March 2, 1954 W. L. BEST 2,670,882

RECEPTACLE ATTACHMENT FOR SPRAY GUNS

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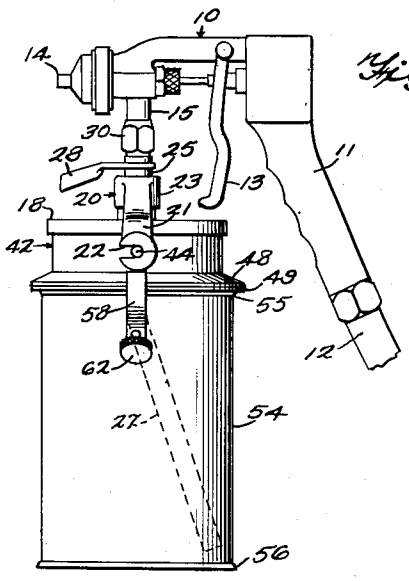

Fig. 1.

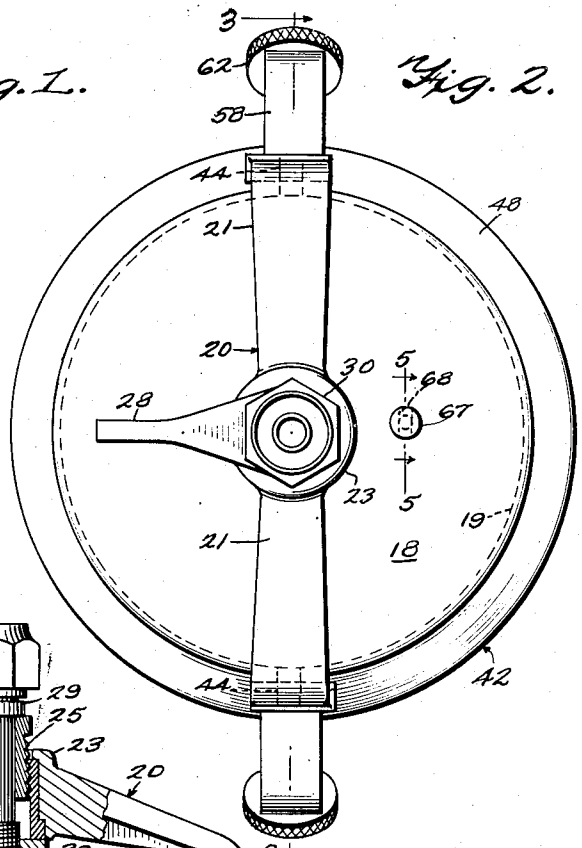

Fig. 2.

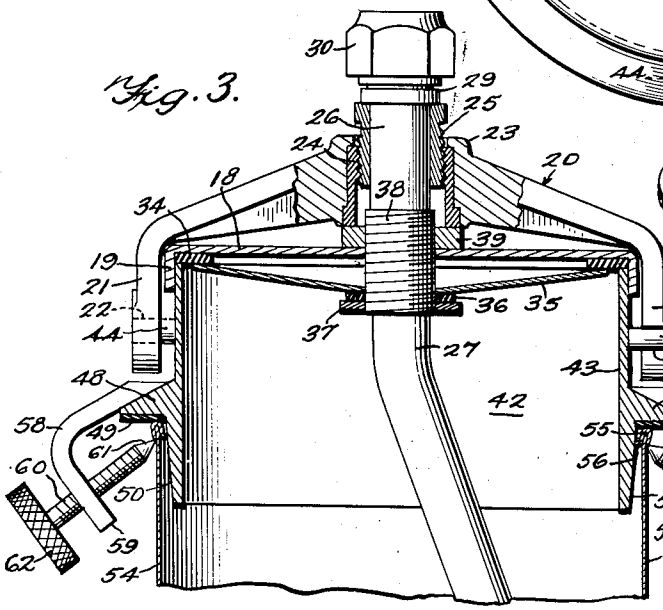

Fig. 3.

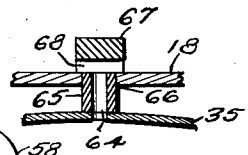

Fig. 5.

