

A. P. SCHMIDT.
HEALTH EXERCISER.
APPLICATION FILED JAN. 9, 1915.

1,211,765.

Patented Jan. 9, 1917.
2 SHEETS—SHEET 1.

Fig. 1.

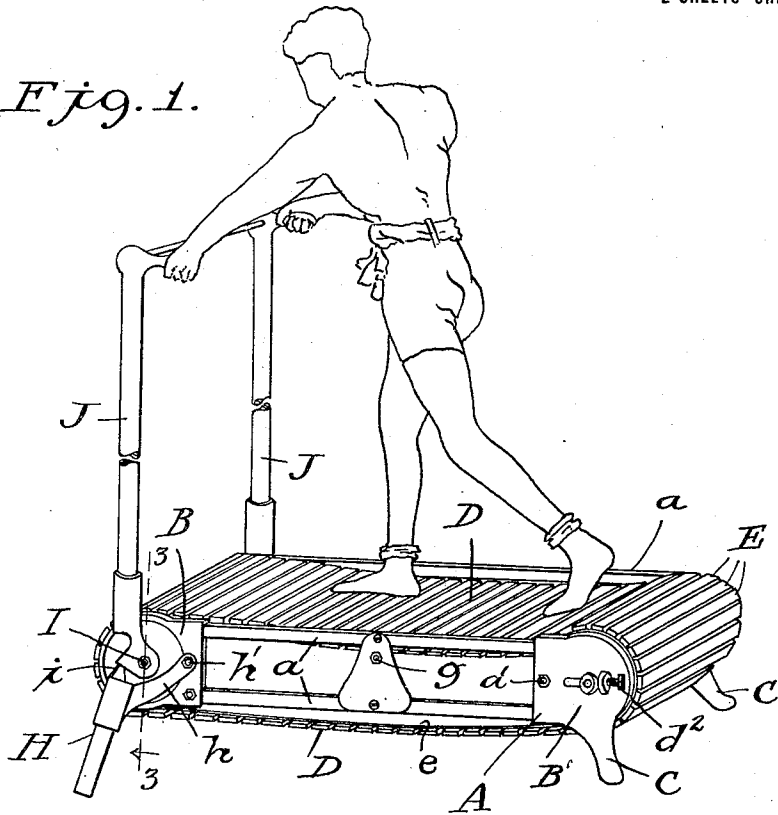
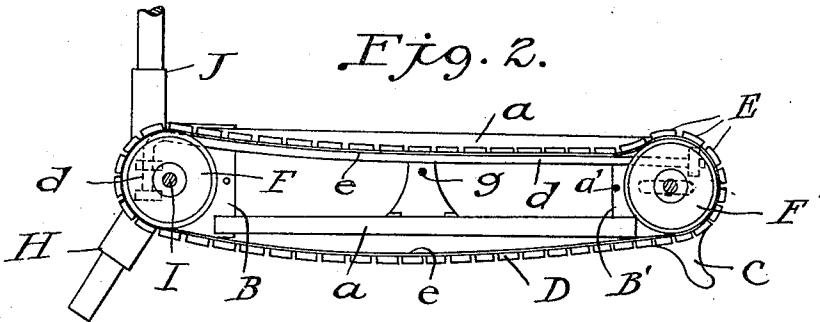


Fig. 2.



