March 7, 1939. H. K. FATOUT 2,149,590

RUG SCRUBBER

Filed July 31, 1936

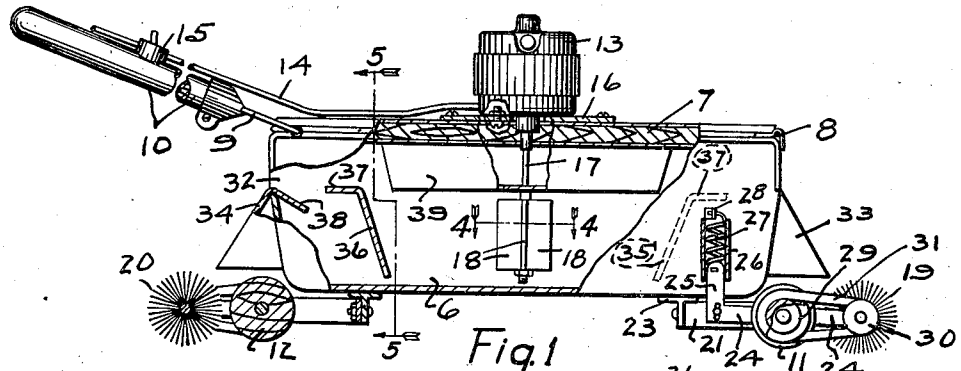


Fig. 1

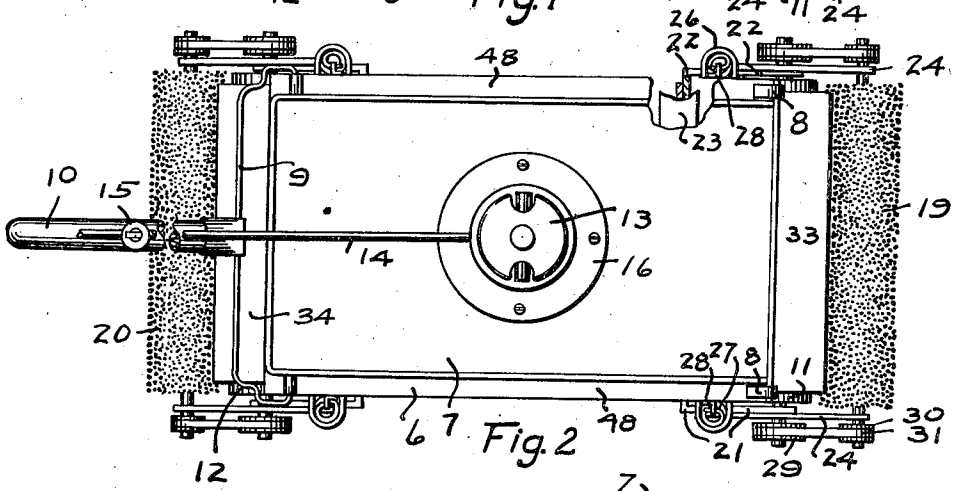


Fig. 2

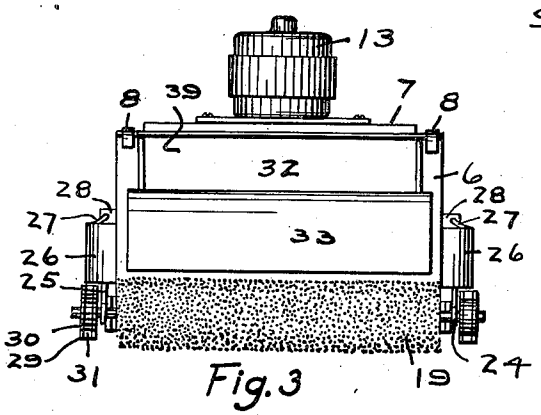


Fig. 3

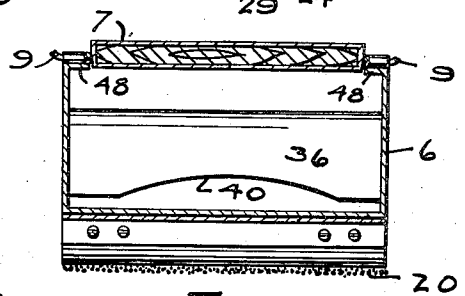


Fig. 5

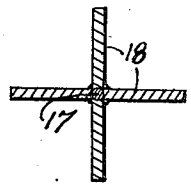


Fig. 4

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Patented Mar. 7, 1939 2,149,590

UNITED STATES PATENT OFFICE

2,149,590

RUG SCRUBBER

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Application July 31, 1936, Serial No. 93,565

8 Claims. (Cl. 15—50)

This invention relates to improvements in rug and floor cleaning devices for domestic use on floors and on rugs in place on floors, and for similar uses. The object of the invention is to provide a simple durable light weight and low cost device which will be commercially practical and convenient to operate.

