

No. 738,030.

PATENTED SEPT. 1, 1903.

S. HAIGH.  
GAS BURNER CUT-OFF.  
APPLICATION FILED JUNE 3, 1903.

NO MODEL.

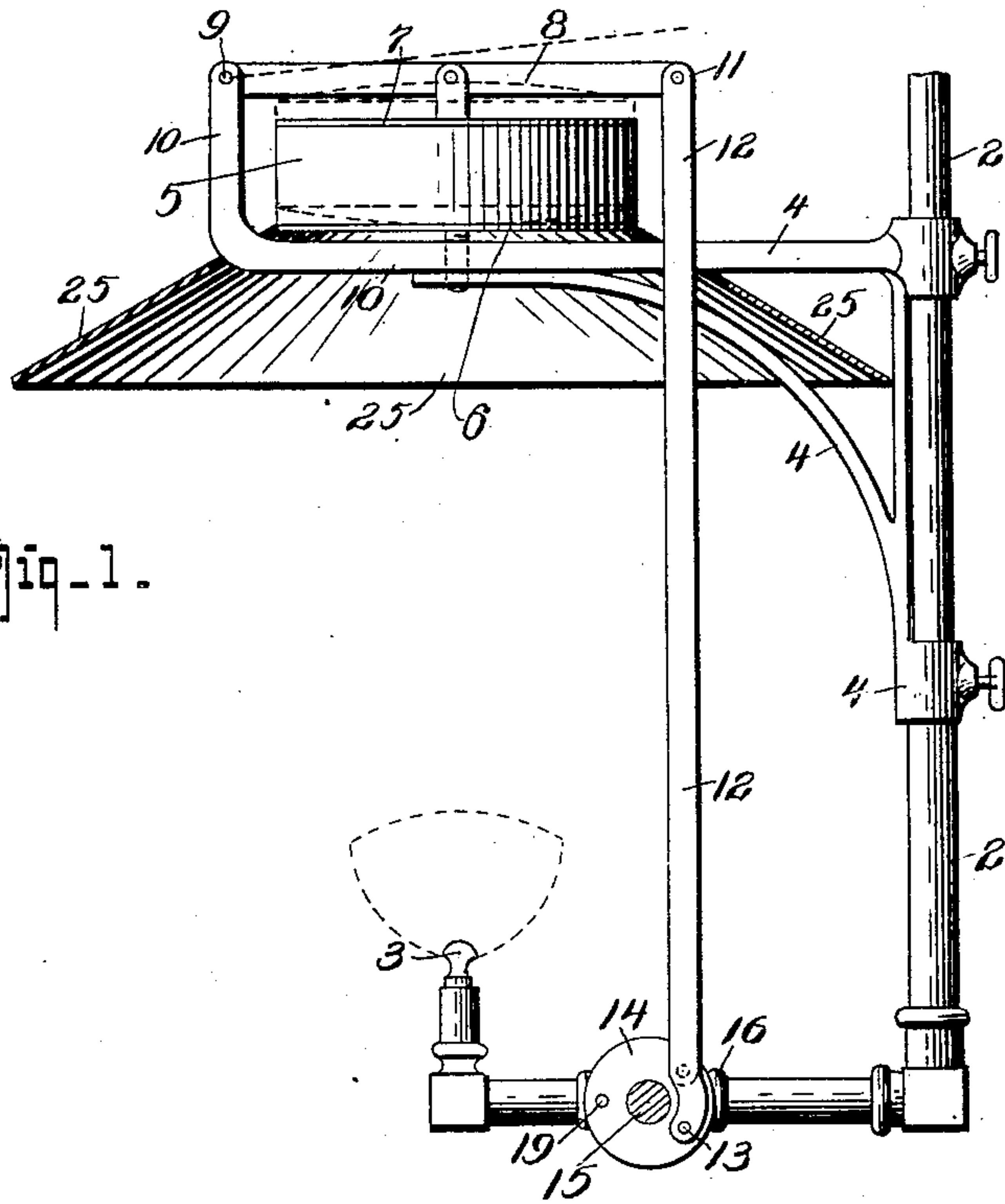


Fig. 1.

