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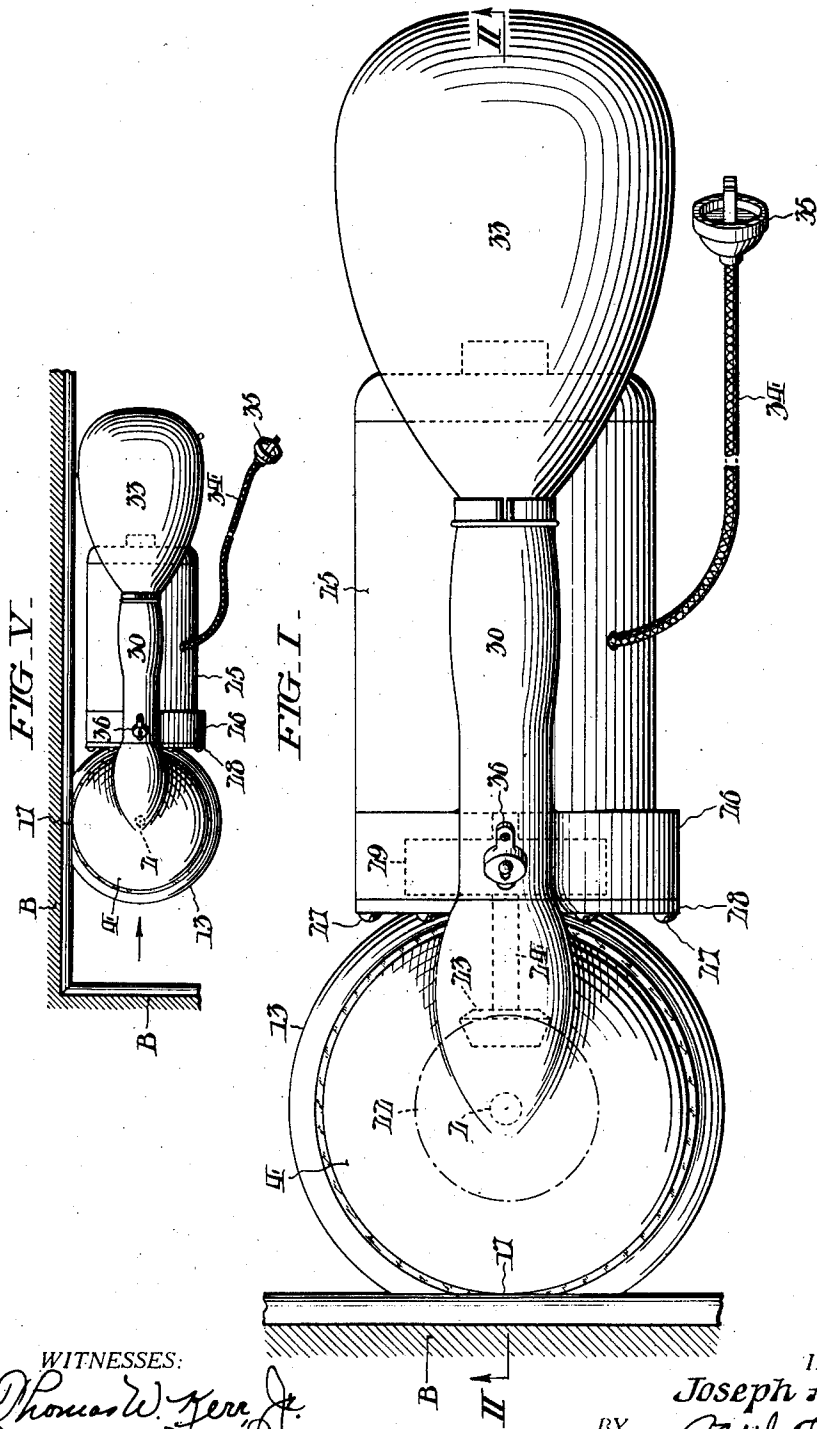
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2,204,178

FLOOR DRESSING MACHINE

Filed Jan. 25, 1938

3 Sheets-Sheet 1



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FIG. III.

