

No. 639,344.

Patented Dec. 19, 1899.

J. BLEVINS.  
SELF CLOSING GAS VALVE.

(Application filed Sept. 10, 1898.)

(No Model.)

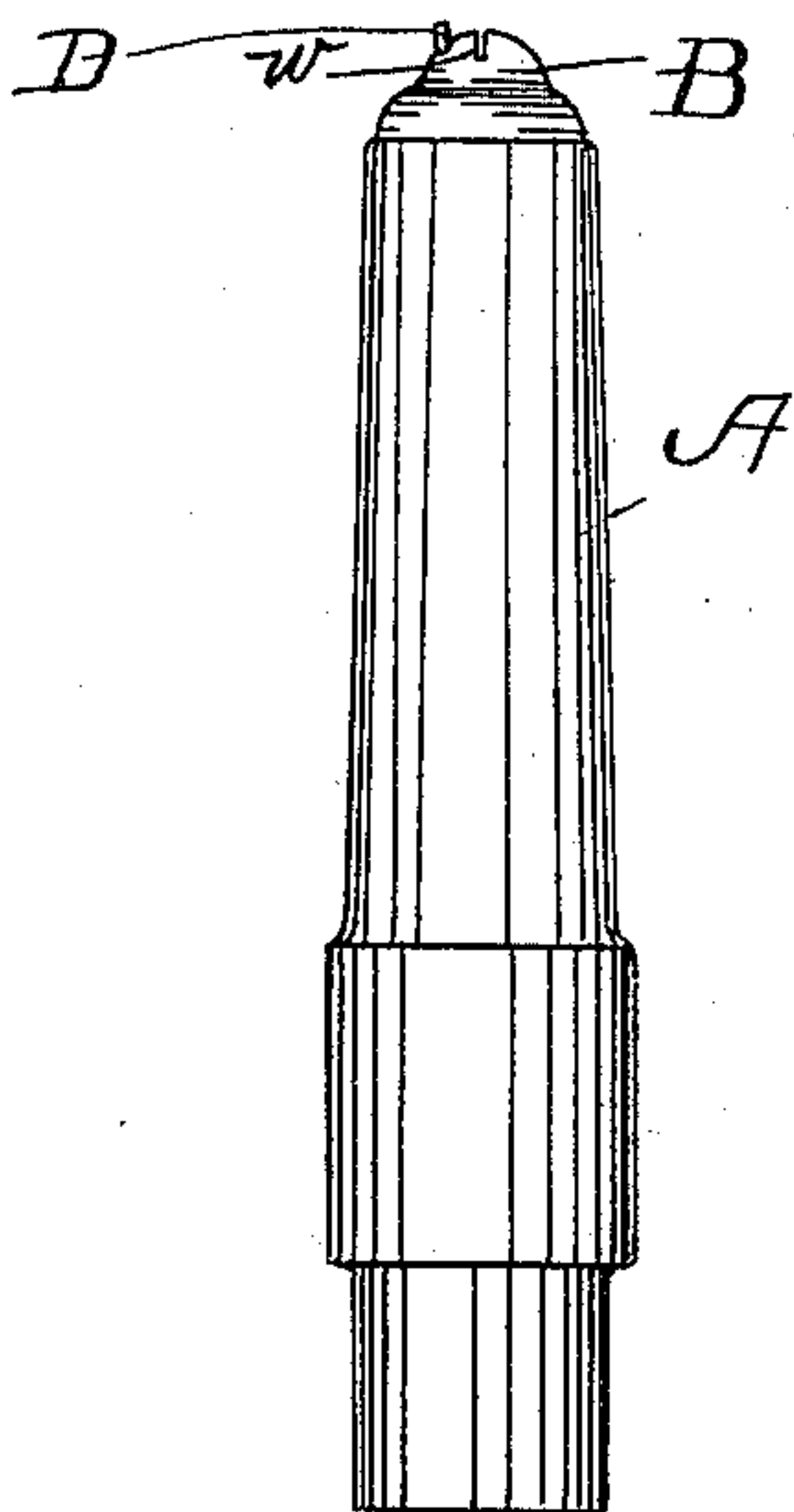


Fig. 1.

