

June 16, 1942.

J. E. RICHARDS

2,286,257

WAX APPLICATOR

Filed March 1, 1940

2 Sheets-Sheet 1

Fig. 1.

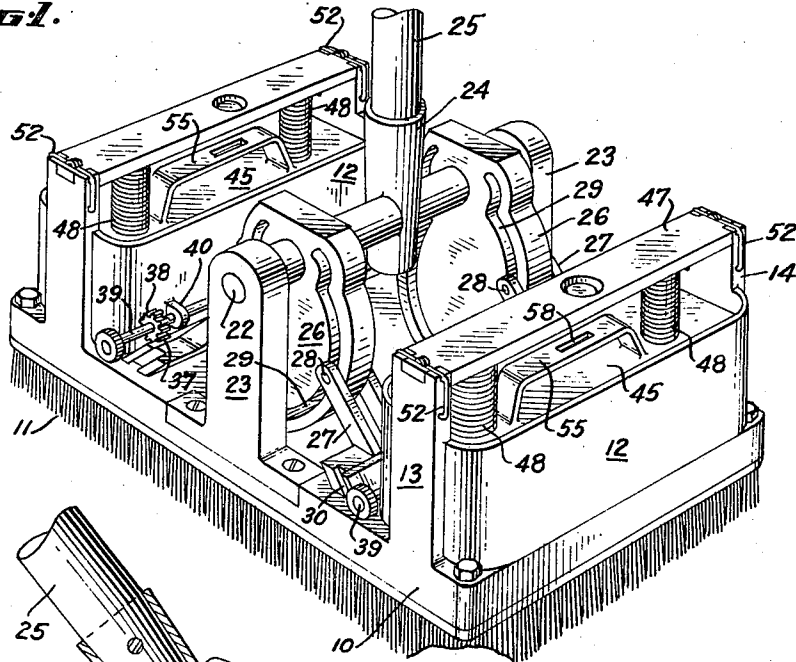


Fig. 2.

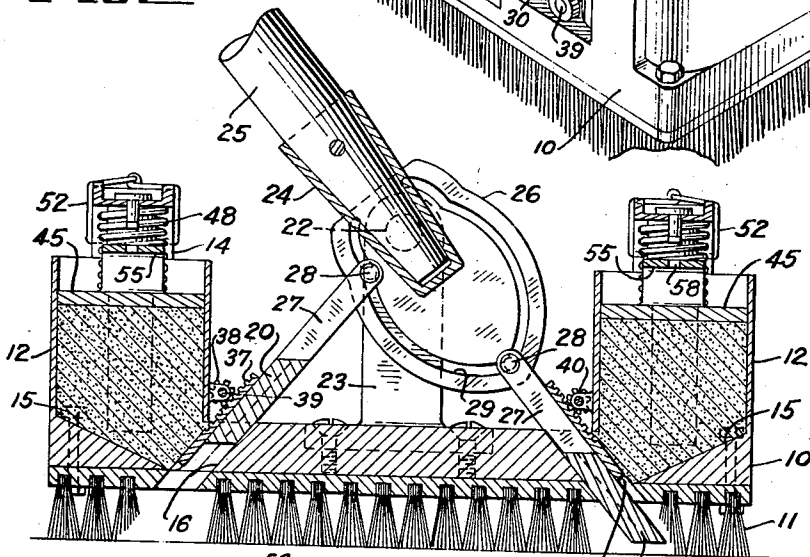


Fig. 3.

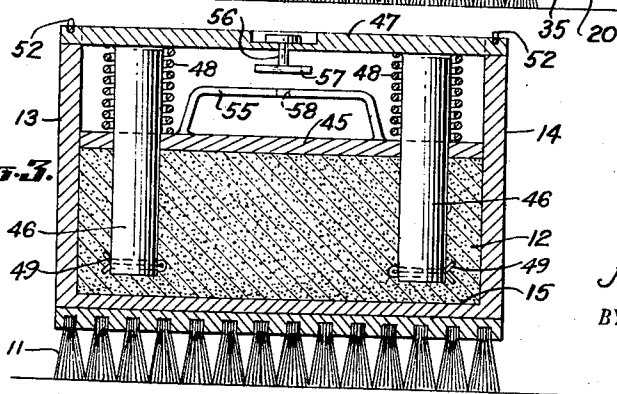
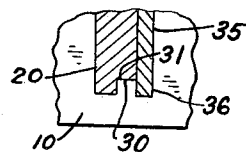


Fig. 4.



