

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned
	Filing Date		June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.	
	Art Unit	Not yet assigned	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	065922-004560US-1091100	

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code 1	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	3572458	A	Mar 30, 1971	Hans, Tax	
	2	3664448	A	May 23, 1972	Hudis, Michael	
	3	3792745	A	Feb 19, 1974	Files, T.	
	4	3900077	A	Aug 19, 1975	Gee	
	5	3970405		Jul 20, 1976	Swisher et al.	
	6	4029165	A	Jun 14, 1977	Miller, David J., et al.	
	7	4360293	A	Nov 23, 1982	Wade, Arthur W.	
	8	5590977	A	Jan 7, 1997	Guntert, Ronald M., et al.	
	9	6390728		May 21, 2002	Casters, Francois	
	10	6471442		Oct 29, 2002	Deeb, Mahmoud et al.	
	11	6481923	B1	Nov 19, 2002	Casters, François	
	12	6692185	B2	Feb 17, 2004	Colvard, John C.	
	13	6773203	B2	Aug 10, 2004	Casters, François	
	14	6872028		Mar 29, 2005	Aeschlimann, Werner et al.	
	15	6890123	B2	May 10, 2005	Piccoli, Mario	
	16	7942604	B2	May 17, 2011	Willis, et al.	
	17	7950874	B2	May 31, 2011	Guntert, Jr. et al.	
	18	8100481	B2	Jan 24, 2012	Von Schonebeck, et al.	
	19	8118518		Feb 21, 2012	Guntert et al.	
	20	8459898		Jun 11, 2013	Guntert Jr. et al.	
	21	9121141	B2	Sep 1, 2015	Thieme et al.	
	22	9180909	B1	Nov 10, 2015	Coats, Robert E.	
	23	9359727	B2	Jun 7, 2016	Guntert, Jr. Ronald M.	
	24	9663162	B1	May 30, 2017	Pedersen et al.	
	25	9708020	B2	Jul 18, 2017	Guntert Jr. et al.	

KILPATRICK TOWNSEND 70893878 1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned
	Filing Date		June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.	
	Art Unit	Not yet assigned	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	065922-004560US-1091100	

	26	9764762	B2	Sep 19, 2017	Klein Kevin L. et al.	
	27	9908571	B2	Mar 2018	Guntert, Jr., Ronald	
	28	9684308	B2	Jun 2017	Dahm, Martin	
	29	9663905	B2	May 2017	Dahm, Martin	
	30	9541195	B2	Jan 2017	Farr, Thomas C.	
	31	9464716	B2	Oct 2016	Farr, Thomas C.	
	32	9388537	B2	Jul 2016	Dahm, Martin	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	33	20110236129		Sep 29, 2011	Guntert Jr. et al.	
	34	20140161528		Jun 12, 2014	Guntert et al.	
	35	20160061327	A1	Mar 3, 2016	Farr, Thomas C.	
	36	20160137242	A1	May 19, 2016	Dahm, Martin	
	37	20160244096	A1	Aug 25, 2016	Klein, Kevin et al.	
	38	20160251042	A1	Sep 1, 2016	Guntert Jr. et al.	
	39	20170106902	A1	Apr 20, 2017	Farr et al.	
	40	20170282983	A1	Oct 5, 2017	Guntert Jr. et al.	
	41	20170344027	A1	Nov 2017	Dahm, Martin	
	42	20170291636	A1	Oct 2017	Hellholm, Bjorn	
	43	20070240928	A1	Oct 2017	Coltson, W. Craig	

FOREIGN PATENT DOCUMENTS

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned	
	Filing Date		June 20, 2018	
	First Named Inventor		Ronald M. Guntert, Jr.	
	Art Unit		Not yet assigned	
	Examiner Name		Not yet assigned	
	Attorney Docket Number		065922-004560US-1091100	

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	44	102011014666	DE		Nov 24, 2011	Guntert and Zimmerman Const. Div. Inc.		
NON-PATENT LITERATURE DOCUMENTS								
Examiner Initials*	Cite No	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 ⁵
	45	13/069,096 , "Notice of Allowance", February 11, 2013, 8 pages.						
	46	13/069,096 , "Non-Final Office Action", September 26, 2012, 7 pages.						
	47	13/897,125 , "Final Office Action", June 24, 2015, 7 pages						
	48	13/897,125 , "Non-Final Office Action", November 5, 2014, 6 pages						
	49	13/897,125 , "Notice of Allowance", February 10, 2016, 6 pages						
	50	15/148,811 , "Non Final Office Action", October 17, 2016, 9 pages						
	51	15/148,811 , "Notice of Allowance", March 15, 2017, 5 pages						
	52	15/623,012 , "Non-Final Office Action", July 11, 2017, 8 pages						
	53	15/623,012 , "Notice of Allowance", October 18, 2017, 8 pages						
	54	15/873,757 , "Notice of Allowance, June 26, 2018., 7 pages						

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned
	Filing Date		June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.	
	Art Unit	Not yet assigned	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	065922-004560US-1091100	

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>			
<p>¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.</p>			

CERTIFICATION STATEMENT			
Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):			
<input type="checkbox"/> That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).			
OR			
<input type="checkbox"/> That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).			
<input type="checkbox"/> See attached certification statement.			
<input type="checkbox"/> The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.			
<input checked="" type="checkbox"/> A certification statement is not submitted herewith.			
SIGNATURE			
A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.			
Signature	/James K. Chang/	Date (YYYY-MM-DD)	2018-06-20
Name/Print	James K. Chang	Registration Number	61,477

KILPATRICK TOWNSEND 70893878 1

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	Not yet assigned
	Filing Date	June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.
	Art Unit	Not yet assigned
	Examiner Name	Not yet assigned
	Attorney Docket Number	065922-004560US-1091100

<p>This collection of information is required by 37 CFR 1.97 and 1.98. 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 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: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.</p>			

KILPATRICK TOWNSEND 70893878 1

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
First Named Inventor/Applicant Name:		Ronald M. GUNTERT, Jr.		
Filer:		James Krikor Chang/LaRenda Meyer		
Attorney Docket Number:		065922-004560US-1091100		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				785

Electronic Acknowledgement Receipt	
EFS ID:	32957661
Application Number:	16013864
International Application Number:	
Confirmation Number:	9478
Title of Invention:	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
First Named Inventor/Applicant Name:	Ronald M. GUNTERT, Jr.
Customer Number:	20350
Filer:	James Krikor Chang/LaRenda Meyer
Filer Authorized By:	James Krikor Chang
Attorney Docket Number:	065922-004560US-1091100
Receipt Date:	20-JUN-2018
Filing Date:	
Time Stamp:	20:42:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$785
RAM confirmation Number	062118INTEFSW20440900
Deposit Account	201430
Authorized User	IP eFiling
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>37 CFR 1.16 (National application filing, search, and examination fees)</p> <p>37 CFR 1.17 (Patent application and reexamination processing fees)</p>	

37 CFR 1.19 (Document supply fees)					
37 CFR 1.20 (Post Issuance fees)					
37 CFR 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		ContinuationApplication_004560US.pdf	188743	yes	38
			3de754076ea3c27b19cd499e26f710513cee4492		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	32	
	Claims		33	37	
	Abstract		38	38	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Drawings_004560US.pdf	831715	no	18
			34e13ff6e3c272eb70b5de62aa70b9f1ae57e709		
Warnings:					
Information:					
3	Oath or Declaration filed	Declarations_004560US-1091100.PDF	1904008	no	3
			069bc23413e2a72133e72b5a4d34b7efab889b5f		
Warnings:					
Information:					
4	Application Data Sheet	ads.pdf	1505881	no	7
			84a25772775271db8a97f616019e142e1ad081eb		
Warnings:					
Information:					
5	Transmittal Letter	IDS_Transmittal.pdf	109096	no	2
			ab95de24247a30837e2ffbc7524846436d7ec616		

Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	ids_1091100.pdf	148787	no	5
			70395302c109f7c9e7233cfedbb63b6d8ba 4dfd1		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
7	Fee Worksheet (SB06)	fee-info.pdf	35238	no	2
			eda661a033d879158adeed3b3947c276ae0 13489		
Warnings:					
Information:					
Total Files Size (in bytes):			4723468		
<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><u>New Applications Under 35 U.S.C. 111</u> 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><u>National Stage of an International Application under 35 U.S.C. 371</u> 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><u>New International Application Filed with the USPTO as a Receiving Office</u> 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>					

NON-PROVISIONAL PATENT APPLICATION

**AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING
AND ALIGNING AND REORIENTING CRAWLERS**

Inventor(s): Ronald M. GUNTERT, Jr.
a citizen of the United States,
6292 Crooked Stick Circle
Stockton, CA 95219;

Gerald L. DAHLINGER
a citizen of the United States,
16227 Spring Creek Drive
Ripon, CA 95366; and

Richard Wood FRANCIS
a citizen of the United States,
735 N. Edison Street
Stockton, CA 95203.

Assignee: Guntert & Zimmerman Const. Div., Inc.
222 East Fourth Street
Ripon, CA 95366

Entity: **Small**

KILPATRICK TOWNSEND & STOCKTON LLP
Two Embarcadero Center, Suite 1900
San Francisco, California 94111-3834
Tel: 415-576-0200

**AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING
AND ALIGNING AND REORIENTING CRAWLERS**

CROSS-REFERENCE TO RELATED APPLICATIONS

5 **[0001]** This application is a continuation of U.S. Application No. 15/873,757 (now allowed),
filed on January 17, 2018; continuation of U.S. Application No. 15/623,012, filed on June 14,
2017, now U.S. Patent No. 9,908,571; which is a continuation-in-part of U.S. Application No.
15/148,811, filed on May 6, 2016, now U.S. Patent No. 9,708,020; which is a continuation of
U.S. Application No. 13/897,125, filed on May 17, 2013; now U.S. Patent No. 9,359,727; issued
10 June 7, 2016, which is a continuation of U.S. Application No. 13/069,096, filed on March 22,
2011, now U.S. Patent No. 8,459,898, issued June 11, 2013; which claims the priority of U.S.
Provisional Application No. 61/318,223, filed on March 26, 2010, the disclosures of which are
incorporated herein by reference.

15 **BACKGROUND OF THE INVENTION**

[0002] The present invention concerns concrete slipform paving machines that have a
propelling unit or tractor from which a paving kit is suspended with which a layer of concrete is
shaped and finished over the underlying ground as the tractor travels along a road or airfield
alignment. The tractor of a concrete slipform paver has a rectilinear frame which straddles the
20 concrete roadway or airfield pavement section that is being paved. The frame is propelled and
supported on either end by crawler tracks mounted on side bolsters. These side bolsters each
typically have two hydraulic supporting jacking columns, each of which connects to a crawler
track, that allow the tractor frame elevation to be manually or automatically varied relative to the
ground. The frame, and in particular a center module thereof, supports a diesel engine-driven
25 hydraulic power unit which supplies power to the tractor and the paving kit.

[0003] The paving kit is conventionally suspended below the tractor frame by mechanical
means, such as with hooks and a locking mechanism. The paving kit takes its hydraulic power
from the power unit on the tractor. The tractor and the paving kit pass over fresh concrete placed
in and distributed over its path as a relatively even and level mass that can be conveniently
30 slipform-paved. During this process, the tractor-attached paving kit spreads the semi-solid

concrete dumped in the path of the paver, levels and vibrates it into a semi-liquid state, then confines and finishes the concrete back into a semi-solid slab with an upwardly exposed and finished surface. The sideforms mounted on each side of the slipform paving kit shape and confine the sides of the slab during the slipform paving process. Other kits can be attached to these tractors such as kits for conveying and spreading concrete and trimming and spreading base materials.

[0004] The tractor normally has four crawler tracks, but can also have only three, each mounted to a jacking column, supporting and propelling the frame during use of the paver in the paving direction. The jacking columns are carried on the bolsters, or on bolster swing legs connected to the fore and aft ends of the side bolsters, that are pivotable about vertical axes to change the relative position of the crawlers for a variety of reasons and/or for changing the movement correction of the crawlers and therewith of the paving machine during use. The bolster swing legs with jacking columns and crawlers can also be relocated and mounted directly to the front and rear of the tractor center module, to the outside of the side bolsters or directly to the outside of the tractor center module in some less conventional paving applications. For the purposes of this description, the focus is on the manner in which bolster swing arms and the orientation of the crawlers can be changed and controlled in the more conventional paving configuration of the machine.

[0005] As is well known, tractor frames for slipform paving machines, which typically are extendable/retractable in the lateral direction to change the widths of the tractor frame and the remainder of the paving machine, have a generally rectangularly shaped center module or platform which supports, for example, the power unit including the engine for the paver, an operator platform, and the like. A side bolster is laterally movable and secured to each lateral side of the tractor frame (by means of male support tubes that telescopic in and out of the tractor center module), and bolster swing legs pivotally connect the fore and aft ends of the bolster to the respective jacking columns and crawlers of the paver. The swing legs are pivotally mounted to front and aft ends of the bolsters on vertically oriented hinge pins so that pivotal movement of the swing legs moves their end portions, which mount the jacking column and the crawlers, sideways relative to the paving direction of the paving machine and in a generally horizontal plane for increasing or decreasing the distance between the crawlers, and the distance and orientation of the crawlers relative to the tractor frame of the paving machine. Once the bolster

swing legs supporting the jacking column with crawler track have the desired spacing between them and the desired orientation relative to the tractor frame, they are locked in place to prevent the crawler tracks from deviating from the desired direction/position and to absorb any existing tolerances between the bolster ends and the bolster swing legs which, if permitted to exist, allow
5 undesired orientational deviations of the crawlers. In the past, turnbuckles and/or hydraulic cylinders were employed to prevent such tolerance-based play. To eliminate all play, two counteracting turnbuckle and/or hydraulic actuators arrangements were sometimes employed to establish a positive, immovably locked position and orientation for each crawler track.

[0006] The position fixing turnbuckles and/or hydraulic actuators were secured to mounting
10 brackets that were bolted to a hole pattern in the front (or aft) facing surfaces of the tractor frame and the bolster swing legs and/or between the side bolster ends and the bolster swing legs. To be effective, the turnbuckles/hydraulic actuators must have a substantial angular inclination relative to the bolster swing leg. If this angular inclination becomes too small, the turnbuckles/hydraulic actuators lose effectiveness and rigidity, which, if permitted to occur, can lead to undesired
15 deviations in the desired orientation of the crawler tracks, and if the inclination becomes too large, the distance between the point of connection of the turnbuckles/hydraulic actuators to the tractor frame and to the bolster swing leg can exceed the effective length of the turnbuckle or hydraulic actuator.

[0007] Thus, in the past, when the machine width had to be changed by a significant amount it
20 became necessary to reposition the turnbuckle/hydraulic actuator mounting bracket along the length (in a lateral direction that is perpendicular to the travel direction) of the tractor frame to maintain the angular inclination of the turnbuckle/hydraulic actuator within an acceptable range. This was a time-consuming task that required skilled workers and, therefore, was costly. In addition, the time it takes to change the position of the mounting bracket for the
25 turnbuckle/hydraulic actuator is a downtime for the machine during which it is out of use and cannot generate revenues.

[0008] Bolster swing legs are used so that the crawler tracks can be relatively quickly relocated in relationship to the edge of the concrete pavement that is being laid down from the normal straight-ahead position, for example to avoid obstacles in the path of the crawler tracks or to
30 make room that may be required to allow tie bars to pass the inside of the rear crawlers and the like. One of the conventional ways of relocating the crawler track was to support the side bolster

of the tractor, using the jacking column to hydraulically lift the crawler off the ground, then to use one or more turnbuckles (or one or more hydraulic actuators) to mechanically pivot the bolster swing leg with the jacking column and crawler track and, once the desired position is reached, to hold it there with a turnbuckle or steamboat ratchet (or actuator). If only one

5 turnbuckle is used in the normal position, which is the inboard side of the bolster swing leg, the swing leg is free to move due to the inevitable manufacturing and assembly clearances and tolerances in the turnbuckle connections. These clearances are undesirable because if the swing leg is allowed to pivot or tilt under varying loads, it can adversely affect steering and elevation control. Because of this connection play, opposing turnbuckle sets were at times employed, one

10 being located in the inboard side and one or more turnbuckles being located on the outboard side of the swing leg. In such an arrangement, after the crawler track is in the desired position, the opposing turnbuckles are tensioned (pulled) against each other to keep the swing leg from moving. This transfers all the clearance in the pin connections to one side of the hole, eliminating any possible movement in the connection. The drawback of this approach is that the

15 outboard turnbuckles increase the overall machine profile outside the edge of concrete and therefore require more room for the machine when paving past obstacles in tight confines. If the outboard turnbuckle angle is decreased to decrease the machine profile, the effectiveness of the turnbuckles at this flat angle in holding the swing leg can decrease to almost nil. Further, every time the crawler track is relocated, all the turnbuckles must be readjusted.

20 **[0009]** Attempts have been made to eliminate the need for the outboard opposing turnbuckles by adding a hydraulic cylinder/actuator between the tractor frame and the swing leg behind the turnbuckle on the inboard of the leg. The cylinder effectively pushes the pin connection clearances to the inside of the turnbuckle connection holes and eliminates the risk of swing leg movement by keeping the hydraulic actuator pressurized.

25 **[0010]** The relocation of the bolster swing leg and crawler track in relationship to the tractor frame is further adversely affected by the need to relocate the turnbuckle connection on the tractor frame where it connects to the bolsters to which the swing leg is attached. The turnbuckle connection on the bolster swing leg side typically stays at the same connection point. In the past, the turnbuckle connection to the tractor frame posed several problems. One such problem was

30 when the tractor frame was telescoped narrower. At wider tractor widths, the turnbuckle connects to the outboard end of the support beam of the tractor frame with a turnbuckle bracket

that is bolted to the male support beam (that telescopes in and out of the tractor center module) with two or more bolts; however, if the tractor frame is telescoped narrower, the bracket will eventually interfere with the tractor center module, which prevents the further narrowing of the tractor frame. Once this point is reached, the turnbuckle mounting bracket therefore had to be
5 unbolted from the male support beam and rebolted to the tractor center module. To maintain the optimum turnbuckle angle to the swing leg so the turnbuckle is effective in holding the leg in the desired position, the turnbuckle bracket had to be relocated along the tractor center module repeatedly, which slowed down the machine width change process during each change. The inboard turnbuckles can also interfere with other attachments required on the front and rear of
10 the machine, such as a spreader plow that is mounted off the front of the tractor frame, which had to be disconnected and reconnected, which increases costs further. Another problem was when the swing leg complete with jacking column and crawler track is relocated to the outside of the side bolster or mounted directly to the tractor center module, in some paving applications there was no place to connect the bolster swing leg or turnbuckles (hydraulic actuators).

15 **[0011]** The relocation of the bolster swing legs and crawler track in relationship to the tractor frame is further adversely affected by the steering cylinders that typically were used on the jacking columns. The steering cylinders allow the crawler track angle to be changed in relationship to the jacking column for manual or automatic steering purposes. In the past, the steering cylinders at times protruded to the outside of the associated steering column. This is
20 undesirable because it increases the outside width of the paving machine, which dictates and will limit how close the machine can pave next to a building or obstruction, and the stroke of the steering cylinder dictates how far the swing leg can be swung inboard or outboard. Amongst others, such a jacking column steering cylinder configuration does not allow the crawler tracks to be rotated 90° from their normal operating orientation without the time-consuming repinning or
25 repositioning of the steering, which is a drawback.

[0012] It is however highly advantageous to rotate the crawlers to such a 90° steering position (and being able to steer the crawler track in that position) from their normal position when readjusting the machine for paving different widths, maneuvering the machine around the jobsite, or for readying the machine for transport to a different paving site. In such an event, the
30 swing legs with jacking columns and crawlers are pivoted relative to the tractor frame until the crawlers extend in the lateral direction (which is perpendicular to the normal paving direction) of

the paving machine, which minimizes the width of the paving machine so the gauge between the crawler tracks in the transport position is narrow enough to walk the machine onto a trailer and for its transportation over normal roads to a new site. This outboard 90° bolster swing leg orientation is not to be confused with rotating just the crawler tracks in the 90° position using 90° steering.

[0013] Thus, when repositioning the crawler tracks of a paving machine in accordance with conventional methods, the machine is initially appropriately supported so that a first one of the bolster swing leg-mounted crawler tracks can be lifted off the ground. The turnbuckle is then used to pivot the bolster swing leg until the jacking column and the associated crawler are at the desired (lateral) position and have the required crawler orientation. If the needed lateral movement of the crawler is too great, the turnbuckle mounting bracket must be repositioned by unbolting it from the frame and rebolting it thereto at a hole pattern located at the appropriate (lateral) point on the tractor frame or the center module. Thereafter, the turnbuckle is tightened in the new position of the crawler so that the bolster swing leg can no longer move and the orientation of the crawler is maintained. Thereafter, the crawler is lowered to the ground, it is rotated about the vertical axis of the jacking column to place it in the desired orientation, and an orientation measuring transducer is reset for the new crawler orientation to keep the crawler in the straight-ahead position. This has to be repeated for each of the typically four crawlers of the paving machine, a process that is time-consuming, costly and results in a prolonged, unproductive downtime for the machine. This cost is encountered each time the lateral position of the crawler and/or turnbuckle mounting bracket is changed and the crawlers must then be reoriented relative to the frame so that they face in the required transport direction. This procedure is also used to ready the paving machine for transportation to a new work site. In such an event, the swing legs are pivoted relative to the frame until the crawlers extend in the lateral direction (which is perpendicular to the normal paving direction) of the paving machine, which minimizes the width of the paving machine for transportation to a new site.

