United States Patent

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[54] **OSCILLATING POWER SCREED**
3 Claims, 4 Drawing Figs.

[52] U.S. Cl. 94/45
[51] Int. Cl. E01c 19/22
[50] Field of Search 94/45, 48

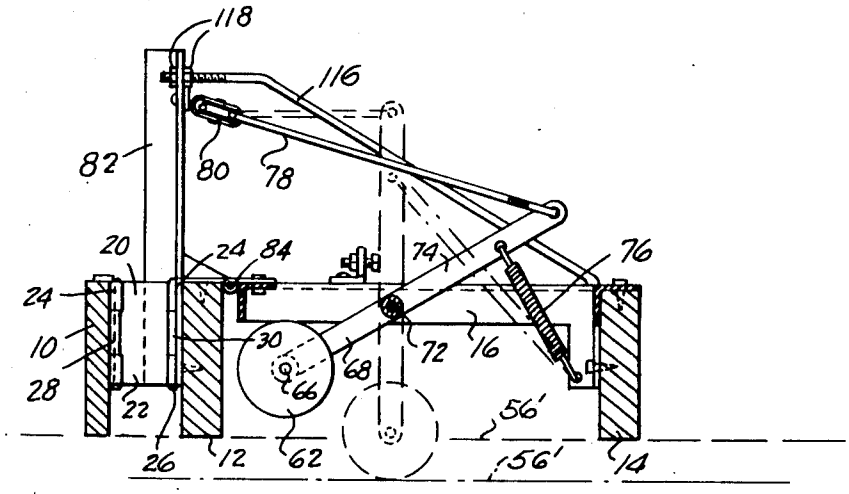
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ABSTRACT: An oscillating power screed comprising: a pair of parallel screeds secured together and spaced from each other by frame members adjacent each end of the screeds and by a central frame member; a lead screed parallel to said first-name screeds and hinged to one of said screeds by a plurality of hinges; power means on said central frame member; an eccentric driven by said power means and a connecting rod between said eccentric and said lead screed.



Patented Aug. 11, 1970 3,523,494

Sheet 1 of 2

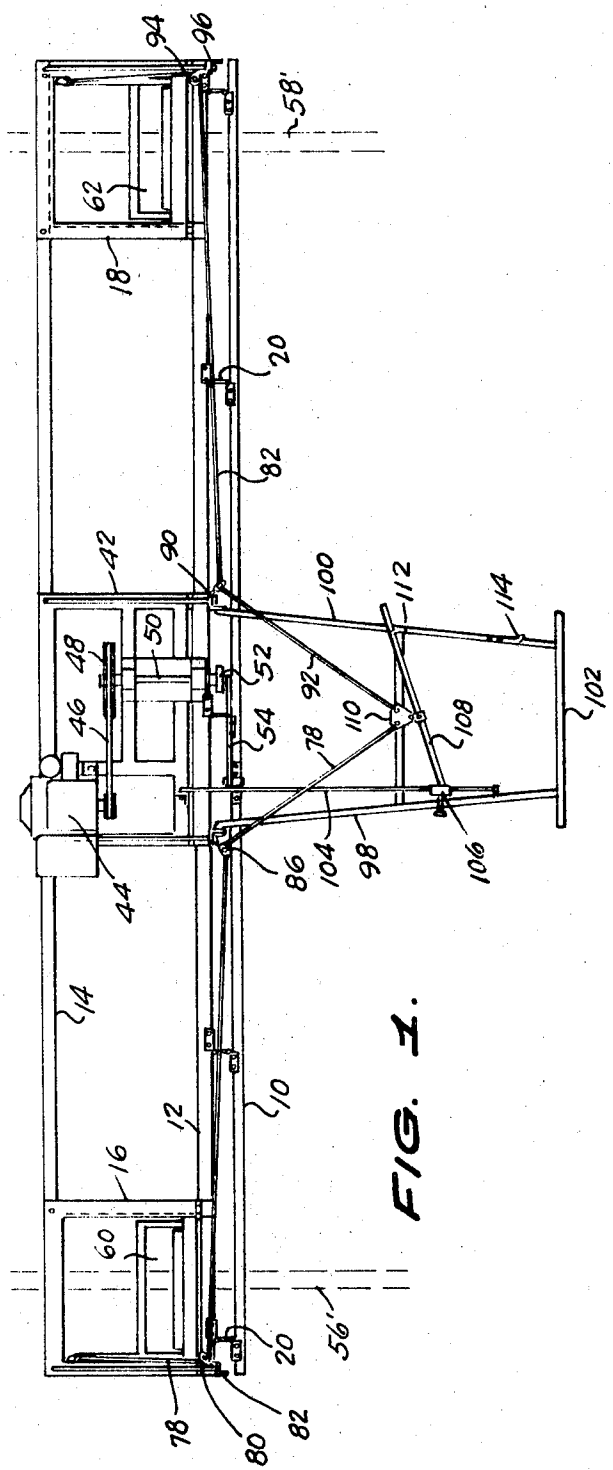


FIG. 1.

