April 20, 1954 J. J. McCARTHY 2,675,571

LIQUID APPLICATOR OF THE SELF-FEEDING TYPE

Filed June 24, 1952 2 Sheets-Sheet 1

FIG. 1.

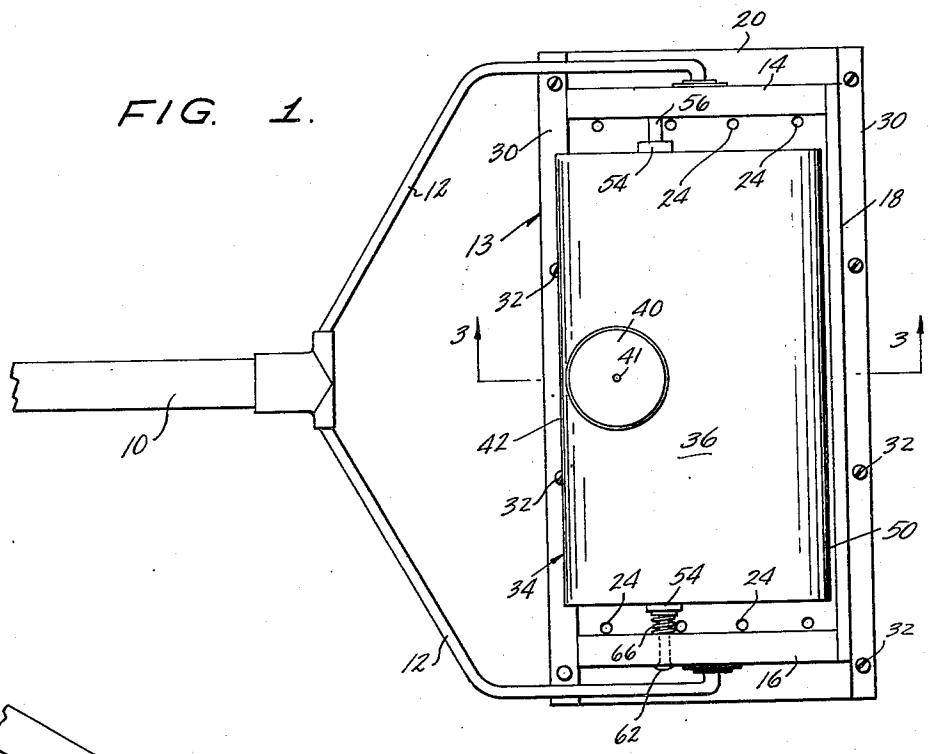
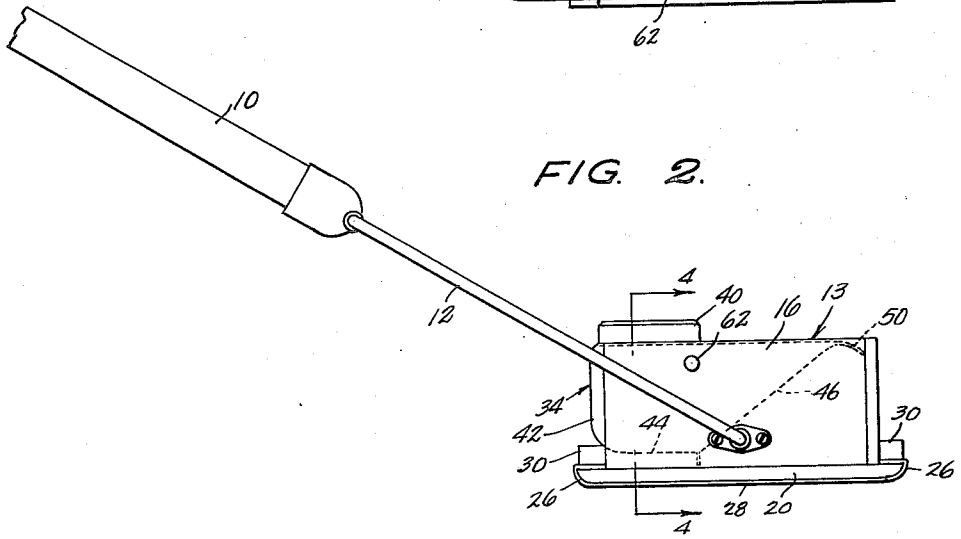


FIG. 2.



