

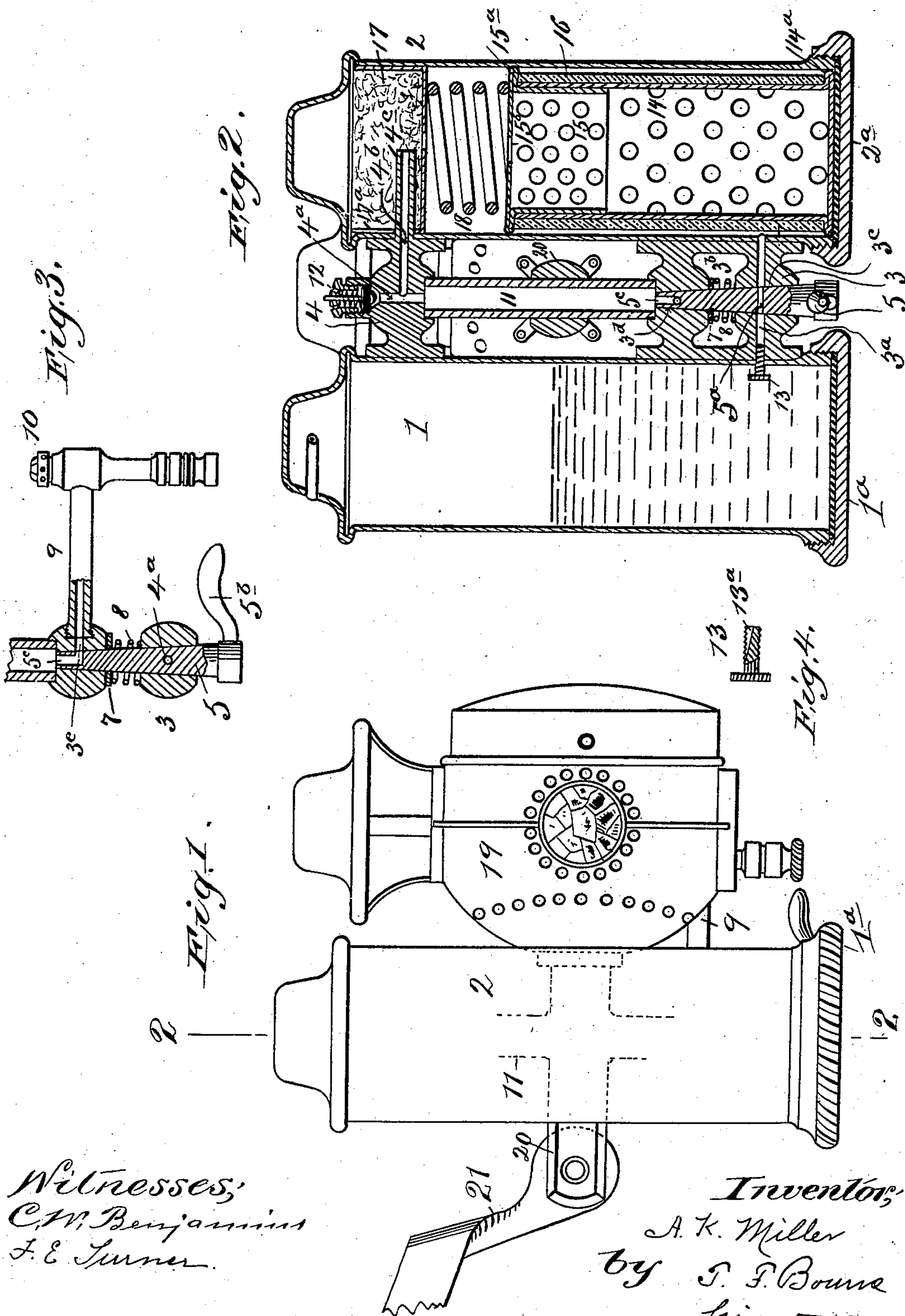
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Patented Sept. 30, 1902.

A. K. MILLER.  
ACETYLENE GAS LAMP.

(Application filed Jan. 13, 1900.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## ACETYLENE-GAS LAMP.

SPECIFICATION forming part of Letters Patent No. 710,204, dated September 30, 1902.

Application filed January 13, 1900. Serial No. 1,263. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR K. MILLER, a citizen of the United States, residing at Waterbury, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Acetylene-Gas Lamps, of which the following is a specification.

