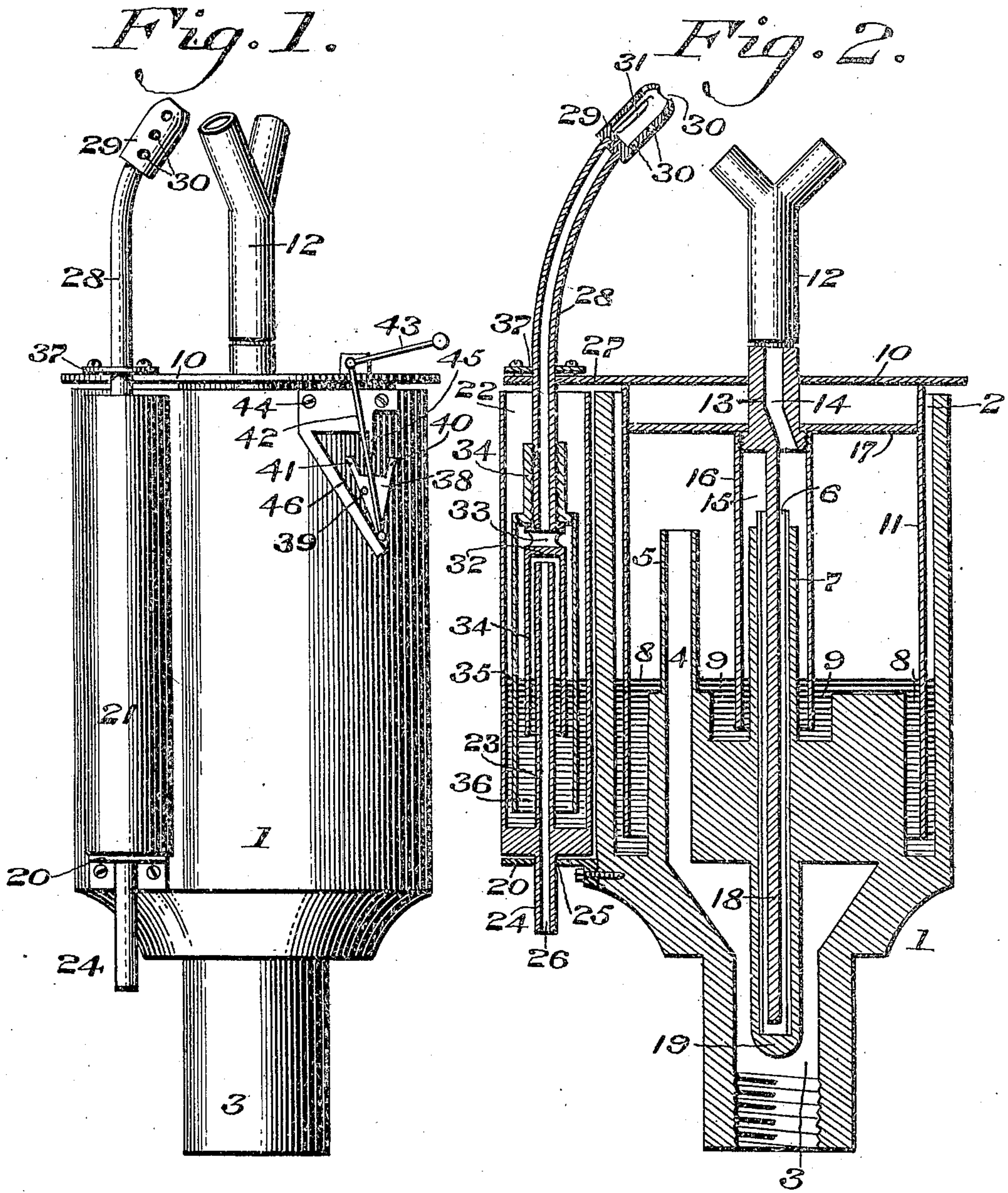


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GAS IGNITER AND EXTINGUISHER.  
APPLICATION FILED MAR. 20, 1908.

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Patented Mar. 15, 1910.

