W. F. SMITH.

LIGHT FIXTURE.

APPLICATION FILED APR. 6, 1910.

1,043,875.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

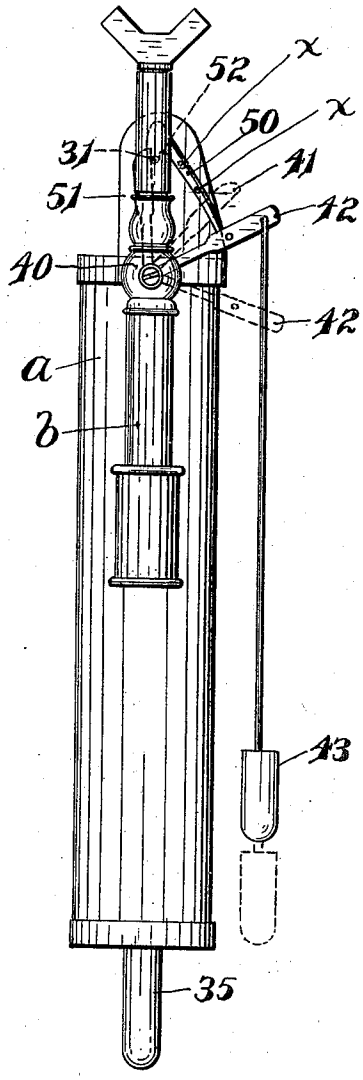
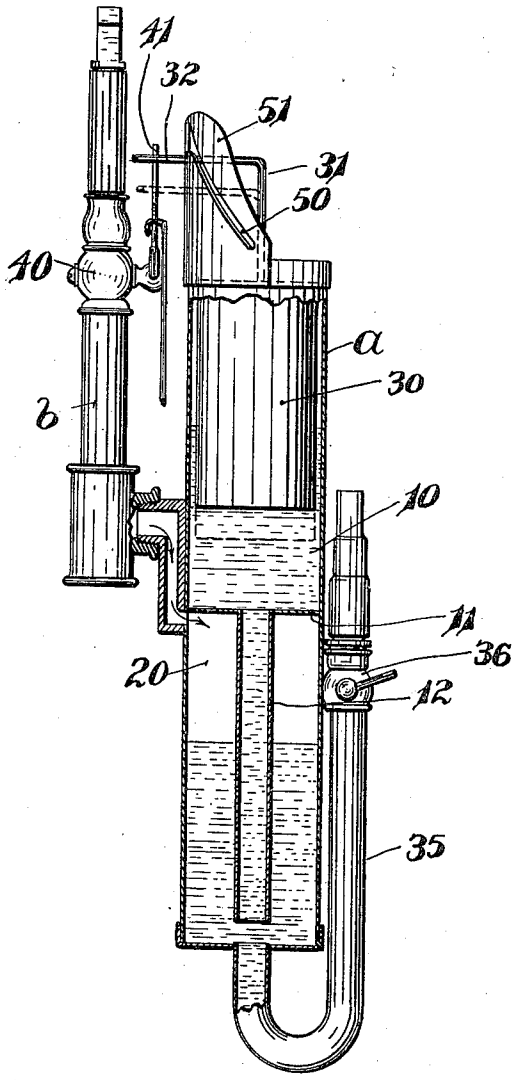


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

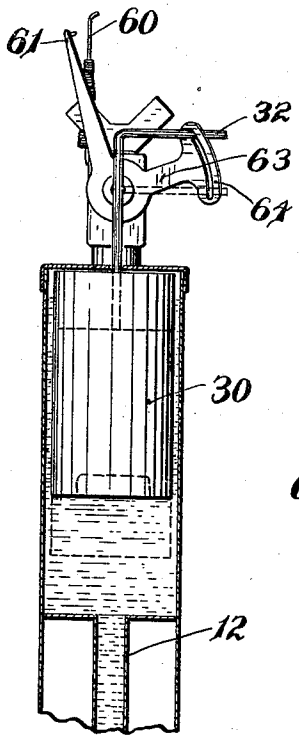


Fig. 4.