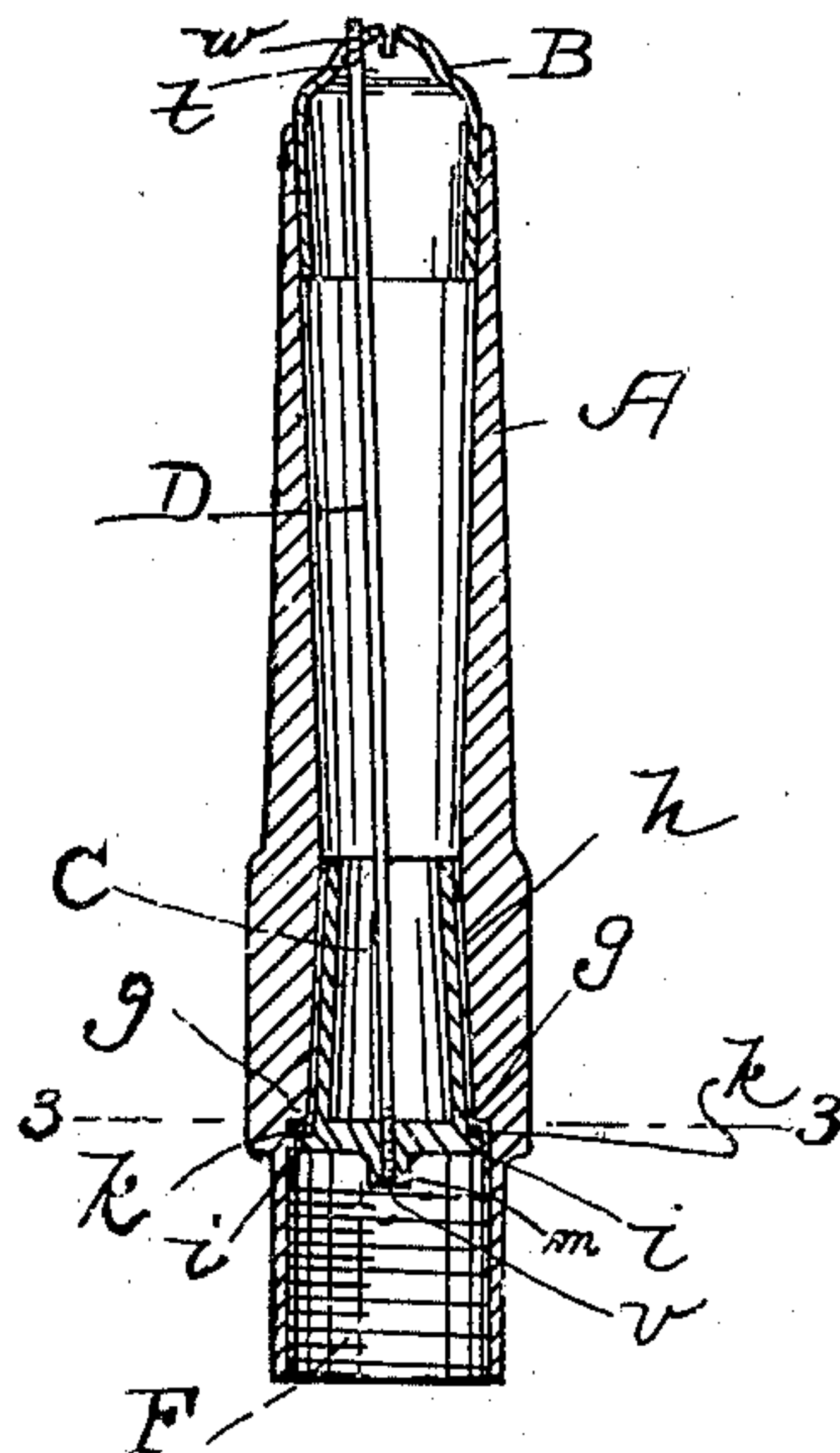


Fig. 2.

