June 12, 1962 F. M. McNEILL 3,038,192

ROLLER MOP

Filed July 8, 1959

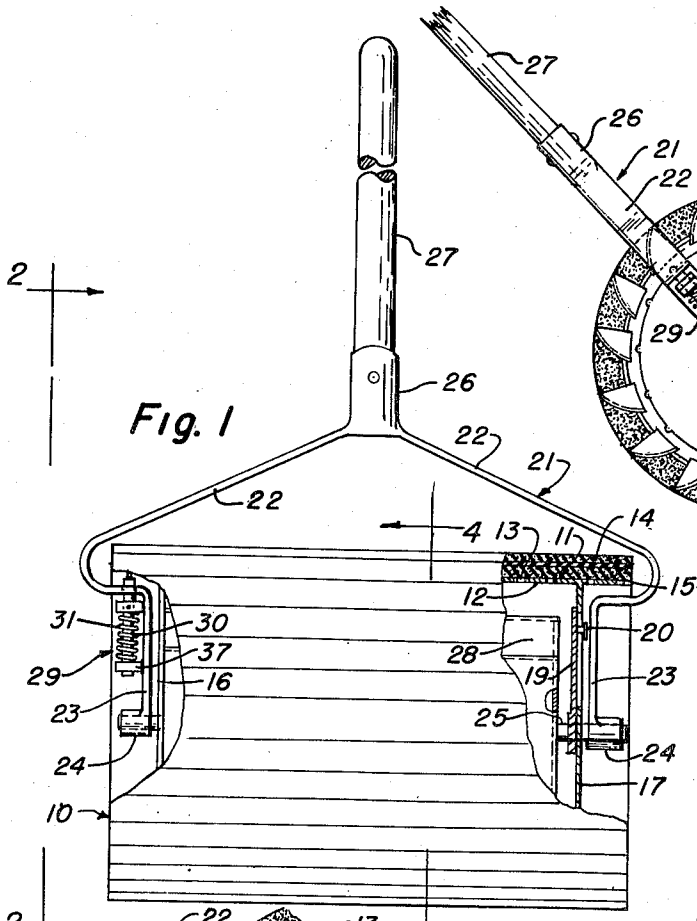


Fig. 1

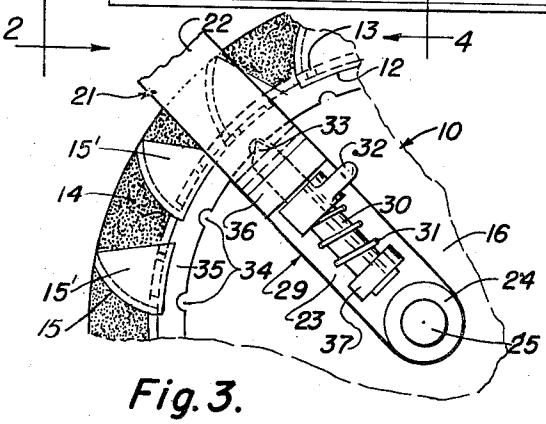


Fig. 3.

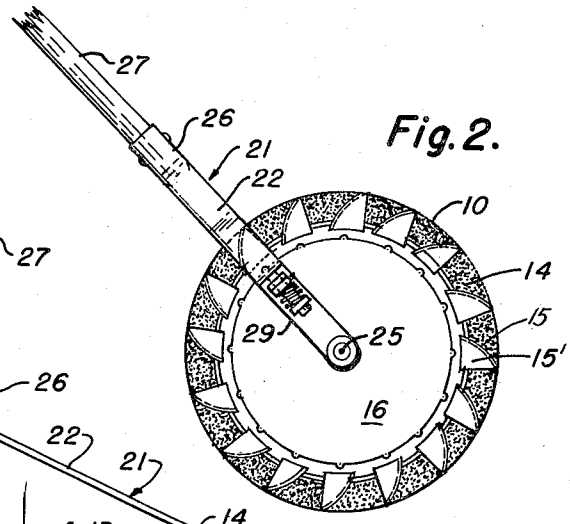


Fig. 2.

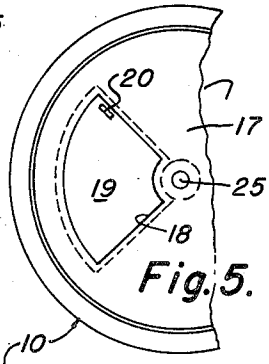


Fig. 5.

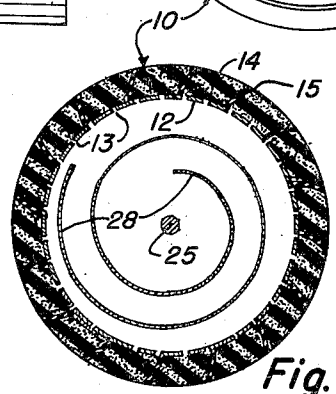


Fig. 4.

