

No. 816,893.

PATENTED APR. 3, 1906.

C. H. WHITE.  
SAFETY GAS BURNER.  
APPLICATION FILED JUNE 27, 1905.

Fig. 1.

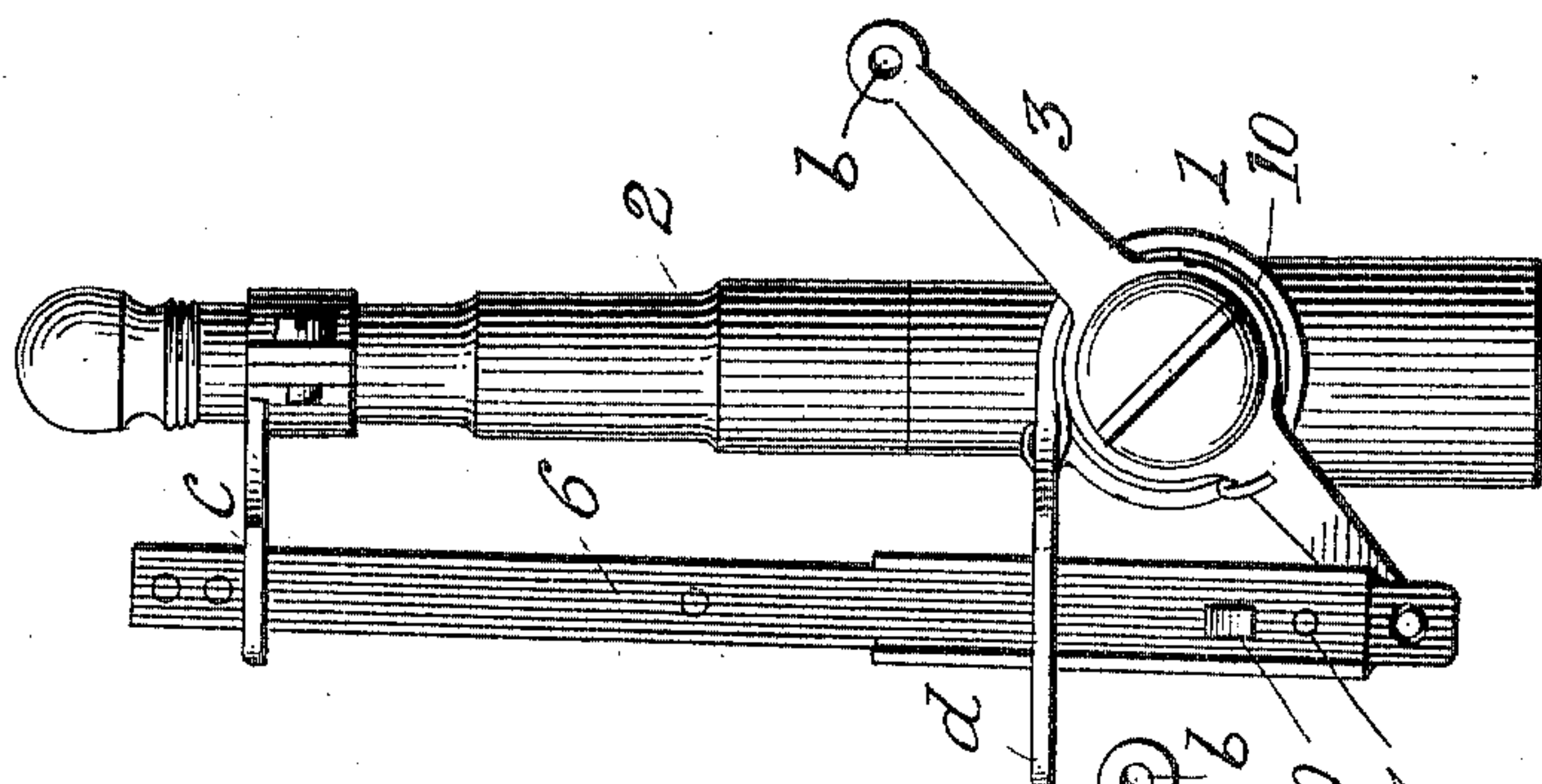


Fig. 3.

