

- [54] ELEVATED SPRAY DEVICE
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- [21] Appl. No.: 243,314

Related U.S. Application Data

- [63] Continuation of Ser. No. 86,760, Nov. 4, 1970,
abandoned.
- [52] U.S. Cl. 222/174
- [51] Int. Cl. B65d 83/14
- [58] Field of Search 222/174, 162, 394; 401/137,
401/138, 139; 15/121, 295

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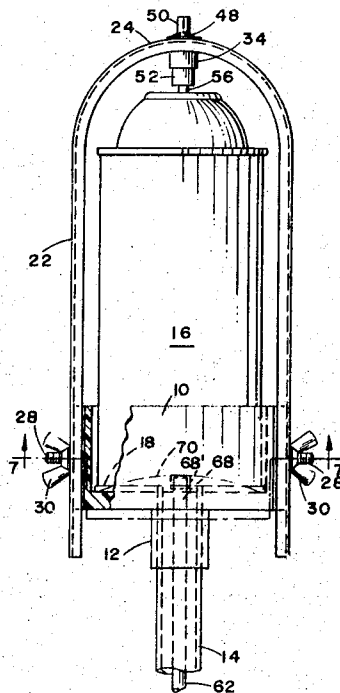
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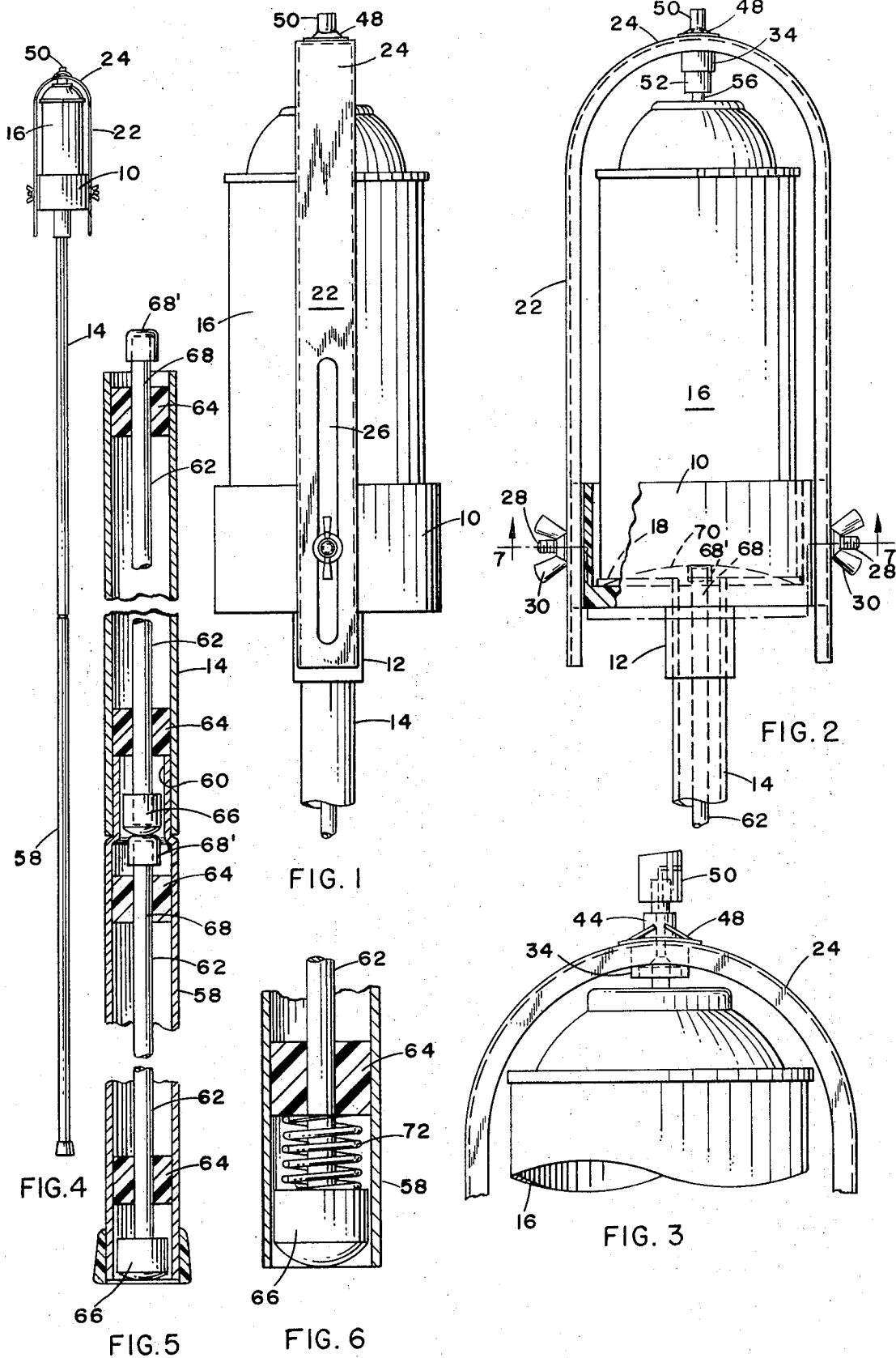
Primary Examiner—Stanley H. Tollberg
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[57] ABSTRACT

A device adapted to support and actuate, selectively, either a pressurized discharge type container or one equipped with a self-contained pump to adapt the same for operation at extended locations relative to the operator, either vertically or otherwise. Clamping means are adjustable to accommodate containers of either type of different heights, diameters and shapes, and elongated handle means extend from the clamping means and include a push rod to move the container relative to its clamping and supporting means to cause opening of the valve of a pressurized container or the pump of a container which includes a pump, and effect discharge of the contents either as a solid stream, atomized spray or a mist at extended distances from the operator. Adapter means and adjustable clamping means selectively permit the reception of various sizes of push caps or tubular valve members or operating heads of the containers.

