

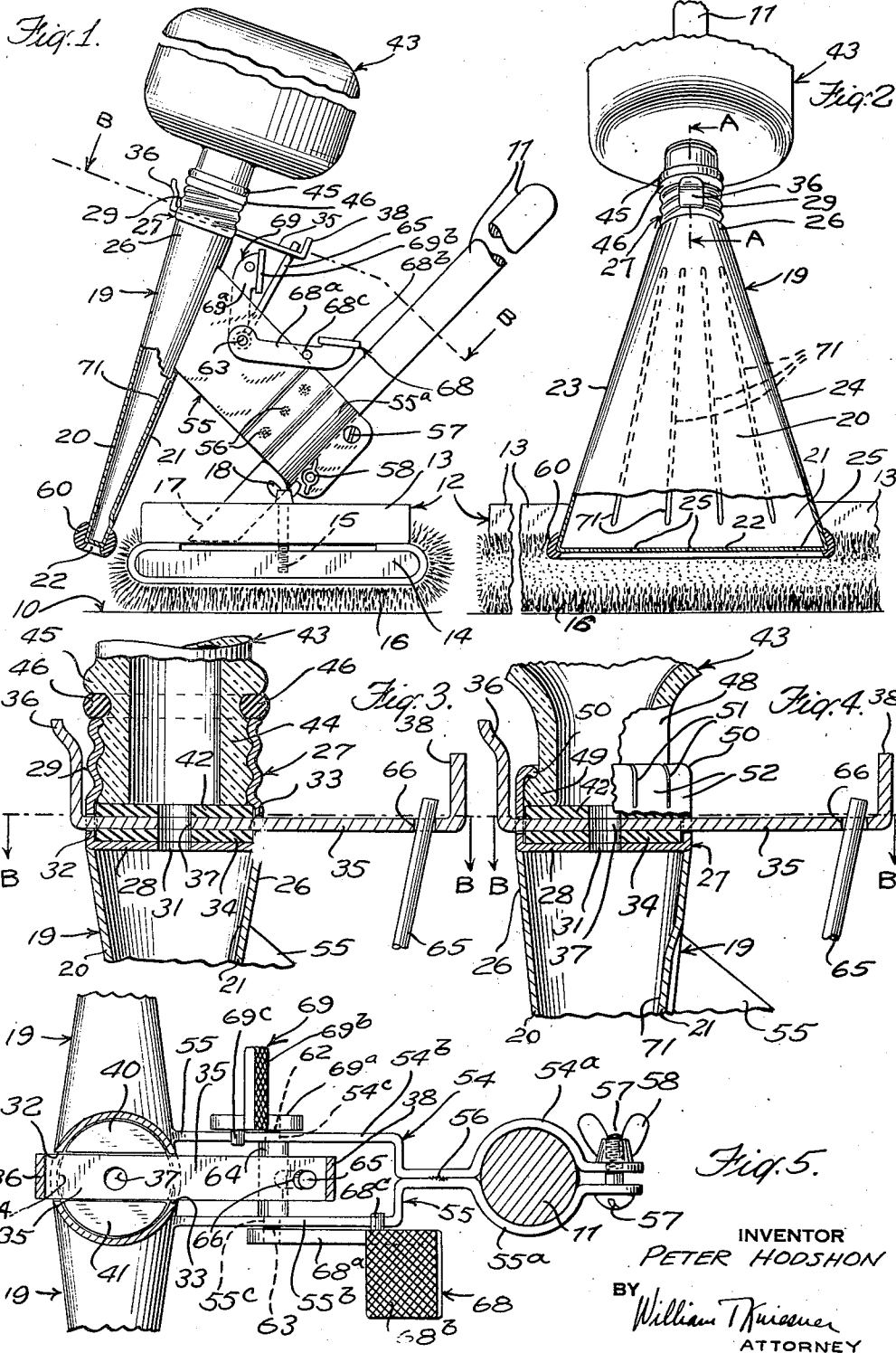
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LIQUID WAX APPLICATOR DEVICE

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LIQUID WAX APPLICATOR DEVICE

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This invention relates to devices for applying liquid such as liquid floor wax to floors, flooring, and like surfaces.

