Jan. 10, 1939. F. A. CUFF 2,143,260

PORTABLE SPRAYING APPARATUS

Filed Dec. 4, 1936 2 Sheets-Sheet 1

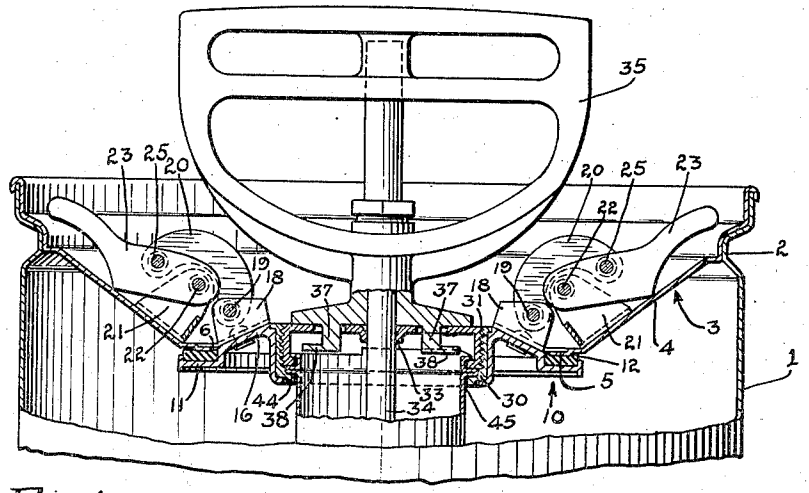


Fig. 1

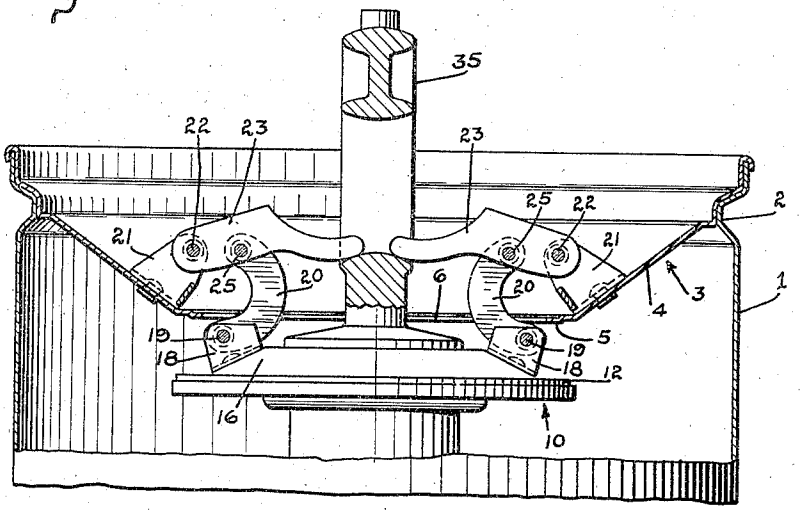


Fig. 2

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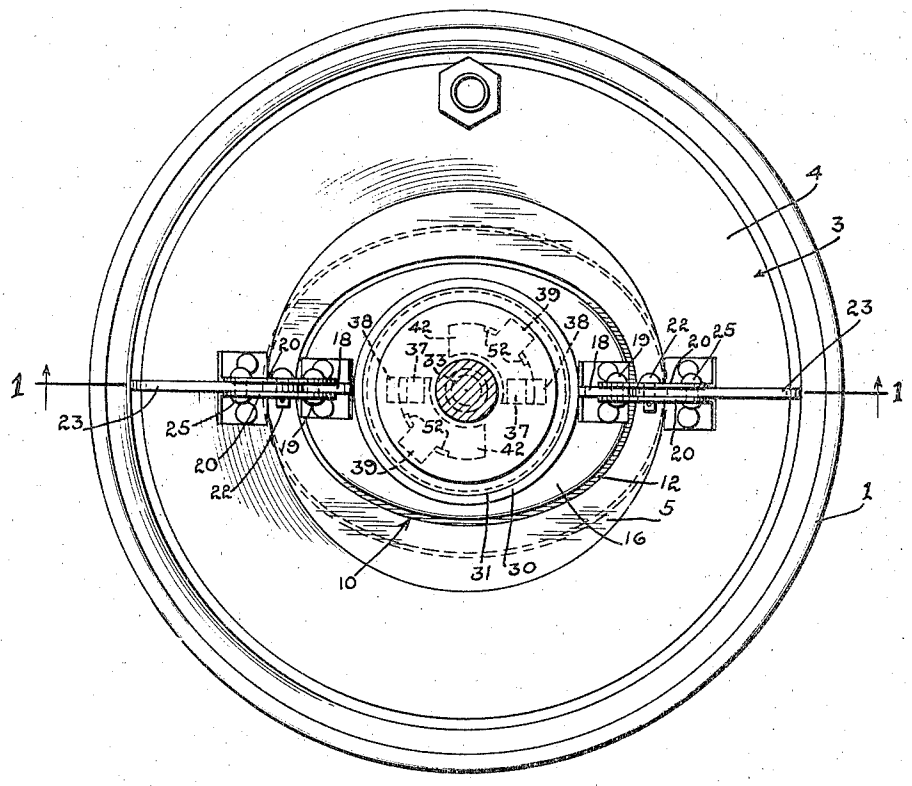


Fig. 3

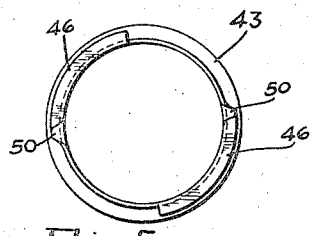


Fig. 5

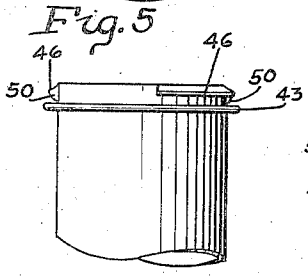


Fig. 4

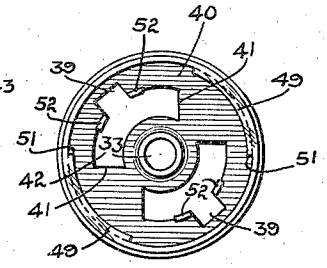


Fig. 6

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UNITED STATES PATENT OFFICE

2,143,260

PORTABLE SPRAYING APPARATUS

Fred A. Cuff, Chicago, Ill., assignor to H. D. Hudson Manufacturing Company, Chicago, Ill., a corporation of Minnesota

Application December 4, 1936, Serial No. 114,222

5 Claims. (Cl. 221—77)

This invention relates to improvements in sprayers of the type comprising a supply tank having a removable pump therein for creating spraying pressure. One of the objects of the invention is to provide a construction by which withdrawal of the pump for filling purposes is unnecessary, thereby avoiding dirtying of the pump, which frequently occurs when the pump is withdrawn and laid on the ground.

Another object is to unfailingly relieve pressure before refilling is started and without disconnecting or removing the pump. In the specific embodiment illustrated, this object is accomplished by lowering a filling opening closure element which motion opens the filling opening and at the same time releases the tank pressure.

A feature of this embodiment of the invention is that the closure element or plate forms a hanger for the pump and the pump is detachably secured in this hanger so that it may be removed independently of the hanger. Another feature is the toggle construction and the use of levers to provide power, by which good clamping and sealing action can be obtained.

Features include all details of construction, along with the broader ideas of means inherent in the disclosure.

Objects, features and advantages of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings

Figure 1 is a central vertical section, approximately on line 1—1 of Figure 3 showing the filling opening closure in closed position;

Figure 2 is a view similar to Figure 1 showing the closure open, and in filling and tank-pressure-releasing position;

Figure 3 is a plan view, with the parts positioned as in Figure 1;

Figure 4 is an elevation of the top portion of the pump barrel, illustrating means for attaching it to the cap;

Figure 5 is a top plan of Figure 4; and

Figure 6 is a bottom plan of the cap showing parts related to the connection of the barrel.