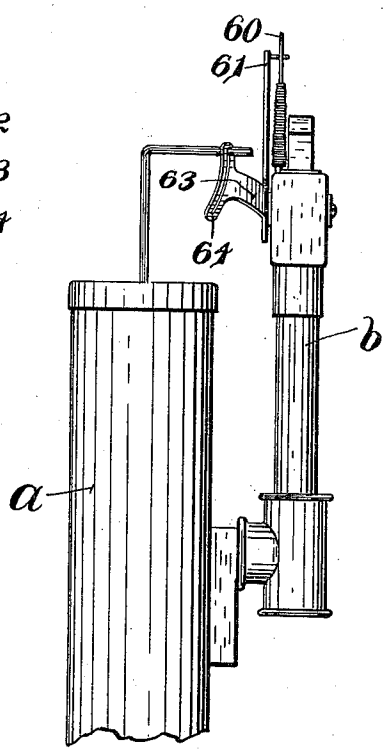
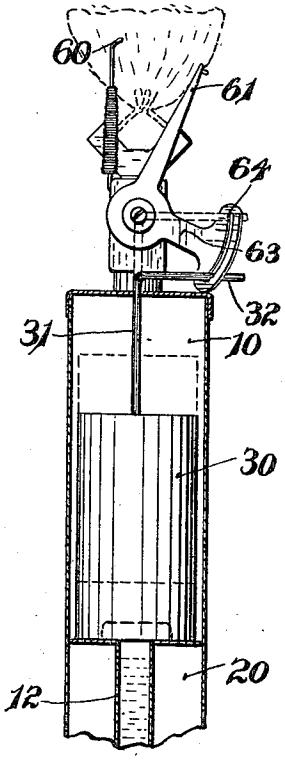


Fig. 5.



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LIGHT-FIXTURE.

1,043,875. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed April 6, 1910. Serial No. 553,813.

To all whom it may concern:

Be it known that I, WILBUR F. SMITH, a citizen of the United States, and a resident of Deep River, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Light-Fixtures, of which the following is a specification.

My invention relates particularly to an attachment used in connection with light fixtures situated at points more or less remote from the fuel supply station, by means of which either the lighting or extinguishing of the flame, or both, can be controlled from the supply station. An instance of such use is in connection with municipal gas lighting systems, it being possible by the use of my invention to either light or extinguish the lamps all over the city from the central supply station, or the device can be so arranged as to both light and extinguish the lamps.

I have illustrated in the drawings two embodiments of the invention—one where it is merely intended for extinguishing the lights, and the second where I have a combined lighting and extinguishing apparatus.

Referring to the drawings: Figure 1 is a front elevation of a device embodying my invention. Fig. 2 is a side elevation of the same, some parts being shown in a central vertical section. Fig. 3 is a front elevation partly in section of a modification. Fig. 4 is a side view of the same. Fig. 5 is a view similar to Fig. 3, the parts being shown in different positions.

The invention contemplates the use of a tubular casing *a* arranged on end and divided into two compartments 10—20 of even size by a partition 11 into which is secured a pipe 12 which extends down to near the bottom of the lower compartment. A branch from the burner supply pipe *b* is tapped into the upper end of the lower compartment and this connection may form the support for the fixture. In the upper compartment there is located a float 30 having at its upper end a stem 31 projecting through the top of the casing and bent at right angles to form a stop arm 32.

As designed for use the casing is about 7 inches in length and divided to form two compartments of about 3½ inches in depth. The float is about 2¼ inches long. The lower compartment is filled with water to a point just below the gas inlet. The gas pressure in the mains is just under 3 ounces, represented by a water column of 4 inches, and is sufficient to force a part of the water from the lower chamber up through the pipe 12 into the upper compartment, raising the float up about 1 inch. It is apparent that an increase in the pressure in the mains will force more water into the upper compartment and so raise the float, while a decrease of the pressure will let some of the water run back into the lower compartment and allow the float to drop. It is this use of the two connecting compartments, and the float acted upon by the gas pressure through the medium of the fluid, which I utilize for operating my lighting and extinguishing devices.

