April 27, 1948. O. E. HADWIGER 2,440,440

EDGE SANDING MACHINE

Filed April 29, 1946 3 Sheets-Sheet 1

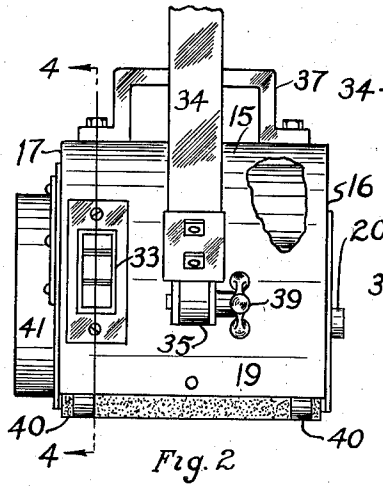


Fig. 2

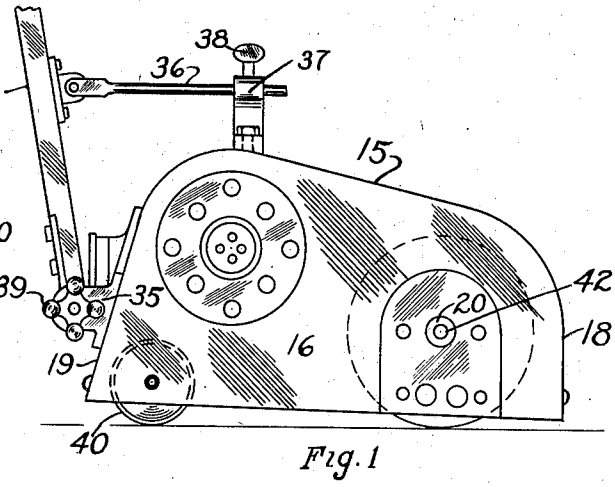


Fig. 1

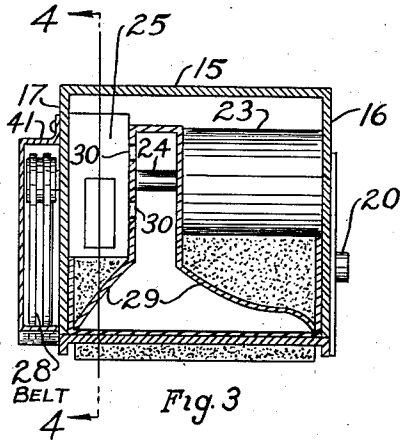


Fig. 3

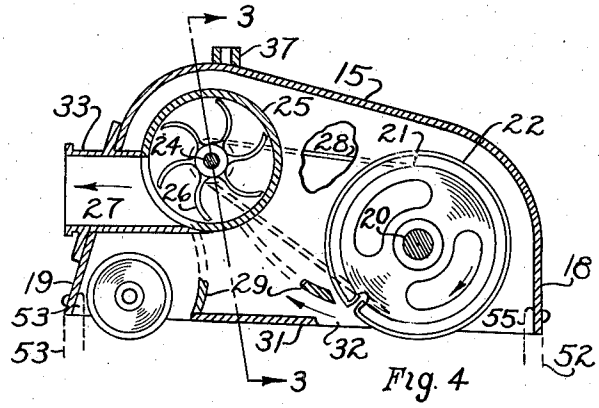


Fig. 4

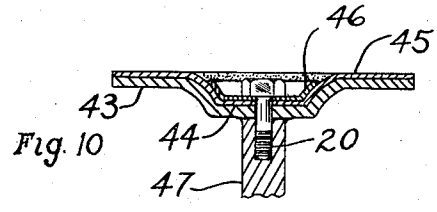


Fig. 10

SECTION THROUGH SANDING DISK.

OSCAR E. HADWIGER INVENTOR.