20 Claims, 15 Drawing Figures





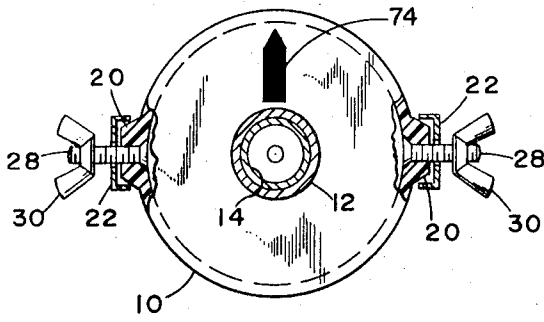


FIG. 7

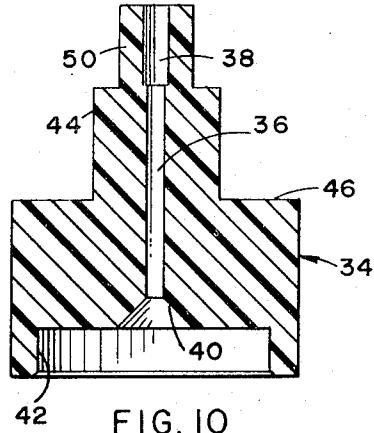


FIG. 10

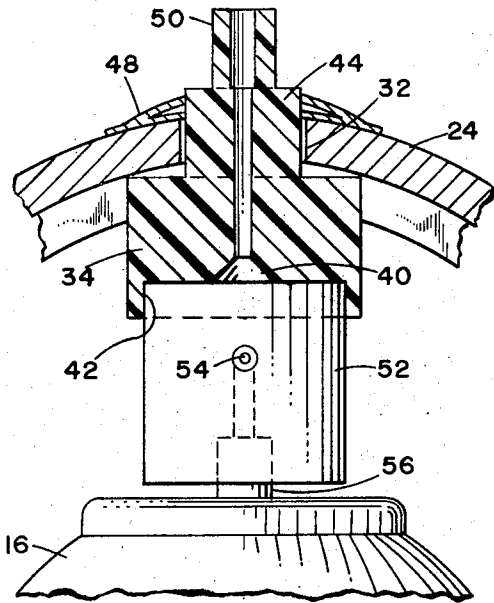


FIG. 8

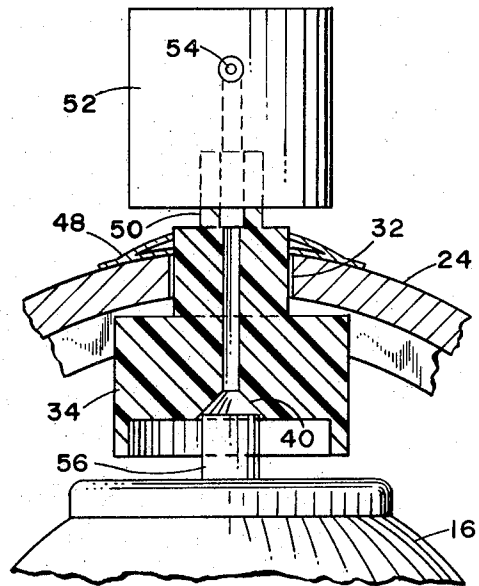


FIG. 9

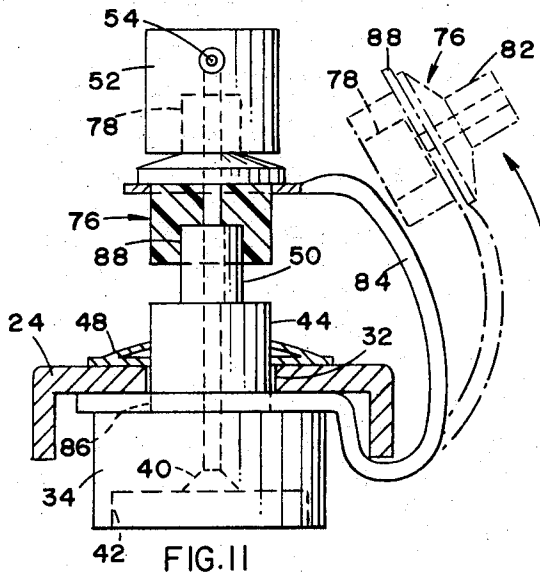


FIG. 11

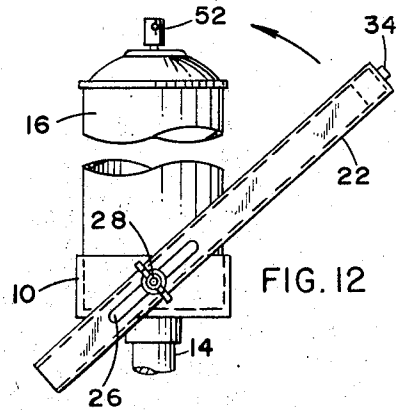


FIG. 12

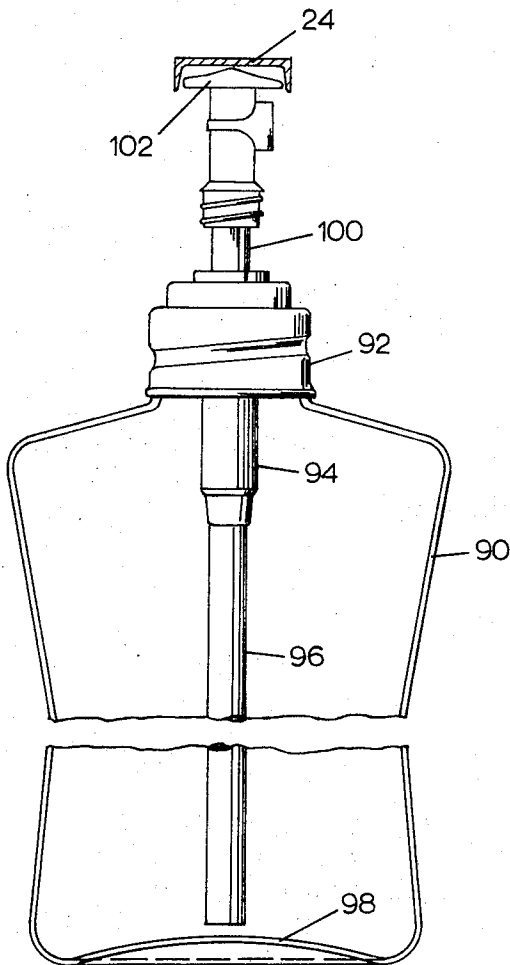


FIG. 14

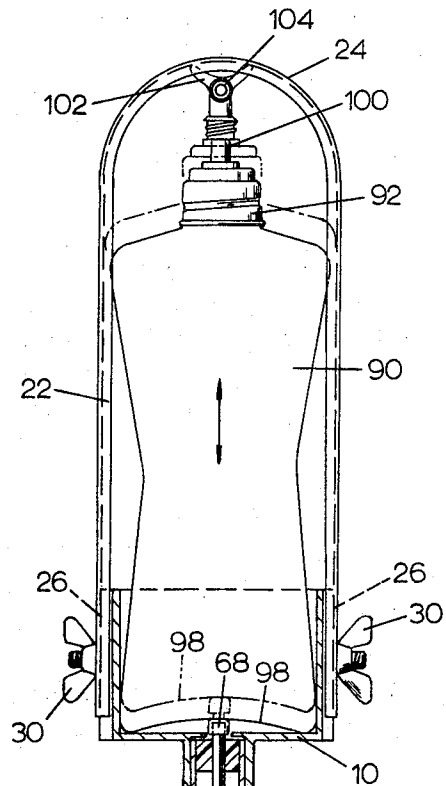


FIG. 13

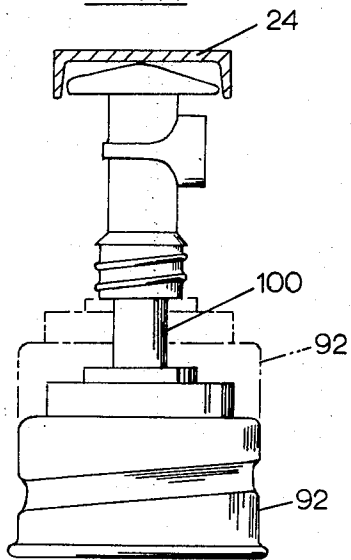


FIG. 15

ELEVATED SPRAY DEVICE

This application is a continuation-in-part of Ser. No. 86,760 filed Nov. 4, 1970 now abandoned.

BACKGROUND OF THE INVENTION

Pressurized discharge type containers, and especially those of the aerosol type, have gained tremendous popularity in recent years for a wide variety of purposes including the spraying of insecticides, paint, disinfecting preparations, window cleaning solutions, fire extinguishing material and various other types of liquid compounds and solutions. Similarly, spray containers which include small pumps mounted upon the caps of such containers and operable by reciprocating a small plunger to discharge the contents of the container in the form of a spray have achieved wide popularity to discharge various kinds of cleaning solutions, insecticides, and the like.

At present, substantially all spray containers of the foregoing types are operated manually by the operator while holding the body of the container in one hand and usually using the index finger of said hand to press the push cap either to open the valve or operate the pump and effect discharge of the contents of the container. In order to reach locations at elevations higher than the normal person for purposes of discharging the container at the same, it is now necessary to climb a ladder or other elevating means in order to reach the desired location. Under such circumstances, it is necessary to place the ladder so that it doesn't tilt or fall. Also, a ladder is not available in many household or other situations where spraying with a pressurized container at elevations higher than normal is desired. Further, many situations exist in which the accommodation of a ladder is either impossible, inconvenient or dangerous, including both indoor and outdoor circumstances.

