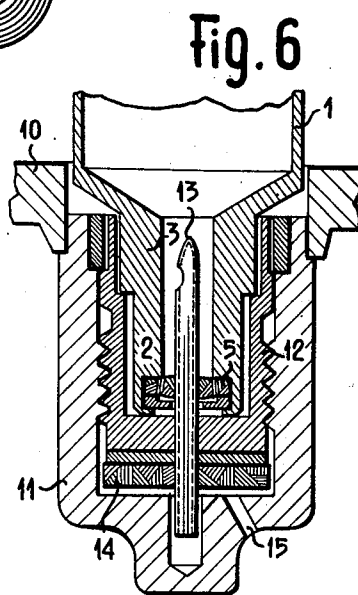
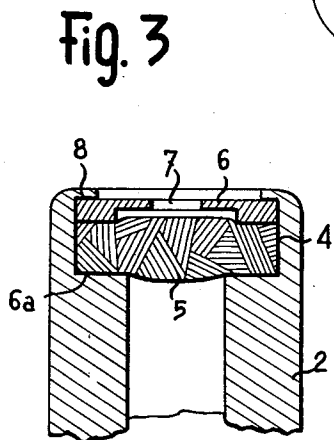
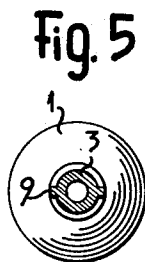
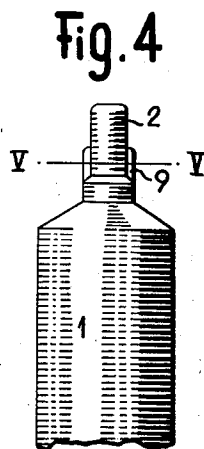
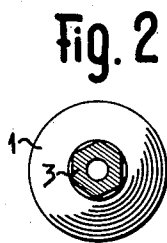
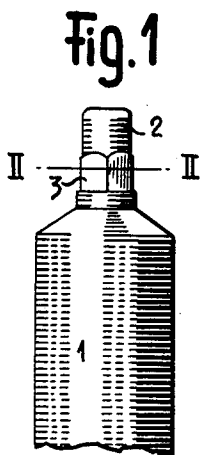


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C. ZELLWEGER
CONTAINERS FOR LIQUIFIED GAS

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2,711,082

CONTAINERS FOR LIQUIFIED GAS

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Claims priority, application Switzerland March 17, 1952

5 Claims. (Cl. 62—14)

The present invention has for its subject a container for liquified gas adapted to allow of filling a gas pyrophoric lighter by means of a valve mounted on the latter and which comprises at least two parts angularly movable relatively to one another, for the control of a closure device from a closed position to a filling position, one of said parts being stationary, the other movable.

This container is characterised in that it is provided with two parts co-operating with the valve, one being formed by a wall adapted to be perforated by a hollow needle secured to one of the parts of the valve, the other being formed by a part adapted to come into engagement with the movable part of the valve for controlling its angular movements.

Two forms of construction of the subject of the invention are shown by way of example in the accompanying drawings, wherein:

Fig. 1 is a partial view of a container according to a first form of construction.

Fig. 2 is a cross-section on the line II—II of Fig. 1.

Fig. 3 is a sectional view to a larger scale of the end of the neck of the container.

Figs. 4 and 5 are views corresponding with Figs. 1 and 2 of a second form of construction.

Fig. 6 shows the neck of the container in engagement with the valve of a pyrophoric lighter, for the purpose of its filling.

With reference to Figs. 1 and 2, it will be seen that the container 1 has an elongated nozzle or neck 2 of cylindrical shape, of which the lower portion 3 has a six-sided cross-section, as shown in Fig. 2, enabling it to come into engagement with the movable part of the valve of the lighter, so as to control the opening and closing movements. For this purpose the movable part of the valve has a portion into which fits the part 3 of the neck.

The nozzle is closed at its mouth by a closure device adapted to be perforated by a needle secured to the valve of the lighter. Fig. 3 shows this closure device.

The nozzle 2 is provided at its free end with an internal recess 4 adapted to receive a cylindrical plug 5 of pliant and resilient material, such as for example natural or synthetic rubber. The plug 5 is covered by a washer 6 having a central opening 7 for the passage of a hollow needle and bears against the shoulder 6a of the neck 2. The whole is held by a flange 8, at the edge of the neck 2, on the washer 6.