One of the objects of this invention is to provide a simple, practical, and inexpensive device of the above-mentioned character, capable of being embodied in light and compact form and of being easily and conveniently operated and controlled. Another object is to provide a device of the above-mentioned character by which a rubbing or mopping action and accompanying supply of the liquid to the floor or like surface may be carried out manually with ease and comfort, with economy of liquid wax, and with simplicity, convenience, and efficiency of manual effort. Another object is to provide a practical, economical, and efficient device for supplying wax or the like to a mop or other polishing device, so constructed that it can be quickly and dependably assembled to such a mop or rubbing device and dependably and controllably coat therewith to achieve the desired results. Another object is to provide a device of the above-mentioned character in which standard types of wax containers may be employed as the source of liquid wax and may be simply and conveniently attached or detached. Another object is to provide, in a device of the above-mentioned kind, for the simple and convenient assembly, manipulation, and control of the several elements that make up the complete entity so as to make it possible to avoid need for mechanical skill, the use of special tools, or the like. Another object is, in general, to provide an improved device for treating floors, flooring, and the like with liquids such as waxes, and other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which is shown by way of illustration one of the various possible embodiments of this invention,

Fig. 1 is a side elevation of the completely assembled device, ready for use;

Fig. 2 is an elevation as seen from the left in Fig. 1;

Fig. 3 is a fragmentary vertical sectional view on a larger scale as seen along the line A—A of Fig. 2, illustrating also one embodiment of certain features;

Fig. 4 is a fragmentary vertical sectional view

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on a larger scale as seen along the line A—A of Fig. 2, illustrating another form of certain features of the invention, and

Fig. 5 is a transverse sectional view on a larger scale as seen along the line B—B of Fig. 1, showing also certain details of construction as seen along the line B—B of Figs. 3 and 4.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring first to Figs. 1 and 2 of the drawing, let it be assumed that the surface of a floor 10 or the like is to be treated by the application thereto of a coating of a liquid material such as liquid wax, it being noted at this point that the amount of wax to be applied should be relatively small and that it should be applied in a film or layer of substantially uniform thickness; also the liquid wax should be more or less worked to insure evenness of coating thickness and to insure more or less working of the wax into the pores, minute cracks or crevices, or the like in the material of which the floor or flooring is made. For these latter purposes I prefer to employ a mop-like device comprising a handle 11 carrying at its lower end, and at a suitable angle as indicated in Fig. 1, a head 12 which preferably presents a relatively flat undersurface against which is supported a suitable rubbing, spreading, or polishing material such as a suitable textile material, or a sheet of animal pelt in which the hair or like fibers are carried by the tanned skin, of which a preferred embodiment is mohair. The head 12 is preferably constructed in any suitable way to permit the ready replacement of the pad-like rubbing element, and thus it may comprise an upper block 13 and a lower block 14, both of wood, of which the lower block 14 is provided with upstanding threaded studs 15 which pass through spaced holes in the upper block 13 to receive wing nuts 16 whereby to detachably clamp the opposed end portions of the pad-like rubbing element 16. The upper block 13 is preferably made of substantial thickness, and midway of its width it is provided with a hole 17 preferably threaded and extending at an angle so as to detachably receive therein the lower threaded end of the handle 11 which is of suitable length so that a person in substantially upright position can conveniently reciprocate the padded head 12, toward the left and right as seen in Fig. 1, along the surface 10 to be treated.