INVENTOR.
JOHN J. McCARTHY,
BY
McMorrow, Berman + Davidson
ATTORNEYS.

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FIG. 3.

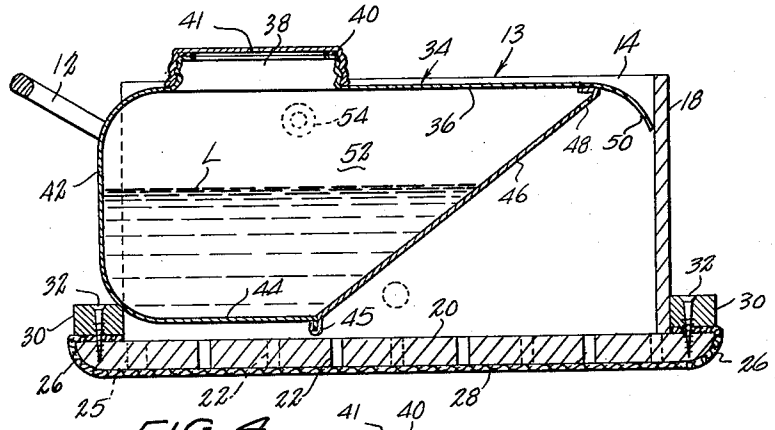


FIG. 4.

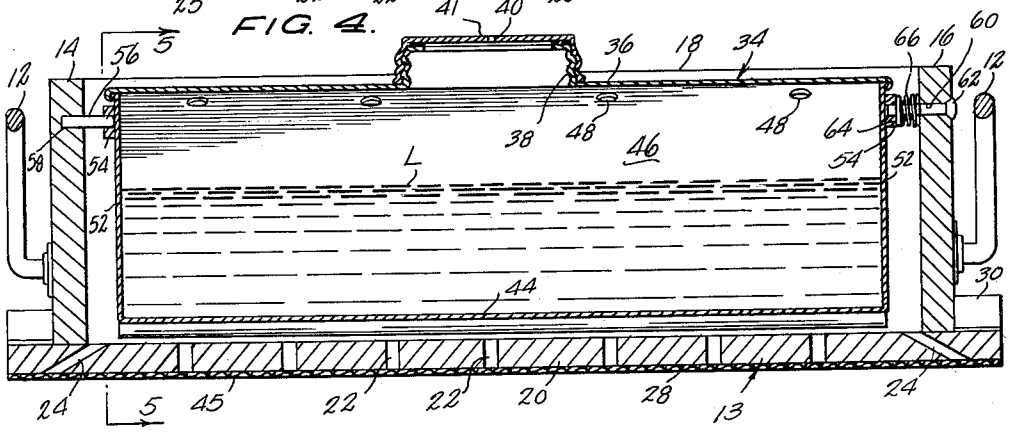
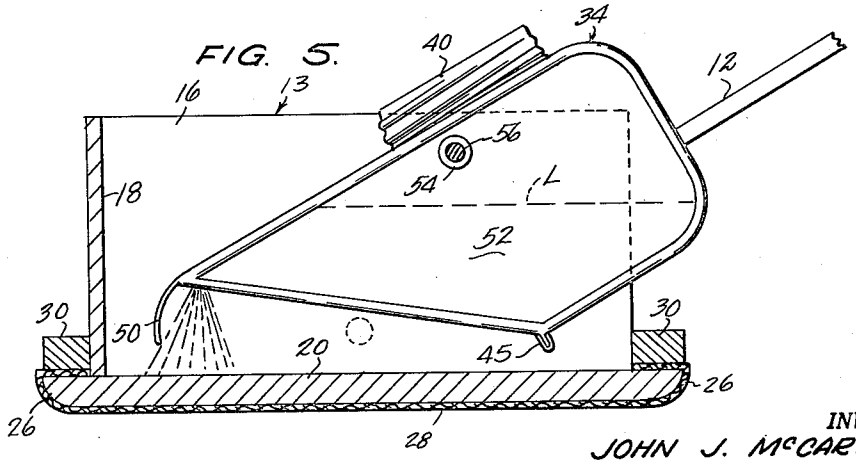


FIG. 5.



