July 5, 1949. M. P. LA SCALA ET AL 2,475,189

LIQUID DISPENSER FOR FLOOR WAXING MACHINES

Filed March 12, 1946

Fig. 1

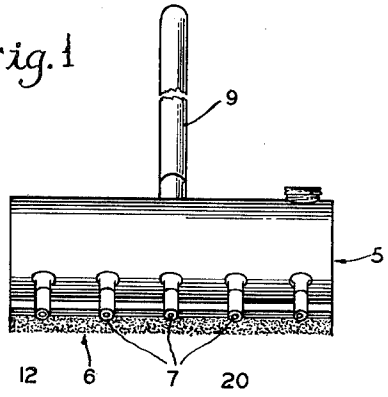



Fig. 2

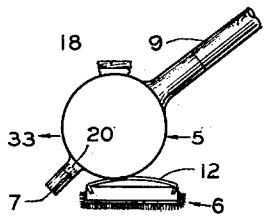



Fig. 6

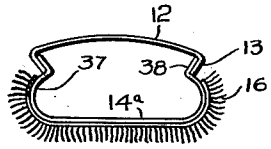



Fig. 3

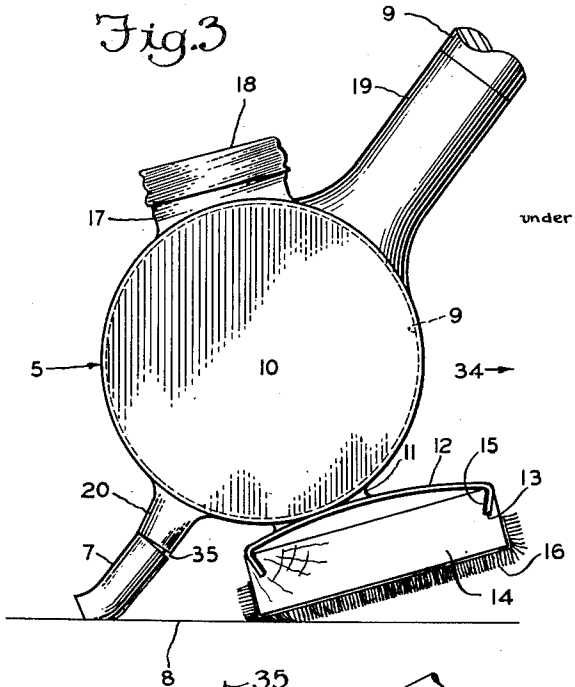



Fig. 4

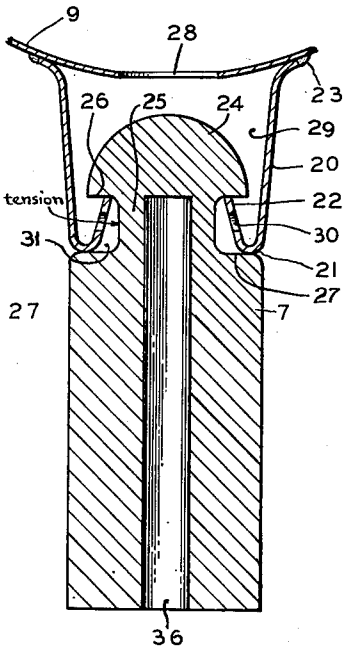
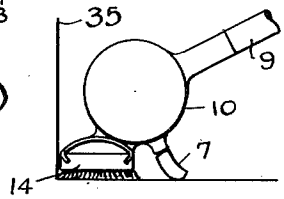



Fig. 5

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Patented July 5, 1949

2,475,189

# UNITED STATES PATENT OFFICE

2,475,189

## LIQUID DISPENSER FOR FLOOR WAXING MACHINES

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Application March 12, 1946, Serial No. 653,737

7 Claims. (Cl. 222—323)

1

This application relates to a device for applying liquid surfacing materials to floors. Its general object is to provide a successful reservoir type wax applicator.