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ROLLER MOP

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This invention relates to a mop, and more particularly to a roller type of mop.

The object of the invention is to provide a mop which includes a rotary member as well as a handle, and wherein the mop will provide a means for facilitating the cleaning or mopping of various surfaces such as floor surfaces or the like.

Another object of the invention is to provide a mop which includes a ratchet so that the mop can be moved in either of several directions as desired, and wherein the mop is provided with means for emptying the interior thereof as for example when fluid or water collects or gathers in the interior of the device.

A further object of the invention is to provide a roller mop which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

FIGURE 1 is an elevational view of the roller mop of the present invention, with parts broken away and in section.

FIGURE 2 is an elevational view taken on line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary end elevational view illustrating certain constructional details of the present invention.

FIGURE 4 is a sectional view taken on line 4—4 of FIGURE 1.

FIGURE 5 is a fragmentary elevational view showing one end of the device and illustrating the movable closure.

Referring in detail to the drawing, the numeral 10 indicates the roller mop of the present invention which is shown to comprise a hollow body member or tank 11, and the body member 11 includes a cylindrical outer wall member 12 which is provided with a plurality of apertures or perforations 13 therein. Mounted on the outer surface of the wall member 12 is a cover or layer 14 which may be made of a suitable yieldable material such as a rubber-like sponge material, and mounted in or embedded in the cover 14 is a plurality of spaced apart strips 15.

The body member 11 further includes spaced parallel vertically disposed first and second end walls 16 and 17. The second wall 17 is provided with an opening 18, FIGURE 5, and the closure plate 19 is mounted for movement into and out of opened or closed relation with respect to the opening 18, there being a finger engaging tab or knob 20 for facilitating the movement of the closure 19.

Extending longitudinally through the body member 11 is an axle 25. The numeral 21 indicates a bracket which includes spaced apart arms 22 which have portions 23 arranged contiguous to the end walls, and the portions 23 carry bearings 24 which engage the end of the axle 25. A bushing 26 on the bracket 21 has a handle 27 connected thereto, FIGURE 1.

As shown in FIGURE 4 for example a spirally arranged baffle 28 is arranged within the body member 11 for a purpose to be later described.

The roller mop 10 of the present invention is further provided with a ratchet which is indicated generally by the numeral 29, and the ratchet 29 includes a movable pin

30 which has a coil spring 31 thereon. A finger engaging tab 32 extends from a collar on the pin 30, and the pin 30 is provided with an end portion 33 which is mounted to move into and out of engagement with the notches 34 in a rim 35, the pin 30 engaging bearings 36 and 37, FIGURE 3.

From the foregoing, it is apparent that there has been provided a roller mop, and in use the handle 27 is adapted to be gripped whereby the mop can be rolled along a floor or other surface. Any water or the like which passes through the cover member and through the apertures 13 will be received in the hollow space within the body member 11, and this fluid can be selectively emptied by opening the closure 19. The closure 19 is mounted for movement into and out of opened or closed relation with respect to the openings 18, and this closure 19 is adapted to be manually moved by means of finger engaging tab or lug 20.

When the ratchet 29 is to be actuated, the member 32 can be manually moved so as to compress the spring 31 and this will free the end 33 of the pin 30 and the notches 34 so that the ratchet 29 can be shifted to the desired position, and then when pressure on the member 32 is released, the spring 31 will urge end 33 into engagement with a desired notch 34.

The axle 25 provides a rotary support for the member 11 so that the mop can be conveniently rolled along a surface being cleaned or worked on.

The parts may be made of any suitable material and in different shapes or sizes.

The member or baffle 28 is an integral part of the mop cylinder 11 and picks up water by rotating in the same direction as the sponge covering 14. The device is extremely simple and light in weight and can be made and sold at a low cost.

The wall 12 of the cylinder 11 is perforated as at 13. By manipulating the member 32, the position of the ratchet can be reversed as desired. The strips 15 may be made of synthetic material such as synthetic sponge material.

Thus, it will be seen that there has been provided a roller mop which includes a member 11 which may be made of suitable material such as metal or plastic and which has closed ends and a perforated section as indicated by the numeral 13. One of the closed ends 17 is provided with a closable aperture or opening 18 through which water may be introduced or removed, and there is further provided a centrally mounted stub axle 25. The opposite end as shown in FIGURE 3 is provided with a reversible ratchet mechanism 29 which can be set to permit rotation of the member 11 in either direction, but in only one direction for a given setting on the ratchet.

The frame or bracket 21 as well as the handle 27 are mounted to permit free rotation of the member 11 subject of course to the ratchet imposed restriction previously mentioned.

There is further provided a composite sponge and membrane covering 14 which covers the cylinder or member 11 and renders it operative. This cover consists of alternate layers of synthetic sponge material which are interspersed with thin sheets of rubber or plastic and laid over one another in the manner of roofing shingles. The exposed ends are adapted to be covered with rubber sheeting and the entire assembly is bonded together by means of heat or by means of a suitable adhesive, so as to provide a more or less unified whole.