2 SHEETS—SHEET 1.



Witnesses  
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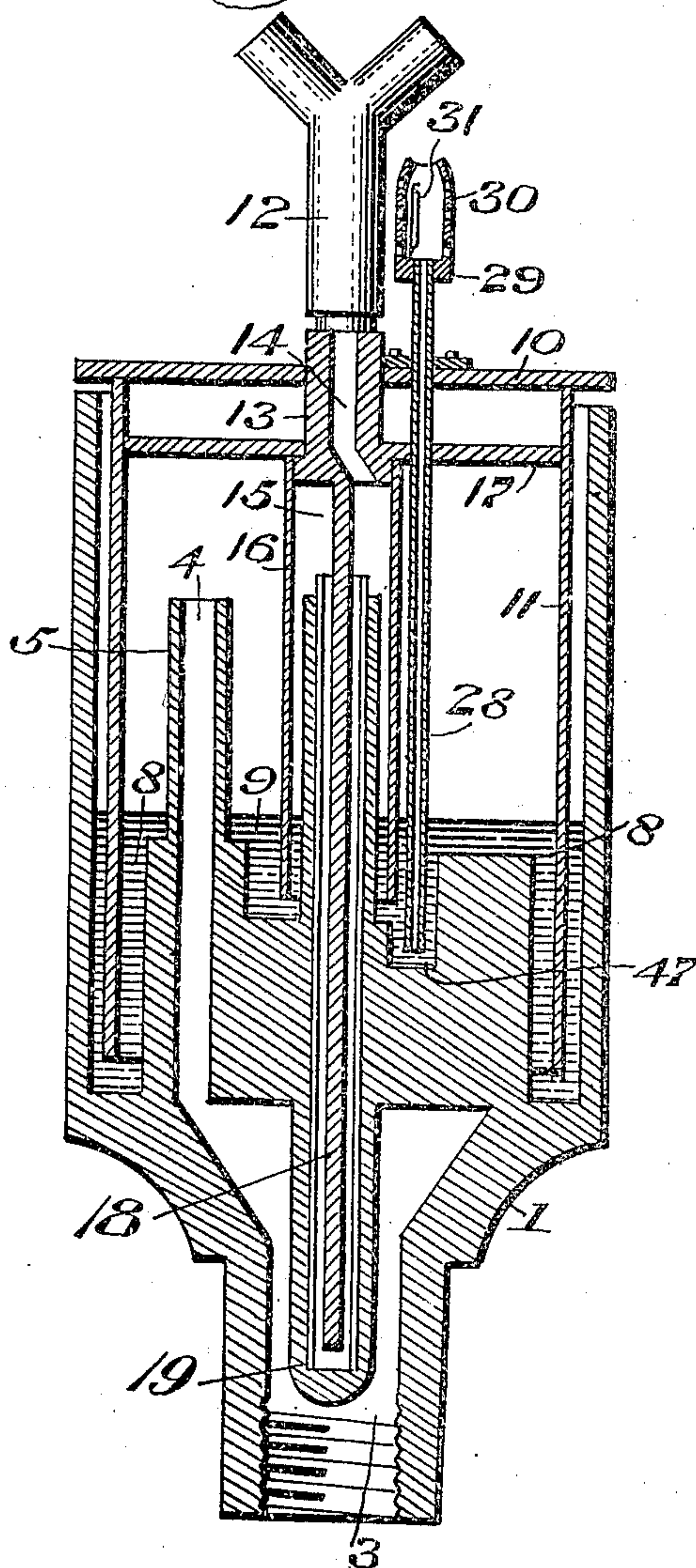
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*Fig. 3.*



Witnesses

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# UNITED STATES PATENT OFFICE.

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## GAS IGNITER AND EXTINGUISHER.

952,205.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed March 20, 1908. Serial No. 422,212.

*To all whom it may concern:*

Be it known that I, JOSEPH C. LANDES, a citizen of the United States, residing at Collegeville, county of Montgomery, State of Pennsylvania, have invented a new and useful Gas Igniter and Extinguisher, of which the following is a specification.

This invention relates to an automatic gas lighting apparatus designed more particularly for use in connection with street lamps, whereby the usual manual lighting of the lamps is dispensed with and the entire apparatus controlled from the main gas plant.

It consists of a casing having a gas inlet and outlet with means between them to control the flow of gas, which when released is led through the outlet to a cap containing a filament of suitable material which assumes a state of incandescence as the gas contacts therewith.

It further consists of a burner casing containing therein a float member controlling the admission of gas to the gas burner and a supplemental float device adapted to admit, substantially simultaneous with the admission of the gas to the main burner, a gas to an auxiliary member containing therein a filament of suitable material which becomes incandescent when in contact with the gas.

