May 28, 1935. F. H. NADIG 2,003,215

FLOOR CLEANER

Filed July 17, 1934 2 Sheets-Sheet 1

Fig. 1.

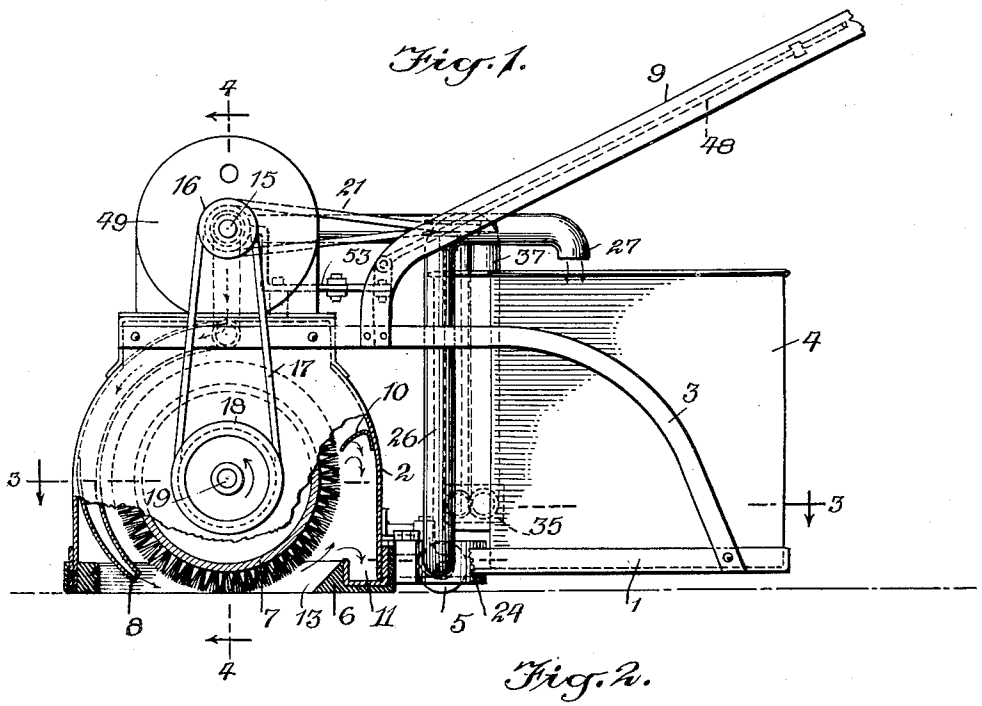
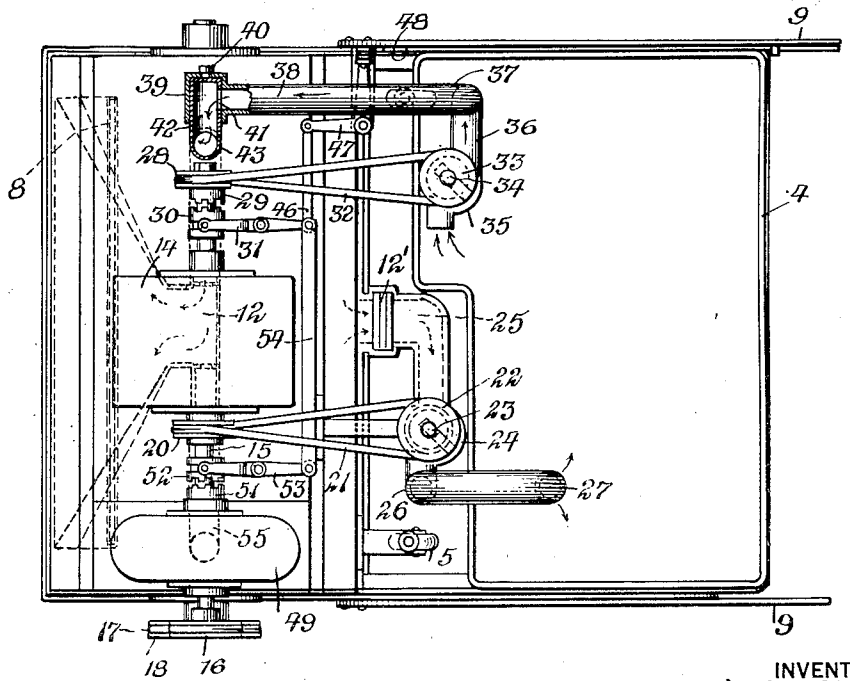


Fig. 2.