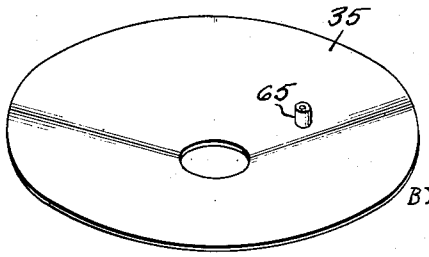

Fig. 4.

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RECEPTACLE ATTACHMENT FOR SPRAY GUNS

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10 Claims. (Cl. 222—464)

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This invention relates to an attachment for spray guns.

In the use of spray guns for applying paint, etc., it has been the common practice to mount the spray gun itself on a cap directly attachable to a container. Obviously the cap and container are conventionally designed for mechanical connection with each other, and accordingly a conventional container cannot be used. A special container being required, therefore, it is necessary, in order to change to a different color paint, to disconnect the cap from the container and not only wipe or otherwise clean the paint from the cap, but also from the container. This involves a substantial loss of time and useless labor, particularly where a number of small paint jobs are to be done with paints of different colors.

An important object of the present invention is to provide a spray gun attachment which permits the use of cheap conventional containers, such as empty one-quart lubricating oil cans which are thrown away every day in large numbers.

A further object is to provide novel means for connecting the spray gun cap to an adapter by which the device may be connected to a conventional low-cost container which, if desired, may be discarded when empty, thus eliminating the necessity for cleaning out the container if a paint of a different color is to be applied.

A further object is to provide a novel device of this character wherein the spray gun cap may be quickly removed from the adapter for the refilling of the container, and wherein the cap and adapter may be quickly bodily removed from the container itself when it is desired to utilize a new container.

A further object is to provide novel means for supporting within the spray gun cap a conventional washer for sealing the cap relative to the adapter, and wherein means is provided for venting the container to the atmosphere.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawing, I have shown one embodiment of the invention. In this showing,

Figure 1 is a side elevation showing the invention as applied to a conventional spray gun,

Figure 2 is an enlarged plan view of the same, the spray gun being omitted,

Figure 3 is a sectional view on line 3—3 of Figure 2, the lower portion of the container and liquid outlet pipe being broken away,

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Figure 4 is a detailed perspective view of the retainer for the washer in the cap, and

Figure 5 is a fragmentary sectional view on line 5—5 of Figure 2.

The present device is adapted for use in connection with a conventional spray gun which forms per se no part of the present invention, and accordingly has not been illustrated in detail. The spray gun has been generally indicated by the numeral 10 and is provided with a hand grip 11 connected as at 12 to a source of air pressure and operable by the pulling of a conventional trigger 13 to effect the delivery of a spray of paint or other liquid through a nozzle 14. Paint or other material is delivered to the spray gun through a conventional pipe 15.

Spray guns of this type are conventionally provided with caps for attaching them to containers for the paint or other liquid. Such a cap is used in conjunction with the present device, but is not attached to the container but rather to an adapter for the container, which adapter is described in detail below. The cap is indicated by the numeral 18 and is provided with a depending flange 19, the purpose of which is described below. The cap is associated with a yoke 20 having depending parallel arm portions 21 notched as at 22 for a purpose to be described. The yoke 20 includes a hub portion 23 in which is slidable a sleeve 24 internally threaded to receive an externally threaded sleeve 25. The latter sleeve is rotatable around the upper end 26 of a paint supply pipe 27, the lower end of which conventionally is inclined from the vertical to extend into the container in the usual manner. The externally threaded sleeve 25 is provided with a laterally extending operating handle 28, rotation of which effects threaded movement of the sleeve 25 in the sleeve 24. The upper end of the sleeve 25 bears against a stationary flange 29 carried by the pipe end 26 and the threading of the sleeve 25 thus transmits vertical movement to the yoke 20 to clamp the cap 18 in position. Above the flange 29, the outlet pipe is provided with a union 30 for connection with the pipe 15. The utilization of vertical movement of the sleeve 24 for clamping the cap 18 will be clear from the following description.