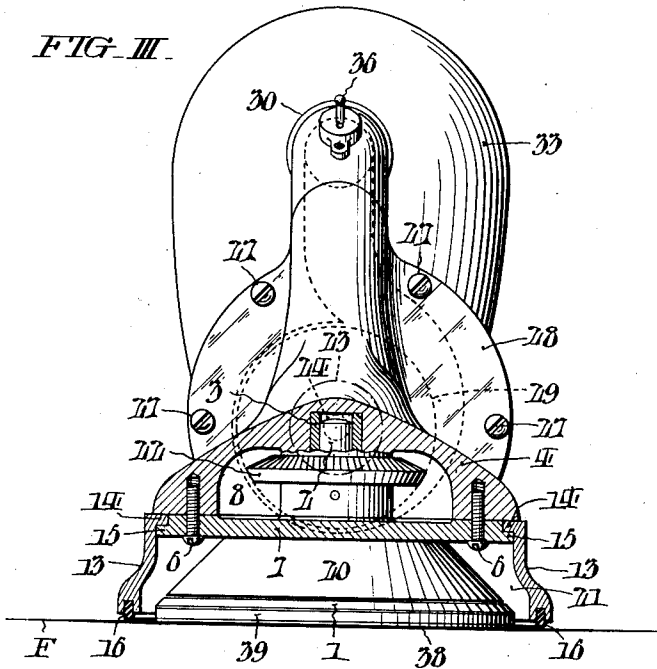
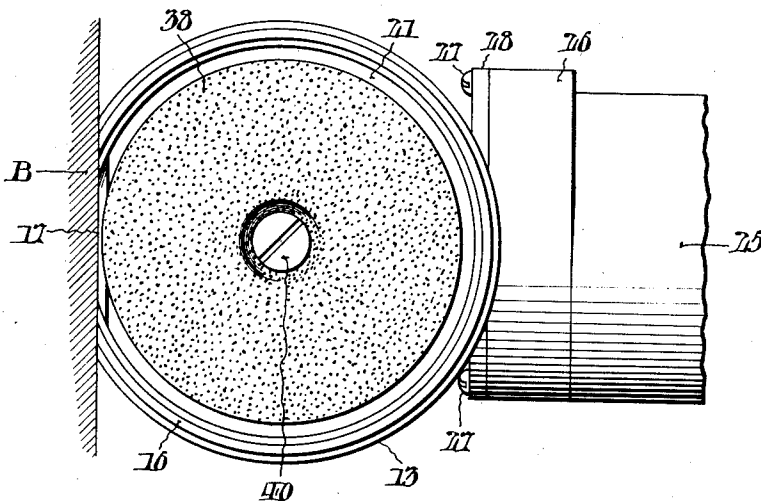


FIG. IV.



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UNITED STATES PATENT OFFICE

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FLOOR DRESSING MACHINE

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5 Claims. (Cl. 51—170)

This invention relates to machines for smoothing and leveling floors and other extensive surfaces by abrading action; and it has reference more particularly to electrically driven scraping machines.

With power driven floor scrapers as ordinarily constructed, it is impossible to operate under radiators, low shelving, etc., or to finish the floors up to the baseboards, which had to be done heretofore by hand. This is disadvantageous in that it involves the application of strenuous manual exertion and, unless very carefully done, does not result in the perfection of finish obtained by the mechanical scrapers over the rest of the floors. The chief aim of my invention is to overcome the above drawbacks, which desideratum I attain, as hereinafter more fully described, through provision of a simple light and compact dressing machine wherein the scraping element, the drive mechanism therefor and the electric motor are so constructed and relatively arranged that radiators, low shelving, etc., may be readily underreached and the scraping element brought into direct contiguity with the baseboards or the floor juncture moldings.

In connection with a floor dressing machine having the foregoing attributes, it is a further aim of my invention to provide for carrying off and collecting the wood dust formed during the scraping.

Other objects and attendant advantages will appear from the following detailed description of the attached drawings, wherein Fig. I shows, in top plan, a floor dressing machine embodying my invention.