My invention relates to improvements in acetylene-gas lamps, and has particular reference to such lamps adapted for use on vehicles; and the invention consists in the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a side elevation of a lamp embodying my invention. Fig. 2 is a vertical cross-section on the line 2 2 in Fig. 1 looking from the left. Fig. 3 is a partly-sectional detail view of the water and gas keys, and Fig. 4 is a detail of a regulating-screw.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, 1 2 indicate receptacles, which are shown tubular and arranged vertically side by side, and each is provided with a closure or cap 1<sup>a</sup> 2<sup>a</sup>, shown removably connected at the lower ends thereof, as by screw-threads. One of the receptacles, as 1, is adapted to contain water, and the other receptacle is to receive calcic carbide. These receptacles are rigidly connected together, as by interposed braces or castings 3 4, near opposite ends, which are rigidly secured to the receptacles, as by brazing or solder, and whereby the receptacles are held at a distance apart, so that air may circulate freely between and around them. The brace or casting 3 has a transverse bore 3<sup>a</sup>, that communicates with apertures in the contiguous walls of the receptacles 1 2, so that water may flow from one receptacle to the other, and said brace or casting also has vertically-disposed seats 3<sup>c</sup> 3<sup>d</sup> for a key or cock 5, which is provided with a transverse bore 5<sup>a</sup> to communicate with the bore 3<sup>a</sup>. (See Fig. 2.)

The brace or casting 3 is provided with a centrally-disposed opening 3<sup>b</sup> between the key-seats 3<sup>c</sup> and 3<sup>d</sup>, that are alined to receive

the key 5, whereby the brace 3 has two alined enlargements rigidly attached to the receptacles and each having a key-seat. Suitable means may be provided for keeping the key to its seat. I have shown the same provided with a flange or extension 7, suitably held, against which a spring is adapted to bear, said spring being shown coiled around the key 5, the parts 7 and 8 being shown located within the opening 3<sup>b</sup> and the spring pressing against part of the brace 3, whereby the spring presses the key to its seats. The key 5 is provided with a handle 5<sup>b</sup> for operating it. At its upper inner end the key 5 has a bore 5<sup>c</sup>, that has one part extending vertically and opening through the upper end of the key and the other part extending transversely and opening through the side of the same (see Fig. 3) and communicating with a laterally-disposed bore 3<sup>e</sup> in the upper part of the brace or casting 3. (See Fig. 3.)

9 is a gas-tube connected to the brace or casting 3 in line with the bore 3<sup>e</sup> to conduct gas to a suitable burner 10, connected with tube 9. (See Fig. 3.)

11 is a tube extending between and secured to the braces or castings 3 4, and thus located centrally between the receptacles 1 2, the tube 11 communicating with the bore 5<sup>c</sup> in key 5 to conduct gas to said key, and the tube 11 also communicates with a bore 4<sup>a</sup> in brace or casting 4.

4<sup>b</sup> is a bore in brace or casting 4, that communicates with bore 4<sup>a</sup> and opens into the receptacle 2 to receive gas therefrom, a tubular extension 4<sup>c</sup> from the brace or casting 4 being shown extending horizontally into the upper part of receptacle 2. The part 4<sup>c</sup> serves to keep water of condensation from the gas or vapor that collects on the wall of the chamber from passing to tube 11, as part 4<sup>c</sup> extends at a distance from such wall. A suitable safety-valve 12 is shown connected with the brace or casting 4 and communicating with bore 4<sup>a</sup>.

The bores 5<sup>a</sup> and 5<sup>c</sup> in key 5 extend substantially at right angles to each other, and the bores 3<sup>a</sup> and 5<sup>c</sup> are similarly disposed at an angle to each other, whereby as the key is turned the passage of water and gas may be simultaneously regulated. By preference



I provide an adjusting screw or key 13, that meshes with threads in one end of bore 3<sup>a</sup> of brace 3, and in one side of said screw is cut a tapering recess 13<sup>a</sup>, whereby as the screw is screwed more or less into the bore 3<sup>a</sup> it will regulate the quantity of water that can pass through said bore.

While the calcic carbid can be retained in the receptacle 2 in any suitable manner, I have provided a carbid-holder, (shown in Fig. 2,) wherein 14 is a perforated shell shown provided with a flange 14<sup>a</sup> at its lower end adapted to fit snugly within receptacle 2, and at its upper end the shell 14 is provided with a perforated cap 15, also having a flange 15<sup>a</sup> to fit snugly within the receptacle 2 and an opening 15<sup>b</sup> for the passage of gas. 16 is a fibrous or absorbent material, such as blotting-paper or the like, inclosing the shell 14, and thus lying in the space formed between the shell 14 and the inner wall of receptacle 2 between the flanges 14<sup>a</sup> and 15<sup>a</sup>. 17 is a cup or the like within receptacle 2, adapted to receive a filtering material and shown located at the upper end of said receptacle and provided with a slot 17<sup>a</sup> to be pushed past the tube 4<sup>c</sup>, so that the latter can be located within said cup in the midst of the filter. 18 is a spring shown interposed between the bottom of cup 17 and cap 15, whereby said cup is sustained and the carbid-holder is kept from sliding in the receptacle.

