

[54] **PRESSURE SPRAY CAN HOLDING AND OPERATING APPARATUS**

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[51] **Int. Cl.**..... **B05b 15/06**

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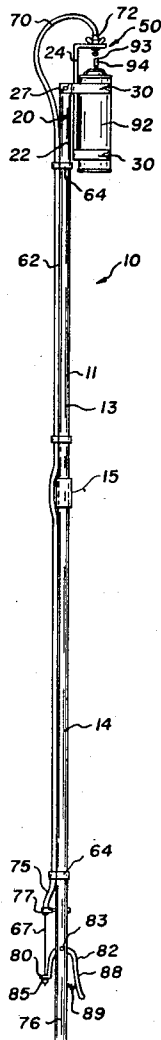
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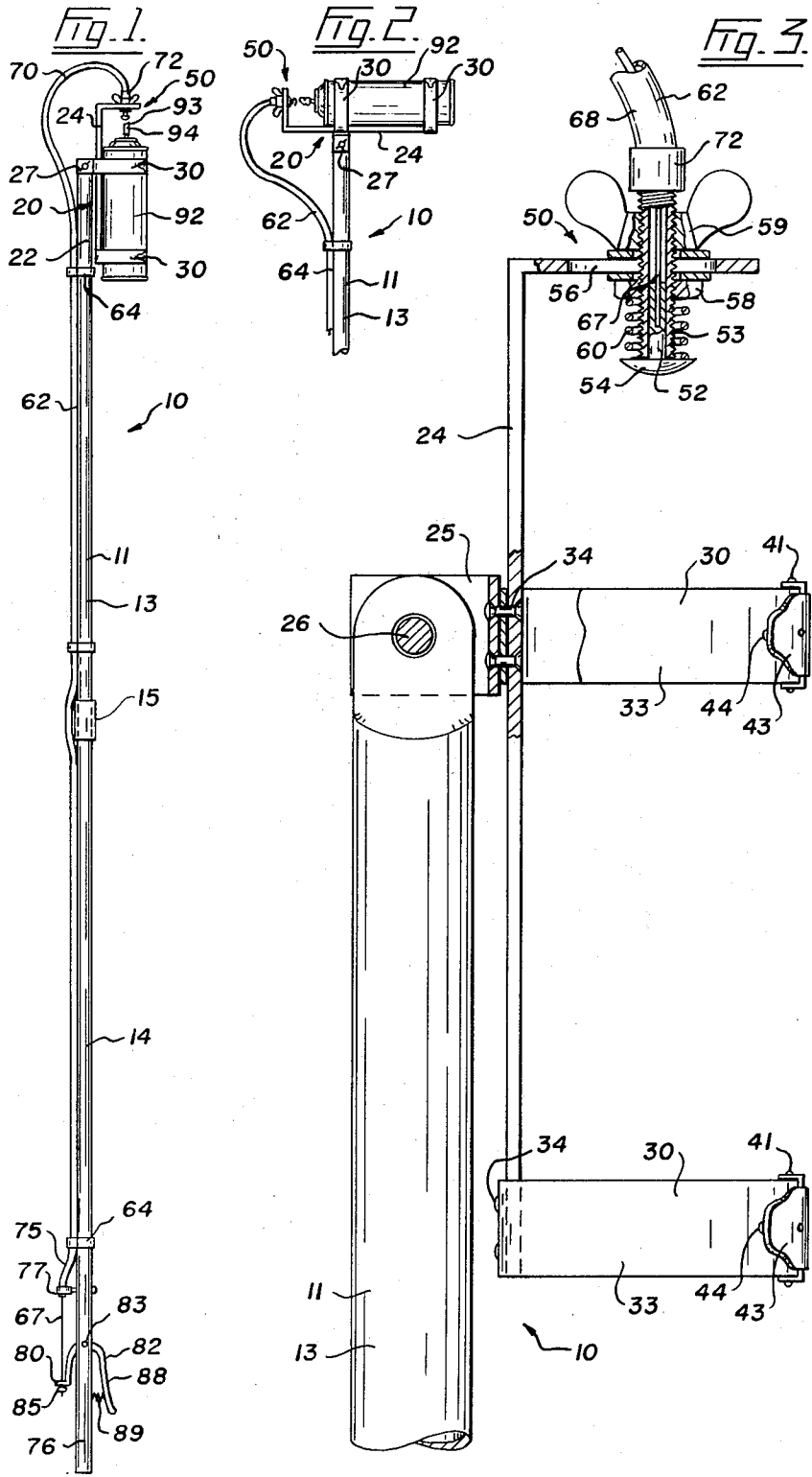
[57] **ABSTRACT**

