

F. GUY.
ACETYLENE LAMP.
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974,054.

Patented Oct. 25, 1910.

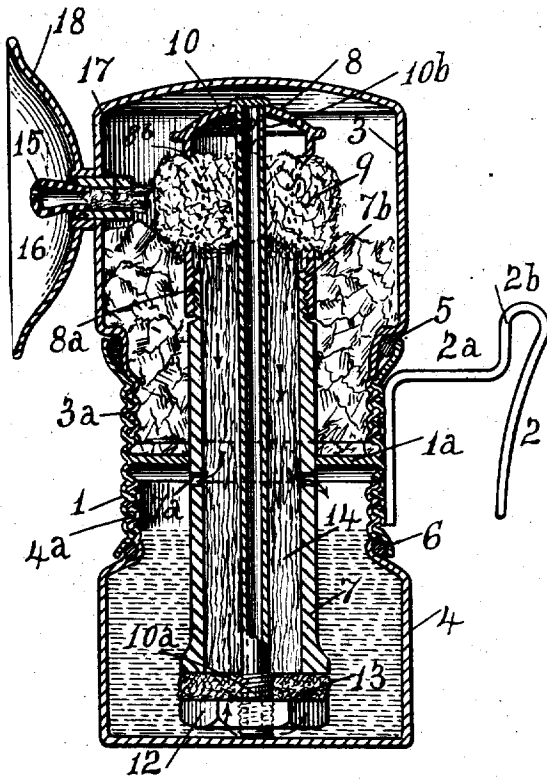


Fig. 2.

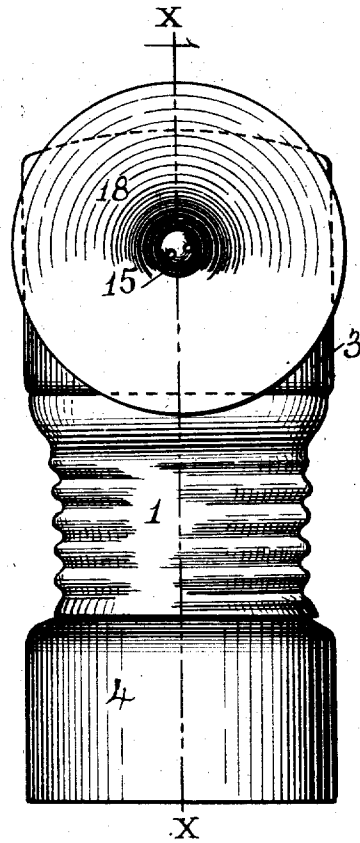


Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

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ACETYLENE-LAMP.

974,054.

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To all whom it may concern:

Be it known that I, FRANK GUY, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Acetylene-Lamp, of which the following is a specification.

This invention relates to lamps of that class adapted to generate acetylene gas from calcium carbide and burn the gas.

The purposes of the invention are to provide means to apply water to the carbide by the capillary action of a suitably placed wick; to provide means for convenient replacing of the capillary material after it becomes clogged or otherwise ineffective; to provide means to prevent excessive pressure of gas within the carbide box, to provide supporting means for the lamp so arranged that the water reservoir and the carbide box may be detached independently of each other; and to provide means for controlling the feed of the water through the capillary tube.

With these ends in view my invention consists in the novel features of construction and arrangements of parts shown in the annexed drawing and hereinafter particularly described and finally recited in the claims.

In the drawing Figure 1, is a front elevation of the lamp, and Fig. 2, is a vertical section through the lamp on the line X. X. of Fig. 1.

Similar reference numerals designate like parts in both views.

I have shown a miner's lamp embodying my invention but it is to be understood that the improvements are equally applicable to table lamps, bicycle lamps, etc.

The shell of the lamp is of light sheet metal spun to the desired form, as is common in the manufacture of metal lamps.

A tubular body part 1, is screw-threaded as shown and has a central diaphragm 1^a. The handle 2, is soldered onto the body 1, and its upper part is bent outwardly and upwardly to leave a space 2^a, between the body 1, and the upwardly extending part 2^b, of the handle through which the reflector may pass when the carbide box is turned in attaching the box to the body or removing it from the body. The carbide box 3, is cylindrical and has a reduced cylindrical extension 3^a, screwing into the body 1. The water reservoir 4, is cylindrical and has a reduced extension 4^a, screwing into the body 1. A rubber ring 5, between the parts 1, and 3,

forms a tight joint therewith, to prevent leakage of gas; and a similar ring 6, forms a similar connection between the parts 1, and 4.