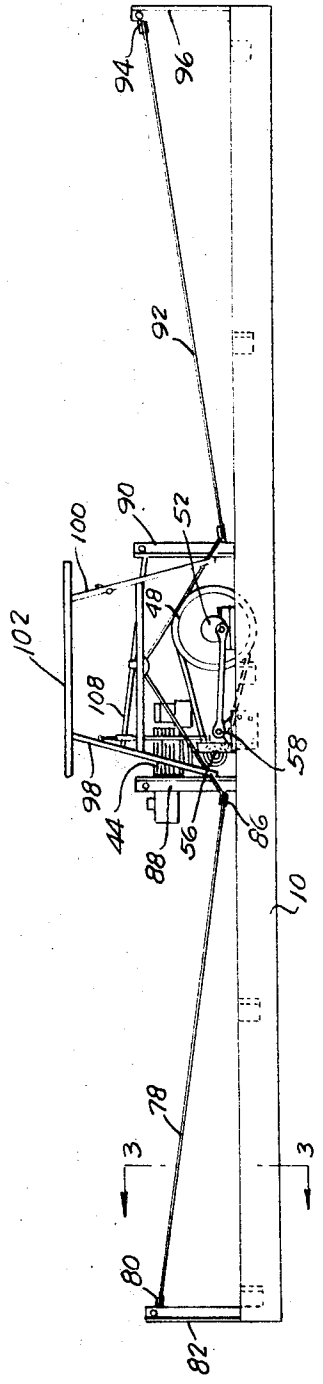


FIG. 2.

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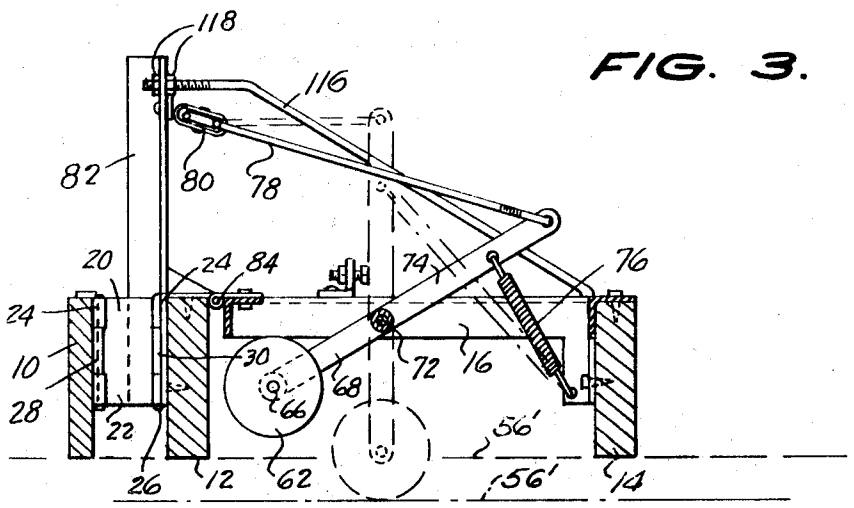


FIG. 3.

