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RUG SCRUBBING MACHINE

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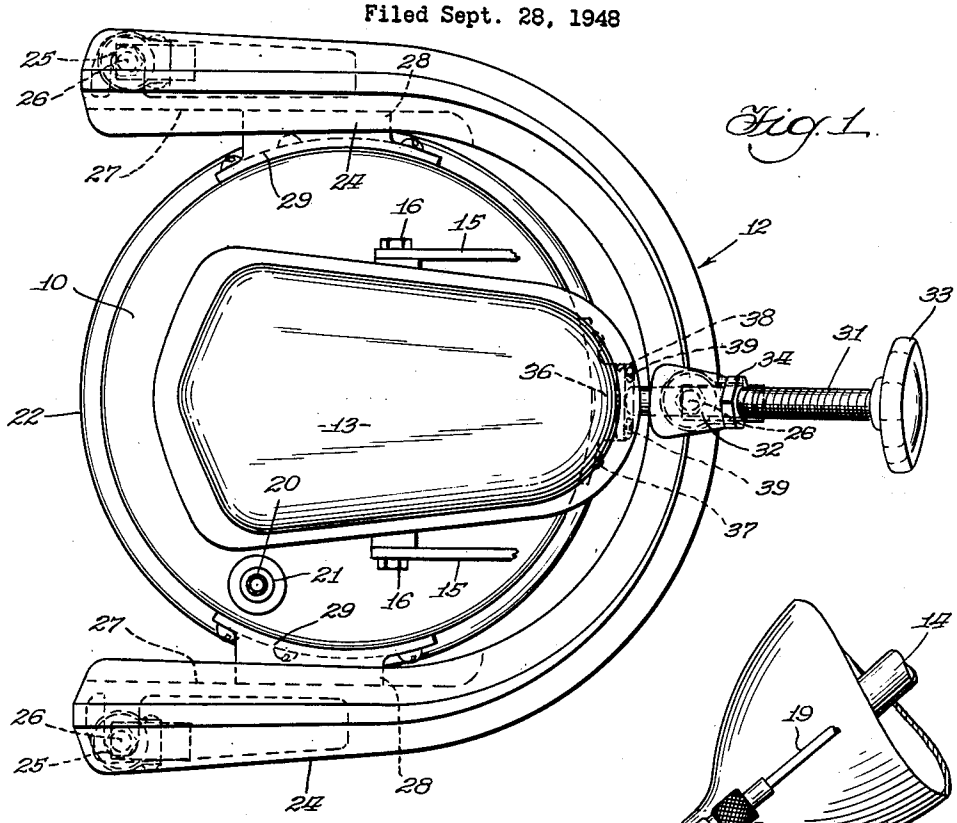


Fig. 1.

