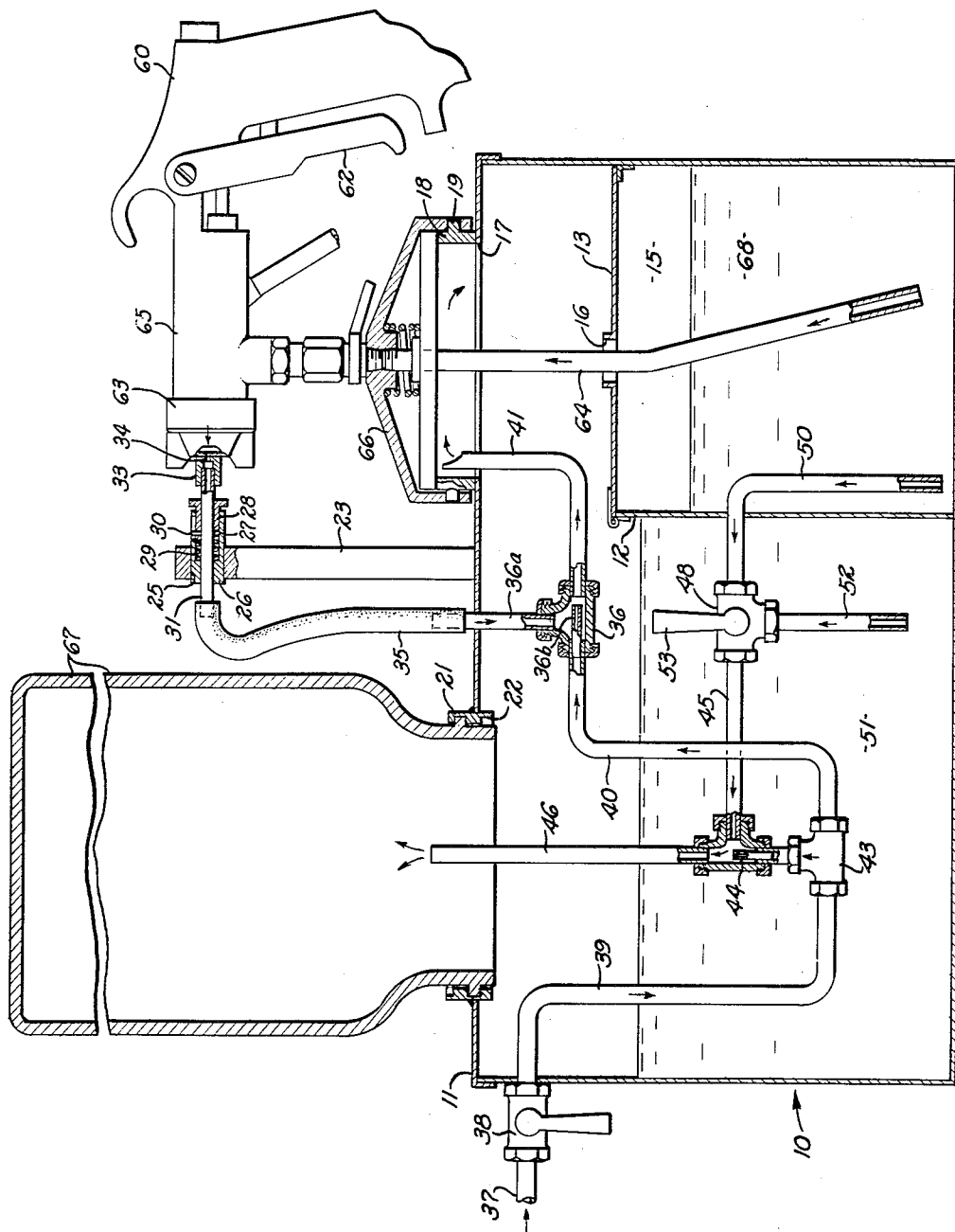


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 APPARATUS FOR CLEANING PAINT SPRAY GUNS AND CONTAINERS
 UTILIZED IN CONJUNCTION THEREWITH
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APPARATUS FOR CLEANING PAINT SPRAY GUNS AND CONTAINERS UTILIZED IN CONJUNCTION THEREWITH

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Our invention relates to a device for cleaning spray guns and has particular reference to a closed system which preserves substantially all of the solvent used in cleaning the gun and prevents dissipation into, and pollution of surrounding atmosphere.