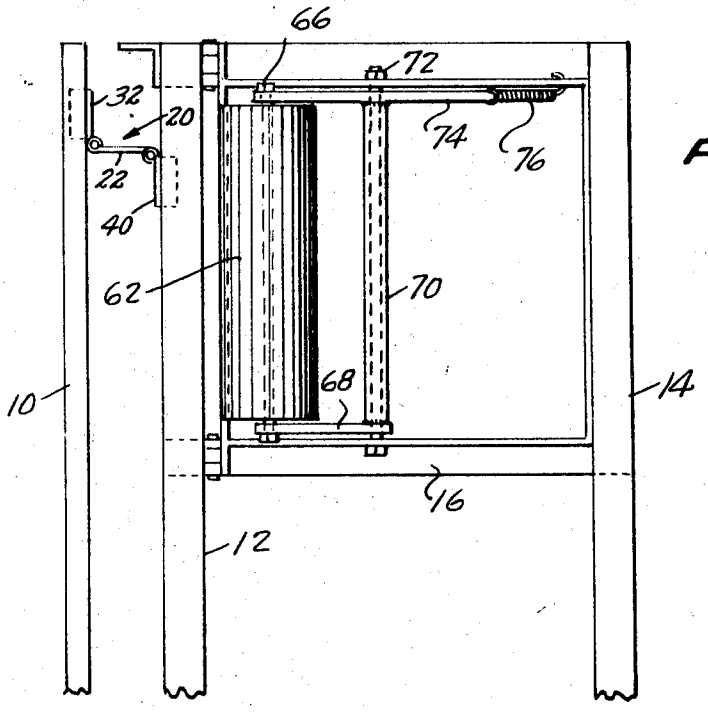


FIG. 4.

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OSCILLATING POWER SCREED

It is a primary object of this invention to provide a power screed operative over substantial widths of concrete but which is light enough to be controlled by one man and require a minimum degree of skill on the part of the operator.

It is a further object of this invention to provide a pair of fixed screeds preceded by an oscillating screed which, while at all times parallel to the fixed screed, nevertheless, performs orbital movement relative thereto.

It is a further object of this invention to provide in the screed as aforesaid means for balancing and rolling the screed as a whole on the edges of the sideboards defining the concrete slab to be smoothed.

The above and other objects will be made clear from the following detailed description taken in connection with the annexed drawings, in which:

FIGURE 1 is a top plan view of the improved screed;

FIGURE 2 is a front elevation of the improved screed;

FIGURE 3 is a section on the line **3-3** of **FIGURE** 2; and

FIGURE 4 is a bottom plan view of the parts shown in **FIGURE 3.**

Referring now to **FIGURE** 1, the machine is made up of a lead screed **10** mounted for oscillation, as will be hereinafter descibed. There is provided a secondary screed **12** and a final screed **14**. The screeds **12** and **14** preferably are simply 2" x 6" timbers extending the full length of the machine. The length of the machine, of course, corresponds roughly to the width of the slab to be finished and the travel of the machine is normal to the screeds **12** and **14**.

The screeds **12** and **14** are secured together in spaced relationship by end frames **16** and **18**. The lead screed **10** is secured to the secondary screed **12** by a series of hinge joints **20**. The hinge joints **20**, as best seen in **FIGURES** 3 and 4, comprise plates **22** which in their neutral position are normal to both the screeds **10** and **12**. At each end of a plate **22** is a steel loop **24** surrounding a pintle **26** which passes through loops **28** and **30**, respectively, formed in plates **32** and **40**. The plates **32** are secured to the lead screed **10** and the plates **40** are secured to the secondary screed **12**.

Approximately midway of the screeds **12** and **14** is mounted a frame **42** which further spaces and rigidifies the screeds **12** and **14**. A motor **44** is mounted on the frame **42** and through a belt **46** drives a pulley **48**. The pulley **48** is keyed to a shaft **50** which also has bearing in the frame **42**. At the opposite end of the shaft **50** is an eccentric **52** which engages and reciprocates a connecting rod **54**. At its opposite end the connecting rod **54** engages a pin **56** which by means of a bracket **58** is secured to the lead screed **10**. It will be apparent from **FIGURES** 3 and 4 and particularly **FIGURE** 4, that when the intermediate hinge plate deviates either side of a plane normal to the fixed screed **12**, the lead screed **10** will approach the screed **12** and then retreat from it until plate **22** resumes the neutral position. For this reason, it is best that both ends of the connecting rod have some sort of flexible, or ball and socket connection to their respective pins. In addition, the actual stroke can be adjusted by a simple adjustment of the eccentricity of the pin on the eccentric **52**.

It will be noted in **FIGURES** 1 and 2 that the screed as a whole slides on rails **56'** and **58'** which actually are boards defining the side edges of the slab or concrete to be finished. When it is desired to maneuver the machine as a whole, the following mechanism is resorted to.

Referring now to **FIGURES** 1, 3 and 4, there is mounted within the frame **16** a roller **60** and within the frame **18** a roller **62**. As shown in **FIGURES** 3 and 4, the roller **62** is rotatably mounted on an axle **66** which in turn is mounted on opposed levers **68**. The levers **68** are mutually joined by a sleeve **70** which bears on an axle **72** mounted in cross members of the frame **16**. One of the levers **68** has an extension **74** which extends beyond the axle **72** and has adjacent its free end a spring **76** connected to a portion of the frame **16** and tending to hold the roll well above the top edge of the sideboard or form **56**. The arrangement at the opposite end for roller **62** is precisely the same.