WITNESSES

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Fig. 3.

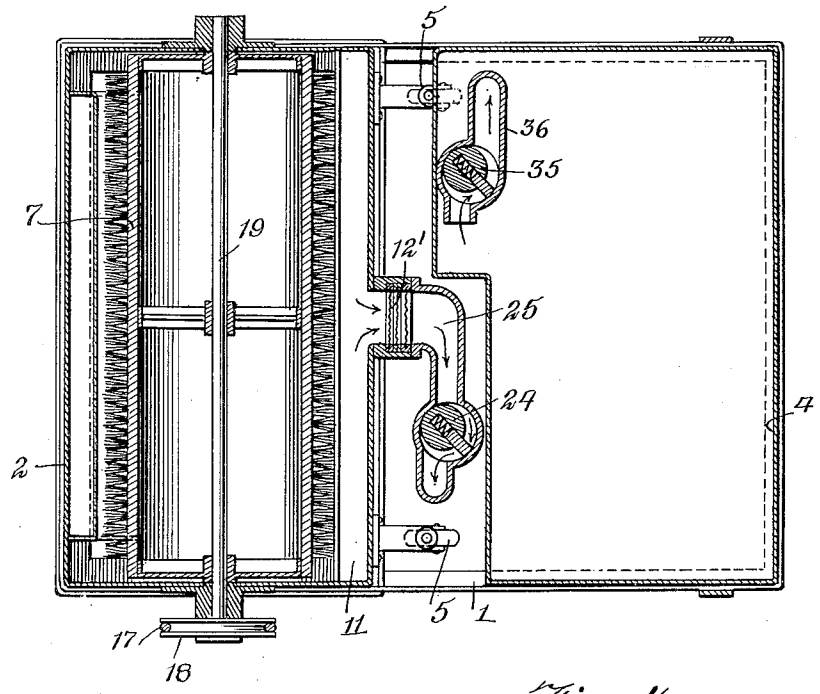
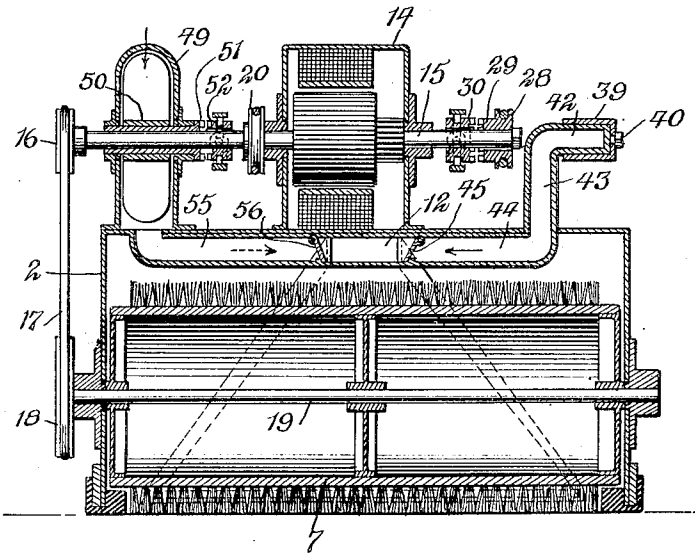


Fig. 4.



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2,003,215

FLOOR CLEANER

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Application July 17, 1934, Serial No. 735,664

2 Claims. (Cl. 15—50)

This invention relates to an improved floor cleaner, and has for an object to provide a construction which may be easily operated and which is adapted to clean a comparatively wide strip upon each movement over the floor.

Another object of the present invention is to provide an improved floor cleaner utilizing a rotating brush and means for applying water to the floor adjacent the brush, and then removing the water and directing air against the floor.

A further object, more specifically, is to provide a floor cleaner adapted to be pushed back and forth over a floor, and when in operation to direct water or other cleaning fluid with considerable force against the floor, and then scrubbing the floor with a rotating brush, the parts being so constructed that after the functioning of the brush the water is removed automatically and discharged into a container.