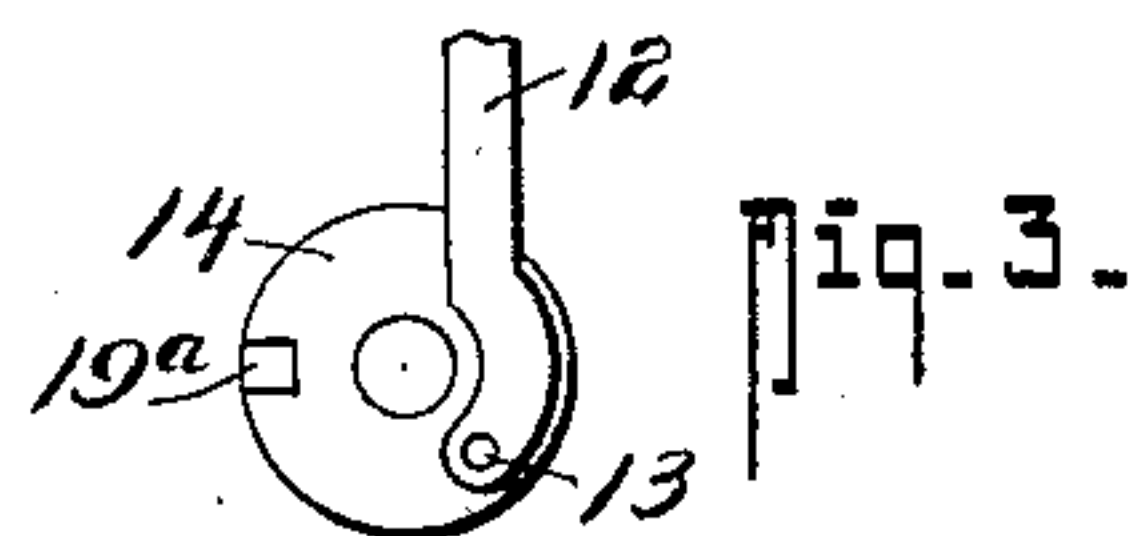


Fig. 3.