To this assembled entity I secure, preferably detachably in a manner later described in detail, a liquid supplying device or applicator which I construct also to serve as a carrier for the bottle,

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can, or other container in which the liquid such as liquid wax may be supplied. This device is generally indicated by the reference character 19 and it is preferably made of sheet metal, preferably in the configuration indicated in the drawing. Thus, it may have a front wall 20 and a back wall 21 which are downwardly convergent (see Fig. 1) to terminate in a narrow bottom wall 22 which is of a longitudinal extent (see now Fig. 2) commensurate with or approximating the width of the head 12 in advance of which this relatively thin, transversely elongated, lower end portion of the device 19 projects. The front and back walls 20, 21 are closed off at their side edges by side walls 23 and 24 which, due to the upwardly converging side edges of the front and back walls 20, 21, likewise converge upwardly (see Fig. 2). The bottom end wall 22 is provided with suitable apertures suitably distributed throughout its length, as indicated in Fig. 2. These apertures, depending upon the viscosity of the particular material being handled, may be of any desired size, they may be of the same size throughout, or they may be of varied sizes; for example, where the longitudinal extent of the device 19, as seen in Fig. 2, is materially less than the corresponding dimension of the rubbing element 12, the endmost apertures may be made larger than intermediate apertures.

The four walls 20, 21, 23, and 24 of the device 19 will thus be seen to gradually merge upwardly to terminate in a neck 26 (Figs. 1 and 2), which is preferably circular in cross-section, and secured thereto, as by soldering, brazing, welding, or the like, is a cap-like member 27, which may take various forms; in the form shown in Figs. 1, 2, and 3 the member 27 has a disk-like bottom wall 28 and a cylindrical side wall 29 which is provided with internal threads (see Fig. 3) which, if the cap member 27 is made of sheet metal, can be spun or rolled. The cap member 27 may thus be inexpensively and separately constructed and secured to the neck 26, as above described.

The bottom wall 28 of the element 27 is provided with a hole 31 preferably centrally located, and at diametrically opposed points spaced upwardly from the bottom wall 28, the cylindrical side wall 29 is provided with rectangular slots 32 and 33 into which, after a centrally apertured, disk-like gasket 34 has been seated against the bottom 28, an elongated sheet-metal strip 35 is inserted, the latter being cross-sectioned to be snugly received in the opposed slots 32 and 33 for nicety and ease of sliding movement therealong. The part 35 is materially greater than the diameter of the cap element 27; it has one end thereof bent upwardly at right angles, as at 36, and spaced to the right (Figs. 3 and 4), from the bent part 36, the part 35 is provided with a hole 37 which, when the part 36 abuts against the cap element 27 externally, is in axial alignment or registry with the hole 31 in the bottom 28 and also the hole in the gasket 34. Because of this relationship and coaction, part 36 is first bent up before the slide part 35 is inserted through the slots 32, 33, and thereafter the opposite end part is bent upwardly, as at 38.

The part 35 thus overlies gasket 34, and to either side of the part 35 (see now Fig. 5) are inserted segment-shaped pieces 40 and 41 which may be of metal or of gasket material, being of a thickness on the order of the part 35, and with their upper faces lying in a common plane they support a centrally apertured, disk-like member 42, of gasket material, snugly received within and

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held by the cylindrical walls of the cap part 27. The gasket parts may be made of any suitable gasket or other yielding material, such as natural or synthetic rubber, cork, yieldable fibrous or cork compositions, or the like.

Where the container 43, usually of glass or metal, is provided with a filler or dispensing opening in the form of a threaded neck, as at 44 in Fig. 3, it is preferably also provided with an integral annular bead 45 at the inner terminus of the external threads, and onto the latter and against the bead 45 there is now placed a ring 46 of a suitable resilient or other yielding gasket material such as rubber, whence the threaded container neck 44 is threaded into the internal threads 29 of the cap member 27.