Within the cap 18 is arranged a resilient washer 34 of the conventional type normally engageable with the upper end of the container in a device of this character. These washers are difficult to retain in position, because paint or other liquid seeps between the washer and the

upper end of the container. The present device provides means for retaining the washer in position. This means comprises a relatively flat frusto-conical member 35 which preferably possesses a slight degree of elasticity to permit its peripheral portion to seat squarely against the lower face of the washer 34. Beneath the member 35 is arranged preferably a resilient washer 36 held snugly against the member 35 by a nut 37 mounted on a threaded portion 38 of the paint outlet pipe 27. Between the cap 18 and the lower end of the sleeve 24 is arranged a nut 39 similarly threaded on the pipe portion 38. The nuts 37 and 39 serve to clamp together the assembly of the elements 18, 34 and 35, and they serve also to transmit to such unit vertical forces generated by the threading of the sleeve 25 in the sleeve 24.

The washer 34 is adapted to seat on the upper end of an adapter indicated as a whole by the numeral 42. This adapter comprises a generally cylindrical body 43, the upper end of which is surrounded by the flange 19 as shown in Figure 3. At a point spaced from its upper end, the body 43 of the adapter is provided with outstanding trunnions 44 engageable in the notches 22 of the arms 21. The notches 22 face in opposite directions so as to provide for the quick detachment of the yoke 20 from the trunnions 44 upon rotation of the yoke 20 upon the loosening of the sleeve 25 by operation of the handle 28. This particular connecting means per se forms no part of the present invention.

The adapter 42 further comprises a preferably integral annular external flange 48, the lower surface of which is preferably perpendicular to the axis of the adapter. Against such face is arranged a resilient washer 49. Below the flange 48, the outer surface of the body of the adapter tapers slightly to decrease in diameter downwardly as at 50 for a purpose which will become apparent.

As previously stated, the present device is particularly intended to facilitate the use of such conventional low cost containers as one-quart lubricating oil cans and the like. If such cans are employed, they actually may be obtained free of charge since they are discarded by vehicle service stations. Such a container is illustrated in Figures 1 and 3 and comprises a cylindrical body 54 having beaded connection at its upper and lower ends as at 55 and 56 respectively with the top and bottom of the can. The top of the can is cut away by that type of can opener which cuts annularly around the top of the can adjacent the bead 55, the can top being cut away, for example along the line of the edge 56 in Figure 3. It is within the bead 55 that the lower end of the adapter is inserted into operative position as shown in Figure 3.

At diametrically opposite points, the adapter is provided with downwardly and outwardly inclined rigid brackets 58 preferably welded to the upper surface of the flange 48, which surface may slope downwardly and outwardly, as clearly shown in Figure 3. Each bracket 58 has its lower end bent substantially perpendicularly inwardly and downwardly as at 59 and has a clamping screw 60 threaded therethrough and provided with a pointed end 61 adapted to engage beneath the adjacent portion of the bead 55. Each screw 60 is preferably provided with a relatively large knurled head 62 to facilitate manual turning movement of the clamping screw.

Spray guns of the type used with the present apparatus usually operate on the ejector principle, in which case the interior of the container is vented to the atmosphere. This is true in the present case even though the washer clamping member 35 is used. Referring to Figure 5, it will be noted that the member 35 is provided with a vent opening 64 in registration with the opening through a thimble 65 which may project through an opening 66 in the cap 18. A small boss 67 (Figures 2 and 5) is welded or brazed to the cap 18 and provided with a vent passage 68 therethrough communicating with the interior of the thimble 65.

Operation

The adapter 42 is readily connected to the upper end of a suitable can or other receptacle. The screws 60 are loosened to clear the bead 55 or any other type of bead with which the container may be provided. The lower end of the adapter is then slipped into the upper end of the can, the tapered surface 50 facilitating this operation. With the washer 49 seated on the top of the container, the screws 60 will be tightened to the position shown in Figure 3 by turning the knurled heads 62. With the top of the adapter open, the container 54 may be filled with paint or other liquid, or the container may be filled before the adapter is placed in position. If the adapter is first placed in position, a larger quantity of paint or other liquid may be poured into the device because of the substantial additional capacity afforded by the use of the adapter.