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Fig. 5.

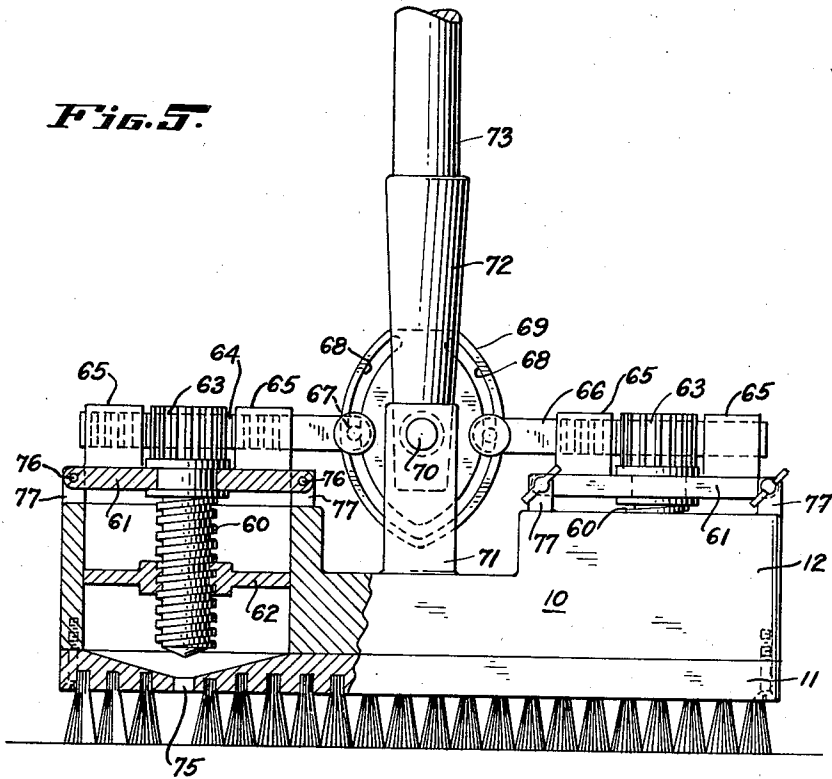
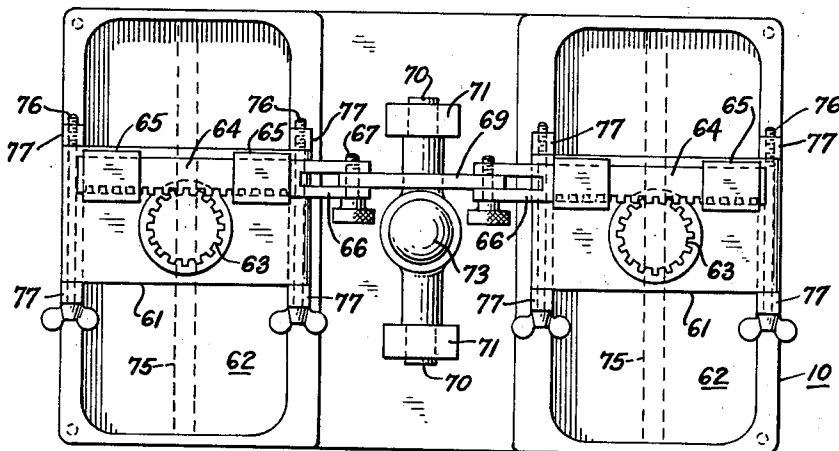


Fig. 6.



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WAX APPLICATOR

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Application March 1, 1940, Serial No. 321,679

10 Claims. (Cl. 91—39)

This invention relates to applicators of the class susceptible for use in spreading wax and other materials on surfaces to be polished or treated.