The annular end face of the neck 44 presses against the upper gasket 42, in effect compressing between itself and the cap bottom 28 the intervening parts, and those that are made of gasket material yield and insure tightness or seal of junctions or joints, while at the same time permitting sliding movement of the part 35, guided by the slots 32 and 33, relative to the parts within the cap 27 that surround the sliding part 35. At the same time the upper ring gasket 46 is compressed, and it is preferably so proportioned, as by making its cross-section oversize, that the threaded bottle may be backed off by a fraction of a turn and still maintain a good seal by the gasket ring 46 in the event that the initial assembly of the container to the device 19 effected too tight a clamping of the slide part 35.

Where the container, usually either glass or sheet metal, is provided with a neck 48, as in Fig. 4, where the neck terminates in an external annular bead 49 about which is crimped a sheet-metal sealing cap, the cap part 27 is constructed as above described, except that instead of the threaded cylindrical side walls 29 of Fig. 3, the cylindrical side walls are internally beaded, as at 50 in Fig. 4, and are provided with a suitable number of vertical slits 51 to provide intervening, internally beaded tongues 52 which, due to the springiness of the sheet metal, can spring or yield radially outwardly when the beaded neck 48 is forced downwardly into the cap member 27, whence they spring radially inwardly over the bead 49 of the neck 48 to hold the container 43 in assembled relation and by the cam action of the curved faces of the beads 49 and 50, continuously draw the container 43 downwardly. The resultant compression of the parts between the annular end of the neck 48 and the bottom 28 of the cap insures tightness of seal of all of the parts, against leakage.

The device 19 is secured preferably to the handle 11, preferably also detachably, as by a bracket structure extending radially with respect to handle 11 and comprising two suitably heavy and companion sheet-metal pieces 54 and 55 (Figs. 1 and 5) secured at their left-hand edges to the back wall 21 of the device 19, as by brazing, soldering, welding, or the like; adjacent their outer portions they are secured together, as by spot welding, as at 56, and thence each extends in half-cylindrical conformation, as at 54^a and 55^a, to receive therebetween the round handle 11 which is tightly and securely gripped frictionally when the clamping bolts 57 (Figs. 1 and 5), provided with wing nuts 58, draw the parts 54^a and 55^a toward each other by way of the extreme end flanges through which the bolts extend. The bracket structure 54—55 is preferably so dimensioned and secured to the device 19 at such an an-

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gle that the lower right-hand corner of the bracket structure, in engaging the block 13 of the head 12, positions the apertured or discharge end 22 just in advance of the padded portion of the head 12 at a distance, say, about three-fourths of an inch, above the floor surface 10, thus insuring that the device 19 is not by accident positioned so low as to bring the discharge end 22 of the device 19 into engagement with the floor surface during normal reciprocating movement transmitted to the head 12 by the handle 11.

However, and if desired, the lower or mouth or discharge end of the device 19 may have applied to it, preferably all around it and peripherally, a bead-like band 60 (Figs. 1 and 2) which is preferably made of a non-metallic and yieldable material, such as natural or synthetic rubber. It may be secured in place in any suitable way, as by cementing, and preferably projects somewhat below the apertured mouth end of the device 19, thus also forming downwardly and peripherally projecting lips which protect the floor surface 10 from direct engagement with the rigid or hard parts of the device 19, whether the engagement with the floor is inadvertent or intentional; in the latter case, the yielding rubber-like lips, between which the liquid wax is discharged from the apertures 25, could act as rubbing or spreading elements independently of or in coaction with the pad-like rubbing element 16. The laterally projecting portions of the pad 60 function also as cushioning and protective bumpers should the device be inadvertently brought into engagement with parts of furniture, baseboards, or the like.

