OREN GINSBERG/ Primary Examiner.Art Unit 3764	01/21/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

26371 7590 02/02/2015  
**FOLEY & LARDNER LLP**  
**3000 K STREET N.W.**  
**SUITE 600**  
**WASHINGTON, DC 20007-5109**

## Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/243,716	04/02/2014	Douglas G. Bayerlein	097208-0193	1677

TITLE OF INVENTION: MANUAL TREADMILL AND METHODS OF OPERATING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/04/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
GINSBERG, OREN ISAAC	3764	482-054000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 **FOLEY & LARDNER LLP**

2 \_\_\_\_\_

3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

**WOODWAY USA, INC.**

**WAUKESHA, WISCONSIN**

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☒ Payment by credit card. **Form PTO-2038 is attached. VIA EFS-WEB**
- ☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number **19-0741** ~~(enclose an extra copy of this form).~~

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Alexander J. Neuworth/

Date /2-16-2015/

Typed or printed name **Alexander J. Neuworth**

Registration No. **72,021**

Electronic Patent Application Fee Transmittal				
Application Number:		14243716		
Filing Date:		02-Apr-2014		
Title of Invention:		MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
First Named Inventor/Applicant Name:		Douglas G. Bayerlein		
Filer:		Alexander J. Neuworth/Carla Epping		
Attorney Docket Number:		097208-0193		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	21510643
<b>Application Number:</b>	14243716
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	1677
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME
<b>First Named Inventor/Applicant Name:</b>	Douglas G. Bayerlein
<b>Customer Number:</b>	26371
<b>Filer:</b>	Alexander J. Neuworth/Carla Epping
<b>Filer Authorized By:</b>	Alexander J. Neuworth
<b>Attorney Docket Number:</b>	097208-0193
<b>Receipt Date:</b>	16-FEB-2015
<b>Filing Date:</b>	02-APR-2014
<b>Time Stamp:</b>	19:33:11
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$480
RAM confirmation Number	12060
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

<b>File Listing:</b>					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	097208_0193_Transmittal.pdf	82613	no	2
			7daa18925d63bb339b546aa3d6bc6a418fe1b4bc		
<b>Warnings:</b>					
<b>Information:</b>					
2	Issue Fee Payment (PTO-85B)	097208_0193_PTOL85.pdf	125787	no	1
			9e76e76a030c32f1394bf67c680f6670afaf30a0		
<b>Warnings:</b>					
<b>Information:</b>					
3	Fee Worksheet (SB06)	fee-info.pdf	30798	no	2
			617a972a029bec34dcaa4f4269c1f0ec0ec8be53		
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			239198		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

First Inventor Name: Douglas G. Bayerlein  
Title: MANUAL TREADMILL AND METHODS OF  
OPERATING THE SAME  
Appl. No.: 14/243,716  
Filing Date: 4/2/2014  
Examiner: Ginsberg, Oren Isaac  
Art Unit: 3764  
Confirmation Number: 1677

**ISSUE FEE TRANSMITTAL**

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Enclosed herewith please find Issue Fee Transmittal Form PTOL-85(B).

Fees in the amount of \$480.00 for payment of the Issue Fee are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or

incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date /2-16-2015/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 319-7029  
Facsimile: (414) 297-4900

By /Alexander J. Neuworth/

Alexander J. Neuworth  
Attorney for Applicant  
Registration No. 72,021

Richard J. McKenna  
Attorney for Applicant  
Registration No. 35,610





# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/243,716	03/24/2015	8986169	097208-0193	1677

26371 7590 03/04/2015  
FOLEY & LARDNER LLP  
3000 K STREET N.W.  
SUITE 600  
WASHINGTON, DC 20007-5109

## ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

### **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Woodway USA, Inc., Waukesha, WI, Assignee (with 37 CFR 1.172 Interest);  
Douglas G. Bayerlein, Oconomowoc, WI;  
Vance E. Emons, Hartland, WI;  
Nicholas A. Oblamski, Waukesha, WI;  
Scott D. Hoerig, Brookfield, WI;  
Matthew J. Zank, Milwaukee, WI;  
Robert L. Zimpel, Menomonee Falls, WI;  
Joel W. Richards, Wauwatosa, WI;

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<b>TO:</b> <b>Mail Stop 8</b> <b>Director of the U.S. Patent and Trademark Office</b> <b>P.O. Box 1450</b> <b>Alexandria, VA 22313-1450</b>	<b>REPORT ON THE</b> <b>FILING OR DETERMINATION OF AN</b> <b>ACTION REGARDING A PATENT OR</b> <b>TRADEMARK</b>
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Wisconsin on the following

☐ Trademarks or ☒ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 15-CV-956	DATE FILED 8/11/2015	U.S. DISTRICT COURT Eastern District of Wisconsin
PLAINTIFF Woodway USA Inc		DEFENDANT Samara Fitness LLC and Chapco Inc
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,986,169	3/24/2015	Woodway USA Inc
2 9,039,580	5/26/2015	Woodway USA Inc
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY		
	<input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
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CLERK Jon W. Sanfilippo	(BY) DEPUTY CLERK s/Becky Ray	DATE 8/11/2015
----------------------------	----------------------------------	-------------------