In the drawings, numeral 1 generally indicates a vertically elongated tank, only the upper portion of which has been shown. Adjacent the top, the tank is punched circumferentially inwardly as at 2, to form a sealing and stop shoulder. Against this shoulder and supported thereon and suitably sealingly secured to the body of the tank is an end wall or top generally indicated at 3. This wall has a downwardly inwardly convergent conical portion 4 as a funnel merging into a horizontal portion 5 which has therein a centrally disposed filling opening 6. The above may be of any approved construction, but the funnel shape is a feature of this invention, and facilitates filling.

A closure means, adapted to sealingly close the filling opening, is generally indicated at 10. In this instance, said means is a plate which has a flat peripheral portion having a channel 11 on its upper face, which channel receives the sealing gasket 12. This gasket cooperates with the bottom surface of the horizontal portion 5 of the funnel to sealingly close the filling opening 6. The closure element has an upwardly inwardly convergent conical portion 16 which projects upwardly through the opening when closure plate 10 is in closing position. The closure element 10, see Figure 3, as well as the opening 6, are elliptical in contour to permit the plate to be passed through the opening to operate within the tank and move upwardly to sealing position.

The plate 10 is controlled in this instance by means of two lever-operated toggle structures identical in construction and placed, in this instance, one near each extremity of the long axis of the elliptical closure. Each toggle structure comprises a pair of ears 18 secured to the conical portion of the plate 10, between which ears is pivoted as at 19 a link 20. The conical portion of the top 3 has attached thereto a pair of ears 21 between which is pivoted as at 22 a lever 23. The link 20 is pivoted to this lever as at 25. In Figure 1, the lever-operated toggle structures are sealingly holding the closure element in closed position. Figure 2 shows the parts in filling position, with the tank pressure released. Means other than toggles or levers can be used, for moving the cover to open and closed positions, and there is no intention to limit the broader aspects of this invention to this specific structure, although the specific structure is also claimed. The plate 10 may be considered a kind of hanger for the cylinder of the pump, and the pump is so attached as to be removable independently of the plate. To this end, the plate is provided with a downwardly directed cylindrical portion 30 interiorly screw-threaded as at 31 to receive the correspondingly threaded hollow plug or cap 32. This cap has a central opening 33 through which the stem 34 of the pump piston slidably passes. A handle for the stem is indicated at 35, and the handle has integral therewith a plate 36 having on its bottom diametrically related lugs 37 having feet 38 which are adapted to be registered with and to enter corresponding diametrically related

openings 39 of the cap, see Figure 6. After entry into the openings and on rotation of the stem, the feet 38 pass beneath portions 40 of the cap. On further rotation of the handle, the lugs 37 engage the ends 41 of arcuate slots 42 to either screw or unscrew the cap. This structure is a feature of this invention.

Another feature of the invention is the manner of detachably securing the pump cylinder to the cap, and this is best illustrated in Figures 1, 4, 5 and 6. To this end, the top of the pump cylinder is provided with a lower circumferential outstanding flange 43 which engages with the shoulder 44 at the bottom of the downwardly directed cylindrical extension of the cap, after the pump cylinder has been passed downwardly through the opening 45 of the cap. Above this flange 43, the barrel is provided with two diametrically related bent-out segmental flanges 46. The outer diameter of these flanges is slightly less than the inner diameter of the cap. The cap is also provided with outstanding segmental flanges 49 also diametrically arranged, and with which the flanges 46 are adapted to cooperate to sealingly secure the barrel to the cap, and against motion in axial direction. To attach the cap to the barrel, flanges 46 are registered with the portions 48 of the cap and the barrel is moved axially inwardly and then turned until the stops 50 engage the ends 51 of flanges 49. After assembly, solder (not shown) is applied to sealingly secure the parts against relative rotation. After the barrel has been suitably attached to the plug or cap, the cap is screwed into the position shown in Figure 1 and the device is ready for use.