In use the slide part 35, using upwardly bent parts 36 and 38 as handles, is first slid toward the right and into the position shown in Figs. 1, 3, 4, and 5, thus bringing the orifice or aperture 37 into registry with the hole 31 and the holes or orifices in the gasket members 34 and 42, the upwardly bent part 36, in engaging the outside of the cap part 27, fixing the position of the valve slide part 35 for such registry and hence for maximum valve opening and maximum flow of liquid from the container 43 into the interior of the device 19. Coupled with the entry of air into the container and through the valve openings, the flow of liquid wax is more or less intermittent, a gurgle or small volume of air passing upwardly into the container at more or less regular, small periodic intervals. The liquid, due to the inclination of the back wall 21 (Fig. 1), drops onto the latter and moves downwardly, spreading out laterally (Fig. 2), and it may accumulate to a small depth above the bottom wall 22 onto which it is spread by the downwardly diverging back wall 21, the holes 25 in the latter being preferably relatively small, on the order of $\frac{1}{8}$ inch in diameter, with the endmost apertures somewhat larger, for example, $\frac{1}{4}$ inch in diameter, with the result that the smaller apertures or orifices permit a lower rate of discharge therethrough so that the endmost and larger apertures are insured of supply of liquid for passage therethrough. As the assembled entity is thus reciprocated manually, the device 19 nicely distributes liquid in advance of each leftward stroke (Fig. 1) and following each stroke to the right; on each leftward stroke the pad 16 distributes and rubs in the liquid wax thus supplied, and because the mouth end of the device 19 is of lesser dimension than the width of the head 12 and pad 16 (Fig. 2), each leftward stroke (Fig. 1) need not follow the path of the preceding stroke but may ex-

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tend at an angle thereto, for the greater width of the rubbing pad 16 adequately takes care of and spreads and rubs in the wax supplied during the preceding stroke to the right.

The rate of supply of liquid wax may be varied at will by setting the valve slide part 35 more or less to the left of the position shown in Figs. 3 and 4, thus to vary at will the effective size of the orifice formed by the aligned holes in the immovable parts and the displaceable orifice 37 in the valve part 35, and thus the rate of supply of liquid wax through the mouth end of the device 19 may be suited to the desired requirements. By displacing the slide part 35 to the left in Figs. 1, 3, 4, and 5, so that the valve orifice 37 is completely between the parts 34 and 42, discharge of liquid from the container 43 is cut off completely and the small quantity, if present, above the bottom wall 22 (Figs. 1 and 2) is relatively rapidly discharged during continued reciprocating actuation of the assemblage, whence the device may be put away.

The slide valve part 35 is easily moved manually, using the bent parts 36 and 38 as individual handles, or applying the thumb to one and the forefinger to the other. However, if it is desired to eliminate the need of stooping down to set the valve slide 35, I prefer to provide simple and foolproof foot-operated means for controlling the valve slide 35, and for that purpose I prefer to shape the bracket parts 54 and 55, as shown in Fig. 5, so that portions 54^b and 55^b thereof are spaced apart and preferably parallel to each other, thus also making for better rigidity and strength of attachment to the back wall 21 of the device 19. The spaced bracket parts 54^b and 55^b are provided with bearing holes 54^c and 55^c through which project and by which are rotatably supported the stud-like shafts or trunnions 62 and 63 of a part 64 which has secured to it an upstanding lever arm 65 that projects upwardly and through a hole 66 (Figs. 3, 4, and 5) in the slide valve part 35 adjacent the right-hand finger-piece 38.

To the projecting end of the trunnion 63 is non-rotatably secured a treadle lever 68, which is preferably in the form of a sheet-metal stamping, having an arm 68^a, one end of which is secured to the shaft part 63 and having a treadle part 68^b bent at right angles thereto, and out of the plane of the arm 68^a is cut and bent a lug 68^c (Figs. 1 and 5), the path of movement of which is intersected by the bracket part 55^b. These parts are so proportioned and so secured to the lever-carrying part 64 that when the foot is placed on the treadle 68^b and the lever 68 swung in clockwise direction in Fig. 1 to an extent where the stop lug 68^c engages the bracket part 55^b, the slide part 35 occupies the position shown in Figs. 3, 4, and 5, giving maximum valve opening. The stop lug 68^c prevents accidental or other over-stressing of the parts by the foot power applied.