Copy 1—Upon initiation of action, mail this copy to Director    Copy 3—Upon termination of action, mail this copy to Director  
 Copy 2—Upon filing document adding patent(s), mail this copy to Director    Copy 4—Case file copy

Case 2:15-cv-00956-NJ Filed 08/11/15 Page 1 of 1 Document 3

***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE***

First Inventor Name: Douglas G. Bayerlein

Title: MANUAL TREADMILL AND  
METHODS OF OPERATING  
THE SAME

Patent. No.: 8,986,169

Issue Date: 3/24/2015

Examiner: Ginsberg, Oren Isaac

Art Unit: 3764

Confirmation Number: 1677

**REQUEST FOR CERTIFICATE OF CORRECTION**  
**PURSUANT TO 37 C.F.R. § 1.323**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Enclosed is a Certificate of Correction, Form PTO-SB/44, for United States Patent Number 8,986,169 issued March 24, 2015.

Applicant submits that the noted errors do not constitute new matter, and correction thereof would not require reexamination. The identified errors are obvious minor typographical and clerical errors. The proposed corrections are not subject to reasonable debate based on consideration of the claim language and the specification, and the prosecution history does not suggest a different interpretation of the claims.

Pursuant to 37 C.F.R. § 1.323, Applicant requests that the enclosed Certificate of Correction be approved.

Since at least one of the noted errors is not the fault of the Patent Office, payment is enclosed of the required fee of \$100.00.

The above-identified fees are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date: February 3, 2016

By: /R.J. McKenna/

FOLEY & LARDNER LLP  
Customer Number: 26371  
Telephone: (414) 297-5723  
Facsimile: (414) 297-4900

Richard J. McKenna  
Attorney for Applicant  
Registration No. 35,610

Alexander J. Neuworth  
Attorney for Applicant  
Registration No. 72,021

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

(Also Form PTO-1050)

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 8,986,169

APPLICATION NO. : 14/243,716

ISSUE DATE : 3/24/2015

INVENTORS : Douglas G. Bayerlein, Vance E. Emons, Nicholas A. Oblamski,  
Scott D. Hoerig, Matthew J. Zank, Robert L. Zimpel, Joel W.  
Richards

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**Claim 11:**

In column 33, line 56, please replace the word “a” following the phrase “the frame” with the word “and”.

In column 33, line 57, please insert the word “a” before the word “distance”.

In column 33, line 63, please replace the phrase “front portion” with the phrase “front belt portion”.

In column 34, line 20, please replace the phrase “profile rear portion” with the phrase “rear profile portion”.

**Claim 15:**

In column 34, line 58, please replace the phrase “rear portion” with the phrase “rear profile portion”.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

777 East Wisconsin Avenue  
Milwaukee, Wisconsin 53202-5306

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer,

U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

Electronic Patent Application Fee Transmittal				
Application Number:		14243716		
Filing Date:		02-Apr-2014		
Title of Invention:		MANUAL TREADMILL AND METHODS OF OPERATING THE SAME		
First Named Inventor/Applicant Name:		Douglas G. Bayerlein		
Filer:		Alexander J. Neuworth/Michele Mathes		
Attorney Docket Number:		097208-0193		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Certificate of Correction	1811	1	100	100

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				100

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	24810799
<b>Application Number:</b>	14243716
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	1677
<b>Title of Invention:</b>	MANUAL TREADMILL AND METHODS OF OPERATING THE SAME
<b>First Named Inventor/Applicant Name:</b>	Douglas G. Bayerlein
<b>Customer Number:</b>	26371
<b>Filer:</b>	Alexander J. Neuworth/Michele Mathes
<b>Filer Authorized By:</b>	Alexander J. Neuworth
<b>Attorney Docket Number:</b>	097208-0193
<b>Receipt Date:</b>	03-FEB-2016
<b>Filing Date:</b>	02-APR-2014
<b>Time Stamp:</b>	15:43:50
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 100
RAM confirmation Number	2110
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:



<b>File Listing:</b>					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	097208-0193_Request_CoC.pdf	100961	no	2
			51acc3fa97054d7f5ebaf8a76075acb55265881		
<b>Warnings:</b>					
<b>Information:</b>					
2	Request for Certificate of Correction	097208-0193_Certificate_of_Correction.pdf	126908	no	1
			a64c0844d9992d4e6b68c4ff13150753dae94f79		
<b>Warnings:</b>					
<b>Information:</b>					
3	Fee Worksheet (SB06)	fee-info.pdf	30548	no	2
			ddad61f06bdd12801994070acf3c4e70356314e		
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			258417		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 8,986,169 B2  
APPLICATION NO. : 14/243716  
DATED : March 24, 2015  
INVENTOR(S) : Douglas G. Bayerlein et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claims

**Claim 11:**

In column 33, line 56, please replace the word “a” following the phrase “the frame” with the word “and”.

In column 33, line 57, please insert the word --a-- before the word “distance”.

In column 33, line 63, please replace the phrase “front portion” with the phrase “front belt portion”.

In column 34, line 20, please replace the phrase “profile rear portion” with the phrase “rear profile portion”.

**Claim 15:**

In column 34, line 58, please replace the phrase “rear portion” with the phrase “rear profile portion”.

Signed and Sealed this  
Twenty-ninth Day of March, 2016



Michelle K. Lee  
*Director of the United States Patent and Trademark Office*