[0014] In an alternative approach used in the past, the crawlers and the associated jacking columns were connected to the fore and aft ends of the side bolsters and fixed mounted to the end of the parallel linkages and oriented so that the crawlers extend in the paving direction of the paving machine. The parallel linkages typically include a hydraulic actuator to assist in the crawler track relocation and to hold the crawler track in the desired position. This approach

simplified the lateral adjustment of the positions/orientations of the crawlers in relationship to the tractor as compared to crawlers mounted on pivoted swing legs because no matter where the crawler track was repositioned, the crawler track always remained oriented straight ahead and the turnbuckle relocation issue went away. However, in such arrangements, the limited range of movement of the parallel linkages with hydraulic actuator limits how narrowly the machine can be collapsed for transporting it over highways (with standard highway width restrictions) to new construction sites. The ability to quickly and efficiently move the paving machine from one site to the next, which is highly desirable for the efficient use of the machine, is lost with this approach. Instead, paving machines employing such parallel linkages for the crawlers required that the tractor frame itself had to be collapsed in order to narrow the width of the machine sufficiently so that it could be transported over highways. This requires that either the paving kit itself be telescopic or that the paving kit is removed from the tractor. In either case, this could significantly increase the overall cost of the machine or the cost or time required for moving the machine and is therefore an undesirable alternative. The only way to overcome this limitation is to add a pivot hinge (with a means to lock/pin the pivot hinge in either the working or transport position) between the side bolster and the parallel linkage to allow the parallel linkage with jacking columns and crawlers to pivot outboard relative to the tractor frame until the crawlers extend in the lateral direction (which is perpendicular to the normal paving direction) of the paving machine required for loading on a trailer and transport. Of course, adding the pivot hinge with a pinning mechanism to each corner of the machine is costly, and pinning and unpinning of the hinge is time-consuming.

BRIEF SUMMARY OF THE INVENTION

[0015] According to a first aspect of the present invention, each bolster swing leg is pivotally mounted on a hinge bracket that is secured to the front (or aft) ends of the side bolsters of the paving machine. This bracket also supports the turnbuckle or, preferably, a hydraulic actuator which eliminates the need to tie the swing leg into the tractor frame for holding the swing leg, and the crawler track secured to it, in a fixed position during paving. One end of the turnbuckle or actuator is tied into the swing leg conventionally, while the other end is mounted to the hinge bracket. This eliminates the need encountered in the past to relocate the turnbuckle mounts on the tractor frame when the width of the tractor frame is changed. Instead, in accordance with the

present invention, every time the width of the paving machine is changed, the attachment point for the turnbuckle or hydraulic actuator automatically follows the positional change of the swing leg because the attachment point is mounted on the hinge bracket, that is, in a fixed position relative to the bolster and the swing leg.

5 **[0016]** To facilitate the required realignment of the crawler tracks, another important aspect of the present invention preferably replaces the turnbuckles with hydraulic actuators and provides angular position transducers at the pivot connection for the swing leg at the hinge bracket and another such transducer between the jacking column and the crawler track. An onboard computer or other processor receives the outputs from the transducers and generates a signal to
10 pivot the crawler track relative to the associated jacking column to keep the crawler tracks oriented in the paving direction when the angular orientation of the swing leg changes, and also keeps all the crawler tracks' orientations synchronized. Thus, no matter what the swing leg angle is, the crawler track stays straight ahead in the paving direction and position. Of course it is also possible to override this computerized feature so the crawler track orientation can be
15 changed relative to the bolster swing leg, which may be required from time to time for width change, maneuvering on site, etc.

[0017] The bolster swing leg hydraulic actuator and the hydraulic rotary power drive or steering cylinder for pivoting the crawler track relative to the jacking column working in cooperation with the position transducers allow the swing leg with crawler track to be held in a
20 fixed location in relationship to the edge of the concrete. A closed loop feedback system that connects the hydraulic actuator for the swing leg, the rotary power drive for the crawler, and the onboard computer always maintains the swing leg angle at a fixed, preset angle. If the swing leg migrates away from a preset angle, the swing leg hydraulic cylinder is actuated to maintain the preset angle and at the same time the necessary adjustments to the crawler track orientation are
25 made with the hydraulic rotary power drive or steering cylinder. Alternatively, a hydraulic system using a locking valve can be provided instead of the position transducer and feedback loop for holding the swing leg in the desired position.

[0018] Thus, the crawler track positions can be relocated when the machine is walked forward or backward while the crawler tracks at all times stay in their straight-ahead normal operating
30 orientation and position without requiring any manual mechanical or electronic adjustments. The crawler tracks can also be relocated when the machine is stationary by supporting the weight

of the machine off the ground, then hydraulically lifting each crawler track (one at a time) off the ground, and thereafter using the swing leg hydraulic cylinder and position transducer working in conjunction with the power drive or steering cylinder between the jacking column and the crawler track for moving the crawler track to another position.

5 **[0019]** A still further aspect of the present invention eliminates the need to reposition the steering cylinder on the jacking columns when the crawler track is repositioned within the range of the swing leg cylinder and to allow 90° steering without having to reposition the steering cylinder by employing a hydraulic motor driven rotary actuator (slew gear) with an angular position transducer as the power drive between the crawler track and the jacking column. The
10 rotary actuator also allows a wide range of steering angles while in the 90° steering mode to make the machine highly maneuverable on site. Working in conjunction with the swing leg position transducer, and after unpinning the swing leg hydraulic cylinder from the swing leg, the rotary actuators allow the machine to be preprogrammed to first turn the crawler tracks relative to the jacking columns normal to the paving direction, and then walk the crawler tracks on the
15 ground in an arc around the pivot shaft of the swing legs into their outboard transport position (in which the crawlers are oriented 90°, i.e. substantially transverse to the paving direction) so that the paving machine can be sufficiently narrowed for moving it over ordinary highways to a new paving site with a legal or otherwise approved transport width dimension, or, for maneuvering the paving machine around a paving site which is tightly confined. The heretofore common need
20 to manually move the swing legs with jacking columns and crawler tracks into the outboard position as previously described is thereby eliminated, which significantly reduces the time required to ready the machine for transport and/or for maneuvering the machine at the work site.

[0020] Thus, a paving machine constructed in accordance with the present invention has a main frame that includes a center module, a side bolster that is laterally movably connected to
25 respective lateral sides of the center module for changing a spacing between the bolsters, a crawler track associated with respective aft and forward ends of the bolsters, and a bolster swing leg for each crawler track. An upright jacking column is secured to the free end of the swing leg, and a connection between the jacking column and the crawler track permits rotational movements of the crawler track and the jacking column about an upright axis. A hinge bracket is
30 interposed between each swing leg and an associated surface of the bolsters and includes a fixed, upright pivot shaft that pivotally engages the swing leg for pivotal movements in a substantially

horizontal plane. The hinge plate includes a pivot pin that is laterally spaced from and fixed in relation to the pivot shaft. A length-adjustable, preferably hydraulically actuated, holder is capable of being held at a fixed length and has a first end that pivotally engages the pivot pin and a second end that pivotally engages the swing leg. The holder permits pivotal motions of the swing leg about the hinge pin when in its length-adjustable configuration and prevents substantially any motion of the swing leg when the holder is in its fixed-length configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] Illustrative aspects of the present disclosure are described in detail below with reference to the following drawing figures. It is intended that that embodiments and figures disclosed herein are to be considered illustrative rather than restrictive.

[0022] Fig. 1 is a front elevational, perspective view of a complete paving machine having pivotable swing legs with a jacking column and a crawler, each constructed in accordance with the present invention;

[0023] Fig. 2 is a partial, simplified plan view of portions of a paving machine illustrating the pivotal swing leg of the present invention;

[0024] Fig. 3 is a perspective, front elevational view of a hinge bracket for securing the swing leg to the paving machine;

[0025] Fig. 4 is a front elevational view, in section, taken through the vertical center line of the jacking column and crawler, which are only schematically shown in Fig. 1;

[0026] Fig. 4A is an enlargement of the portion of Fig. 4 within the circle A-A of Fig. 4;

[0027] Fig. 5 is a front elevational view, in section, through the pivot connection between the hinge bracket shown in Fig. 3 and the bolster swing leg attached thereto with a pivot pin;

[0028] Fig. 6 is a schematic plan view similar to Fig. 2 and illustrates the attachment of the bolster swing legs to the aft portion of the paving machine, with the paving machine having an additional cross beam between the tractor frame and the swing legs for additional kits that may be mounted on the paving machine;

[0029] Fig. 6A shows in plan view a paving machine with a DBI Module incorporating special bolt-in short bolster extensions with built-in mounts for DBI longitudinal support beams;

[0030] Fig. 6B is an illustration similar to Fig. 6A with the paving machine and the DBI shown in various relative positions as they are being readied for transportation while in their respective
5 transport orientations;

[0031] Fig. 6C is a side elevation of the paving machine shown in Fig. 6B, in its transport orientation;

[0032] Fig. 7 is a perspective, side-elevational view showing the bolster swing leg that is pivotally secured to the hinge bracket; and

10 **[0033]** Figs. 8A-E are schematic plan views of the paving machine which illustrate reconfiguring the machine into its transportation mode (or vice versa).

[0034] Fig. 9 is a plan view illustration of a three-leg paving machine having one forward swing leg, according to aspects of the disclosure.

15 **[0035]** Figs. 10A and 10B are plan view illustrations of a three-leg paving machine having two forward swing leg, according to aspects of the disclosure.

[0036] Fig. 11 is a plan view illustration of a three-leg paving machine having two forward swing leg and an aft swing leg, according to aspects of the disclosure.

[0037] Fig. 12A and 12B are plan view illustrations of a three-leg paving machine having one forward swing leg and one side swing leg, according to aspects of the disclosure.

20 **[0038]** Figs. 13A-E are plan view illustrations showing reconfiguration of a three-leg paving machine, according to aspects of the disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0039] Referring initially to Fig. 1, a concrete slipform paving machine 2 has a main tractor frame 4 defined by a center module or platform 6 that carries the diesel engine powered power unit 8 of the paving machine and from which extendable or telescoping male support beams 10 extend outwardly in a lateral direction. Side bolsters 12 are secured to the respective outboard
25 ends of the support beams. Upright jacking columns 14 are mounted in the vicinity of respective front and aft ends of the bolsters, and crawlers 16 are conventionally secured to the lower ends of

the jacking columns. The jacking columns are hydraulically powered for raising and lowering of the paving machine relative to the crawlers on the ground. The crawlers are mounted to the lower ends of the jacking columns, and they are rotatable relative to the jacking columns about vertical axes, an arrangement that is known in the art. The crawlers support the entire machine and move it over the ground.

[0040] The respective bolsters can be moved in the lateral direction relative to the center module so that the machine frame, including the crawlers, straddles a paving kit (not separately shown) that extends over, clears and forms a strip of concrete (not shown) being laid down by the machine. When finished, the strip of concrete defines an upwardly exposed, appropriately leveled and finished concrete surface (not shown) that extends across the strip between the upright sides of the concrete strip.

[0041] In use, the paving machine is aligned with the paving direction 18 so that the concrete strip can be laid between the crawlers 16 of the machine over a width determined by a paving kit 63 suspended from the main tractor frame. Fresh concrete is deposited in front of the machine, a spreader plow or a spreading auger (not shown) approximately levels the concrete over a major portion of the width of the concrete strip, and, as the machine advances forwardly, a metering gate substantially evenly spreads the top of the fresh concrete. Following the “liquification” of the concrete by vibrators supported by a vibrator rack at a fixed elevation on the front side of the paving kit, finishing pans (not shown in Fig. 1) are provided on the aft end of the paving kit to finish the top surface of the concrete as the paving kit passes over it, while sideform(s) form the sides of the concrete strip or slab. A finished concrete strip emerges from the aft end of the paving machine and is permitted to conventionally set and harden.

[0042] Referring to Figs. 1-5, each crawler 16 and the associated jacking column 14 are mounted to a free end 19 (shown in Fig. 7) of a bolster swing leg 20. The swing leg is typically formed as a box beam 22 and has another end 21 (shown in Fig. 7) that is pivotal about a vertically oriented pivot shaft 24 which extends through a bearing bushing 26 that is supported in its vertical orientation on a hinge bracket 28 with spaced-apart support webs 30.

[0043] The hinge bracket has appropriately positioned fastening holes 32 for securing it to respective end surfaces 34 of side bolsters 12 with conventional bolt and nut fasteners 23 as shown, for example, in Fig. 7. A female keyway is provided on the jacking column bolting

flange 57 (shown in Fig. 4) with male keyways provided on the mating bolting flanges to take the shear of the bolts and to eliminate possible misalignment.

[0044] The ends of box beams 22 adjacent bolster end surface 34 have connector plates 36, secured to the top and bottom surfaces of the box beam by welding, for example. The connector plates project towards the tractor frame past the end of the box beam and have holes that pivotally engage pivot shaft 24 in bearing bushing 26 of the hinge bracket so that the swing legs are free to pivot relative to bolsters 12 in a horizontal plane (as indicated in Fig. 2) about an upright axis defined by the pivot shaft.

[0045] The closed end of the cylinder of a hydraulic actuator 38 is pivotally pinned to two spaced-apart support plates which are secured, e.g. welded, to the inside of the hinge bracket 28 and a mid-portion of bearing bushing 26, as is best seen in Fig. 3. The support plates include aligned bores 42 that are laterally spaced some distance away from the bearing bushing 26. The closed end of the hydraulic cylinder is pivotally movably secured to the support plates with a pin that extends through the bores. The piston 44 of the hydraulic actuator is pivotally pinned to a pair of spaced-apart brackets 46 which are located between the ends of the swing leg and typically relatively closer to its free end 19. When the hydraulic actuator is pinned to the hinge bracket 28 and the brackets on bolster swing leg 20, it is angularly inclined relative to the paving direction 18, as best seen in Figs. 1 and 2. It is foreseen that on a larger machine more than one, e.g. two, vertically spaced-apart hydraulic cylinders placed above each other may be required to generate the force required to hold the bolster swing leg in a fixed position relative to the male pivot hinge. Further, if desired, for example for cost reasons, hydraulic actuators can be replaced by turnbuckles.

[0046] When assembled installed between hinge bracket 28 and swing leg 20, hydraulic actuator 38 can be energized to pivot bolster swing leg 20 in a horizontal plane as schematically illustrated in Fig. 2. Since hinge bracket 28 is secured to end face 34 of bolster 12, the angular inclination of the actuator relative to the bolster swing leg does not change when the length of the tractor frame 4 (in the lateral direction perpendicular to the normal paving direction 18) is changed. There is therefore no need to reposition the hinge bracket that secures one end of the hydraulic actuator to the machine frame, as was necessary in the past. The extendable length of the hydraulic actuator and its attachment points to hinge bracket 28 and swing leg 20 are chosen so that the angular inclination of the hydraulic actuator relative to the bolster swing leg is

maintained over a reasonably large arc (as schematically illustrated in Fig. 2) that is sufficient to permit repositioning of the swing leg during normal use encountering normal operating conditions of the paving machine without having to disconnect the actuator from the swing leg and/or the hinge bracket.

5 **[0047]** However, when the swing legs are to be rotated 90° from the paving direction 18 towards a position that is laterally outward of bolsters 12, principally for readying the paving machine so that it can be transported by truck and trailer to a new location, hydraulic actuator 38 is disengaged from at least one of the swing leg or the hinge bracket 28, for example by pulling pin 41 that connects the end of piston 44 to brackets 46 on the swing leg, to prevent interference
10 between the hydraulic actuator and support plates 40 and/or bearing bushing 26 of the hinge bracket.

[0048] When bolster swing legs 20 are longitudinally aligned with tractor frame 4 and its laterally extending support beams 10, a position in which the legs are oriented approximately perpendicular to paving direction 18, it is preferred to pin the swing legs in that position during
15 shipment of the paving machine with a turnbuckle or other fastener (not shown) to webs 45, 47 on the laterally facing surfaces of the bolster and the swing leg as seen in Fig. 2. The turnbuckle or the like is released at the new location so that the swing legs can be returned to their normal operating position in which they are parallel, or only slightly angularly inclined relative to the paving direction 18.

20 **[0049]** Each time the bolster swing legs 20 are pivoted inwardly or outwardly relative to tractor frame 4 of the paving machine, the relative angular inclination between the bolster swing legs and the tractor frame changes. This change is replicated by crawler tracks 16 mounted below jacking columns 14 at the free end of the swing legs. This change in crawler track orientation has to be compensated for so that, following the pivotal movement of the swing leg,
25 and preferably simultaneously therewith in real time, the crawler tracks extend in the paving direction. This is done by adjusting the angular orientation of the crawler track by an amount that depends on or is a function of the angular displacement of the swing legs relative to the hinge bracket 28 so that the crawler tracks always remain in alignment with paving direction 18 of the paving machine, as is schematically illustrated in Fig. 2 by the parallel orientation of the
30 crawler tracks (in part shown in phantom lines in Fig. 2) irrespective of the angular orientation of the swing legs. This relocation process can be accomplished while the machine is supported so

the crawler track can be lifted off the ground and relocated to the desired location inwardly or outwardly. With this relocation process, typically each swing leg/crawler track is relocated one at a time. Alternatively, this relocation process can also be accomplished while the machine is walking forward or backward. For example, for moving outwards, the angle of the crawler can be hydraulically “jogged” slightly outward while walking the swing leg/crawler track to the desired location with or without the assistance of the swing leg hydraulic cylinder. Once the desired position is reached and the job switch disengaged, the crawler track will automatically go back to the straight-ahead position. In the alternate case, the crawler track relocation process is done while walking in the forward or reverse direction moving one swing leg/crawler track at a time or moving more or all four at a time.

[0050] Referring to the drawings, and particularly to Figs. 4 and 7 thereof, jacking column 14 has telescoping outer and inner tubes 48, 50 of a generally rectangular cross-section, as is typical for jacking columns on paving machines, and a vertically oriented hydraulic actuator 52 having its cylinder and piston appropriately secured, e.g. by pinning, to the outer and inner tubes. Activation of the hydraulic actuator telescopingly moves the outer and inner tubes relative to each other for lengthening or shortening the distance between the crawler track and the bolster swing leg 20 for raising or lowering the paving machine relative to the ground or, while the paving machine is otherwise supported, raising or lowering the crawler track off the ground. Spaced-apart axial bearings 54 keep the tubes aligned and permit them to slide relative to each other in their axial direction while maintaining tight clearances to minimize backlash. A support structure 57 is further provided for securing the jacking columns to free ends 19 of the bolster legs. This construction of jacking column 14 is conventional and is therefore not further described herein.

[0051] A slew or worm gear drive or other rotary actuator 60 is bolted to a mounting plate 56 at the lower end of inner tube 50 of the jacking column. The worm gear drive has a ring gear 58 that is driven by a pair of diametrically opposite, hydraulically activated helical worm drives 61 carried on a ring-shaped member 63 disposed between an inner bearing race 65 of the worm gear drives and a transverse portion 66 of yoke 62, to which the ring-shaped member is secured. An outer bearing race 67 is secured, e.g. bolted, to the lower end of mounting plate 56 at the end of inner tube 50. On its periphery, the outer bearing race 67 defines ring gear 58. Such slew gear drives are commercially available from Kinematics Manufacturing, Inc., of 2221 W. Melinda

Lane, Phoenix, Arizona 85027, as “Slewing Drive s17b-102m-200ra”. Providing the slew gear drive with two oppositely arranged worm drives increases the power available to rotate the crawler track while a portion of the total machine load is carried by it. The slew drive design also effectively minimizes undesirable play or “backlash” during steering of the crawler track and effectively minimizes undesirable play or backlash between the yoke 62 and the jacking column 14 whether the slew gear drive is activated or deactivated.

[0052] An angular position transducer or sensor 70 is arranged inside an upwardly open can 72 (provided to protect the sensor) that is disposed within an opening 69 in the transverse portion 66 of yoke 62. Supports 74 extend across opening 69 and secure the can with transducer 70 at the rotational center between the jacking column and the yoke. The transducer cooperates with a trigger pin 68 extending downwardly from the under side of plate 56 and a suitable actuator arm that turns the transducer. Alternatively, the trigger pin can cooperate with the transducer via a belt drive 64 as schematically indicated in Fig. 4A.

[0053] Transducer 70, in cooperation with trigger pin 68, generates a signal that indicates the angular position of yoke 62 relative to jacking column 14 and any changes in the angular position due to rotational movements of the yoke. Corresponding output signals are generated by the transducer and fed to a lead 84 not shown in Fig. 4 but shown in Fig. 5.

[0054] Referring to the drawings, and in particular to Figs. 5 and 7 thereof, another angular position transducer 78 is placed on top of swing leg pivot shaft 24 (Fig. 5). As is best seen in Fig. 7, the top of the pivot shaft defines a generally drop-shaped head 86 that is engaged by blocks 88 fixed to the upper side of connector plate 36 so that pivot shaft 24 is rotationally fixed to the connector plate and duplicates the angular movements of swing leg 20 about the pivot shaft. Replaceable bearings are provided at the top and bottom of the male hinge bearing (shown in Fig. 3) as well as a means to get grease to them (not shown in the drawings) so the pivot shaft 24 does not seize in the bearing, which would prevent the swing leg from freely rotating.

[0055] Angular position transducer 78 is mounted inside a downwardly open protective can 90, as seen in Fig. 5, which is bolted to hinge bracket 28 via an upright holding arm 92.

[0056] A trigger pin 94 projects upwardly from the top surface of pivot shaft 24 and cooperates with angular position transducer 78 to generate an angular position signal which reflects the angular inclination between the pivot shaft and the hinge bracket, and which changes when the

bolster swing leg 20 changes its angular position relative to the hinge bracket 28, and therewith also relative to bolster 12 and tractor frame 4. The output of transducer 78 is fed to a lead 80.