To the opposite end trunnion or shaft part 62 is secured a treadle lever 69, preferably also a sheet-metal stamping, having an arm part 69^a which at one end is secured to the shaft part 62 and which at its other end has a treadle part 69^b bent at right angles to the plane of the arm part 69^a, and also a stop lug 69^c bent into the plane of the bracket part 54^b. Treadle lever 69 is secured to the rotatable carrier part 64 in such angular relation to the treadle lever 68 that when the latter is in lowermost position, as shown in Figs. 1 and 5, and with the stop lug 68^c in engagement with the bracket part 55^b, the treadle part

69^b of the lever 69 is in uppermost position, as indicated in Fig. 1, and accordingly, when it is desired to shift the valve slide part 35 toward or into closing position, treadle lever 69 is the only one that can be actuated by downward foot power, for treadle lever 68 is stopped by the parts 68^a and 55^b, and hence treadle lever 69 is depressed in counterclockwise direction (Fig. 1) to the desired extent for adjusting the valve opening and to maximum extent for valve closing, the stop lug 69^c engaging the bracket part 54^b to limit the actuation of the parts in valve-closing direction and thus prevent overstressing any of the movable parts.

Foot control of the valve mechanism is thus simple and foolproof, and is achieved by mechanism which is inexpensive to construct and simple and inexpensive to assemble, it being noted that the bracket structure 54—55, with the treadle levers and valve-actuating lever, may be assembled as a sub-unit and, as such, the end edges of the parts 54^b and 55^b subsequently assembled or secured to the back wall 21 of the device 19.

The valve structure is simple and inexpensive and is thoroughly dependable in practical use, it being noted that the yieldability of the gasket parts, such as the parts 34, 42, and also, if desired, of the segment-shaped parts 40—41, need not be subjected to extreme pressures to effect sealing, for the surfaces along which leakage is to be guarded against, including the relatively sliding surfaces of the valve part 35, are of substantial area or expanse, and a high intensity of contact pressure need not be resorted to. Moreover, the vertical dimensions of the guiding slots 32 and 33 (Figs. 3 and 4) are preferably materially larger than the thickness of the valve slide part 35 to provide large leeway of self-accommodation vertically of the several parts subjected to the clamping pressure and thus binding of the slide part 35 in the guiding slots can be avoided.

The entire device is readily attachable to or detachable from the handle and when attached and carrying the container 43, ease and convenience of manual manipulation of the entire entity is facilitated by reason of the fact that the assemblage makes for a low center of gravity and, as will be seen from Figs. 1 and 2, the center of gravity, even with material change in the volume or quantity of liquid wax in the container 43, falls in a vertical line that is pretty close to the center of the rubbing pad 12—16; thus unbalance during use of the apparatus can be avoided, and the weight of the container and its contents adds to the pressure with which the pad part 16 engages the floor surface 10, lessening the amount of manual downward pressure that need be applied by way of the handle.

The relatively large internal space within the walls 20—24—21—23, coupled with the downwardly divergent dimension of that space, aids also in distributing the liquid material lengthwise, as seen in Fig. 2, of the discharge end of the space or chamber, and if that discharge end contains discharge orifices or apertures as in the preferred form shown in Fig. 2, a better feeding of liquid to them is also achieved in that, depending upon the viscosity of the liquid and the rate at which it discharges as determined by the valve opening, the reciprocating movements of the apparatus can cause the liquid to impinge upon principally the back wall 21, but also upon the front wall 20, and from the latter it can drop off onto the back wall 21 at various points in its descent along the wall 20. If desired, the

back wall can be provided with a suitable number of downwardly extending and downwardly divergent rib-like guides 71 which, if the part 19 is made of sheet metal, can be pressed inwardly of the wall 21 in a stamping operation, giving the back wall a strengthening or reinforcing action which is advantageous where the bracket structure 54—55 is attached directly to the back wall 21. These internally projecting ribs 71 can act as guides to spread the downwardly moving liquid and improve its distribution throughout the long and narrow discharge end of the device 19.