INVENTOR.
JOHN J. McCARTHY,
BY
McMorrow, Berman & Davidson
ATTORNEYS.

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LIQUID APPLICATOR OF THE SELF-FEEDING TYPE

John J. McCarthy, Buffalo, N. Y.

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2 Claims. (Cl. 15—131)

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This invention relates to applicator devices, and more particularly, has reference to an applicator adapted to be reciprocated upon a floor surface, to coat a quantity of conditioning liquid upon said surface. In this connection, the invention, summarized briefly, comprises a body having a handle thereon, whereby a user can move the body back and forth upon a floor surface, the body being adapted to coat upon said floor surface a conditioning liquid deposited on the body. The invention further includes a tiltable tank mounted on the body and adapted to contain a quantity of said liquid, the tank automatically tilting to one position on displacement of the liquid contained in the tank, responsive to a reversal of the direction of reciprocating movement of the body. In said position of the tank, the tank is adapted to dispense a quantity of said liquid, for depositing of the liquid upon the body and subsequent coating of the liquid upon the floor surface.

It is one important object of the present invention to provide a device of the character referred to which can be manufactured at relatively low cost, and will be free of power-driven assemblies or other mechanisms that would tend to increase its cost of manufacture.

Another object of importance is to provide a device as described wherein the particular formation of the tank will be such as to cause the tank to normally assume a position in which the liquid contained therewithin will not be deposited upon the body, the shape of the tank being such as to cause the liquid to shift in the tank whenever the direction of movement of the tank supporting body is reversed, thus to cause the tank to be automatically tilted to a liquid-dispensing position.

Another object is to provide a device of the type stated wherein the tank will be readily removable from the body supporting the same, for emptying of the tank after the floor conditioning operation is completed, and for easy cleaning of the tank.

Still another object is to provide, in a tank as described, a particular formation which will facilitate the complete emptying of the tank after use thereof.

A further object of importance is to provide anti-splash means on the tank which will guide the liquid dispensed from the tank to the desired location upon the floor-engaging body.

Still another object is to provide a device as described which will be capable of operation with a minimum effort on the part of the user, and

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with a minimum amount of motion, a steady reciprocating motion of the device being all that is necessary.

Still another object is to provide a device of the type stated wherein cessation of the motion of the body will automatically be effective to retain the tank in a position in which no further quantities of liquid will be dispensed.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

Fig. 1 is a top plan view of an applicator device formed in accordance with the present invention, a portion of the handle being broken away;

Figure 2 is a side elevational view;

Figure 3 is a sectional view taken on line 3—3 of Figure 1;

Figure 4 is a sectional view taken on line 4—4 of Figure 2; and

Figure 5 is a sectional view taken on line 5—5 of Figure 4, the tank being illustrated in its tilted, liquid-dispensing position.

The applicator device constituting the present invention includes an elongated handle 10 which will usually be disposed in an inclined position during the use of the device, as shown in Figures 1 and 2.

The handle extends longitudinally and centrally of the device, and at its front end, is provided with a ferrule to which are secured the rear ends of forwardly diverging fork arms 12, said arms 12 comprising a yoke and having parallel front end portions formed, at their forwardly disposed ends, with inturned lateral extensions rotatably engaged in upstanding side plates 14, 16 respectively.

The side plates 14, 16 comprise component parts of a body designated generally by the reference numeral 13, and as will be noted, the side plates are of generally rectangular configuration, and extend upwardly at opposite sides of the body, the side plates being spaced transversely of said body.

A front plate 18 of the body is also vertically disposed, and is extended transversely of the body, said front plate being secured at its opposite ends fixedly to the forwardly disposed edges of the side plates 14, 16.

