July 1, 1958 M. E. WEBSTER 2,841,694

PORTABLE GAS LANTERN

Filed March 23, 1955 2 Sheets-Sheet 1

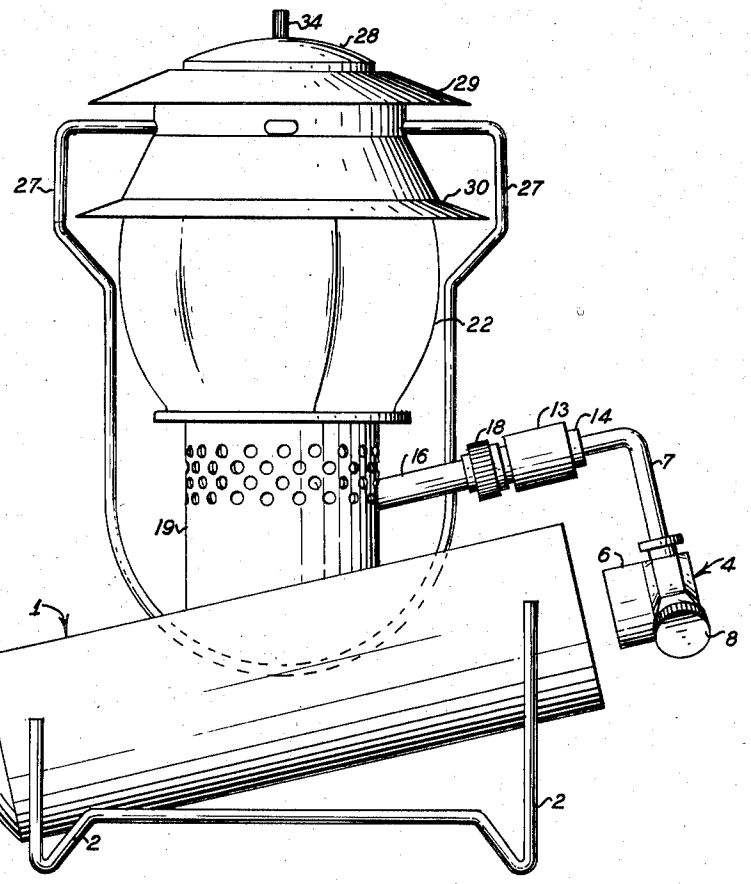


Fig. 1

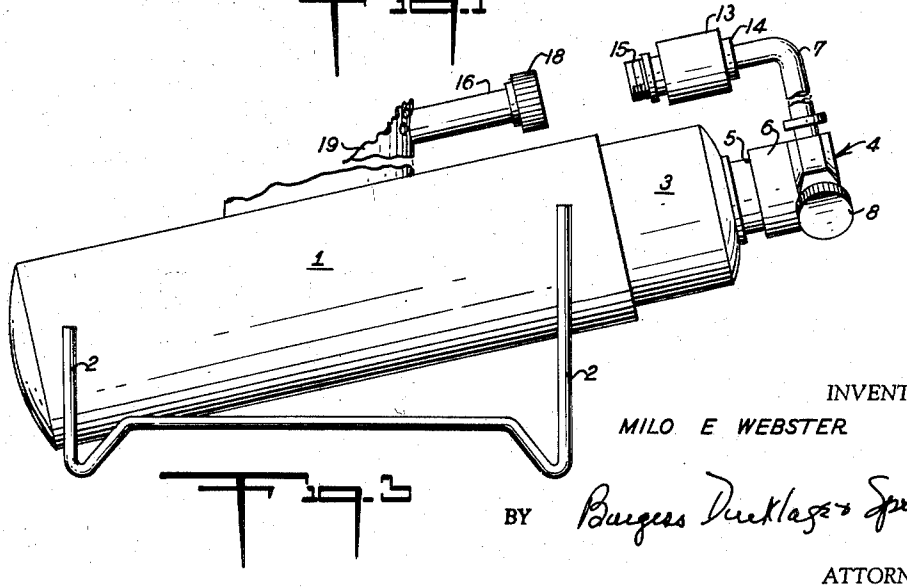


Fig. 2

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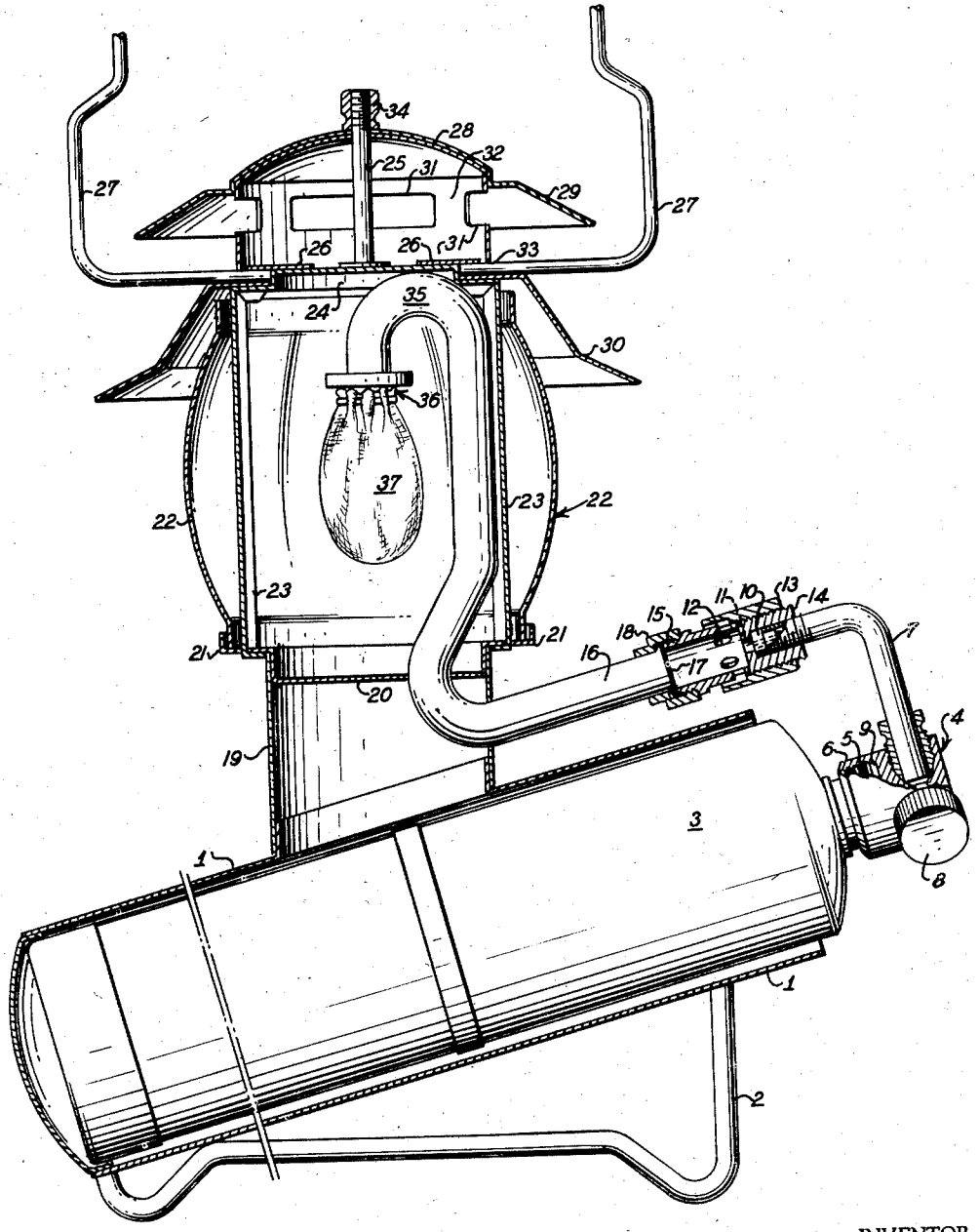


FIG. 2

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PORTABLE GAS LANTERN

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4 Claims. (Cl. 240—38)

This invention relates to a portable gas lantern.

One object of this invention is a portable mantle-type lantern which will light instantly, which is smokeless and odorless, and which will give an extremely bright, adjustable light while not requiring the filling, pumping or priming operations previously associated with mantle-type lanterns.

This and still further objects will become apparent from the following description read in conjunction with the drawings in which:

Fig. 1 is a side view of an embodiment of a mantle-type gas lantern in accordance with the invention;

Fig. 2 is a side elevation, partially in section, of the lantern shown in Fig. 1; and

Fig. 3 is a side elevation of a portion of the lantern shown in Fig. 1 with the fuel cylinder partially removed.

