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(54) **SELF-PROPELLED, POWERED ROLLER SCREED DEVICE**

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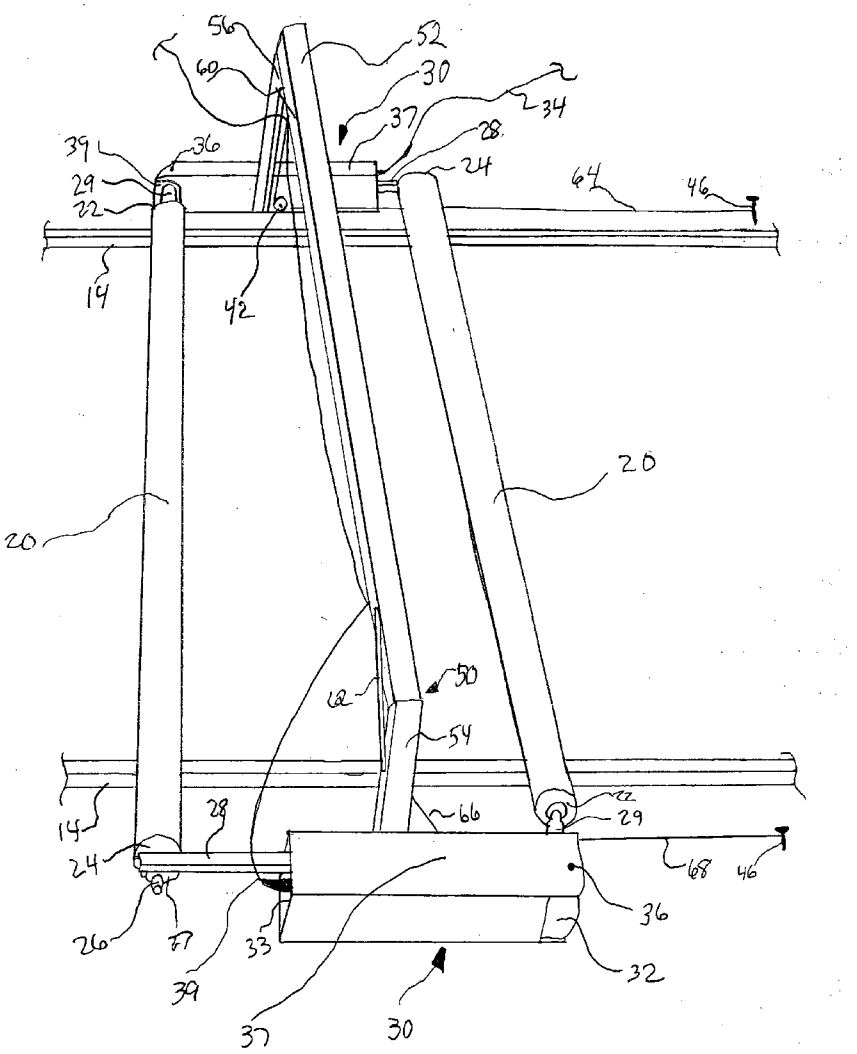
(57) **ABSTRACT**

A self-propelled power roller screed having two generally parallel tubular screed tubes and powered winching means that cooperatively engage winching cables attached to dead-man structures to advance the roller screed. Screed tube power means spin each of the screed tubes in a direction opposite a direction of travel of the roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms. The winching means is a worm gear dual drum winch powered by a variable speed reversible power drill. A cable sheave is translated along a channel in the frame of the roller screed to effectively lengthen or shorten one of the winching cables to advance one end of the frame faster or slower than the second end of the frame, facilitating movement of the roller screed around curved portions of concrete paving and allowing for angular adjustment of the roller screed for differences that might exist in the winching cables and winching means. The winching means includes a locking mechanism which prevents the roller screed from advancing down a slope. The winch drums are adapted to be selectively disengaged to facilitate rapid advancement of the winching cables.