A wick tube 7, is fixed centrally in a vertical position on the diaphragm 1^a, and extends upwardly into the carbide box 3, and downwardly into the water reservoir 4. The tube 7 has vents 7^a, communicating with the interior of the water reservoir and its upper end has screw threads 7^b. A tubular hood 8, has an internal screw 8^a, fitting on the screw 7^b, of the wick tube 7 and also has a number of openings 8^b accommodating material 9, such as loose cotton fiber or felt. A tube 10, closed at its upper end, is fixed in a central position on the hood 8, and extends downward through and beyond the lower end of the wick tube 7 and has screw threads 10^a at its lower end and vents 10^b near its upper end. A nut 12, screws onto the screw-threads 10^a, and serves to compress a felt pad 13, situated between the nut 12 and the lower end of the tube 7. Candle wick 14, or other suitable fibrous material surrounds the tube 10, within the tube 7, and contacts with the felt or fiber 9 at the upper end of the tube and the pad 13 at the lower end of the tube.

A burner 15, is connected with a tube 16, secured on and extending into the carbide box 3. Fiber 17, in the tube 16, filters the gas entering the tube. A suitable reflector 18, is mounted on tube 16 and is of such diameter that when the box 3 is turned the reflector will pass through the space 2^a between the handle 2 and the body 1.

In using the lamp water will be placed in the reservoir to a suitable depth and carbide will be placed in the box 3 in contact with the fiber or felt 9, and the parts will be screwed together. When the carbide and water are supplied and the parts are assembled as described, capillary action of the wick 14, will draw water upward through the tube 7 and the water will be absorbed by and seep through the felt 9, into contact with the carbide in the box and will cause the generating of acetylene gas, in a manner which is well-known. If the flow of water is excessive and there is danger of drowning the carbide the nut 12, will be screwed up on the stem 10, and will compress the felt pad 13, sufficiently to retard the flow of water to the desired extent. If on the other hand the supply of water is insufficient the nut

will be loosened to permit free flow of the water to the wick. If gas is generated so rapidly as to cause excessive pressure within the carbid box the excess of gas will enter the tube 10 through the inlet opening 10^b, and will travel downward through the tube 10 into the water contained in the reservoir 4, and thereby will be cooled and condensed. Excess of gas may also pass downward through the tube 7, and be discharged through the vents 7^a, into the space above the water in the water reservoir. The flow of gas from the carbid box into the water reservoir and the condensing of surplus gas prevents dangerous pressure within the carbid box.

Acetylene lamps as commonly constructed have the water reservoir above the carbid box and the water flows by gravity from the reservoir onto the carbid. This construction is open to two serious objections; first that there is constant danger of drowning the carbid, and second that excessive pressure of gas tends to blow water through a vent in the reservoir, provided for that purpose, and this blowing out of the water is exceedingly annoying to the user of the lamp. In my lamp the construction is such that the saturated wick in the tube 7, and the saturated fiber 9, in the hood 8, will prevent downward flow of gas at normal pressure; but in the event of excessive pressure the gas will force its way through the saturated fibrous material into the water reservoir, thereby reducing the pressure within the carbid box.

The parts 1, 3, and 4, are closely connected so that water and gas cannot escape through the joints and the only outlet for the gas is through the burner 15.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a lamp, the combination of a tubular body provided with a diaphragm; a wick tube centrally mounted on the diaphragm of

said body; a water reservoir detachably connected with said body; a carbid box detachably connected with said body and equipped with a burner; a perforated hood detachably connected with said wick tube and adapted to contain fibrous material contacting with the carbid in the carbid box; a perforated inner tube connected with said hood and extending through said wick tube into the water reservoir, a nut screwing onto said inner tube; a compressible pad between said nut and the end of said wick tube; fibrous material in said hood; and a wick in said wick tube contacting with the fibrous material in said hood and with said compressible pad.

2. In an acetylene lamp; the combination of a wick tube provided with vents; an inner tube central to said wick tube; a hood on said wick tube; and fibrous material within said hood and said wick tube ineffective to prevent flow of gas at normal pressure through said wick tube and adapted to permit gas under excessive pressure to discharge through the vents in said wick tube.

3. The combination of a central body internally screw-threaded and having a diaphragm, a carbid box having an extension screwing into said body; a water reservoir having extension screwing into said body; a wick tube centrally mounted on the diaphragm of said body and extending into said carbid box and said water reservoir; a hood screwing onto said wick tube; a perforated central tube connected with said hood and extending downward through said wick tube; a compressible pad surrounding said inner tube; and means for compressing said compressible pad.

In witness whereof I have hereunto signed my name at Springfield, Illinois, this 16th day of November 1909.

FRANK GUY.

Witnesses: .

PEARL COLEMAN,
S. D. SCHOLES, Jr.