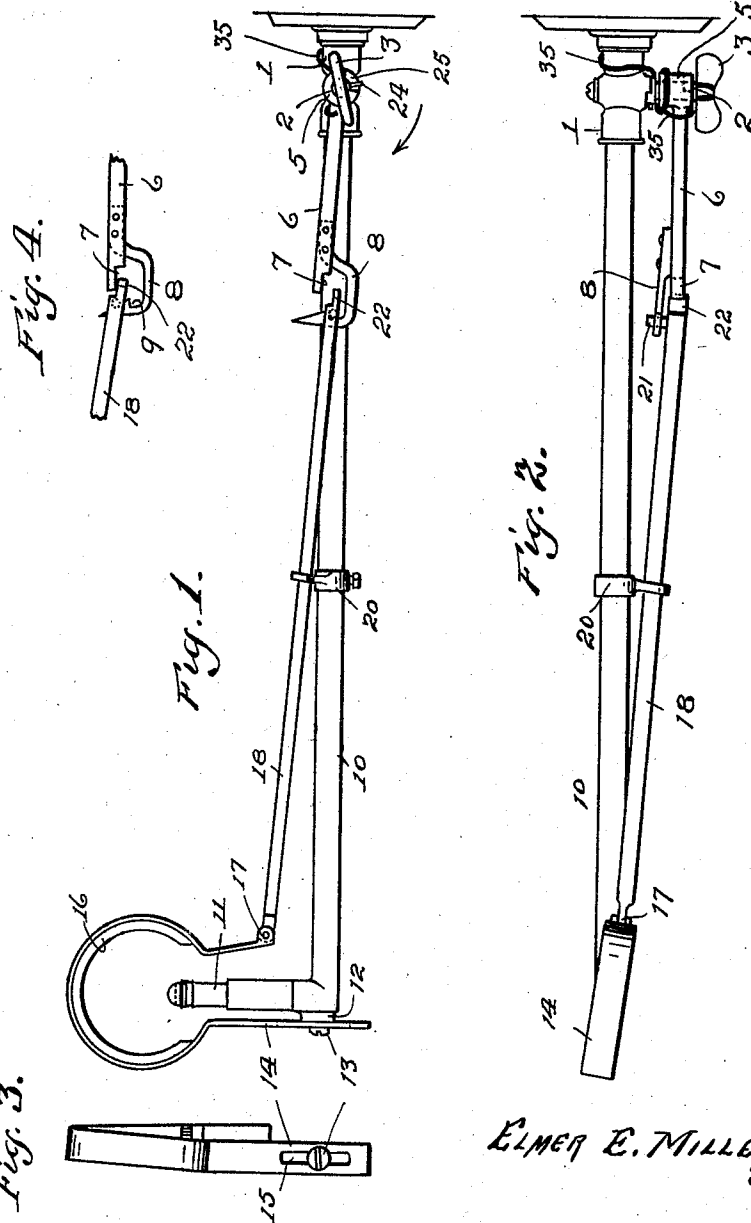


E. E. MILLER.
 AUTOMATIC GAS VALVE.
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1,062,178.

Patented May 20, 1913.



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AUTOMATIC GAS-VALVE.

1,062,178.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ELMER E. MILLER, a citizen of the United States, residing at Valley View, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Gas-Valves, of which the following is a specification.

This invention relates to improvements in automatic gas valves and the object in the present instance is to provide a device in which the flow of gas is automatically closed when the gas flame is extinguished accidentally.

A further object is to provide means in a device of this character, for permitting the flame to be lowered, that is, to permit the gas valve to be turned to reduce the flow of gas therethrough, without interfering with the automatically operated attachment for closing the valve when the flame is entirely extinguished.

The invention is more fully described in the following specification and clearly illustrated in the accompanying drawing, in which:—

Figure 1 is a side elevation of a simple gas bracket with my invention applied thereto. Fig. 2 is a plan view thereof. Fig. 3 is an end elevation showing the thermostat. Fig. 4 is a detail view of the trip mechanism.

The numeral 1 designates a gas valve of the usual plug valve construction. The plug is formed with an extension 2 on the end of which is located the usual turn key 3. On this extension of the plug I place, loosely, a trigger 5, and a wire spring 35 engages the valve casing 1 and the trigger in such manner as to exert its stress in a direction to close the gas valve. The trigger device 5 comprises a sleeve which, as stated, is loosely mounted on the extension 2 of the valve plug, and an arm 6, formed integral therewith. On the free end of this arm I form a lip 7 by cutting away a portion of the end, and to the side of the arm, at the free end, I attach a hook 8, formed with an engaging lip 9.

