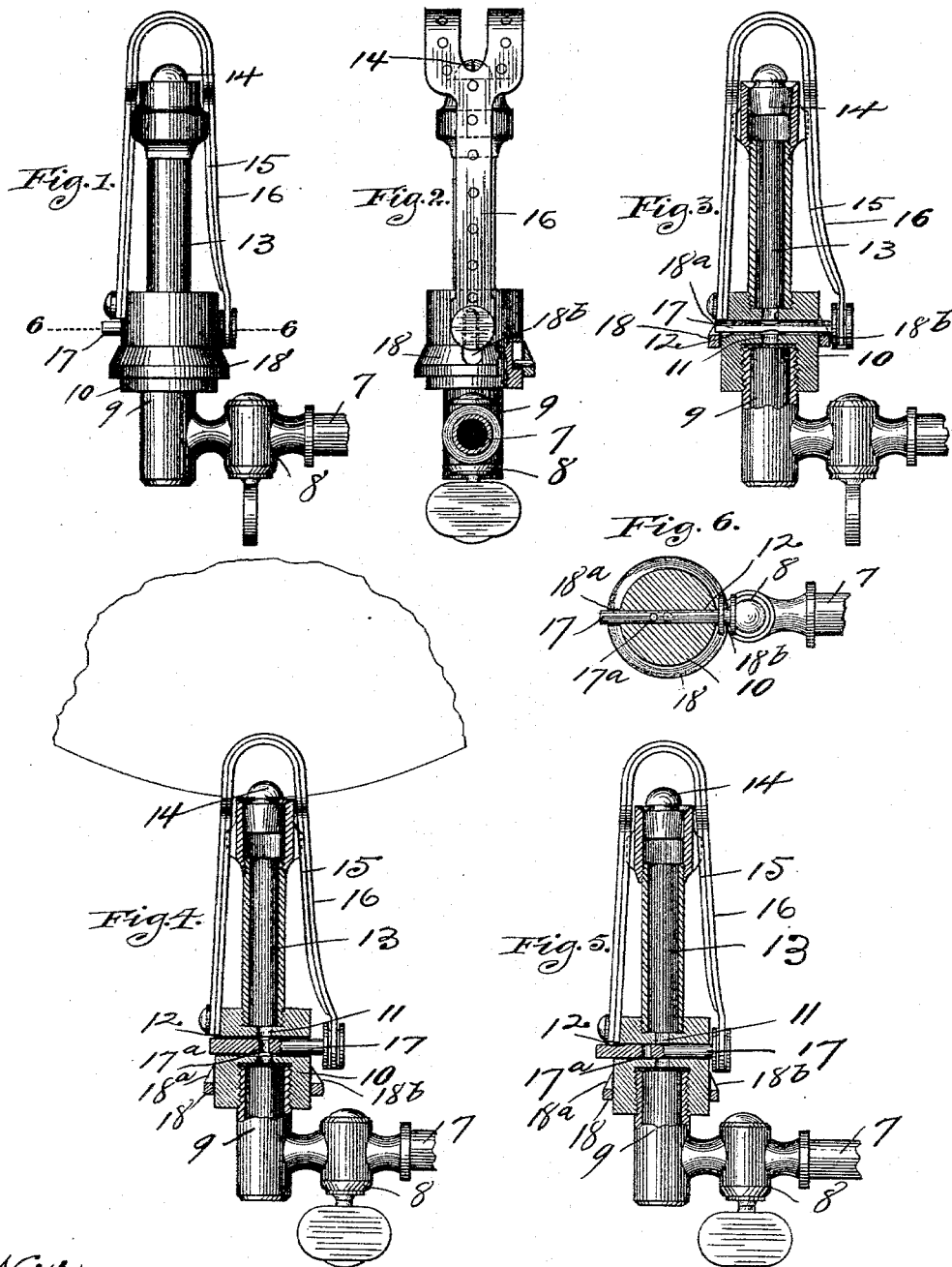


(No Model.)

A. SPEAR.
SELF CLOSING GAS BURNER.

No. 490,321.