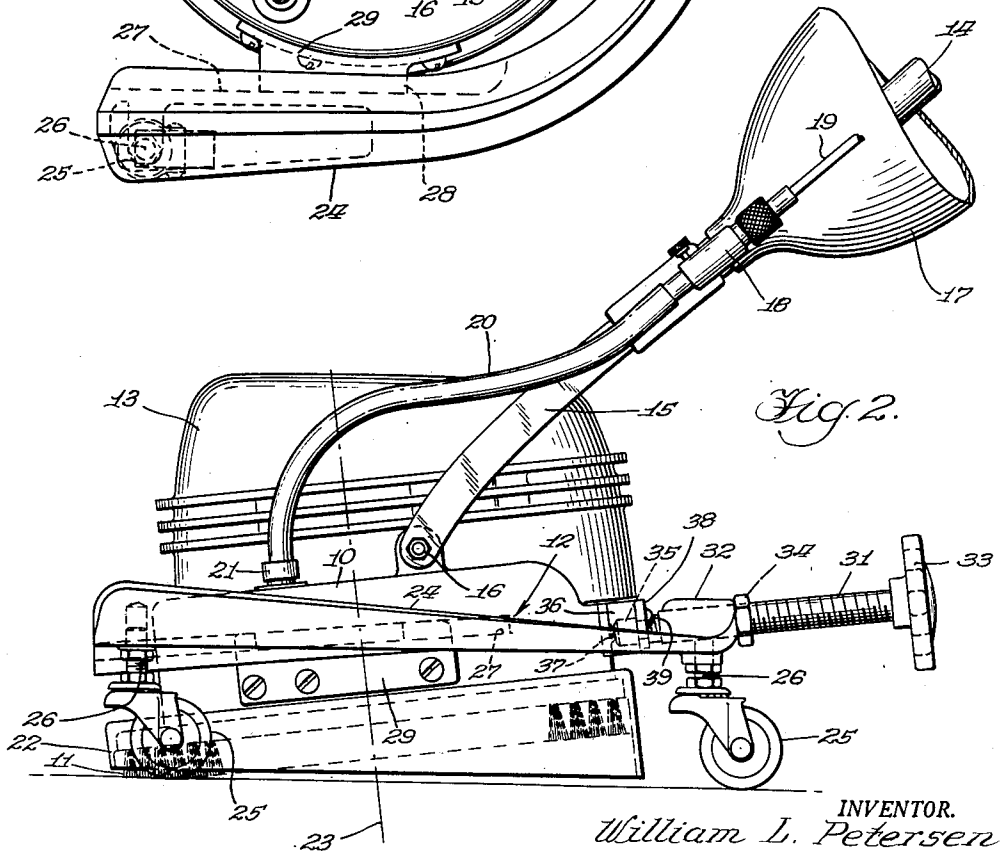


Fig. 2.

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RUG SCRUBBING MACHINE

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The present invention relates to rug scrubbing machines, and more particularly to portable power driven machines employing a flat, motor-driven brush arranged to shampoo rugs when in position on the floor.

It is well known in the art that a machine having a single, generally flat brush rotating on an upright axis so that its lower side bears against the surface of the rug accomplishes certain important advantages over multiple brush machines or brushes rotating on a horizontal axis, for example, but it also is well known that the construction involves certain inherent difficulties of control, since prior developments of machines of this general type have displayed a tendency to creep, wander, and move about the floor in an uncontrolled manner due to the friction between the brush and the surface of the rug.

It is accordingly the primary object of the present invention to provide a novel and improved means for controlling the contact between the brush and the floor so that this tendency is overcome. This involves the provision of an improved frame and cradle structure for supporting the brush, whereby the effective contact between the brush and floor surface may be controlled; both as to the angle of contact of the brush against the floor and also as to the amount of working pressure applied to the brush; so that efficient scrubbing action is attained without bringing about an objectionable tendency to creep or wander.

More specifically, it is an object of the invention to provide a rug scrubbing machine including a main frame having a flat brush on an upright axis and driving means for the brush, together with a supporting frame or cradle coacting with the main frame to effectively control the contact between the brush and rug surface whereby any tendencies of the machine to move with the movement of the brush are overcome without the sacrifice of efficiency of operation.

A further object of the invention is the provision of a rug scrubbing machine having a single, generally flat, rotary scrubbing brush rotatably mounted on an axis that is generally upright but inclined from the vertical, so that only one side of the brush engages the rug; together with means to adjust the height of the brush to suit the machine to operation on rugs having various thicknesses and textures of nap while maintaining a fixed and constant inclination of the axis of rotation.

The present preferred embodiment of the invention is shown in the drawings of this specification wherein:

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Figure 1 is the plan view of a rug scrubbing machine in accordance with these teachings; and

Figure 2 is a side elevational view thereof.

The machine comprises, in general, a main frame 10 which carries a revolving scrubbing brush 11, and a supporting frame or cradle 12 to suspend the main frame and brush above the floor. A motor housing 13 encloses a motor and reduction gearing to rotate the brush, and the unit is ordinarily provided with an upwardly extending handle 14, the lower end of which terminates in a pair of spaced arms 15 pivoted to the frame on the studs 16. It is contemplated that a handle 14 may include a shampoo reservoir 17 and may be provided with a control valve 18 and actuating rod 19 to regulate the flow of liquid shampoo downwardly through a supply tube 20 to an injector fitting 21 in the top of the frame 10.

The liquid shampoo may be fed to the brush 11 in the usual manner, and a flexible skirt 22 extends downwardly from the frame 10 to surround the brush and confine the foam developed by the action of the brush on the rug.

It has been mentioned that it is one of the aims of the present invention to provide a mechanism wherein the rotary scrubbing brush 11 may be raised or lowered with its axis of rotation 23 maintained upright but inclined from the vertical. Thus the axis of rotation is held at a constant, fixed angle with respect to the floor surface, so that only one side of the brush is brought into contact with the floor, since it has been learned that a better scrubbing action is attained in this manner than with the entire surface of the brush in contact with the rug, yet any tendency of the machine to wander is overcome.

To this end the supporting cradle 12 is formed in generally U-shaped or horseshoe shape, as viewed from above, so that the main frame may be positioned between the forwardly extending arms 24 of the cradle. The cradle is provided with casters 25 on adjustable pivot spindles 26 to support the cradle above the floor and to adjust it to a level position.

