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54 **Improved floor cleaning device.**

57 An improved floor cleaning device (10) comprising a tube-like handle (12) of sufficient length for comfortable handling, one end of which is attached to a self-contained fluid reservoir (14). The reservoir (14) is mounted at its lower end to a horizontal manifold (26) and is connected to a fluid conduit formed therein via a hole at the bottom of the reservoir (14). The horizontal manifold (26) has holes (30) in its lower edge. A valve plug (24) provided at the interface between the reservoir (14) and the manifold (26) is movable by motion of a rod (18) connected to a trigger (27) mounted near the other end of the handle (12). Trigger movement of the valve plug (24) allows control of the flow of washing fluid from the reservoir (14) to the fluid conduit in the manifold (26), and through the holes (30) in the lower edge thereof to wet a cleaning material (32) such as a cloth attached to the manifold (26). By controlling the operation of the valve plug (24), the proper amount of washing fluid may be released as required by the cleaning job being performed.

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IMPROVED FLOOR CLEANING DEVICE

FIELD OF THE INVENTION

The present invention relates to devices for cleaning the floor, and more particularly, to an improved floor cleaning device having a self-contained fluid reservoir for providing floor washing liquid without the use of a separate bucket of water.

BACKGROUND OF THE INVENTION

There are many known devices for cleaning the floor. The simplest and most common of these is a wiper mounted as a "T" at the end of a handle constructed of wood, metal or plastic, which is of a sufficient length to allow for comfortable handling. A strip of rubber attached to the wiper by a wooden, metal or plastic holder is used to wipe excess water from the floor, or a cloth spread on the wiper is used to clean or dry the floor.

Various techniques for floor washing are known. One technique for cleaning the floor properly requires spilling water on the floor, with or without cleaning liquid, and wiping the excess water off the floor with the wiper. This is often followed by use of a drying cloth which may be spread over the wiper and then moved over the surface area of the floor.

Another and more common method is to wet the cloth in a bucket of water with or without cleaning liquid, and then to clean the floor by wiping it with the wet cloth spread over the wiper. In the latter method, the drying is achieved either by free convection and evaporation of the water, or by use of a dry cloth as described in the previous method.

Another known device for floor cleaning is known as a mop, which may be constructed of a wooden, metal, or plastic handle of sufficient length for comfortable handling, and a sponge or bundle of thick fibers of fabric attached to its end. The mop is inserted into a bucket of water with or without cleaning liquid, and is applied to the floor for scrubbing. It is also used to wipe excess water from the floor, or to dry it.

In both cases, a bucket of water needs to be carried around for wetting the cloth, or mop, or for gathering the excess water squeezed from the cloth or the mop. Various devices are known for squeezing the excess water from the cloth or mop, which are attached either to the bucket or the mop handle itself.

It is therefore a principal object of the present invention to provide a wiper that has the cloth attached to it, and therefore eliminates the need to apply and remove the cloth several times during use.

It is further object of the present invention to provide a self-contained fluid reservoir to be filled with fluids, such as water, with or without cleaning liquid.

It is yet another object of the present invention to provide a means for wetting the cloth with a desired amount of cleaning liquid, and thus eliminate the need to use a separate container for cleaning liquid.

SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided an improved floor cleaning device comprising:

- an elongate handle;
- a washing fluid reservoir attached at an upper end thereof to one end of said handle
- a manifold mounted at the lower end of said reservoir to form a fluid conduit being oriented generally perpendicular to the handle length;
- valve means disposed between said fluid reservoir and said manifold and arranged for fluid communication therebetween; and
- trigger means mounted on said handle proximate its other end and being connected to actuate said valve means to allow controllable flow of washing fluid from said fluid reservoir through said manifold to a floor surface area.