In the accompanying drawings—

Figure 1 is a side view of the floor cleaner disclosing an embodiment of the invention, a portion being broken away for better illustrating the construction;

Figure 2 is a top plan view of the construction shown in Fig. 1, a small part being broken away for illustrating certain detailed features;

Figure 3 is a horizontal sectional view through Fig. 1 approximately on the line 3—3;

Figure 4 is a transverse sectional view through Fig. 1 on the line 4—4.

Referring to the accompanying drawings by numeral, 1 indicates a frame which may be made of channel iron and bolted or otherwise rigidly secured to a casing 2. A bracing arm 3 is also riveted, bolted or otherwise rigidly secured to the frame 1 and to the casing 2 whereby the tank 4 may be properly supported and yet be in a position for removal at any time. This tank when almost filled with water will counterbalance the remaining part of the device so that it may be readily pushed back and forth manually, the same being supported on the casters 5 which are connected to casing 2. However, during the back and forth movement preferably, a rubber gasket 6 carried by the lower edge of the casing 2 is allowed to rub against the floor so as to present a substantially airtight construction. This is desirable because water is discharged through nozzle 8, as hereinafter described, said water being directed against the floor near the cylindrical brush 7 carried by casing 2, which brush rotates during the functioning of the device.

In order to cause the device to function at different places over the floor, a handle 9 is provided, said handle being rigidly secured to the bracing arm 3 which acts as a brace for frame 1. It will be evident that whenever desired the handle 9 may be depressed and the casing 2 and associated parts swung upwardly, using the casters 5 as fulcrums. When this is done the device may be readily and quickly rolled over the floor, but when in use it is preferably pulled or pushed across the floor with the rubber gasket 6 in contact with the floor.

The casing 2 is a substantially semi-tubular construction in which the brush 7 is mounted to rotate in a horizontal plane. A baffle 10 is provided in casing 2 to prevent water from following the brush and, in fact, causing the water to drop down into the trough 11 which has been provided. On the opposite side to trough 11 is provided the nozzle 8 which is almost as wide as brush 7 is long but tapers as shown in Fig. 2 in dotted lines, until there is a restricted opening 12 (Fig. 4) provided. As the device functions water is discharged out of nozzle 8 onto the floor and at the same time brush 7 is rotated, as indicated by the arrow 13, whereupon there is produced a scrubbing action, and also the water will be thrown upwardly and into the trough 11 from which it may be removed, as hereinafter described.

Arranged on top of the casing 2 is an electric motor 14 of any desired kind, said motor having its rotor rigidly secured to the shaft 15, as indicated in Fig. 4, said shaft extending on both sides of the motor for driving certain members. At one extreme end of shaft 15 a pulley 16 is provided which operates the belt 17 passing over pulley 18, rigidly secured to shaft 19, which in turn is rigidly secured to brush 7, whereby whenever the motor 14 is functioning the brush 7 will be rotating. A second pulley 20 is also rigidly secured to shaft 15 and continually operates therewith. A belt 21 is mounted on pulley 20 and extends around the pulley 22 whereby said pulley 22 continually functions whenever the motor 14 is functioning. The pulley 22 is rigidly secured to shaft 23, which shaft is connected with the rotating parts of pump 24, whereby whenever motor 14 is operating the pump 24 will be operated and act to draw water from the trough 11, through the screens 12' which may be removed and cleaned or renewed at any time. Water passing through screens 12' will enter passageway 25 and pump 24 and then upwardly through pipe 26. The upper end of pipe 26 has a discharge end 27 positioned over the tank 4, which tank is open at the top whereby any water forced up-

wardly by pump 24 will be automatically discharged into the top of tank 4.

In supplying water to the nozzle 8 the parts do not function whenever motor 14 functions, but only when connected to the motor. As shown in Fig. 2, there is provided a pulley 28 which is rotatably mounted on shaft 15 and provided with a clutch face 29 adapted to be engaged by the clutch member 30 actuated by the lever 31. When the parts are in the position shown in Fig. 2 the pulley 28 is at a stand still, but when clutch 30 is moved over into engagement with clutch face 29 the pulley 28 will be rotating if the motor 14 is functioning. A belt 32 fits over the pulley 28 and over pulley 33, which is secured to a shaft 34, said shaft in turn being rigidly secured to the moving parts of the feed pump 35. This feed pump is carried by an extension 36 of the pipe 37, which pipe is rigidly secured to the feed pipe 38. Feed pipe 38 is provided with a head or sleeve 39 held in place by a suitable screw 40 whereby the parts may be positioned as shown in Fig. 1 and Fig. 2, or swung upwardly so that the pump 35 and associated parts will be out of the tank 4, whereby the tank may be removed and replaced. The pipe 38 and associated parts are so formed that they may be swung through an approximately 180 degrees angle, though the intention is to provide a structure which may be moved out of and again into the tank 4 readily.