5 [0057] The output signal of the position transducer 78 is fed via lead 80 to an onboard computer 82 of the paving machine, or another suitable processor, which receives as its second input the output signal of position transducer 70 between jacking column 14 and crawler tracks 16 via a lead 84, as is schematically illustrated in Fig. 5.

[0058] Onboard computer or processor 82 and the associated transducers 70, 78 form a feedback loop in which the computer receives the angular position signal from swing leg transducer 78. When the angular position of the swing leg changes, the output signal from transducer 78 changes correspondingly. As a result of this orientational change of the swing leg, 10 the angular orientation of the crawler tracks becomes angularly inclined relative to paving direction 18. Computer 82 calculates by how much the angle of the crawler track has to be changed relative to the jacking column (which has also been angularly offset relative to the transport direction by the swivel motion of the swing leg) to reset the crawler track suspended from yoke 62 to the angular orientation of the desired paving direction. The onboard computer 15 then signals by how much worm gear drive 60 must rotationally adjust the orientation of yoke 62 and crawler tracks 16 to again align the crawler tracks with the paving direction. This process is repeated each time the angular position of the swing leg is changed, or when for other reasons the angular orientation of the crawler tracks becomes misaligned from the desired paving 20 direction of the machine.

[0059] Thus, the above-described feedback loop automatically adjusts the angular orientation of the crawler tracks so that the tracks remain oriented in the travel direction without any need to stop operation of the machine or manually adjust the orientation of the tracks and/or the swing legs.

25 [0060] Figs. 8A-E illustrate with more particularity how the paving machine of the present invention is readily, quickly and inexpensively reconfigured between its paving orientation shown in Fig. 8A or configuration for laying down the layer of concrete, and its transportation orientation shown in Fig. 8E or configuration in which the width of the machine is reduced to a roadway accepted width with minimal efforts.

[0061] As already mentioned, from time to time the paving machine must be reoriented, either at the work site for maneuvering or repositioning it around, or to ready the machine for transport to a different site, which requires loading the machine on a suitable trailer (not shown) and then hauling it to the new site over available roads.

5 **[0062]** Maneuvering the paving machine around the work site is accomplished by rotating the crawlers 16 relative to the jacking column 14 and then, or simultaneously therewith, activating the crawlers to move the machine into the desired position or to a given location at the site.

[0063] For loading the paving machine for transport to a different site on a trailer over standard highways, it is necessary to reduce the transport width of the paving machine to the maximum
10 allowable width for highway vehicles. With the crawlers resting on the ground and initially facing in the paving direction 18, they are rotated 90° about the vertical jacking column axis with worm gear drive 60 into a position in which they are substantially transverse to the paving direction. The respective hydraulic actuators 38 keep the associated swing legs 20 in their paving orientation as seen in Fig. 8B. The ends of the hydraulic actuators 38 are then
15 disconnected from the associated swing legs 20 by removing a pin, then with the crawler track on the ground, walking in an arc around the pivot shaft of the swing leg as shown in Fig. 8C. Once in this position, the crawlers are again rotated 90° about the vertical jacking column axis with worm gear drive 60 to place the swing legs in their transport orientation (shown in Fig. 8D) which is perpendicular to the paving direction. Finally, a turnbuckle 95 or like holding device is
20 applied to the main frame side bolster of the paving machine and the swing legs to fix the latter in their transport orientation. This process is repeated at each corner of the machine until each swing leg and crawler track is in the transport orientation and the swing legs are in their transport orientation (Fig. 8E) and perpendicular to the paving direction (Fig. 8D).

[0064] With the earlier described, cooperating position transducers 70, angular transducer 78
25 (not shown in Figs. 8A-E) and worm gear drive 60, or if desired manually, the crawlers 16 are thereby brought into alignment with the bolster swing legs, which, in the transport direction, are oriented perpendicular to the paving direction 18 and do not materially extend laterally past the remainder of the paving machine, so that the entire machine width is within permissible width limits for highway transportation. Once the crawler and the associated swing leg 20 are in their
30 transport orientation, which preferably is slightly more than 90°, e.g. 95°, the tightened transportation turnbuckle 95 having its ends attached to the paving machine frame side bolster

and the swing arm prevents movements of the swing leg and the crawler out of their transport orientation while the paving machine is moved to another site.

5 **[0065]** Thus, in the transport position the swing legs and crawlers are parallel to and extend past the respective lateral ends of the paving machine while the overall width is kept within width limits allowed for highway vehicles.

10 **[0066]** Placing the paving machine in the transport direction requires little time since the operation can be quickly performed and the crawlers can then be used to move the paving machine onto a trailer for transport to a different site without requiring heavy lifting equipment such as a crane to place the paving machine from the paving to the transport directions, and vice versa.

15 **[0067]** Fig. 6 shows a paving machine 2 including a center module 6, laterally extending support beams 10, side bolsters 12, jacking columns 14 and crawlers 16 as described above. The paving machine can be used, for example, with a dowel bar inserter 116 for intermittently inserting dowel bars (not shown) into the freshly laid down concrete strip immediately behind the paving kit. Such a dowel bar inserter, its construction and attachment to the paving machine are described, for example, in commonly owned, copending U.S. patent application No. 12/556,486, filed September 9, 2009, for a Paver Having Dowel Bar inserter With Automated Dowel Bar Feeder, the disclosure of which is incorporated herein by reference as if it were fully set forth herein.

20 **[0068]** To movably support the dowel bar inserter 116, for example, or another kit of the paving machine from the tractor frame, the lateral ends 112 of a cross beam 110 are tied into, that is, they are typically bolted to, rearwardly extending bolster extensions 114. The longitudinal support beams 43 for the dowel bar inserter shown (the rest of the dowel bar inserter is not shown) attach to the rear of the tractor frame by means of a mounting bracket attached to the support beam in the front and to the rear cross beam 110 in the rear. The forward ends of the bolster extensions 114 are secured to the rearwardly facing end surfaces of the main tractor frame bolsters 12 that can be provided with or without an additional bolt-in hinge 102. When no hinge in the bolster is provided, the bolster extension 114 must be removed prior to transporting the machine. Prior to removing the bolster extensions for loading and transporting the paver, the rear hinge 36 and swing leg 20 along with the jacking column 14 and crawler track 16 (the entire

30

assembly) must be removed and then lifted and bolted to the rear of the main frame side bolster 12 and the paver put into the transport orientation. The weight of this entire swing leg, jacking column and crawler track assembly can be handled with a relatively small crane. When the bolster extension is provided with a bolt-in hinge 102, the bolster extension 114, swing leg, jacking column and crawler track can be left on the paving machine so that by hinging the bolsters into the outboard transport position, the paving machine is capable of self-loading onto a trailer, with the bolster, swing leg and jacking column with crawler track folded up for transport. The advantage of this is that no crane is required to remove the bolster extension in order to transport.

10 **[0069]** A variation to the DBI mounting arrangement shown in Fig. 6 with a bolt-in hinge is the mounting arrangement shown in Figs. 6A and 6B. Instead of a bolt-in hinge 102, a special bolt-in short bolster extension 104 with built-in mount 106 for the DBI longitudinal support beam 43 is supplied. Instead of the longitudinal support beams 43 attaching to the rear of the tractor frame by means of a mounting bracket described above, the longitudinal support beams mount to the bolster extension 104. When the bolster extension is provided with a special bolt-in short bolster extension 104 with built-in mount 106 for the DBI longitudinal support beam, a practical and fast loading/transport solution is possible for both the paver and the DBI, providing a medium-size crane is readily available. Because the bolster extensions are tied to the DBI supporting longitudinal support beam 43 in this configuration and also to the rear cross beam 110, a rectilinear frame is formed where the DBI, complete with bolster extensions 114 and 104, becomes a kit (module) 108 of a legally transportable width. If this DBI Module is supported complete with bolter extensions 114 and 104, while it is still attached to the paver, the rear hinge 36 and swing leg 20 along with the jacking column and crawler track (the entire assembly), it can be lifted with a relatively light small crane (without disconnecting any of the hydraulic or electrical connections) and bolted to the side of the main frame side bolster 12, using the universal bolting pattern found on the side bolster 12 as shown in Figs. 6B and 6C (that matches the hole pattern of the swing leg) covered and described in copending, commonly owned U.S. patent application No. 12/703,101, filed February 9, 2010, for a Slipform Paving Machine With Adjustable Length Tractor Frame. This swing leg, jacking column and crawler track assembly is mounted in the transport orientation as shown in Fig. 6B and Fig. 6C. Once this procedure is completed on the opposite side of the machine, the complete DBI with bolster extensions 114

and 104 and the DBI Module 108 can be lifted as a module 108 on a truck transporting trailer.

With the DBI Module 108 removed from the rear of the paver tractor frame, then the other front swing leg and jacking column with crawler track can be walked into the transport orientation as described herein. With all the swing legs and jacking columns with crawler tracks now in the transport orientation, the paver can self-load by walking onto a transporting trailer. The advantage of this arrangement is that if a medium-size crane is available, adding or removing the DBI Module 108 and unloading or loading the DBI Module and paver can be done very rapidly.

[0070] Fig. 6B schematically illustrates the paving machine and the DBI Module arranged for transport in two loads, as a crawler track paver module and as a DBI Module 108. The right and left rear jacking columns 14/crawler 16/swing leg 20/rear hinge 36 subassembly has been moved into its transport orientation as previously described. The left front jacking column/crawler/swing leg/rear hinge subassembly has been rotated towards its transport orientation, while the right front jacking column, crawler/swing leg/front hinge subassembly is shown in its paving orientation and must still be rotated into its transport orientation before the modules are ready for loading onto a trailer (not shown).

[0071] Cross beam 110 may comprise a non-telescoping or a telescoping cross beam, laterally extendable and retractable support system that has a female center housing 6' which movably receives male support beams 10' that extend in opposite directions from the center housing towards the rearward bolster extensions 76. The construction and operation of telescoping cross beam 110 and the kits, such as a dowel bar inserter kit suspended therefrom, are described in copending, commonly owned U.S. patent application No. 12/703,101, filed February 9, 2010, for a Slipform Paving Machine With Adjustable Length Tractor Frame, the disclosure of which is incorporated herein by reference.

[0072] Expanding on the three-leg paver embodiments considered above, several configurations of paving machines having three leg with corresponding crawler tracks are considered below. As with four leg implementations of paving machines using swing legs, one or more legs of a three-leg paver can be a swing leg with a jacking column and crawler track. These swing legs can be coordinated electronically allowing ease of automatically or semi-automatically reconfiguring the machine to go into a transport position, an operational paving position, or to reposition jacking column and/or crawler track positions on the fly to avoid obstacles or severe grade deviations during paving. These adjustable swing legs can reduce the

time required for switching the machine between the transport configuration and the operational paving configuration. Unlike traditional paver machines that implement leg adjustment using four-bar linkages or require stopping of the machine and time-consuming supporting the machine frame, hydraulically lifting the crawler track off the ground, then mechanically re-aligning the swing leg to the new position, hydraulically lowering the crawler track back on the ground then rotating the crawler track to the new desired position and resetting the electronics, the present disclosure provides for machines that can adjust leg and crawler track location while in operation (“on the fly”). In each of the three-leg paver embodiments considered herein, further particular advantages are obtained through use of at least one swing leg as part of a three-leg paving machine. In embodiments with two forward-mounted legs on the paving machine, these legs can be referred to as first and second legs, as appropriate.

[0073] In some aspects, three-leg paving machines as disclosed herein are capable of transitioning into a transport position while moving. While a paving machine is moving, it is capable of automatically going from a working position to the narrow and predetermined profile of the transport position, relocating the crawler tracks attached to jacking columns via slew drives and transducers attached the swing legs. The transducers can control adjustment via slew drives such that the crawler tracks are kept oriented straight ahead or at an angle to match the desired “tracking” of the crawlers to minimize or eliminate skidding. This predetermined transport position can take into account the position of the swing leg / jacking column with crawler tracks to avoid interfering with the auger conveyor or belt conveyor and the desired gauge of the crawler tracks in relationship to each other to match the width of the trailer bed on which the machine will be loaded. This predetermined position can be manually overridden or “jogged” to a fine tuning position. Generally, the transport position can be configured to be sufficiently narrow or aligned such that the tracks of the three-leg paving machine will fit onto the bed of a trailer for carrying the three-leg paving machine.

[0074] While the paving machine is moving, allowing automatic repositioning of one or more swing legs (inclusive of jacking column and crawler tracks) into new positions provides for the ability to avoid obstacles (e.g., manholes, guard rails, posts, etc.) or large changes in grade. The adjustment implemented by the transducers coupled to the swing leg and crawler tracks, and resolved by the onboard computer automatically, keeps the respective crawler tracks at optimum angles to reposition and proceed straight ahead once the new position is reached. In particular,

three-leg implementations of the paving machine are capable of working on tight radius curves while moving. Such tight radius movement is employed for the slipform paving of concrete profiles such as curbs, including 90° turns (left or right) and 180° turns (e.g. a rounded end or U-turn at the end of a curb), or turns at increments of degree therein.

5 **[0075]** In other aspects, three-leg paving machines as disclosed herein can also transition into a transport position while stationary. This can be accomplished using a support under the tractor frame, hydraulically lifting one crawler track off the ground using a jacking column attached to a swing leg, and then using a hydraulic actuator or a mechanical turnbuckle to move the respective leg and crawler track to another position. Such adjustments can be done for all three legs of a
10 three-leg paving machine one at a time or concurrently, automatically or semi-automatically, to prepare the paving machine jacking column(s) and crawler track position(s) for transport and to move to a predetermined transport position. Conversely, this process can also be applied to moving legs of a three-leg paver to a predetermined working position(s). As with adjustments made while the paving machine is in motion, this predetermined position can be manually
15 overridden or jogged to fine tune or optimize the jacking column(s) and crawler track positions.

[0076] Similarly, a variation of tight radius curve paving is also provided for embodiments where the paving machine is stationary. Again, the machine frame can be supported and elevated via hydraulic lifting one crawler track off the ground, using the jacking column attached to the swing leg and moving the leg position with a hydraulic actuator or a mechanical turnbuckle, one
20 at a time or concurrently, automatically or semi-automatically, to a predetermined position, stored in the memory of the onboard computer. In a stationary position, the paving machine can adjust to continue with paving different concrete profiles that require tight radius movement (such as curbs), including 90° through 180° turns, or turns at increments of degree therein.

[0077] At the end of a pour or paving up to an obstacle, once the paving machine is stationary,
25 the slew drives between the crawler track and the jacking columns can allow the paver machine crawler tracks to all be turned 90° relative to the previous direction of travel, such that the paver machine can walk laterally. This can reduce the amount of manual forming needed when finishing paving for barrier wall or curbs and gutters. Once in this 90° degree mode position, the paving machine can walk and steer in the direction perpendicular to the prior working direction,
30 and the new alignment of the front tracks will stay parallel with the new alignment of the rear crawler track to avoid skidding the crawler tracks. The 90° degree mode position can be a preset

configuration saved within the onboard computer, responsive to orientation input from the swing leg and crawler track transducers

[0078] Fig. 9 is a plan view illustration of a three-leg paving machine 900 having one forward swing leg 20 extending from tractor frame 4. Three-leg paving machine 900 further includes an aft leg 902 and a forward (laterally) telescoping leg 904 also extending from tractor frame 4. Each of the swing leg 20, aft leg 902, and forward telescoping leg 904 further include crawler tracks 16. Forward swing leg 20 can be further supported via a jacking column 14, providing a pivot location for movement of the forward swing leg 20. A conveyor 906 is connected to the tractor frame 4 which can convey concrete to a hopper 928, attached to a profile mold 930 for vibrating and shaping the concrete into a semi-solid state. Semi-solid concrete dumped in the hopper 928 of a profile mold 930 (e.g. a curb profile) attached to the underside or lateral side of the tractor frame, and through the profile mold 930, concrete can be laid down in a shaped form or profile, having an upward surface and lateral sides (e.g., formed as a curb). The concrete belt conveyor 906 is illustrative as one means of supplying concrete to the profile mold 930 and hopper 928; alternatively, a concrete auger conveyor or a conveyor mounted to another machine can deliver concrete to the hopper 928. An exemplary concrete curb is shown, formed from the profile mold 930, in accordance with the paving direction. Further, while hopper 928 and profile mold 930 are shown in Fig. 9 on the lateral side of tractor frame proximate to forward swing leg 20, it can be appreciated that in some embodiments, hopper 928 and profile mold 930 can be positioned on the lateral side of tractor frame proximate to forward laterally telescoping leg 904. In some embodiments, aft leg 902 is further laterally movable long the back end width of tractor frame 4.

[0079] Fig. 9 shows both forward swing leg 20 and forward telescoping leg 904 in a transport position (in solid line) relatively close in toward the tractor frame 4, and in an operational working position (in dashed line) relatively distant from the tractor frame. Forward swing leg 20 and forward telescoping leg 904 can be driven between transport and operational positions by power unit 8. As shown, forward telescoping leg 904 can be configured to extend and retract relative to the tractor frame 4 in a direction perpendicular to the direction of paving; in other words, perpendicular to the forward and aft ends of the tractor frame 4. As in other embodiments, swing leg 20 further includes cooperating position transducer 70 and angular transducer 78 which can relay movement data to an onboard computer, which can resolve the

direction and orientation of swing leg 20 and its corresponding crawler track 16 as the three-leg paving machine 900 is in operation or being transported. In some aspects, forward telescoping leg 904 can also include an angular transducer 78 coupled to its crawler track 16. In combination with a known position of forward telescoping leg 904, tracked with a linear transducer 908, (which can be adjusted in width position via a hydraulic actuator, a linear actuator, or the like), the positions of forward swing leg 20 and forward telescoping leg 904 can be changed while the three-leg paving machine 900 is in motion, using data from the various transducers, and resolved by an onboard computer, to maintain crawler tracks 16 in needed orientations for forward motion, backward motion, and/or turning while minimizing skidding.

10 **[0080]** Figs. 10A and 10B are plan view illustrations of a three-leg paving machine 1000 having two forward swing legs 20 extending from tractor frame 4. Three-leg paving machine 1000 further includes an aft leg 902 also extending from tractor frame 4. Each of the forward swing legs 20 and aft leg 902 further include crawler tracks 16. Forward swing legs 20 can each be further supported via separate jacking columns 14, providing respective pivot locations for movement of the forward swing legs 20. A conveyor 906 is connected to the tractor frame 4 which can convey concrete to a hopper 928, attached to a profile mold 930 for vibrating and shaping the concrete into a semi-solid state. Semi-solid concrete dumped in the hopper 928 of a profile mold 930 (e.g. a curb profile) attached to the underside or lateral side of the tractor frame, and through the profile mold 930, concrete can be laid down in a shaped form or profile, having an upward surface and lateral sides (e.g., formed as a curb). The concrete belt conveyor 906 is illustrative as one means of supplying concrete to the profile mold 930 and hopper 928; alternatively, a concrete auger conveyor or a conveyor mounted to another machine can deliver concrete to the hopper 928. An exemplary concrete curb is shown, formed from the profile mold 930, in accordance with the paving direction. It can be appreciated that hopper 928 and profile mold 930 can be positioned on either lateral side of tractor frame 4. In some embodiments, aft leg 902 is further laterally movable long the back end width of tractor frame 4.

30 **[0081]** Fig. 10A shows both forward swing legs 20 in a transport position (in solid line) relatively close in toward the tractor frame 4 (with a “narrow” or “inboard” profile), and in an operational working position (in dashed line) relatively distant from the tractor frame. Forward swing legs 20 can be driven between transport and operational positions by power unit 8. As in other embodiments, swing legs 20 both further include a cooperating position transducer 70 and

an angular transducer 78 which can relay movement data for each independent leg to an onboard computer, which can resolve the direction and orientation of swing legs 20 and corresponding crawler tracks 16 as the three-leg paving machine 1000 is in operation or being transported. The positions of forward swing legs 20 can be changed while the three-leg paving machine 900 is in motion, using data from the various transducers, and resolved by an onboard computer, to maintain crawler tracks 16 in needed orientations for forward motion, backward motion, and/or turning while minimizing skidding.

[0082] Fig. 10B shows the rotatable range of crawler tracks 16 on each of the two forward swing legs 20 and the aft leg 902 on three-leg paving machine 1000. Hydraulic actuator 38 is further identified on one of the two forward swing legs 20 (the other hydraulic actuator for the complementary swing leg being occluded by conveyor 906), which can be used to control the position and range of motion of the swing leg 20. While hydraulic actuator 38 is shown connected to a front end of the tractor frame 4, in alternative aspects, hydraulic actuators 38 can be connected to either forward swing leg 20 from either the front end or lateral sides of the tractor frame 4. In further alternative aspects, slew drives can be used to control the position and range of motion of the swing legs 20.

[0083] Fig. 11 is a plan view illustration of a three-leg paving machine 1100 having two forward swing leg 20 and an aft swing leg 20 extending from tractor frame 4. All three of the swing legs 20, forward and aft, further include crawler tracks 16. All three of the swing legs 20, forward and aft, can each be further supported via separate jacking columns 14, providing respective pivot locations for movement of the swing legs 20. A conveyor 906 is connected to the tractor frame 4 which can convey concrete to a hopper 928, attached to a profile mold 930 for vibrating and shaping the concrete into a semi-solid state. Semi-solid concrete dumped in the hopper 928 of a profile mold 930 (e.g. a curb profile) attached to the underside or lateral side of the tractor frame, and through the profile mold 930, concrete can be laid down in a shaped form or profile, having an upward surface and lateral sides (e.g., formed as a curb). The concrete belt conveyor 906 is illustrative as one means of supplying concrete to the profile mold 930 and hopper 928; alternatively, a concrete auger conveyor or a conveyor mounted to another machine can deliver concrete to the hopper 928. An exemplary concrete curb is shown, formed from the profile mold 930, in accordance with the paving direction. It can be appreciated that hopper 928 and profile mold 930 can be positioned on either lateral side of tractor frame 4.