One difficult situation frequently encountered, for example, where the use of pressurized insecticide containers is desired is in the elimination of bees, wasps and hornets when painting surfaces in a structure near a bee hive or nest is necessary. For example, it is not uncommon for wild bees to establish hives at high elevations on buildings, such as in the eaves or gables of barns, houses and the like. When painting is required, long ladders are necessary to reach such locations. In order to apply insecticides and insect repellents at such high elevations, it normally is necessary to stand near the top of such long ladders in order to manually spray the bee nest or hive. When this occurs, the bees normally are infuriated and attack the person spraying the nest or hive, frequently inflicting such person with painful stings, as well as causing falls from ladders and other injuries.

Other difficult situations comprise the washing of high windows, such as those in churches, schools and other similar buildings, including office buildings, where the positioning of a leaning-type ladder against the window frequently is impossible. To effect the washing of this type of window, it is presently necessary to mount a ladder adjacent one side of the window and reach laterally across the window from the ladder as far as possible, frequently under very dangerous circumstances.

A still further difficult situation not infrequently encountered is in regard to spraying or washing of areas

and surfaces at high elevations on the interior of buildings such as hallways and stairwells, where the handling and placement of long ladders is very awkward and difficult, not infrequently resulting in damage to walls, lighting fixtures, windows and otherwise.

In order to overcome such difficulties, limited attempts have been made heretofore in recent years to provide long-handled supports for pressurized spray containers which, in general, have been of a relatively complex nature and/or limited in the ability thereof to accommodate various sizes of pressurized spray containers, as well as being limited in ability to direct the spray as desired. Examples of such prior devices comprise the subject matters of U.S. Pat. Nos. 3,229,859 in the name of Conroy et al; dated Jan. 18, 1966 and 3,510,028 in the name of Batistelli, dated May 5, 1970.

