Nov. 14, 1939. C. H. DRIVER 2,180,039

FLOOR-SANDING MACHINE

Filed Feb. 16, 1938 2 Sheets-Sheet 1

FIG. 1.

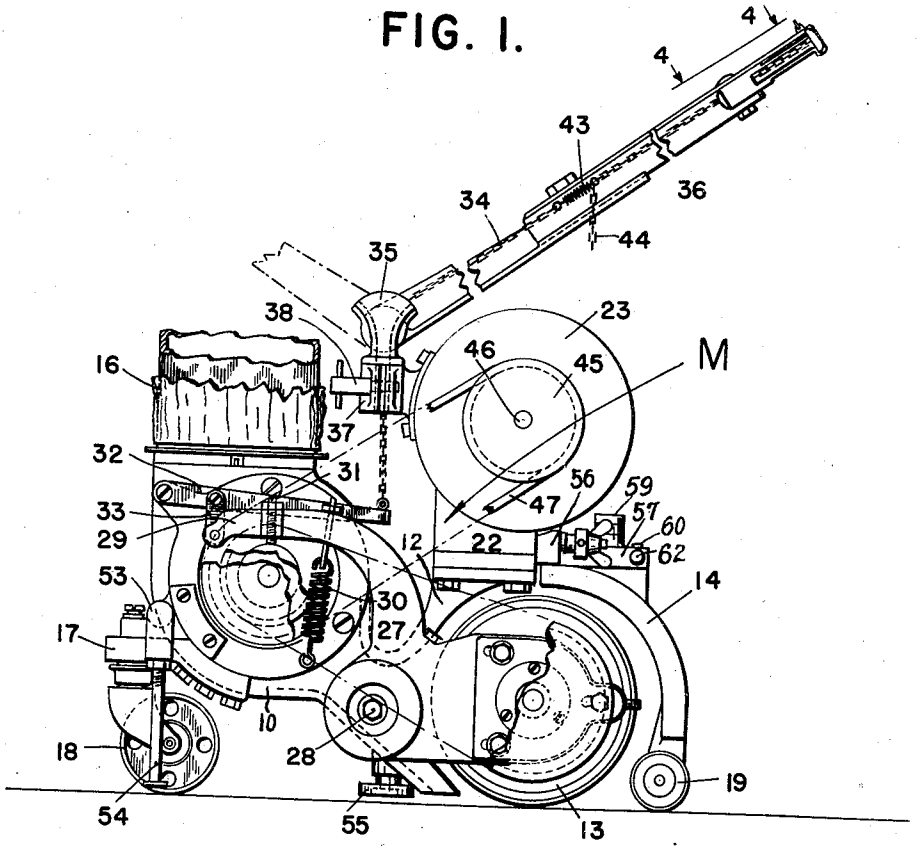
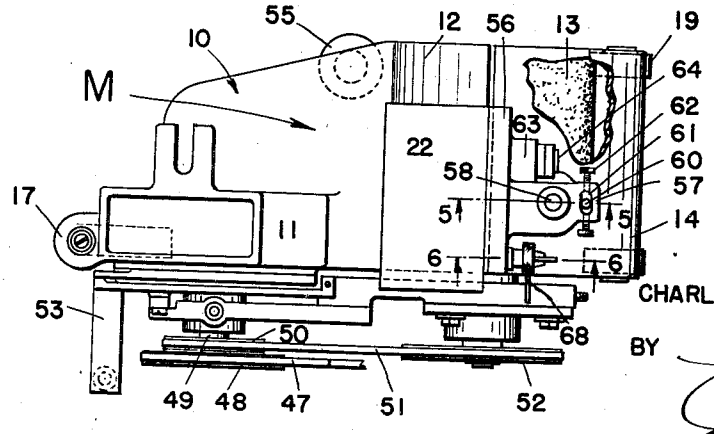


FIG. 2.



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FIG. 5.