In the preferred embodiment, the improved floor cleaning device of the present invention comprises a tube-like handle of sufficient length for comfortable handling, one end of which is attached to a fluid reservoir. The reservoir is mounted at its lower end to a horizontal manifold and is connected to a fluid conduit formed therein via a hole at the bottom of the reservoir. The horizontal manifold has holes in its lower edge. A valve plug provided at the interface between the reservoir and the manifold is movable by motion of a rod connected to a trigger mounted near the other end of the handle.

Trigger movement of the valve plug allows control of the flow of washing fluid from the reservoir to the fluid conduit in the manifold, and through the holes in the lower edge thereof to wet a cleaning material such as a cloth attached to the manifold. By controlling the operation of the valve plug, the proper amount of washing fluid may be

released as required by the cleaning job being performed. The cloth is attached by easy-to-remove means such as a clip or rubber band, enabling the removal of the cloth to be washed or replaced as desired.

In the preferred embodiment, the reservoir is transparent and the contents thereof are readily visible.

In an alternative embodiment, the reservoir has a sealed window for viewing the amount of fluid contained therein.

A feature of the invention is the provision of a plug for the washing fluid reservoir, to allow for convenient refilling and to prevent the fluid from spilling if the inventive device is placed horizontally.

Another feature of the invention is the provision of a wiper on the lower edge of the manifold to facilitate wiping of excess washing fluid from the floor.

Other features and advantages of the invention will become apparent from the drawing and the description contained hereinbelow.

DETAILED DESCRIPTION OF THE DRAWING AND PREFERRED EMBODIMENT

For a better understanding of the invention, reference is made to the accompanying drawing Fig. 1 in which there is shown a cross-sectional elevation of a preferred embodiment of the improved floor cleaning device 10 of the present invention. A tube-like handle 12 is attached to a fluid reservoir 14 which may be provided with a sealed window 16, such that the liquid contents of reservoir 14 may be readily visible. A rod 18 passes through the length of handle 12 and reservoir 14, with the point of attachment between them being sealed by an O-ring 20. Handle 12 and rod 18 may be made of suitable materials such as wood, metal or plastic, the portion of rod 18 passing through reservoir 14 being coated to prevent corrosion.

At its upper end, rod 18 is maintained in position by a coil spring 22. At its lower end, rod 18 is fitted with a valve plug 24, which is seated in a hole between reservoir 14 and a horizontally mounted manifold 26 forming a fluid conduit. Rod 18 is attached to a trigger 27 which extends through a slot in handle 12, such that rod 18 is movable within handle 12 against spring 22 by upward pressure on trigger 27. Movement of rod 18 vertically within handle 12 lifts valve plug 24 and unblocks the hole between manifold 26 and reservoir 14.

A removable stopper 28 seated in an aperture at the top of reservoir 14 enables it to be refilled,

while preventing liquid contained therein from spilling if device 10 is left in a horizontal position. A series of holes 30 is provided in the lower edge of manifold 26 to enable liquid to pass therefrom onto a cleaning material such as a cloth 32 which may be retained thereon by a frame 34, or by using clips or a rubber band. Frame 34 is provided separately or may be attached permanently to cloth 32. Attachment of frame 34 to manifold 26 may be by way of an easy-to-remove fastener, such as "tic-tacs" or any other suitable method.

In use, stopper 28 is removed from the filling aperture to allow reservoir 14 to be filled with washing fluid which may be water with or without cleaning liquid. The stopper 28 is then placed in the filling aperture to seal the opening. Application of finger pressure upwards on trigger 27 unseats valve plug 24 and allows a certain amount of washing liquid to pass from reservoir 14 to the fluid conduit of manifold 26. The washing fluid seeps through the holes 30 in manifold 26 to wet cloth 32.

Upon release of trigger 27, spring 22 returns rod 18 to its initial position, thus reseating valve plug 24 and sealing the hole between the reservoir 14 and manifold 26, blocking further liquid passage therethrough. A wiper may be mounted on the lower edge of manifold 26 to allow excess water to be easily wiped away.