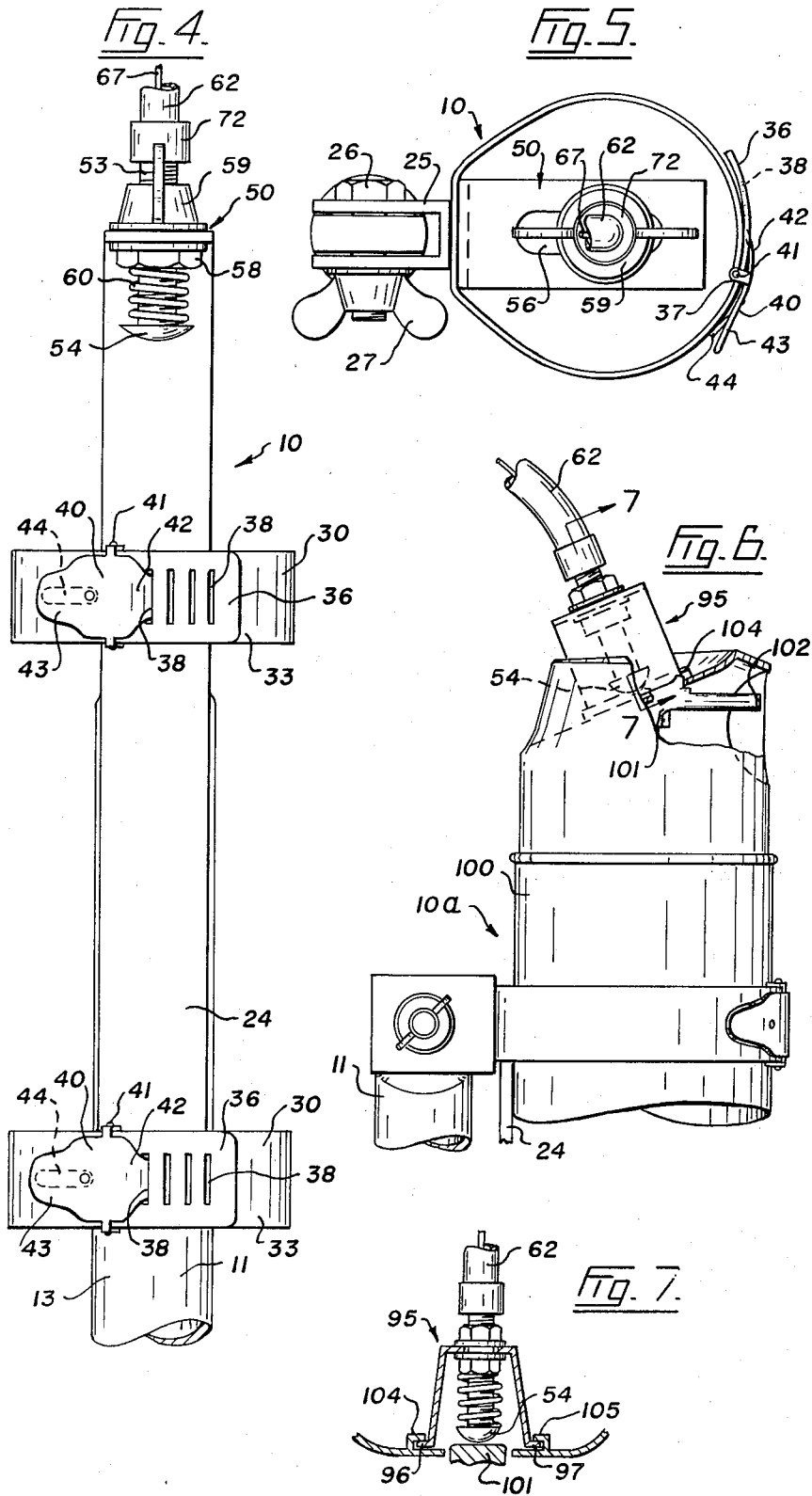
Apparatus for holding a liquid spray can and having a carrier swingably mounted on the end of a long handle for about 90° movement, and securing device for holding the carrier in any adjusted position. Gripping device holds a spray can on the carrier, an operating pin is retained in position adjacent a valve of the can, and a trigger mounted on the handle near the opposite end thereof operates through a cable device to cause movement of the operating pin to engage the valve and thereby cause liquid to spray through the can outlet.