When the pipe 38 and associated parts are in operative position they will be in free communication through the aperture 41 with the supply pipe 42 which has a vertical section 43 leading into the horizontal section 44 (Fig. 4) and thence from the flap valve 45 into the restricted opening 12 of nozzle 8. Whenever clutch 30 is engaging clutch face 29 the various parts will function to continually supply water to the nozzle 8, and brush 7 will also continue to function as well as pump 24. The lever 31 is connected with a link 46 which is connected with bell crank lever 47 (Fig. 2) and this bell crank lever is also connected with a pull rod 48 carried by the handle 9, whereby the operator may readily pull or push this rod at any time so as to cause the clutch 30 to move into functioning position, or out of functioning position.

In addition to the pump 35 being thrown into and out of functioning position, there is provided a fan or air blower 49 with a rotating fan structure 50 which is rigidly secured to a clutch face 51 (Fig. 2), and on shaft 15 there is splined a clutch 52 in a similar manner to clutch 30, said clutch 52 being actuated by the lever 53 which is connected with link 54, which link is in turn connected with link 46. Whenever the parts are moved so that clutch 30 will engage clutch face 29, clutch 52 will be moved out of engagement. Also, when clutch 30 is moved to a disengaged position but is still rather close to clutch face 29, clutch 52 will still remain out of engagement. If link 54 and associated parts are pulled through, however, clutch 52 will be moved into engagement with clutch face 51 and power will be transmitted to the blades 50 whereby they will be rotated at a comparatively high rate of speed and will draw air in and force it through pipe 55 (Fig. 4). Air passing through this pipe will raise the flap valve 56 and pass through the entrance 12 and into and through nozzle 8, whereupon the air blasts will be provided which will project against the floor near the brush 7, which brush is rotating at this time. In this way the water is taken up by blasts of air and by evaporation and a thorough cleaning and drying action is secured.

It is to be understood that in operation the water or other cleaning solution is first used and preferably the clutch 30 is moved to a non-functioning position a short time before the air pump 49 is caused to function. This short interval will allow the brush 7 to throw practically all the loose water into the trough 11 and, consequently, a low pump 24 to dry the same. However, if there is any water discharged into trough 11 after the air has been applied said water will be automatically raised by the pump 24 as it is still functioning and will continue to function as long as motor 14 is functioning.

I claim:—

1. A floor cleaner including a frame, a casing open at the bottom connected with said frame at one end, a water tank mounted on the frame at the opposite end, means carried by said frame including a pump and a nozzle for directing water from the tank to the floor within the casing, means carried by the frame including a second pump for drawing water from within the casing and discharging the same back into said tank, a brush arranged within the casing adapted to engage the floor during its operation, a motor carried by said casing for rotating said brush, a shaft permanently connected to said motor so that the shaft will rotate whenever the motor functions, means for permanently connecting said shaft with said second pump so that the second pump will continue to function whenever the motor functions, means including an air blower for directing air into said casing through said nozzle, said air blower functioning when the first-mentioned pump is not functioning, means including a clutch for disengageably connecting said shaft with said first mentioned pump, a second clutch for disengageably connecting said blower with said shaft, and manually actuated means for simultaneously shifting said clutches into and out of functioning position one clutch being shiftable into functioning position while the other clutch is being shifted out of functioning position.

2. A floor cleaner including a cylindrical brush, a nozzle arranged adjacent said brush on one side thereof, a water tank, means for directing water from said tank through said nozzle for a given period to a point adjacent said brush, said brush being adapted to engage the floor when in use, means for withdrawing the water adjacent the brush and from a point on the opposite side to where the water enters, means for directing air through said nozzle for a second period, and manually actuated means for controlling the supply of air and water to said nozzle.

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