The portable gas lantern in accordance with the invention is intended for use in combination with a liquefied fuel gas cylinder as, for example, a disposable liquefied propane gas cylinder. The lantern has an inclined receiver such as a cylindrical receiver for the fuel gas cylinder. A transparent lantern globe as, for example, a glass globe is mounted above the inclined receiver. A tap connection is provided for tapping the gas cylinder when the same is positioned in the receiver. A gas conduit is connected to the tap connection and extends above the receiver and terminates in the upper portion of the globe. A mantle hanger is connected at the end of the gas conduit in the globe and a regulator valve means as, for example, a needle valve mounted in the tap connection is positioned for adjusting the quantity of gas flowing through the gas conduit from the cylinder.

Referring to the drawings, the inclined receiver **1** is mounted on the leg supports **2**. The receiver as shown consists of a hollow cylinder which is open at its upper end and closed at its lower end. The receiver **1** is dimensioned in size so that a fuel gas cylinder as, for example, a liquefied propane cylinder **3** may be slipped inside it.

The fuel gas cylinder in combination with which the lantern in accordance with the invention is intended for use is preferably a disposable liquefied propane gas cylinder as, for example, the portable disposable liquefied propane gas cylinders marketed under the name "Bernz-O-Matic" cylinders.

A tap connection **4** is provided for tapping the cylinder **3**. The tap connection **4** may be any conventional tap connection adapted for tapping the particular cylinder in connection with which the lantern is to be used. The cylinder may, for example, have a threaded collar **5** provided with a bore communicating with the interior of the cylinder. This bore may be provided with a closure valve as, for example, a conventional tire valve. The tap **4** then consists of a female screw sleeve **6** which screws over the collar **5** and which has a central hollow rod which depresses the stem of the tire valve, opening the same. The fuel in the interior of the cylinder under pressure is then free to flow through the hollow interior

of the rod into the portion **7** of the gas conduit. The amount of gas flowing through the conduit may be regulated or shut off by means of the conventional needle valve arrangement **8**. The longitudinal bore in the threaded collar **5** may be provided with an O-ring gasket which will come into gas-tight engagement with the hollow rod and the collar **5** may be screwed up tight against the gasket as, for example, a neoprene gasket **9** to insure against gas leakage.

This type of tap arrangement is, for example, described in detail in my copending application, Serial No. 438,400, filed June 22, 1954, now Patent No. 2,793,504.

An orifice plug or tap **10** provided with a small orifice opening **11** is positioned in the conduit **7**. On the other side of the orifice **11** the air mixture holes **12** extend through the conduit. A sleeve **13** which is screwed over the threaded portion **14** may be used to adjust the amount of air which may pass from the outside through the air holes **12** into the conduit. The portion **7** of the gas conduit terminates with a male threaded flange **15**. The portion of the conduit **7** with all parts connected thereto is removably connected to the remaining portion of the gas conduit **16** by means of convenional flange joint **17** and knurled screw sleeve **18** with a female thread.

The portion **7** of the conduit may be disconnected from the remaining portion **16** by merely unscrewing the knurled screw sleeve **18**.

A hollow cylindrical support member **19** is attached to the receiver **1** and extends thereabove in a vertical direction. Connected to the upper portion of the support **19** is the cylindrical pan **20**. The pan **20** has the flange portion **21** which constitutes a base support for the glass lantern globe **22** of conventional construction.

Also connected to the pan **20** are two relatively thin vertical support beams **23**. A crossbar **24** extends across the top of these support beams and has the screw stud **25** connected thereto. The outer edges of the crossbeam **24** are formed as female sockets **26** for receiving the lantern handle **27**.

Positioned above the globe **22** and mounted on the crossbeam **24** and support beams **23** is the lantern top and ventilator **28**. The top and ventilator consists of the two shade portions **29** and **30** and a cylindrical vertical member **32** connecting these two shade portions. The cylindrical member **32** has the ventilating openings **31** and also has smaller openings **33** through which the lantern handle **27** can extend. A central axial hole is also provided in the top of the lantern top and ventilator through which screw stud **25** may extend. The ventilator **28** is held in position by means of the thumb nut **34** and is additionally held in place by the lantern handle **27** fitting in the sockets **26**. When in position, the ventilator **28** serves to maintain the globe **22** in place and acts as a conventional shade, top and ventilator for the lantern.

The remaining portion of the gas conduit **16** extends into the support **19** up through a hole in the bottom of the pan **20** and into the interior of the globe **22**. In the globe **22** portion **16** of the conduit extends up along one of the supports **23** and in the upper portion of the conduit **16** is reversely bent at **35** in the form of a gooseneck. Connected to the end of the conduit **16** is a conventional mantle hanger **36** which may, for example, consist of metal or ceramic material which may be provided with a multiple number of outlet holes through its lower surface. A mantle of conventional construction as, for example, a silk mantle may be tied around the mantle holder **36**.