13 Claims, 7 Drawing Figures



SHEET 1 OF 2





PRESSURE SPRAY CAN HOLDING AND OPERATING APPARATUS

This invention relates to apparatus for holding and operating pressure spray cans in elevated positions or other positions spaced from the operator of the apparatus.

The present apparatus is designed to hold any of the many pressure spray cans or aerosol cans of different sizes on the market and containing liquids such as paint, disinfectant, deodorant, insecticide, graden and tree sprays, and the like. The apparatus has a relatively long handle so that the liquid can be sprayed in different directions at points remote from the operator.

There are devices in the prior art for holding spray cans at the ends of relatively long handles. However, in most of the known devices, the spray can is fixedly held on the handle so that it is possible to spray only in one direction relative to said handle. Another prior art device holds the can in such a way that it is tipped in order to cause the liquid to spray from the can. This means that that can has to be tipped to the same angle each time it is operated so that in effect the spray always travels in the same direction relative to the handle.

One of the advantages of the apparatus in accordance with this invention is the fact that a spray can may be shifted into different angular positions relative to the handle without affecting the trigger mechanism. The can may be shifted to positions anywhere from one substantially parallel with the handle to one at right angles thereto. In addition to this, the apparatus holds cans of different diameters and different lengths. Another feature is the simplicity of design, which renders the apparatus relatively inexpensive to produce, and relatively light, the latter being an important factor when a person has to hold the can at arms length or up in the air for any length of time. The apparatus is particularly good for spraying trees since it can easily and quickly be adjusted to spray anywhere from a vertical direction to a horizontal direction while the handle is held in an upright position. This adjusting idea makes it possible to spray under things, such as spraying paint or undercoating beneath a vehicle, or spraying insecticide or deodorants under buildings without having to crawl under these.

Apparatus in accordance with the present invention for holding and operating pressure spray cans holding liquid under pressure and having at one end an outlet controlled by a normally closed valve which is movable to open the can outlet to permit liquid to spray there-through, comprises an elongated handle, a carrier swingably mounted on the handle near an end thereof for movement between a position substantially parallel to the handle and a position substantially normal thereto, securing means for holding the carrier in any adjusted position relative to the handle, gripping means on the carrier for holding a spray can thereon, an operating pin, holding means retaining the pin in a position adjacent the valve of the can on the carrier, said pin being movable relative to the holding means, cable means connected to said operating pin and extending therefrom to near an opposite end of the handle, said cable means permitting swinging movement of the carrier, and a trigger mounted on the handle near said opposite end and connected to said cable means and operable to cause through said cable means movement of

said pin into engagement with said valve, thereby causing liquid to spray through the can outlet.