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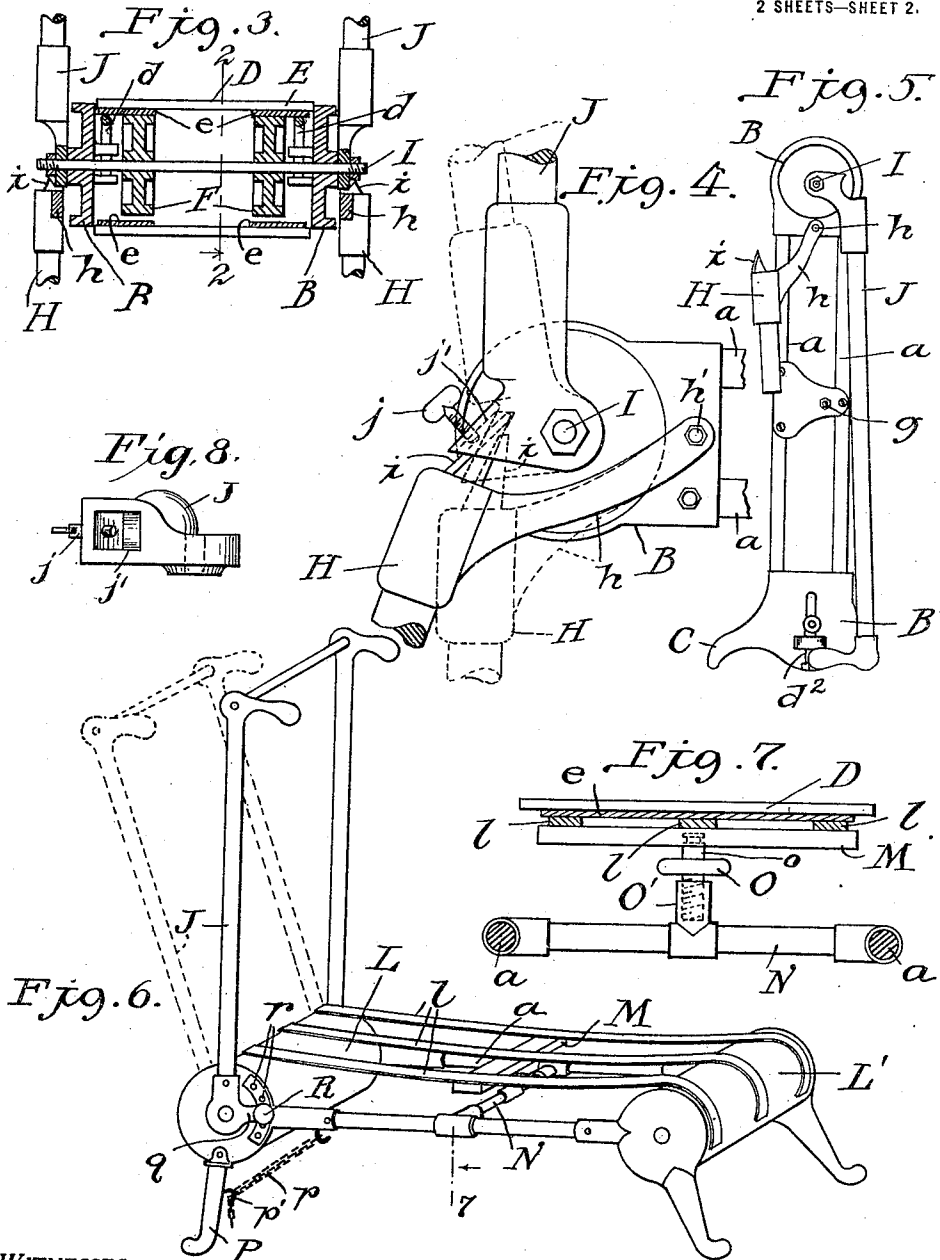
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UNITED STATES PATENT OFFICE.

ADRIAN PETER SCHMIDT, OF NEW YORK, N. Y.

HEALTH-EXERCISER.

1,211,765.

Specification of Letters Patent.

Patented Jan. 9, 1917.

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To all whom it may concern:

Be it known that I, ADRIAN PETER SCHMIDT, a subject of the Emperor of Germany, residing in the city of New York, borough of Manhattan, county and State of New York, have invented a certain new and useful Health-Exerciser, of which the following is a specification.

This invention is a health exerciser, and the object of the invention is a device of the class described which will be simple in construction, highly efficient in operation and devoid of all jar or vibration.