At the burner end of the bracket 10, the other end of which is attached to the valve casing 1, I attach any ordinary burner, 11, and at its base I form a lug 12. To this lug 12, by means of a set screw 13, I attach a thermostat 14, formed with an elongated slot 15 on which it may move for adjust-

ment on the set screw 13. The thermostat is substantially annular in form at the point where it is engaged by the burner flame, and is provided in its inner surface with a sheet of metal 16 whose co-efficient of expansion differs from that of the outer metal member 14.

To the free end of the thermostat 14, I attach by means of a pivot 17, a trigger rod 18, adapted to move in and be guided by an adjustable guide ring 20 located on the bracket 10. The opposite or free end of this trigger rod is formed with a side lug 21 adapted for engagement with the hook 8 by means of its lip 9; and also with a lip 22 formed by cutting away a portion of the end of the rod, for engagement with the lip 7 of the arm 6.

The extension 2 of the valve plug carries a stop pin 24 and the sleeve portion 5 of the trigger is cut away at 25 for approximately one quarter of its circumference, to permit the plug valve to be turned slightly in the closing direction even though the trigger is engaged by the trigger rod; this provision is made so that the flame may be lowered without effecting the releasing mechanism.

The operation of the device is as follows:—With the device as shown in Fig. 1, the gas valve has been opened, by turning it in the direction of the arrow, and the trigger arm raised until the hook at its end has engaged the lug 21 on the trigger rod. This opening action of the valve has placed the spring 35 in tension; the burner is ignited, and the flame rapidly expands the thermostat 14, so that its free end will force back the trigger rod and its hold on the hook 8 will be released and the spring will draw the arm down, but only until the lips 7 and 22 contact, see Fig. 4. As long as the flame continues to burn sufficiently to keep the thermostat expanded, this engagement of the trigger arm and trigger rod will remain, but, when the flame is extinguished, and the thermostat cools and contracts, the trigger rod will be drawn forward and release its hold on the lip 7 of the trigger arm. The spring 35 will then lower the trigger arm and close the gas valve.

When the flame is lighted, and it is desired to lower it, the plug valve may be turned for a limited distance, regulated by the cut away 25 in the sleeve 5 and the pin 24. This means is also used to close the

valve when it is desirous of extinguishing the light. When the valve is turned as far as it will go, until the pin 24 contacts with the one wall of the cut away portion 25, the flame will be so low that the thermostat will rapidly contract and automatically release the trigger arm to close the valve.

What I claim is:—

1. In an automatically operated gas valve the combination of a plug valve, an extension on the plug thereof, a spring to close the valve, a loosely mounted sleeve on said extension and a trigger arm carried by the sleeve, a gas burner, a thermal member located above the burner in vertical alinement therewith, a trigger rod pivotally attached to the free end of the thermal member, a guide for the trigger rod and means carried by the trigger rod for engagement with the trigger arm while the thermostat is in both contracted and expanded positions.

2. In a device of the character described, the combination of a plug valve, an extension of the plug thereof, a closing spring for the valve, a sleeve loosely mounted on the said extension and a trigger arm carried by said sleeve, a hook on the end of the trigger arm, a gas burner, means for conveying gas from the valve to the burner, a thermal member in close proximity to the burner, a trigger rod pivotally attached to the free

end of the thermal member, a guide for said trigger rod, means on the rod for engaging said hook when the thermal member is in contracted condition and means thereon for engaging the trigger arm when the thermal member is expanded.

3. In a device of the character described the combination of a spring actuated plug valve; a loosely mounted sleeve carried by the valve plug and a trigger arm formed integrally with the sleeve, said arm having a lip formed on its free end; a hook attached to the free end of said trigger arm and projecting beyond the lip thereof, said hook having an engaging lip formed thereon; a gas burner; means for conveying gas from the valve to the burner; a thermal member located immediately above the burner; a trigger rod pivotally secured to the free end of the thermal member and adapted for engagement at its opposite end with the trigger arm; a guide for said trigger rod and a lug on the free end of the trigger rod adapted for engagement with the lip on the hook of the trigger arm.

In testimony whereof I affix my signature in presence of two witnesses.

ELMER E. MILLER.

Witnesses:

ED. A. KELLY,

CLARA E. YOUNG.