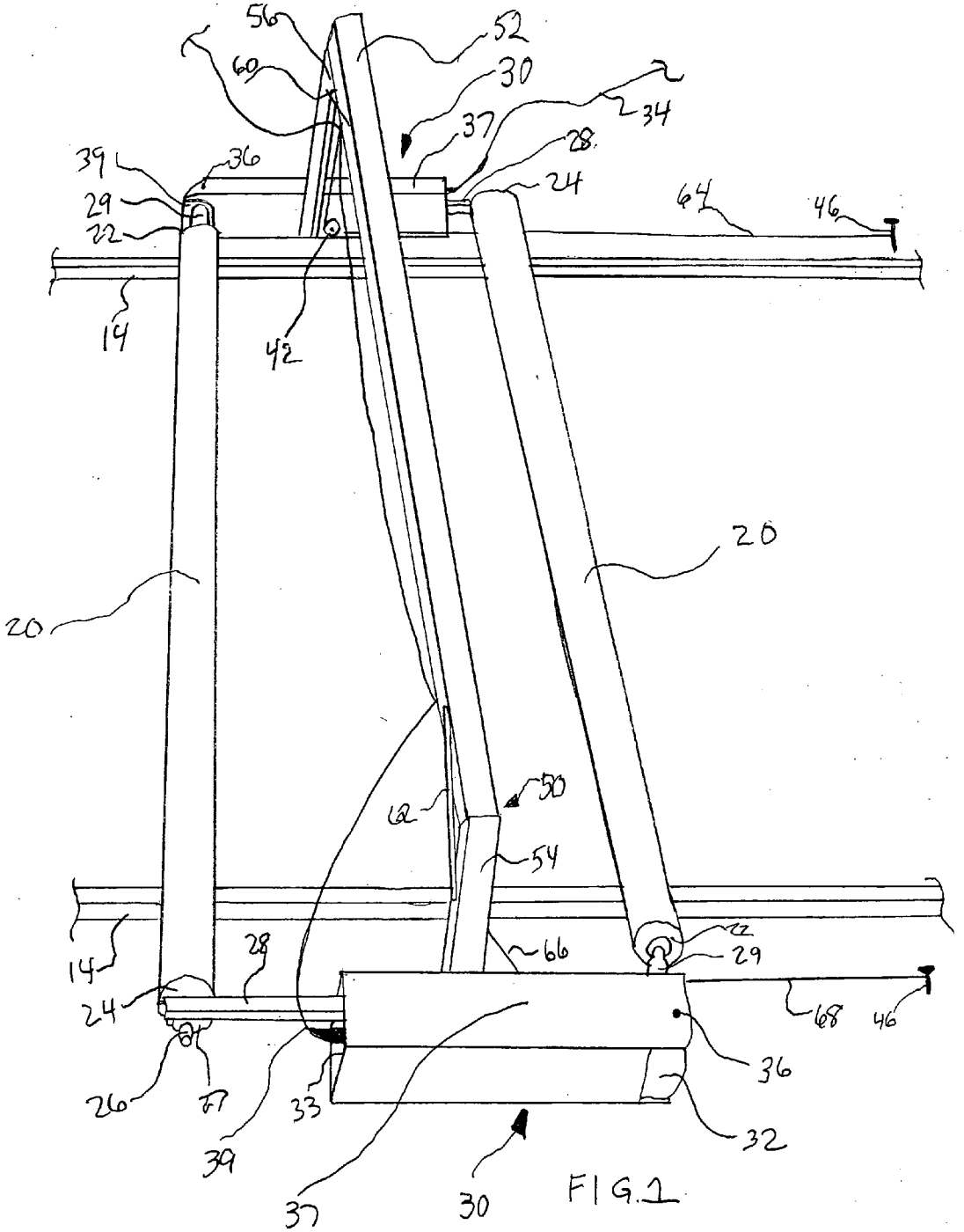

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FIG. 1

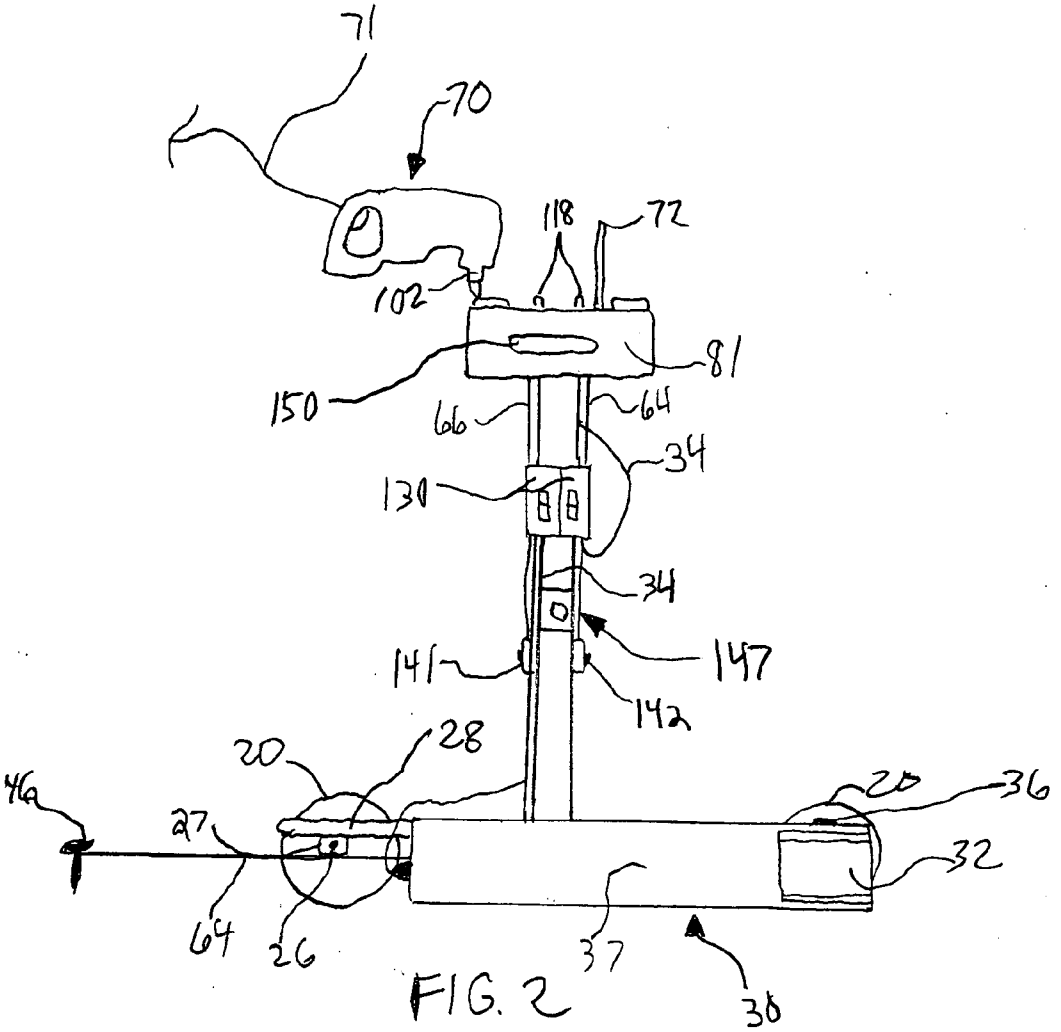
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FIG. 2

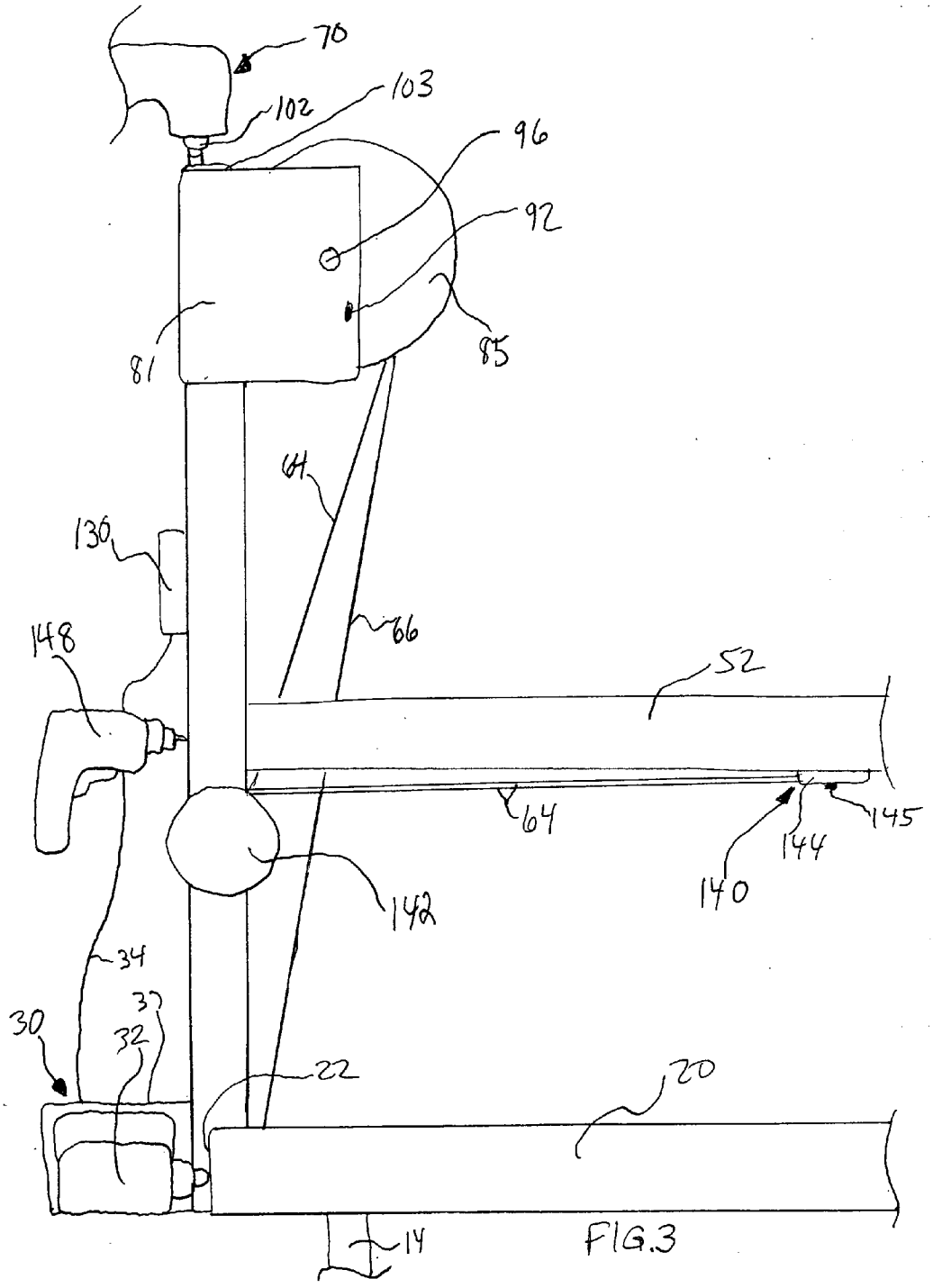
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FIG.3