It has heretofore been suggested to make exercisers embodying an endless flexible tread, which tread operated over a plurality of rollers or other anti-friction devices, so that the feet of the operator, when exercising upon such devices, came in contact, in the walking or running operation, with a relatively hard surface, *i. e.*, a surface which was rigid and devoid of resiliency and flexibility. The object of these devices is to impart a beating or vibrating sensation in the feet of the operator, to accelerate blood circulation. This vibration or beating, however, is extremely uncomfortable and bruises the feet rather than produces the desired result. Moreover, the endless treads of the prior art devices glide so freely as to occasion great difficulty in the operator maintaining his balance, and do not render sufficient resistance against the stride or step to produce the desired result. Their use, therefore, would result in the premature tiring of the operator or patient, rather than the slow building up action desired.

With the foregoing difficulties in mind, a salient feature of the present invention resides in the fact that the surface on which the operator treads, when exercising upon the device of the present invention, is springy and resilient to the tread and is, at the same time, practically noiseless in its operation. Moreover, in contradistinction to prior art devices, the endless tread is moved by the operator against the action of certain friction devices, so that the required and proper resistance is secured.

Another feature of the present invention not found in prior art structures is that, associated with the frictional resilient tread, is means whereby the tread surface may assume, under the action of the operator, a slightly curved surface, thereby greatly facilitating the operation of running or

walking upon the exerciser and, at the same time, allowing the operator to maintain perfect equilibrium and balance.

In one of its practical forms, the invention embodies a framework on which is mounted suitable friction means, over which an endless flexible tread is adapted to glide. This friction means is preferably supported at the opposite ends of the frame so that, intermediate said ends, said friction means serves as a springy or resilient suspension, supporting that portion of the tread which carries the weight of the operator. At the opposite ends of the frame are preferably positioned suitable direction rolls so as to properly direct the endless flexible tread in its travel about the framework, and these rolls may be either stationary or rotatable, as desired. The framework is preferably provided with suitable supporting means, such as legs, the forward legs of which are preferably adjustable in angular relation to the plane of the tread surface, whereby the forward end of the exerciser may be raised or lowered, at will, to vary the inclination of said tread surface. Moreover, at the forward end of the frame are upwardly extending handle members which are also preferably adjustable relative to the plane of the tread surface and, in one of the practical embodiments of my invention, the handle members cooperate with the forward legs of the frame so that these parts are simultaneously adjustable.

Features of the invention other than those specified will be apparent from the herein-after detailed description read in conjunction with the accompanying drawings.

In the accompanying drawings, I have illustrated different practical embodiments of the present invention, but the constructions shown therein are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a perspective view of an exerciser of the preferred form of my invention, the use thereof being indicated by the view of a human figure in a position for operating the device. Fig. 2 is a longitudinal section through the device, taken in the plane of line 2—2 of Fig. 3. Fig. 3 is a transverse section of the device, taken on line 3—3 of Fig. 1. Fig. 4 is an enlarged, fragmental, side elevation of the forward end of the frame, illustrating means whereby simultaneous adjustment may be had of the

handle members and the forward legs of the frame. Fig. 5 illustrates the manner in which the exerciser of the present invention may be folded up for storage. Fig. 6 is a perspective view illustrating a modified form of the invention, the endless flexible tread being omitted in the interest of clearness. Fig. 7 is a transverse section on line 7 of Fig. 6. In this section, the endless flexible tread is shown. Fig. 8 is an underneath plan view of the lower end of the handle-supporting member.

In said drawings, A indicates a framework provided with end members B B' positioned at the front and the rear of the framework, the latter of which is provided with stationary legs C C' for the purpose of supporting the rear end of the apparatus. End members B B' are held in proper spaced relation preferably by side bars or struts *a*. Suitable means, *a'*, is also provided for maintaining the opposite sides of the frame in substantially rigid relative position.