Secured fixedly to the bottom edges of the front and side plates is a horizontally disposed, rectangular bottom plate 20 which, as best seen in Figures 3 and 4, is formed with a plurality of dispensing openings 22. The openings 22 can be

arranged in any desired manner, and in the present instance, are disposed over substantially the full area of the bottom plate, in parallel rows extending transversely of the bottom plate, the openings of one row being staggered relative to the openings of the row adjacent thereto.

At the side portions of the bottom plate, additional dispensing openings 24 are formed (Figure 4), the openings 24 being inclined, and being adapted to permit liquid to flow from the body to locations below the side plates 14, 16.

Adjacent the back edge of the bottom plate, an additional row of dispensing openings 25 is provided, the openings 25 being greater in diameter than the diameter of the openings 22, as shown in Figure 3. The purpose of these larger diameter openings is to insure that all liquid deposited upon the body for movement through the dispensing openings will be guided through said openings, and will not splash rearwardly of the body. Thus, the larger, openings 25 will accommodate any excess of liquid deposited upon the body, which excessive liquid might otherwise tend to splash or flow rearwardly over the back edge of the body during the forward movement of the same over a floor surface.

The front and rear edges of the bottom plate 20 are rounded off as at 26, in the preferred embodiment of the invention, so as to promote the adaptability of the body for coating a surface conditioning liquid uniformly upon a floor surface over which the body is reciprocated.

Underlying the body, and suitably tensioned over the bottom surface of the body, is a flexible applicator pad 28, said pad being pervious to a surface conditioning liquid deposited thereon through the dispensing openings 22, 24, 25, thus to permit the pad to spread the liquid evenly and uniformly over the floor surface, in a desirably thin coat.

The pad 28, as can be seen from Figure 3, has its front and rear edge portions extended over the rounded parts 26 of the bottom plate, said edge portions of the pad being fixedly connected to the bottom plate by bars 30 extending transversely of the bottom plate along the front and rear edges thereof, said bars being provided with screws 32 or equivalent fastening elements, which screws pass through the bars at locations spaced longitudinally of the bars, and pass through the portions of the pad underlying the bars, into the bottom plate.

Mounted to rock freely above the bottom plate is a tank designated generally at 34, said tank being provided with a top wall 36, which, in the normal position of the tank shown in Figure 3, is horizontally disposed. The top wall 36 can be formed of a suitable piece of relatively thin sheet metal material, and intermediate the opposite side edges of said top wall, and adjacent the back edge of the top wall, is an upwardly flanged filler opening 38, the flange of said opening being screw threaded to receive a screw cap 40 having an air vent 41 formed therein.

At its rear edge, the top wall 36 of the tank merges into a vertically disposed back wall 42, said back wall in turn merging, along its lower edge, into a bottom wall 44. As will be noted from Figure 3, the bottom wall 44 and the top wall 36 are disposed in vertically spaced, parallel relation, but as will be seen from the drawing, the bottom wall 44 is substantially smaller in width than the top wall.

At the front edge of the bottom wall 44, a depending flange is formed, said flange being crimped with a folded flange formed on the bottom edge of an inclined front wall 46, that extends between the front edges of the top and bottom walls respectively of the tank.

The means employed to connect the front edge of the bottom wall 44 and the bottom edge of the inclined front wall 46 defines a depending fin 45 extending from side to side of the tank, and spaced closely above the top surface of the bottom plate 20 of the body 13. The purpose of this fin is to prevent splashing of a liquid L contained within the tank, when said liquid is dispensed to the bottom plate.

It is believed to be of importance to note that where the back wall 42 merges into the top and bottom walls 36, 44 respectively, the tank is gently rounded, with the rounded corners defined by this construction having the special purpose of permitting the proper displacement of the liquid L contained within the tank, when the tank is to be automatically tilted to a dispensing position thereof shown in Figure 5. Additionally, the upper corner, shown in Figure 3, merges directly into the flanged filler opening 38 of the tank, and as a result, when the tank is removed from the body 13 on which it is normally supported, any residue of liquid contained with the tank can be guided by said upper, rounded corner directly to the filler opening, thus to assure the complete emptying of the tank after the device has been used.