[0084] Fig. 11 shows both forward swing legs 20 in an operational working position (in solid line) relatively distal from the tractor frame 4, and in a transport position (in dashed line) relatively proximate to the tractor frame. All swing legs 20 can be driven between transport and operational positions by power unit 8. As in other embodiments, swing legs 20 each further include a cooperating position transducer 70 and an angular transducer 78 which can relay movement data for each independent leg to an onboard computer, which can resolve the direction and orientation of swing legs 20 and corresponding crawler tracks 16 as the three-leg paving machine 1100 is in operation or being transported. The positions of all three of the swing legs 20 can be changed while the three-leg paving machine 1100 is in motion, using data from the various transducers, and resolved by an onboard computer, to maintain crawler tracks 16 in needed orientations for forward motion, backward motion, and/or turning while minimizing skidding. Hydraulic actuators 38 on each swing leg 20 (one of which being occluded by conveyor 906), can be used to control the position and range of motion of the respective swing legs 20.

[0085] Fig. 12A and 12B are plan view illustrations of a three-leg paving machine 1200 having one forward swing leg 20 and one side swing leg 920 extending from tractor frame 4. Three-leg paving machine 1200 further includes an aft leg 902 also extending from tractor frame 4. Each of forward swing leg 20, side swing leg 920, and aft leg 902 further include crawler tracks 16. Forward swing leg 20 and side swing leg 920 can each be further supported via separate jacking columns 14, providing respective pivot locations for movement of the forward swing legs 20. A conveyor 906 is connected to the tractor frame 4 which can convey concrete to a hopper 928, attached to a profile mold 930 for vibrating and shaping the concrete into a semi-solid state. Semi-solid concrete dumped in the hopper 928 of a profile mold 930 (e.g. a curb profile) attached to the underside or lateral side of the tractor frame, and through the profile mold 930, concrete can be laid down in a shaped form or profile, having an upward surface and lateral sides (e.g., formed as a curb). The concrete belt conveyor 906 is illustrative as one means of supplying concrete to the profile mold 930 and hopper 928; alternatively, a concrete auger conveyor or a conveyor mounted to another machine can deliver concrete to the hopper 928. It can be appreciated that hopper 928 and profile mold 930 can be positioned on either lateral side of tractor frame 4, where the side swing leg 920 is positioned on the lateral side of tractor frame

4 opposite of the hopper 928 and profile mold 930. In some embodiments, aft leg 902 is further laterally movable long the back end width of tractor frame 4.

5 **[0086]** Fig. 12A shows both side swing 920 (alternatively referred to as an outboard or a lateral leg) in an operational working position (in solid line) relatively close in toward the tractor frame 4, and in a transport position (in dashed line) relatively distant from the tractor frame 4. Forward swing leg 20 and side swing leg 920 can be driven between transport and operational positions by power unit 8. As in other embodiments, forward swing leg 20 and side swing leg 920 both further include a cooperating position transducer 70 and an angular transducer 78 which can relay movement data for each independent leg to an onboard computer, which can resolve the
10 direction and orientation of forward swing leg 20 and side swing leg 920 and corresponding crawler tracks 16 as the three-leg paving machine 1200 is in operation or being transported. The positions of forward swing leg 20 and side swing leg 920 can be changed while the three-leg paving machine 1200 is in motion, using data from the various transducers to maintain crawler tracks 16 in needed orientations for forward motion, backward motion, and/or turning while
15 minimizing skidding.

[0087] Fig. 12B shows a range of motion for side swing leg transitioning between an operational working position and a transport position. Hydraulic actuator 38 can which can be used to control the position and range of motion of the side swing leg 920. For example, as shown, the side swing leg 920 can be moved from a position aligned and proximate to the rear
20 end of the tractor frame 4 to a position extending outward from a lateral side of the tractor frame, perpendicular to the direction of movement of the three-leg paving machine 1200. In other words, side swing leg 920 is capable of adjusting its orientation to 90° from its initial position. In further aspects, one or more hydraulic actuators 38 can be configured to move side swing leg 920 to a position aligned and proximate to the front end of the tractor frame 4. In other words,
25 side swing leg 920 is capable of adjusting its orientation to 180° from its initial position. As in other embodiments, the crawler tracks 16 on each of the legs of the three-leg paving machine 1200 can be rotated as needed for movement and directional control. It should be appreciated that the movement of side swing leg 920 from one configuration to another can be rapid, accomplished when stationary.

30 **[0088]** While in the embodiments considered above, hopper 928 and profile mold 930 are shown positioned on a lateral side of the respective tractor frames 4, it is appreciated that in

alternative embodiments, a profile mold 930 and variation of the hopper 928 can be positioned on the underside of the tractor frame, thus laying down a form or profile of concrete that passes under the aft end of the tractor frame. In such embodiments, a respective aft leg can be moved or adjusted such that the aft leg does not interfere with or run into the concrete profile.

5 **[0089]** Figs. 13A-E are plan view illustrations showing reconfiguration of a three-leg paving machine 1200 having a side swing leg 920 (the conveyor 906 not shown). In particular, the gradual reconfiguration of the three-leg paving machine 1200 having a side swing leg 920 is shown. Starting with Fig. 13A, the three-leg paving machine 1200 is in a transport position, with side swing leg 920 close-in with the main body of the tractor frame 4, relatively aligned with the
10 aft leg 902. Forward swing leg 20 (having a hydraulic actuator 38) is also shown in a default transport position. In Fig. 13B, side swing leg 920 is shown in a first transitional position, moving outward from the tractor frame 4, and with its respective crawler track 16 pointing outward in the same direction that the side swing leg 920 is moving toward. The rotation of the appropriate crawler track 16 allows for the side swing leg 920 adjustment to occur while the
15 three-leg paving machine 1200 is moving (and thus also while paving) without causing significant skidding of the crawler track 16 or shuddering/vibration of the tractor frame 4 that would otherwise disrupt the laying down of concrete.

[0090] In Fig. 13C, side swing leg 920 is shown in an intermediary position, a set distance away from the tractor frame 4, and with its respective crawler track 16 pointing straight ahead in
20 the same direction of the motion three-leg paving machine 1200. Three-leg paving machine 1200 can operate in this configuration, for example, to work around an obstacle that the corresponding crawler track 16 would otherwise run into. Similarly, this configuration can be a step in the process of a complete extension or readjustment to a working position of side swing leg 920. Again, this adjustment and phase of operation allows for the three-leg paving machine
25 1200 is moving (and thus also while paving) without causing significant skidding of the crawler track 16 or shuddering/vibration of the tractor frame 4 that would otherwise disrupt the laying down of concrete.

[0091] In Fig. 13D, side swing leg 920 is shown in a second transitional position, moving further outward from the tractor frame 4, and with its respective crawler track 16 pointing
30 outward in the same direction that the side swing leg 920 is moving toward. Finally, in Fig. 13E, the side swing leg 920 is shown in a working operational position, at its full distance away from

the tractor frame 4, with its crawler track 16 aligned with the other two crawler tracks 16 of three-leg paving machine 1200.

[0092] From the foregoing, it will be appreciated that specific embodiments of the invention have been described herein for purposes of illustration, but that various modifications may be made without deviating from the spirit and scope of the various embodiments of the invention. Further, while various advantages associated with certain embodiments of the invention have been described above in the context of those embodiments, other embodiments may also exhibit such advantages, and not all embodiments need necessarily exhibit such advantages to fall within the scope of the invention. Accordingly, the invention is not limited, except as by the recited claims.

[0093] The teachings of the invention provided herein can be applied to other systems, not necessarily the system described above. The elements and acts of the various examples described above can be combined to provide further implementations of the invention. Some alternative implementations of the invention may include not only additional elements to those implementations noted above, but also may include fewer elements. Further any specific numbers noted herein are only examples; alternative implementations may employ differing values or ranges, and can accommodate various increments and gradients of values within and at the boundaries of such ranges.

[0094] References throughout the foregoing description to features, advantages, or similar language do not imply that all of the features and advantages that may be realized with the present technology should be or are in any single embodiment of the invention. Rather, language referring to the features and advantages is understood to mean that a specific feature, advantage, or characteristic described in connection with an embodiment is included in at least one embodiment of the present technology. Thus, discussion of the features and advantages, and similar language, throughout this specification may, but do not necessarily, refer to the same embodiment.

[0095] Furthermore, the described features, advantages, and characteristics of the present technology may be combined in any suitable manner in one or more embodiments. One skilled in the relevant art will recognize that the present technology can be practiced without one or more of the specific features or advantages of a particular embodiment. In other instances,

additional features and advantages may be recognized in certain embodiments that may not be present in all embodiments of the present technology.

WHAT IS CLAIMED IS:

1. A paving machine configured to move in a paving direction for spreading, leveling and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the paving machine comprising:
 - a module frame;
 - two or more swing leg assemblies mechanically coupled to the module frame, each swing leg assembly comprising:
 - a swing leg;
 - a crawler track;
 - an upright jacking column secured to the swing leg, having a rotary connection between the jacking column and the crawler track permitting relative rotational movements of the crawler track with regard to the jacking column about a first upright axis;
 - a first angular position transducer configured to emit a first signal which is indicative of an angular orientation of the crawler track relative to the jacking column;
 - a second angular position transducer configured to emit a second signal which is indicative of an angular orientation of the swing leg relative to the module frame; and
 - a power drive unit arranged to translate relative rotational movements between the jacking column and the crawler track; and
 - a processor operable to receive the first and second signals from each swing assembly and configured to generate and emit a control signal for instructing the power drive of each swing leg assembly, and thereby rotationally move each respective crawler track relative to its respective jacking column.
2. The paving machine of claim 1, wherein the control signal for rotationally moving one or more of the crawler tracks is configured to be overridden by an operator.
3. The paving machine of claim 1, wherein one or more of the power drives comprise first and second diametrically opposed helical worm drives engaging and driving a ring gear disposed between them.

4. The paving machine of claim 3, wherein the processor configured to receive the first and second signals and to generate and emit the control signal for each swing assembly is further configured to have a stored first signal and a stored second signal for each respective swing leg assembly, further wherein the control signal is generated by:
- receiving the first signal and second signal from each swing leg assembly;
 - calculating the difference between the first signal and second signal, and the stored first signal and stored second signals respectively, for each respective swing assembly;
 - calculating the angle to reset each crawler to its respective jacking column along a desired orientation for each respective swing leg assembly;
 - determining the respective worm drive that operates each respective crawler in each respective swing leg assembly;
 - calculating the rotation of each worm drive to align the respective crawler track along the desired orientation in each respective swing leg assembly; and
 - storing the first signal and second signal from each swing assembly and thereby updating the respective stored first signal and the respective stored second signal for each respective swing leg assembly.
5. The paving machine of claim 4, wherein the desired orientation is alignment of the crawler tracks along a paving direction.
6. The paving machine of claim 4, wherein the desired orientation is alignment of the crawler track of one of the swing leg assemblies to the crawler track orientation of each other swing leg assembly.
7. The paving machine of claim 4, wherein the processor, the power drive, and the first transducer, and the second transducer from each swing assembly form a feedback loop for maintaining an orientation of the crawler track independently of angular inclinations of the crawler track relative to the module frame.
8. The paving machine of claim 1, wherein the mechanical coupling of the swing leg assemblies allows for pivotal movement of the swing leg assembly relative to the location of the mechanical coupling about a second upright axis.

9. The paving machine of claim 8, further comprising a hydraulic actuator mounted between the swing leg assembly and the module frame, wherein the hydraulic actuator is configured to be disengaged from at least one of the module frame and the swing leg assembly when the swing leg assembly is positioned in a transport orientation.

10. The paving machine of claim 1, wherein each swing leg is configured to independently change orientation by up to 90° in a substantially horizontal plane.

11. A paving machine configured to move in a paving direction for spreading, leveling and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the paving machine comprising:

- a module frame;

- two or more swing leg assemblies having a pivotal connection to the module frame to allow for pivotal movements of the swing leg assemblies relative to the module frame, each swing leg assembly comprising:

- a swing leg;

- a crawler track;

- an upright jacking column secured to the swing leg, having a rotary connection between the jacking column and the crawler track permitting relative rotational movements of the crawler track with regard to the jacking column about a first upright axis;

- a first angular position transducer configured to emit a first signal which is indicative of an angular orientation of the crawler track relative to the jacking column;

- a second angular position transducer configured to emit a second signal which is indicative of an angular orientation of the swing leg relative to the module frame; and

- a power drive unit arranged to translate relative rotational movements between the jacking column and the crawler track;

- a hydraulic actuator for each swing leg assembly, mounted between the module frame and each swing leg assembly; and

a processor operable to receive the first and second signals from each swing leg assembly and configured to generate and emit a control signal for instructing the hydraulic actuator to actuate, thereby pivotally moving each swing leg assembly in relation to the module frame.

12. The paving machine of claim 11, wherein the hydraulic actuator actuates a swing leg assembly to independently change orientation by up to 90° in a substantially horizontal plane.

13. The paving machine of claim 11, wherein the hydraulic actuator is configured to disengage from at least one of the swing leg assembly and the module frame when the swing leg assembly is in a transport orientation.

14. The paving machine of claim 11, wherein the second signal is a relative angle between the swing leg and the module frame of the respective swing leg assembly, and wherein the processor has a stored value for a preset angle of each respective swing leg assembly relative to a lateral side of the module frame, the control signal generation comprising:

receiving the second signal from each swing leg assembly;

calculating the difference between the second signal and the preset angle for each respective swing leg assembly; and

calculating the actuation of a hydraulic actuator to move the respective swing leg so the second signal and the preset angle of each respective swing leg are in alignment.

15. The paving machine of claim 14, wherein the first signal is a relative angle between the crawler track and the jacking column of the respective swing leg assembly, and wherein the processor has a stored first signal and a stored second signal for each respective swing leg assembly, the control signal generation further comprising:

receiving the first signal and second signal from each swing leg assembly;

storing the first signal and second signal from each swing assembly as the respective stored first signal and the respective stored second signal for each respective swing leg assembly;

calculating the difference between the first signal and second signal, and the stored first signal and stored second signals respectively, for each respective swing assembly;

calculating the angle to reset each crawler to its respective jacking column along a desired orientation for each respective swing leg assembly;

determining the respective power drive that operates each respective crawler in each respective swing leg assembly; and

calculating the rotation of each power drive to align the respective crawler track along the desired orientation in each respective swing leg assembly.

16. The paving machine of claim 15, wherein the desired orientation is alignment of the crawler tracks along a paving direction.

17. The paving machine of claim 15, wherein the desired orientation is alignment of the crawler track of one of the swing leg assemblies to the crawler track orientation of each other swing leg assembly.

18. The paving machine of claim 15, wherein the second transducers and the hydraulic actuators form a feedback loop for maintaining an orientation of the swing leg assembly independently of angular inclinations of the swing leg relative to the module frame.

19. The paving machine of claim 18, wherein the feedback loop further includes the first transducers and the power drive for further maintaining an orientation of the crawler track independently of angular inclinations of the crawler track relative to the module frame.

ABSTRACT OF THE DISCLOSURE

A paving machine for spreading, leveling and finishing concrete having a main frame, center module, bolsters laterally movably, and a crawler track associated with respective aft and forward ends of the bolsters. A bolster swing leg for each crawler track supports an upright jacking column. A worm gear drive permits rotational movements of the crawler track and the jacking column. A hinge bracket is interposed between each swing leg and a surface of the bolsters to enable pivotal movements of the swing leg. A length-adjustable holder engages the pivot pin on the hinge bracket and pivotally engages the swing leg. The holder permits pivotal motions of the swing leg in its length-adjustable configuration and prevents substantially any motion of the swing leg in its fixed-length configuration. A feedback loop cooperates with transducers keeping the crawler tracks position. The paving machine can be reconfigured into a narrowed transport configuration.