I will first describe the device as it is used merely for extinguishing lights and reference may be had to Figs. 1 and 2 of the drawings wherein the device is illustrated.

The stop arm 32 projects into the path of movement of a trip 41 connected with the burner valve 40 and in its vertical movement travels in a slot 50 in a cam plate 51 which is notched as at 52 to hold the stop arm locked in what may be termed its normal position. The valve is provided with a second arm 42 from which a weight 43 is suspended, which normally moves the valve to shut off the supply of gas. When, however, the trip is held up by the stop arm, when in its normal position resting in the notch, the valve is opened allowing the gas to pass to the burner.

During the daytime, when no lights are needed, the valve is closed by the weight, the trip arm occupying a position shown by dotted lines in Fig. 1. The pressure on the mains, while it varies slightly, holds the stop arm within the limits indicated by the letters *x x* in which position the end of the stop arm is in the path of movement of the trip. To light the light the trip is raised and carries up with it the stop arm; finally it passes under the stop arm and allows it to drop back into the notch. The valve is now open and held in open position by the trip bearing against the stop arm, and the gas can be lighted. When it is desired to extinguish the light a little more pressure is turned on to the mains, which raises the float, carrying up the stop arm until the trip is released, when the weight turns the valve to shut off the gas.

In case the supply of water should become

diminished for some reason, the float drops and the cam plate turns the stop arm to move it out of path of movement of the trip; if the trip arm is now raised to open the valve, there is thus nothing to hold it in position. The boy who is lighting the lights has only to replenish the supply of fluid in the lower compartment which will raise the float up so that the end of the stop arm will be in the path of movement of the trip; then when the valve is opened the trip will move the stop arm up, pass under it and allow it to drop into the notch.

For convenience in filling the casing I tap into the bottom of the lower compartment a tube 35, carry it down slightly below the bottom of the casing so as to provide a water column of a little over 4 inches. This filling tube is preferably provided with a valve 36 which may be closed after the casing is filled to the proper extent. The valve of the filling tube is lower than the point at which the burner supply pipe *b* is tapped into the lower compartment in order to prevent the water from running over into the mains.

In Figs. 3 and 4 I have illustrated my invention as embodied in a combined lighting and extinguishing apparatus. Casing *a* is of the form above described, the float 30 is the same as that above described except that it is made heavier by suitable weights. Located in operative relation to the burner is any well-known form of automatic lighting apparatus; the type illustrated comprises a spring mounted point 60 connected with a suitable source of electric current, as a battery, and contact finger 61 mounted on and adapted to rotate with the burner valve, so that as the valve is turned the contact finger is brought into engagement with the spring tip, bends it over slightly and then passes by it, a spark being caused at the separation of the parts which ignites the gas, the burner valve having been opened before the contact arm leaves the spring tip.

In order to operate the valve and the lighter, there is a second arm 63 fixed to the burner valve and projecting laterally, carrying at its end a slotted plate 64, the stop arm 32 projecting through the slot in this plate 64. Starting with the parts in the positions illustrated in Fig. 3, where the valve is closed, the arm 63 is in its raised position and the contact arm 61 back of the spring tip 60. A pressure of 4 inches is always maintained in the mains, and this pressure holds the float and stop arm in their normal positions as indicated in dotted lines where it will be seen that the stop arm rests in the lower end of the slot in the plate 64.

In order to light the lights, the pressure in the mains is reduced, for instance to about 2 inches; as a result, part of the water that was in the upper compartment 10 of the casing *a* runs back into the lower compartment; the weighted float drops, drawing down with it the arm 63, which opens the valve and rocks the contact arm 61 against and past the spring tip 60, igniting the gas, this position of the parts being shown in full lines in Fig. 5. As the pressure in the mains returns to the normal of 4 inches, the float and stop arm rise to the positions shown in dotted lines in Fig. 5 where it will be seen that the contact arm is in the upper end of the slot in the plate 64.

To extinguish the lights, the pressure in the mains is increased above 4 inches, for instance to 6 inches, this forces more water into the upper compartment, raising the float and the stop arm, closing the valve and returning the parts to the positions shown in full lines in Fig. 3. As the pressure now returns to normal the float and stop arm drop to their normal positions indicated in dotted lines in Fig. 3.