It further consists of a novel locking means whereby the gas has a free inlet to the burner for a definite length of time and which automatically unlocks when it is desired to shut off the gas from the burner.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a side elevation of an apparatus embodying my invention. Fig. 2 represents a vertical section through the same. Fig. 3 represents a vertical section through a modification of my device.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings 1 designates a casing provided with an open end 2 and a gas inlet 3 provided with a thread whereby the casing may be attached to any suitable connection from a gas main. The inlet 3 communicates with the interior of the casing 1 by means of a passage 4 formed in an extension 5 of the bottom of the casing which is of some considerable thickness, whereby a body portion is formed having a channel 6 bored therein and also an annular space 8 in close proximity to the outer edge, and a similar space 9 about the pipe 7 but of less depth. The bottom of the casing 1 formed by these annular spaces is adapted to be filled to a suitable height with a liquid, preferably mercury, forming a seal with a part to be presently described.

10 designates a float member having side extensions 11 adapted to fit within the casing 1 and extend well within the annular space 8 so as to be submerged to a considerable degree. Suitably secured to the top of this float member 10 is a gas burner 12 mounted upon a nipple 13 and communicating by means of a channel 14 with a space 15 formed by a pipe extension secured to the nipple member 13.

17 designates a cap plate extending from one side of the float member to the other and located adjacent the top of the extension 16, whereby an additional surface is provided against which the pressure of the gas may act to raise the float. In order to aid in maintaining the float member in correct position during an upward or downward movement, a prolongation 18 is formed integral with or secured to the nipple member and is adapted for sliding movement in the channel 6, the lower end of which is formed by a tubular extension 19 on the body portion of the casing 1. It will be apparent that under normal conditions the gas will enter the opening 3 and pass through the conduit 4 into the space inclosed by the sides 11 and plate 17 of the float member and there be confined owing to the liquid in the annular spaces which is at a level substantially high enough to seal the mouth of the extension 16.

It will be noted that the side members 11 of the float extend much deeper into the liquid seal than the member 16 in order to



prevent the escape of gas to the exterior of the casing. Secured to one side of the casing 1 is a supporting shelf 20 upon which rests an auxiliary stationary casing 21 having an open end 22 and a tubular extension 23 extending within the casing and an exterior tubular extension 24 passing through a guide opening 25 in the shelf 20 the channel 26 being continuous through the two extensions and forming a communication between the inside of the casing and the outside thereof.

27 designates a projection formed on the top member of the main float member 10 to which is secured in any suitable manner, a gas outlet conduit 28 provided on the end adjacent the burner 12 with a cap 29 having openings 30 therein and forming a chamber within which is located a filament 31 of suitable material as platinum sponge or the like which will assume a state of incandescence when a suitable gas comes in contact therewith. On the other end of the conduit 28 is secured a connection 32 having a transverse aperture 33 therethrough and supporting a pipe 34 which extends downwardly and incloses the end of the tubular member 23. The conduit 28 also carries a bushing 34 to which is attached a pipe 35 extending downwardly and inclosing therein both the pipe 34 and the tubular extension 23.

36 designates a liquid contained within the casing 21 and of such a height as to effectually seal under normal conditions, the ends of the pipes 34 and 36. It will be noted that the outlet conduit 28 is secured to the extension 27 in any desired manner to move with the same, in the present instance being held fast thereto by a fastening ring 37. The inlet channel 26 is adapted to form a connection between a gas supply, preferably hydrogen gas, which is supplied from a suitable generator.

It will be apparent that as soon as the pressure within the float member 10 is increased the float will be raised, carrying with it the burner 12 and also the conduit 28, whereby the lower ends of the pipe 34 are removed from the liquid seal so that the hydrogen gas therebetween has free escape to the cap 29 and the filament 31.

It will be understood that the normal pressure of the illuminating gas entering the inlet 3 is not sufficient to either raise the float member or maintain the same in its elevated position so that it is necessary to provide some means for supporting the float in order that the burner once lighted, may keep burning after the initial pressure is reduced. By initial pressure is meant the pressure required to raise the float and remove the extension 16 from the liquid seal to allow a supply of gas to reach the burner. In the present instance I mount exterior of the casing, a V-shaped support 38 secured on