The inside surfaces of the forwardly extending arms of the cradle 12 are provided with a pair of inclined slides 27 which coact with matching slides 28 secured to the opposite walls of the main frame 10 by flanged brackets 29. Means are provided for shifting the frame 10 longitudinally along the inclined slides so that it is raised or lowered with respect to the cradle, yet held

at a fixed angle of inclination with respect to the floor at all times. In the form of the invention illustrated in the drawings the means for doing this comprise an adjusting screw 31 threaded through a boss 32 at the back of the cradle and provided with a hand wheel 33 and locknut 34. The forward end of the screw 31 is grooved to form an enlarged head 35 which is seated in a socket in the adjusting bracket 36 secured to the frame 10 in any conventional manner, as by machine screws 37. The head 35 of the screw is held in position by a retaining plate 38, secured to the bracket by the screws 39.

In operation, it will be seen that the cradle 12 and its casters 25 will support the frame 10, the brush 11 and the motor housing 13 in such a manner as to maintain the axis 23 of the brush tilted at a fixed angle with respect to the floor irrespective of the longitudinal position of adjustment with the brush in the slides 27—28. The screw 31 provides means for raising or lowering the main housing, however, so that the degree of contact between the brush 11 and the surface of the rug may be precisely regulated to the point where best results are obtained with a rug of any given characteristics of texture or thickness. The brush is raised or lowered by rotating the hand wheel 33 of the adjusting screw 31 to move the frame 10 rearwardly or forwardly in the slides 27—28. Since these slides are angularly disposed with respect to the floorline, and the axis of rotation of the brush is perpendicular to the direction of movement of the slides, movement of the brush back and forth in the slides will cause it to be raised or lowered until the desired degree of contact with the floor is attained.

From the foregoing it will be seen that by the teachings of this invention it is possible to utilize the recognized advantages of a single, flat, rotary type brush, yet to control the contact of the brush on the floor so effectively as to successfully overcome the difficulties of control heretofore encountered in machines of this type.

Moreover, the mechanism here disclosed accomplishes the desired result in a simple and straightforward manner without undue multiplicity or complexity of parts, and by an arrangement wherein all the parts are so assembled and related that the entire unit is rugged yet attractive, and is well adapted to economical mass production methods of manufacture while at the same time suited to convenient and easy servicing, assembly or repair.

Having thus described the invention, what I claim as new and desire to protect by United States Letters Patent is:

1. In a rug scrubbing machine, in combination, a main frame with a single, generally flat, circular scrubbing brush rotatably mounted thereon and positioned below the main frame, and a driving motor and reduction gearing on said frame to drive the brush; a supporting cradle with a plurality of casters to hold the cradle above the surface of a floor; means for supporting the main frame on the cradle at a fixed inclination with respect to the cradle to hold the brush on a tilted axis of rotation; and means for raising and lowering the main frame and brush with respect to the cradle to control the contact of the brush with the floor.

2. In a rug scrubbing machine, in combination, a main frame with a single, generally flat, circular scrubbing brush rotatably mounted thereon and positioned below the main frame, and a driving motor and reduction gearing on said frame to drive the brush; a supporting cradle with means to hold the cradle above the surface of a floor; means for supporting the main frame on the cradle at a fixed incline with respect to the cradle to hold the brush on a tilted axis of rotation, and means for raising and lowering the brush with respect to the cradle to control its contact with the floor; the means for supporting the main frame comprising vertically shiftable coacting slides on the main frame and the cradle.

3. In a rug scrubbing machine, in combination, a main frame with a single, generally flat, circular scrubbing brush rotatably mounted thereon and positioned below the main frame, and a driving motor and reduction gearing on said frame to drive the brush; a supporting cradle with means to hold the cradle above the surface of a floor and means to hold the brush on a tilted axis of rotation; together with means for raising and lowering the brush with respect to the cradle to control its contact with the floor; the means to hold the brush comprising vertically shiftable coacting slides on the main frame and the cradle.

4. In a rug scrubbing machine, in combination, a main frame with a single, generally flat, circular scrubbing brush rotatably mounted thereon and positioned below the main frame, and means to drive the brush; a supporting cradle; means for supporting the main frame on the cradle at an incline with respect to the floor to hold the brush on a tilted axis of rotation, and means for raising and lowering the brush with respect to the cradle to control its contact with the floor, the means for supporting the main frame comprising coacting inclined slides on the main frame and the cradle.

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