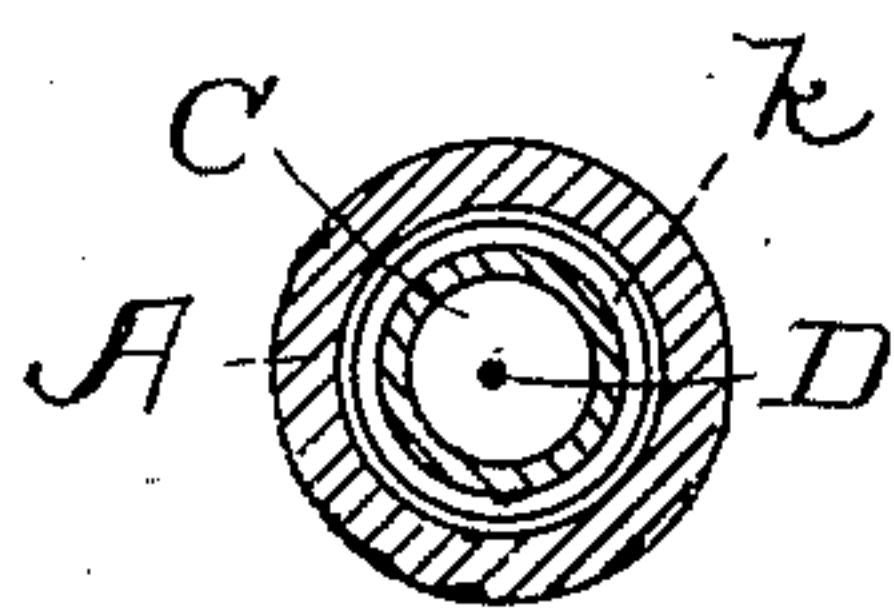


Fig. 3.

WITNESSES.

Matthen M. Blunt.  
C. Wilbur

INVENTOR

John Blevins,  
By O. M. Shaw,  
ATT'Y.

# UNITED STATES PATENT OFFICE.

JOHN BLEVINS, OF BOSTON, MASSACHUSETTS.

## SELF-CLOSING GAS-VALVE.

SPECIFICATION forming part of Letters Patent No. 639,344, dated December 19, 1899.

Application filed September 10, 1898. Serial No. 690,695. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BLEVINS, of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Self-Closing Gas-Valves, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a gas-burner provided with my improvement; Fig. 2, a vertical transverse section of the same, and Fig. 3 a horizontal section taken on line 3 3 in Fig. 2.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to a self-closing valve for use in gas-burners; and it consists in a novel construction and arrangement of parts whereby when the gas at the top of such burner is or continues alight the valve will be held open and permit the supply to flow to the flame, but should said flame be accidentally extinguished the valve will at once act and shut off the supply of gas.

The object of the improvement is particularly to prevent the escape of illuminating-gas into a room by the accidental opening of the ordinary cock employed in the fixture when the gas is not ignited at the tip or burner or from the blowing out of the flame as aforesaid.

The nature and operation of this improvement will be readily understood by those conversant with such matters from the following explanation:

In the drawings, A is the body of the burner, having a tip end and interiorly-screw-threaded end F for securing the burner to a fixture. This body portion A in its inner bore has diverging walls beginning near its middle and running toward each end, forming two oppositely-tapering elongated chambers. The large end F is provided with a valve-seat *g*, and the small end holds the tip B. The large end is also designed to hold and retain in position a truncated tapering valve C, which snugly fits the tapering walls of said chamber

when together in operation they form a valve-joint. The outer end of valve C is solid and transversely projects beyond the walls thereof. The said projection is annular and forms the valve *i*, which fits and is seated on a gasket or washer *k*, located on the valve-seat *g* in such manner that when the valve is in a closed position leakage is entirely prevented.

The solid end of the truncated valve C has an upwardly and centrally projecting boss *m*, which is bored out and screw-threaded for the reception of the expansion-rod D. The tip B is also bored and screw-threaded to one side of the burner-slit. The expansion-rod D is also screw-threaded at both its ends to fit, respectively, into the tip B and boss M of valve C, forming an expansion connection between them.