BY Martin E Anderson

ATTORNEY

April 27, 1948. O. E. HADWIGER 2,440,440

EDGE SANDING MACHINE

Filed April 29, 1946 3 Sheets-Sheet 2

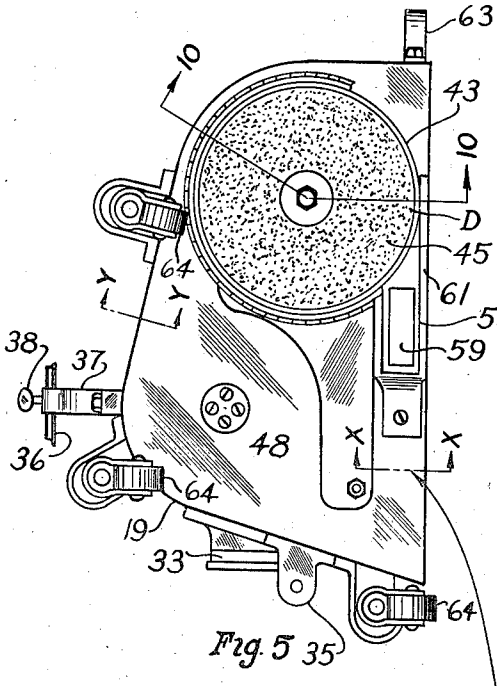


Fig. 5

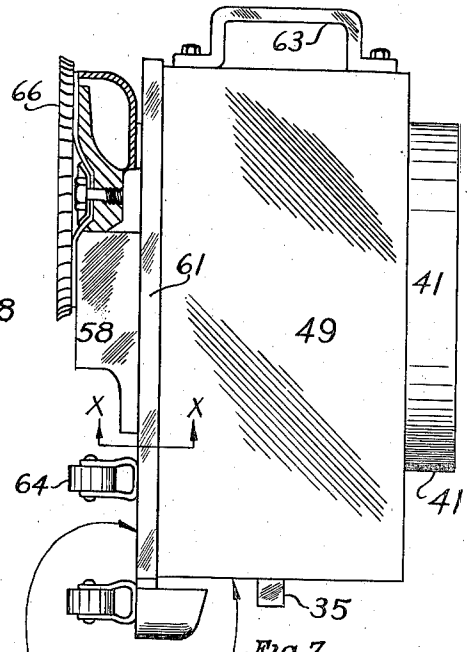


Fig. 7

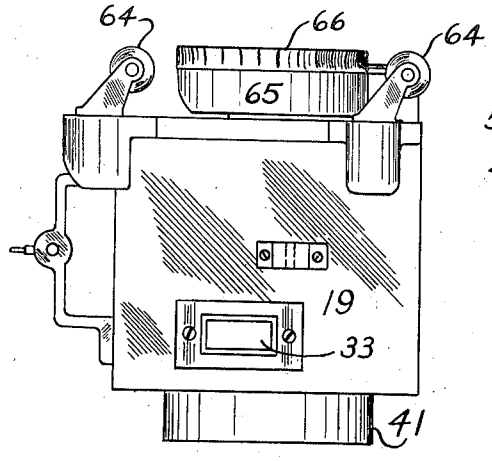


Fig. 6

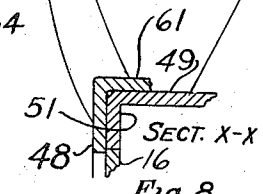


Fig. 8

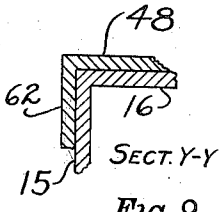


Fig. 9.

OSCAR E. HADWIGER INVENTOR.