The apparatus will be seen to be simple, compact, and easy to assemble, operate, and control, requiring no particular mechanical skill in its application, control, or use. As above noted, the valve slide 35 can be easily operated by hand or by the foot-treadles, as may be desired, and with the structural relationships illustratively described above, it will also be noted that in manufacture and assembly the foot-treadle structure as a unit may be omitted from the assembly or included, its assembly to the spaced bracket parts 54 and 55 being simply by way of the holes 54^c and 55^c in the bracket parts and its operative connection to the valve slide 35 being simply by way of the part 65 and the hole 66 in the slide valve 35.

It will thus be seen that there has been provided in this invention a device in which the several objects above noted, together with many thoroughly practical advantages, are successfully achieved.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A floor waxing apparatus comprising a pad-like rubbing device having a handle extending therefrom at an angle, a liquid wax distributor comprising a device having a front and back wall with downwardly diverging end walls terminating at their lower ends in an apertured discharge mouth and terminating at their upper ends in an inverted cap-like member having a bottom wall with a hole therein and having upstanding side walls for receiving the neck of an inverted liquid wax container, a slide valve member having a hole therein and having means for slidably supporting it for movement relative to said bottom wall to bring its hole into or out of registry with the hole in the latter, and bracket means secured to said distributor and having means for attachment thereof to said handle to position the distributor with its said apertured discharge mouth in cooperative relationship to said pad-like rubbing device.

2. An apparatus as claimed in claim 1 in which said slide valve member extends above and parallel to the bottom wall of said cap-like member, the side walls of the cap-like member having slots therein adapted to receive said slide valve member and to guide it and to expose there-through at least one part of the slide valve member for actuation thereof.

3. An apparatus as claimed in claim 1 in which said bracket extends radially from said handle and said slide valve member is in the form of an elongated relatively narrow strap-like part of a length greater than the diameter of the cap-like

member, said side walls having slots therein aligned in the direction of said bracket means and adapted to receive and guide said slide valve whereby said slide valve part is movable in directions toward or away from said handle, and lever means pivotally carried by said bracket means and having connection with said slide valve part for effecting lengthwise shift thereof relative to the hole in said bottom wall.

4. An apparatus as claimed in claim 1 in which said bracket means extends radially from said handle said slide valve member is in the form of an elongated relatively narrow strap-like part of a length greater than the diameter of the cap-like member, said side walls having slots therein aligned in the direction of said bracket means and adapted to receive and guide said slide valve whereby said slide valve part is movable in directions toward or away from said handle, two foot-treadle means having means movably mounting them on said bracket means and means limiting movement thereof, and operating connections between said treadle means and said slide valve member.

5. An apparatus as claimed in claim 1 in which said slide valve member is positioned above said bottom wall, and an apertured gasket is provided within said cap-like member between said bottom wall and said slide valve member and a second apertured gasket is provided above said slide valve member, said gaskets thus being positioned below a container received in said cap-like member and subject to compression by a container brought into contact with said second gasket.

6. An apparatus as claimed in claim 1 in which the cylindrical wall of said cap-like member is threaded and adapted to receive the discharge

portion of a container having a threaded discharge portion, and apertured gasket means in said cap-like member for engagement with the threaded portion of the container, received in said cap-like member, the aperture of the gasket means being aligned with the hole in said bottom member.

7. An apparatus as claimed in claim 1 in which the said wax container has a discharge portion with a peripheral bead and the cylindrical wall of said cap-like member is yieldable radially and provided with a peripheral bead adapted to fit over and engage the said peripheral bead on the discharge portion of the container, and apertured gasket means are provided in said cap-like member for engagement with said portion of the container, the aperture therein being aligned with the hole in said bottom member.

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