The device permits of repeated filling of the lighter whilst ensuring fluidtightness of the container.

In order to ensure an effective fluidtight joint of the nozzle 2, the plug 5 is preferably pre-compressed, before its introduction into the seating 4.

Instead of having a six-sided profile, the part 3 of the neck 2 may have another profile, enabling it to come into engagement with the movable part of the lighter for the purpose of its operation. For example it may have a shape such as that shown in Figs. 4 and 5. The part 3 of the neck has two oppositely located ribs 9 adapted to come into engagement with corresponding grooves in the movable part of the valve.

2

It will be understood that the part 3 of the neck may have shapes other than those shown and described. In the second form of construction, it is possible, for example, to provide more than two ribs 9, or only one. The neck 2 may have a conical wall and come into engagement with corresponding walls of the movable part of the valve, the movement of the latter being then effected by friction.

Fig. 6 shows the method of the filling operation of a lighter with a container as described.

10 indicates the body of the lighter, on which the part 11 of the valve is secured. The movable part 12 of the latter carries a hollow needle 13 through which communication is established between the container of the lighter and the filling container, through the valve, which has a closure member for the passage 15, said member being adapted to be compressed between the stationary part 11 and the movable part 12, when closing the valve as set forth, for example in my co-pending application Serial No. 341,881, filed March 12, 1953.

The parts 10 and 11 are screwed one into the other. When they have been tightened one in the other, communication between the needle 13 and the container of the lighter is cut off. For filling, the neck 2 of the container 1 is introduced into the part 12 of the valve and the hollow needle 13 passes through the opening 7 of the washer 6 whilst perforating the plug 5. The part 3 of the neck comes into engagement with a corresponding part of the movable part 12 and thus serves as a key for its operation. It then suffices to unscrew the part 12 by means of the container 1 until the moment at which the closure device allows the gas from the container to penetrate into the container of the lighter.

When the filling has been completed the part 12 is again forced into the part 11 and the neck is withdrawn. The plug 5 recloses, by reason of its elasticity, the opening formed by the passage of the hollow needle 13.

Various modifications may be made in the forms of construction described. Thus projections such as those 9 shown in Fig. 4 on the lower part of the neck may also be provided at its end.

The plug 5 shown in Fig. 3 may be replaced by a rigid washer which is capable of being perforated. It is also possible to provide at the end of the tube itself, a part which can be perforated, produced simultaneously with the tube.

These modifications, however, only enable the tube to be used for a single filling of the lighter.

It is also to provide a tube without a neck. The part or parts co-operating with the movable part of the valve are then located on the end of the tube.

I claim:

1. The combination including, a pyrophoric lighter comprising, a casing having a reservoir, valve means for filling the reservoir having a cup-like fixed valve element secured to the casing and including a port opening into the reservoir and also having a cup-like valve member having key means in its mouth and movable angularly and axially in the fixed valve member to open and close the said port, a hollow needle carried by the movable valve member; a filler container, an elongated nozzle for the container for insertion in the cavity of the cup-like movable valve member and having external key means thereon for mating with the key means of the movable valve member, and a puncturable plug of resilient material in the end of the nozzle, whereby, axial movement of the nozzle into the cavity of the cup-like movable member will first cause the plug to be punctured by the needle and ultimately cause the inter-engagement of the key means on the movable valve member and the nozzle to permit turning of the movable valve member to open the port in the fixed valve member

and thereafter by a reverse movement of the container to turn the movable member to close said port.

2. A liquified gas container for turning a filler control valve in a pyrophoric lighter, said valve having a hollow needle and a key portion, said container having a nozzle, external key means thereon for interengaging with the mating key portion of said valve, and a puncturable plug of resilient material in the end wall of the nozzle for cooperation with said needle.

3. A liquified gas container according to claim 2, wherein the outer end of the nozzle is recessed and flanged inwardly to receive the puncturable plug, and the puncturable plug is shielded by a washer having a central perforation.

4. A liquified gas container according to claim 2, wherein the external key means is polygonal.

5. A liquified gas container according to claim 2, wherein the key means is a radial projection.

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