Devices which are limited to the accommodation of a container of a fixed size are highly inadequate at present due to the fact that it will be found that, on the present market of pressurized and pump type containers for various widely used substances, a very substantial number of different sizes of containers are employed. The sizes vary both in height and diameter, as well as in the sizes and designs of push caps by which the discharge valves or pumps thereof are operated. The shape of the containers also vary. Each different type of substance, ranging from insect repellent and exterminating materials to paint, window washing solutions and the like, seems to employ containers of different sizes and shapes. Also, the capacity of such containers varies in accordance with the amount desired by a household or commercial user or otherwise, whereby both small and large quantities of the same material are available in different sizes of containers.

SUMMARY OF THE INVENTION

It is the principal purpose of the present invention to provide a relatively simple, but highly adaptable and universal, device to support and actuate an extensive range of sizes of pressurized and pump type containers while said containers are supported in extended locations with respect to the operator and including simple means within the tubular handle, to effect discharge of the material therefrom either as a jet, atomized spray or fog while supported at such extended location. This objective is achieved primarily by providing base means adapted to engage the bottom of a container, to actuate either the discharge valve or pump, clamping means adapted to extend beyond and across the upper end of such container and interengage the discharge valve or pump head thereof, the base means having an elongated handle connected thereto, and actuating means reciprocable within the handle engage the container in a manner to move the same relative to the clamping means in order to effect opening of the valve or actuating the pump at an elevated location.

Another important objective of the invention is to provide adapter means carried by the device and so arranged that either the push cap of a container may be accommodated in the adapter to discharge a lateral pressurized spray or the push cap of a container may be removed and the tubular valve member of the container can be accommodated by the adapter with equal facility to discharge an axial spray or jet and, still further, the adapter is arranged to have the push cap which is furnished with the container connected to said

adapter if desired, in order to effect a lateral spray without disconnecting the container from the device.

Other objects of the invention are to provide various direction indicating indicia on the means supporting the container so that when in elevated position, the lateral direction in which the discharge nozzle extends readily may be observed in order to aim the elevated container in the desired direction.

Still another object of the invention is to provide a handle which is light in weight and outwardly clear and unencumbered by ropes, chains, levers and the like, and is inexpensive to construct, said handle comprising sections of light gauge, hollow tubing within each of which a push rod is longitudinally movable for engagement with the bottom of the container selectively either to effect opening of the valve of a pressurized container or operate the plunger of a pump type container by the simple manipulation of the outer end of the push rod upon which a suitable knob, button or manually engageable handle may be provided. A plurality of such handle sections, each of which contain rod sections therein, may be interconnected in longitudinal alignment in order to provide a connected combination of a number of such sections by which the spray container may be elevated to various substantial heights or laterally extending distances, as desired.

Details of the invention and the foregoing objects, as well as other objects thereof, are set forth in the following specification and illustrated in the accompanying drawings comprising a part thereof.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation of one preferred embodiment of the invention, adapted to accommodate a pressurized container, the handle of the device being broken away to adapt the figure to the sheet.

FIG. 2 is a front elevation of the device shown in FIG. 1, with part of the same broken away.

FIG. 3 is an enlarged fragmentary front elevation showing the upper portion of the device illustrated in FIG. 2 with a push cap mounted thereon.

FIG. 4 is an exemplary front elevation of the device shown in FIGS. 1-3, but illustrated on a much smaller scale and showing two exemplary sections of handle members connected together and supporting said device in elevated position.

FIG. 5 is a foreshortened, longitudinal sectional view of the handle portion of the device shown in FIG. 4 but illustrated on a larger scale than in said figure to illustrate details of the handle sections.

FIG. 6 is a fragmentary longitudinal sectional view of the lower portion of the handle assembly and illustrating a different embodiment from that shown in FIG. 5.

FIG. 7 is a bottom plan view of the device shown in FIGS. 1 and 2 as seen on the line 7-7 of FIG. 2, the structure being partly in section to illustrate details thereof.

FIG. 8 is a fragmentary view, partly in vertical section, of the upper portion of the device shown in FIGS. 1-3 and illustrating the same in combination with a push cap of a conventional pressurized discharge type container.

FIG. 9 is a view similar to FIG. 8 but showing the device in combination with the conventional pressurized discharge type container from which the push cap has been removed and has been attached to the adapter.

FIG. 10 is a vertical sectional view of an adapter employed in the portions of the device shown in FIGS. 8 and 9 and embodying principles of the invention.

FIG. 11 is a fragmentary view, partly in vertical section, of a still further embodiment of the invention showing an auxiliary adapter and illustrating one type of use thereof in full lines and the idle position thereof being shown in phantom.

FIG. 12 is a fragmentary, foreshortened side elevation of the device shown particularly in FIGS. 1 and 2 and illustrating the preferred method of connecting the clamping means in operative relationship with a pressurized container.

FIG. 13 is a front elevation of another embodiment of the invention embodying supporting and actuating mechanism generally similar to that of the preceding embodiment but accommodating a spray container of the type having a manually operable pump connected to the cap and having an operating plunger extending upward from the cap and engaging the bail of the supporting mechanism.

FIG. 14 is a vertically foreshortened exemplary elevation of a container of the type shown in FIG. 13 but illustrated on a larger scale and showing the pump plunger in elevated position and engaging the bail of the supporting mechanism which is shown in section.

FIG. 15 is an elevation of the cap and pump plunger portion of the container shown in FIGS. 13 and 14 illustrated on a still larger scale than in FIG. 14 and, in full lines showing the cap in extended position and, in phantom, the cap is in compressed, pumped position relative to the plunger.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The normal manner of manual operation of pressurized discharge type containers is for the operator to hold the container in one hand while depressing the push cap to discharge the content in the form of a solid jet, an atomized or aerosol spray, or a fog. This method of operation has been adopted in mechanical structures, such as those illustrated in the aforementioned patents. In general, however, the adoption of such principle in mechanical operating devices either requires a relatively complex device or restricts the device to a given size of container. Therefore, adopting a device of this type to accept containers of a wide range of different diameters, shapes and heights has not been readily possible or undertaken, as can be seen from said prior patents.