Spray guns now being used in the painting industry comprise a means for discharging compressed air past an aspirator jet which is connected with a source of paint and which is discharged through a relatively small orifice to effect a satisfactory spray.

In spraying such fast-drying coating materials as synthetic lacquers, it is extremely important that the interior of the gun be maintained in a clean condition so as not to affect the action of the spray orifice.

It is also important to keep the spray gun as clean as possible to prevent inadvertent and undesirable mixing of colors.

One of the objects of our invention is to provide a device which will rapidly and effectively clean all residual paint or lacquers out of the spray gun and its component parts after use.

The usual method heretofore employed by painters was to remove the paint reservoir and aspirate clean solvent through the jet of the gun to thereby wash out any residual paint in the interior of the jet. Such a process is not only wasteful of the rather expensive solvent, but also results in undesirable pollution of the atmosphere.

A further object of our invention is to provide a device which is substantially a closed system which uses a minimum amount of cleaning solvent and which prevents the discharge of the solvent into the atmosphere.

Most modern spray guns are provided with a paint container attached to the gun by means of a retainer cap, both of which must also be maintained in a clean condition to prevent undesirable mixing of colors.

It is also among the objects of our invention to provide a means for cleaning the paint container during the same operation that cleans the spray gun orifice and which uses the solvent previously passed through the spray gun orifice to thereby conserve the supply of solvent.

Other and further objects and advantages will become apparent from the drawing and the specifications relative thereto.

The drawing represents a sectional side elevation of one form of spray gun cleaner embodying the principles of our invention.

Referring more specifically to the drawing, we have provided a solvent container designated generally as 10 of any desirable form and having a loosely fitting top 11 adapted to render the system substantially self-contained.

The container 10 is compartmented by means of a partition 12 having a hinged top 13 adapted to define, together with the walls and the bottom of the container 10, a clean solvent container or compartment 15. The hinged top 13 is formed with an aperture 16, the purpose of which will become apparent later, and the top 11 is formed with an aperture 17 and has an upwardly extending annular flange 18 secured thereto by any suitable means. The

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annular flange as illustrated is formed with suitable means 19 for securing a spray gun in position for cleaning. The top 11 is also formed with an aperture adapted to receive an annular flange 21 which is formed with a thread 22 or other suitable means for receiving the jar or paint supply container of the spray gun as will be explained later.

A bracket 23 is secured to the top 11 and extends upwardly therefrom in spaced relation from the aperture 17, the bracket 23 being formed with an aperture 25 which receives a bearing member 26. The bearing member 26 is formed with a counterbore 27. A bearing member 28 is slidably disposed in the counterbore 27 and is biased outwardly by means of a compression spring 29 and restrained at its outward extremity by means of a pin 30. A tubular member or conduit 31 is frictionally held by bearing member 28 and slidably disposed through the bearing member 26. The conduit 31 is provided with a tip 33 formed of relatively resilient material and has an orifice 34 communicating with the exterior thereof. The conduit 31 communicates with a flexible conduit 35 and a conduit 36a which extends through the top 11 and a T-fitting 36.

A source of compressed air is supplied to the system by means of a conduit 37 through a valve 38, conduits 39, 40, and 41. The conduits 39 and 40 are interconnected by means of a T-fitting 43 which is also in communication with an aspirator jet 44 positioned to aspirate cleaning solvent through a conduit 45 upwardly through a conduit 46 for the purpose of cleaning a portion of the gun, as will be explained hereinafter.

The conduit 45 is connected by means of a three-way valve 48 to the interior of compartment 15 by means of a conduit 50 or into a used solvent container 51 by means of a conduit 52 at the will of the operator, by means of a control handle 53. It will be understood, of course, that the control handle 53 extends outwardly to the outside of the container 10 by means of any suitable packing gland.