In general terms the subject-matter of this invention consists in an applicator which is wholly automatic in the operation of spreading wax or other materials on the surface to be treated. More specifically, the invention resides in the provision of a spreader mechanism which carries a hopper and has a pivotally connected handle which, through the medium of a plunger having an operative connection to the handle, will cause successive charges of material to be automatically fed from the hopper onto the surface being treated.

Among the objects of this invention is the provision of an automatic applicator which will be relatively inexpensive to manufacture, which will be simple and efficient in its operation, and which will not easily get out of order when put to its intended uses. Other objects of the invention will become apparent as this specification proceeds.

I am aware of the fact that in the prior art there are numerous mechanical devices, the purpose of which was to eliminate the arduous task of manually spreading wax or other materials on floors. None with which I am familiar has been universally adopted because of various shortcomings. In the first place, no one, prior to the advent of the subject-matter hereof, has devised an applicator which is wholly automatic in the feeding of the material to be spread, those commercially available requiring manual operation of a valve or equivalent means to release quantities of the material, which is an objectionable practice because it does not make for uniformity of results. Secondly, there has been a failure in the known devices to provide satisfactory mechanisms for handling wax in paste and liquid form, i. e., to eliminate clogging of the discharge means.

The invention forming the subject-matter hereof overcomes the objections to the known devices, and provides a device which is extremely simple to operate, highly efficient for the purpose intended and speedy in operation.

In the drawings forming a part hereof:

Fig. 1 is a perspective view of one form of the invention,

Fig. 2 is a longitudinal section through the machine of Fig. 1,

Fig. 3 is a longitudinal section through one of the wax hoppers,

Fig. 4 is a fragmentary plan view of the applicator head showing the plunger and gate therein,

Fig. 5 is a side elevation, partly in section, of a modification of the invention, and

Fig. 6 is a top plan view of the subject-matter of Fig. 4.

In the preferred form of the invention illustrated in Figs. 1-3, inclusive, the numeral 10 designates a spreader head, to the bottom of which there is secured a brush 11 by means of conventional nuts and bolts (see Fig. 1). While a brush is illustrated as the means employed to spread the wax or other material, it will be understood that any other form of spreader, such as felt or lamb's wool, may be used with equal efficacy.

At each of the two ends of the spreader head 10 I provide a wax hopper 12, here shown as integral parts of the head 10 and disposed between the vertically arranged posts 13 and 14. It will be appreciated, of course, that the hoppers may be detachably connected to the head 10, such being regarded as a matter of choice. Each of the hoppers 12 has a bottom 15 inclined toward the center of the head 10. The transversely disposed slots 16 extending through the head 10, inclined at an angle opposite that of hopper bottoms 15, serve as material passageways leading to the brush 11 (see Fig. 2), and are communicable with the hoppers 12, as will hereinafter be made to appear.

A plunger 20 is slidably received in each of the passageways or slots 16 as a means of forcing wax fed from the reservoirs outwardly through the head 10 to the brush 11 for the spreading operation. These plungers 20 are adapted to be reciprocated by the following mechanisms.

A shaft 22, journaled in the bearing blocks 23 arranged on the two sides of the head 10, has a handle socket 24 formed thereon. A conventional handle 25, fitted in the socket 24, provides the means of manually sliding the spreader head back and forth over the floor area to be waxed or treated, in which operation the handle 25 is oscillated. Through the medium of the substantially heart-shaped cams 26, on the shaft 22, this oscillatory motion of the handle 25 is converted into lineal motion to reciprocate the plungers 20 in the discharge of wax.

The operative connection between plungers 20 and cams 26 consists in two pairs of arms 27 projecting from each of the plungers, each pair of arms having a pin 28 therebetween riding in the slot 29 adjacent the periphery of the cam.

As will be noted from Fig. 4, the plungers 20 are cut back at their edges, as at 30, providing a shoulder fitting a corresponding offset 31 in the ends of the slots 16, as a means of guiding the plungers in their reciprocal movement.