BY Martin & Anderson

ATTORNEY

April 27, 1948. O. E. HADWIGER 2,440,440

EDGE SANDING MACHINE

Filed April 29, 1946 3 Sheets-Sheet 3

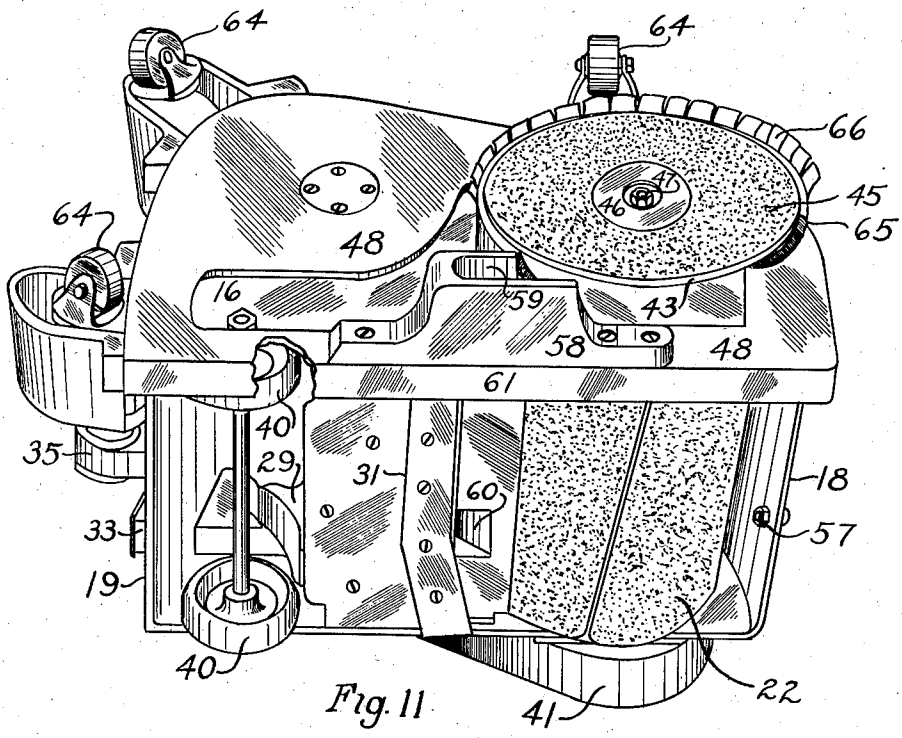


Fig. 11

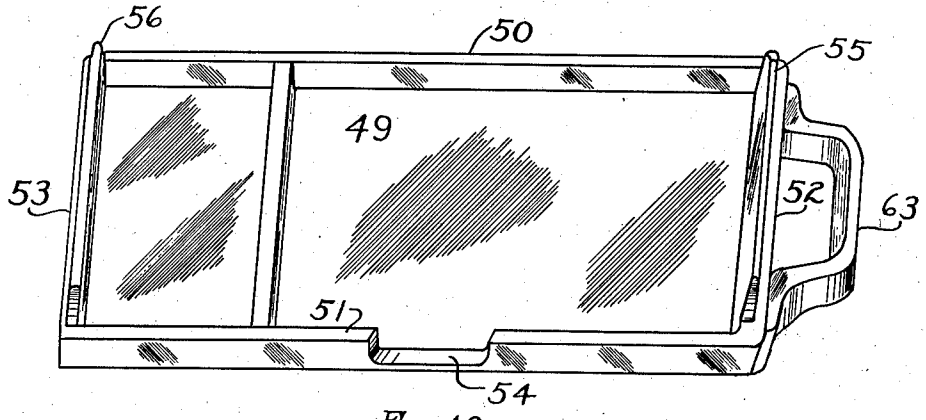


Fig. 12

OSCAR E. HADWIGER INVENTOR.

BY

Martin & Anderson

ATTORNEY

Patented Apr. 27, 1948

2,440,440

UNITED STATES PATENT OFFICE

2,440,440

EDGE SANDING MACHINE

Oscar E. Hadwiger, Pueblo, Colo.

Application April 29, 1946, Serial No. 665,805

2 Claims. (Cl. 51—177)

1

This invention relates to improvements in floor and edge sanding machines.

In the construction of buildings and the refinishing of floors, sanding machines are employed to give the proper surface to the floor after it has been laid and when it has to be refinished for any reason.

The ordinary floor sanding machine does not finish the floor up to the baseboard and it has therefore been necessary to employ an entirely different machine to finish the edges up to the wall or baseboard.

It is the object of this invention to produce a sanding machine that is of such a construction that it can be employed for sanding floors in the usual way and which, in addition thereto, by a slight modification, can be converted into an edging machine for finishing that part of the floor which cannot be finished with the floor sanding machine.

This invention, briefly described, consists of a floor sanding machine employing a cylindrical drum sander, operated by a motor, which is provided with the usual suction fan for removing the dust and transferring it to a filter bag. One end of the sanding drum shaft is so positioned that it is accessible from the outside and is provided with means for attaching a disk sander to the accessible end thereof. Means comprising a removable cover is provided for closing the bottom of the floor sander so that the suction of the fan will be directed to the periphery of the disk sander. Means is also provided for conveniently holding the machine and for operating it both during the floor sanding and the edge sanding operation.

Having thus called attention to the objects of the invention and, in a general way, described the invention itself, the invention will now be described in detail and for this purpose reference will be had to the accompanying drawings in which the invention has been illustrated, and in which:

Figure 1 is a side elevation of the floor sanding machine;

Figure 2 is an end view thereof, looking towards the right in Figure 1;

Figure 3 is a section taken on line 3—3, Figure 4;

Figure 4 is a section taken on lines 4—4, Figures 2 and 3;

Figure 5 is a side elevation, similar to that shown in Figure 1, but shows the machine modified for use as an edging machine;

2

Figure 6 is an end view looking upwardly in Figure 5;

Figure 7 is a bottom plan view of the machine shown in Figure 5;

Figures 8 and 9 are sections taken respectively on lines X—X and Y—Y, in Figures 5 and 7;

Figure 10 is a section taken on line 10—10, Figure 5 and shows the construction of the edge sanding disk;

Figure 11 is a bottom perspective view of the floor sanding machine showing the cylindrical sanding drum and the disk sander in place thereon, but showing the bottom cover removed therefrom; and

Figure 12 is a perspective view of the removable cover for the bottom.