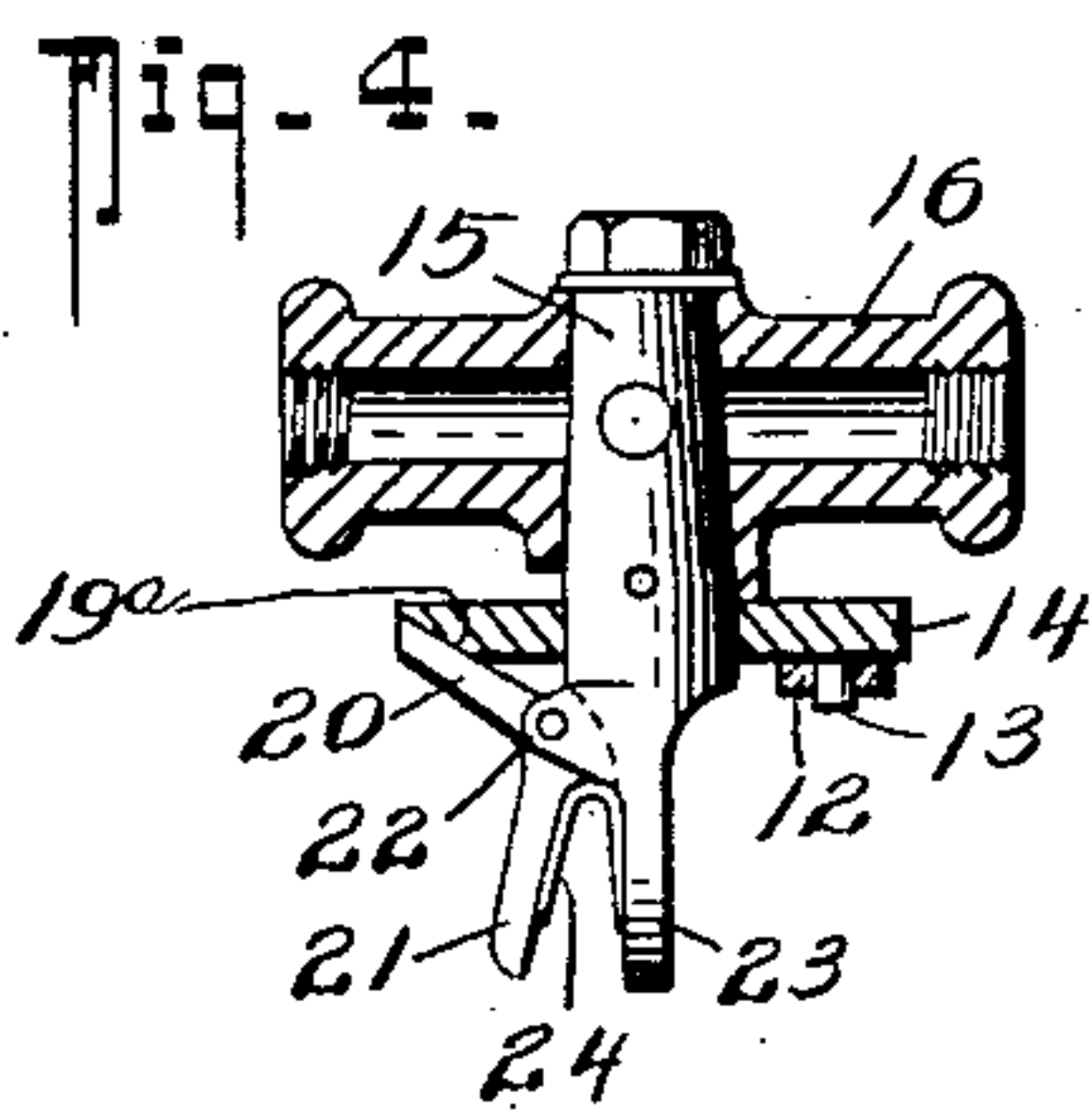


Fig. 4.