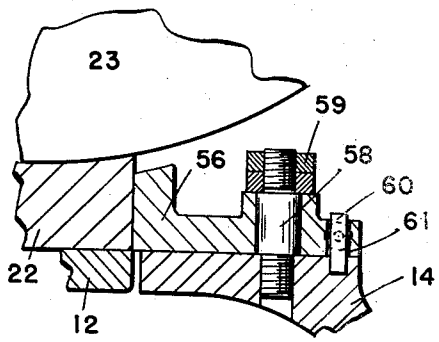


FIG. 4.

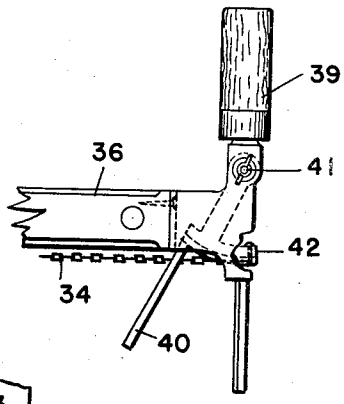


FIG. 3.

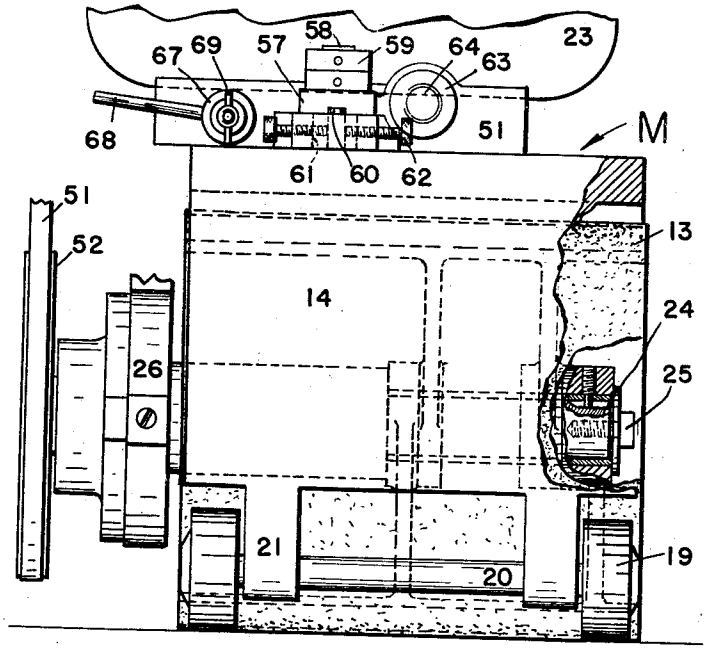


FIG. 7.

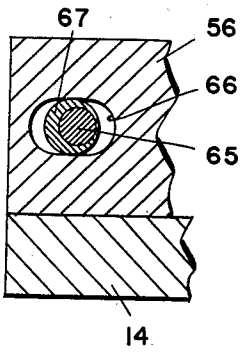


FIG. 6.

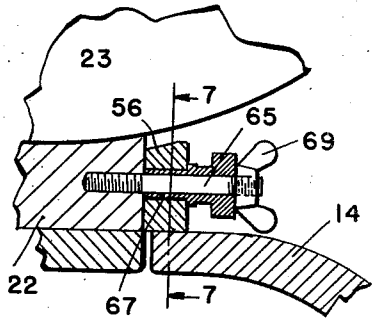
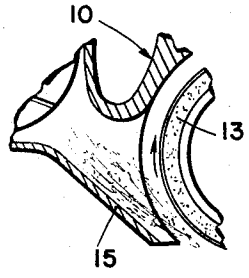


FIG. 8.



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Patented Nov. 14, 1939 2,180,039

UNITED STATES PATENT OFFICE

2,180,039

FLOOR-SANDING MACHINE

Charles H. Driver, Racine, Wis.

Application February 16, 1938, Serial No. 190,681

3 Claims. (Cl. 51—176)

This invention appertains to floor finishing machines, and more particularly to a novel floor sander.