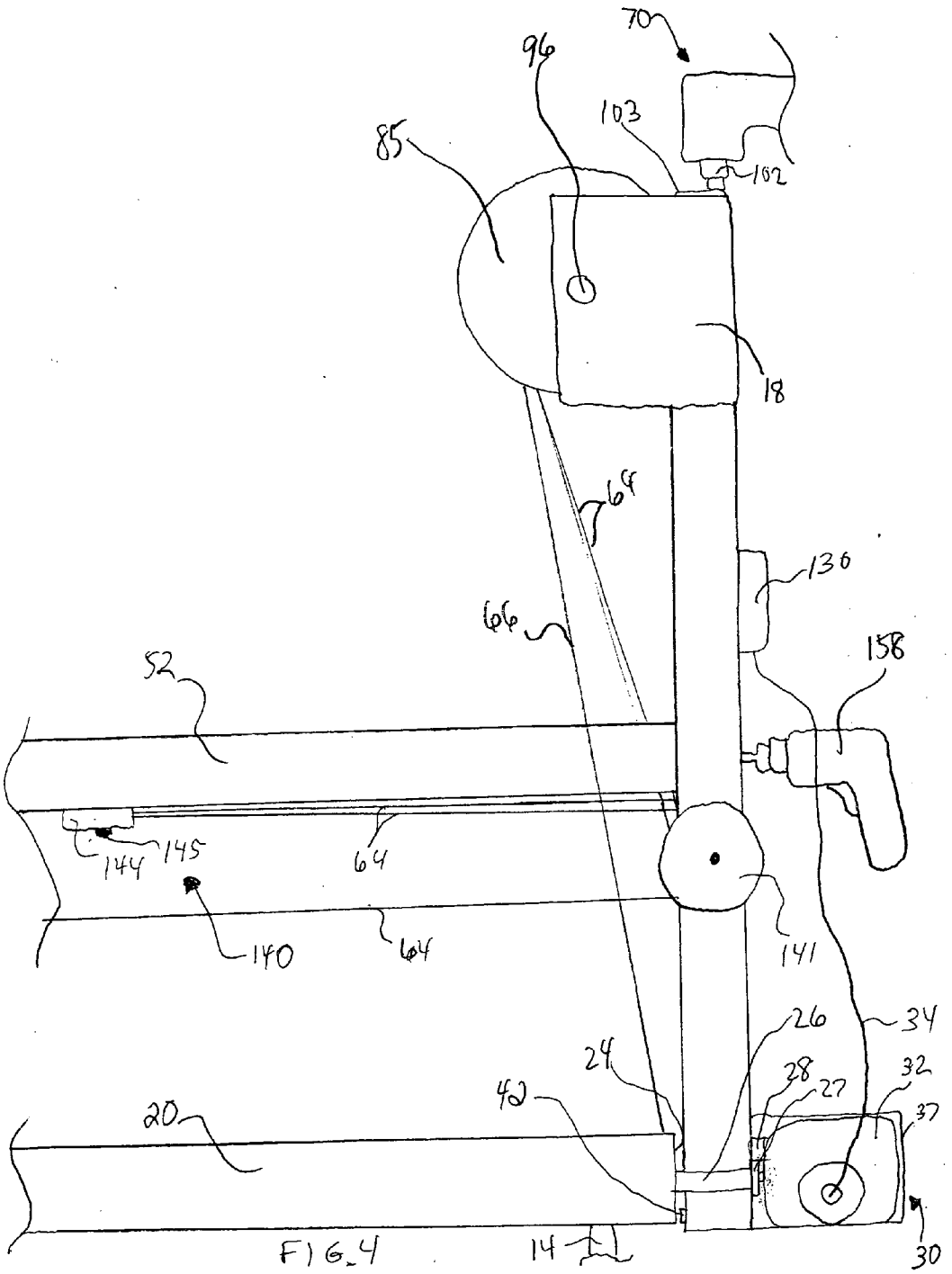
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FIG_4