When this sponge covered cylinder is pushed through a puddle or damp area in such a way as to impart to it the desired direction of rotation, the open edge of any given sponge strip will necessarily be the first portion of that strip to touch the floor and the first portion to leave.

As the cylinder **11** rolls forward the strip passes beneath the cylinder where it is compressed and starts at the back side where it is released from compression. At this point in the manner of all sponges, the strip picks up and absorbs a portion of the water it has come in contact with and retains it to a following revolution of the cylinder and its subsequent next meeting with the floor. This time however the sponge strip is already saturated and the arrangement is slightly different. Again the exposed edge is the first part of the strip to touch the floor and as the compression of this edge develops, the open cells of this part of the strip are pressed closed and water trapped in this area is pushed further up into the sponge strip. As the strip is sandwiched between sheets of a material impervious to water, continued rotation of the mop cylinder shoves the water farther into the strip until it is at last ejected into the inner part of the cylinder where it is retained with about the same degree of efficiency as is displayed by a canvas or skin water bag.

On extremely large cylinders which are designed to hold several gallons and for use in large buildings such as railway terminals and the like, it will be advantageous, because of the greater water pressure involved, to have inside the perforated cylinder a spirally wrapped reservoir **28**. This device will serve to scoop up a little water with each rotation and transport it by succeeding revolutions to the interior part of the spiral. This occurs when motion is properly directed. When reversed, it will dispense water, a little at a time, the amount depending upon the volume of the cylinder and the distance between succeeding convolutions of the spiral wall.

An important aspect of the present invention is the ability of the mop to pick up water when operated in the direction already indicated. Rotation in the opposite direction results in redistribution of the water upon the floor, and with a good bit more dispatch than has been possible with previously provided mops. It is this feature of the mop which makes the reversible ratchet a necessary factor.

Some of the advantages of the present invention are as follows. It requires no mop bucket or wringer, it can be filled at the tap, stoppered, and the ratchet set to cause the roller mop to distribute water over the surface to be cleaned. Effective scrubbing is made possible as the mop, when set to disperse water, slides on the forward stroke and rolls on the back stroke. Finally, the ratchet is reversed, causing the mop to roll in the forward stroke, picking up water as it goes and slide on the floor coming back. This prevents water from being spread over additional territory as frequently occurs when an ordinary mop is handled injudiciously. Inasmuch as the cylinder is drainable and the sponge covering thin and fast drying, this device requires none of the odious rinsing and squeezing associated with all other mops.

In the event that the composite sponge membrane covering wears out, it can be readily replaced as desired or required.

As shown in the drawings, sponge strips and alternate membranes are arranged or provided, and the alternate

layers of sponge strips and membranes are applied to the perforated cylinder in shingle fashion. The membrane strips **15** are longer than the cylinder or the sponge strips and the surplus as indicated by the numeral **15'** is wrapped around the ends of the sponge strips and cemented down in such a manner that each sponge strip is individually wrapped sides and ends, but not edges. The membrane covering of each strip insures that water entering the outer edge of that strip does not eject into an adjoining strip rather than into the interior of the perforated cylinder. The covered ends retain water that would otherwise be ejected from the ends leaving a wet streak to mark each extremity of the mop passage.

I claim:

1. In a roller mop, a hollow cylindrical body member including an outer cylindrical wall member provided with a plurality of spaced apart apertures therein, a cover of yieldable material mounted on the outer surface of said wall member, said body member further including first and second spaced parallel end walls, an axle extending through said end walls, a bracket including spaced apart arms having bearings on their ends engaging the ends of said axle, means mounted for operation between the bracket and the cylindrical body member for selectively preventing rotation of the body member in a particular direction, a handle connected to said bracket, and a spirally arranged baffle arranged in said body member, there being a discharge opening in said second end wall, and a manually movable closure mounted for movement into and out of opened and closed relation with respect to said discharge opening.

2. A roller mop comprising a hollow cylindrical body member embodying an outer cylindrical wall member having a plurality of spaced apart apertures therein, a cover of yieldable material mounted on the outer surface of said wall member, said cover consisting of alternate layers of material which are interspersed with thin sheets of material, said layers and thin sheets being bonded together, said body member further embodying first and second spaced parallel end walls, an axle extending through said end walls, a bracket embodying spaced apart arms and bearings on the ends thereof engaging the ends of said axle, a handle connected to said bracket, a spirally arranged baffle arranged in said body member and providing a fluid reservoir, there being a discharge opening in said second end wall, a manually movable closure mounted for movement into and out of open and closed relation with respect to said discharge opening, a ratchet mechanism connected to said first end wall, said ratchet mechanism comprising a movable pin, a spring member engaging said pin, a rim having a plurality of spaced apart notches therein, said notches adapted to selectively receive an end of said pin, said ratchet mechanism being reversible.

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