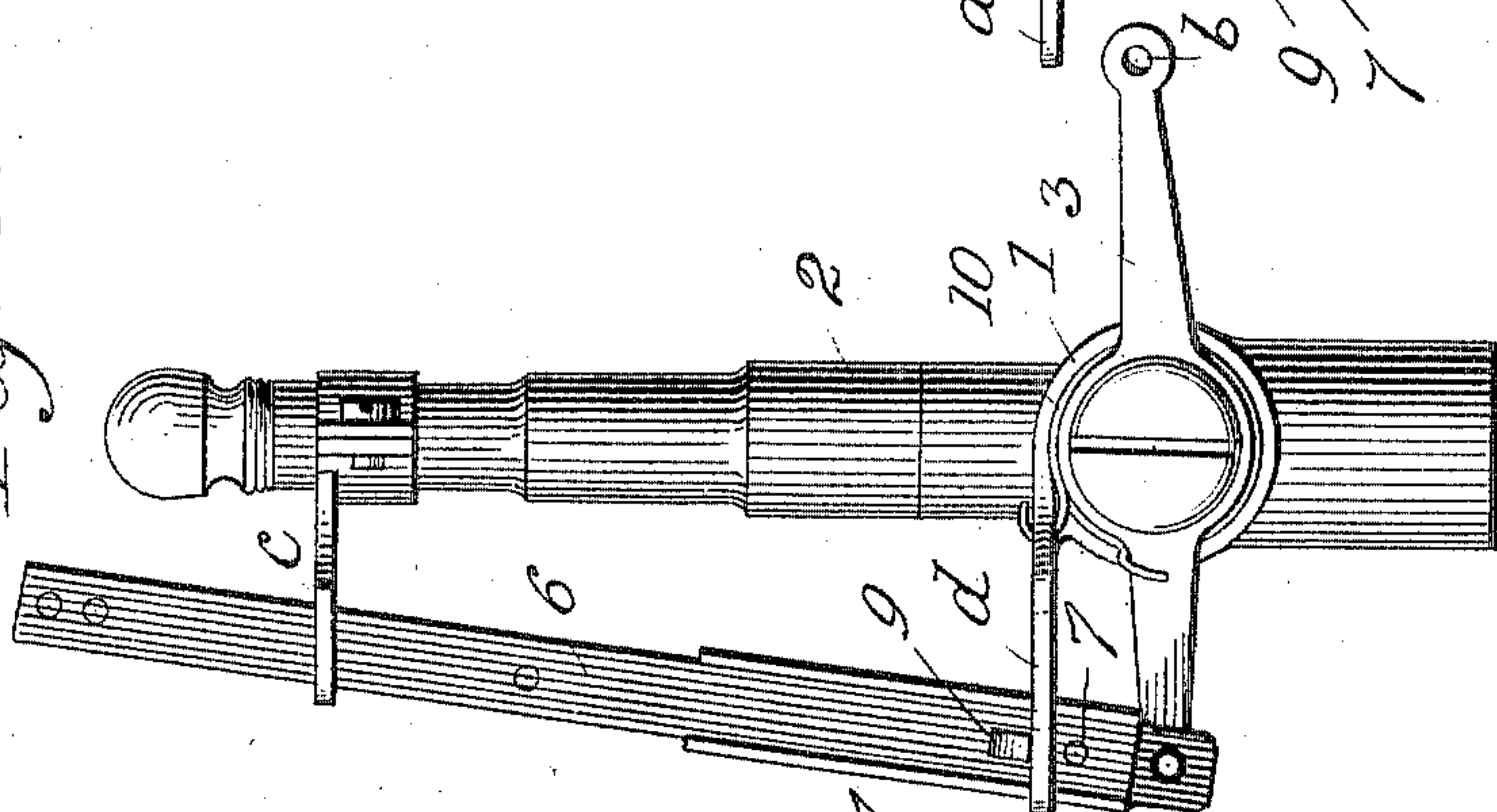


Fig. 4.