Formed in the front wall 46, adjacent the intersection of said front wall with the top wall 36, is a row of spaced dispensing apertures 48 (Figure 4), said apertures being spaced from side to side of the tank and being adapted for dispensing of the liquid L from the tank on to the bottom plate 20. As will be noted from Figure 3, said apertures are normally located above the level of the liquid L deposited in the tank, and thus, when the device is at rest, the liquid will not be dispensed onto the bottom plate 20.

Formed integrally with the front edge of the top wall 36 is a forwardly extended, downwardly curved lip or splash guard 50. The splash guard, as will be noted from Figure 5, is so formed as to cause any liquid forced through the apertures 48 to be directed against the curved bottom surface of the splash guard, thus to be guided onto the bottom plate 20. Additionally, the guard prevents the liquid from being splashed forwardly from the tank in the dispensing position of the tank.

Completing the formation of the tank 34 are vertically disposed side walls 52.

Fixedly secured to the respective side walls, intermediate the front and rear edges of the tank are outwardly faced, recessed bearing plates 54 (Figure 4). It is important to note, in this regard, that the bearing plates are disposed adjacent the top wall 36, and are spaced substantially vertically above the forwardly disposed edge of the bottom wall 44 (Figure 3). As a result, when the device is at rest, the tank will swing to the position thereof shown in Figure 3, since the liquid deposited in the tank will be contained, for the most part, at one side of the horizontal axis of rocking movement of the tank. Movement of the tank beyond the normal position thereof shown in Figure 3 is prevented by rear bar 30, which engages the tank at the intersection of the back and bottom walls 42, 44 respectively.

In one of the bearing plates 54, I seat one end of a short spindle 56, said spindle extending

into a recess 58 that is arranged coaxially with the recess of the bearing plate 54. The recess 58 is formed in the side plate 14.

Extending into the recess of the other bearing plate 54 is the inner end of a removable pin, said pin extending through an opening 60 formed in the side plate 16 of the body 13, and being designated by the reference numeral 62. The pin 62, at its outer end, has a head projecting outwardly from the side plate 16, and adapted to be grasped by the fingers of a user, so as to permit the removal of the pin 62 from the opening 60. This arrangement is intended to permit removal of the tank 34 from the body 13, for emptying of the tank or for any other purposes.

In any event, the inner end portion of the pin 62 is provided with a circumferential collar 64, said collar being engaged by one end of a coil spring 66 surrounding the shank of the pin 62, said spring being held under compression between the collar 64 and the adjacent inner surface of the side plate 16. This arrangement permits the tank 34 to be mounted for free rocking movement about a horizontal axis arranged transversely of the line of reciprocating movement of the body 13, while at the same time being adapted to be separated wholly from the body whenever desired.

Considering the operation of the device, the user would normally fill the tank to a level such as that shown in Figure 3. Thereafter, as a first step the tank is manually tilted to the position thereof shown in Figure 5, for a short interval, after which the device is reciprocated bodily in a steady, back and forth movement, over the floor surface to be conditioned.

During the forward movement of the device, the tank will be in the position thereof shown in Figure 3. However, at the end of said forward movement of the body, and on reversal of the direction of movement of the body, the tank will automatically tilt the position thereof shown in Figure 5, due to the displacement of the liquid L contained within the tank. As will be noted, the particular formation of the tank having the inclined front wall 46, and the particular location of the axis of rocking movement of the tank relative to said front wall, facilitates the displacement of the liquid in the tank at this time.

In any event, the liquid will cause the tank to be over-balanced forwardly of the axis of rocking movement of the tank, as a result of which the tank will tilt as shown in Figure 5, so as to now dispose the dispensing apertures 48 below the level of the liquid L.

The liquid will thus be caused to flow from the tank through the dispensing apertures 48 on to the bottom plate 20. As the body is moved rearwardly, the quantity of liquid deposited upon the top surface of the bottom plate 20 of the body will flow through the several openings 22, 24, 25 and will be coated uniformly upon the floor surface by the pad 28.