Many attempts have been made to provide a successful applicator in which liquid wax is fed from a reservoir to a spreading device. Such devices have almost invariably been unsatisfactory, largely because of the nature of the liquid wax. Being a floor covering material, liquid wax must necessarily be capable of coalescing to a hard tough substance. Consequently, it will cake and harden in any fluid channels that are provided for delivering it to a floor surface.

One of the objects of our invention is to provide an applicator including distributing means for conveying liquid from a reservoir to a floor surface and having a spreader adapted to pick up the liquid thus conveyed to the floor surface and spread it into a uniform film. The spreader is separate from the distributing means and is removable so that it may be immersed in a cleaning solution for washing out the accumulation of wax therein. An object of the invention is to provide an applicator of this type having a spreader that can thus be easily cleaned and having distributing means that is relatively free from clogging and can be cleaned without difficulty in the event of clogging.

An important characteristic of the invention is the provision of distributing means in the form of a plurality of fingers which direct the liquid wax to the floor surface by the flowing of the wax along the exterior surfaces of the fingers as contrasted to the flowing of a liquid wax through a hollow duct. It will be readily apparent that any caking that takes place on the spreader fingers will be on the exterior surfaces which are fully exposed for cleaning. Furthermore, even though the spreader fingers are not cleaned, the liquid wax can continue to flow to the floor surfaces over the layers of hardened wax already collected on the fingers.

Another object of the invention is to provide an applicator having spreader fingers that are adapted to flex in a manner to remove the layers of hardened wax thereon, the layers of wax being loosened and separated from the surfaces of the fingers by the flexing action.

Another object of the invention is to provide an applicator having a spreader and a plurality of distributing fingers so arranged with reference to the spreader than in the normal back and forth movement of the applicator it will ride upon the spreader, tilting backwardly and forwardly just

2

sufficiently to bring the distributor fingers into contact with the floor surface during one stage of the movement and to lift the distributor fingers from the floor surface during another stage of the movement.

Other objects of the invention will become apparent in the ensuing specifications and appended drawings, in which:

Fig. 1 is a front elevation of a wax applicator embodying our invention;

Fig. 2 is a side elevation of the applicator;

Fig. 3 is an enlarged side elevation of the applicator in a different stage of operation;

Fig. 4 is a detailed sectional view of one of the distributor units;

Fig. 5 is a side elevation of a modified form of the invention; and

Fig. 6 is a detail of a modification of the spreader.

As an example of one form in which the invention may be embodied, we have shown in the drawings a wax applicator embodying generally a reservoir 5 for liquid wax, a spreader 6 attached to the underside of the reservoir, a plurality of distributor fingers 7 for conveying liquid wax from the reservoir 5 to a floor surface 8, and a handle 9 by means of which the applicator is manipulated.

The reservoir 5 is elongated and of sufficient length to traverse the width of a strip of wax that is to be laid by the applicator. It embodies a lateral wall 9 which may be cylindrical, and end walls 10. Attached to its lower side, as by soldering at 11, is a curved yoke 12 having downwardly extending flanges 13 that converge downwardly and toward each other.

A spreader 6 embodies a back 14 having inwardly converging slots 15, receiving the flanges 13. To the lower side of the back 14 is secured a pad 16 which may be, for example, of sheepskin.

In the upper side of the reservoir 5 is a filling neck 17 which is normally closed by a cap 18 threaded thereon. The handle 9 is secured in a socket 19 which in turn is secured to the reservoir 5.

The distributor fingers 7 are elongated and molded from soft rubber or equivalent material so as to be flexible. The fingers may have any cross-sectional shape although they are preferably of cylindrical shape as shown.

The upper end of each distributor finger 7 is attached to the reservoir 5 through the medium of a collar 20 the lower extremity of which is turned inwardly to define a valve seat 21 and terminates in an annular flange 22 inside of and spaced from the main wall of the collar. The upper end of the

collar 20 is secured, at 23, to the cylindrical wall 9 of the reservoir 5.

Each distributor finger 7 has in its upper end a head 24 joined to the body of the finger by a reduced neck 25. The lower side of the head 24, adjacent the neck 25, defines a shoulder 26 which is engaged against the upper end of the flange 22, and the upper end of the body portion of the finger 7, at the lower extremity of the neck 25, defines a shoulder 27 which is engaged normally against the valve seat 21. The finger is installed in the collar 20 with the neck 25 under tension, which results in the shoulder 27 being yieldingly drawn against the valve seat 21.