The present invention utilizes the basic principle of moving the container relative to a fixed abutment type element either to open the valve and effect discharge of the contents of a pressurized container or, with equal facility, reciprocate the actuating plunger of a pump type container to discharge the contents, while such containers are in various extended positions. This concept permits construction of a relatively simple supporting and actuating device which is readily capable of receiving and supporting, as well as operating, a wide range of different sizes of pressurized or pump type containers. Such operation permits the discharge of sprays either in axial or lateral direction, as will be seen from the following descriptions in relation to the drawings comprising a part of the application.

Referring to FIGS. 1 and 2, which comprises one preferred embodiment of the invention, a base or support-

ing means 10 is provided which preferably is cup-shaped. The same may be formed from any suitable material but appropriately can be molded from synthetic resin or formed from metal. Depending from the bottom of the base means 10 is a cylindrical boss 12, which preferably is integral therewith and adapted to frictionally receive one end of a tubular handle section 14.

A conventional exemplary pressurized discharge type container 16 is shown in this embodiment as being disposed within the cup-shaped base means 10 and rests upon the interior bottom surface 18 thereof. The terms "pressurized discharge type container," or "pressurized container," as used herein, are intended to include pressurized containers adapted to discharge either a solid jet, atomized spray, or a fog.

Another, slightly modified embodiment of the invention, which accommodates and operates pump type spray containers is illustrated in FIGS. 13-15 and is described hereinafter.

The inner diameter of base means 10 preferably is such that it will accommodate the largest average diameter and average shape of commercial types of pressurized containers used normally for domestic, commercial and industrial purposes. As best seen from FIG. 7, the opposite sides of the exterior of the base means 10 are provided with axially extending guide and supporting ribs 20.

Adjustably positioned relative to the base or supporting means 10 is a preferably unitary clamping or positioning means in the form of a bail 22. As can be seen from FIGS. 7 and 11, said clamping and positioning bail 22 preferably is channel-shaped in cross-section to provide strength, coupled with lightness in weight, as well as to provide complementary means along the opposite legs thereof to receive the guide ribs 20. The bight portion 24 of the bail preferably is semi-circular in front elevation. The side legs of the clamping bail 22 also are provided with longitudinal extending slots 26 which are of substantial length in order to accommodate a relatively wide range of different heights or lengths of pressurized containers within the device comprising the invention. To effect clamping of the bail 22 relative to the base means 10, a pair of clamping bolts 28, shown in FIG. 7, extend suitably from opposite sides of the base means 10, and are disposed within the slots 26. Wing nuts 30 complete the clamping operation.

The bight portion 24 of the clamping bail 22 is provided centrally thereof with a hole 32 for purposes of receiving a stepped type adapter means 34 which, preferably, may be suitably and inexpensively formed by molding from an appropriate synthetic resin. If desired, however, metal may be used. The adapter 34 per se is best illustrated in FIG. 10. By referring to said figure in particular, it will be seen that the adapter is provided with a central longitudinal opening 36 which extends for the entire length of the adapter. The upper end portion 38 of said opening is slightly larger in diameter to receive push caps of various internal configurations, and the opposite end 40 thereof is conical. It will be seen that the surface 40 defines a relatively flat cone for purposes to be described. The conical surface 40 also is coaxial with a relatively shallow, cup-shaped recess 42 which also is for purposes to be described. The conical recess 40, as well as the shallow cup-shaped recess 42 both constitute seats, the use of which is illus-

trated in FIGS. 8 and 9, as also is described in detail hereinafter.

For purposes of strength, the clamping and positioning bail 22 is formed from metal and, preferably, a light weight metal such as aluminum or other suitable alloy having appropriate strength. It should be durable and corrosion-resistant. If desired, however, a suitable synthetic resin may be used. The central portion 44 of adapter 34 extends through the hole 32 in the bight portion 24 of the clamping bail 22 as clearly shown in FIGS. 8 and 9, as well as in FIG. 11. The shoulder 46 on adapter 34 abuts the inner surface of the bight portion 24 of clamping bail 22 for purposes of positioning the adapter relative to the clamping bail. Preferably, the adapter is permanently affixed to the clamping bail by any appropriate means such as a sheet metal speed-nut 48 of appropriate commercial type.

The upper end 50 of adapter 34, as seen particularly in FIG. 9, has a dual function. It is capable of serving as a support for a push cap 52, such as is conventionally furnished with pressurized containers, or if the push cap is removed from the nozzle end 50 of the adapter 34, the same is capable of serving as a nozzle to discharge the atomized contents of the pressurized spray container 16 in an axial direction upwardly. When the push cap 52 is connected thereto, however, preferably by a friction fit, the push cap is provided with a laterally extending discharge opening 54 for purposes of discharging a laterally extending spray when the same is desired.

Referring to FIG. 8, it will be seen that the adapter 34 is disposed with its shallow cup-shaped recess 42 positioned to receive the upper end of the push cap 52 of a conventional pressurized container 16, such as used to spray paint. Under such circumstances, the adapter 34 primarily serves as an abutment means and has no spray discharge function. Also the shallow recess 42 preferably is of suitable diameter to receive a substantial range of different diameters of push caps of the commercial type or otherwise. One of the advantages of the capabilities of adapter 34 is that, for example, when the adapter is arranged as shown in FIG. 9, the spray device is capable of quickly being changed from axially directed spraying to laterally directed spraying simply by attaching or removing the push cap 52 without otherwise disturbing the clamped arrangement of the container 16 between the clamping bail 22 and the supporting base 10.