At the rear terminus of the line of reciprocating movement of the body, the liquid again will be displaced, in an opposite direction, thus to cause the tank to return to the normal position thereof shown in Figure 3. The tank will remain in said normal position during the forward movement, once again, and the operation will be repeated at the forward terminus of the line of reciprocating movement of the body.

The net result is to accomplish the uniform and even coating of the floor surface with a surface conditioning liquid such as a self-polishing wax.

It is an important characteristic of the invention, in this regard, that the construction which I have devised is such as to eliminate the necessity of power-operated assemblies used for dispensing the liquid and coating the liquid upon the floor surface. Thus, the cost of manufacture of the device is reduced considerably, and at the same time, the device is adapted to assure the even coating of a conditioning liquid upon a floor surface. Additionally, it is believed to be of importance that the construction is so arranged, as to permit liquid to be dispensed automatically at desirable, spaced intervals of time, the dispensing of the liquid being wholly responsive to the change of direction of movement of the body while the body is being moved forwardly and backwardly over the floor surface.

Still further, it is considered to be of importance that the tank construction is such as to facilitate the emptying of the tank at the completion of the operation, and it is also considered to be an important characteristic of the invention that the tank includes anti-splash means which will prevent splashing of the liquid either forwardly or rearwardly of the tank, thus to cause all the liquid to be guided through the dispensing openings of the bottom plate.

It is believed clear that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In an applicator of the self-feeding type, a body having side plates spaced transversely thereof, a front plate extending between and secured to said side plates adjacent one end of the latter, and a flat, horizontal bottom plate rigid with the side plates and front plate and adapted to coat upon a bottom-plate-supporting surface a liquid surface conditioner deposited upon said bottom plate, said bottom plate being provided with a plurality of spaced openings for the passage of a liquid therethrough; a handle attached to the side plates for imparting reciprocating movement to the body in a horizontal plane over said surface; and a tank adapted to hold a liquid surface conditioner and mounted on and between the side plates above the bottom plate, for free rocking movement about a horizontal axis arranged transversely of the line of reciprocating movement of the body, said tank being proportioned to rock to one extreme position responsive to displacement of the liquid contained therewithin on reversal of the direction of movement of the body at one terminus of its line of reciprocating movement, and to an opposite extreme position on reversal of the direction of movement of the body at the other terminus of its line of reciprocating movement, said tank having dispensing apertures and said apertures being disposed adjacent the top wall of the tank at one side thereof, so as to be located above the

level of the liquid in the first tank position and below the liquid level in the second tank position, for depositing of a quantity of said liquid on the plates, on each movement of the tank to its second position.

2. In an applicator of the self-feeding type, a body having side plates spaced transversely thereof and a flat, horizontal bottom plate rigid with the side plates and adapted to coat upon a bottom-plate-supporting surface a liquid surface conditioner deposited upon said bottom plate, said bottom plate being provided with a plurality of spaced openings for the passage of a liquid therethrough; a handle attached to the side plates for imparting reciprocating movement to the body in a horizontal plane over said surface; and a tank adapted to hold a liquid surface conditioner and mounted on and between the side plates above the bottom plate, for free rocking movement of the tank about a horizontal axis arranged transversely of the line of reciprocating movement of the body, said tank being formed with a vertical back wall, parallel top and bottom walls extending forwardly from and disposed at right angles to the back wall, the bottom wall being of substantially smaller width than the top wall, and with an inclined front wall extending between the front edges of the

bottom and top walls, the tank having its axis of rocking movement disposed adjacent the top wall thereof intermediate the front and back edges of the top wall, for rocking of the tank to one extreme position responsive to displacement of the liquid contained therewithin on reversal of the direction of movement of the body at one terminus of its line of reciprocating movement, and to an opposite extreme position on reversal of the direction of movement of the body at the other terminus of its line of reciprocating movement, said tank having dispensing apertures and said apertures being located adjacent the top wall of the tank at one side thereof so as to be above the level of the liquid in the first tank position and below the liquid level in the second tank position, for depositing of a quantity of said liquid on the bottom plate, on each movement of the tank to its second position.

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