Referring particularly to Figs. 1 to 5, inclusive, wherein the preferred embodiment of the invention is illustrated, a flexible tread D is shown as extending from one end to the other of said apparatus, one reach of said tread being at the upper portion of the frame and the other at the lower portion thereof. The reach at the upper portion of the frame forms a surface on which the operator treads, and, accordingly, means is provided for properly supporting his weight. This means, as shown more particularly in Figs. 2 and 3, embodies a pair of oppositely placed rods *d*. These rods are preferably of spring metal and extend longitudinally of the frame and near each side thereof, being supported only at their ends by attaching the same directly to end members B B' of the frame. Endless flexible tread D is preferably formed of a plurality of strips *e* of material such as leather or fabric, although the tread may be formed upon a single broad strip of fabric, if desired. In order to procure maximum wear and traction, the exterior surface of the flexible strip or strips *e* is provided with spaced cleats E, generally of wood. These cleats extend transversely of the frame and are substantially equal in length to the width of the frame. They are positioned closely together and are securely attached to the flexible strips *e*. The flexible tread is laid upon said rods so that its upper reach is supported thereby and its lower reach hangs free. Rods *d* thus serve as a resilient suspension for the upper portion of the flexible tread intermediate the opposite ends of the frame and, when a person mounts said frame for the purpose of exercising, suspension rods *d* will give or be somewhat depressed as the person walks, thereby rendering the tread springy and resilient. As the operator takes

a step, the natural backward push transmitted through the leg to flexible band D causes said band to slip or glide rearwardly over suspension rods *d*, and the speed at which said band travels is, of course, regulated by the degree of push.

Although it is not absolutely essential, the operation of flexible band D is greatly facilitated by the provision of direction rolls at either end of the aforesaid suspension rods, for the reason that such rolls facilitate the change of direction of the flexible band at either end of the apparatus. The direction rolls referred to are illustrated in Figs. 1, 2 and 3 of the drawings as embodying two small wheels or rollers F F' at either end of the machine, which wheels or rollers may be either rotatable or stationary, as desired, although I prefer, in this embodiment of the invention, to make them rotatable. The operation of the traveling, endless, flexible band D is thus made more smooth and noiseless.

It will be noted, more particularly from Fig. 2 of the drawings, that rods *d* are somewhat inclined relative to the frame; *i. e.*, the upper edges of the forward ends of the rods are substantially tangent to rolls F, whereas the upper edges of the rods at the rear ends thereof are below the tops of rolls F'. When the flexible tread is laid over the frame, it will engage with rolls F F', but will sag at the after part of the apparatus just forwardly of rolls F'. This construction is preferable for the reason that, when the operator is exercising on the device, he cannot slip off the back of the apparatus. The portion of band D which the propelling foot engages will glide freely in frictional contact with rods *d* until it reaches the rear end of the frame, at which point it will necessarily mount rolls F' in order to continue its travel. As it mounts rolls F', it gives the operator a chance to exert a push at the end of a step without rendering him liable to slip off the rear end of the apparatus. This feature is one of considerable merit, although I do not restrict my invention in this respect, since, if desired, rods *d* may be tangent to both rollers F F' after the manner illustrated in Fig. 6 of the drawings, hereinafter to be described.

It is desirable, in an exercising apparatus of the type to which this invention relates, to have the tread surface longitudinally concave, as experience has shown that a device so constructed operates with more ease and efficiency. The reason for this will be manifest when it is considered that the leg operates with a pivotal movement on a center in the hip joint of the operator. The foot will, therefore, unless the knee is bent, properly swing through the arc of a circle. The path of the foot is, when the operator walks or runs, not a true arc of a circle but