In order to illustrate the operation of our invention, we have illustrated a fragmentary view of a typical spray gun having a handle 60, an operating trigger 62, a jet or spray jet 63, a downwardly extending supply tube 64, designed to communicate between the supply of paint and the aspirator valve in the body 65 of the spray gun. The gun is also provided with a cap 66 adapted to secure a container 67 in position to receive paint and into which the conduit 64 fits.

After the spray gun has been used, the cap 66 is secured to the flange 18 with the tube 64 extending downwardly into the clean solvent 68 and the resilient tip 33 secured against the opening of the jet 63, and held in sealing position by means of the biasing spring 29. The container 67 is secured in position on the flange 21 over the upwardly extending conduit 46.

As will be understood, the conduit 37 is attached to a suitable source of compressed air (not shown) so that when the valve 38 is opened, compressed air flows from the conduit 37, through the valve 38, and into the conduit 39. Air from the conduit 39 flows through the three-way T-fitting 43 in which it is split, one portion flowing upwardly through the aspirator jet 44 and the conduit 46 into the jar 67, the other portion of the air flowing through the T-fitting 36 and the conduit 41 into the space below the cap 66. The T-fitting 36 is provided with an aspirator jet 36b so as to aspirate from the conduit 35, causing a partial vacuum in the conduit 35. When the trigger 62 of the spray gun is depressed, the main valve of the spray gun (not shown) is opened to open communication between the jet 63 and the conduit 64 thereof. When this occurs, the suction in the conduit 35 draws fresh cleaning solvent from the container 15 and discharges it into the stream of air flowing through the T-fitting 36 and the conduit 41, to be discharged upwardly thereby against the

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inside or underside of the cap 66 to clean the same of paint, the bulk of the solvent 50 discharged gravitating into the used solvent container 51 where it is stored. Thus, substantially clean solvent from the container 15 is always passed through the jet 63 of the spray gun to clean the same of paint.

By adjustment of the handle 53 of the valve 48 the conduit 45 may be placed in communication selectively with either the conduit 50 or the conduit 52. If communication is established between the conduit 45 and the conduit 50, clean solvent from the container 15 is aspirated into the air stream passing upwardly in the conduit 46 and as carried thereby is discharged against the inner walls of the jar 67 to wash the paint therefrom, the excess solvent and paint gravitating down into the reservoir 51. Instead of using clean solvent from the container 15, dirty solvent from the container 51 may be employed to clean the jar 67 by simply setting the valve 48 so as to provide communication between the conduit 45 and the conduit 52, in which case the fitting 44 aspirates dirty solvent from the container 51 through the conduits 45 and 52 and the valve 48. A preferred method of operation is to first adjust the valve 48 so that used solvent is aspirated from the container 51 to give a preliminary cleaning to the interior of the jar 67, following which the valve 48 is set to aspirate clean solvent from the container 15 to give a light, final wash to the interior of the jar.

It will be understood that the lid 11 fits relatively loosely on the container 10 and the jar 67 and lid 66 fit relatively loosely on their respective flanges to permit the escape of air from the container. Most of the solvent, however, will have already condensed and run back into the system to thereby prevent the escape of any substantial portion of the cleaner into the surrounding atmosphere.

What we consider the essence of our invention is a means for cleaning spray guns comprising a substantially closed system having a reservoir for unused cleaning solvent, a reservoir for used cleaning solvent, means for securing a spray gun to said container whereby said spray gun is in communication with the unused solvent, and means for returning the discharged solvent to the system for repeated use in cleaning the jar of the paint gun.

While we have described our invention in what we consider the most preferable embodiment thereof, it will be readily understood that a great many modifications can be introduced within the scope of our invention. We do not wish to be confined to the specific details herein disclosed, but desire full scope of the claims hereinafter set forth.