The wall 9 of the reservoir is provided with a plurality of openings 28 communicating with the sumps 29 defined within the respective collars 20. The sumps 29 in turn communicate, through openings 30 in the flange 22, with annular valve chambers 31 defined between the flanges 22, the necks 25 and the shoulders 27. The sumps 29 and valve chambers 31 are filled with liquid wax at all times (as long as some wax remains within the reservoir) and consequently the openings 30 do not become clogged.

In operation, the applicator is drawn back and forth in a path parallel to the vertical plane of the handle 9. As the applicator is pushed away from the operator, it will approach a position somewhat as shown in Fig. 2. That is, the applicator will tend to tilt rearwardly from the position shown in Fig. 3 toward the position shown in Fig. 2 (resulting in the distributor fingers 7 being lifted off of the floor) as the natural result of pushing the applicator forwardly, provided that in the beginning of the stroke the operator's arm extends rearwardly from the shoulder in order to grasp the handle 9. As the arm swings forwardly toward a position depending vertically, the hand will swing downwardly, moving the handle 9 downwardly and tilting the applicator rearwardly. This forward stroke is indicated by the arrow 33 in Fig. 2.

On the return stroke, indicated by the arrow 34 in Fig. 3, the upward and rearward swinging of the hand will cause the handle 9 to be raised, bringing the distributing fingers 7 into contact with the floor surface. This will cause the fingers 7 to flex as indicated in Fig. 3 and will also cause the neck 25 to stretch on the lower side, pulling the shoulders 27 away from the valve seats 21 to produce gaps 35 through which the liquid wax may flow onto the under surfaces of the fingers. The liquid wax will follow the surfaces of the fingers downwardly onto the floor, and will thence be spread onto the floor in a plurality of relatively narrow ribbons corresponding to the distributor fingers 7. As the applicator is again moved forwardly, the pad 16 of the spreader will pick up these ribbons of liquid wax and spread them into a film extending uniformly the width of the applicator.

The distributor fingers 7 are each formed with an axial bore 36. A finger is inserted into a collar 20 by inserting a rod into a bore 36 and then pushing the head 24 through the opening defined within the flange 22. Being of soft rubber, the head 24 will be compressed so as to pass through this restricted opening and such compression is assisted by the restriction of the pressure against the head to the small central area at the end of the bore 36. After it has passed the flange 22, the head 24 will of course expand to its natural size, engaging the end of the flange as shown in Fig. 4. By applying the spreader finger in this manner, it is possible to place the neck 25 under initial tension which maintains the resilient engagement of the shoulder 27 against the valve seat 21.



The bore 36 has another function. As a distributing finger 7 is pressed downwardly against the floor 8, it will flatten out to a greater extent by reason of being hollow than if it were solid. This flattening out assists in initially spreading the wax.

The distributor finger 7, instead of being arranged forwardly of the spreader pad 8, may be arranged to project downwardly and rearwardly as shown in Fig. 5, with the spreader pad 8 disposed on the forward side of the reservoir 10. This makes it possible for the spreader 6 to be pushed entirely into a corner of a room, into contact with a vertical wall 35 as indicated in Fig. 5.

In this form of the invention, a contact of the distributor fingers 7 is made at the forward extremity of the stroke instead of at the rear extremity as in Fig. 3. The forward extremity of the stroke would in this case be arrived at when the operator's arm is extending substantially vertically downwardly, the rear extremity of the stroke occurring when the arm is extended rearwardly.

A preferred form of spreader structure is shown in Fig. 6. Instead of a wooden block, we provided a sheet metal spreader head 14a having rounded side walls 37 terminating in upwardly and outwardly flared flanges 38. The flanges 38 are engaged between the flanges 13 of the yoke 12. The retention of the spreader head within the flanges 13 may be improved by forming the spreader head with the flanges normally spaced farther apart with the distance between the inner sides of the flanges 13, and springing the flanges 38 toward each other as the head is forced between the flanges 13. Thus the spreader head is held between the flanges 13 under compression.