A further object is to provide a device capable of movement back and forth over a floor or a floor rug thereon, which device will mix cleaning and suds producing agents with water, carried by the device, and deliver a resulting suds to rotary brushes also carried by the device, without an excess of water, in order to scour and clean the floor or rug without an excess saturation or wetting of the surface under treatment.

I accomplish the above and other objects which will hereafter appear by the mechanism illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of my device, broken away in parts to show interior construction.

Fig. 2 is a top plan view of the device.

Fig. 3 is an elevation looking at the front end of the device.

Fig. 4 is a detail in cross section of the mixer blades taken in the line 4—4 of Fig. 1 and

Fig. 5 is a transverse section on the line 5—5 in Fig. 1.

Like characters of reference indicate like parts in the several views of the drawing.

The body of my device is preferably of sheet metal in the form of a hollow receptacle 6, which is closed at the top by a lid 7, provided with hinges 8 to allow the lid to be raised for access to the interior of the receptacle and also to bring other members of the device depending from the lid, into view.

The lid will preferably be hollow and filled with wood or other sound deadening material which will reduce the noise of operating parts attached to the lid as will presently be described.

The receptacle 6 has a top flange 48 for the closed lid to rest upon, and to this flange the yoke 9 of a handle 10 for propelling the device is hinged. The receptacle 6 is mounted on front and rear rollers 11 and 12, in a manner hereafter described.

Mounted on lid 7 is an electrically operated motor 13 supplied with current through a conductor 14 having a switch 15 conveniently located on the handle. The switch may have a plug (not shown) for disconnecting the service end of the conductor.

The motor is fastened to the top of the lid by plate 16 and attaching screws. The shaft 17 of the motor extends through the lid to near the bottom of the receptacle 6 and attached to it are a plurality of blades 18 which will mix and agitate a liquid content of the receptacle.

The rollers 11 and 12 on which the receptacle 6 is mounted and their respective adjacent rotary brushes 19 and 20, are assembled and supported in a like manner so that a description of one assembly will apply to both.

The two ends of the axle of the roller 11 are journaled in respective arms 21 and 22 which are fixed to and are supported by a T bar 23 fixed to the bottom of receptacle 6.

Each of the two projecting ends of the axle of brush 19 are journaled in the respective arms 24 of bell-crank levers. This arm 24 is pivoted on the axle of the roller 11 and the other arm 25 of the bell crank lever enters a housing 26, loosely, where it is attached to a spring 27, the upper end of which is attached to a lug 28 on the side of receptacle 6. The spring pulls up on the arm 25 thereby lowering the outer end of the arm 24 and yieldingly pressing the brush into contact with the floor or rug being cleaned.

The roller shaft carries a pulley 29 and the brush shaft a pulley 30, and the two pulleys are drivingly connected by a belt 31 whereby the brush is driven from the roller.

The receptacle 6 has a discharge opening 32 in each end above the water level of the receptacle. Through these openings, suds formed in the receptacle by the rotation of blades 18 are forced out and are directed to the respective brushes by the outwardly sloping plates 33 and 34.

Located within the receptacle between each of its ends and the blades 18 are respectively upwardly and outwardly sloping plates 35 and 36, each having a horizontal top flange 37 directing the suds toward opening 32. An extended concave notch 40 will preferably be formed in the bottom of plate 36 to allow a larger percentage of the suds to pass at the middle.

At the bottom of the opening 32 is a downwardly and inwardly sloping plate 38, and to further confine and direct the suds I provide the hollow member 39 which has sloping ends and depends from the under side of the lid 7 for a considerable distance into the receptacle.

In operation the receptacle is supplied with a cleaning fluid containing suitable soaps and powders. The motor is operated rotating the blades 18 and a suds created by rotation of the blades is forced out through openings 32 upon the brushes 19 and 20. The brushes are rotated by moving the device forward or backward and the floor or

rug is cleaned quickly without saturation with soap and water.

An important advantage of my invention is that, through its use, suds are formed internally and applied to the rug rather than a flowing, wetting liquid, and thereby the moisture or water actually reaching the rug is so limited that it does not penetrate the rug to the extent that the under side which is the sized side is wetted. Consequently the rug remains in shape without shrinking, crawling, or wrinkling after scrubbing. It is further to be noted, that the machine may be manipulated backwardly and forwardly without splashing of the liquid therein over onto the rug or floor by reason of the presence of the control plates **35** and **36**, and also the inturned lips **38**. The depressed portion **39** on the lid also contributes to this prevention of splashing. The parts further tend to restrain flow of suds from the receptacle until they have been churned and worked up and out in a rather stiff mass, so that the suds will stand up well until worked through the nap of the rug by the brushes **19** and **20**. The supporting rollers **11** and **12** tend to smooth out and hold the rug stationary while the brushes **19** and **20**, revolving at greater speed exert a brushing action on the rug adjacent the rollers.