One of the primary objects of my invention is to provide a floor sanding machine embodying a novel wheeled supporting frame, and a power driven sanding drum carried thereby, with novel means for arranging the wheels relative to the drum, whereby the machine will effectively follow inequalities in the floor without undue sanding of high spots in the floor.

Another salient object of my invention is to provide a floor sander embodying a frame having a front guiding caster wheel and a pair of supporting wheels disposed in rear of the sanding drum and within the ends of the drum, whereby said supporting wheels will follow in the path of the floor sanded by the drum and keep the drum in line with the floor surface.

A further object of my invention is the provision of novel means for mounting the hood carrying the rear pair of wheels on the frame, whereby the hood with the wheels can be swung angularly on a horizontal pivot, so as to tilt the hood up or down to the right or left, and whereby the hood can be swung on a vertical pivot, so as to guide the machine to the right or left, and automatically guide and hold the machine close to the floor or splash-board during sanding of the surface adjacent to said splash-board.

A further salient object of my invention is to provide a floor-sanding machine having a three-point wheeled contact with the floor, so that the machine will tilt from one side to the other to follow uneven floors.

A still further object of my invention is to provide means under control of the operator for moving the drum toward or away from the floor at a desired setting for free cutting, whereby the drum can be forced down to sand low spots in the floor.

A still further salient object of my invention is to provide a novel manipulating handle for the floor sander, which is so mounted on the frame that the same can be swung at any angle relative to the frame, whereby the sander can be easily operated from the side when the sander is being actuated close to the floor splash-board, and whereby the handle can be swung to the front or the rear of the machine, so that the machine can be operated from either end.

A still further object of my invention is the provision of a novel drive for the sanding drum and the suction fan, the inlet for the fan being disposed adjacent the drum for effectively receiving all of the dust from the drum and floor.

A still further object of my invention is to provide an improved floor-sanding machine of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a side elevation of my improved machine, the dust bag being shown broken away and in section.

Figure 2 is a top plan view of the floor sander, with the motor and dust bag removed, parts of the machine being shown broken away and in section.

Figure 3 is an enlarged, fragmentary, rear elevational view of the machine, with parts thereof broken away and in section.

Figure 4 is a fragmentary, top plan view of the outer end of the manipulating handle, illustrating the hand grip employed for lowering the sanding drum.

Figure 5 is an enlarged, fragmentary, detail vertical section taken on the line 5—5 of Figure 2, looking in the direction of the arrows, illustrating the vertical pivot for the movable section of the hood, with the means for adjusting the hood on said pivot.

Figure 6 is an enlarged, fragmentary, detail vertical section taken on the line 6—6 of Figure 2, looking in the direction of the arrows, illustrating the means for adjusting the hood section on its horizontal pivot.

Figure 7 is an enlarged, fragmentary, detail sectional view taken on the line 7—7 of Figure 6, looking in the direction of the arrows, illustrating the means employed for adjusting the hood on its horizontal pivot.

Figure 8 is a fragmentary, detail, vertical sectional view illustrating the suction intake opening.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter M generally indicates my improved floor-sanding machine, which includes a frame 10 on which the various parts are mounted.

This frame 10 is preferably formed from a single casting, and is so constructed as to form the

suction fan housing 11 and a part of the hood 12 for the sanding drum 13. The rear part 14 of the hood for the drum is made separate from the frame casting and is mounted thereon in a novel manner, as will be more specifically set forth. By referring to Figure 8, it will be noted that the inlet to the suction fan extends longitudinally of the drum and opens out adjacent the lower surface thereof, as at 15. The outlet for the suction fan supports any preferred type of dust bag 16, and the dust bag can be secured to the fan outlet in any desired manner.

Mounted on the front of the machine adjacent its longitudinal axis is a caster wheel bracket 17, and this bracket supports the caster wheel 18, which is free to turn in any direction. The bracket 17 has been shown secured to the casting by means of detachable fastening elements, but it is to be understood that this bracket can be formed integral with the frame casting, if such is preferred.