Assuming the handle 28 to be turned to a position in which the notches 22 are freely movable into engagement with the trunnions 44, the cap 18 is applied to the top of the adapter with the yoke arms 21 turned slightly counterclockwise from the position shown in Figure 2 so that the lower ends of the arms 21 clear the trunnions 44. With the washer 34 in engagement with the top of the adapter, the handle 28 may be turned to move the sleeve 25 relatively upwardly with respect to the sleeve 24. With the upper end of the sleeve 25 engaging the flange 29, the turning of the sleeve 25 will effect a downward reaction, thus clamping the tops of the notches 22 in firm engagement with the trunnions 44. The device is then ready for operation in the conventional manner. The paint tube 27 has its lower end inclined as shown in Figure 1 so as to reach nearly to the bottom of the can to permit the ejection of substantially all of the liquid in the can.

If it is desired to refill the device with the same kind of paint or the like, the handle 28 is turned to release the binding engagement between the notches 22 and trunnions 44, whereupon the yoke 20 may be rotated counterclockwise to release the yoke arms 21. The cap 18 then may be removed, the container refilled and the cap reapplied.

If one paint job is finished and it is desired to start another one with a paint of a different color, it is unnecessary to clean out the container 54. The screws 62 may be loosened and the adapter and all the elements carried thereby may be lifted bodily from the container and the latter may be set aside. If the container is empty or substantially empty, it merely may be thrown away. It is only necessary for the operator to wipe the interior of the adapter and the exterior of the pipe 27, whereupon the adapter may be connected to another container 54 containing the desired paint. The old paint

may be quickly blown out of the pipe 27 and the elements leading to the nozzle 14 through the pulling of the trigger 13, whereupon the new paint job may be started.

As previously stated, the use of sealing means such as the washer 34 is conventional, but these devices are not ordinarily held in position, and without the use of the retainer 35, the washer 34 would very likely adhere to the upper end of the adapter when removing the cap 18. The retainer 35 has its annular upper edge seating against the washer 34, accordingly retaining the latter in proper position. It also will be apparent that the interior of the container is properly maintained at atmospheric pressure by its being vented through openings 64, thimble 65 and opening 68.

While exemplary forms of the invention are shown and described herein, it is to be understood that other modifications in the specific structure of the invention can be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a power-operated spray gun device, an adapter of closed cross section open throughout its length and having open ends one of which is insertable in a container of a cross section corresponding to that of said adapter, said adapter having an annular external shoulder seatable on the upper end of the container, means carried by said adapter and engageable with the container to fix said adapter to the container, and a releasable cap mounted on the other end of said adapter and having means for supporting a spray gun relative thereto with a supply pipe projecting into the container.

2. In a power-operated spray gun device, an adapter of closed cross section open throughout its length and having open ends one of which is insertable in a container of a cross section corresponding to that of said adapter, said adapter having an annular external shoulder seatable on the upper end of the container, means carried by said adapter and engageable with the container to fix said adapter to the container, a cap mounted on the other end of said adapter in leakproof engagement therewith, a yoke mounted above and engaging said cap and provided with arms straddling said adapter, and means carried by said adapter above said shoulder and engageable with said arms to fix said yoke in position relative to said cap and said adapter, said yoke having means for supporting a spray gun thereabove with a supply pipe projecting downwardly into the container.

3. In a spray gun device, an adapter of closed cross section open throughout its length and having open upper and lower ends the latter of which is insertable in the upper end of a container, said adapter having an annular external shoulder engageable with the upper end of the container, a pair of bracket elements carried by said adapter and having lower portions beneath said shoulder arranged outwardly of the container, screws carried by such lower portions of said brackets and engageable with the container to fix the latter relative to said adapter, a cap structure arranged over the upper end of said adapter, said cap structure comprising a cap element in sealing engagement with the upper end of said adapter and a yoke arranged above said cap element and provided with arms having lower ends straddling said adapter above said shoulder, means carried by said adapter and engaging said arms to fix said yoke relative to said adapter, and a supply pipe carried by and projecting through said cap structure and having a lower end projecting into the container.