a pivot 39 and having arms 40 and 41 extending upwardly and forming a depression therebetween adapted to receive and support a locking arm 42 suitably pivoted to the top of the float and having the counterweighted arm 43 adapted to swing the arm 42 when released from the support 38. A guide bracket 44 is also secured to the outer casing 1 and in proximity to the arm 42 having guide fingers 45 and 46 to aid in the automatic action of locking member 42. As the float member 10 is raised the arm 42 rises therewith until the end of the projection 40 on the V-shaped support 38 is reached when the counterweight swings the member 42 past the end of the projection 40 into the depression so that the float member is now held in its elevated position. When the float is again raised above its position the arm 42 rides up on guide projection 41 and when it reaches the top thereof the counterweight swings it over to engage the guide 46. Should the float now be again lowered it will be seen that there is nothing to prevent the arm 42 from sliding downwardly along the inclined guide 46 until it engages the support 38 which it swings to one side on the pivot 39 and again assumes normal position, the support, of course, swinging back to prevent the arm 42 from riding back on the guide 46 upon the next elevation of the float 10.

The operation of the device is as follows:—When it is desired to light the burner 12 the gas pressure in the main is increased sufficiently to raise the float 10 and thereby withdraw the extension arm 16 from the liquid seal and since the outlet conduit 28 is secured to the same float it will also be elevated and carry with it, the extension pipe 34 which is removed at the same time from the liquid seal and thereby liberates a supply of gas from the generator. The gas passes up the passage 26 and downwardly within the pipe 34 around the bottom of which it escapes to the port 33 and thence to the conduit 28 where it contacts with the filament 31 and brings the same to a state of incandescence. The illuminating gas has now passed up within the pipe 16 and through the opening 14 to the burner 12 and as it passes therefrom, strikes the glowing filament and is thereby ignited. As soon as this takes place the pressure is reduced to normal in the main and the float lowers slightly until the locking arm 42 engages the support 38 and maintains it in elevated position. This slight lowering of the float allows the ends of the pipe 34 to again enter the liquid and prevent further escape of the igniting gas. The pipe 16 is, however, still above the liquid seal and the illuminating gas has free access to the burner. When it is desired to extinguish the light the pressure is again increased and the float raised a sufficient distance in order to permit the



counterweight 43 to swing the arm 42 past the locking support 38 whereupon as the pressure is reduced, the float will drop back to its initial position with the ends of the pipe 16 submerged in the liquid seal.

It will be seen that I have provided a simple and efficient automatic means for controlling the supply of gas to a street lamp or similar burner and one in which any number of lamps may be controlled from a main gas supply thereby dispensing with manually lighting of the lamps and one in which all of the lamps may be lighted simultaneously at a certain time.

In the modification disclosed in Fig. 3 the igniter is shown connected directly to the interior of the main casing and is adapted to use the same gas as supplied to the burner for causing incandescence of the igniting filament. The operation is exactly similar to that described for Figs. 1 and 2 and therefore, it is not thought necessary to go into the precise details. Attention is, however, called to the liquid seal chamber 47 for the conduit 28 in this modification as the same is somewhat deeper than the chamber 9 in order to seal the conduit 28 when the burner has lighted and the float chamber dropped to locking position as already described.

The channel 6 forming the guide for the extension 18 of the float member is preferably lined with a tube of brass or similar material in order to reduce to a minimum, the friction of the moving parts.

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

1. In a device of the character described, a plurality of casings, a gas inlet and outlet for each casing, a liquid seal between each inlet and outlet, a float adapted to break said

liquid seals, and means to maintain said float in elevated position whereby one of said seals remains broken.

2. In a device of the character described, a plurality of casings, a gas inlet and outlet for each casing, a liquid seal between each inlet and outlet, a float adapted to break said liquid seals, and a lock to maintain said float in elevated position, whereby one of said seals remains broken.

3. In a device of the character described, a plurality of casings, a gas inlet and outlet for each casing, a liquid seal between each inlet and outlet, a float adapted to break said liquid seals, and a lock operating automatically to control the lowering of said float.

4. In a device of the character described, a casing, a gas inlet therefor, a float in said casing, a gas outlet on said float, a liquid seal between said inlet and outlet, a conduit secured to said float, an auxiliary casing inclosing said conduit, an independent gas inlet for said auxiliary casing, a liquid seal between said conduit and said inlet and means to control the admission of gas to both casings.

5. In a device of the character described, a casing, a gas inlet therefor, a float in said casing, a gas outlet on said float, a liquid seal between said inlet and outlet, a conduit secured to said float, tubular members secured to said conduit and partly submerged in the liquid forming a seal, an auxiliary casing inclosing said tubular members, an independent gas inlet for said auxiliary casing and means to break said liquid seals.

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Witnesses:

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