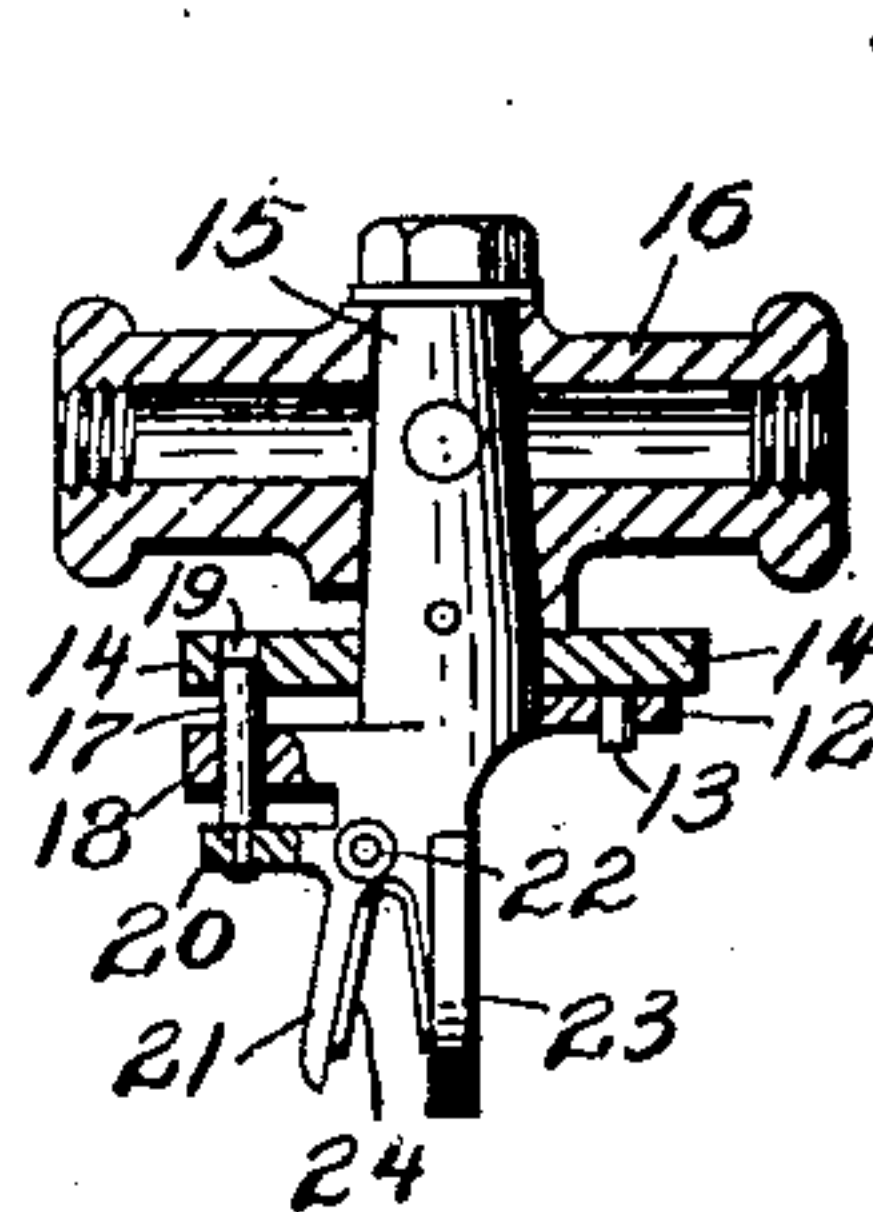


Fig. 2.

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# UNITED STATES PATENT OFFICE.

SAMUEL HAIGH, OF VANCOUVER, CANADA.

## GAS-BURNER CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 738,030, dated September 1, 1903.

Application filed June 3, 1903. Serial No. 159,943. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL HAIGH, a citizen of the United States of America, residing at the city of Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Improvement in Gas-Burner Cut-Offs, of which the following is a specification.

The object of this invention is to provide a gas-burner stop-cock that will be self-closing when from any cause the gas-flame has been extinguished, and my aim has been to furnish a safeguard against the considerable loss of life from asphyxiation by a gas escape where, as frequently happens, the gas-flame has been ignorantly blown out or otherwise extinguished without the stop-cock having been shut.

It is commonly necessary for the proper regulation of hotels or similar institutions to cut off the gas-supply to the bed-rooms at a certain hour at night, turning it on again in the morning. Where this is practiced there is always a risk that the gas-cock of some room of the house has not been turned shut, either where the occupant has been temporarily absent or has fallen asleep and left his gas burning. The result is that when the gas is turned on again it escapes from the open burner, and an explosion may result when approached with a naked light or the sleeping occupant may be asphyxiated.

Numerous attempts have been made hitherto to provide a self-closing stop-cock to obviate the accidents referred to; but all that I am acquainted with have had the serious defects either of being too complicated in their mechanism for practical usefulness or too cumbersome, so as to form an obstruction to the light.

The principle I have used in my device to cut off the gas-supply is the contraction, when the flame is extinguished, of a volume of air expanded by the heat of the gas-flame, and my improvement lies in the mechanical means by which I apply the movement of such contraction to effect the shutting off of the gas from each particular burner while permitting the stop-cock to be operated by hand in the usual manner.

The particular construction of this invention is fully set forth in the following specification and illustrated in the drawings which accompany it.

Figure 1 is a side elevation and part section showing the application of my device to a simple wall-bracket or single pendent gas-burner; Fig. 2, an enlarged detail plan of the plug-cock and the connection of the cut-off mechanism thereto, and Figs. 3 and 4 similar views of a modified construction.

Adjustably mounted on the vertical gas-pipe 2 of the service to the burner 3 is a light-bracket 4, which supports at a suitable distance above the burner a cylindrical air-tight vessel 5, having thin flexible ends 6 and 7. The vessel 5 is secured to the bracket 4 by a screw or other attachment on the center of one of the ends, 6, and to the center of the other end, 7, is pivotally mounted a lever 8, which is fulcrumed on a pin 9 to an extension 10 of the supporting-bracket 4. The other end of the lever 8 is connected by a pin 11 to a rod 12, the lower end of which is secured to a pin 13 on a washer 14, freely rotatable on the axis of the plug 15 of the gas stop-cock 16, the axis of the plug of the cock being placed horizontal to permit of such connection being made in the manner shown.

It is obvious that while the gas is burning the expansion of the air within the vessel 5 will distend the ends, somewhat as indicated by dot-and-dash lines in Fig. 1, and operate the lever 8 and rod 12 to rotate the washer 14; but as soon as the flame is extinguished from any cause the ends will collapse and the connected mechanism will resume its normal position, as drawn in full lines. The washer 14 is normally connected to the plug 15, so that they may rotate together, by a lock-pin 17, slidable through a guide 18, integral with or secured to the handle end of the plug and entering a hole 19 in the washer 14. This pin 17 may be withdrawn from the washer 14 to permit of independent movement of the plug by means of an angle-lever 20 21, hinged or fulcrumed by the pin 22 to the plug member at the junction of the plug 15 to the finger-engaging portion 23. The lock-pin 17 is loosely connected to the short arm 20 of the lever, and the portion 21 is shaped to conform to the finger-engaging portion 23, a spring 24 being secured between the two, which tends to press the pin into engagement

