

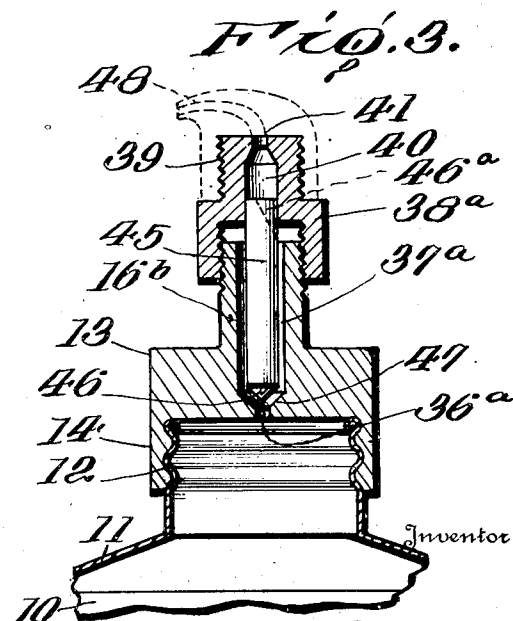
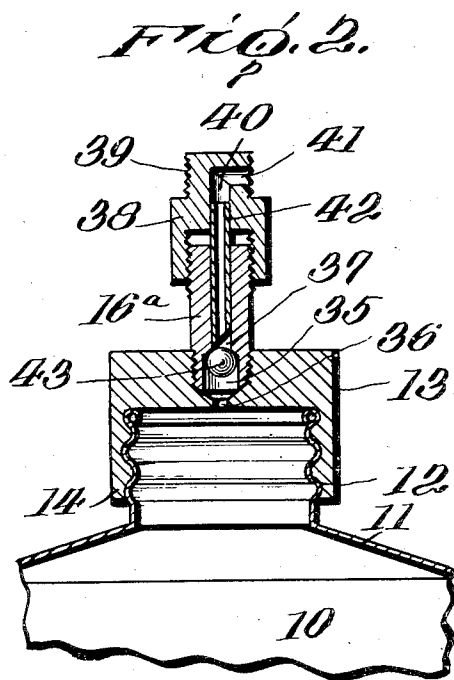
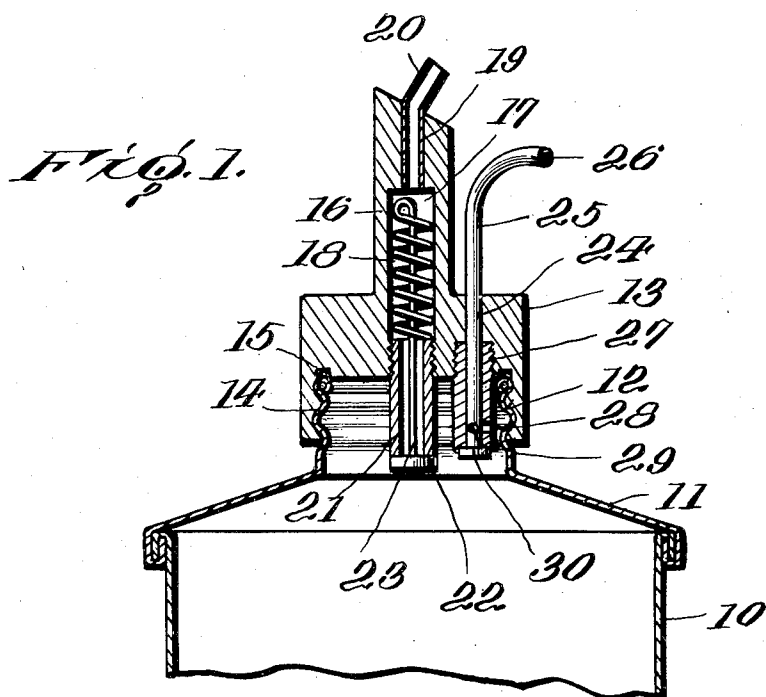
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J. H. MONTGOMERY

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SPRAY DEVICE

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UNITED STATES PATENT OFFICE

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SPRAY DEVICE

Application filed September 26, 1927. Serial No. 221,954.

This application relates to improvements in spray devices, and is more particularly intended for portable devices of small size.

A particular feature of this invention is the fact that the spray device presented may be initially charged with air or other gas to produce a pneumatic pressure which is maintained thereafter until operation of the device. It is therefore possible to charge the spray device and then carry it to a distant point without a continuing or further connection with the source of compressed gas.

Another feature of the invention is the provision of a spray head which may be seated upon any of a number of special containers for operation with any of them, thus reducing the cost of employing the device, and making it possible to use the device successively with different materials, as for example in spraying paints, where different colors are to be used one after another.

A further feature of the device is the employment of valves for maintaining the pneumatic pressure within the container until a spray is to be produced, and so constructing and arranging the spray nozzle itself that by a movement thereof a valve is actuated to permit the delivery of the contents of the container through the nozzle.

Other objects will appear in the course of the following specification and claim in conjunction with the accompanying drawings which set forth several modifications and constructions under the present invention.

In these drawings:

Figure 1 is a diametral section through a spray device according to the present invention.

Fig. 2 is a similar section through a modified form of device.

Fig. 3 is a similar section through a second modified form of the device.

In these drawings, a container 10 is provided having the usual body and an end 11 terminating in an upstanding threaded neck 12 in the particular illustration. It will be seen that such containers may be cheaply and easily formed, and are already on the market for dispensing paints, oils, etc. It is particularly to be noted that such contain-

ers are now sold by many companies, and hence it is possible to provide the spray head 13 as a separate article adapted for use with such containers.