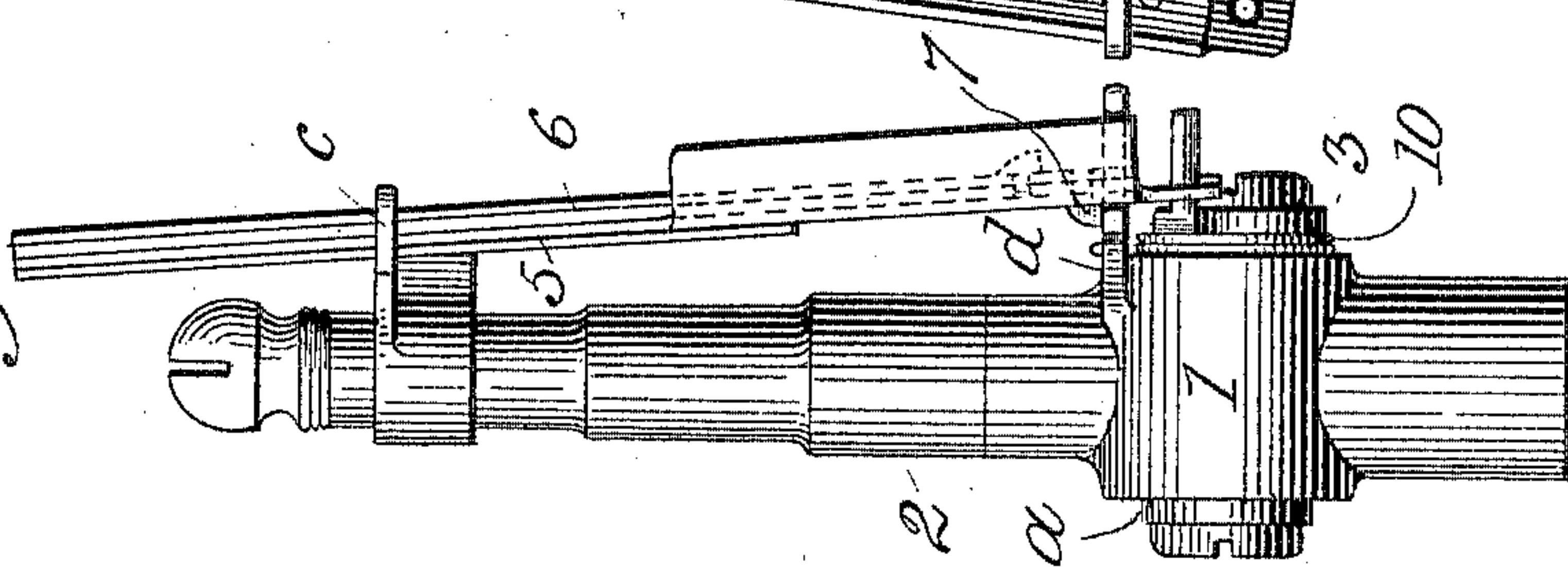


Fig. 2.