Discharge of the contents of the apparatus described hereinabove is effected by limited axial movement of the pressurized container 16 relative to what might be regarded as a stationary supporting unit comprising the adjustably connected supporting base 10 and clamping bail 22. For example, when a selected container has been placed within the cup-shaped base 10 and the clamping bail 22 has been swung from inoperative position, such as shown in FIG. 12, to the operative position illustrated in FIGS. 1 and 2, for example, the bight portion 24 of the clamping bail is lowered suitably to bring the adapter 34 either into light engagement with the push cap 52 of a container, or, if the arrangement shown in FIG. 9 is desired, the conical seat 40 is brought into light engagement with the upper end of the tubular valve member 56 which is a standard and conventional component of many commercial pressurized discharge type containers. Under the foregoing circumstances, when the adapter 34 is engaged by ei-

ther the tubular valve member 56 or the push cap 52, care is exercised to prevent depressing the tubular valve member 56 and therefore not open the valve.

The handle which is connected to the supporting base 10 of the device is provided in the form of a plurality of tubular sections of substantially similar lengths. The first section 14 has been referred to hereinabove. Additional sections of substantially similar lengths are provided, including a lower section 58. The sections are frictionally and telescopically interconnected as shown, for example, in FIG. 5, wherein the upper end 60 of the lower section 58 is constricted sufficiently to fit within the lower end of the handle section 14. If desired, longitudinal key arrangements, not shown, may be provided on the co-pending ends of the sections to prevent relative twisting between connected sections. Each section of handle contains a section of push rod 62 which preferably is formed from stiff, resilient wire of suitable diameter. By way of example, but without restriction, the tubular handle section may be of a diameter of approximately $\frac{3}{4}$ inch and the rod sections 62 may be of a diameter of approximately $\frac{1}{8}$ inch.

Each rod section 62 within each handle section is slidably supported by appropriately positioned guide grommets 64. Additional grommets, spaced from those illustrated intermediately of the ends of the rods, may be used if desired. Preferably, the grommets 64 are formed from suitable material of limited anti-friction nature, such as synthetic resin or hard rubber, metal, or otherwise.

One end of the push rod 62 in each handle section is provided with a manually engageable push button 66. If a plurality of handle sections are connected together as shown in FIG. 5, the opposite end of the push rod 62 in one section will engage the push button 66 of the next adjacent section, whereby when the lowermost push button 66 is pressed inwardly, all of the interengaged push rods of the connected sections will be moved longitudinally, simultaneously. The upper end 68 of the push rod 62 in each handle section 14 and 58 preferably is also provided with a small button 68 and is movable into engagement with the bottom 70 of spray container 16 as shown in FIG. 2. Usually, only approximately $\frac{1}{8}$ inch of longitudinal movement of the spray container 16 upwardly with respect to the bight portion 24 of clamping bail 22 is necessary to effect opening of the valve. Depending upon the arrangement of the adapter 34 with respect to either the push cap 52 of a container 16, or the tubular valve member 56 thereof, an appropriate jet or atomized spray is discharged in the desired direction.

Due particularly to the relative light weight of the handle sections 14, 58 and the like, as well as any intermediate additional sections which may be connected between the same, the closure spring normally provided within the valve of a commercial pressurized container exerts sufficient force to restore the push rod sections 62 of the various handle sections to depressed or normal starting position at the conclusion of a discharge operation. However, if it is found that, especially when a substantial number of handle sections are utilized, the force of such valve spring is not adequate to effect such restoration to starting position, attention is directed to FIG. 6 in which it will be seen that an additional spring 72 of an appropriate type but relatively light force may be inserted or connected between the

push button 66 and an adjacent guide grommet 64 in one or more of the handle sections.

Referring to FIG. 7, it can be appreciated that especially if the spray container is being supported at the upper end of a plurality of connected handle sections, it may be difficult to ascertain the direction in which the discharge opening 54, for example, of a push cap 52 extends. Accordingly, it is contemplated by the present invention that a directional arrow 74, or other suitable direction indicating means, may be printed or otherwise formed upon the lower surface of the bottom of the cup-shaped supporting base 10. When assembling the selected spray container within the device and arranging the same, for example, selectively as shown either in FIGS. 8 or 9, the discharge nozzle 54 should be directed to correspond with the directional arrow 74, for example, in order to coordinate the same for desired use.

Referring to FIG. 11, the present invention also contemplates the use of a supplementary or auxiliary adapter 76, especially in view of the relatively wide range of sizes of push caps 52 furnished with or required by currently merchandised pressurized discharge type containers so as to operate them. The variations in size occur not only in the outer diameter of the push caps, but also in the diameter of the internal recess 78 therein, see FIG. 11, which frictionally engages the tubular valve member 56 of any given type of pressurized container 16. It is preferred that the auxiliary adapter 76 be utilized in conjunction with the principal adapter 34 provided with the device. Accordingly, the auxiliary adapter 76 is provided with an internal recess 80 which frictionally receives the upper end 50 of the principal adapter 34. The opposite end of the auxiliary adapter 76 is provided with a nozzle-like tubular extension 82 which has a different diameter from that of the upper end 50 of principal adapter 34 so as to permit the attachment thereto of a push cap 52 having an internal recess 58 of a different diameter from that which may be fitted upon the upper end 50 of the principal adapter 34.

For purposes of providing ready accessibility and also eliminate loss of such auxiliary adapter 76, it is preferred that the same be provided with a flexible, synthetic resin strap 84, for example, or other suitable means of equivalent nature, which is sufficiently long to permit the same to be moved from an inoperative position, such as shown in phantom in FIG. 11, to the operative position thereof shown in full lines in said figure. The strap 84 may be provided with an opening 86 which receives the central portion 44 of adapter 34, for example, whereby the strap may be clamped between the adapter 34 and the bight portion 24 of clamping bail 22. The opposite end 88 of the adapter is suitably frictionally fitted to the auxiliary adapter 76 such as by providing a hole therein of appropriate diameter to receive the principal body portion of said adapter.