Fig. II is a view partly in side elevation and partly in longitudinal section taken as indicated by the arrows II—II in Fig. I.

Fig. III is a view of the machine in staggered transverse section taken approximately as indicated by the arrows III—III in Fig. I.

Fig. IV is a fragmentary bottom view of the machine; and

Fig. V is a view like Fig. I drawn to a smaller scale showing how the machine is used at room corners.

With more detailed reference to these illustrations, the numeral 1 designates the scraper element of my improved machine, the same being in the form of a horizontal disk which is secured to the bottom of short vertical shaft 2. At its upper end the shaft is journaled in a bearing bushing 3 set into the main component 4 of the machine housing. From Fig. I, it will be noted that the main housing component is generally

circular in plan. Secured by screws 6 to the bottom of the housing component 4 in coaxial relation to the shaft 2 is a correspondingly configured diaphragm plate 7 which closes an upwardly extending hollow 8 formed in said housing component. Set into the diaphragm 7 at the center from above is a ball bearing 9 for the lower end of the shaft 2; and interposed between an annular shoulder 10 on said shaft and an upwardly extending hub 11 on the grinder disk 1, is a ball bearing 12 which is relied upon to take the upward axial thrust of said disk during the scraping.

As shown in Figs. II and III, the scraper disk is surrounded by an annular guard apron 13 having at its top an inwardly projecting circumferential flange 14 which is underlapped by a circumferential shoulder 15 of the diaphragm plate 7. As a consequence of this construction, the apron 13 forms a swivel jointed portion of the machine housing. Lodged in a recess in the bottom edge of the apron is a flexible sealing gasket 16 of rubber or the like which extends nearly all the way around the apron as shown in Fig. IV and which reaches down in close proximity to the floor F which is to be dressed. The frontal face of the apron 13 is finished off flat as at 17 in Figs. I and IV substantially in tangential relation to the periphery of the scraper disk 1, and is moreover cut away at the bottom as at 17a to clear said disk so that the latter can be brought substantially into direct contiguity with the juncture molding M between the floor F and the baseboard B as shown in Fig. II. Due to the capacity of the apron 13 to swivel, the machine can also be used either right-handed or left-handed with the straight portion of the apron positioned as in Fig. I, thereby making it possible to completely dress stair treads and risers, as well as room corners and other "tight" places.

In turn affixed by screws 19 to the bottom of the diaphragm plate 7 is a shield 20 which is coned to conform with the bevel of the scraper disk 1 and which reaches down to said disk as shown in Fig. II to prevent access of the wood dust formed during the scraping, to the ball bearing 12. The shield 20 moreover serves to set apart within the apron 13 an annular air flow space 21.

The driving means for the scraper disk 1 includes a bevel gear 22 which is pinned to the shaft 2 above the diaphragm 7 and which with an intermeshing bevel pinion 23 occupies a hollow 8 of the main housing component 4. The pinion 23 is fast on the projecting end of the shaft 24 of a horizontally arranged electric mo-

tor 25. This motor is suitably affixed to a narrow supplemental vertical housing component 26 of generally circular configuration secured by screws 27 to an upright circular flange 28 at the rear of the main housing component 4. The supplemental housing component 26 is made hollow as shown in Fig. II to serve as the casing for a centrifugal suction fan rotor 29 mounted on the motor shaft 24, and the top is formed with a hollow handle 30 whereof the interior is in direct communication with the fan chamber and which extends rearwardly of the top of the motor 25. Under this action of the fan 29, the dust laden air is drawn from the annular space 21 around the shield within the hood 13 through an orifice 31 in the diaphragm 7 and a passage 32 within the main housing component 4 into the fan chamber and from thence discharged by way of the hollow grasp handle 30 into a dust collecting bag 33 which is connected with provision for ready removal, to the end of said handle.