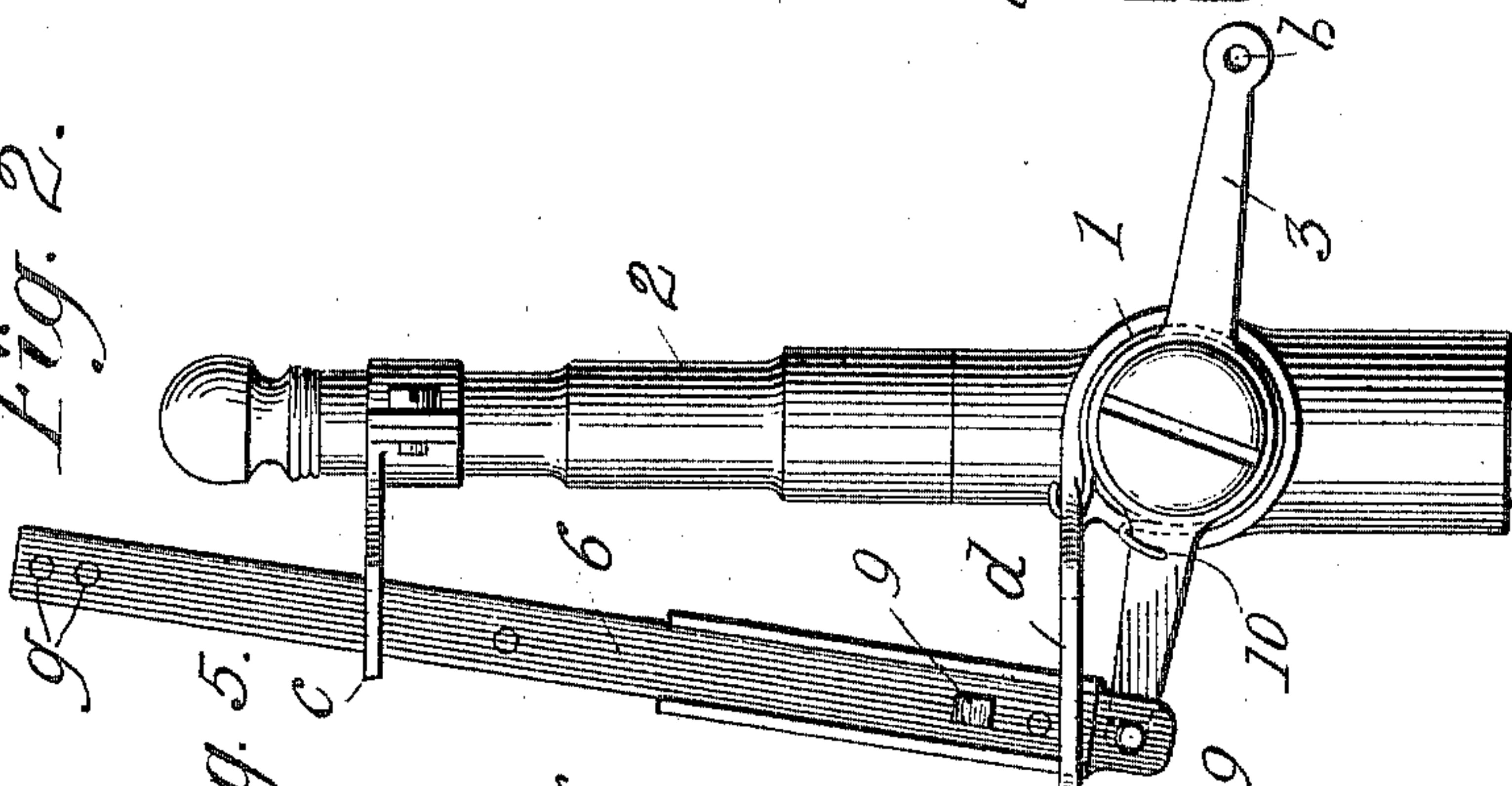
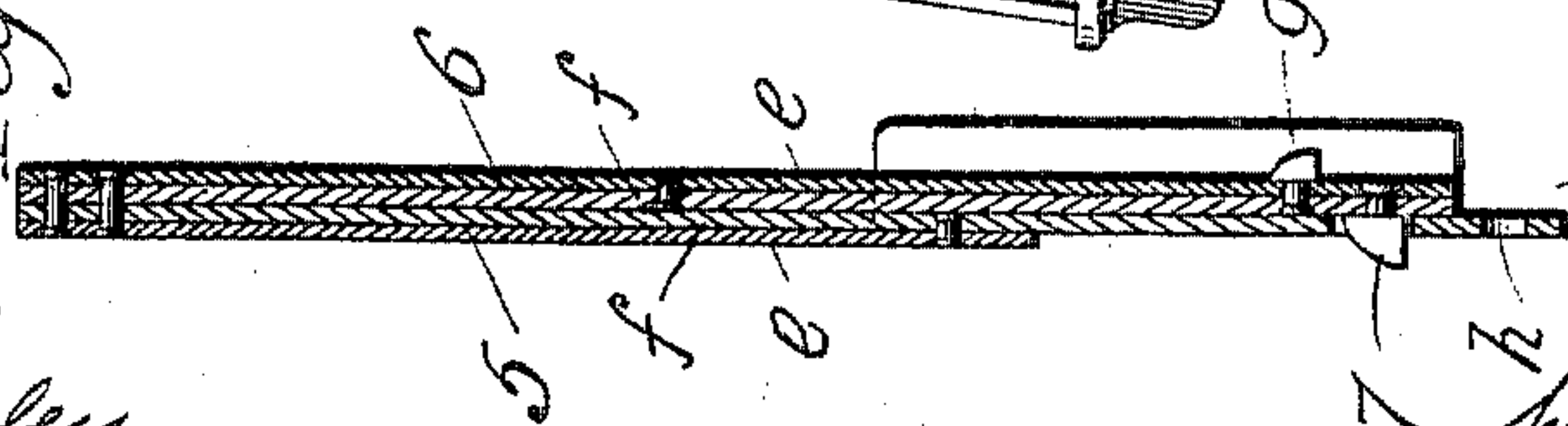