Examples of this invention are illustrated in the accompanying drawings, in which

FIG. 1 is an elevation of a preferred form of the apparatus with the handle in a vertical position, and the spray can retained in the same position,

FIG. 2 is a fragmentary elevation similar to FIG. 1, but showing the can retained in a horizontal position,

FIG. 3 is an enlarged side elevation of the carrier without a can therein,

FIG. 4 is a view similar to FIG. 3 but viewing the carrier from a position at right angles to that of FIG. 3,

FIG. 5 is a top plan view of the apparatus shown in FIG. 3,

FIG. 6 illustrates part of an alternative form of the apparatus attached to a different type of can and which includes a bracket removably secured to the can, and

FIG. 7 is a fragmentary section taken on the line 7-7 of FIG. 6 showing the bracket attached to the can.

Referring to the drawings, 10 is a can holding and operating apparatus in accordance with this invention including a relatively long handle 11 which may be in a single section or, as shown, in two sections 13 and 14 removably held together by a ferrule 15.

A holder 20 is swingably mounted on handle 11 at or near its end 22. In this example, the holder is made up of a bar 24 having lugs 25 projecting outwardly from a side thereof spaced from its opposite ends and swingably secured to the handle end in any suitable manner, such as by a bolt 26 which extends through the lugs and the handle, and has a wing nut 27 threaded thereon. Holding means is provided on carrier 20 in the form of a plurality of loops 30, there being two of these loops in the illustrated example, each loop being expandable. Each illustrated loop is made up of a metal or plastic band 33 secured to bar 24 by suitable means, such as rivets 34, said bands having free ends 36 and 37. The end 36 of the band is formed with a plurality of spaced-apart slots 38 therein, while a clamp 40 is swingably connected to end 37 by a pin 41. Clamp 40 slidably fits over the outer surface of band 33 near its end 37 and has a latch 42 at one end adapted to fit into the slots 38, and a handle 43 at its opposite end which can be depressed towards the band and against a spring 44 therebetween to cause the clamp to swing around its pin 41 to withdraw the latch 42 from the slot in which it is located at the time. Spring 44 biases the clamp so as normally to retain latch 42 in one of the slots 38. The effective length of band 33 can be adjusted by means of the clamp and slot arrangement just described.

A bracket 50 is connected to the upper end of bar 24 and is spaced from and extends over the uppermost loop 30, see FIG. 3. This bracket holds an operating pin 52 slidably mounted in a sleeve 53 and projecting downwardly from the lower end thereof, and having a head 54 on its lower end. Sleeve 53 projects through an elongated slot 56 formed in bracket 50. A nut 58 is threaded on sleeve 53 below the bracket, and another nut 59 is threaded on the sleeve above the bracket. Sleeve 53 with pin 52 can be moved longitudinally of slot 56 and vertically relative to the bracket by loosening nuts 58 and 59. Nut 59 is tightened to retain these in a fixed position relative to bracket 50. A coil spring

60 on sleeve 53 between nut 58 and head 54 biases the pin and head downwardly relative to bracket 50.

A bowden cable 62 extends along handle 11 and is removably secured thereto in any suitable manner, such as by clamps 64. This bowden cable has the usual wire 67 extending through a flexible tubular sheath 68.

Cable 62 is carried in a relatively large loop 70 around the end 22 of the handle, and the end 72 of sheath 68 is fixedly secured to the upper end of sleeve 53. The wire 67 of the cable extends beyond the sheath down through the sleeve and is fixedly secured to pin 52.

The opposite end 75 of cable sheath 68 terminates near the end 76 of handle 11 and is fixedly secured to the handle by a clamp 77. At this point, wire 67 extends out of the sheath, and extends through a lug 80 formed on the end of a curved trigger 82 which is pivotally mounted by a pin 83 on handle 11. A stop 85 is adjustably mounted on wire 67 below trigger lug 80. Spring 60 bearing against head 54 exerts a constant pull on wire 67 so that stop 85 is retained against lug 80.