is a curved line nevertheless, and, with this in view, I make the tread longitudinally curved so that, as the operator walks or runs, his body will not bob up and down, as in the act of walking or running on a flat surface. This curvature of that portion of the flexible tread on which the operator walks is provided for, in the present apparatus, by the resilient, springy qualities of suspension rods *d*. At times, however, particularly when a heavy person is operating on the apparatus, rods *d* are apt to be depressed a little more than is desirable, and, accordingly, means is preferably provided for limiting the depression of said rods. This means is illustrated in Figs. 1 to 5, inclusive, as embodying a rod *g* which extends transversely of the frame, beneath suspension rods *d*. Rod *g* is preferably made adjustable as to height, so that the desired degree of depression of suspension rods *d* may be regulated. Thus, as the person operates the apparatus, he walks upon a resilient, springy suspension, and the flexible tread band glides, in frictional contact, over suspension rods *d* in a smooth and noiseless manner. No jar whatever is transmitted to the feet, and the ligaments of the leg and body are not strained or wrenched, since flexible tread *D* will not travel any faster than the operator impels the same through the thrust of the leg. The difficulty, inherent in prior art devices, of the exerciser running away with the operator is, therefore, not prevalent in the present apparatus.

It has been found in practice that one side of the belt is apt to sag or stretch more than the other, due to the fact that most operators apply greater pressure through one leg than the other, generally caused by unequal strength in the legs. This results in the belt shifting to the side of greatest sagging, and I provide means, embodied in set screws *d*² for counteracting or compensating for this defect. These set screws may also serve to regulate the tension of band *D*, although said band is, preferably, never drawn taut.

The forward end of the apparatus is supported on suitable legs preferably made adjustable to effect changes of elevation of that end of the apparatus, and this adjustment is preferably effected by pivotal movement of the legs. In the embodiment of the invention shown in Figs. 1 to 5 of the drawings, the legs *H* are provided, at their upper ends, with laterally extending arms *h*, the free ends of which are pivoted to end members *B*, as at *h'*. Moreover, the forward end of the apparatus is preferably provided with suitable handle members *J*, which are pivoted at opposite sides of the frame on the axle *I*, which supports the rollers *F*; see Fig. 4. The lower end of each handle member *J* is provided with an aperture *J'*, see

Figs. 4 and 8, into which is adapted to extend a finger *i*, integral with leg *H*, and set screws *j* are threaded through the lower portion of the handle members so as to engage fingers *i* and lock the handle members and legs against relative movement. It will be apparent that this arrangement allows of the simultaneous adjustment of the height of the forward end of the apparatus and the angular relation of the handle members to the tread surface of the device. If desired, this adjustment may be made before the person mounts the apparatus and set screws *j* screwed in place to lock the parts against shifting. On the other hand, if set screws *j* are screwed to their inoperative position, an operator, while actuating the apparatus, may, by shifting the handle members, adjust the height of the forward end of the device at will, without leaving the apparatus—*e. g.*, when a person starts walking, the forward end of the apparatus should be comparatively low and the handle members substantially vertical. As he gathers speed, the forward end of the apparatus should rise and the handle members should be tilted slightly forward. This invention allows of this adjustment by the operator as he changes from one speed to another; *i. e.*, he may change the inclination of the apparatus at will and simultaneously adjust the handle members to correspond to such inclination.

For convenience in storing the device, the handle members are preferably made of such length that, when folded down upon the apparatus, they will extend to the rear end thereof. This allows of the apparatus being stood up on end, as shown in Fig. 5, in which position it will be very compact and will take up minimum space. This is a distinct point of advantage, since, when not in use, the apparatus may be stacked away in a very small space, or, if desired, may be slipped under a bed in its folded position.