4. In a spray gun device, an adapter of closed cross section having open upper and lower ends, said adapter having an external annular flange engageable with the upper end of a container with the lower end of said adapter projecting into the container, releasable means carried by said flange and engageable with the container to fix said adapter in position thereon, a cap over the upper end of said adapter, a gasket arranged between said cap and the upper end of said adapter, a supply pipe fixed with respect to said cap and projecting therethrough, said pipe having a lower end projecting into the container, and means carried by said pipe and engageable with said gasket to hold it in position in said cap when the latter is removed from said adapter.

5. In a spray gun device, a cylindrical adapter having open upper and lower ends, said adapter being provided in a plane spaced from its lower end with an external flange adapted to seat on the upper end of a container, brackets carried by said adapter outwardly thereof and terminating in converging lower ends, a screw carried by and perpendicular to such lower end of each bracket and engageable with a container on which said flange seats, a cap for the upper end of said adapter, a gasket within said cap engageable with the upper end of said adapter, a supply pipe projecting through and fixed with respect to said cap and having a lower end projecting into the container, and means carried by said supply pipe and engageable with said gasket to support it in position when said cap is removed from said adapter.

6. A device constructed in accordance with claim 5 wherein the means for retaining said gasket in position comprises an inverted frusto-conical member surrounding and fixed with respect to said pipe and having engagement throughout its periphery with said gasket, said frusto-conical member having a vent opening and being provided with a thimble communicating with the interior of said adapter through said vent opening, said cap having a vent opening communicating with the interior of said thimble.

7. A spray gun adapter comprising a cylindrical body open throughout its length and having open upper and lower ends, said adapter having an external flange seatable on the upper open end of a container, means for fixing said adapter in position on a container, and a pair of diametrically arranged outstanding pins fixed to said adapter above said flange for connecting said adapter to a cap structure.

8. A spray gun adapter comprising a cylindrical body having open upper and lower ends, said body having an annular flange above the lower end thereof provided with a downwardly inclined upper surface, the outer surface of said adapter body beneath said flange being tapered to decrease in diameter downwardly to facilitate the insertion of the lower end of said body into the open upper end of a container, diametrically opposite brackets having upper ends lying on and secured to the upper surface of said flange said brackets having lower converging ends, a screw threaded through and perpendicular to the lower end of each bracket for engagement with the container to fix it in position relative to said

body, and means carried by said body for fixing a cap structure relative thereto.

9. A spray gun adapter comprising an elongated body open throughout its length and having open upper and lower ends, means for securing the lower end of said body to the upper end of a container, a cap structure for said adapter, said structure comprising a cap element, an inverted frusto-conical retainer therebeneath, a sealing gasket beneath said cap element and engaged by the peripheral portion of said retainer, means for effecting a clamping action of said cap element and said retainer toward each other to hold said sealing element in position, and means for securing said cap structure in position with respect to said adapter with said sealing element engaging the upper edge thereof.

10. A spray gun adapter comprising an elongated body open throughout its length and having open upper and lower ends, means for securing the lower end of said body to the upper end of a container, a cap structure for said adapter, said structure comprising a cap element, an inverted frusto-conical retainer therebeneath, a sealing gasket beneath said cap element and engaged by

the peripheral portion of said retainer, a supply pipe extending through said cap element and said retainer, nuts threaded on said pipe respectively above said cap element and below said retainer to effect a clamping action between said cap element and said retainer to hold said sealing gasket in position against said cap element, and means for clamping said cap structure and said pipe in position with respect to said adapter with said sealing element engaging the upper edge of said adapter.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
591,686	Peter	Oct. 12, 1897
1,017,756	Head	Feb. 20, 1912
2,178,964	Hulse	Nov. 7, 1939
2,261,834	Morgan	Nov. 4, 1941
2,508,597	Dalrymple	May 23, 1950

FOREIGN PATENTS

Number	Country	Date
320,144	Great Britain	Oct. 10, 1929
641,092	France	Apr. 10, 1928