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E. A. MELLER
PYROPHORIC LIGHTER

2,691,882

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2 Sheets-Sheet 1

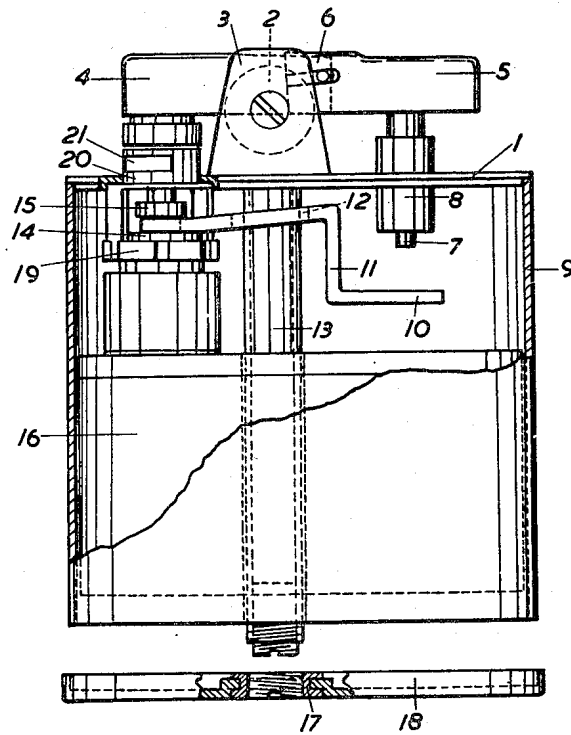


FIG. 1.

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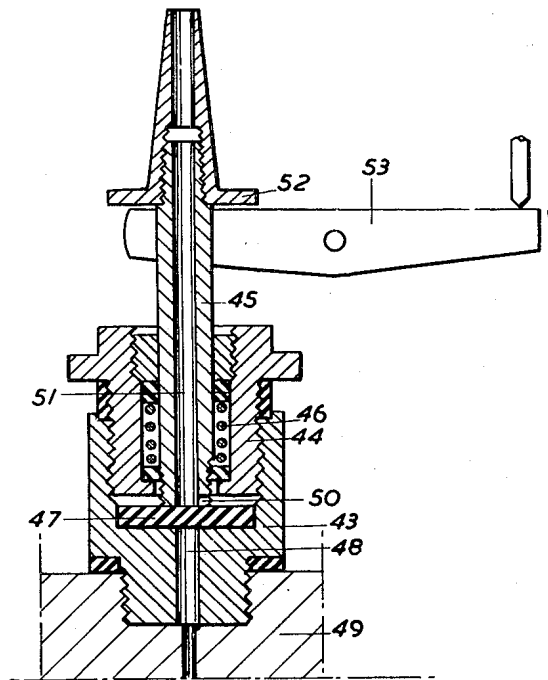


FIG. 2.

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PYROPHORIC LIGHTER

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2 Claims. (Cl. 67--7.1)

1

This invention relates to pyrophoric lighters of the kind wherein the fuel used is a gas, a supply of which is stored in a container and released, when required, for ignition by a flint and striker wheel or other convenient device.

The object of the invention is to provide improved means for releasing and controlling the outflow of gas from the container, whereby the flow is more readily adjustable to a suitable slow rate, and whereby such means for controlling the flow can be manufactured and assembled in quantity to give accurate results without necessitating lengthy and individual adjustment of each valve used.

According to the present invention the gas burning pyrophoric lighter comprises a casing, a container therein for liquefied gas fuel, an outlet valve assembly mounted on the container and including a hollow cylindrical internally-threaded body with a gas inlet leading axially thereinto, a resilient disc arranged coaxially in the valve body to cover the inlet, a centrally-bored screw-threaded sleeve threaded into the valve body to define with the valve body a cylindrical chamber of adjustable length within which the resilient disc may deform under the pressure of gas led in through the inlet, and a reciprocable spring-loaded centrally-bored outlet valve member arranged slidably through the sleeve and abutting against the resilient disc to form a stop valve therewith, a rotatable collar mounted externally on one wall of the casing, coupling means arranged between said collar and the rotatable sleeve whereby the position of the sleeve and the length of the flame issuing from the outlet valve can be adjusted from the exterior of the casing, a pyrophoric flint and a striker wheel therefor mounted on said wall of the casing, and means for simultaneously operating by hand said stop valve to release the gas and said striker wheel to ignite the gas released.

Means for simultaneous operation of the stop valve and striker wheel may comprise a finger-operated trigger reciprocally mounted on the casing, coupling means between the trigger and the striker wheel for rotation thereof, and a lever engaged with the reciprocable valve member and arranged to be contacted by the trigger as the trigger is depressed.

Such resilient regulator may be for instance a flap or washer of rubber or analogous resilient material.

The rate of flow of the gas is adjusted by limitation of the deformation of the resilient regulator when the valve is opened, and this adjust-

2

ment may be performed, for instance, by means of a sleeve or the like screw-threaded into the valve body and adjusted from the exterior, advantageously by hand.

To obtain a gas-tight seal between the valve and the container, an oval washer has been found to be particularly effective in practice.

In a form of construction of linkage for this purpose, a vertically-moving trigger serving to actuate the usual striker wheel and disposed at the upper part of the lighter engages at its lower part, within the lighter, with a plunger contacting one end of a floating lever, the other end of which is engaged between the body of a shut-off valve and a movable abutment or flange coupled to or mouted on a movable and preferably spring-loaded valve member, whereby depression of the trigger causes lifting of the valve to open it.