In order to place the mantle in position, the thumb nut **34** is unscrewed from the stud **25** and the handle **27** removed by flexing the same outwardly. The ventilator **28** is then lifted off from the support **24** and the

globe 22 may then be removed by being lifted off. The mantle 37 is tied around the mantle hanger 36 in the conventional manner and burned off. The globe, ventilator and lantern handle are then replaced.

In operation the female threaded screw sleeve 18 which may be knurled about its exterior surface to facilitate gripping is unscrewed from the screw 15 and the portion 7 of the gas conduit with the parts connected thereto including the tap arrangement 4 is removed.

The tap arrangement 4 is then screwed onto a fuel gas cylinder such as a disposable liquefied propane gas cylinder 3. This effects communication from the interior of the cylinder to the conduit 7 through the needle valve arrangement 8. With the needle valve arrangement shut, no gas can escape. The cylinder 3 is then slid into the receiver 1, as shown in Fig. 3. The female threaded screw sleeve 18 is then screwed onto the member 15 connecting the two portions 16 and 7 of the gas conduit, as shown in Figs. 1 and 2.

In order to light the lantern, the needle valve 8 is opened, allowing the passage of the pressurized fuel gas from the cylinder 3 through the portion 7 of the conduit. As the gas passes through the orifice 11, it draws air through the air holes 12, mixing this air with the gas. This mixture of fuel gas and air then passes through the remaining portion of the gas conduit 16 and out through the perforations in the lower surface of the mantle hanger 36, filling the mantle with the combustible mixture. The lantern may be lit by merely inserting a match or the like through a small opening (not shown) in the rim of the pan 20. The mantle burns with an extremely bright white light which may be adjusted by means of the needle valve 8.

In order to obtain the optimum burning mixture of air and gas for various altitude conditions or the like, the sleeve 13 may be adjusted to allow a greater or lesser quantity of air to be drawn through the air holes 12.

The lantern will light instantly, giving a smokeless and odorless bright light.

Due to the inclined position of the cylinder, as the same is held in the receiver, which should preferably be at an angle of at least 15° from the horizontal, only vapor will pass out of the cylinder and the cylinder outlet will never be in direct contact with the liquefied gas which might cause erratic operation and extinguishment of the flame.

If the cylinder were maintained in a horizontal position, the liquefied fuel gas would initially come in contact with the outlet opening, causing these disturbances. As the quantity of fuel was used up in the cylinder, the liquid level would eventually fall below the outlet from the cylinder, causing a change in the burning characteristics and requiring readjustment. Further, a shaking or jostling of the lantern could easily splash liquid particles into the outlet from the cylinder and cause the extinguishment of the flame.

As contrasted to a vertical positioning of the cylinder, the arrangement in accordance with the invention is much more compact and stable.

While the invention has been described in detail with reference to the specific embodiments shown, various modifications which fall within the spirit of the invention and scope of the appended claims will become apparent to the artisan.

I claim:

1. A portable gas lantern for use in combination with a liquified fuel gas cylinder, which comprises an inclined receiver for the fuel cylinder having legs attached thereto forming a stable, self-supporting base unit, a transparent lantern globe mounted above said inclined receiver, a tap connection positioned for attachment to a fuel gas cylinder positioned in said receiver, a gas conduit connected to said tap connection extending above said receiver and terminating in the upper portion of said globe, a mantle hanger positioned at the end of said gas conduit in said globe, and regulator valve means positioned for adjusting the quantity of gas flowing through said gas conduit.

2. Portable gas lantern according to claim 1, in which said inclined receiver is a cylindrical receiver having its upper end open and in which said tap connection is axially positioned in front of the upper open end of said receiver.

3. Portable gas lantern according to claim 2, in which said gas conduit includes two hand detachably connected portions.

4. Portable gas lantern according to claim 1, in which said inclined receiver is a cylindrical receiver having its upper end open, and in which said tap connection is axially positioned in front of the upper open end of said receiver, including a vertical cylindrical support member mounted above said receiver, a pan mounted on top of said vertical support member, said pan defining a channel for said lantern globe, at least one vertical support beam extending from said pan vertically through said globe, and a ventilator lantern top detachably mounted to said support beam.

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