In the drawing reference numeral 15 designates the upper wall of a housing which has side walls 16 and 17 and end walls 18 and 19. A sanding drum shaft 20 is mounted for rotation in suitable bearings in side walls 16 and 17 and between which is rotatably mounted a sanding drum 21 to which a sheet of abradant material 22 is attached in an old and well known manner. The specific construction of the sanding drum and the means for attaching the abradant thereto has not been shown in detail because the drum forms no part of this invention, except insofar as it constitutes an element of the combination. An electric motor 23 is positioned in the housing, the motor shaft has been designated by reference numeral 24. Positioned within the housing is a fan. The wall of the fan housing has been designated by reference numeral 25 in Figures 3 and 4. A centrifugal fan rotor of any desired construction is positioned in the fan housing and has been shown as provided with a plurality of radial blades 26. The outlet port of the fan has been designated by reference numeral 27 and the arrow indicates the direction of the air currents. One or two V-type belts 28 transmit power from the motor shaft to the sanding drum shaft 20 in the manner indicated in Figures 3 and 4.

The suction conduit forming the intake port of the fan is formed from a housing whose walls have been designated by reference numeral 29. This wall is provided with openings 30 immediately around shaft 24 through which air may enter the fan housing. The upper wall of the suction conduit extends rearwardly to a point directly in front of the sanding drum, as shown in Figure 4, and the front wall of this passage terminates in a plate 31 that extends rearwardly, leaving an opening 32 through which air and dust may enter and pass into the fan from whence it

will be discharged through passage 27 into a filter bag which has not been shown but which is attached to the tubular projecting portion 33. Handle 34 is pivoted on bracket 35 and is provided with a straight bar 36 that passes through an opening in the bracket 37, which is carried by the top of the sander housing. A set screw 38 serves to clamp the rod 36 in adjusted position; it is therefore possible to adjust the handle to any desired angle. When the handle is to be removed, nut 39 is unscrewed permitting the pivot pit at this point to be removed, whereupon the handle can be detached from the sander.

The machine, so far as it has been described above, is substantially like ordinary floor sanding machines and is provided near its rear end with two spaced wheels 40 which form a support for this end, the other end of the machine rests on the sanding drum. When the machine is operated, the motor rotates the drum in a clockwise direction when viewed as in Figure 4 and at the same time it rotates the fan blades. The abradant surface of the drum removes material from the floor surface and this is immediately sucked upwardly into the fan, in the direction of the arrow in opening 32. The dust is then discharged into the dust bag as above intimated. Belts 28 are positioned in a housing 41, shown on the left side of Figures 2 and 3.

After the floor has been sanded as close to the walls or baseboards as can be done with the sander described above, the sander is modified or converted into an edge sander in the following manner:

Shaft 20 is accessible from the outside and is provided with a central threaded opening 42 having a lefthand thread. A disk, like that shown in cross section in Figure 10, and designated by reference numeral 43, has a central depressed area 44. A circular piece of abradant 45 is cemented to the outer surface of the disk and is cupped inwardly at the center for the reception of a flanged washer 46. The disk is secured to shaft 20 by means of a bolt 47 having a lefthand thread. Means interlocking the disk and the shaft 20 other than the bolt 47 may be provided, as for example, the end of the shaft may be notched for the reception of a project on the opposed surface of the disk. Before the sanding disk is secured to the shaft an adapter plate is first positioned against side 16. This plate has been designated by reference numeral 48 and is shown in position in Figures 5, 6, 7 and 11. Before plate 48 is put into position, however, a pan-like cover, like that shown in Figure 12, is positioned against the bottom of the housing. The cover has a flat side 49 with flanges 50 and 51 along its long sides, and end walls 52 and 53. Side wall 51 has a notch as shown. End walls 52 and 53 have upwardly extending tongues 55 and 56, respectively, that project into the casing and overlap the inner surface thereof in the manner indicated by dotted lines in Figure 4. End walls 18 and 19 are provided with spring pressed plungers 57 that engage in notches in tongues 55 and 56, for the purpose of holding the cover in place. The purpose of the cover is to close the bottom against the inflow of air so that the suction of the fan will be directed to the periphery of the disk, for which purpose a separate casting or a projection 58 is provided on the outer surface of plate 48 and formed with an opening 59 that is in communication with the intake passage of the fan, which has been designated in Figure 11 by reference numeral 60.