70892690V.1

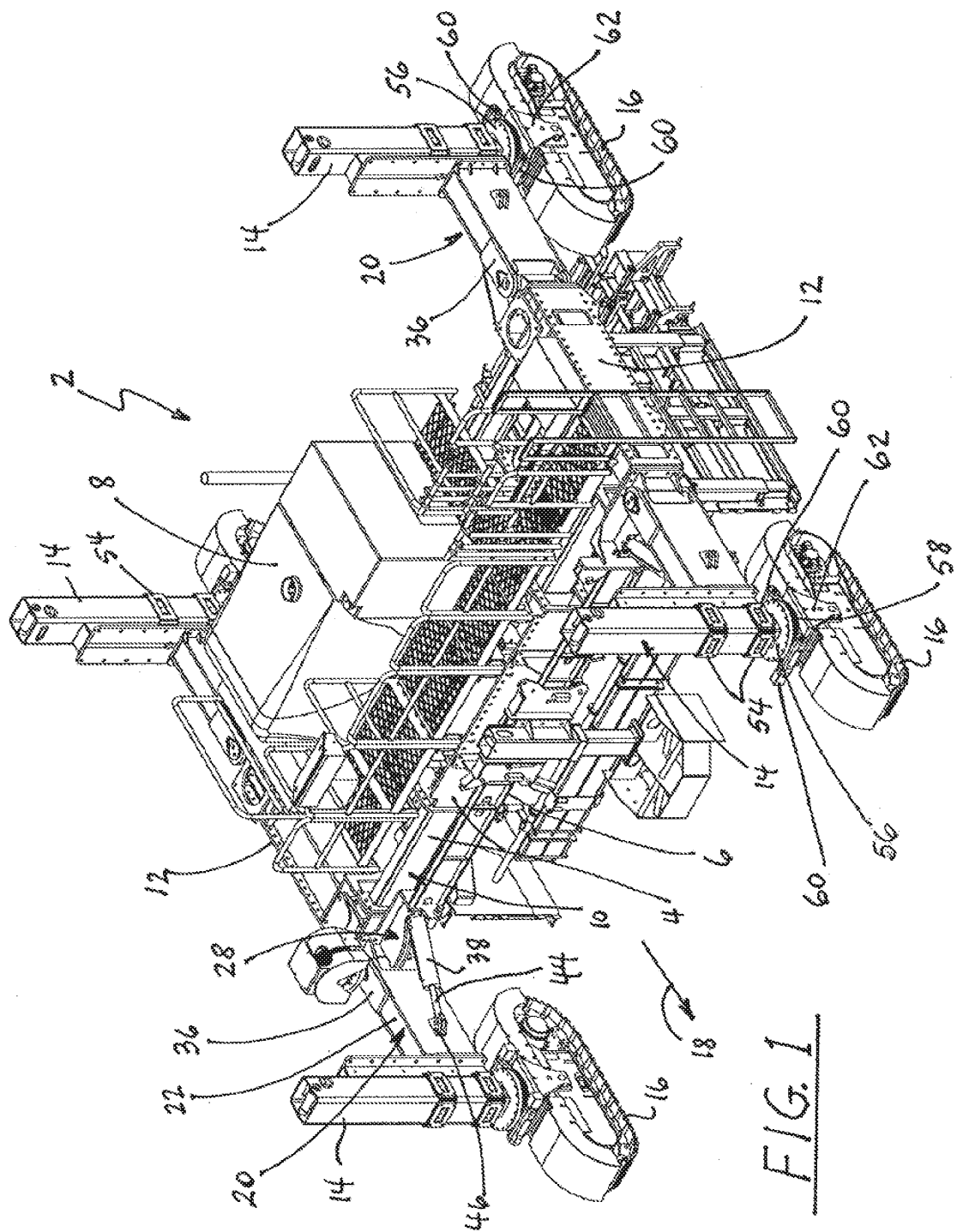


FIG. 1

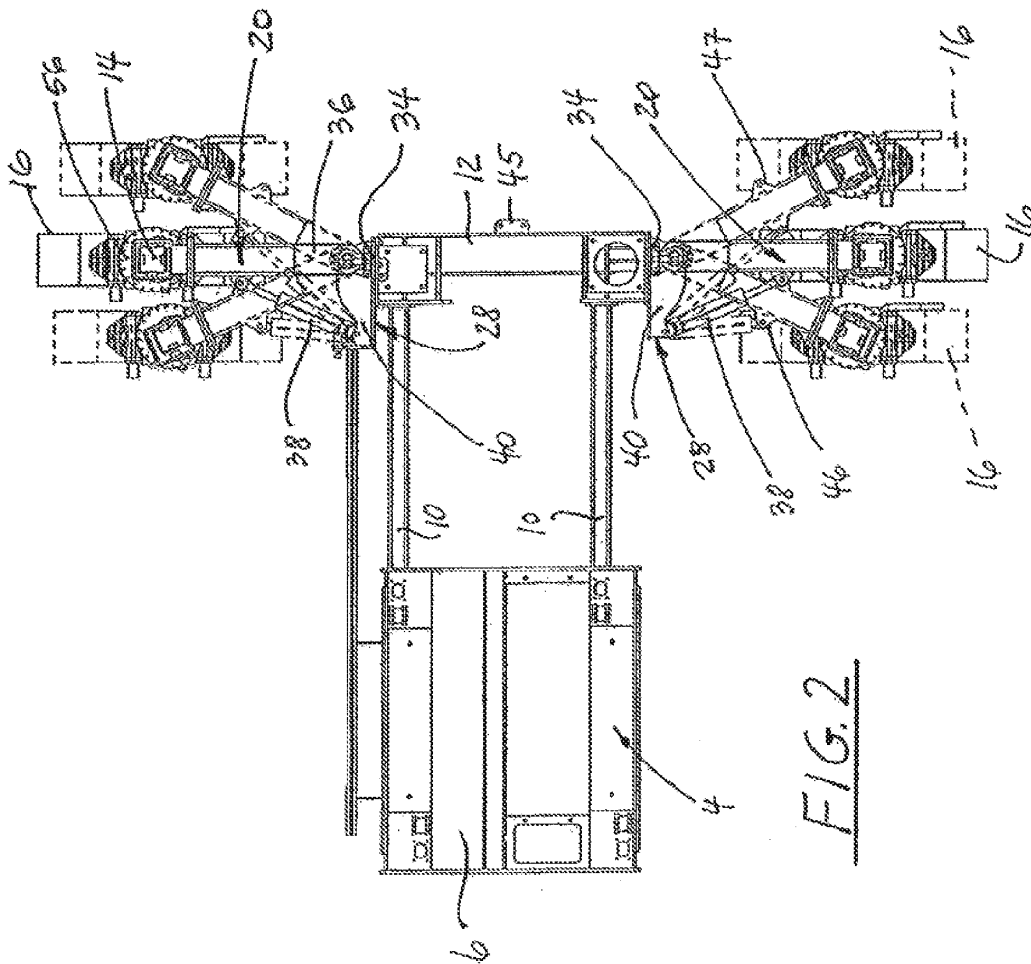


FIG. 2

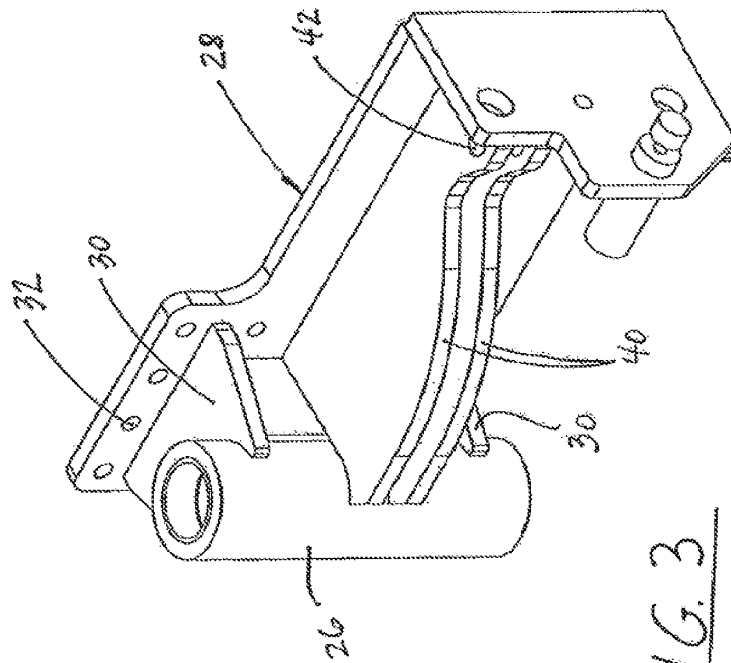
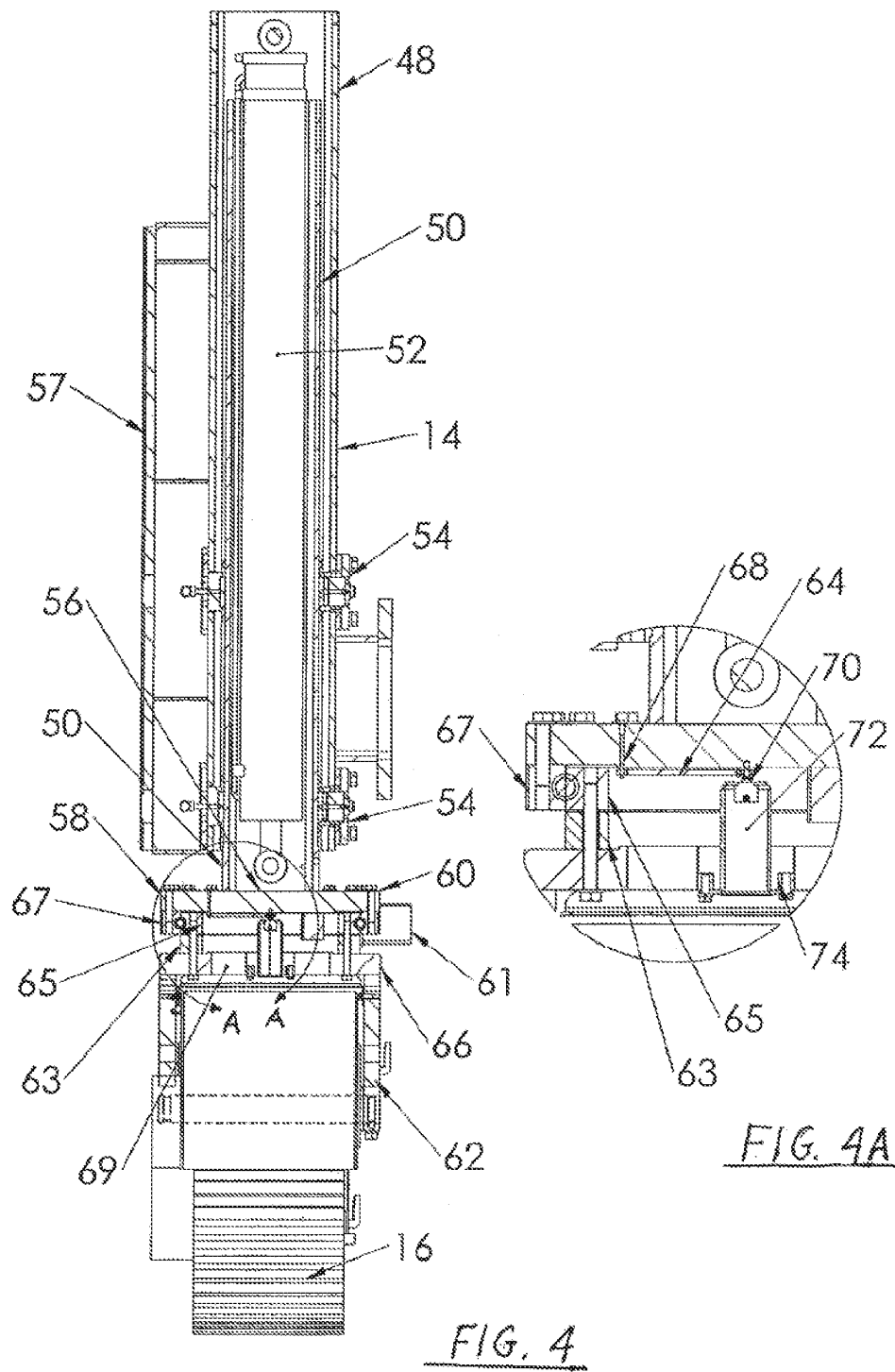


FIG. 3



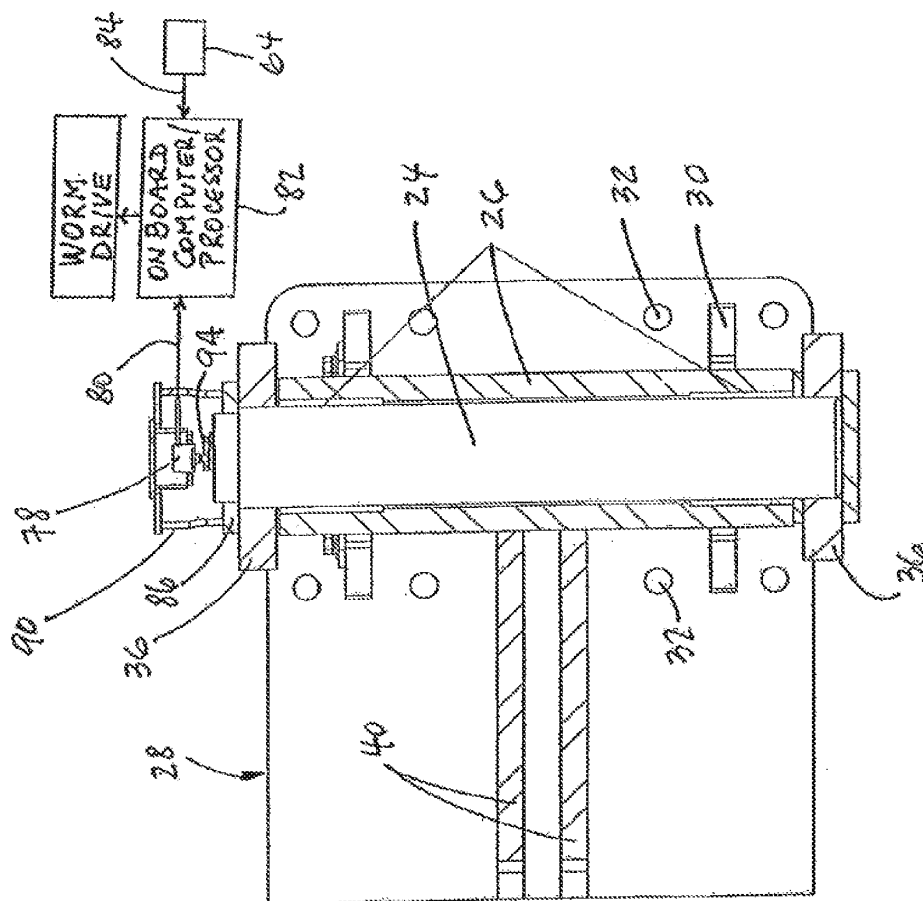


FIG. 5

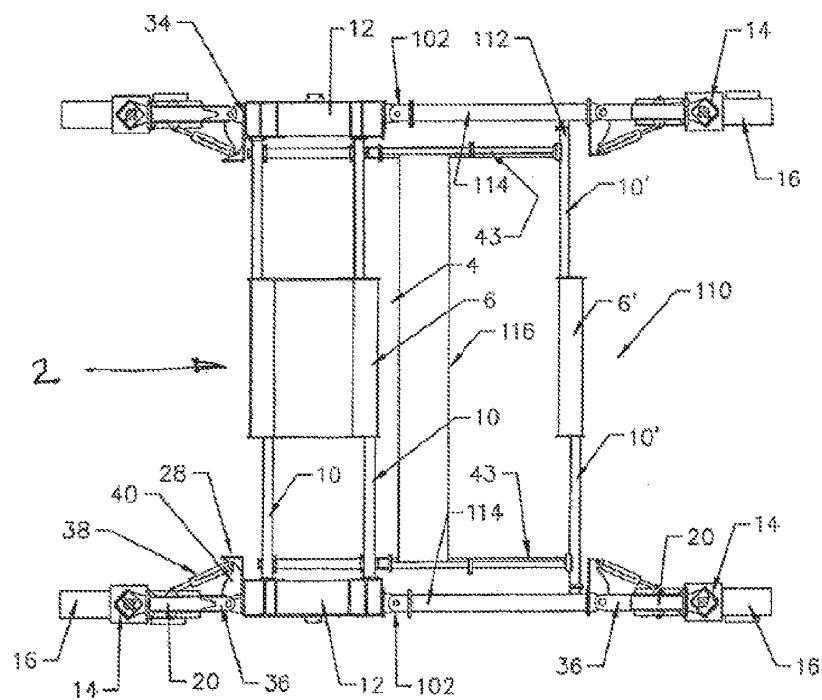


FIG. 6

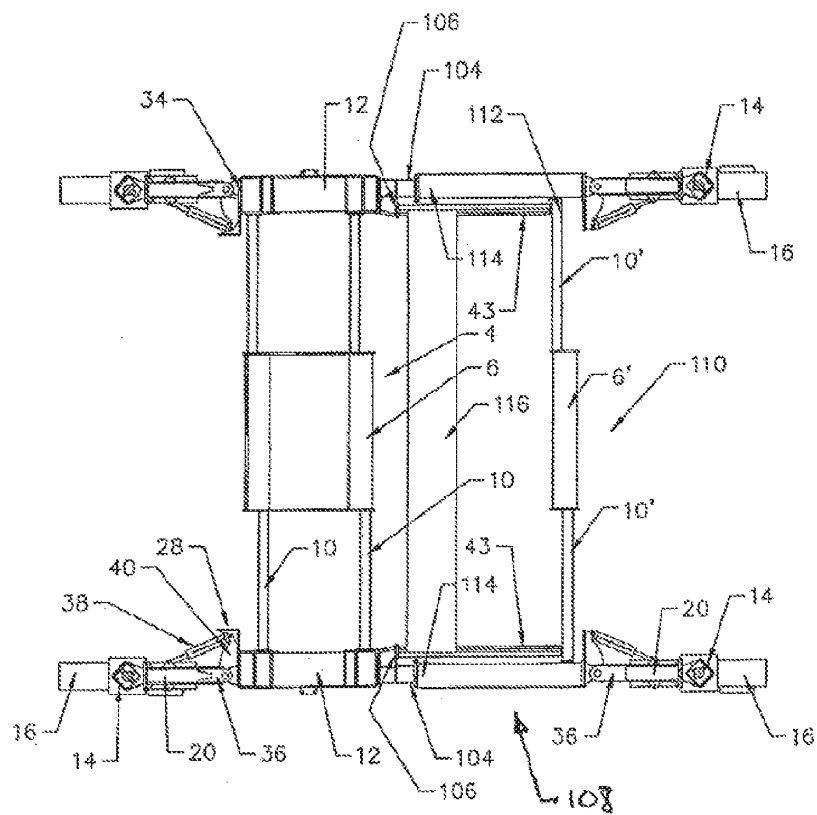


FIG. 6A

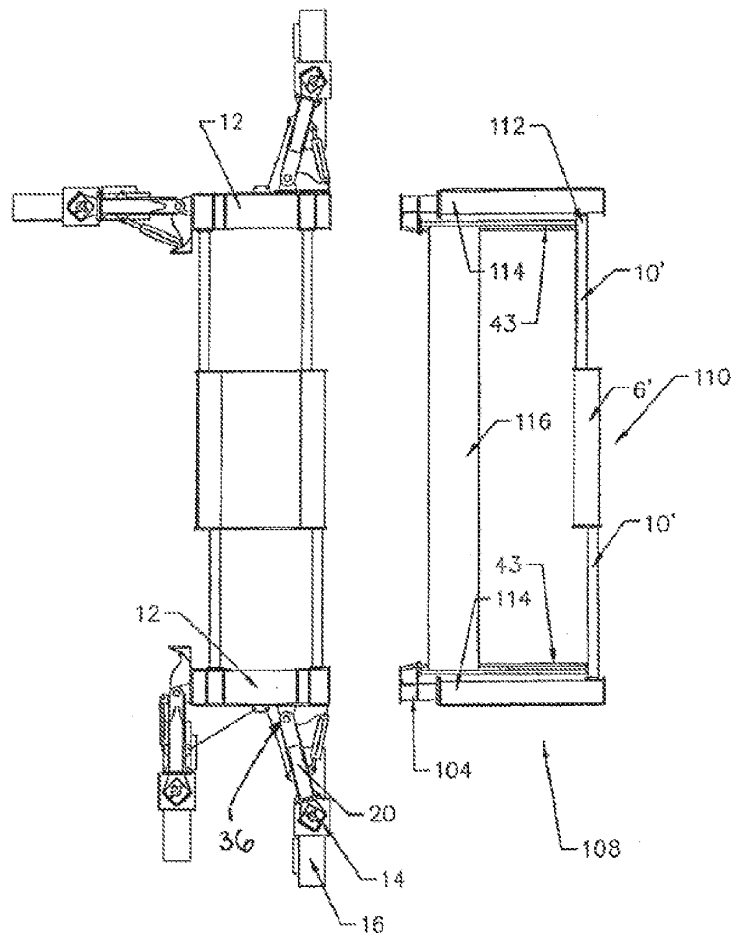


FIG. 6B

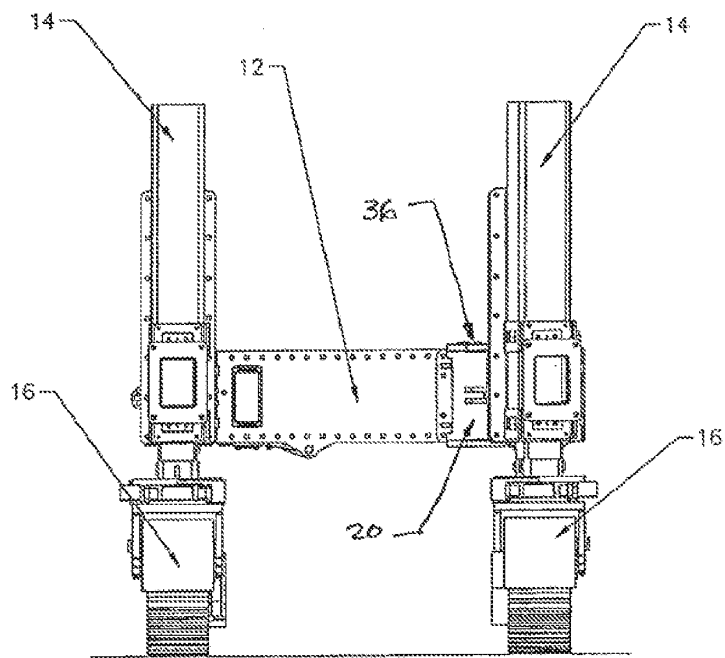
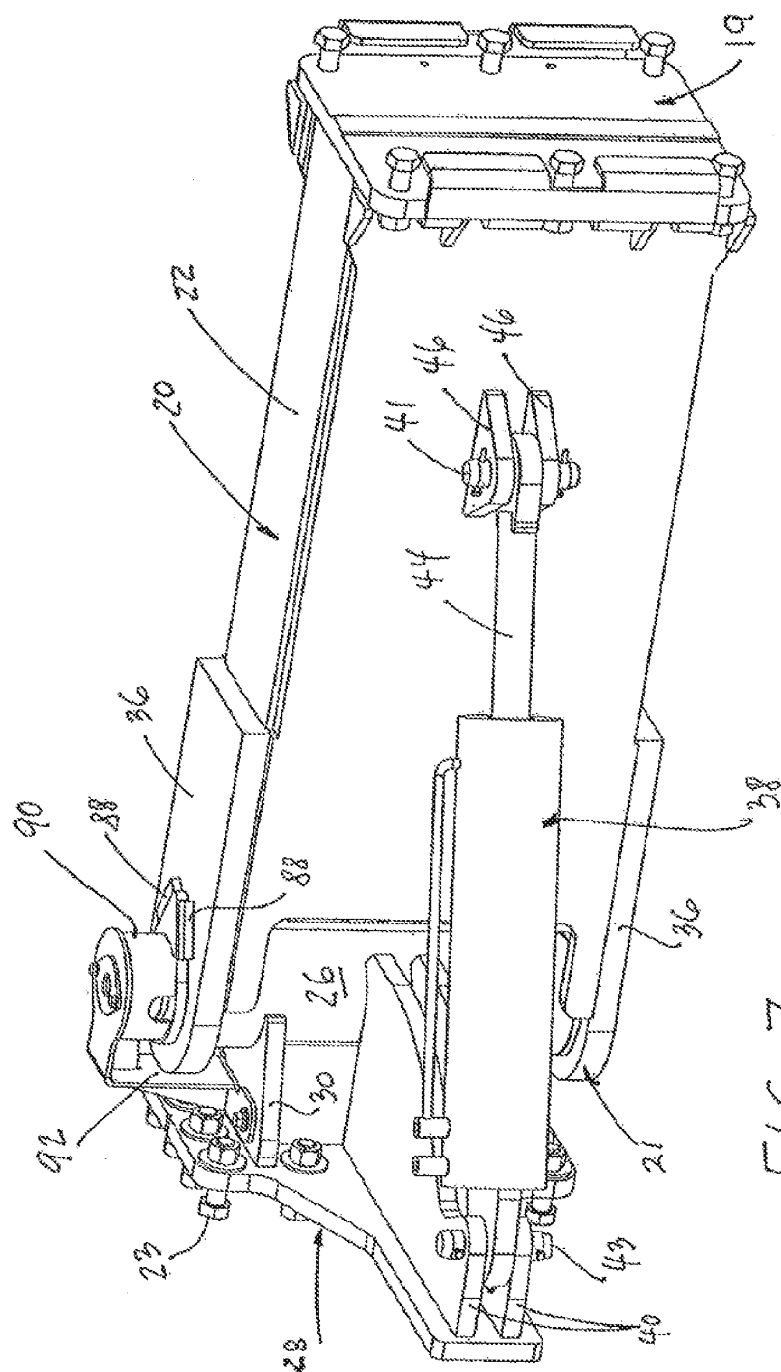