The lower outer corners of the adjustable hood section 14 have mounted thereon supporting wheels 19, and these wheels can be carried by a transversely extending axle 20 mounted in the bearing lugs 21 formed integral with the hood part 14. Particular attention is directed to the fact that the supporting wheels 19 are normally arranged parallel with the axis of the drum 13, and are within the ends of the drum, so that these wheels will ride on the floor surface that has already been sanded. This is important, in that the wheels 19 will hold the drum in line with the floor surface.

Carried by the stationary hood part 12 is a bed block 22 for the electric drive motor 23. This bed block 22 can be detachably secured to the frame casing, as shown, or the bed block can be formed integral with the casting. Any desired type of fastening elements can be utilized for securely bolting the electric motor 23 on its bed. The weight of the motor is so designed that the same will be directly above the floor-sanding drum, and thus the motor itself tends to hold the machine on the floor.

The construction and formation of the sanding drum 13 forms the subject matter of my copending application filed February 16, 1938, Serial No. 190,682, and thus this sanding drum will not be described in detail. However, the drum is freely removable from its arbor 24 and can be held thereon by means of a bolt 25. By making the drum removable, different types of sanding and other drums can be associated with the machine for operating on different types of floors, and a polishing brush, or other materials, can be substituted for the drum.

The arbor 24 is rotatably mounted in a suitable bearing 26 carried by the rear end of a substantially bell crank-shaped lever 27. This lever 27 is rockably mounted at its angle on a supporting shaft or bolt 28 carried by the frame 10, and this lever includes an upwardly and forwardly extending arm 29 which is adapted to be operated for moving the drum up and down. A tension coil spring 30 has its opposite ends connected respectively to the arm 29 and to the frame 10, and this spring normally functions to lift the sanding drum off the floor surface. Upward movement of the drum is limited, however, by means of an adjustable stop 31 carried by the arm 29, which stop is adapted to engage a part of the frame casting 10, as can be seen by referring to Figure 1 of the drawings.

Rockably mounted at its forward end on the frame casting 10 is a manipulating lever 32, and this lever is connected by means of a link 33 with the arm 29. The rear end of the lever 32 has connected thereto a pull chain or cable, and this pull chain or cable extends through the spindle 35, which supports the handle 36.

The handle 36 is rockably mounted on a horizontal pivot on said spindle, whereby the handle can be swung over the front or the rear of the machine, so that the machine can be operated from either end. This spindle 35 is received in a split socket 37 secured to the casing of the electric motor 23, and thus the spindle and the handle 36 can be swung to different angular positions on the socket, whereby the machine can be easily operated from either side thereof.

The spindle can be securely held in an adjusted position on the socket by means of a tightening bolt 38, which extends through ears carried by the split portions of the socket.

The outer end of the handle 36 carries hand grips 39, and an operating lever 40 is rockably mounted, as at 41, on the handle adjacent one of said hand grips. The upper end of the pull chain 34 is secured to the operating lever 40, as at 42, and by manipulating the lever, the chain can be tightened for pulling up on the lever 32, which will in turn lift up on the arm 29 and swing the drum down. The lever 40 can be easily operated by the fingers of one hand of the operator during the pulling or pushing of the machine. If preferred, a coil spring 43 can be interposed in the length of the chain 34, and when it is not desired to use this spring, a loose part 44 of the chain can be hooked around the spring.

Referring to the operating mechanism for the machine, it will be noted that a pulley wheel 45 is secured to the armature shaft 46 of the motor, and this pulley wheel has trained thereabout a pulley belt 47, which leads over a pulley wheel 48 keyed or otherwise secured to the suction fan shaft 49. This shaft 49 also has keyed or otherwise secured thereto a drive pulley wheel 50, around which is trained a pulley belt 51. This pulley belt 51 is in turn trained about a pulley wheel 52 keyed or otherwise secured to the arbor 24 of the sanding drum. As illustrated, means can be provided for taking up any slack in the pulley belt 51.

From the description so far, it can be seen that the machine has a three-wheeled point contact with the floor, which allows the machine to be effectively moved over inequalities in the floor, and the machine automatically tilts from one side to the other to conform to irregularities in the floor.