The trigger member is preferably spring-loaded and has at its upper part teeth or a rack or the like to engage with a snuffer coupled to the striker wheel so as to rotate the latter when depressed.

In order that the invention may be more fully understood, a construction of lighter is shown by way of example in the accompanying drawings, wherein:

Figure 1 is a side elevation of the lighter, showing the operating linkage.

Figure 2 is a section through a valve.

In Figure 1, the upper surface 1 of the lighter has a centrally mounted striker wheel 2 mounted on lugs 3 which also carry a pivoted snuffer 4. To one side of the striker wheel 2 is disposed a trigger 5 having teeth 6 which engage with the snuffer. As the trigger is successively depressed, the striker wheel 2 is rotated in the same direction for successive steps. A plunger member 7 passes at its lower part through a vertical tube 8 to the inside of the lighter casing 9. At its lower end the plunger member 7 engages with one end 10 of a floating lever 11 apertured at 12 to pass freely about a vertically depending flint tube 13. The other end of the lever 11 is engaged between a body portion 14 and a flange 15 on a spring-loaded release valve having at its opening a flame boss. The valve is screw-threaded into a tank 16 occupying the lower part of the lighter casing. A screw-threaded closure 17 on the flint tube may serve to retain a bottom plate 18 for the lighter casing in position, and hold the parts of the lighter together. The tank 16 is readily removable as a whole for replacement if required.

3

For adjustment purposes, the valve has a screw-threaded sleeve 19 having notches to receive corresponding fingers on a rotatable collar 20 which emerges at the upper surface of the lighter and has facets 21 to receive a suitable small spanner-like tool (not shown) whereby adjustment of the size of flame can be carried out from the exterior without dismantling the lighter. The operation of the valve is similar to that described hereinafter with reference to Fig. 2.

In Fig. 2 a hollow cylindrical internally threaded body portion 43 receives a centrally bored screw-threaded sleeve 44 therein to define a cylindrical chamber of adjustable length. Within the sleeve 44 is disposed slidably a reciprocable centrally bored outlet valve member 45 spring loaded by a spring 46 and bearing downwardly and abutting at its lower end, to form a stop valve, against a pad or flap 47 of rubber or the like arranged coaxially in a transverse position in the body 43 below the sleeve 44. The lower extremity of the valve member 45 extends through the lower end of the sleeve 44 and engages with the central portion only of the flap or pad 47. Below the latter is an axial inlet passage 48 through which the gas flows from a storage container 49 and which is covered by the pad 47. The periphery of the flap or pad can be raised by the pressure of the gas according to the space remaining within the body 43 below the sleeve 44. The sleeve 44 can be rotated from the exterior for adjustment to increase or decrease the gap left and thereby control the flow of gas when the valve is opened.

In the position of the sleeve 44 illustrated, the sleeve is at its uppermost position of adjustment corresponding to maximum gas flow and any adjustment to reduce the flow of gas would be made by rotation of the sleeve 44 in the direction to lower it in the body 43.

The lower end of the valve member 45 is provided with a small opening 50 for the passage of the gas to an interior bore 51 for the valve member.

The upper part of the valve member is provided with a flange 52 for engagement by a link arm 53 so as to cause the valve to open when the end of the arm 53 is depressed in the direction of the arrow.

I claim:

1. A gas-burning pyrophoric lighter comprising a casing, a container therein for liquefied gas fuel, an outlet valve assembly mounted on the container and including a hollow cylindrical internally-threaded valve body with a gas inlet leading axially thereto, a resilient disc arranged coaxially in the valve body to cover the inlet, a centrally-bored screw-threaded sleeve threaded

4

into the valve body to define with the valve body a cylindrical chamber of adjustable length within which the resilient disc may deform under the pressure of gas led in through the inlet, and a reciprocable spring-loaded centrally-bored outlet valve member arranged slidably through the sleeve and abutting against the resilient disc to form a stop valve therewith, a rotatable collar mounted externally on one wall of the casing, coupling means arranged between said collar and the rotatable sleeve whereby the position of the sleeve and the length of the flame issuing from the outlet valve can be adjusted from the exterior of the casing, a pyrophoric flint and a striker wheel therefor mounted on said wall of the casing, and means for simultaneously operating by hand said stop valve to release the gas and said striker wheel to ignite the gas released.

2. A gas burning pyrophoric lighter comprising a casing, a container therein for liquefied gas fuel, an outlet valve assembly mounted on the container and including a hollow cylindrical internally-threaded valve body with a gas inlet leading axially thereto, a resilient disc arranged coaxially in the valve body to cover the inlet, a centrally-bored screw-threaded sleeve threaded into the valve body to define with the valve body a cylindrical chamber of adjustable length within which the resilient disc may deform under the pressure of gas led in through the inlet, and a reciprocable spring-loaded centrally-bored outlet valve member arranged slidably through the sleeve and abutting against the resilient disc to form a stop valve therewith, a rotatable collar mounted externally on one wall of the casing, coupling means arranged between said collar and the rotatable sleeve whereby the sleeve is adjustable from the exterior of the casing, a pyrophoric flint and a striker wheel mounted on said wall of the casing, a finger-operated trigger reciprocably mounted on the casing, coupling means between the trigger and the striker wheel for rotation thereof, and a lever engaged with the reciprocable valve member and arranged to be contacted by the trigger as the trigger is depressed.

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