Referring to FIGS. 13-15, another embodiment of the invention is illustrated therein which shows the basic supporting structure of the embodiment illustrated in FIGS. 1-12 but the actuating mechanism is slightly modified thereover, as described below. Essentially, the embodiment of FIGS. 13-15 is adapted to support and actuate a pump type container 90. Specifically, it is shown in FIGS. 13 and 14 as a transparent bottle but it is to be understood that this is exemplary since a cylindrical can, for example, as well as other

shapes of containers may be employed within the spirit of the invention.

Conventionally, pump type spray containers, in general, have a detachable, usually screw-threaded, cap 92 connected to the neck of the container 90. Connected to the cap 92 is a pump cylinder 94 from which a tube 96 depends and terminates in slightly spaced relationship to the bottom 98 of container 90. Liquid is drawn from the container 90 through tube 96 into pump cylinder 94 as the pump plunger 100 is reciprocated by finger button 102. Internal details of the pump are not shown since the same are of well-known type. There is a spring, not shown, within cylinder 94 which normally urges the plunger 100 to its elevated position. Upward movement of plunger 100 draws liquid into cylinder 94 and downward movement, resulting normally from depressing button 102, discharges a spray or jet of liquid from discharge port 104, shown in FIG. 13. The foregoing is conventional, well known structure and operation.

The device shown particularly in FIGS. 1 and 2 also is adapted to support and actuate a pump type spray container 90, such as shown in FIGS. 13 and 14. Thus, the cup-shaped supporting means 10 receives the bottom of container 90, as illustrated in FIG. 13. It will be understood that the diameter of supporting means 10 is of adequate diameter to accommodate a relative wide range of diameters of containers and the length of the legs of bail clamping means 22 is such as to accommodate a substantial range of heights of containers.

After the container 90 is placed in supporting means 10, the bail 22 is disposed operatively so that the bight portion 24 is brought into engagement with finger button 102 while it is in extended position, such as shown in FIGS. 13 and 14, and also as shown in full lines in FIG. 15. The wing nuts 30 then are tightened to secure the bail in such operative position relative to container 90 and button 102, which is the non-discharge position thereof. Such clamping operation is similar to that described above relative to the preceding embodiment, including details of the slots 26 in the legs of bail 22 and other guide and positioning means on means 10 for the legs of the bail 22 which are not shown in detail in FIGS. 13-15.

The bottom of supporting means 10 has a cylindrical boss 12 thereon which receives the upper end of a preferably tubular handle 14. As in regard to the preceding embodiment, the handle may be sectional and the lowermost section has a reciprocable handle cap 104 which is telescopically mounted upon the lower end of the lowermost section of handle 14 which is illustrated in foreshortened manner in FIG. 13. All sections of the handle 14 carry stiff, light weight reciprocable rods 62 therein, which interengage each other abuttingly in the manner shown in FIG. 5, for example. The lower end of the lowermost section of rod 62 is fixedly connected to handle cap 104, as shown in FIG. 13. A spring 106 encircles rod 62 between the end of cap 104 and grommet 108. The spring serves to restore handle cap 104 to its outermost position. A lock ring 110 on rod 62 limits outward movement of handle cap 104 by abutting the upper end of grommet 108.

For convenience in effecting pumping action of plunger 100, the outer surface of handle cap 104 may be knurled. Also, the lower portion of the lowermost handle section 14 may be externally knurled above the area along which cap 104 reciprocates so as to prevent

slipping of the handle 14 in the operator's hand while reciprocating cap 104. Upward movement of cap 104 moves the upper end of the uppermost rod section 62 upwardly against the bottom 98 of container 90.

If desired, as shown in enlarged detail in FIG. 5, said upper end of rod section 62 may have an enlargement 68' thereon to prevent injury to container 90, especially if the container is formed from synthetic resin. This action reciprocally moves the pump cylinder 94, which is fixed to cap 92, upwardly upon relatively stationary plunger 100 and effects discharge of liquid from port 104, either in the form of a spray or stream, depending upon the nature of the pump and discharge port. The channel nature of bight portion 24 of bail 22 serves readily to maintain the button 102 in operative position with said bail and the return spring within pump cylinder 94 returns the container 90 to initial position shown in full lines in FIG. 15 and, correspondingly, pushes the sections of rods 62 to the lower positions thereof within the handle sections 14. This restores the apparatus to starting position for the next pumping stroke, which is about $\frac{3}{8}$ inch long, for example.

From the foregoing, it will be seen that the present invention provides an elevated type of spray device capable of accommodating either pressure or pump type containers, which may be used at an overhead elevation relative to the user or, depending upon the length of handle employed, the device may be extended to a somewhat lateral position substantially extended from the user for performing a wide variety of operations of a spraying nature. Such a device may be employed effectively and conveniently by homeowners, skilled craftsmen, such as painters, carpenters, plumbers, electricians, and the like, as well as general contractors. Persons engaged in performing janitorial services, insect and rodent extermination, veterinarians, farmers, and gardeners and nurserymen also have need for a device of this type, as well as those engaged in the moving and storing of household goods. Hospitals and similar institutions, where spraying for sanitary purposes is necessary, will find a device of this type highly advantageous.

The uses to which the device may be put, inter alia, include the neutralizing of the nests of stinging insects of all types, the elimination of rodents, including bats, the nests of caterpillars in trees, painting and touchup activities, window cleaning, disinfecting, painting the limb-butts on trees from which limbs have been sawed, as well as the spraying of all types of bushes and trees to combat abuse by insects. Fire extinguishers also may be utilized by the device if of a nature which employs pressurized spray containers suitable to be mounted within the device.

While the invention has been described and illustrated in its several preferred embodiments, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways falling within the scope of the invention as illustrated and described.