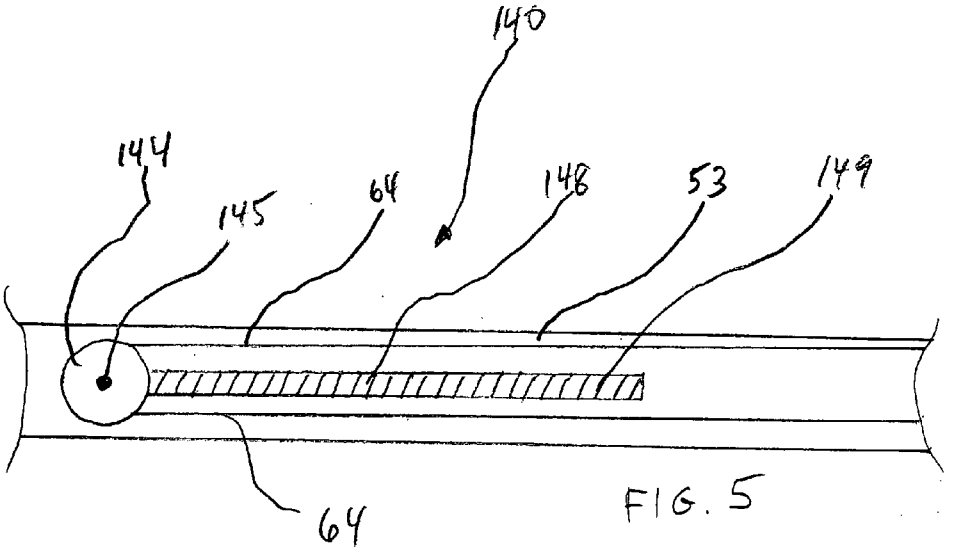

FIG. 5

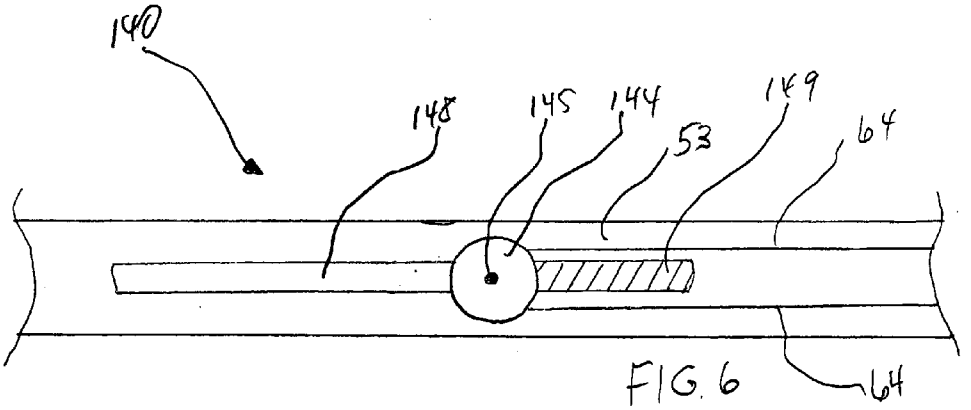

FIG. 6

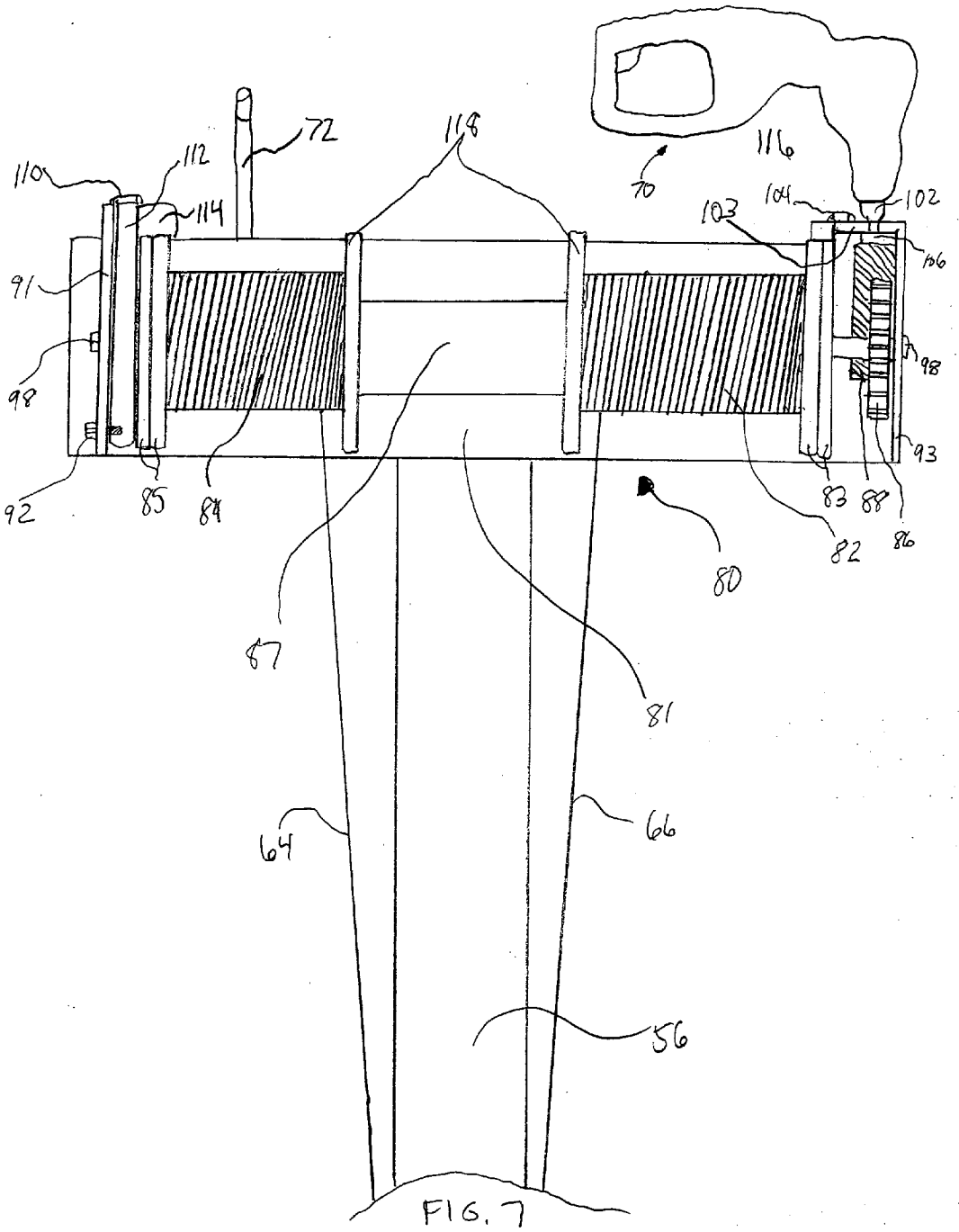
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FIG. 7