As can readily be appreciated, the present invention is very simple to use, and provides the user with an integral wiper, washing fluid reservoir and cloth. By controlling the operation of valve plug 24, the proper amount of washing fluid may be released as required by the cleaning job being performed. Reservoir 14 may be made of such dimensions as to be lightweight, yet sufficient to hold enough washing fluid for cleaning the entire floor area of residential or commercial premises. In this fashion, the need to carry around a bucket of dirty water is eliminated.

In one cleaning technique, pure cleaning liquid which has been poured into reservoir 14 may be diluted therein by the addition of water. Alternatively, reservoir 14 may be used for pure cleaning liquid only, and once this has been applied to cloth 32, manifold 26 may be placed in a bucket of clean water to dilute the cleaning liquid.

Modifications to the present invention may include a telescopic handle 12 and rod 18 arrangement, allowing for increased compactness. The entire length of handle 12 containing rod 18 may pass through reservoir 14 which may be formed as a cylinder. In this way, reservoir 14 is centered about and balanced on handle 12, to increase maneuverability. In addition, reservoir 14 may be arranged for disassembly to allow routine cleaning of its inside surfaces. The cloth 32 may be replaced by any suitable cleaning material such as a sponge or

mop.

Having described the invention in connection with certain specific embodiments thereof, it is to be understood that the description is not meant as a limitation since further modifications may now suggest themselves to those skilled in the art, and it is intended to cover such modifications which fall within the scope of the appended claims.

Claims

1. An improved floor cleaning device (10) comprising:

an elongate handle (12);

a washing fluid reservoir (14) attached at an upper end thereof to one end of said handle (12);

a manifold (26) mounted at the lower end of said reservoir (14) to form a fluid conduit being oriented generally perpendicular to the handle length;

valve means (24) disposed between said fluid reservoir (14) and said manifold (26) and arranged for fluid communication therebetween; and

trigger means (27) mounted on said handle (12) proximate its other end and being connected to actuate said valve means (24) to allow controllable flow of washing fluid from said fluid reservoir (14) through said manifold (26) to a floor surface area.

2. The device of claim 1, further comprising a cleaning material (32) removably attached to said manifold (26), said cleaning material (32) being wet by an amount of washing fluid as determined by said valve actuation.

3. The device of claim 2, wherein said cleaning material (32) is a cloth.

4. The device of claim 3, further comprising a frame (34) permanently attached to said cloth (32), said frame (34) and cloth (32) being arranged for removable attachment to said manifold (26).

5. The device of claim 2, wherein said cleaning material (32) is a sponge.

6. The device of claim 1, wherein said valve means (24) is actuated by said trigger means (27) via a rod connected therebetween, said rod (18) passing through a hollow space formed in said handle (12).

7. The device of claims 1 to 6, wherein the reservoir (14) is formed with a filling aperture sealed by a removable stopper (28) for preventing spillage therefrom

8. The device of claim 1, wherein said reservoir (14) is formed with a sealed window (16) for viewing the amount of washing fluid contained therein.

9. The device of claims 1 to 7, wherein said reservoir (14) is formed of transparent materials and the amount of washing fluid contained therein is readily visible.

10. An improved floor cleaning device (10) comprising:

a handle (12) having mounted at a lower end thereof a manifold (26) forming a fluid conduit and being oriented generally perpendicular to the handle length;

a cylindrical washing fluid reservoir (14) centered about and supported by said handle (12) proximate said manifold;

valve means (24) disposed between said fluid reservoir (14) and said manifold (26) and arranged for fluid communication therebetween; and

trigger means (27) mounted on said handle (12) proximate its upper end, said trigger means (27) comprising:

a rod (18) passing through a hollow space formed in said handle (12), said rod (18) having a tab at an upper end thereof extending through a slot in said handle upper end, and

a coil spring (22) compressed within said handle (12) at its upper end for depressing said rod (18) against said valve means (24) and maintaining it closed,

movement of said tab upwards actuating said valve means (24) to allow controllable flow of washing fluid from said fluid reservoir (14) through said manifold (26) to a floor surface area.