To assemble the parts in receptacle 2, the cap 2<sup>a</sup> is first removed, cup 17 with its filtering medium pushed into place, slot 17<sup>a</sup> receiving tube 4<sup>c</sup>, spring 18 inserted, and then the carbid-holder is placed in the receptacle and the cap 2<sup>a</sup> adjusted in position. It will be found convenient to invert the lamp during the assembling of said parts.

The burner 10 may be located within a fire-chamber or hood 19, of any suitable construction, and by preference the latter is secured to tube 11 by a support 20, which preferably projects from both sides of said tube and to which a bracket 21 for supporting the lamp may be secured.

It will be understood that when the carbid is in receptacle 2 and water is in receptacle 1 and the key is turned properly water will pass from receptacle 1 into receptacle 2 and will be absorbed by the material 16, whereby the moisture will penetrate to the carbid in the carbid-holder, and the gas evolved will pass through the filter and through the bores 4<sup>b</sup> and 4<sup>a</sup> to tube 11 and thence through the bore 5<sup>c</sup> of key 5 and tube 9 to the burner. By turning the key 5 more or less the amount of water for the carbid can be regulated, and the arrangement is such that when the key is open a constant and proper flow of water in proportion to the gas used by the burner will be maintained. The arrangement of the key 5 with the spring 8 is such that said key will act as a safety-valve if too great a gas-pressure is generated, as the gas in the tube 11

will press upon the top of the key, and thus force it from its seat, and as the key and its seats are tapering the gas can flow between the seat and the key to find an escape, and thus also the flow of water to the carbid will be checked, and collected water can drain from the carbid while the key is thus held by the gas-pressure.

I do not limit my invention to the details of construction shown and described, as they may be varied without departing from the spirit thereof.

Having now described my invention, what I claim is—

1. A lamp comprising a pair of receptacles, braces secured to said receptacles near opposite ends, one brace having a bore communicating with both receptacles near their lower ends, the upper brace having a bore communicating with one receptacle, a tube extending between said braces and communicating with said upper bore, a burner connected with a bore in the lower brace, said tube communicating with the last-mentioned bore, and means to control the passage of water between the receptacles, substantially as described.

2. A lamp comprising a pair of receptacles, braces interposed between said receptacles near opposite ends and secured thereto, the lower brace having a bore communicating with said receptacles and a bore communicating with a burner, a key to control said bores, and a tube interposed between said braces and communicating with the upper bore in the lower brace and with a bore in the upper brace that communicates with one of said receptacles, substantially as described.

3. A lamp comprising a pair of receptacles, braces interposed between said receptacles near opposite ends and secured thereto, the lower brace having a bore communicating with said receptacles and a bore for the passage of gas and also having a centrally-disposed opening located between key-seats communicating respectively with said bores, a key, a spring to hold said key to its seats, and a tube interposed between said braces and communicating with the gas-bore in the lower brace and with a bore in the upper brace, the latter bore communicating with one of said receptacles, substantially as described.

4. A lamp comprising a pair of receptacles, braces interposed between said receptacles and secured thereto, the lower brace having a bore communicating with said receptacles, means to control said bore, the upper brace having a bore and a tubular extension passing into one receptacle, a burner connected with said bore, a cup in said receptacle receiving said extension, and means for retaining carbid in said receptacle, substantially as described.

5. A lamp comprising a pair of receptacles having a passage through which they communicate, a burner connected with one of said receptacles, and a key to control said pas-



sage, said key being interposed in the path of the gas to the burner to be operated by excess gas-pressure exerted directly upon the key to let off excess gas-pressure, substantially as described.

5 6. A lamp comprising a pair of receptacles, braces connecting said receptacles, one brace having a bore and key to control the passage of water, the other brace having a bore, a  
10 tube, a burner connected therewith, a fire-chamber to receive said burner, a support for the fire-chamber connected with said tube, and a bracket connected with said support, substantially as described.

15 7. A carbid-holder comprising a perforated shell having a flange, a perforated cap to fit said shell and having a corresponding flange, and an absorbent material surrounding said shell between said flanges, substantially as  
20 described.

8. A pair of water and gas receptacles secured together side by side and connected by a passage-way, a key to control said passage-way and fitted to have longitudinal move-  
25 ment, a spring to hold the key to its seat, a tube connecting the gas-receptacle with said key to lead gas thereto to unseat the key, and

a burner communicating with the gas-receptacle, substantially as described.

9. The combination of a receptacle and 30 means to supply it with water, with a carbid-holder adapted to fit within said receptacle, an absorbent material around said holder, and flanges to maintain the holder within the receptacle to provide a gas-space between the 35 latter and the absorbent material, substantially as described.

10. The combination of a pair of receptacles secured together side by side and communicating through a passage-way, a carbid- 40 holder to fit in one receptacle, an absorbent material around the holder, and flanges to maintain the holder in the receptacle to provide a gas-space between the latter and the absorbent material in communication with 45 the water-delivery end of said passage-way, the absorbent material being opposed to the delivery end of the passage-way, substantially as described.

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