As seen in FIG. 1, trigger 82 is substantially U-shaped, and it has a handle portion 88 which extend downwardly from pin 83 substantially parallel with handle 11 on the side thereof opposite from stop 85. A spring 89 positioned between this handle portion and the long handle keeps these two elements apart and acts against the pressure of spring 60 normally to keep the latter compressed and pin 52 in a retracted position.

FIGS. 1 and 2 show a pressure spray can 92 fitted within the two loops 30 and firmly secured to carrier 20 by clamps 40 of the loops. These loops can be adjusted to fit around cans of different diameters, and as there is no bottom on the carrier, cans of different lengths can be secured thereto. Can 92 has a standard valve 93 which, when depressed, permits the liquid of the can to spray out of outlet orifice 94 thereof.

When it is desired to use apparatus 10, nut 27 is turned to loosen carrier 20 so that it can be tipped to any desired position relative to handle 11 between its position parallel to the handle, as shown in FIG. 1, and a position normal thereto, as shown in FIG. 2. When the nut is tightened on bolt 26, the carrier is fixed relative to the handle. In addition, the can may be rotated within loops 30 to cause its orifice 94 to face in any desired direction.

The spray can is moved into the desired spray position by means of handle 10, and when the handle portion 88 of trigger 82 is depressed or moved towards the handle, the tension on wire 67 is relaxed so that spring 60 moves pin 52 towards valve 93 of the can to depress said valve, thereby allowing the liquid of the can to be sprayed out through orifice 94. When handle portion 88 is released, spring 89 overcomes the pressure of spring 60 drawing pin 52 away from the can valve to stop the spraying action.

As end 72 of bowden cable 62 is secured to sleeve 53 and thereby to bracket 50, the cable moves when the carrier is swung relative to the handle so that the cable does not get into the way of the carrier, and this movement cannot cause pin 52 to engage the can valve when this is not desired. The pin engages the valve only when trigger 82 is depressed.

FIGS. 6 and 7 illustrate an alternative form of the present invention. In this alternative, apparatus 10a is

provided with a bracket 95 which is substituted for bracket 50 of apparatus 10, but the former bracket is not connected to carrier 20. Bracket 95 is in the form of an inverted U and has laterally projecting flanges 96 and 97 on the free ends of the legs of the U. The spray can to be used in this apparatus is provided with means for receiving flanges 96 and 97. A spray can 100 is illustrated in FIG. 6, and this can is different than the one shown in the previous Figures, but this is merely to show that the apparatus can be used with different styles of cans, this type of can not being confined to this alternative.

Can 100 has a valve 101 at one end thereof which when depressed, permits the fluid to spray out of an orifice 102. Channel bars 104 and 105 are mounted on the upper end of can 100 on opposite sides of valve 101 so that the flanges 96 and 97 of bracket 95 can slide under these bars to position pin 53 directly over valve 101. As the bowden cable 62 is connected to bracket 95 and said bracket is connected to the can, the depression of trigger 82 causes pin 53 to be moved down to depress valve 101.

Apparatus 10a has the disadvantage that the spray can has to be provided with means for releasably holding bracket 95, but aside from this, apparatus 10a has all of the other advantages pointed out above.

I claim:

1. Apparatus for holding and operating pressure spray cans holding liquid under pressure and having at one end an outlet controlled by a normally-closed valve, said valve being movable to open the can outlet to permit liquid to spray therethrough, comprising an elongated handle, a carrier swingably mounted on the handle near an end thereof for movement between a position substantially parallel to the handle and a position substantially normal thereto, securing means for holding the carrier in any adjusted position relative to the handle, gripping means on the carrier for holding a spray can thereon, an operating pin, holding means retaining the pin in a position adjacent the valve of the can on the carrier, said pin being movable relative to the holding means, cable means connected to said operating pin and extending therefrom to near an opposite end of the handle, said cable means permitting swinging movement of the carrier, and a trigger mounted on the handle near said opposite end and connected to said cable means and operable to cause through said cable means movement of said pin into engagement with said valve, thereby causing liquid to spray through the can outlet.