Any convenient means may be utilized at the central supply station for increasing and decreasing the gas pressure in the mains. This is preferably accomplished at the pressure-reducing valve in one form of which the valve is connected with a diaphragm which is actuated by the pressure in the storage tank, this diaphragm being weighted to obtain the reduction desired. Having once adjusted the parts, an increase of the weight on the diaphragm will cause an increase in the pressure in the mains, while a decrease of the weight on the diaphragm will cause a decrease in the pressure in the mains. A convenient way of altering these weights is by running water into and out of a receptacle, which is supported on the diaphragm. If desired, something in the nature of a time switch can be utilized to control the flow of the water, and in this way the entire action of the structure can be made automatic.

I desire it to be understood that it is my intention to include herein, and in the appended claims, such modifications as come within the scope of the invention.

I claim:—

1. In a device of the character described, a burner, burner valve and bifurcated valve lever, a casing having communicating compartments, a float in one compartment actuated through the medium of a liquid by gas pressure introduced into the other compartment, an arm carried by and movable with said float and extending outside of said compartment and adapted for engagement with one branch of said bifurcated valve lever to hold said valve in one position, said float and its attached arm being movable under abnormal gas pressure to release said valve, and means connected with the other branch of said valve lever to move the valve to its opposite position when the lever is released from engagement with said arm.

2. In a device of the character described a burner, burner valve and valve lever, a casing having communicating compartments, a float in one compartment actuated through the medium of a liquid by gas pressure introduced into the other compartment, an arm carried by and movable with said float and extending outside of said compartment and adapted for engagement with said valve lever to hold said valve in one position, said float and its attached arm being movable under abnormal gas pressure to release said valve, and means connected with said valve and operating independently of the float and float-arm, to move the valve to its opposite position when the lever is released from engagement with said arm.

3. In a device of the character described, a burner, burner valve and valve lever, a casing divided into communicating compartments, a float in one compartment actuated through the medium of a liquid by gas pressure introduced into the other compartment, an arm secured to the float and extending outside of said casing in a position to be engaged by said valve lever to hold said valve in one position under normal conditions of gas pressure, said float and its attached arm being movable independently of said valve lever under abnormal conditions of pressure to wholly disconnect said arm from said valve lever, and means operable independently of said float to move said valve to its opposite position when said valve lever is disconnected from said arm.

4. In a device of the character described the combination with a burner, burner valve and valve lever, of a casing having communicating compartments, a float in one compartment actuated through the medium of a liquid by gas pressure introduced into the other compartment and an arm carried by said float, said arm and float being movable longitudinally and rotarily and adapted for coöperation with said valve lever.

5. In a device of the character described the combination with a burner, burner valve and operating means therefor, of a casing having communicating compartments, a float in one compartment actuated through the medium of a liquid by gas pressure introduced into the other compartment, an arm carried by said float adapted for cooperation with said operating means, said arm and float being adapted for longitudinal and rotary movement independently of said operating means.

6. In a device of the character described the combination with a burner, burner valve and valve lever, of means for holding said valve lever in one extreme position, said means comprising a notched plate and an arm resting in said notch and engaging said valve lever, means for disengaging said arm from said lever comprising a casing having communicating compartments, a float in one compartment secured to said arm and actuated through the medium of a liquid by gas pressure introduced into the other compartment, and means independent of the float for moving said valve lever to its opposite extreme position when disengaged from said arm.

7. In a device of the character described the combination with a burner, burner valve and valve lever, of means for holding said valve lever in one extreme position, said means comprising a notched plate and an arm resting in said notch and engaging said valve lever, means for disengaging said arm from said lever comprising a casing having communicating compartments, a float in one compartment secured to said arm and actuated through the medium of a liquid by gas pressure introduced into the other compartment, and means for causing said float and the attached arm to turn in said casing after it has been disengaged from said valve lever.

WILBUR F. SMITH.

Witnesses:
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HORACE G. JONES.