The free end of the lever extension **74** is connected to a cable **78** which passes around the pulley **80** secured to an upright **82**. The upright **82** is firmly secured to the secondary screed **12** which itself is hinged at **84** to the frame **16**. A precisely similar arrangement is provided at the frame **18**. The purpose of the hinge joint **84** will be explained hereinafter.

From the pulley **80**, the cable **78** runs to a pulley **86** secured to an upright **88** also secured to the secondary screed **12**. A similar upright **90** is similarly joined at the opposite side of the frame **42** to the screed **12** and receives a cable **92** from a pulley **94** mounted on an upright **96** adjacent the frame **18**.

A pair of bars **98** and **100** are respectively pivoted to the uprights **86** and **90** and at their free ends are joined by a cross bar **102** providing thereby a handle for general manipulation of the screed.

A rod **104** is pivoted in a cross member of the frame **42** and its free end carries a sleeve **106** in which is pivoted one end of a lever **108**. A fixture **110** is adjustably secured on the lever **108** and receives the free ends of cables **78** and **92**. In the position shown in **FIGURE** 1, the free end of the lever **108** is held by a clamp **112** mounted on the arm **100**. In this position, both of the rollers **60** and **62** are held in inactive position by a spring such as **76**, best shown in **FIGURE 3.** Two parallel dotted lines **56** are shown in **FIGURE 3.** The upper one corresponds to the solid line position of roller **62** and the lower one to the dotted line position. The lever **108** may be disengaged from the clamp **112** and pulled toward the handle **102** so as to engage an adjustably positioned clamp **114**, also on the member **100**, and in this position the extension **74** in **FIGURE** 3 will be drawn to its dotted line position and the roller **62** (and, of course, simultaneously the roller **60**) will arrive at their dotted line positions bearing on the sideboards **56** and **58** and lifting the screed as a whole out of contact with the concrete lying between boards **56'** and **58'**.

Choke and throttle controls for the motor **44** may be mounted conveniently on either of the members **98** or **100** and it is not deemed necessary to show these in this disclosure.

In practice, it is preferred that the leading edge of the screed **10** be vertically spaced from a sixteenth to a thirty-second of an inch above the bottom surface of the secondary screed **12** and this adjustment is accomplished as follows.

Referring to **FIGURE** 3, it will be recalled that the vertical member **82** is firmly joined to the secondary screed **12** and that the secondary screed **12** is hinged as at **84** to the frames **16** and **18** and, if desired, also to the frame **42**. A tie rod **116** at one end is firmly engaged with the frame **16** and at the other end adjustably engaged with uprights **82** and **94** by means of nuts **118**. When the right-hand nut **118** in **FIGURE** 3 is backed off and the opposite nut advanced, both screeds **10** and **12** are tilted about the axis of hinge **84** with the result that the screed **10** is elevated slightly higher than the screed **12**, thus accomplishing the adjustment aforesaid.

In practice, the sideboards **56** and **58** may be anywhere from five to twenty feet apart but by having on hand a supply of screed boards **10**, **12** and **14**, it is a simple matter to choose the proper length of board and to place thereon in the relationship shown in **FIGURES** 1 and 2, the frames **16**, **18** and **42**, then with the installation of the proper hinges **20**, the device is ready for operation at the optimum width. It is to be noted that the 2" x 6" boards preferred for screeds **12** and **14** and the 1" x 6" board preferred for lead screed **10** are completely standard and may be obtained with no difficulty in any length from any lumber yard.

While various specific details have been disclosed herein, quite obviously many variations on the precise structure shown will suggest themselves to anyone studying this application. It is not, therfore, intended to limit the invention to the precise details disclosed.

I claim:

1. An oscillating power screed comprising: a pair of parallel screeds secured together and spaced from each other by frame members adjacent each end of the screeds and by a central frame member; a lead screed parallel to said first-named

screeds and hinged to one of said screeds by a plurality of hinges; power means on said central frame member; an eccentric driven by said power means; a connecting rod between said eccentric and said lead screed; said lead screed and the screed to which it is hinged having hinged connection with said frame members, and means to adjust said screeds about said hinged connections.

2. A screed as set forth in Claim 1 including a screed supporting roller mounted in each of said end frames and in which each of said rollers is normally biased to inactive position.

3. A screed as set forth in Claim 2, including control members connected to said central frame and a handle member connecting said control members; and means mounted on said control members for bringing said rollers into active position.