The conductor cord 34 for the motor 25 is fitted with a terminal plug 35 for connection to any convenient source of electric current supply. As shown, the control switch 36 for the motor 25 is mounted on the handle 30 at the front end so as to be convenient of manipulation by a finger of the hand employed in guiding the machine over the floor, the motor being supported at the rear by a castor shown at 37 in Fig. II.

The disk 1 may be appropriately surfaced to function itself as a scraper, or, as herein shown, it may be utilized as a backing for a disk 38 of sand or emery paper or cloth, with interposition of a cushioning pad 39 of relatively soft rubber or the like. The single flat headed cap screw 40 engaging axially into the bottom end of the shaft 2 is utilized as a securing means which permits ready removal of the sand or emery disks 38.

From the foregoing, it will be seen that by arranging the motor 25 horizontally and placing it and the suction fan housing to the rear of the machine, it is possible to accommodate the driving connections for the grinder disk 1 above the latter within the machine housing and at the same time keep the housing sufficiently low for entry, for example, beneath a radiator such as the one indicated at R in Fig. II. The necessity for subsequent hand scraping of the floor surfaces immediately adjacent baseboards and beneath radiators as heretofore is thus entirely eliminated by the machine of my invention with attainment of a finish which is smooth and even throughout the entire area of the floor.

Although more especially designed for floor dressing my improved machine can obviously be used to scrap table or desk tops as well as other extensive surfaces where a smooth and even finish is desired.

Having thus described my invention, I claim:

1. A floor dressing machine comprising a housing; a horizontal abrading disk projecting downward through a bottom opening in the front of the housing; a horizontally-arranged motor directly affixed to the upper part of the housing and extending rearwardly therefrom; driving connections within the housing between the disk and the motor; rollers supporting the overhanging end of the motor with the disk bearing upon

the surface being dressed; and a grasp handle extending rearwardly from the housing over the top of the motor whereby the device may be rocked on the rollers to vary the pressure on the disk.

2. A floor dressing machine comprising a closed hollow housing with a low horizontal annular front end portion and an annular vertical rear portion in tangential relation to the horizontal portion; a horizontal abrading disk occupying a recess in the bottom of the front portion of the housing with its grinding surface protruding; a horizontally arranged motor affixed to the vertical portion of the housing in coaxial relation therewith and extending rearwardly therefrom; driving connections within the casing between the disk and the motor; rollers on the overhanging end of the motor casing supporting the machine for mobility with the disk bearing upon the surface being dressed; and a grasp handle extending rearwardly from the housing over the top of the motor whereby the device may be rocked on the rollers to vary the pressure on the disk.

3. A floor dressing machine according to claim 2, in which the vertical portion of the housing is hollow to form a chamber around a fan mounted on the motor shaft; wherein a duct within the housing forms a suction passage between the fan chamber and the recess in the bottom of the front portion of the housing; and wherein a dust collecting bag is detachably connected to an outlet at the top of the fan chamber.

4. A floor dressing machine according to claim 2, in which the vertical portion of the housing is hollow to form a chamber around a fan mounted on the motor shaft; wherein a duct within the housing forms a suction passage between the fan chamber and the recess in the bottom of the front portion of the housing; and wherein an exhaust outlet tube reaches horizontally from the top of the fan chamber over the top of the motor; and wherein a dust collecting bag is detachably connected to the end of said exhaust outlet tube beyond the motor.

5. A machine for dressing floors and other surfaces, in the form of a self contained hand tool comprising a rotary abrading disk on a vertical shaft; a housing providing a bearing for the disk shaft; a co-axial annular guard apron connected to the housing with capacity for free swiveling movement, said guard extending over and around the disk and having a flat face in its periphery with an opening therein for protrusion of a small portion of the disk periphery; a horizontally-arranged electric motor secured to the rear end of the housing; gearing within the housing connecting the disk shaft with the shaft of the motor; suction means within the housing driven by the motor and in communication with the interior of the apron; a tubular grasp handle extending rearwardly from the housing above the motor with its hollow in communication with the suction means; a dust receptor at the end of the handle; and supporting means at the bottom of the motor constituting a movable fulcrum on which the machine may be balanced and shifted incident to hand manipulation.

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