In order to prevent the machine from tilting too far over, one side thereof is provided with a laterally extending socket 53 adjacent the caster wheel 18, and this socket has adjustably mounted therein a depending leg 54 for contact with the floor. The other side of the machine adjacent the rigid hood section 12 carries a depending foot 55 for engaging the floor. This foot 55 is in the nature of a roller and is rotatably mounted on a vertical pivot. By referring to Figure 2, it can be seen that this roller extends beyond the edge of the frame, and thus this roller will contact with the floor splash-board for effectively guiding the machine along the splash-board.

Referring to the adjustable hood section 14 which carries the pair of rear supporting wheels 19, it will be noted that the inner edge of the hood has mounted thereon a plate 56. This plate

56 has formed thereon a forwardly extending boss 57, which forms a bearing for a vertical pivot 58 carried by the hood section 14. Downward movement of the pivot through the bearing is prevented by suitable nuts 59 on said pivot contacting with the boss.

To bring about adjustment of the hood section 14 on the bearing, the hood section carries an upwardly extending pin 60, which is received in a slot 61 in the boss. The opposite sides of the boss have threaded therein adjustable thumb screws 62 for engaging the opposite sides of the pin 61. Obviously, by tightening and loosening the thumb screws 62, the hood can be swung on its vertical axis. This adjustment will act to guide the machine to one side or the other, and thus the machine can be automatically held close against a floor splash-board during the sanding of a floor surface adjacent the splash-board.

The plate 56, which carries the boss 57, has formed thereon a horizontally disposed bearing 63, which receives a horizontally disposed pivot shaft 64 carried by the bed 22 for the motor 23. By this arrangement the hood can be rocked on a horizontal axis, so that the hood can be held at an angle and thus conform to floor inclinations.

The means for adjusting the hood on its horizontal pivot includes a stationary bolt 65 carried by the motor bed 22. This bolt extends through a slot 66 formed in the plate 56 of the hood section 14. Rotatably mounted upon the bolt 65 is a cam 67, which operates in said slot 66. The cam can be provided with a manipulating handle 68. By turning the cam on the bolt the high point thereof can be moved into engagement with either the upper or lower wall of the slot 66, and thus bring about the tilting of the hood section 14 on said horizontal pivot. The cam 67 is confined on the bolt by the use of a suitable thumb nut 69 threaded on the outer end of the bolt.

From the foregoing description it can be seen that I have provided an exceptionally simple and durable form of sander, which will be easy to operate, and which will follow inequalities in a floor surface.

Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is:

1. A sanding machine comprising, a frame, a hood on said frame, a front wheeled support for the frame, a rear wheeled support for the frame, a drum in said hood, a drive motor on the frame for rotating the drum, a bell-crank-shaped lever rockably mounted at its angle on the frame having a bearing at its rear end for supporting the drum, a pivoted operating lever rockably mounted at its forward end on the frame, a link connecting the operating lever with the rear end of the bell-crank lever, spring means engaging the bell-crank lever for normally holding the drum in an elevated position, a manipulating handle pivotally connected with the frame above the outer end of the operating lever, a pivoted control lever on the outer end of the handle, and a pull chain extending longitudinally of the handle operatively connecting the control lever with the outer end of the pivoted operating lever.

2. A floor-sanding machine comprising, a frame, a caster wheel carried by the front of the frame, a hood section formed on the rear part of the frame, an adjustable hood section mounted on the first hood section, a pair of rear supporting wheels on the adjustable hood section, a drum in said hood, means for operating the drum, and means for adjusting the adjustable hood section in a vertical axis and a horizontal axis.

3. A floor-sanding machine comprising, a frame, a front caster wheel on the frame, a hood section rigidly mounted on the rear end of the frame, an adjustable hood section, a pair of supporting wheels on the adjustable hood section, means for rotating the drum, said adjustable hood section having a horizontal pivot and a vertical pivot, means for adjusting the hood on the vertical pivot, and independent means for adjusting the hood on the horizontal pivot.

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