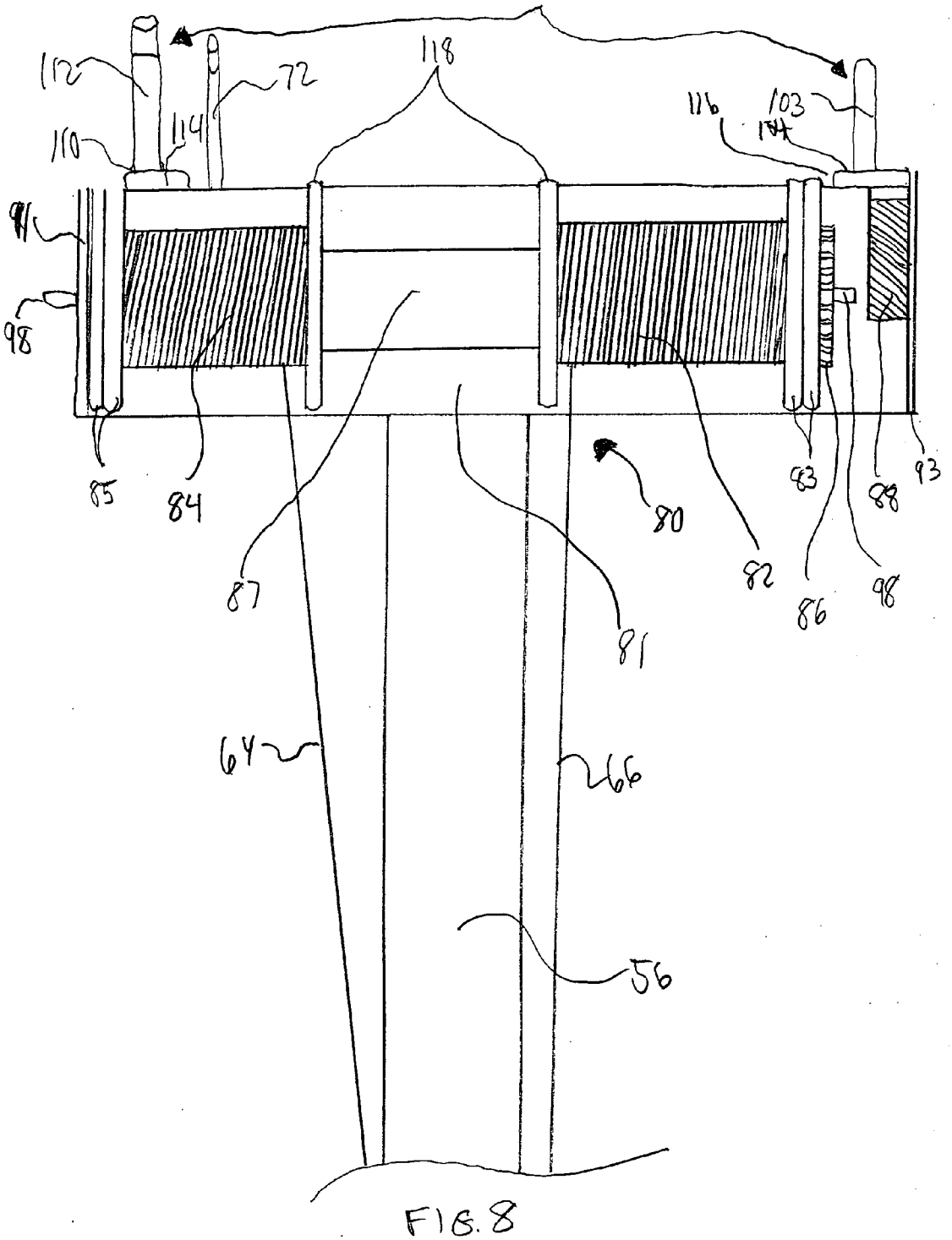
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FIG. 8

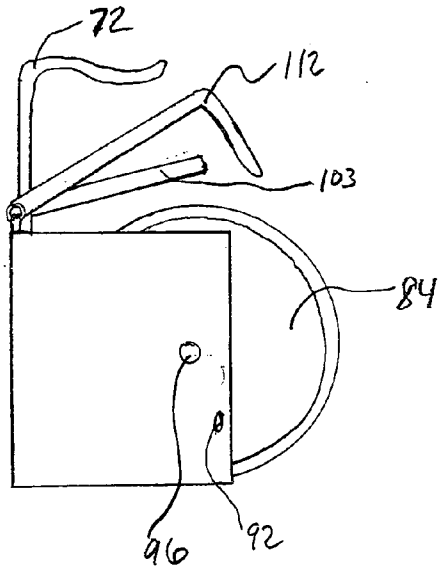

FIG. 9

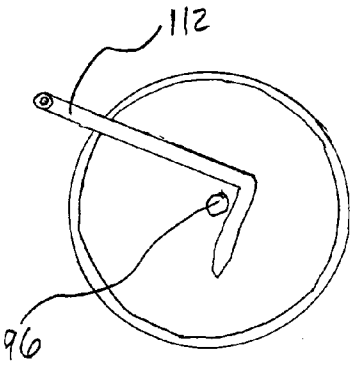

FIG. 10

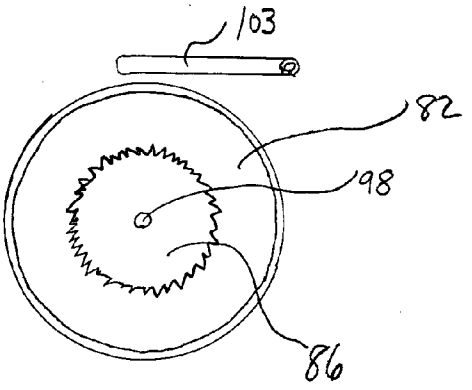

FIG. 11

SELF-PROPELLED, POWERED ROLLER SCREED DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] There are no related applications for this application.

FIELD OF THE INVENTION

[0002] The present invention pertains to the field of roller screeds and more particularly pertains to a self-propelled powered roller screed which requires only one operator for screeding cementitious material.

BACKGROUND OF THE RELATED ART

[0003] Concrete structures are formed by pouring a cementitious material, such as cement and aggregate (referred to herein as concrete) into a form, or other container, and permitting the material to cure under proper conditions. In the case of a concrete pad, such as a floor, foundation, or roadway, concrete is poured onto a ground, or support, surface and contained by forms connected to, and rising above, the ground, or support, surface. The forms are longitudinal members arranged along a border of a desired location for the concrete pad to contain the viscous concrete and provide a guide for the concrete's thickness and to level the top surface of the concrete.

[0004] After concrete is poured between forms, it is spread generally evenly between the forms. A screed is then used to remove excess concrete and level the top surface of the concrete so it is even with the forms. Traditionally, several passes of a screed over the concrete were necessary to achieve the desired surface. Precision is required to conform to building codes and to perform quality work.

[0005] A very primitive screed, which is still useful on small jobs, is a simple straight edge such as a straight board. A board, long enough to span the forms, is laid on top of each form and thereafter pulled down the length of the forms by workers at each end of the board. This pushes forward excess concrete: excess concrete is concrete that is higher than the top surface of the forms. While quite suitable for small jobs, such a screed is impractical on large jobs because of the work required to move the excess concrete. In addition, like many conventional screeds, it required several operators to maneuver the screed.

[0006] A more practical screed for larger jobs is disclosed in Mitchell, U.S. Pat. No. 4,142,816. Mitchell discloses a powered screed having a hydraulic motor to spin a tubular member while the screed is pulled along the forms by two workers, one each located on either side of the forms. As with most rotary screeds, a single tubular member spins in a direction opposite a direction of travel of the screed. By spinning the tube, this screed provides a good surface to the concrete. However, substantial work is required to pull the screed along the forms. The hydraulic motor, spinning the tube, does not assist to propel the screed forward and the heavy concrete that builds up in front of the screed requires a large amount of force to move. In addition, workers located at each end of the Mitchell screed must keep the screed tube substantially perpendicular to the forms—frequently this is a difficult task because of uneven amounts of concrete from side-to-side and unequal strengths of the workers.

[0007] Accordingly, there is a need in the industry to provide a powered roller screed that can be easily operated by one operator and which allows for angular adjustment of the roller screed.