A modified form of the invention is illustrated in Figs. 6 and 7. The principle of operation in both this and the preferred form is, in the main, substantially the same, with the exception of the simultaneous adjustment of the handle members and forward legs of the apparatus. The modified construction embodies a frame provided, at either end, with direction rollers *L L'*, which may be either rotatable or stationary, as desired. The frictional, resilient suspension bars *l* are shown three in number, although this is not controlling, since two or more may be employed, as desired. These bars, instead of being secured to the frame, are laid upon direction rollers *L L'*, and the flexible endless tread is laid thereover. For the purpose of regulating the depression of suspension members *l*, these members are preferably secured together by a transverse cleat *M*, provided at its center with a de-

pending, rotatable, threaded stem *o*, having a hand-wheel O. Immediately beneath cleat M is a transverse bar N, fixedly secured to the side reaches of the frame, and this bar is provided with an interiorly threaded collar O', into which the threaded stem *o* is adapted to screw. Thus, by manipulating the hand-wheel O, the depression of suspension rods *l* may be regulated. Adjustment of the height of the forward end of the apparatus is provided for by adjustable legs P pivotally secured to the frame and adapted, when shifted to varying angular relation to the frame, to effect the varying inclination thereof. These angular changes may be made by means of chains *p* secured to the frame and adapted to engage with hooks *p'* intermediate the ends of the legs.

At the forward end of the apparatus is pivoted a handle frame. At the lower end of the handle frame are laterally projecting arms *q*, into which are threaded set screws R. The frame is provided with a sector having a series of apertures *r*, with which set screws R are adapted to cooperate, so that the handle frame may be locked in any desired position. This form of apparatus differs from the preferred form in that there is no simultaneous adjustment of the handle frame and the forward legs of the apparatus.

It will be manifest, from the foregoing, that, in the operation of the devices of both of the forms illustrated, the flexible, endless tread glides smoothly over the resilient suspension rods *d* and *l*, and the rollers at either end of the frame, in either form, simply serve as means for facilitating the change of direction of the tread belt. Both forms of the device may be folded up compactly, when the device is not in use, and both apparatus are simple in construction and have no parts which can possibly get out of order. The tread is springy and resilient to the operator and his exercise upon the apparatus is not tiring, but, in fact, stimulating. This latter feature is attributable, mainly, to the absence of any jarring or jolting action in the apparatus.

Of course, it will be manifest that the apparatus hereinbefore shown and described are adapted to various modifications wholly within the spirit of my invention, and I, therefore, wish it understood that I do not restrict myself to the precise structures herein illustrated, but consider my invention as broadly new as is commensurate with the appended claims.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a health exerciser, a frame encircled longitudinally by an endless, flexible tread laid frictionally upon said frame for sliding movement thereon, legs pivoted to one end

of said frame, and means whereby the angular relation between the legs and the frame may be varied, at will, to raise or lower one end of the frame.

2. In a health exerciser, a frame encircled longitudinally by an endless, flexible tread, with means for raising or lowering one end of the frame and means for governing the curvature of the upper surface of the tread.

3. In a health exerciser, a frame encircled longitudinally by an endless, flexible tread, with means for raising or lowering one end of the frame and means for governing the curvature of the upper surface of the tread and having adjustable handles.

4. In a health exerciser, a frame encircled longitudinally by an endless, flexible tread, and means cooperating with said frame and tread for governing the curvature of the upper surface of said tread.

5. In a health exerciser, a supporting frame encircled longitudinally by an endless, flexible tread laid frictionally upon said supporting frame, and means cooperating with the supporting frame and with the endless, flexible tread for governing the curvature of the upper surface of the latter.

6. In a health exerciser, a supporting frame encircled by an endless, flexible tread, and resilient suspension means carried by said frame for supporting the upper portion of said tread intermediate the ends of the frame, said tread being adapted to engage the supporting means in frictional contact whereby the portion of the tread which carries the weight of the operator is springy and resilient.

7. In a health exerciser, a supporting frame, resilient members secured, at their opposite ends, on the opposite ends of the frame, an endless, flexible tread encircling the frame longitudinally, the upper portion of said tread being adapted to frictionally engage with the resilient members, whereby the portion of the exerciser on which the operator walks is springy and resilient, and means for regulating the depression of the resilient members when under weight.