The spreader head 14a is formed by first constructing a sheet metal channel having the flanges 38 projecting at right angles to the web portion thereof which is uniformly flared, and subsequently bending the side regions of the web to form the curved side walls 37.

We claim as our invention:

1. A combined valve and distributor for use with a liquid carrying reservoir comprising, a collar having an inturned portion defining an annular end extremity constituting a valve seat, said inturned portion terminating in a reentrant flange provided with an opening, an integral distributor finger of resilient, compressible elastic material including a head portion engaged against the inner edge of said flange, a neck portion normally under tension and extending through the flange, and a shoulder normally held in seating engagement with the seat by the tension in said neck portion, said distributor finger being adapted to flex laterally of the collar under pressure against the surface to which the liquid is to be applied, and thereby to pull one side of the shoulder away from the seat and provide an opening through which liquid may flow from within the collar to the exterior surface of the distributor finger.

2. A distributing device as defined in claim 1, wherein said distributor finger is of soft rubber.

3. A distributing device as defined in claim 2, wherein said distributor finger has an axial socket adapted to receive a rod for forcing said head through the flange in the installation of the distributor finger.

4. In a floor waxing device having a reservoir, a collar projecting from the reservoir and having an inwardly and upwardly turned portion terminating in a reentrant annular flange and defining a valve seat at the lower end of the collar, said flange having an upper edge spaced from said valve seat, and a distributor finger of compressible, resilient material carried by said collar and having a head engaging the upper edge of said annular flange, a neck portion under tension and extending through the flange, and a shoulder held by the tension of said neck portion in sealing engagement with said valve seat, said flange having an opening through which liquid from the reservoir flows downwardly to the valve seat, and the distributor finger having a body portion projecting downwardly from the valve seat and adapted to be pressed against the floor and thereby moved laterally so as to stretch said neck portion and pull said shoulder away from the valve seat at the lower side thereof, whereby to permit the liquid to flow down the exterior surface of the distributor finger to reach the floor surface.

5. In a floor waxing device having a reservoir, the reservoir having a part forming an annular valve seat, a distributor finger of compressible, resilient material having a reduced neck portion defining spaced head and shoulder portions, the shoulder being normally engaged with said valve seat, a support for the head passing the neck portion and having a lateral opening passing material from the reservoir to the seat, the support having a portion spaced from said valve seat and engaged by said head portion of said finger to hold said neck portion under tension, whereby said shoulder is normally yieldingly held in sealing engagement with said valve seat, said distributor finger also including a body portion projecting downwardly from the valve seat and adapted to be pressed against the floor and thereby moved laterally to stretch said neck portion and pull said shoulder away from said valve seat at the lower side thereof permitting liquid to flow from the reservoir, through said opening and through said seat, and down the exterior surface of the distributor finger to reach the floor.

6. An applicator for applying liquid to a surface including, a container carrying liquid and having an outlet opening at the lower portion thereof defined by an inturned part establishing a downwardly faced annular seat and an upwardly faced support spaced above the seat axially of the opening, there being a fluid passage through said part between the seat and the



support, a unitary body of rubber having a part projecting downwardly and presenting a face normally supported on said seat, a head above said body and carried by the support and a neck under tension between the body and head, and a handle projecting from the container, the projecting part of the body being exposed for movement into pressure engagement with the surface to deflect the body and partially disengage the face from the seat.

7. An applicator for applying liquid to a surface including, a container carrying liquid and having a sheet metal section at the lower portion of the container with an opening defined by an inturned portion of said section establishing a downwardly faced annular seat and an upwardly faced support spaced above the seat axially of the opening, there being a fluid passage through said portion between the seat and support, a unitary body of rubber having a part projecting downwardly and presenting a face normally supported on said seat, a head above said part and carried by the support and a neck under tension between said part and head, and a handle projecting from the container, the said downwardly projecting part being operable into pressure engagement with the surface to deflect said part and partially disengage the face from the seat.

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