SUMMARY OF THE INVENTION

[0008] In accordance with one aspect of the invention, a roller screed is provided having two generally parallel tubular screed tubes axially and rotatably supported on their ends by a frame. The roller screed also has two winching cables cooperatively engaged with the frame proximate opposite ends of the screed tubes and being removably attachable to suitable deadman structures positioned generally forward of the roller screed. The screed tubes rest on top of and span across forms and advance down the length of the forms over the freshly poured concrete by operation of a winch power means which operates a winching means that cooperatively engages the winching cables. Screed tube power means cooperatively engage and axially spin each of the screed tubes in a direction opposite a direction of travel of the roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms. By deploying two screed tubes spinning in a direction opposite a direction of travel of the roller screed, a generally smooth finish to the surface of the concrete is obtained faster and easier than with conventional devices employing only one spinning screed tube. Preferably, the winching means is a worm gear dual drum winch and the winch power means is a variable speed reversible power drill engaging the winching means.

[0009] In another aspect of the invention, the roller screed includes a cable sheave cooperatively attached to a threaded nut which is slidingly mounted on the frame. The cable sheave is translated along a channel in the frame when an associated sheave power means rotates a threaded shaft mounted on the frame which passes through the threaded nut. The translation of the cable sheave effectively lengthens or shortens one of the winching cables to advance one end of the frame faster or slower than the second end of the frame, facilitating movement of the roller screed around curved portions of concrete paving and allowing for angular adjustment of the roller screed for differences that might exist in the winching cables and winching means.

[0010] In another aspect of the invention, the winching means includes a locking mechanism which prevents the roller screed from advancing down a slope.

[0011] In another aspect of the invention, the winch drums are adapted to be selectively disengaged from the worm gear to facilitate rapid advancement of the winching cables.

[0012] In another aspect of the invention, the screed tube power means is a pair of variable speed reversible power drills engaging the screed tubes.

[0013] In another aspect of the invention, the sheave power means is a variable speed reversible power drill.

[0014] In another aspect of the invention, the present invention roller screed may be maneuvered manually by a handle located proximate the winch power means. In particular, the handle allows the operator to translate the roller screed generally perpendicularly to the direction of travel of the roller screed.

[0015] The above aspects may be performed alone or in combination with the others.

[0016] It is therefore an object of the invention to provide a powered roller screed having a plurality of tubular members

that spin in a direction opposite a direction of travel of the screed and that can be easily operated by one operator.

[0017] It is another object of the present invention to provide a powered roller screed which allows for angular adjustment of the roller screed.

[0018] It is yet another object of the present invention to provide a powered roller screed including a locking mechanism which prevents the roller screed from advancing down a slope.

[0019] It is yet another object of the present invention to provide a powered roller screed with winching cables that can be rapidly advanced.

[0020] These together with other objects of the present invention, along with the various features of novelty which characterize the present invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the present invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated a preferred embodiment of the present invention.

[0021] Before explaining the preferred embodiment of the present invention in detail, it is to be understood that the present invention is not limited in its application to the details of construction, to the arrangements of the components set forth in the following description or illustrated in the drawings, or to the methods described therein. The present invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[0022] There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and that will form the subject matter of the invention.

[0023] As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

[0024] Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the present invention in any way.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. **1** is a perspective view of a portion of a preferred embodiment of the present invention, illustrating the frame, screed tube power means, without the attached winching means.

[0026] FIG. **2** is a side view of a preferred embodiment of the present invention.

[0027] FIG. **3** is a fragmentary rear view of a preferred embodiment of the present invention.

[0028] FIG. **4** is a fragmentary front view of a preferred embodiment of the present invention.

[0029] FIG. **5** is a fragmentary bottom view of the frame of a preferred embodiment of the angular adjustment means of the present invention, showing the cable sheave in a first position.

[0030] FIG. **6** is a fragmentary bottom view of the frame of a preferred embodiment of the angular adjustment means of the present invention, showing the cable sheave in a second position.

[0031] FIG. **7** is a fragmentary top view of a preferred embodiment of the present invention, showing the winching means and locking means positioning during the screeding operations.

[0032] FIG. **8** is a fragmentary top view of a preferred embodiment of the present invention, showing the winching means and locking means positioning between screeding operations, allowing for substantially free spooling of the first drum and second drum and extension of the winch cables.

[0033] FIG. **9** is a side view of a winching means and second drum of a preferred embodiment of the present invention, showing the locking means positioning between screeding operations, allowing for substantially free spooling of the first drum and second drum and extension of the winch cables.

[0034] FIG. **10** is a side view of a second drum of a preferred embodiment of the present invention, showing the locking means positioning during the screeding operations.

[0035] FIG. **11** is a side view of a first drum of a preferred embodiment of the present invention, showing the locking means positioning during the screeding operations.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0036] While this present invention is susceptible of embodiments in many different forms, there are shown in the drawings and will be described in detail herein, a preferred embodiment, with like parts designated by like reference numerals and with the understanding that the present disclosure is to be considered as an exemplification of the principles of the present invention, and is not intended to limit the claims to the illustrated preferred embodiment.

[0037] As stated, a conventional method of making a concrete pad is to pour concrete onto a surface and between concrete forms. Viscous concrete is poured onto a floor, or ground surface, between two spaced-apart, longitudinal forms. The concrete is spread so that it substantially covers the floor surface and contacts the forms. It is then necessary to screed a top, or exposed, surface of the concrete.

[0038] As illustrated in the appended drawings, in FIG. **1** a preferred embodiment of a roller screed **10** of the present invention is shown located atop the forms **14** and includes a frame, generally designated by the numeral **50**, which includes a first side portion **56**, a second side portion **54**, and an intermediate lateral portion **52**. The frame portions may be constructed of hollow rectangular aluminum alloy tubing, although it should be readily understood by those skilled in the art that frame portions having various sizes, lengths, shapes and materials of constriction may be substituted. Preferably, support members **60** and **62** are attached between the

first side portion **56** the intermediate lateral portion **52** and the a second side portion **54** and the intermediate lateral portion **52**, respectively.

[0039] In one aspect of the invention, the roller screed **10** includes two screed tube power means **30** and two associated generally parallel, laterally spaced tubular screed tubes **20**. Each screed tube power means **30** is mounted inside a generally rectangular, open-ended screed tube power housing **37** via a bolt **36** or other suitable fastener means. One of the screed tube power means **30** is attached to the first side portion **56** and the other screed tube power means **30** is attached to the second side portion **54** of the frame **50** in opposing alignment. Each screed tube power means **30** defines a first opening **32** and a second opening **33** on opposite ends thereof. Each screed tube power housing **37** includes a generally rectangular arm **28** that extends laterally outwardly from the first opening **33** of the screed tube power housing **37** and contains a plate **27** which extends downwardly from the arm **28**. Each arm **28** includes a thrust bearing (not shown) fixedly coupled to the respective plate **27** which receives therethrough and axially supports an axle **26** of a dead end **24** of a respective screed tube **20**. The live end **22** and dead end **24** of each of the screed tubes **20** is sealed. Each screed tube power means **30** extends through the first opening **32** of each screed tube power housing **37** and cooperatively engages and axially supports a live end **22** of a screed tube **20**. The screed tubes **20** are mounted for rotation about their longitudinal axes in generally horizontal, normal orientations.