8. In a health exerciser, a supporting frame, means mounted on the supporting frame for the reception of an operator, supporting legs at either end of the frame, and a handle member pivotally secured at one end of the frame, said handle member being of such length that, when folded down upon the frame and the frame stood on end, the handle member cooperates with the legs at the lower end of the frame to form a support for said frame in its upstanding position.

9. In a health exerciser, an endless, flexible tread laid frictionally upon a supporting frame, and a handle member pivotally mounted on one end of said frame and adapted to be adjusted to facilitate the operations of the operator.

10. In a health exerciser, a supporting frame, an endless, flexible tread longitudinally encircling said frame, legs pivotally secured to the forward end of said supporting frame and adapted for pivotal movement to raise or lower said end of the frame, and a handle member also pivoted to the forward end of the frame on points of pivoting independent of the points of pivoting of the handle member, said handle member being adapted to cooperate with the pivoted legs whereby the angular relation between the handle and legs and the frame may be simultaneously regulated.

11. In a health exerciser, a supporting frame, an endless, flexible tread longitudinally encircling said frame, legs pivotally secured to the forward end of said supporting frame and adapted for pivotal movement to raise or lower said end of the frame, a handle member independent of the legs at the forward end of the supporting frame, said handle member being also pivoted to the forward end of the frame and adapted to cooperate with the pivoted legs whereby the angular relation between the handle and legs and the frame may be simultaneously regulated, and means for locking the parts in desired adjusted position.

12. In a health exerciser, a frame encircled longitudinally by an endless, flexible tread, supporting legs at either end of said frame, and a handle member pivotally secured at one end of the frame, said handle member being of such length that, when folded down upon the frame and the frame stood on end, the handle member cooperates with the legs at the lower end of the frame to form a support for said frame.

13. In a health exerciser, a supporting frame provided at its opposite ends with direction rollers, an endless, flexible tread encircling said direction rollers, means cooperating with said direction rollers for resiliently supporting the upper portion of said tread intermediate said rollers, and means for governing the degree of depression to which the flexible tread is adapted intermediate said direction rollers.

14. In a health exerciser, a supporting frame provided at its opposite ends with direction rollers, an endless flexible tread encircling said direction rollers, and resilient rods mounted on said frame so that one end of each rod is substantially tangent to the direction roller at the front of the machine, and their other ends lower than the upper edge of the roller at the rear of the machine,

whereby the flexible tread, in traveling around the frame, is forced to rise over the rear roller, thereby assisting the operator in maintaining his position upon the exerciser.

15. In a health exerciser, the combination with a supporting frame provided with a runway on which a person is adapted to exercise, of legs pivoted to the forward ends of said apparatus, and a separate handle member also pivoted to the forward ends of said apparatus, said handle member and legs being adapted to cooperate with one another whereby pivotal movement of the former transmits pivotal movement to the latter, thereby allowing the operator to adjust the parts without dismounting from the exerciser.

16. In a health exerciser, the combination with a supporting frame provided with a runway on which a person is adapted to exercise, of a supporting member pivoted to the forward end of said frame and adapted, by its pivotal movement, to govern the angular inclination of the runway of the frame, and a handle member, independent of the supporting member, also pivoted to the forward end of the frame and cooperating with the supporting member to transmit pivotal movement to said supporting member when said handle member is pivotally moved whereby the operator may vary the inclination of the frame during the exercising operation.

17. In a health exerciser, the combination with a supporting frame provided with a runway on which a person is adapted to exercise, of a supporting member pivoted to the forward end of said frame and adapted, by its pivotal movement, to govern the angular inclination of the runway of the frame, a handle member, independent of the supporting member, also pivoted to the forward end of the frame and cooperating with the supporting member to transmit pivotal movement to said supporting member when said handle member is pivotally moved whereby the operator may vary the inclination of the frame during the exercising operation, and means for locking the parts in any desired position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADRIAN PETER SCHMIDT.

Witnesses:

CORNELIUS ZABRISKIE,
A. A. CARNEY.