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and normally locks the plug to the washer. Thus when the plug is turned by the hand the effort of seizing the portion 23 between finger and thumb releases the plug from the washer 14 by withdrawing the pin 17. This enables the gas to be turned on and lighted without disturbing the cut-off mechanism. As soon as the gas is lighted the heat of its flame expands the air within the vessel 5 and the washer is rotated by the connected mechanism until the lock-pin aperture 19 in the washer comes opposite to the lock-pin 17, which was moved around with the plug, and the spring 24 causes the pin to enter the pin-hole 19 and the two are again locked. If now the flame be extinguished from any cause, the air in the vessel 5 cools, the ends 6 and 7 collapse, and the washer is pulled around, taking with it the plug 15 to the shut or cut-off position.

The modified construction illustrated in Figs. 3 and 4 consists merely in dispensing with the lock-pin and its guide and in notching, as 19<sup>a</sup>, the edge of the washer 14, the lever 20 being so shaped that it will enter and engage this notch under the strain of the spring 24, but may be lifted out of engagement on pressure being applied with finger and thumb to turn the plug.

A conical reflector 25 is secured toward the base end 6 of the air-tight vessel 5 and serves not only to reflect the light, but also directs the heat toward the vessel and incidentally improves the appearance of the whole by lessening the mechanical aspect of the vessel and its connections.

I am aware that efforts have been made to control the supply of gas to a burner by the contraction of an inclosed volume of air which has been expanded by the flame; but my device has advantages over such which I believe entitle me to the protection of Letters Patent thereon.

I therefore claim as my invention—

1. In a gas-burner cut-off of the class described; an endwise expansible and contractible air-tight vessel situated above the gas-burner, means for transmitting the endwise movement of such to operate the gas-cock of the burner, and means for disengaging such connection when it is desired to turn the stop-cock by hand.

2. In an automatic cut-off for gas-burners; the combination with the burner stop-cock of an endwise-expansible air-tight vessel, a bracket supporting such above the burner and to which one end of the vessel is secured, a washer rotatable freely on the axis of the cock-plug, means for normally locking the washer and plug so as to be rotatable together,

means for releasing said locking means, and means for connecting the vessel to the washer so that the movement of the former shall cause partial rotation of the latter.

3. In an automatic gas-cock of the class described; the combination with the burner and its stop-cock of a washer rotatable on the axis of the plug of the cock, means for securing such washer to the plug and releasing it therefrom comprising an L-lever having a finger-engaging portion adjacent to that of the plug and fulcrumed thereto, a lock-pin loosely connected to the shorter arm of the L-lever, a guide for such pin secured to the plug, an aperture in the washer to receive the end of the lock-pin, and a spring to retain the lock-pin normally in engagement with the washer; an endwise expansible and contractible air-tight vessel, a bracket for supporting said vessel above the burner, a lever fulcrumed to the bracket which supports the vessel, a connection between the free end of the vessel and the lever fulcrumed to the vessel-supporting bracket, and a connection from the farther end of the lever to the rotatable washer on the cock.

4. In an automatic gas-burner cut-off; the combination with the stop-cock of the burner, of a washer rotatable on the axis of the plug, of a spring-controlled L-lever for locking the plug and washer together so that they will rotate together, an endwise-expansible air-tight vessel suitably supported over the burner, a bracket forming a support for the vessel and to which one end of the vessel is secured, a lever to which the other end of the vessel is connected, fulcrumed to an extension of the bracket, a rod connecting the lever to the rotatable washer on the cock-plug, and a conical reflector over the burner and adjacent to the vessel.

5. In a device of the class described having an expansible and contractible air-tight vessel the movement of which is communicated to a washer rotatable on the axis of the stop-cock plug; a spring-controlled means for securing such washer to the plug and releasing it therefrom comprising an L-lever having a finger-engaging portion adjacent to and conforming to that of the plug, and a portion designed to engage a notch in the washer, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL HAIGH.

In presence of—  
ROWLAND BRITAIN,  
ELLICE WEBBER.