[0040] In the preferred embodiment, each of the screed tube power means **30** is a variable speed reversible power drill, such as a heavy duty right angel drill commercially available from Makita USA Inc., of La Mirada, Calif., as Model No. DA4031, having the handle and front grip removed, operably connected to the live end **22** of a screed tube **20** via a universal joint **29** for rotatably and axially supporting the screed tube **20**, although it should be readily understood by those skilled in the art that other power means may be employed without departing from the scope of the invention. Preferably, the screed tube power means **30** are coupled to a power supply (not shown) via power cords **34** and **39**. A three-position switch **130** is connected to each screed tube power means **30** and oriented on the first side portion **56** of the frame **50**, a first position effecting a first spinning direction of each screed tube **20**, a second position effecting no spinning, and the third position effecting a second spinning direction of each screed tube **20**. In operation, the screed tube power means **30** are selectively operated at the same or different variable speeds for effecting rotation of both of said screed tubes **20**.

[0041] In another aspect of the invention, as shown in FIGS. **2-4**, the roller screed **10** has two winching cables **64** and **66** cooperatively engaged with a winching means, generally designated by the numeral **80**, and directed around guide pulleys **42** mounted on the frame **50** proximate opposite ends of the screed tubes **20** to removable attachment with suitable deadman structures **46**. The screed tubes **20** rest on top of and span across forms **14** and advance down the length of the forms **14** over the freshly poured concrete by operation of a winch power means, generally designated by the numeral **70**, which operates the winching means **80** that cooperatively engages the winching cables **64** and **66**.

[0042] Preferably, the winching means **80** includes a worm gear dual drum body **87** mounted in a winch housing **81** having center plates **118** and end plates **83** and **85** defining a first drum **82** and a second drum **84**, respectively, and the winching power means **70** is a variable speed reversible power drill having a drill chuck **102**, such as a heavy duty right angel drill commercially available from Dewalt Industrial Tool Co. of Baltimore Md., as Model No. DWD 460, engaging the winching means **80**, although it should be readily understood by those skilled in the art that other power means may be employed without departing from the scope of the invention. The first drum **82** and second drum **84** are rotatably and axially mounted on a shaft **98** extending through the ends of the first end **93** and the second end **91** of the winch housing **81**. In a preferred embodiment of the invention, winching power means **70** may selectively rest upon a drill rest **72** which is an elongated bar which extends generally vertically upwardly from the winch housing **81** and generally laterally to form a concave support. The winching means **80** includes a worm gear **88** having a drill chuck engagement portion **106** and being mounted on the winch housing **81** and a drum gear **86** fixedly attached to the first end **83** of the first drum **82** and positioned in meshing engagement with the worm gear **88**, whereby upon actuation of the winching power means **70**, said worm gear **88** rotates and meshingly engages with said drum gear **86** thereby causing the drum gear **86**, and hence the connected first drum **82** and second drum **84** to spin. Preferably, the winching power means **70** is coupled to a power supply (not shown) via a power cord **71**. The winching power means **70** are operatively connected to the winching means **80** for effecting simultaneously advancement of both of sides of the roller screed **10** along the forms **14** at selectively variable speeds.

[0043] Although the operation of the machine described above will be apparent to those skilled in the art, a brief discussion of the operation will be given for convenience. In operation, the winching means **80** advances the roller screed **10** along the forms **14** and the screed tube power means **30** cooperatively engage and axially spin each of the screed tubes **20** in a direction opposite a direction of travel of the roller screed **10** to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the roller screed **10** advances along the forms. It may be desirable to make additional passes over the concrete to achieve the desired finish.

[0044] In another aspect of the invention, as shown in FIGS. **5** & **6**, the roller screed **10** includes an angular adjustment means, generally designated by the numeral **140**. In the preferred embodiment, the angular adjustment means **140** includes a cable sheave **144** cooperatively attached to a threaded nut (not shown) which is slidingly mounted on the bottom **53** of the intermediate lateral portion **52** of the frame **50**. The cable sheave **144** is translated along a channel **148** in the bottom **53** of the intermediate lateral portion **52** of the frame **50** when an associated sheave power means **148** rotates a threaded shaft **149** mounted in the frame **50** which passes through the threaded nut (not shown). Preferably, sheave power means **158** is a battery-operated, variable speed reversible power drill, such as that commercially available from Dewalt Industrial Tool Co. of Baltimore Md., as Model No. DCD780C2, engaging the end **147** threaded shaft **149**, although it should be readily understood by those skilled in the art that other power means may be employed without departing from the scope of the invention. The winching cable **64** associated with the second side portion **54** of the frame **50** is connected on one end to a deadman structure **46** and directed through a pulley guide **42** mounted on the second side portion **54** of the frame **50** and around pulley guide **141**

mounted on the first side portion **56** of the frame **50** and around the cable sheave **144** and around pulley guide **142** mounted on the first side portion **56** of the frame **50** and connected to the winching means **80**. The translation of the cable sheave **144** effectively lengthens or shortens winching cable **64** to advance one end of the frame **50** faster or slower than the other end of the frame **50**, facilitating movement of the roller screed **10** around curved portions of concrete paving and allowing for angular adjustment of the roller screed **10** for differences that might exist in the winching cables **64** and winching means **80**.

[0045] In another aspect of the invention, as shown in FIGS. **7-11**, the winching means **80** has locking means **100** for selectively maintaining the worm gear **88** and drum gear **86** in cooperative engagement. The locking means **100** includes a generally planar member **103** pivotally attached to the winch housing **81** proximate the worm gear **88** via a hinge **104** and a generally L-shaped member **112** pivotally attached to the winch housing **81** proximate the end plates **85** of the second drum **84** via a hinge **110**.

[0046] As shown in FIGS. **7**, **10** & **11**, during screeding operations, the locking means **100** are oriented in a first position to maintain the worm gear **88** and drum gear **86** in meshing engagement to prevent the roller screed **12** from advancing down a slope. A thumb screw **92** is selectively positioned to extend through the second end **91** of the winch housing **81** to retain the L-shaped member **112** in the first position.

[0047] As shown in FIGS. **8** & **9**, the locking means **100** are rotated into a second position to allow the worm gear **88** and drum gear **86** to be disengaged allowing for substantially free spooling of the first drum **82** and second drum **84** and extension of the winch cables **64** and **66** between screeding operations.

[0048] In another aspect of the invention, the present invention roller screed may be maneuvered manually by a handle **150** located on the first side portion **56** of the frame **50**. In particular, the handle **150** allows the operator to translate the roller screed **10** generally perpendicularly to the direction of travel of the roller screed **10**.

[0049] In another aspect of invention, screed tubes **20** and intermediate lateral portion **52** of the frame **50** may be replaced with screed tubes **20** and intermediate lateral portion **52** of different lengths to change the width of the roller screed **10**.