Gates 35 (see Fig. 2) provide the means for regulating the discharge of wax from hoppers 12 into slots 16. In the preferred form of the invention these gates are shown as slidably received in channels 36 extending through the head 10 in the plane of the slots 16 (see Fig. 4). The means for adjusting the position of the gates 35 consist in the racks of teeth 37 on the faces of the gates, engaged by the gears 38 fixed on rods 39 supported by ears 40 on the inner side of the hoppers 12. Each of the rods 38 has a knob at its outer end, the turning of which will cause the gate to be raised or lowered to regulate the size of the openings between hoppers 12 and slots 16 and hence control the flow of wax there-through.

When the device is used to spread wax in paste form it will be found desirable to employ means for force feeding wax from the hoppers 12 into the slots 16 for the action of the plungers 20. As will be noted from Figs. 1 to 3, inclusive, I have provided a lid 45 adapted to be inserted in the reservoir 12, on top of the charge of wax, the said lid being slidably received on a pair of posts 46 dependent from a strap 47 spanning the posts 13 and 14. Helical springs 48 on the posts 46, between the strap 47 and the lid 45 urge the latter downwardly against the charge of wax in the hoppers 12. Downward movement of the lid 45 is limited by stop means on the posts 46, here shown as cotter-pins 49.

The straps 47 are detachably connected to the posts 13 and 14 by means of the spring clips 52 pivotally attached to the posts 13 and 14 and adapted to be snapped over the ends of the straps and the tips of the posts, fitting into a groove provided for the purpose. As will be noted in Fig. 1, the ends of the straps 47 and the posts 13 and 14 are fitted together by means of the conventional tongues and grooves, respectively.

A handle 55 on lid 45 facilitates the contraction of the lid toward the strap for insertion of the lid into the hopper 12 after refilling the same with wax.

In some instances it may be desirable to use the device of Figs. 1 to 3 in spreading liquid wax. In that case there will be no need for force feed means within the hopper 12. Hence, I have provided means for retaining the lid 45 in its uppermost position against the urge of springs 48. A pin 56 projecting through the strap 47, with its head seated in a recess therein, is provided at its lower end with a cross-bar 57, adapted to be thrust through a slot 58 in handle 55 and turned to effect the locking. Thus locked the lid 45 serves as a cover for the hopper 12 and the liquid wax therein may flow by gravity into the slot 16 for the spreading operation, subject to regulation by adjustment of the gate 35.

In the modification shown in Figs. 4 and 5, the mechanism here described in the singular, employed to feed the wax from the hoppers 12, comprises a worm 60, journaled in the plate 61, on which worm there is a traveling plunger 62. A ratchet wheel 63, secured to the upper end of the worm 60, is engaged by a rack 64 slidably received in the sleeves 65 on plate 61. The inner end of the rack is forked, as at 66, and has a pin 67 adapted to ride in the slot 68 in cam 69. Here again the cam 69 is fixed on shaft 70, journaled

in bearing blocks 71, on which shaft there is formed a handle socket 72 for a handle 73.

It will thus be seen that oscillatory movement of handle 73 will, through the action of the cam 69, cause rack 64 to be reciprocated, turning the ratchet wheel 63 and worm 60 and forcing plunger 62 downwardly against the charge of wax in hopper 12.

In this modification, the bottom of hopper 12 is provided in the back of brush 11, the same having a depression cut therein and sloped from its two sides toward a center discharge slot 75.

Additionally, the plate 61 is detachably connected to the hopper 12 by means of the pins 76 passing through the ends thereof and the lugs 77 on the edges of hopper 12, said pin having a threaded connection with one of the lugs 77 in each instance.

In the preferred forms of the invention illustrated herein, the invention has been shown as having hoppers 12 at each of the two ends of the head 10, there being wax discharge means in association with each hopper. A spreader of this character will be particularly useful in the treatment of floors of large area such as are found in public buildings and the like. A smaller and less expensive unit embodying the invention for use in private dwellings will be obtained by merely eliminating one hopper and its associated wax discharge mechanism, and such is, of course, within the purview of this invention. Hence, wherever mention is made herein of the hopper and associated mechanism in the singular, it is intended to include the plural, and vice versa.