I claim:

1. A support and actuating device for a spray container of the type having a discharge member depressible relative to the container to effect discharge therefrom, said support rendering said container operable at extended locations from the operator and comprising

in combination, a cup-shaped base member complementary to and adapted to receive the bottom of a container of said type to support the same, said member having an opening in the bottom thereof, a U-shaped bail having parallel legs connected to said base member at opposite sides thereof for longitudinal adjustment relative to said base axially of said legs and adapted to extend upward therefrom beyond the upper end of and over such spray container and the bight portion of said bail engaging the discharge member, of said spray container, elongated handle means connected to the bottom of said base member, and elongated actuating means coextensive with and operable longitudinally of said handle means and engageable through said opening in said base member with the bottom of a spray container of said type when supported by said base member and operable to move such container relative to said base toward the bight portion of said bail to effect actuation of the discharge member of such container and thereby cause discharge of the contents of such container while supported by said device at extended positions by said handle means.

2. The device according to claim 1 in which said bail is channel-shaped in cross section and the bight portion thereof receives said discharge member of a container of such type between the flanges thereof when mounted in said device.

3. The device according to claim 1 in which said handle means comprises at least one tubular member connected to the bottom of said cup-shaped base member and thereby provides an elongated passage longitudinally thereof and further includes a push rod movable axially therein for engagement of one end of said rod with the bottom of a container when seated within said cup-shaped base member and the opposite end of said rod having manually engageable means operable to effect longitudinal movement thereof within said handle means.

4. The device according to claim 1 in which the legs of said bail are slidable relative to opposite sides of said base member to permit the accommodation of containers of various lengths within said device.

5. The device according to claim 4 in which the legs of said bail are slotted longitudinally, said device also including clamping bolts carried by the walls of said base member and extending through the slots of said legs of said bail to permit said aforementioned adjustable clamping of said bail relative to said base means.

6. The device according to claim 1 in which the bight portion of said bail is provided with an adapter having means to adapt the same for interengagement with the discharge member of a container when supported within said device.

7. The device according to claim 6 in which said adapter is provided with a plurality of seats selectively and respectively adapted to receive a push cap of a container of such type and a tubular stem of a valve member of such container when the push cap normally connected thereto has been removed.

8. The device according to claim 1 in which said bail is provided with an adapter having a discharge passage extending axially therethrough, one end of said adapter being adapted to engage the valve member of a pressure type container when mounted in said device and the other end of said adapter being adapted to dis-

charge an axial spray therethrough or receive a push cap adapted to effect a laterally extending spray.

9. The device according to claim 8 in which the upper end of said discharge passage is enlarged to accommodate extensions on certain commercial type push caps for containers of such type.

10. The device according to claim 8 further including an auxiliary adapter adapted to be fitted at one end to said other end of said first-mentioned adapter and the opposite end of said auxiliary adapter having a different diameter from said other end of said first-mentioned adapter to accommodate a different size of valve discharge member when connected thereto.

11. The device according to claim 1 in which said handle means comprises a plurality of elongated tubular sections each having interconnectable ends thereon and longitudinally movable push rod sections therein arranged in abutting manner when a plurality of said tubular handle sections are connected together, one end of said interengaged rod sections being engageable with the bottom of a container and the opposite end of said interengaged rod sections having means adapted to be engaged manually to actuate all of said rod sections simultaneously to effect movement of the container relative to said bail to cause discharge of the contents of said container therefrom.

12. The device according to claim 11 in which said rod sections are formed of stiff wire, said sections further including guide grommets in spaced relationship within said tubular handle sections and operable to guide said rod sections for longitudinal movement therein.

13. The device according to claim 1 in which the legs of said bail have interior channels therein and the sides of said cup-shaped base member having ribs extending in an axial direction on opposite sides thereof and adapted to be received within said channels of said legs for guided sliding movement and support of the bail relative to said cup-shaped base during the operation of clamping a container between said bail and said base means.

14. The device according to claim 13 in which said legs of said bail are slotted and said base member is provided with clamping bolts projecting radially therefrom at opposite sides, said clamping bolts being received within said slots of said legs of said bail to permit adjustable clamping of the bail relative to said cup-shaped base means.

15. A support and actuating device for a container of the type having a depressible push cap on one end thereof and said device being adapted to accommodate and actuate containers of different sizes and shapes with said push caps either attached to or removed from tubular valve members of such containers, said device comprising a cup-shaped supporting member having cylindrical walls adapted to receive the bottom of such a container, a U-shaped bail having parallel legs interconnected adjustably to opposite sides of said supporting member and having a bight portion spaced above said supporting member and adapted to extend across the top of a spray container when positioned within said supporting member, adapter means connected to said bight portion and having a plurality of seats respectively and selectively adapted to receive a push cap of a spray container or the tubular valve stem of such container when the push cap is removed therefrom, and means adapted to move such spray container toward

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said adapter to effect opening of the valve thereof to cause discharge of the contents of such container.

16. The device according to claim 15 in which said adapter means is provided with an axial opening extending therethrough for the full length of the adapter, and one end of said opening communicating with both of said seats in said adapter.

17. The device according to claim 16 in which the terminal outer end of said adapter comprises a nozzle adapted selectively to discharge a spray in axial direction or have a push cap for a spray container connected thereto to effect a spray in lateral direction.

18. The device according to claim 17 in which the opposite end of said adapter has a cup-shaped seat to receive the end of a push cap of a spray container and a conical seat coaxial therewith adapted to receive the ends of a range of diameters of tubular valve members

of spray containers when mounted within said device.

19. The device according to claim 15 in which said means to move a spray container toward said positioning means comprises an elongated tubular handle connected to the bottom of said supporting member and a plunger extending longitudinally within said handle and movable therein in a direction parallel to the axis of such container.

20. The device according to claim 19 in which the side walls of said cup-shaped member are adapted to guide a container in an axial direction therein when the same is moved away from the bottom of said supporting member to effect opening of the valve of said container.

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