2. Apparatus as claimed in claim 1 in which said gripping means comprises at least one band of adjustable length adapted to fit around the can, and means on the band for adjusting the length thereof to cause the band to grip the can.

3. Apparatus as claimed in claim 1 in which said carrier comprises a bar, and a lug means secured to the bar and extending outwardly therefrom; said gripping means comprises a plurality of bands of adjustable length connected to the bar at longitudinally spaced apart points thereon, said bands being adapted to fit around the can, and means on each band for adjusting the length thereof to cause said band to grip the can; and said securing means comprises a bolt extending through said lug means and the handle, and a nut threaded on the bolt for securing the carrier bar in adjusted positions relative to the handle.

4. Apparatus as claimed in claim 1 in which said holding means comprises a bracket connected to the carrier and through which said pin extends, said bracket overlapping the end of the can in the holder with the outlet therein.

5. Apparatus as claimed in claim 1 in which said cable means comprises a bowden cable including a tubular and flexible sheath with a cable extending there-through, said sheath being secured to the handle, and one end of said cable being connected to the trigger and the other end of the cable being connected to the pin.

6. Apparatus as claimed in claim 5 including spring means biasing said pin towards the can and said trigger normally retaining the pin away from the can against said spring means, said trigger when operated permitting the spring means to move the pin against the can valve.

7. Apparatus as claimed in claim 5 in which said holding means comprises a bracket connected to the carrier and extending over the gripping means thereof, and including a sleeve adjustably connected to the bracket, said pin slidably fitting in and projecting outwardly from the sleeve, and said sheath being connected to the sleeve and said cable being connected to the pin.

8. Apparatus as claimed in claim 7 including a head on the pin end of the projecting from the sleeve, and a spring on the sleeve and bearing against said head to bias the pin in an outward direction.

9. Apparatus as claimed in claim 7 in which said bracket is formed with an elongated slot therein through which said sleeve extends, and including means for releasably securing the sleeve to the bracket at any point along said slot.

10. Apparatus as claimed in claim 7 in which said bracket is formed with an elongated slot therein through which said sleeve extends, said sleeve being externally threaded, and including nut means threaded on the sleeve releasably to secure said sleeve to the bracket at any point along said slot, said nut means

when released permitting longitudinal adjustment of the sleeve relative to the bracket.

11. Apparatus for holding and operating pressure spray can holding liquids to be sprayed, comprising in combination a pressure spray can having at one end an outlet controlled by a normally-closed valve, said valve being movable to open the can outlet to permit liquid to spray therethrough, an elongated handle, a carrier swingably mounted on the handle near an end thereof for movement between a position substantially parallel to the handle and a position substantially normal thereto, securing means for holding the carrier in any adjusted position relative to the handle, gripping means on the carrier for holding the spray can thereon, holding means removably attached to said end of the can, an operating pin carried by said holding means and positioned thereby over said can valve, said pin being movable relative to the holding means, cable means connected to said operating pin and extending therefrom to near an opposite end of the handle, said cable means permitting swinging movement of the carrier, and a trigger mounted on the handle near said opposite end and connected to said cable means and operable to cause through said cable means movement of said pin into engagement with said valve, thereby causing liquid to spray through the can outlet.

12. Apparatus as claimed in claim 11 in which said cable means comprises a bowden cable including a tubular and flexible sheath with a cable extending there-through, said sheath being secured to the handle, and one end of said cable being connected to the trigger and the other end of the cable being connected to the pin.

13. Apparatus as claimed in claim 12 including spring means biasing said pin towards the can and said trigger normally retaining the pin away from the can against said spring means, said trigger when operated permitting the spring means to move the pin against the can valve.

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