The operation of the invention will be readily understood from the foregoing. In the case of the preferred form (Figs. 1 to 4, inclusive), the spring clips 52 are first disconnected and then strap 47, and the connected posts 46 and lid 45, is removed from the hopper to permit refilling. After refilling, the head 10 is slid back and forth over the surface to be treated, in which operation the oscillatory motion of the handle 25 is transmitted into lineal motion to reciprocate the plungers 20 which cut off wax emitted from the hopper 12, under force feed, and deliver it to the brush 11 for spreading.

In the case of the modification in Figs. 5 and 6, the oscillatory motion of the handle is transmitted to rotate the worm 60 to force the plunger 62 downwardly to discharge wax through the slot 75 to brush 11 for spreading.

It will be appreciated that my invention may take many forms in addition to the two illustrated and described herein without departing from the spirit thereof, and I therefore desire full protection according to the scope of the appended claims.

The invention claimed is:

1. In a wax applicator, an applicator head, a handle having pivotal connection therewith for oscillation with respect thereto, a wax hopper carried by the applicator head, means causing discharge of wax from the hopper, means operable to cause successive charges of wax to be fed to the surface to be treated as discharged from said hopper, said last named means having an operative connection with said handle and being actuated upon oscillation thereof.

2. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, force feed means in the hopper, plunger means in said passageway,

said plunger having an operative connection with and being actuated upon oscillation of said handle.

3. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, force feed means in the hopper, means for regulating the quantity of wax fed from the hopper into the passageway, plunger means in said passageway, said plunger means having an operative connection with and being actuated upon oscillation of said handle.

4. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a cam in the connection of the handle to the head, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, force feed means in the hopper, plunger means in said passageway, said plunger means having an operative connection to said cam.

5. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a cam in the connection of the handle to the head, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, force feed means in the hopper, means for regulating the quantity of wax fed from the hopper into the passageway, plunger means in said passageway, said plunger means having an operative connection to said cam.

6. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a cam in the connection of the handle to the head, a wax hopper carried by the applicator head, a passageway, through the head in communication with the hopper, a pair of posts, one on each side of said hopper, a bar spanning the posts, means detachably connecting the bar to the posts, a lid in the hopper, yieldable means on the bar urging the lid downwardly into the hopper, a plunger in said passageway, said plunger having an operative connection to said cam.

7. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a cam in the connection of the handle to

the head, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, a pair of posts, one on each side of said hopper, a bar spanning the posts, means detachably connecting the bar to the posts, a lid in the hopper, yieldable means on the bar urging the lid downwardly into the hopper, means for regulating the quantity of wax fed from the hopper into the passageway, a plunger in said passageway, said plunger having an operative connection to said cam.

8. In a wax applicator, an applicator head, a handle connected therewith for oscillatory movement, a cam in the connection of the handle to the head, a wax hopper carried by the applicator head, a passageway through the head in communication with the hopper, a pair of posts, one on each side of said hopper, a bar spanning the posts, means detachably connecting the bar to the posts, a lid in the hopper, yieldable means on the bar normally urging the lid downwardly into the hopper, means on the bar for locking the lid against the urge of said yieldable means, a plunger in the passageway, said plunger having an operative connection to said cam.

9. In a wax applicator, an applicator head, a handle having pivotal connection therewith for oscillation with respect thereto, a pair of wax hoppers carried at opposite ends of the applicator head, means causing discharge of wax from the hoppers, means operable to cause successive charges of wax to be fed to the surface to be treated as discharged from said hoppers, said last named means having an operative connection with said handle and being actuated upon oscillation thereof.

10. In a wax applicator, an applicator head, a handle having pivotal connection therewith for oscillation with respect thereto on the order of 180°, a pair of wax hoppers carried by the applicator head, means causing discharge of wax from the hoppers, means operable to cause successive charges of wax to be fed to the surface to be treated as discharged from said hoppers, said last named means having an operative connection with said handle and being actuated upon oscillation thereof.

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