The most important feature of my invention is the making of the suds in the receptacle and its discharge therefrom above the water line of the receptacle in a way causing more than half of the liquid to drain out and remain in the receptacle and the suds to reach the spreading brushes in a damp instead of a saturated state. The brilliance of the rug or other floor covering is restored more completely and the dirt is not rubbed in and the covering left wet and dull as where the liquid and suds are discharged profusely upon or the suds made directly on the floor covering.

While I have herein described and illustrated the best embodiment of my invention now known to me, it is obviously capable of modification in various ways without departing from the spirit of the invention and I therefore do not desire to be limited to the form shown or any more than is required by the appended claims.

I claim:

1. In a machine of the character specified, a movable receptacle adapted to contain a liquid capable of forming suds when agitated and having a discharge opening above the water line of the liquid, a brush having connection with and accompanying the receptacle and having suds distributing and scrubbing contact and movement with a surface to be cleaned, an agitator in said receptacle below the discharge opening rotatable about a vertical axis for making suds out of the liquid and discharging them from the receptacle, and means for conducting the suds to and through the opening and to the brush.

2. In a machine of the character specified, a receptacle mounted on rollers for to and fro movement, said receptacle adapted to contain a liquid capable of forming a suds when agitated and having a discharge opening above the water line of the liquid, a brush having connection with and carried with the receptacle, means actuated by the movement of a roller for imparting a scrubbing movement to the brush against a surface to be cleaned, an agitator in said receptacle below the discharge opening rotatable about a vertical axis for making suds out of the liquid and discharging them from the receptacle, and means for conducting the suds to and through the opening and to the brush.

3. In a machine of the character specified, a receptacle having a lid and being mounted on roller to be manually movable and adapted to contain a liquid capable of forming a suds when agitated, a brush carried by the receptacle and contacting a surface to be cleaned with a scrubbing movement, blades rotatable in the liquid in the receptacle to form and discharge suds, the receptacle having an opening in its wall above the blades and brush through which the suds are discharged by the blades, and plates at the side of the blades limiting the throw of the suds and guiding them to the opening.

4. In a machine of the character specified, a receptacle having a lid and being mounted on rollers to be manually movable and adapted to contain a liquid capable of forming a suds when agitated, a brush carried by the receptacle and contacting a surface to be cleaned with a scrubbing movement, blades rotatable in the liquid in the receptacle to form and discharge suds, the receptacle having openings in its walls above the blades and brush through which the suds are discharged by the blades, plates at the sides of the blades limiting the throw of the suds and guiding them to the openings, and a member projecting downwardly from the lid of the receptacle into the space between the plates to further confine and direct the movement of the suds in the receptacle.

5. In a machine of the character specified, a receptacle having a lid and being mounted on rollers to be manually movable and adapted to contain a liquid capable of forming a suds when agitated, brushes carried by the receptacle and contacting a surface to be cleaned with a scrubbing movement, blades rotatable in the liquid in the receptacle to form and discharge suds, the receptacle having openings in its walls above the blades and brushes through which the suds are discharged by the blades, plates at the sides of the blades limiting the throw of the suds and guiding them to the openings, and a member projecting downwardly from the lid of the receptacle into the space between the plates to further confine and direct the movement of the suds in the receptacle, and plates secured to the ends of the receptacle at the bottom of the openings sloping downwardly and outwardly to direct the suds to the brushes.

6. In a machine of the character specified, a receptacle having a lid and manually movable and adapted to contain a liquid capable of forming a suds when agitated, one or more rotatable brushes adapted to make distributing and scrubbing contact with the surface to be cleaned, said receptacle having a discharge opening over a brush, a motor mounted upon the receptacle lid having a shaft terminating in the liquid in the receptacle and blades on the shaft adapted to rotate horizontally and agitate the liquid into suds and to throw the suds through the opening in the receptacle to the brush, said opening being above the blades.

7. In a machine of the character specified, a manually movable receptacle adapted to contain a liquid capable of forming a suds, means for making a suds from the liquid, one or more brushes making moving contact with the surface to be cleaned, means for elevating the suds above the brush or brushes, as the case may be, removing excess liquid and discharging the suds thus drained upon a respective one or more, as the

case may be, of the brushes, and rollers to smooth out the rug and hold it stationary.

8. In a scrubbing machine, a receptacle adapted to contain a suds forming liquid, means in the receptacle for making suds from the liquid, shafts on which the receptacle is mounted, rollers mounted on the shafts, arms pivoted on the shafts, resilient supports for the inner ends of the arms, rotary brushes pivoted to the outer ends of the arms close to the rollers, and means for elevating and drying the suds and then discharging them upon the brushes.

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