The spray head 13 of Fig. 1 comprises a metal body having a downwardly extending skirt 14, threaded internally to receive the threads on the container neck 12. It will be understood that an appropriate type of packing 15 may be employed to prevent escape of air between the container and the spray head. The spray head 13 likewise has an upstanding boss 16. A passage 17 of large diameter is formed in the spray head body proper and in the boss 16 to receive a valve closing spring 18. At its upper end, the passage 17 is reduced in size and receives a tube 19 which extends beyond the boss 16 and constitutes an air connection nipple 20 by which the device may be connected to the air hose of an air pump or general supply system for compressed air.

A bushing 21 is threaded at its upper end for engagement with internal screw threads at the lower end of the passage 17, and has its bottom arranged to receive the closing disk 22 of a valve. This disk has a central aperture to receive the wire end 23 of the valve closing spring 18, this spring being of coil type and supported by the upper end of the bushing 21.

A second passage 24 through the spray head 13 receives the duct 25 which terminates in an angularly bent nozzle 26. The lower end of the duct is received within a bushing 27 which is likewise in threaded engagement in the spray head 13. This bushing has a lateral aperture 28 adapted to come into registry with a lateral aperture 29 of the duct 25. An enlarged end 30 on the duct prevents it from being blown out of the spray head by the pneumatic pressure within the container 10.

In operation, having given a container 10 charged with paint or other material to be sprayed, the usual closing cap is removed, and the spray head 13 is threaded down until it forms a seal with the container. An air hose is then connected to the nipple 20 and compressed air admitted until the contents

of the container 10 are placed under an initial pressure of predetermined degree. As the air enters through the tube 19, it passes into the passage 17 and by forcing the valve 22 downward, it finds entry into the container 10 itself.

The container and spray head may now be disconnected from the air hose and carried to the point of use. On arriving at the point of use, the operator inverts the container and turns the nozzle 26 until the lateral aperture 29 of the tube 25 is brought into registry with the aperture 28 of the bushing 27. The pneumatic pressure within the container now pushes the liquid downward through these apertures and the duct 25 and distributes it under predetermined pressure through the nozzle 26, and the operator may direct the stream in any direction by a suitable tilting and movement of the container.

In the modified form of Fig. 2, the container is provided with the top 11 and neck 12 as before, and the spray head 13 has the threaded skirt 14. In this construction, however, a bushing 16a is threadedly mounted in the head 13. This bushing has an enlarged cavity 35 at its lower end opposite a small aperture 36 in the head 13. Upwardly extending from the cavity 35 is a conduit 37. A nut 38 is threadedly mounted on the upper end of the bushing 16a and may be adjusted axially with respect to the bushing by this threaded engagement.

This nut 38 has the threads 39 at its top to receive the sleeve of an air hose; and the bushing is further provided with a conduit 40 having a laterally bent discharge end 41. The nut 38 also supports and is fixedly connected to a tube 42 which forms a substantially close but sliding fit in the conduit 37, and has a beveled lower end.

The charging of this modified form is accomplished as with the first form, the air being admitted through the passages 41, 40 and the tube 42 into the conduit 37 where it displaces the ball 43 downward from its seat against the shoulder or bushing 16a, and permits the air to pass into the container 10. When the air pressure within the container is greater than that outside of the container, the blast of air through the aperture 38 and the pressure resulting causes the ball 43 to be moved to seal its seat.

When it is desired to use this modified form, it is inverted and the nut 38 is screwed upwardly until the beveled end of the tube 42 pushes the ball 43 from its seat, so that the material in the container may now escape therefrom through the aperture 36, around the ball 43 and through the tube 42, to be finally discharged from the opening 41.

In the modified form of Fig. 3, the container 10 has its cover 11 and neck 12 as before, and the head 13 has its threaded skirt 14. In this form the upwardly extending

boss 16b of the head 13 is threaded on the exterior to receive a nut 38a. The passage 37a through the head 13 terminates at its bottom in a small aperture 36a opening to the interior of the container 10. The nut 38a has threads 39 as before for connection to a source of compressed air; and has an internal conduit 40 terminating in a reducing nozzle opening 41. The nut 38 in this modified form supports a valve pin 45 which has a conical lower end 46 to be seated at the shoulder 47 of the head 13 to close the same. This valve pin 45 is carried fixedly in the nut 38, but is provided at its upper end with a notch or kerf 46a by which the air or liquid may pass from the conduit 37a into the conduit 40.

The operation of this device resembles that of the preceding one, except that in this case the air pressure is maintained in the container 10 by screwing the nut 38a downward until the valve closure member 46 is seated on the shoulder 47. When it is desired to employ the spray, it is substantially inverted, and the nut 38 backed off until a sufficient cross-section of flow is established from the container 10.

It will be understood that with this modification a nozzle head 48 may be screwed onto the threads 39 for the hose connection, to assist in the delivery of a sheet of liquid from the device.

It is obvious that the invention is not limited solely to the forms of execution shown, but that it may be modified within the scope of the appended claim.

What is claimed as new is:

In a spray device, a spray head having means for attachment to a container about a discharge opening therein and also having an externally threaded portion and a conduit therethrough terminating adjacent the container in an orifice of less diameter, a manually operable connection member having means thereon engaging the threads of said threaded portion so that upon rotation it is moved axially with respect to said conduit, said connection member having a passage therethrough in alignment with and of less diameter than said conduit, a valve pin of a uniform diameter less than said conduit and disposed in the latter and having one end formed and disposed to cooperate with said orifice to open and close the same and having its other end fixedly disposed in the end of the passage in said connection member, whereby the pin is axially moved in the conduit with the rotative movement of said member, the end portion of said pin extending in said passage being cut away to establish communication between the passage and said conduit, and said connection member having means for connection with a fitting.

In testimony whereof, I affix my signature.

JAMES H. MONTGOMERY. 130