It will be observed that the washer or gasket *k* must be of such thickness when seated that it will not interfere with the close fitting of the truncated tapering valve C against the inner walls of the chamber *h* of the body portion of the burner. It will also be observed that the elongated tapering chamber will by its shape prevent the wobbling of the valve and by the opposite taper of the valve and chamber. The said valve-seats C and *i* will be firmly and tightly seated.

The expansible rod D will be made of metal sensitive to heat and will be easily expanded. The tip end *w* of the rod D will slightly project beyond the tip B, so as to be affected by the heat. The parts being in position the operation is as follows: Heat being applied to end *w* of the expansible rod D it is conveyed to the body of the rod, and when sufficiently heated the rod will automatically expand in elongation, pushing the valves off their seats, when the gas will commence to flow through the valve and body of the burner to the tip and become ignited. When to extinguish the light the flow of gas is cut off, the rod will automatically contract, thus again shutting the valve. Normally these parts are so arranged and adjusted that when the valve engages its seat *g* the inlet to the tip is thereby shut or closed.

When it is desired to ignite the gas, the flame of a match or taper is held against the exposed end *t* of the rod D. Said rod being affected by a very slight degree of heat quickly



expands, and being rigidly attached to the tip its inner end *v* is forced downward by such expansion. This unseats the valve and admits a flow of gas to the tip, where it at once ignites. So long as there is flame sufficient to heat the rod it will be seen that the valve will be held open and the flow of gas be uninterrupted to the tip. As soon as the flame is extinguished, either by shutting off the flow at the cock or by a sudden blast of air, the sensitive rod D quickly cooling at once contracts and draws the valve tightly against its seat *g*, acting as a positive shut-off to the gas-flow.

The shape of the valve and its lightness admits the easy action thereof by the expansion and contraction of a very small piece of expansible metal in manner which will be understood by those conversant with such matters without a more explicit description.

It will be understood that it is not absolutely essential to the operation of my device to have the rod D attached directly to the tip B, as any rigid connection where it will quickly be subject to heat may be substituted.

I am aware that gas-burners have before been supplied with a thermostatic rod and a valve, and therefore I do not claim such broadly, when in and of itself considered. Difficulty is, however, experienced in many such devices in operating the valve positively in both directions, respectively, by the expansion and contraction of said rod and at the same time providing leakage resulting from imperfect seating of valve, and I am able to effect this result by the use of the elongated downwardly-flaring valve-seat, the hollow truncated conical valve having its top open and bottom closed and flanged annularly, said rod pulling centrally from said bottom.

Having thus explained my invention, what I claim is—

1. An automatically-controlled gas-burner the body portion having oppositely-tapering divergent chambers, one for the valve and the other for the tip, a valve-seat *g*, a hollow elongated truncated tapering valve C, the washer *k*, and the expansible rod D uniting the tip and valve, substantially as described.

2. The combination in an automatically-controlled gas-burner of the body portion having oppositely-tapering divergent chambers, a screw-threaded straight portion, a valve-seat in said straight portion, a tip in one of said chambers, a tapering truncated valve C in the other of said chambers, said valve C having valve *i* on its closed end, larger than the truncated portions, said tip and valve being united, substantially as set forth.

3. The combination in an automatically-controlled gas-burner of the body portion having the divergent tapering chambers, a straight portion having a valve-seat *g*, a hollow tapering truncated valve C solid at one end and forming a valve *i* beyond and outside of the walls of the hollow portion, in combination with a tip and expansible rod by which the valves are operated, substantially as described.

4. An automatically-controlled gas-burner comprising the body portion having a tapering chamber forming a valve-seat, a hollow truncated tapering valve C corresponding to said seat, a valve-seat *g* at the end of said chamber, a gasket interposed between said seat *g* and valve *i* of the valve C, a tip and an expansible rod connecting the valve and tip, substantially as described.

JOHN BLEVINS.

Witnesses:

O. M. SHAW,  
C. M. WILBUR.