FIG. 6C



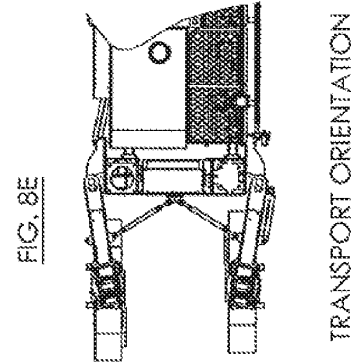
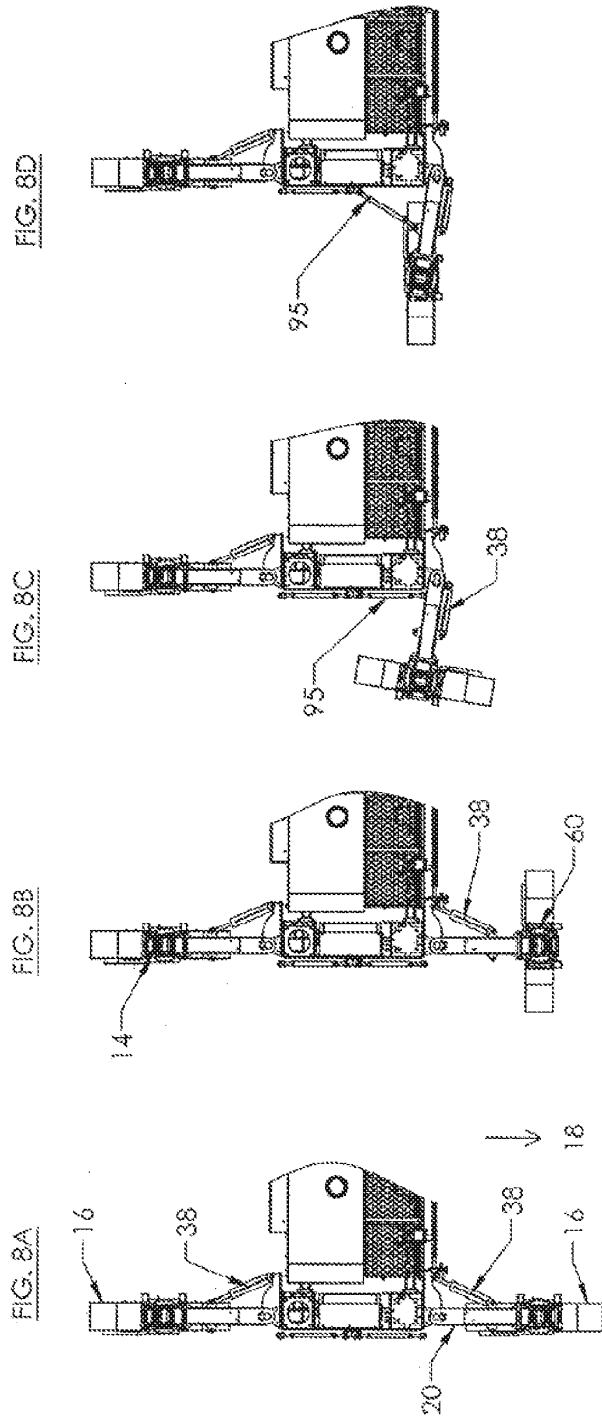


FIG. 9

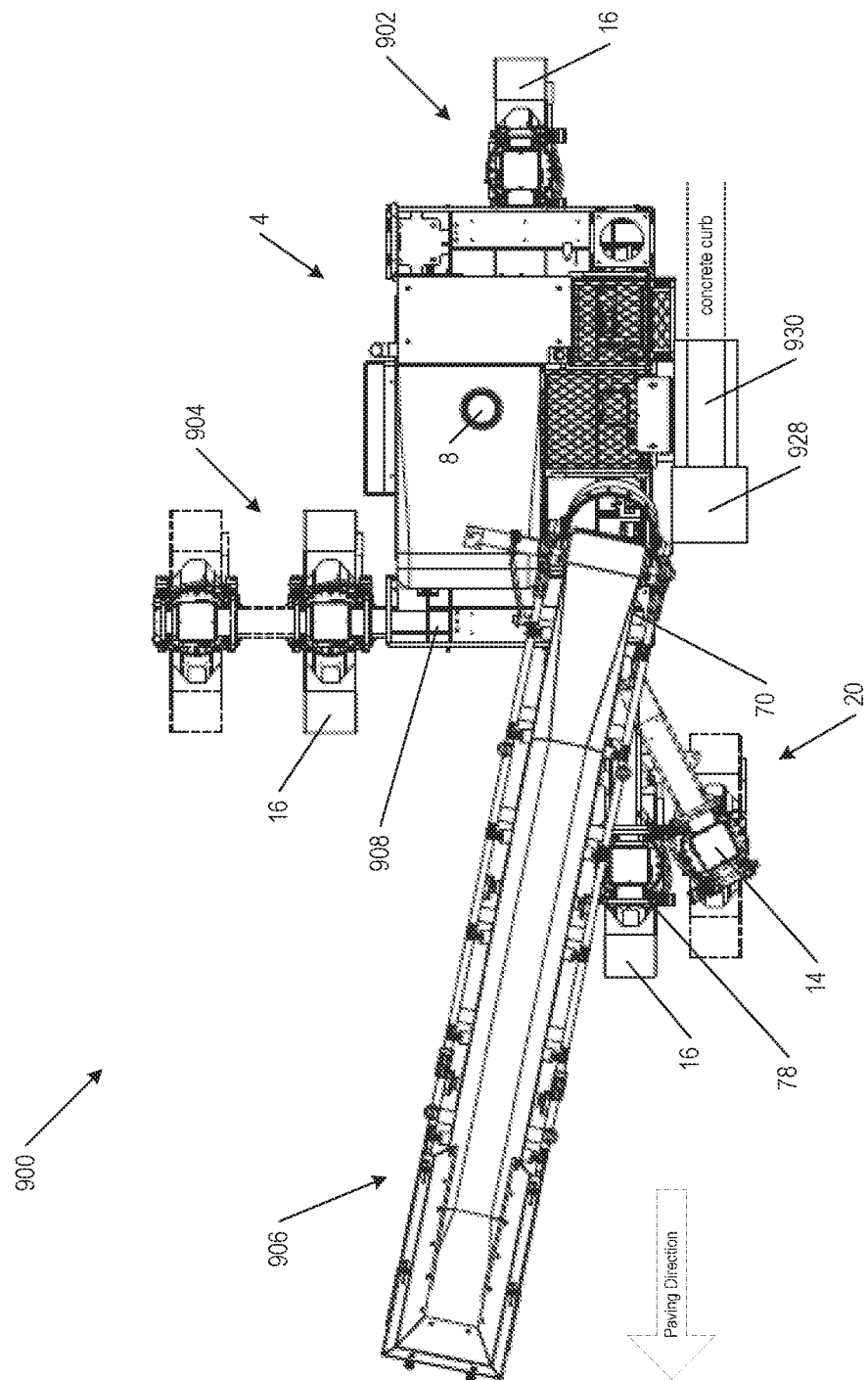


FIG. 10A

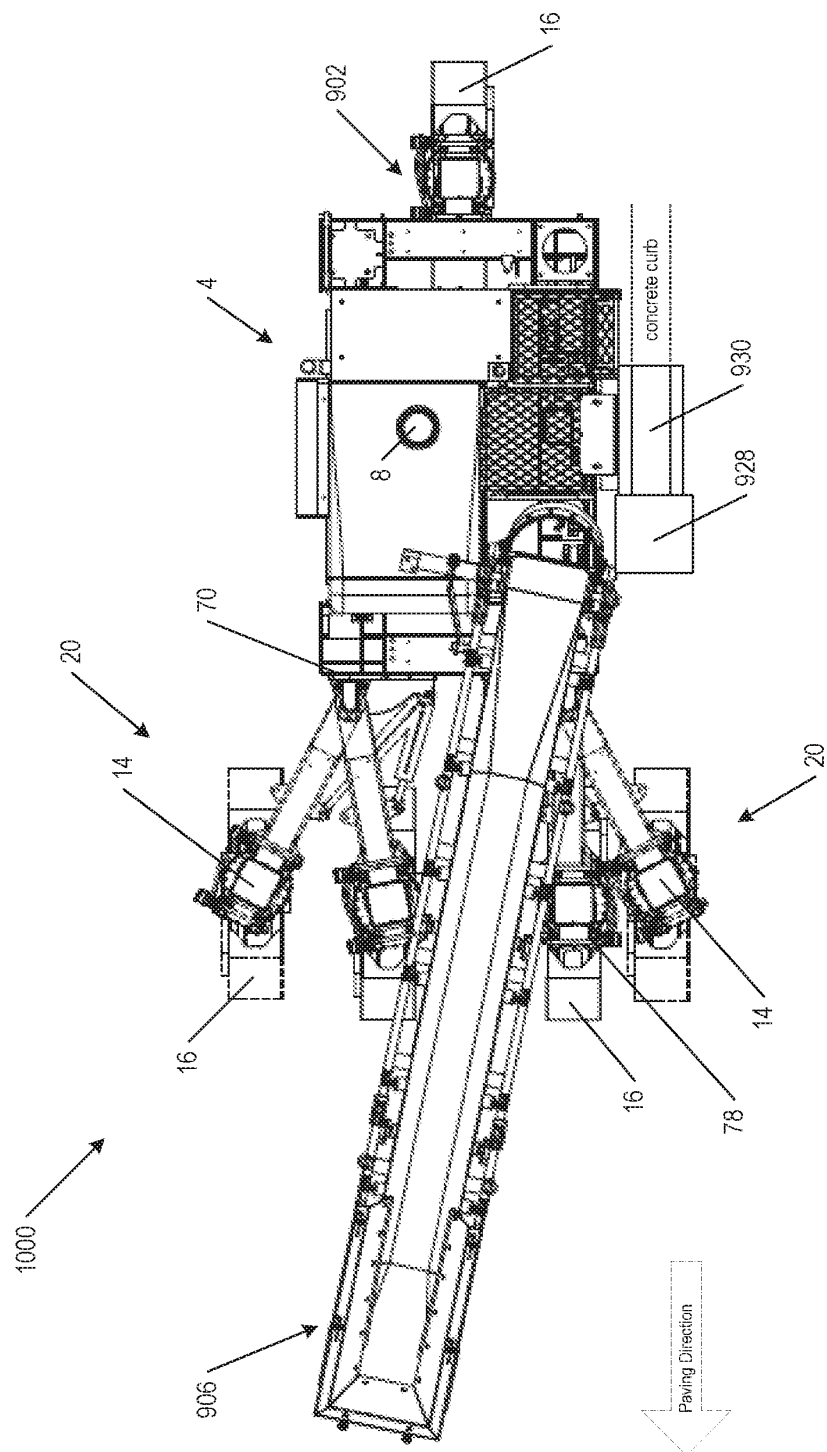


FIG. 10B

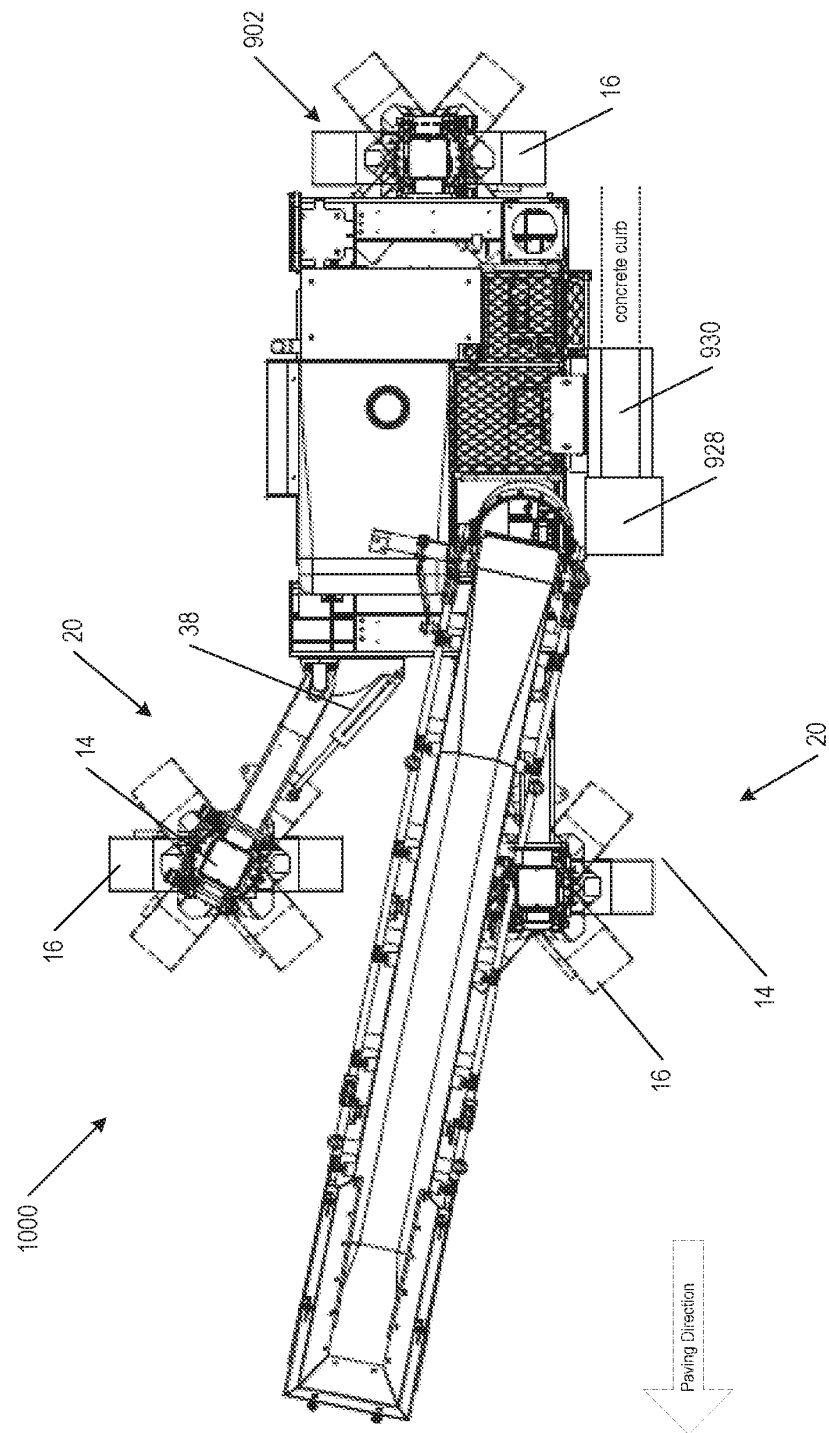


FIG. 12A

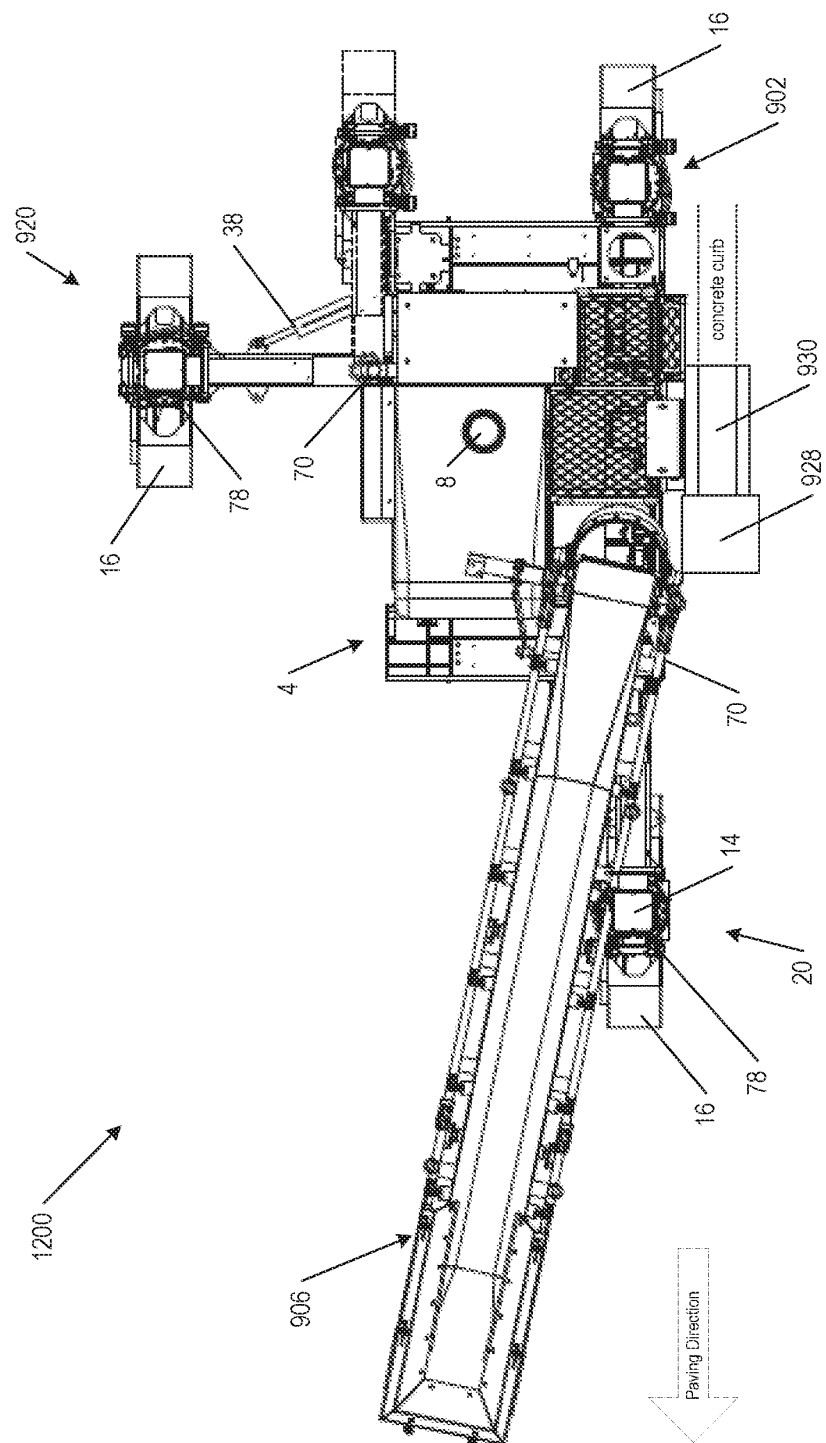
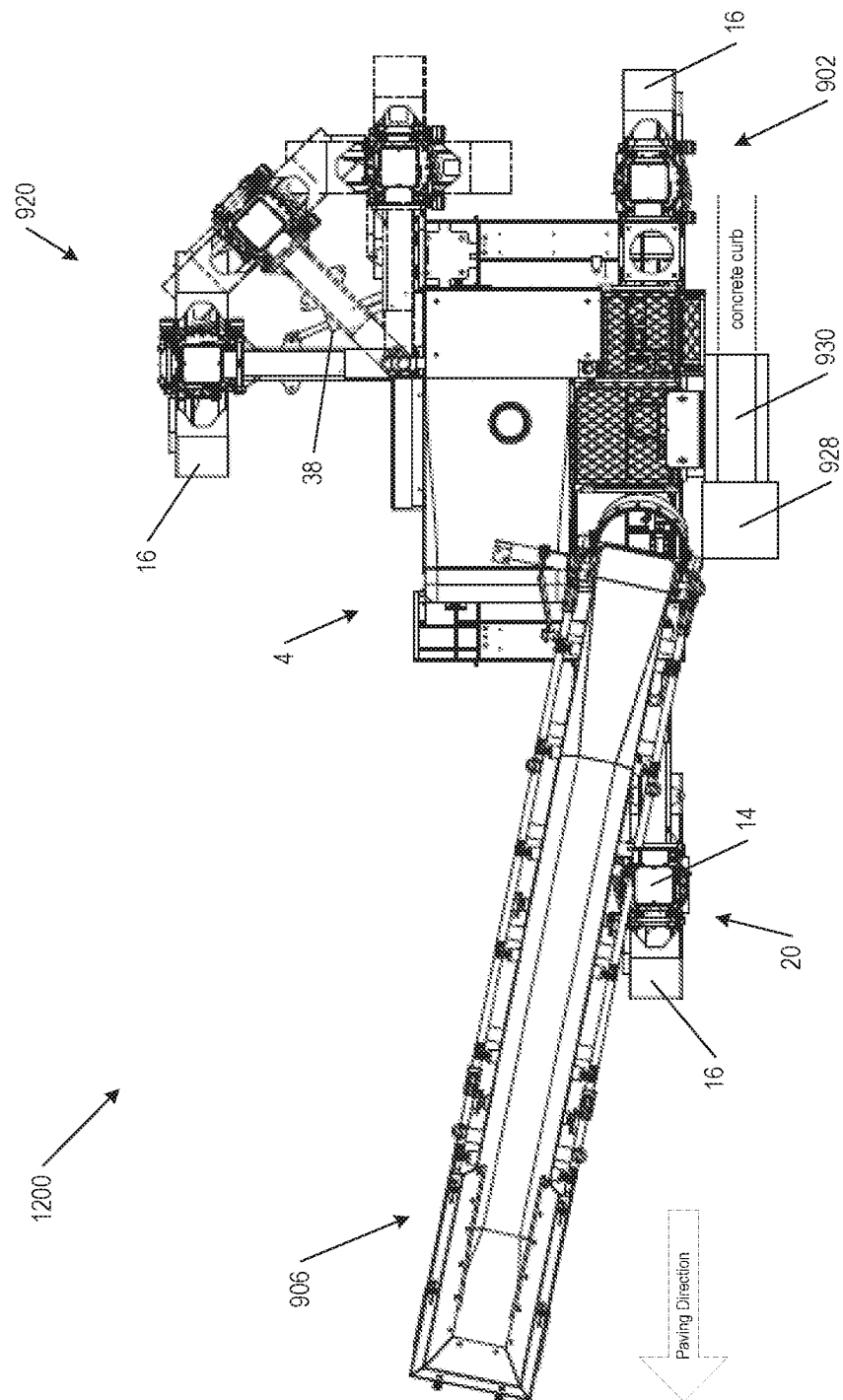


FIG. 12B



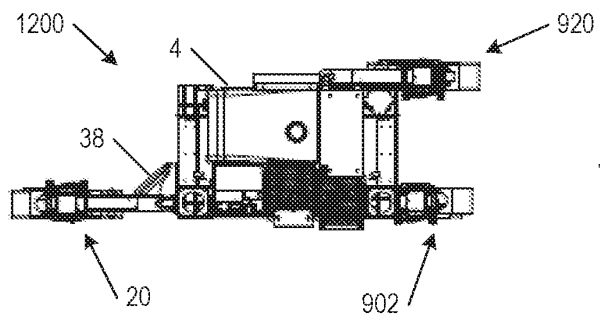


FIG. 13A

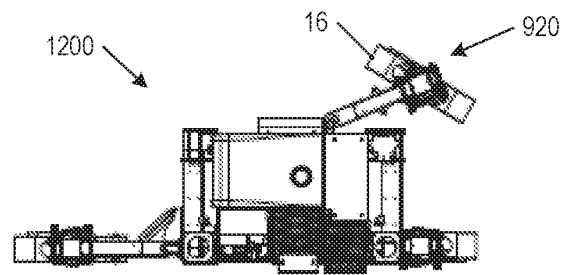


FIG. 13B

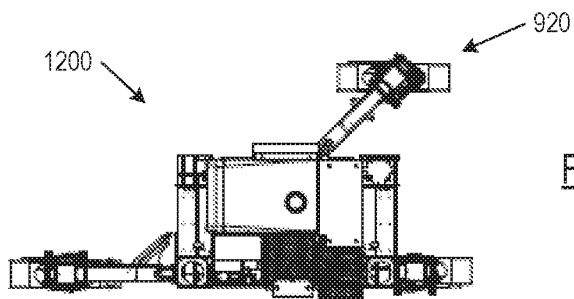


FIG. 13C

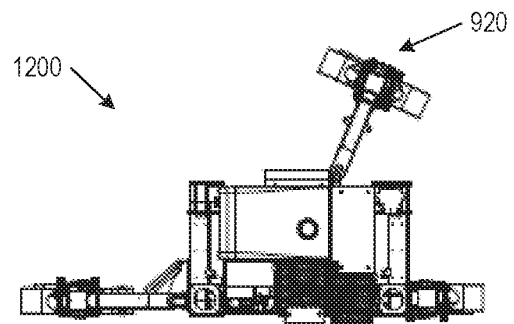


FIG. 13D

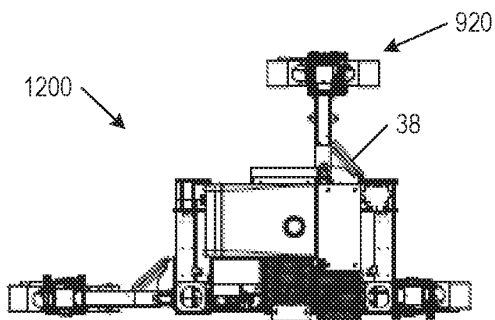


FIG. 13E

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.