To attach the cap to or detach it from the filling-opening-closure element, the handle is merely rotated in the appropriate direction from its position in Figure 1. In case the operator should both raise and rotate the handle, the feet 38 come in contact with the under surface of the top of the cap, and on rotation, come into engagement with the guard lugs 52, which prevents registration, and therefore accidental withdrawal through the openings 39. To be brought through said openings for pumping, the feed must be lowered to clear the lugs 52, and then registration of the feet with the openings 39 can be made preparatory to upward withdrawal through the openings.

I claim as my invention:

1. In an apparatus of the class described, a tank having an end wall provided with a suitable opening surrounded by an annular seat, a closure for said opening, a pump secured to the closure and having a handle whereby the pump may be operated to create pressure in the tank to dispense the contents therefrom, levers pivoted to the end wall of the tank and having links operatively connecting them with the closure, whereby when the levers are swung outwardly, the closure is forced into sealing engagement with said seat, and when said levers are swung inwardly, the cover is released from the seat, and means whereby said handle may be positioned to prevent said levers from being operated to release the cover.

2. In an apparatus of the class described, a tank having an end wall provided with a filling opening having an annular seat, a closure for said opening, means secured to the closure for dispensing the contents from the tank, said means having a suitable operating handle adapted for rotary movement, oppositely disposed levers pivoted to the end wall of the tank and having links operatively connecting them with the closure, whereby when the levers are swung outwardly, the closure is forced into sealing engagement with its seat, and when said levers are swung inwardly, the cover is released therefrom, and means whereby said handle may be positioned in the path of said levers, whereby said levers cannot be operated to release the cover.

3. In an apparatus of the class described, a tank having an end wall provided with a filling opening surrounded by a seat, a closure adapted to sealingly engage said seat, a pump carried by the closure and having an operating handle whereby pressure may be created within the tank to dispense the contents therefrom, means on the handle adapted for interlocking engagement with the closure whereby the handle may be used for carrying the apparatus about from place to place, toggle means for securing the cover in sealing engagement with said seat, said toggle means comprising oppositely disposed levers pivotally mounted on the end wall of the tank and having links connecting them to the closure, whereby when the levers are swung outwardly, the closure is forced into sealing engagement with its seat, said handle when interlocked with the closure, being positioned in the path of said levers whereby they cannot be operated to release the cover, and means whereby when the handle is rotated to a predetermined position, said levers may be operated to release the cover.

4. In an apparatus of the class described, a tank having an end wall provided with a filling opening surrounded by a seat, a closure adapted to sealingly engage said seat, a pump carried by the closure and having an operating handle whereby pressure may be created within the tank to dispense the contents therefrom, means on the handle adapted for interlocking engagement with the closure whereby the handle may be used for carrying the apparatus about from place to place, toggle means for securing the cover in sealing engagement with said seat, said toggle means comprising oppositely disposed levers pivotally mounted on the end wall of the tank and having links connecting them to the closure, whereby when the levers are swung outwardly, the closure is forced into sealing engagement with its seat, said handle when interlocked with the closure, being positioned in the path of said levers, whereby they cannot be operated to release the cover, when the handle is used for carrying the apparatus, and means whereby the handle may be moved out of interlocking engagement with the closure to permit operation of the handle and whereby said levers may be operated to release the cover.

5. In an apparatus of the class described, a tank having an end wall provided with a filling opening surrounded by a seat, a closure adapted to sealingly engage said seat, a pump carried by the closure and having an operating handle whereby pressure may be created within the tank to dispense the contents therefrom, means on the handle adapted for interlocking engagement with the closure whereby the handle may be used for carrying the apparatus about from place to place, toggle means for securing the cover in sealing engagement with said seat, said toggle means comprising oppositely disposed levers pivotally mounted on the end wall of the tank and having links connecting them to the closure, whereby when the levers are swung outwardly,

the closure is forced into sealing engagement with its seat, said handle when interlocked with the closure, being positioned in the path of said levers, whereby they cannot be operated to release the cover, when the handle is used for carrying the apparatus, means whereby the handle may be moved out of interlocking engagement with the closure to permit operation of the handle, and whereby said levers may be operated to release the cover, and means whereby the pump and operating handle may be detached from the closure.

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