It will be noted that plate 48 has a flange 61 that overlaps the edge of bottom plate 49 in the manner shown in Figure 8, and serves to hold the bottom cover in position. The upper edge of plate 48 is also provided with a flange 62, in Figure 9. Plate 48 is held in position by disk 43 and bolt 47. One end of the bottom cover has a handle 63 for use in positioning and guiding the machine when it is used as an edger. Plate 48 is also provided with three supporting caster wheels which have been designated by reference numeral 64 and on which the machine rests when it is used for edging purposes.

Edging disk 43 is surrounded by a flange 65 that extends for almost a complete circle, leaving a gap adjacent the intake opening 59. This flange has rubber fingers 66 that prevent the dust from escaping about the edges of the abrading disk. When the machine is used for edging the part that is shown at the top in Figure 11, is adjacent the floor and a portion of the weight of the machine is supported on the disk 43. Disk 43 is rotated in clockwise direction, when viewed as in Figure 11, and while it is rotating, the fan is also turning producing a suction that draws the dust into opening 59 from whence it passes upwardly through the intake opening of the fan and into the latter, being finally discharged into the filter bag through openings in member 33.

Attention is directed in particular to the simple construction by means of which the floor sanding machine may be transformed or converted into an edging machine; this requires merely positioning the bottom cover 49 and securing it in place by applying member 48, the two parts being held in operative position by the disk 43. The machine is operated in such a way that the flange 61 is against the baseboard and the sanding will therefore take place as near to the baseboard as may be desired. In the drawing (Figure 5) the distance from the disk to the outer surface of flange 61 has been designated by D, which may be reduced to any extent desired.

Since the floor sanding machine comprising the cylinder is constructed more or less along well known lines, this invention relates more particularly to the construction of the machine when used as an edging machine. When adapted for such use, the housing comprising walls 15 to 19 is closed by the bottom cover which is held in place, as above described, by plate 48, which, in turn, is held in place by disk 43. The construction of the disk and its relation to the other parts together with the position and relationship of the caster wheels 64 are of importance in connection with the invention to which this application relates.

Applicant realizes that the cylindrical sanding cylinder and the edge sanding disk are never operated at the same time, but each is operated independently of the other and the function of the sanding cylinder during the edging operation is, therefore, that of a balance wheel. The other parts of the floor sanding machine form a base that can be readily converted to adapt a machine for edging all as above described.

Having described the invention what is claimed as new is:

1. An edge sanding machine, comprising, in combination, a housing having spaced bottom and top walls and end walls, one side being open, a removable cover for the open side, means for attaching the cover to the housing to form a closed chamber, a shaft extending through the housing, mounted for rotation in the top and bot-

tom walls, a cylindrical drum balance wheel carried by the shaft, within the housing, an electric motor positioned in the housing, a centrifugal fan positioned in the housing, the fan having inlet and outlet ports, means for rotating the shaft and the fan from the motor, a sanding disk secured to the lower end of the shaft, outside of the bottom wall, a flange encircling the disk, and a conduit communicating the intake port of the fan with the space between the sanding disk and the flange.

2. An edge sanding machine, comprising, in combination, a housing having spaced bottom and top walls and end walls, one side being open, a removable cover for the open side, a shaft extending through the housing, mounted for rotation in the top and bottom walls, a cylindrical drum balance wheel carried by the shaft, within the housing, an electric motor positioned in the housing, a centrifugal fan positioned in the housing, the fan having inlet and outlet ports, means for rotating the shaft and the fan from the motor, a sanding disk secured to the lower end of the shaft, outside of the bottom wall, a flange

encircling the disk, and a conduit communicating the intake port of the fan with the space between the sanding disk and the flange, and means comprising a removable member having a portion overlapping the cover and another portion surrounding the shaft for latching the cover in position.

OSCAR E. HADWIGER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
394,980	Heroy et al.	Dec. 25, 1888
1,619,158	Schimmelpfennig	Mar. 1, 1927
1,951,105	Myers	Mar. 13, 1934
2,001,098	Holt	May 14, 1935
2,068,347	Myers	Jan. 19, 1937
2,169,954	King	Aug. 15, 1939
2,201,420	Zschau	May 21, 1940
2,251,442	Emmons	Aug. 5, 1941