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

Title of Invention	ADJUSTABLE BOLSTER SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS FOR SLIPFORM PAVING MACHINES
-------------------------------	--

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 15/623,012
filed on June 14, 2017

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 five (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: Ronald M. GUNTERT Jr. Date (Optional) : _____

Signature: 

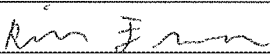
Note: An application data sheet (PTO/SP-14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1.11 and 1.14. This collection is estimated to take 1 minute 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.

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.

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

Title of Invention	ADJUSTABLE BOLSTER SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS FOR SLIPFORM PAVING MACHINES	
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: <input checked="" type="checkbox"/> The attached application, or <input checked="" type="checkbox"/> United States application or PCT international application number <u>15/623,012</u> filed on <u>June 14, 2017</u></p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>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 five (5) years, or both.</p> <p style="text-align: center;">WARNING:</p> <p>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.</p>		
LEGAL NAME OF INVENTOR		
Inventor:	<u>Richard Wood FRANCIS</u>	Date (Optional): <u>6/12/17</u>
Signature:	<u></u>	
<p>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.</p>		

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1.11 and 1.14. This collection is estimated to take 1 minute 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.

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.

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

Title of
InventionADJUSTABLE BOLSTER SWING LEGS FOR MOUNTING AND ALIGNING AND
REORIENTING CRAWLERS FOR SLIPFORM PAVING MACHINES

As the below named inventor, I hereby declare that:

This declaration ☒ The attached application, or
is directed to:☒ United States application or PCT international application number 15/623,012filed on June 14, 2017

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 five (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: Gerald L. DAHLINGERDate (Optional): 6/13/2017Signature: *Gerald L. Dahlinger*

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.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1.11 and 1.14. This collection is estimated to take 1 minute 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.

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	065922-004560US-1091100
		Application Number	
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
<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

☐ 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:

Inventor	1				<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ronald		Guntert	Jr.	
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Stockton	State/Province	CA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	6292 Crooked Stick Circle				
Address 2					
City	Stockton	State/Province	CA		
Postal Code	95219	Country	US		
Inventor	2				<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Gerald	L.	Dahlinger		
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Ripon	State/Province	CA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	16227 Spring Creek Drive				
Address 2					
City	Ripon	State/Province	CA		
Postal Code	95366	Country	US		
Inventor	3				<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Richard	Wood	Francis		
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		065922-004560US-1091100	
		Application Number			
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS				
City	Stockton	State/Province	CA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	735 N. Edison Street				
Address 2					
City	Stockton	State/Province	CA		
Postal Code	95203	Country i	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add 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	20350	
Email Address	ipefiling@kilpatricktownsend.com	<input type="button" value="Add Email"/> <input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
Attorney Docket Number	065922-004560US-1091100	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	18	Suggested Figure for Publication (if any)	2

Publication Information:

<input type="checkbox"/> Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/> 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)

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	065922-004560US-1091100
		Application Number	
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
Customer Number	20350		

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.

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation of	15873757	2018-01-17		
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
15873757	Continuation of	15623012	2017-06-14		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15623012	Continuation in part of	15148811	2016-05-06	9908571	
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15148811	Continuation of	13897125	2013-05-17	9708020	
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13897125	Continuation of	13069096	2011-03-22	9359727	
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13069096	non provisional of	61318223	2010-03-26	8459898	
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

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)¹ 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).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	065922-004560US-1091100
		Application Number	
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		

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

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

<input type="checkbox"/> 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. 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
<p>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.</p> <p>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.</p> <p>In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.</p>

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	065922-004560US-1091100
		Application Number	
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		

Applicant	1 Remove		
<p>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.</p> <p style="text-align: right;">Clear</p>			
<input checked="" type="radio"/> Assignee		Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>			
Name of the Deceased or Legally Incapacitated Inventor : <div style="border: 1px solid black; width: 400px; height: 20px;"></div>			
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	GUNTERT & ZIMMERMAN CONST. DIV., INC.		
Mailing Address Information For Applicant:			
Address 1	222 East Fourth Street		
Address 2			
City	RIPON	State/Province	CA
Country	US	Postal Code	95366
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

<p>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.</p>			
Assignee	1 Remove		
<p>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.</p>			
<p>If the Assignee is an Organization check here. <input checked="" type="checkbox"/></p>			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	065922-004560US-1091100
		Application Number	
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		

Organization Name	GUNTERT & ZIMMERMAN CONST. DIV., INC.
-------------------	---------------------------------------

Mailing Address Information For Non-Applicant Assignee:

Address 1	222 East Fourth Street		
Address 2			
City	RIPON	State/Province	CA
Country i	US	Postal Code	95366
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the Add button.

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	James K. Chang/		Date (YYYY-MM-DD)	2018-06-20	
First Name	James	Last Name	Chang	Registration Number	61477

Additional Signature may be generated within this form by selecting the Add button.

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.

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on June 20, 2018

PATENT
Attorney Docket No.: 065922-004560US-1091100

KILPATRICK TOWNSEND & STOCKTON LLP

By: /La Renda Meyer/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ronald M. GUNTERT, Jr.

Application No.:

Filed:

For: AUTOMATICALLY ADJUSTING
SWING LEGS FOR MOUNTING
AND ALIGNING AND
REORIENTING CRAWLERS

Customer No.: 20350

Confirmation No.:

Examiner: Not yet assigned

Technology Center/Art Unit: Not yet assigned

**INFORMATION DISCLOSURE
STATEMENT**

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. In accordance with the provisions of 37 CFR §1.98(a)(2), copies of any cited U.S. Patent and U.S. Patent Application Publications are not provided. Copies of the references are not enclosed.

In accordance with 37 CFR §1.98(d), copies of the references can be found in 15/623,012 filed June 14, 2017.

It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR §1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

This IDS is being filed before the mailing date of the first Office Action on the merits.

Applicant believes that no fee is required for submission of this statement. However, if any additional fees are due for the submission of this Information Disclosure Statement, please deduct those fees from Deposit Account No. 20-1430.

Respectfully submitted,

/James K. Chang/

James K. Chang
Registration No. 61,477

KILPATRICK TOWNSEND & STOCKTON LLP

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	16/013,864
Filing Date	June 20, 2018
First Named Inventor	Ronald Guntert
Title	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
Art Unit	3671
Examiner Name	Not yet assigned
Attorney Docket Number	065922-004560US-1091100

SIGNATURE of Applicant or Patent Practitioner

Signature	/James K. Chang/	Date (Optional)	
Name	James K. Chang	Registration Number	61477
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.

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.

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.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the above-identified.

- ☒ I hereby appoint Practitioners associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

20350

OR

- ☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name	Registration Number	Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

- ☒ The address associated with the above-mentioned Customer Number.

OR

- ☐ The address associated with Customer Number:

OR

<input type="checkbox"/> Firm or Individual name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant:

- ☐ Inventor or Joint Inventor
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor
☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is Concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature		Date	11/8/2013
Name	Ronald M. Guntert, Jr.	Telephone	209-599-0066
Title and Company	President and CEO	Guntert & Zimmerman Const. Div., Inc.	

NOTE: Signatures of all the inventors are required. Submit multiple forms if more than one signature is required, see below* See 37 CFR 1.4 for signature requirements and certifications.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.

Electronic Acknowledgement Receipt	
EFS ID:	32968647
Application Number:	16013864
International Application Number:	
Confirmation Number:	9478
Title of Invention:	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
First Named Inventor/Applicant Name:	Ronald Guntert
Customer Number:	20350
Filer:	James Krikor Chang/LaRenda Meyer
Filer Authorized By:	James Krikor Chang
Attorney Docket Number:	065922-004560US-1091100
Receipt Date:	21-JUN-2018
Filing Date:	
Time Stamp:	16:51:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Transmittal_POA_1091100.pdf	259903	no	3
			a921a14e29a12d7fc0034f2535d058edd2852ad2		

Warnings:

Information:	
Total Files Size (in bytes):	259903
<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><u>New Applications Under 35 U.S.C. 111</u> 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><u>National Stage of an International Application under 35 U.S.C. 371</u> 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><u>New International Application Filed with the USPTO as a Receiving Office</u> 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

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/013,864	06/20/2018	3671	785	065922-004560US-1091100	19	2

CONFIRMATION NO. 9478

FILING RECEIPT



20350
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

Date Mailed: 07/11/2018

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)

Ronald Guntert Jr., Stockton, CA;
Gerald L. Dahlinger, Ripon, CA;
Richard Wood Francis, Stockton, CA;

Applicant(s)

GUNTERT & ZIMMERMAN CONST. DIV., INC., RIPON, CA;

Assignment For Published Patent Application

GUNTERT & ZIMMERMAN CONST. DIV., INC., RIPON, CA

Power of Attorney: The patent practitioners associated with Customer Number 20350

Domestic Priority data as claimed by applicant

This application is a CON of 15/873,757 01/17/2018 PAT 10029749
which is a CON of 15/623,012 06/14/2017 PAT 9908571
which is a CIP of 15/148,811 05/06/2016 PAT 9708020
which is a CON of 13/897,125 05/17/2013 PAT 9359727
which is a CON of 13/069,096 03/22/2011 PAT 8459898
which claims benefit of 61/318,223 03/26/2010

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 Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 07/09/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/013,864**

Projected Publication Date: 10/18/2018

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND
REORIENTING CRAWLERS

Preliminary Class

404

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor

community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 16/013,864	
APPLICATION AS FILED - PART I						
(Column 1)		(Column 2)		SMALL ENTITY		OR
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	OTHER THAN SMALL ENTITY	
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	330		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		
TOTAL CLAIMS (37 CFR 1.16(j))	19	minus 20 = *	x 50 =	0.00	OR	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 230 =	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	785		TOTAL
* If the difference in column 1 is less than zero, enter "0" in column 2.						
APPLICATION AS AMENDED - PART II						
(Column 1)		(Column 2)		(Column 3)		
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		SMALL ENTITY	
	Total (37 CFR 1.16(i))	*	Minus	**	RATE(\$)	ADDITIONAL FEE(\$)
	Independent (37 CFR 1.16(h))	*	Minus	***	x	=
	Application Size Fee (37 CFR 1.16(s))					
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
				TOTAL ADD'L FEE		
(Column 1)		(Column 2)		(Column 3)		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		SMALL ENTITY	
	Total (37 CFR 1.16(i))	*	Minus	**	RATE(\$)	ADDITIONAL FEE(\$)
	Independent (37 CFR 1.16(h))	*	Minus	***	x	=
	Application Size Fee (37 CFR 1.16(s))					
	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 found in the appropriate box in column 1.						



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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100	9478
20350 7590 08/27/2018 KILPATRICK TOWNSEND & STOCKTON LLP Mailstop: IP Docketing - 22 1100 Peachtree Street Suite 2800 Atlanta, GA 30309			EXAMINER HARTMANN, GARY S	
			ART UNIT 3671	PAPER NUMBER
			NOTIFICATION DATE 08/27/2018	DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

KTSDocketing2@kilpatrick.foundationip.com
ipefiling@kilpatricktownsend.com

DETAILED CORRESPONDENCE

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 conflicting claims 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); *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 nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) 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 www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-19 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Patent 10,029,749. Although the claims at issue are not identical, they are not patentably distinct from each other because the elements and respective functions of the claimed device not patentably distinguishable from the patented claims.

Conclusion

This application is in condition for allowance except for the following formal matters:

A terminal disclaimer to overcome the double patenting rejection is required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY S HARTMANN whose telephone number is (571)272-6989. The examiner can normally be reached on 11-7:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Will can be reached on 571272-6998. 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.

GARY S. HARTMANN
Primary Examiner
Art Unit 3671

/GARY S HARTMANN/
Primary Examiner, Art Unit 3671

<i>Notice of References Cited</i>	Application/Control No. 16/013,864		Applicant(s)/Patent Under Reexamination	
	Examiner GARY S HARTMANN		Art Unit 3671	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10029749-B2	07-2018	Guntert, Jr.; Ronald	E01C19/4853	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS


*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20180821

<i>Search Notes</i> 	Application/Control No. 16/013,864	Applicant(s)/Patent Under Reexamination Guntert et al.
	Examiner GARY S HARTMANN	Art Unit 3671

CPC - Searched*		
Symbol	Date	Examiner
E01C 23/04	08/17/2018	GH
B62D 7/06	08/17/2018	GH
B62D 11/20	08/17/2018	GH
B62D 55/0655,084	08/17/2018	GH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
404	85,105	08/17/2018	GH
180	9.44,9.46,9.5,408,411	08/17/2018	GH

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
(paver paving) same (crawler track) same jack\$3	08/17/2018	GH
Inventor Search	08/21/2018	GH
back and forward cite all tagged documents	08/17/2018	GH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

--	--

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned	16013864
	Filing Date		June 20, 2018	
	First Named Inventor		Ronald M. Guntert, Jr.	
	Art Unit		Not yet assigned	
	Examiner Name		Not yet assigned	
	Attorney Docket Number		065922-004560US-1091100	

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code 1	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	3572458	A	Mar 30, 1971	Hans, Tax	
	2	3664448	A	May 23, 1972	Hudis, Michael	
	3	3792745	A	Feb 19, 1974	Files, T.	
	4	3900077	A	Aug 19, 1975	Gee	
	5	3970405		Jul 20, 1976	Swisher et al.	
	6	4029165	A	Jun 14, 1977	Miller, David J., et al.	
	7	4360293	A	Nov 23, 1982	Wade, Arthur W.	
	8	5590977	A	Jan 7, 1997	Guntert, Ronald M., et al.	
	9	6390728		May 21, 2002	Casters, Francois	
	10	6471442		Oct 29, 2002	Deeb, Mahmoud et al.	
	11	6481923	B1	Nov 19, 2002	Casters, François	
	12	6692185	B2	Feb 17, 2004	Colvard, John C.	
	13	6773203	B2	Aug 10, 2004	Casters, François	
	14	6872028		Mar 29, 2005	Aeschlimann, Werner et al.	
	15	6890123	B2	May 10, 2005	Piccoli, Mario	
	16	7942604	B2	May 17, 2011	Willis, et al.	
	17	7950874	B2	May 31, 2011	Guntert, Jr. et al.	
	18	8100481	B2	Jan 24, 2012	Von Schonebeck, et al.	
	19	8118518		Feb 21, 2012	Guntert et al.	
	20	8459898		Jun 11, 2013	Guntert Jr. et al.	
	21	9121141	B2	Sep 1, 2015	Thieme et al.	
	22	9180909	B1	Nov 10, 2015	Coats, Robert E.	
	23	9359727	B2	Jun 7, 2016	Guntert, Jr. Ronald M.	
	24	9663162	B1	May 30, 2017	Pedersen et al.	
	25	9708020	B2	Jul 18, 2017	Guntert Jr. et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned ¹⁶⁰¹³⁸⁶⁴
	Filing Date		June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.	
	Art Unit	Not yet assigned	
	Examiner Name	Not yet assigned	
	Attorney Docket Number	065922-004560US-1091100	

	26	9764762	B2	Sep 19, 2017	Klein Kevin L. et al.	
	27	9908571	B2	Mar 2018	Guntert, Jr., Ronald	
	28	9684308	B2	Jun 2017	Dahm, Martin	
	29	9663905	B2	May 2017	Dahm, Martin	
	30	9541195	B2	Jan 2017	Farr, Thomas C.	
	31	9464716	B2	Oct 2016	Farr, Thomas C.	
	32	9388537	B2	Jul 2016	Dahm, Martin	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	33	20110236129		Sep 29, 2011	Guntert Jr. et al.	
	34	20140161528		Jun 12, 2014	Guntert et al.	
	35	20160061327	A1	Mar 3, 2016	Farr, Thomas C.	
	36	20160137242	A1	May 19, 2016	Dahm, Martin	
	37	20160244096	A1	Aug 25, 2016	Klein, Kevin et al.	
	38	20160251042	A1	Sep 1, 2016	Guntert Jr. et al.	
	39	20170106902	A1	Apr 20, 2017	Farr et al.	
	40	20170282983	A1	Oct 5, 2017	Guntert Jr. et al.	
	41	20170344027	A1	Nov 2017	Dahm, Martin	
	42	20170291636	A1	Oct 2017	Hellholm, Bjorn	
	43	20070240928	A1	Oct 2017	Coltson, W. Craig	

FOREIGN PATENT DOCUMENTS

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.S.H/

KILPATRICK TOWNSEND 70893878 1

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		Not yet assigned 16013864	
	Filing Date		June 20, 2018	
	First Named Inventor		Ronald M. Guntert, Jr.	
	Art Unit		Not yet assigned	
	Examiner Name		Not yet assigned	
	Attorney Docket Number		065922-004560US-1091100	

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	44	102011014666	DE		Nov 24, 2011	Guntert and Zimmerman Const. Div. Inc.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	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 ⁵
	45	13/069,096 , "Notice of Allowance", February 11, 2013, 8 pages.	
	46	13/069,096 , "Non-Final Office Action", September 26, 2012, 7 pages.	
	47	13/897,125 , "Final Office Action", June 24, 2015, 7 pages	
	48	13/897,125 , "Non-Final Office Action", November 5, 2014, 6 pages	
	49	13/897,125 , "Notice of Allowance", February 10, 2016, 6 pages	
	50	15/148,811 , "Non Final Office Action", October 17, 2016, 9 pages	
	51	15/148,811 , "Notice of Allowance", March 15, 2017, 5 pages	
	52	15/623,012 , "Non-Final Office Action", July 11, 2017, 8 pages	
	53	15/623,012 , "Notice of Allowance", October 18, 2017, 8 pages	
	54	15/873,757 , "Notice of Allowance, June 26, 2018., 7 pages	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.S.H/

KILPATRICK TOWNSEND 70893878 1

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	Not yet assigned 16013864
	Filing Date	June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.
	Art Unit	Not yet assigned
	Examiner Name	Not yet assigned
	Attorney Docket Number	065922-004560US-1091100

EXAMINER SIGNATURE			
Examiner Signature	/GARY S HARTMANN/	Date Considered	08/09/2018
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>			
<p>¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.</p>			

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.S.H/

CERTIFICATION STATEMENT			
Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):			
<input type="checkbox"/> That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).			
OR			
<input type="checkbox"/> That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).			
<input type="checkbox"/> See attached certification statement.			
<input type="checkbox"/> The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.			
<input checked="" type="checkbox"/> A certification statement is not submitted herewith.			
SIGNATURE			
A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.			
Signature	/James K. Chang/	Date (YYYY-MM-DD)	2018-06-20
Name/Print	James K. Chang	Registration Number	61,477

KILPATRICK TOWNSEND 70893878 1

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	Not yet assigned
	Filing Date	June 20, 2018
	First Named Inventor	Ronald M. Guntert, Jr.
	Art Unit	Not yet assigned
	Examiner Name	Not yet assigned
	Attorney Docket Number	065922-004560US-1091100

<p>This collection of information is required by 37 CFR 1.97 and 1.98. 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 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: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.</p>			

KILPATRICK TOWNSEND 70893878 1



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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100

CONFIRMATION NO. 9478

20350
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

PUBLICATION NOTICE



OC000000103153417

Title:AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS

Publication No.US-2018-0297651-A1

Publication Date:10/18/2018

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.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce	
Electronic Petition Request	TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT		
Application Number	16013864		
Filing Date	20-Jun-2018		
First Named Inventor	Ronald Guntert		
Attorney Docket Number	065922-004560US-1091100		
Title of Invention	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
<input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action <input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.			
Owner		Percent Interest	
GUNTERT & ZIMMERMAN CONST. DIV., INC.		100%	
<p>The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)</p> <p>10029749</p> <p>as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.</p> <p>In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:</p> <ul style="list-style-type: none"> - expires for failure to pay a maintenance fee; - is held unenforceable; - is found invalid by a court of competent jurisdiction; - is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; - has all claims canceled by a reexamination certificate; - is reissued; or - is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer. <p><input checked="" type="radio"/> Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.</p>			

<input type="radio"/> I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: <input checked="" type="radio"/> Small Entity <input type="radio"/> Micro Entity <input type="radio"/> Regular Undiscounted	
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 issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: <input checked="" type="radio"/> An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number <u>61477</u> <input type="radio"/> A sole inventor <input type="radio"/> A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application <input type="radio"/> A joint inventor; all of whom are signing this request	
Signature	/James K. Chang/
Name	James K. Chang

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
 Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal				
Application Number:		16013864		
Filing Date:		20-Jun-2018		
Title of Invention:		AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
First Named Inventor/Applicant Name:		Ronald Guntert		
Filer:		James Krikor Chang/La Renda Meyer		
Attorney Docket Number:		065922-004560US-1091100		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16013864

Filing Date: 20-Jun-2018

Applicant/Patent under Reexamination: Guntert

Electronic Terminal Disclaimer filed on October 25, 2018

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	34118573
Application Number:	16013864
International Application Number:	
Confirmation Number:	9478
Title of Invention:	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
First Named Inventor/Applicant Name:	Ronald Guntert
Customer Number:	20350
Filer:	James Krikor Chang/La Renda Meyer
Filer Authorized By:	James Krikor Chang
Attorney Docket Number:	065922-004560US-1091100
Receipt Date:	25-OCT-2018
Filing Date:	20-JUN-2018
Time Stamp:	16:38:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$160
RAM confirmation Number	102618INTEFSW16381600
Deposit Account	201430
Authorized User	IP eFiling
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>37 CFR 1.16 (National application filing, search, and examination fees)</p> <p>37 CFR 1.17 (Patent application and reexamination processing fees)</p>	

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33816	no	2
			f756f70abbf274d986a4ed32ec04ff1e6c230e dc9		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30450	no	2
			d40f6d34b65b282a1ba7759a66852822bdf 477d5		

Warnings:

Information:

Total Files Size (in bytes):	64266
-------------------------------------	-------

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.