Fig. 5.



Witnesses:

A. E. Miller

A. D. Bayley.

Inventor:

Charles H. White

by G. H. T. Howard,  
att'y.



# UNITED STATES PATENT OFFICE.

CHARLES H. WHITE, OF SPARROWS POINT, MARYLAND.

## SAFETY GAS-BURNER.

No. 816,893.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed June 27, 1905. Serial No. 267,172.

*To all whom it may concern:*

Be it known that I, CHARLES H. WHITE, of Sparrows Point, in the county of Baltimore and State of Maryland, have invented certain Improvements in Safety Gas-Burners, of which the following is a specification.

This invention relates to that class of gas-burners which are adapted to automatically shut off the flow of gas in case the flame is extinguished by any cause other than that of closing the controlling cock or stop; and it consists, principally, in a peculiar construction and arrangement of a thermostat in connection with the said cock or stop or an auxiliary one whereby a primary and a secondary movement of the thermostat are effected, the first being caused by the heating of the thermostat and the latter by the cooling of the same, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a front view of the improved safety gas-burner, showing the same as it appears before the gas is turned on and lighted and its movable parts occupying what I term the "first" position. Fig. 2 is a similar view of the burner, except that the movable parts are in the second position. Fig. 3 is a similar view showing the movable parts of the burner in their third position. Fig. 4 is a side view of Fig. 1. Fig. 5 is a longitudinal central section of the thermostat.

Referring now to the drawings, 1 is an auxiliary gas-cock adapted to be secured between the commonly-used gas-stop, which is not shown, and the burner, and 2 an ordinary gas-burner secured to the gas-cock 1. To the key *a* of the gas-cock 2 is fastened in any suitable manner a cross-arm 3, one end of which is provided with an eye *b* for the attachment of an operating-cord (not shown) and the other end hinged to a thermostat which is confined in guides *c* and *d*, the former being held to the burner by means of a clamp and the latter forming a part of the shell of the cock 1. The thermostat consists of two blades 5 and 6, each formed of two plates of dissimilar metals—that is to say, each blade consists of a plate of steel *e* and a plate of brass *f*—which are fastened together by rivets, and the two blades are arranged with the brass plates adjoining and held in contact at their upper ends by the rivets *g*.

To form the hinge connection between the

cross-arm 3 and the thermostat, one of the brass plates of the thermostat is extended below the other, as shown particularly in Fig. 5, and provided with a hole *h*, and the end of the arm 3 is made cylindrical, bent at a right angle, and inserted loosely in the hole.

With the arrangement of plates as described any increase in the temperature of the thermostat above the normal will cause the two blades to separate at their detached or free ends, and the separation of the blades and their return toward their original or closed condition are depended on to effect the operation of the movable parts of the device and ultimately the closing of the auxiliary gas-cock should the gas-flame be extinguished independently of the main cock or stop.

7 and 9 are detents riveted to the blade 5 and extending outward in opposite directions, and the detent 7 passes loosely through an aperture in the blade 6, as best shown in Fig. 5.