[0050] In operation, the screed tubes **20** generally rest on top of and span across forms **14** and advance down the length of the forms **14** over the freshly poured concrete by operation of a winch power means, generally designated by the numeral **70**, which operates the winching means **80** that cooperatively engages the winching cables **64** and **66**. However, the screed tubes **20** may alternatively rest on top of previously existing concrete or other generally rigid structure on one or both sides of the floor surface which is being poured.

[0051] Hence, while the invention has been described in connection with preferred embodiments, it will be understood that it is not intended that the invention be limited to those embodiments. On the contrary, it is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as disclosed.

[0052] As to the manner of usage and operation of the instant invention, same should be apparent from the above disclosure, and accordingly no further discussion relevant to the manner of usage and operation of the instant invention shall be provided.

[0053] With respect to the above description then, it is to be realized that the optimum proportions for the elements of the invention, and variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships described in the specification are intended to be encompassed by the present invention.

[0054] Therefore, the foregoing is considered illustrative of only the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact method, construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed is:

1. A roller screed, comprising:

a) a frame, said frame having a first side portion, a second side portion, and an intermediate lateral portion;

b) two generally parallel, laterally spaced tubular screed tubes, each screed tube having an axle, a live end, and a dead end;

c) two screed tube power means, one of said screed tube power means being attached to said first side portion and one of said screed tube power means being attached to said second side portion in opposing alignment;

d) said first side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

e) said second side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes; and

f) each of said screed tube power means rotationally engaging and axially supporting a live end of each of said respective screed tubes and being selectively operable to spin each of said screed tubes in a direction opposite a direction of travel of said roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms.

2. The roller screed of claim **1**, wherein each of the screed tube power means comprises a variable speed reversible power drill operably connected to each of said live ends of each of said screed tubes.

3. The roller screed of claim **2** further comprising a three-position switch connected to each of said screed tube power means, said three-position switch having a first position effecting a first spinning direction of each of said screed tubes, a second position effecting no spinning, and a third position effecting a second spinning direction of each of said screed tubes.

4. The roller screed of claim **3** wherein said screed tube power means are selectively operated at the same or different variable speeds for effecting rotation of both of said screed tubes.

5. A roller screed, comprising:

a) a frame, said frame having a first side portion, a second side portion, and an intermediate lateral portion;

a) two generally parallel, laterally spaced tubular screed tubes, each screed tube having an axle, a live end, and a dead end;

b) two screed tube power means, one of said screed tube power means being attached to said first side portion and one of said screed tube power means being attached to said second side portion in opposing alignment;

c) said first side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

d) said second side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

e) each of said screed tube power means rotationally engaging and axially supporting a live end of each of said respective screed tubes and being selectively operable to spin each of said screed tubes in a direction opposite a direction of travel of said roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms; and

f) two winching cables and a winching means, each of said winching cables being cooperatively engaged with said winching means and removably attachable to deadman structures.

6. The roller screed of claim **5** wherein the winching means comprises a winch power means and an operably connectable worm gear dual drum having a worm gear and a drum gear, said worm gear dual drum defining a first drum and a second drum, said first drum being fixedly attached to said drum gear, and said worm gear being positioned in meshing engagement with said drum gear, whereby upon actuation of said winch power means said worm gear rotates thereby causing said drum gear and said first drum and said second drum to spin.

7. The roller screed of claim **6** wherein said winch power means comprises a variable speed reversible power drill engaging said worm gear dual drum for effecting simultaneously advancement of both of sides of said roller screed along forms at selectively variable speeds.

8. A roller screed, comprising:

a) a frame, said frame having a first side portion, a second side portion, and an intermediate lateral portion;

b) two generally parallel, laterally spaced tubular screed tubes, each screed tube having an axle, a live end, and a dead end;

c) two screed tube power means, one of said screed tube power means being attached to said first side portion and one of said screed tube power means being attached to said second side portion in opposing alignment;

d) said first side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

e) said second side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

f) each of said screed tube power means rotationally engaging and axially supporting a live end of each of said respective screed tubes and being selectively operable to spin each of said screed tubes in a direction opposite a direction of travel of said roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms;

g) two winching cables and a winching means, each of said winching cables being cooperatively engaged with said winching means and removably attachable to deadman structures; and

g) angular adjustment means.

9. The roller screed of claim **8** wherein said angular adjustment means comprises a cable sheave being translatable along said intermediate lateral portion of said frame and one of said winching cables being passed around said cable sheave, whereby translation of said cable sheave effectively lengthens or shortens said one of said winching cables to advance one end of said frame faster or slower than the other end of said frame, facilitating movement of said roller screed around curved portions of concrete paving and allowing for angular adjustment of said roller screed for differences that might exist in said winching cables and said winching means.

10. The roller screed of claim **6** wherein said winching means further comprises a locking means for selectively maintaining said worm gear and said drum gear in cooperative engagement.

11. The roller screed of claim **7** wherein said locking means may be disengaged, thereby allowing for substantially free spooling of said first drum and said second drum and extension of the winch cables.

12. The roller screed of claim **8** wherein said winching means further comprises a locking means for selectively maintaining said worm gear and said drum gear in cooperative engagement.

13. The roller screed of claim **8** wherein said locking means may be disengaged, thereby allowing for substantially free spooling of said first drum and said second drum and extension of the winch cables.

14. A roller screed, comprising:

a) a frame, said frame having a first side portion, a second side portion, and an intermediate lateral portion;

b) two generally parallel, laterally spaced tubular screed tubes, each screed tube having an axle, a live end, and a dead end;

c) two screed tube power means, one of said screed tube power means being attached to said first side portion and one of said screed tube power means being attached to said second side portion in opposing alignment;

d) said first side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

e) said second side portion rotationally engaging and axially supporting a dead end of one of said respective screed tubes;

f) each of said screed tube power means rotationally engaging and axially supporting a live end of each of said respective screed tubes and being selectively operable to spin each of said screed tubes in a direction opposite a direction of travel of said roller screed to provide a generally smooth finish to the surface of the concrete and to push excess concrete forward as the screed moves along the forms;

g) two winching cables and a winching means, each of said winching cables being cooperatively engaged with said winching means and removably attachable to deadman structures, said winching means comprising a locking means for selectively maintaining said worm gear and said drum gear in cooperative engagement or disengaging said locking means for substantially free spooling of said first drum and said second drum and extension of the winch cables; and

h) angular adjustment means; said angular adjustment means comprises a cable sheave being translatable along said intermediate lateral portion of said frame and one of said winching cables being passed around said cable sheave, whereby translation of said cable sheave effectively lengthens or shortens said one of said winching cables to advance one end of said frame faster or slower than the other end of said frame, facilitating movement of said roller screed around curved portions of concrete paving and allowing for angular adjustment of said roller screed for differences that might exist in said winching cables and said winching means.

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