We claim as our invention:

1. In a device for cleaning spray guns: a container; partitioning means dividing said container into a clean solvent compartment and a used solvent compartment; means for mounting a spray gun on said container with the supply tube of said spray gun extending into said clean solvent compartment; supply means for supplying compressed air to said container; means connected to said supply means and connectible to said spray gun for aspirating solvent from said clean solvent compartment through said supply tube and said spray gun; and means for returning said solvent to said used solvent compartment.

2. In a device for cleaning spray guns: a container; partitioning means dividing said container into a clean solvent compartment and a used solvent compartment; means for mounting a spray gun head on said container with the supply tube of said spray gun head extending into said clean solvent compartment; supply means for supplying compressed air to said container; means connected to said supply means and connectible to said spray gun head for aspirating solvent from said clean solvent compartment through said supply tube and said

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spray gun head; means for returning said solvent to said used solvent compartment; means for securing a paint supply jar to said container, the jar having its interior in communication with said used solvent compartment; and means for directing said returning solvent against the underside of the spray gun head and the inside of said supply jar.

3. In a device for cleaning spray guns: a container; partitioning means dividing said container into a clean solvent compartment and a used solvent compartment; means for mounting a spray gun head having a spray tip, a mounting cap and a supply tube on said container with the supply tube of said spray gun head extending into said clean solvent compartment; supply means for supplying compressed air to said container; means connected to said supply means and connectible to said spray tip for aspirating solvent from said clean solvent compartment through said supply tube and through the spray gun head; means for returning said solvent to said used solvent compartment, said means comprising conduit means communicating between the spray tip of the spray gun head and the underside of the mounting cap; means for securing a paint supply jar having its interior in communication with said used solvent reservoir; and means for simultaneously directing said returning solvent against the underside of the spray gun head and the supply jar.

4. In a device for cleaning spray guns: a container; partitioning means dividing said container into a clean solvent compartment and a used solvent compartment; means for mounting a spray gun head having a spray tip, a mounting cap and a supply tube on said container with the supply tube of said spray gun head extending into said clean solvent compartment; supply means for supplying compressed air to said container; means connected to said supply means and connectible to said spray tip for aspirating solvent from said clean solvent compartment through said supply tube and through said gun head; and means for returning said solvent to said used solvent compartment, said last-named means comprising a tip resiliently biased against said spray tip and formed with an orifice in registry with said spray tip and conduit means communicating between said orifice and the underside of said mounting cap.

5. In a device for cleaning the component parts of a paint spray gun having a spray nozzle, a paint jar, a cap for attaching said jar to said spray nozzle, and a depending paint tube, the combination of: a reservoir for clean solvent and having a lid formed with an aperture; a reservoir for the reception of used solvent, said used-solvent reservoir being defined in part by a lid formed with a plurality of apertures, one of which is superposed in spaced relation with respect to the aperture in said lid of said clean-solvent reservoir; supply means for supplying compressed air; means for securing said spray gun cap in closing relation over said superposed aperture with said paint tube extending into said clean-solvent reservoir; aspirating means connected to said supply means and connectible to said spray nozzle for aspirating solvent from said clean-solvent reservoir through said paint tube and said spray nozzle; means for securing said supply jar in inverted position over another of said apertures in said lid of said used-solvent reservoir to communicate with said used-solvent reservoir; solvent returning means connected to said aspirating means for returning solvent discharged from said spray nozzle to said used-solvent reservoir and for directing said returning solvent against the underside of said cap; and aspirator means connected to said supply means for spraying used or clean solvent selectively against the interior of said jar.

6. A device as defined in claim 5 wherein said aspirating means includes a tip having an orifice therethrough, resilient means for biasing said tip into sealing relation with said spray nozzle, a conduit connected to said tip

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in communication with said orifice and extending into said used-solvent compartment, and an aspirating device connected to said conduit and to said supply means.

References Cited in the file of this patent**UNITED STATES PATENTS**

1,438,834 Keil ----- Dec. 12, 1922

1,781,523

1,820,552

2,554,389

2,561,631

5 2,615,456

6

Peck ----- Nov. 11, 1930

Wooley ----- Aug. 25, 1931

Stevens ----- May 22, 1951

Negri ----- July 24, 1951

Galusha ----- Oct. 28, 1952