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on October 25, 2018.

PATENT
Attorney Docket No.: 065922-004560US-1091100

KILPATRICK TOWNSEND & STOCKTON LLP

By: /La Renda Meyer /

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ronald GUNTERT JR. *et al.*

Application No.: 16/013,864

Filed: June 20, 2018

For: AUTOMATICALLY ADJUSTING
SWING LEGS FOR MOUNTING AND
ALIGNING AND REORIENTING
CRAWLERS

Customer No.: 20350

Confirmation No.: 9478

Examiner: HARTMANN, Gary S.

Technology Center/Art Unit: 3671

**AMENDMENT & RESPONSE
TO EX PARTE QUAYLE
ACTION**

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

Commissioner:

Further to the *Ex Parte Quayle* action issued August 27, 2018, please amend the
above-identified application as follows. Applicant submits that this paper is timely filed on
or before October 27, 2018.

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

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

Electronic Acknowledgement Receipt	
EFS ID:	34118745
Application Number:	16013864
International Application Number:	
Confirmation Number:	9478
Title of Invention:	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
First Named Inventor/Applicant Name:	Ronald Guntert
Customer Number:	20350
Filer:	James Krikor Chang/La Renda Meyer
Filer Authorized By:	James Krikor Chang
Attorney Docket Number:	065922-004560US-1091100
Receipt Date:	25-OCT-2018
Filing Date:	20-JUN-2018
Time Stamp:	16:43:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Response_ExParteQuayle_065922-1091100.pdf	124947	yes	9
			01873eac3c2855798f89fe4030105dd18be278a3		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Applicant Arguments/Remarks Made in an Amendment	8	9
	Claims	2	7
	Response after Ex Parte Quayle Action	1	1
Warnings:			
Information:			
Total Files Size (in bytes):		124947	
<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><u>New Applications Under 35 U.S.C. 111</u> 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><u>National Stage of an International Application under 35 U.S.C. 371</u> 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><u>New International Application Filed with the USPTO as a Receiving Office</u> 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>			

REMARKS

Upon entry of the present Amendment, claims 1-19 remain pending in this application. By this paper, claims 1, 4, 7, and 15 are amended and a Terminal Disclaimer is concurrently filed. The scope of the allowed claims is not affected by this Amendment. No new matter is added.

Amendments to the Claims

Claims 1, 4, 7, and 15 are amended solely to ensure clarity of the allowable invention by consistently reciting a “swing leg assembly” and a “crawler track” where appropriate. Support for these amendments can be understood from the application as a whole.

Response to Double Patenting Rejection

Claims 1-19 stand rejected on the basis of non-statutory double-patenting (NSDP) over claims 1-20 of U.S. Patent No. 10,029,749 (the parent matter to this application). A Terminal Disclaimer is concurrently filed with this paper to address and overcome this rejection. Accordingly, Applicant respectfully requests withdrawal of the NSDP rejection.

CONCLUSION

Entry of this amendment is respectfully urged since no additional search is required, no more than a cursory review of the record is needed, and the amendments do not require a substantial amount of work on the part of the Office.

Except for the issue fees payable under 37 C.F.R. §1.18, the Director is authorized to charge any additional fees during pendency of this application, including any required extension of time fees, or credit any overpayment to Deposit Account Number 20-1430. This paragraph is intended to be a constructive petition for extension of time in accordance with 37 C.F.R. §1.136(a)(3), if needed.

Appl. No. 16/013,864
Amdt. dated October 25, 2018
Response to Ex Parte Quayle action of August 27, 2018

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please contact the undersigned at 415-576-0200 or jchang@kilpatricktownsend.com.

Respectfully submitted,

/ James K. Chang /

James K. Chang

Registration No. 61,477

KILPATRICK TOWNSEND & STOCKTON LLP

MLR

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 paving machine configured to move in a paving direction for spreading, leveling and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the paving machine comprising:
 - a module frame;
 - two or more swing leg assemblies mechanically coupled to the module frame, each swing leg assembly comprising:
 - a swing leg;
 - a crawler track;
 - an upright jacking column secured to the swing leg, having a rotary connection between the jacking column and the crawler track permitting relative rotational movements of the crawler track with regard to the jacking column about a first upright axis;
 - a first angular position transducer configured to emit a first signal which is indicative of an angular orientation of the crawler track relative to the jacking column;
 - a second angular position transducer configured to emit a second signal which is indicative of an angular orientation of the swing leg relative to the module frame; and
 - a power drive unit arranged to translate relative rotational movements between the jacking column and the crawler track; and
 - a processor operable to receive the first and second signals from each swing leg assembly and configured to generate and emit a control signal for instructing the power drive of each swing leg assembly, and thereby rotationally move each respective crawler track relative to its respective jacking column.

2. (Original) The paving machine of claim 1, wherein the control signal for rotationally moving one or more of the crawler tracks is configured to be overridden by an operator.
3. (Original) The paving machine of claim 1, wherein one or more of the power drives comprise first and second diametrically opposed helical worm drives engaging and driving a ring gear disposed between them.
4. (Currently Amended) The paving machine of claim 3, wherein the processor configured to receive the first and second signals and to generate and emit the control signal for each swing leg assembly is further configured to have a stored first signal and a stored second signal for each respective swing leg assembly, further wherein the control signal is generated by:
 - receiving the first signal and second signal from each swing leg assembly;
 - calculating the difference between the first signal and second signal, and the stored first signal and stored second signals respectively, for each respective swing leg assembly;
 - calculating the angle to reset each crawler track to its respective jacking column along a desired orientation for each respective swing leg assembly;
 - determining the respective worm drive that operates each respective crawler track in each respective swing leg assembly;
 - calculating the rotation of each worm drive to align the respective crawler track along the desired orientation in each respective swing leg assembly; and
 - storing the first signal and second signal from each swing leg assembly and thereby updating the respective stored first signal and the respective stored second signal for each respective swing leg assembly.
5. (Original) The paving machine of claim 4, wherein the desired orientation is alignment of the crawler tracks along a paving direction.
6. (Original) The paving machine of claim 4, wherein the desired orientation is alignment of the crawler track of one of the swing leg assemblies to the crawler track orientation of each other swing leg assembly.

7. (Currently Amended) The paving machine of claim 4, wherein the processor, the power drive, and the first transducer, and the second transducer from each swing leg assembly form a feedback loop for maintaining an orientation of the crawler track independently of angular inclinations of the crawler track relative to the module frame.

8. (Original) The paving machine of claim 1, wherein the mechanical coupling of the swing leg assemblies allows for pivotal movement of the swing leg assembly relative to the location of the mechanical coupling about a second upright axis.

9. (Original) The paving machine of claim 8, further comprising a hydraulic actuator mounted between the swing leg assembly and the module frame, wherein the hydraulic actuator is configured to be disengaged from at least one of the module frame and the swing leg assembly when the swing leg assembly is positioned in a transport orientation.

10. (Original) The paving machine of claim 1, wherein each swing leg is configured to independently change orientation by up to 90° in a substantially horizontal plane.

11. (Original) A paving machine configured to move in a paving direction for spreading, leveling and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the paving machine comprising:

a module frame;

two or more swing leg assemblies having a pivotal connection to the module frame to allow for pivotal movements of the swing leg assemblies relative to the module frame, each swing leg assembly comprising:

a swing leg;

a crawler track;

an upright jacking column secured to the swing leg, having a rotary connection between the jacking column and the crawler track permitting relative rotational

movements of the crawler track with regard to the jacking column about a first upright axis;

a first angular position transducer configured to emit a first signal which is indicative of an angular orientation of the crawler track relative to the jacking column;

a second angular position transducer configured to emit a second signal which is indicative of an angular orientation of the swing leg relative to the module frame; and

a power drive unit arranged to translate relative rotational movements between the jacking column and the crawler track;

a hydraulic actuator for each swing leg assembly, mounted between the module frame and each swing leg assembly; and

a processor operable to receive the first and second signals from each swing leg assembly and configured to generate and emit a control signal for instructing the hydraulic actuator to actuate, thereby pivotally moving each swing leg assembly in relation to the module frame.

12. (Original) The paving machine of claim 11, wherein the hydraulic actuator actuates a swing leg assembly to independently change orientation by up to 90° in a substantially horizontal plane.

13. (Original) The paving machine of claim 11, wherein the hydraulic actuator is configured to disengage from at least one of the swing leg assembly and the module frame when the swing leg assembly is in a transport orientation.

14. (Original) The paving machine of claim 11, wherein the second signal is a relative angle between the swing leg and the module frame of the respective swing leg assembly, and wherein the processor has a stored value for a preset angle of each respective swing leg assembly relative to a lateral side of the module frame, the control signal generation comprising:

receiving the second signal from each swing leg assembly;

calculating the difference between the second signal and the preset angle for each respective swing leg assembly; and

calculating the actuation of a hydraulic actuator to move the respective swing leg so the second signal and the preset angle of each respective swing leg are in alignment.

15. (Currently Amended) The paving machine of claim 14, wherein the first signal is a relative angle between the crawler track and the jacking column of the respective swing leg assembly, and wherein the processor has a stored first signal and a stored second signal for each respective swing leg assembly, the control signal generation further comprising:

receiving the first signal and second signal from each swing leg assembly;

storing the first signal and second signal from each swing leg assembly as the respective stored first signal and the respective stored second signal for each respective swing leg assembly;

calculating the difference between the first signal and second signal, and the stored first signal and stored second signals respectively, for each respective swing leg assembly;

calculating the angle to reset each crawler track to its respective jacking column along a desired orientation for each respective swing leg assembly;

determining the respective power drive that operates each respective crawler track in each respective swing leg assembly; and

calculating the rotation of each power drive to align the respective crawler track along the desired orientation in each respective swing leg assembly.

16. (Original) The paving machine of claim 15, wherein the desired orientation is alignment of the crawler tracks along a paving direction.

17. (Original) The paving machine of claim 15, wherein the desired orientation is alignment of the crawler track of one of the swing leg assemblies to the crawler track orientation of each other swing leg assembly.

18. (Original) The paving machine of claim 15, wherein the second transducers and the hydraulic actuators form a feedback loop for maintaining an orientation of the swing leg assembly independently of angular inclinations of the swing leg relative to the module frame.

19. (Original) The paving machine of claim 18, wherein the feedback loop further includes the first transducers and the power drive for further maintaining an orientation of the crawler track independently of angular inclinations of the crawler track relative to the module frame.

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 16/013,864		Filing Date 06/20/2018		<input type="checkbox"/> To be Mailed				
ENTITY: <input type="checkbox"/> LARGE <input checked="" type="checkbox"/> SMALL <input type="checkbox"/> 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(j))		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	10/25/2018		CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		* 19		Minus	** 20		= 0		X \$50 =		0	
	Independent (37 CFR 1.16(h))		* 2		Minus	***3		= 0		X \$230 =		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				0			
(Column 1)			(Column 2)			(Column 3)							
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT			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							
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>													

LIE
VENICE WILLIAMS

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
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

20350 7590 11/06/2018
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

EXAMINER
HARTMANN, GARY S

ART UNIT PAPER NUMBER
3671

DATE MAILED: 11/06/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100	9478

TITLE OF INVENTION: AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	02/06/2019

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

20350 7590 11/06/2018
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100	9478

TITLE OF INVENTION: AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	02/06/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
HARTMANN, GARY S	3671	404-085000

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 03-09 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 _____

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100	9478
20350	7590	11/06/2018	EXAMINER	
KILPATRICK TOWNSEND & STOCKTON LLP			HARTMANN, GARY S	
Mailstop: IP Docketing - 22			ART UNIT	
1100 Peachtree Street			PAPER NUMBER	
Suite 2800			3671	
Atlanta, GA 30309			DATE MAILED: 11/06/2018	

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 30 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.

Notice of Allowability	Application No. 16/013,864	Applicant(s) Guntert et al.	
	Examiner GARY S HARTMANN	Art Unit 3671	AIA Status 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 terminal disclaimer filed 10/25/18.
☐ 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 1-19 . 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 or send an inquiry to 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 areply 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 checked="" 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), 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 of Biological Material _____.	7. <input type="checkbox"/> Other _____.
4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/GARY S HARTMANN/ Primary Examiner, Art Unit 3671	
--	--

<i>Notice of References Cited</i>	Application/Control No. 16/013,864		Applicant(s)/Patent Under Reexamination	
	Examiner GARY S HARTMANN		Art Unit 3671	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10053167-B2	08-2018	Guntert, Jr.; Ronald	E01C19/4853	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS


*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20181029

Issue Classification 	Application/Control No. 16/013,864	Applicant(s)/Patent Under Reexamination Guntert et al.
	Examiner GARY S HARTMANN	Art Unit 3671


CPC						
Symbol					Type	Version
B62D	/	55	/	084	F	2013-01-01
E01C	/	19	/	4853	I	2013-01-01
E01C	/	19	/	42	I	2013-01-01
E01C	/	19	/	002	I	2013-01-01
E01C	/	19	/	48	I	2013-01-01
B62D	/	55	/	065	I	2013-01-01
E01C	/	23	/	04	I	2013-01-01
B62D	/	7	/	06	I	2013-01-01
B62D	/	11	/	20	I	2013-01-01
B62D	/	11	/	003	I	2013-01-01

CPC Combination Sets					
Symbol		Type	Set	Ranking	Version
	/				

NONE (Assistant Examiner)		Total Claims Allowed: 19	
/GARY S HARTMANN/ Primary Examiner, Art Unit 3671 (Primary Examiner)		29 October 2018 (Date)	
		O.G. Print Claim(s) 1	O.G. Print Figure 4, 10B

U.S. Patent and Trademark Office

Part of Paper No.: 20181029

Issue Classification 	Application/Control No. 16/013,864	Applicant(s)/Patent Under Reexamination Guntert et al.
	Examiner GARY S HARTMANN	Art Unit 3671


INTERNATIONAL CLASSIFICATION			
CLAIMED			
B62D		7	06

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
404	85


CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE (Assistant Examiner)		Total Claims Allowed: 19	
/GARY S HARTMANN/ Primary Examiner, Art Unit 3671 (Primary Examiner)		29 October 2018 (Date)	O.G. Print Claim(s) 1
			O.G. Print Figure 4, 10B

Issue Classification 	Application/Control No. 16/013,864	Applicant(s)/Patent Under Reexamination Guntert et al.
	Examiner GARY S HARTMANN	Art Unit 3671

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 19	
/GARY S HARTMANN/ Primary Examiner, Art Unit 3671 (Primary Examiner) _____ (Date) 29 October 2018		O.G. Print Claim(s) 1	O.G. Print Figure 4, 10B

<i>Search Notes</i> 	Application/Control No. 16/013,864	Applicant(s)/Patent Under Reexamination Guntert et al.
	Examiner GARY S HARTMANN	Art Unit 3671

CPC - Searched*		
Symbol	Date	Examiner
E01C 23/04	10/29/2018	GH
B62D 7/06	10/29/2018	GH
B62D 11/20	10/29/2018	GH
B62D 55/0655,084	10/29/2018	GH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
404	85,105	10/29/2018	GH
180	9.44,9.46,9.5,408,411	10/29/2018	GH

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Update Search	10/29/2018	GH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
404	85	10/29/2018	GH

/GARY S HARTMANN/ Primary Examiner, Art Unit 3671	
--	--



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

BIB DATA SHEET

CONFIRMATION NO. 9478

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
16/013,864	06/20/2018	404	3671	065922-004560US-1091100		
RULE						
APPLICANTS GUNTERT & ZIMMERMAN CONST. DIV., INC., RIPON, CA; INVENTORS Ronald Guntert Jr., Stockton, CA; Gerald L. Dahlinger, Ripon, CA; Richard Wood Francis, Stockton, CA; ** CONTINUING DATA ***** This application is a CON of 15/873,757 01/17/2018 PAT 10029749 which is a CON of 15/623,012 06/14/2017 PAT 9908571 which is a CIP of 15/148,811 05/06/2016 PAT 9708020 which is a CON of 13/897,125 05/17/2013 PAT 9359727 which is a CON of 13/069,096 03/22/2011 PAT 8459898 which claims benefit of 61/318,223 03/26/2010 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 07/09/2018						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /GARY S HARTMANN/ Acknowledged Examiner's Signature		<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 18	TOTAL CLAIMS 19	INDEPENDENT CLAIMS 2
ADDRESS KILPATRICK TOWNSEND & STOCKTON LLP Mailstop: IP Docketing - 22 1100 Peachtree Street Suite 2800 Atlanta, GA 30309 UNITED STATES						
TITLE AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS						
FILING FEE RECEIVED 785	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <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		

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

20350 7590 11/06/2018
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

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.

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

La Renda Meyer	(Typed or printed name)
/La Renda Meyer/	(Signature)
December 19, 2018	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	06/20/2018	Ronald Guntert Jr.	065922-004560US-1091100	9478

TITLE OF INVENTION: AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	02/06/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
HARTMANN, GARY S	3671	404-085000

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 03-09 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 Kilpatrick Townsend

2 & Stockton LLP

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Guntert & Zimmerman, Const. Div., Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Ripon, California

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 20-1430

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 /James K. Chang/ Date December 19, 2018

Typed or printed name James K. Chang Registration No. 61,477

Electronic Patent Application Fee Transmittal				
Application Number:		16013864		
Filing Date:		20-Jun-2018		
Title of Invention:		AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS		
First Named Inventor/Applicant Name:		Ronald Guntert		
Filer:		James Krikor Chang/LaRenda Meyer		
Attorney Docket Number:		065922-004560US-1091100		
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	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	34639658
Application Number:	16013864
International Application Number:	
Confirmation Number:	9478
Title of Invention:	AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS
First Named Inventor/Applicant Name:	Ronald Guntert
Customer Number:	20350
Filer:	James Krikor Chang/LaRenda Meyer
Filer Authorized By:	James Krikor Chang
Attorney Docket Number:	065922-004560US-1091100
Receipt Date:	19-DEC-2018
Filing Date:	20-JUN-2018
Time Stamp:	15:06:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	122018INTEFSW15080700
Deposit Account	201430
Authorized User	IP eFiling
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>37 CFR 1.16 (National application filing, search, and examination fees)</p> <p>37 CFR 1.17 (Patent application and reexamination processing fees)</p>	

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Issue_Fee_Transmittal_065922-1091100.pdf	88747	no	1
			82049883fed2bb395e845e018fd511b0baa93f7		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30409	no	2
			75899feda71601f7e36b94ef173bb185a7b175a3		

Warnings:

Information:

Total Files Size (in bytes):	119156
-------------------------------------	--------

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.



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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/013,864	02/05/2019	10196101	065922-004560US-1091100	9478

20350 7590 01/16/2019
KILPATRICK TOWNSEND & STOCKTON LLP
Mailstop: IP Docketing - 22
1100 Peachtree Street
Suite 2800
Atlanta, GA 30309

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):

GUNTERT & ZIMMERMAN CONST. DIV., INC., RIPON, CA;
Ronald Guntert Jr., Stockton, CA;
Gerald L. Dahlinger, Ripon, CA;
Richard Wood Francis, Stockton, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.