It is necessary to the proper operation of the thermostat, as hereinafter described, that when the blades 5 and 6 are closed or in the condition shown in Fig. 5 the detent 7 should project beyond the outer surface of the blade 5 and the detent 9 be within the body of the thermostat. To effect the latter arrangement, the lower portion of the brass plate *f* of the blade 5 is flanged, and the said flanges *i*, which inclose the edges of the blade 6, extend beyond the detent 9, as shown particularly in Fig. 5.

The length of the slot in the guide *d* (see Fig. 2) is made considerably greater than the width of the thermostat in order to provide for the arc described by the lower end of the latter in opening and closing the auxiliary gas-cock 1, and its breadth (see Fig. 4) is such that the thermostat has practically no lateral movement, only sufficient clearance being allowed to prevent undue friction.

A coiled spring 10, one end of which is attached to the guide *d* and the other end to the cross-arm 3, serves to close the auxiliary gas-cock when the same is not held open.

By reference to the drawings, it will be seen that the upper end of the thermostat is so situated with reference to the burner-tip that it will be heated by the gas-flame and cause the two blades of the thermostat to be separated as before described.

Supposing the movable parts of the burner to be in the relative positions shown in Fig.



1—that is to say, with the auxiliary gas-cock closed and the thermostat down in its lowest place—the operation of the invention is as follows: The main cock or stop (not shown) being open, the end of the cross-arm 3 is pulled down until the detents 7 and 9 pass above or beyond the guide *d*. When the arm is released, the thermostat is held by the lower detent 7 coming in contact with the upper surface of the said guide, as shown in Figs. 2 and 4. The gas is then lighted, and the heat from the flame causes the blades of the thermostat to distend or separate, and the detent 7 being drawn away from the plate *f* of the blade 5 becomes inoperative as a sustaining device, and the thermostat falls; but at the time that the detent 7 is withdrawn from contact with the guide *d* the detent 9 is projected outward, and the thermostat after falling a distance equal to the space between the two detents is again stopped by the guide, as shown in Fig. 3. The closing movement of the cock-key in the operation just described is not sufficient to materially affect the flow of gas through the burner, and the relative positions of the movable parts of the device, as just described, are maintained while the escaping gas is in flame; but should the flame be extinguished by any means other than by shutting off its flow the thermostat will rapidly cool and in returning to its original condition will cause the inward movement of the detent 9 until it becomes inoperative and allows the thermostat to fall to its lowest and original position, (shown in Fig. 1,) when the auxiliary gas-cock is closed.

From the foregoing description it will be understood that the operation of the invention is due, first, to the heating of the thermostat, and, secondly, to the cooling of the same, such heating and cooling effecting the double drop through the agency of the two detents arranged with reference to the two blades of the thermostat and the guide *d*, as specified.

I claim as my invention—

1. In combination with a gas-burner, a supply-cock adapted to be manually opened,

a thermostat within the influence of the ignited gas, formed of two thermostatic blades secured together at the top only, and normally closed, which blades under the influence of the increased heat, are deflected in opposite directions and made to separate at their lower ends, one of the thermostatic blades being provided with two detents arranged one above the other, and projecting in opposite directions, and the other blade having an opening through which one of the said detents passes loosely, an arm extending from the cock-key to which the lower end of the thermostat is hinged, a spring to yieldingly retain the cock-key in a closed position, and a device which in the elevation of the thermostat effected by the opening of the supply-cock, serves as a support for the detents successively, substantially as, and for the purpose specified.

2. In combination with a gas-burner, a supply-cock adapted to be manually opened, a thermostat within the influence of the ignited gas, formed of two thermostatic blades secured together at the top only, and normally closed, which blades under the influence of increased heat, are deflected in opposite directions and made to separate at their lower ends, one of the said thermostatic blades provided with two detents arranged one above the other, and project in opposite directions, and the other blade having an opening through which one of the said detents passes loosely, an arm extending from the cock-key to which the lower end of the thermostat is hinged, a spring to yieldingly retain the cock-key in a closed position, and a slotted guide within which the thermostat is laterally confined, the upper part of which guide serves as a support for the detents successively, in the elevation of the thermostat effected by the opening of the supply-cock, substantially as, and for the purpose specified.

CHARLES H. WHITE.

Witnesses:

THOMAS G. HULL,  
WM. T. HOWARD.