Patented Jan. 24, 1893.



Witnesses,

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UNITED STATES PATENT OFFICE.

ARTHUR SPEAR, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
EDWARD F. ANGELL, OF SAME PLACE.

SELF-CLOSING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 490,321, dated January 24, 1893.

Application filed January 18, 1892. Serial No. 418,448. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR SPEAR, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Self-Closing Gas-Burners, of which the following is a specification:

My invention relates to a self-closing gas burner; and has for its principal object to provide against loss of life from asphyxia.

10 A further object of my invention is to construct a burner which shall regulate the flow of gas to the burner tip thereby providing against waste.

My invention provides means whereby the
15 flow of gas is cut off automatically when the light has been blown out or accidentally extinguished without the supply of gas being turned off by the usual cock.

In carrying out my invention I apply to the
20 ordinary burner a thermostatic bow composed of two strips of metal having a different rate of expansion under heat, one end of the bow being fixed upon one side of the burner and the other being secured with a pin valve, movable in a transverse aperture intersecting the
25 supply way of the burner, said pin valve having a port therein and the operation of which is as follows: When the bow is expanded by the action of the heat, the flow of gas is permitted through the burner, but when the
30 flame is extinguished the contraction of the bow moves the pin valve so as to cut off the supply of gas. I also employ a ring cam sliding on the body of the burner and adapted
35 to thrust the free end of the bow and the pin valve outwardly so as to open the port and permit the flow of gas for lighting. The heat of the flame operates to farther expand the bow and to release the cam which will drop
40 down out of the way and then when the light is extinguished the bow will contract and the pin valve will be thrust in and the flow of gas cut off. Any undue flow of the gas will be checked by the increased expansion of the
45 bow which will withdraw the pin valve so as to partially close its port.

In the accompanying drawings, Figure 1 is a side elevation of the burner and a supply

pipe therefor having an ordinary stop cock. Fig. 2 is an elevation at right angles to the
50 view point of Fig. 1. Fig. 3 is a side elevation, partly in section, showing the bow held out by means of the cam. Fig. 4 is a similar view, the flame being indicated and the bow expanded by the heat thereof and the cam
55 dropped so as to clear the bow. Fig. 5 is a similar view showing the bow contracted, the pin thrust in and the port closed. Fig. 6 is a sectional view on the line 6-6 of Fig. 1.

In the drawings, 7 indicates a gas supply
60 pipe having a cock 8 therein.

9 represents a burner tube section secured therewith; 10 a coupling piece having a vertical passage 11 and a transverse aperture 12
65 therein.

13 represents the upper tube section of the burner and 14 the burner tip.

15, 16 represent two metal plates secured together to form a thermostatic bow, the two
70 strips of metal expanding at different degrees of heat, and such metals as iron and copper or iron and steel may be employed. This bow is wide in the arch over the tip and has a slit therein for the flame. One end of the bow is secured on one side of the burner
75 and the other with the pin valve 17, said valve being adapted to move in the transverse aperture 12 and having a port 17^a therein.

18 represents a cam ring which is sleeved on the coupling piece 10 and which is intended as a means for moving the pin valve
80 to cause its port to register with the supply way in the burner. The upper edge of said ring is beveled so that it will pass readily under the head of the pin valve 17, and said
85 edge is also provided with the notches 18^a, 18^b to receive the pin valve and permit the cam ring to be thrust up high enough to move the valve into position to permit the flow of
90 gas. The pin valve is held in this position by the ring until the gas is ignited and when the heat of the flame has expanded the bar farther, the cam ring will be released and will drop down to the position shown in Fig. 4. The cam ring is a simple and efficient device
95 for moving the pin valve and while it forms

a feature of my invention, I do not desire to be limited thereto in so far as my invention relates to the means for regulating the quantity of gas consumed, as any other suitable cam or eccentric connection may be employed to cause the initial opening of the port through the pin valve.

Should the flame be extinguished without cutting off the flow of gas by means of the cock 8 in the supply pipe, the compound bow will contract and in a short space of time thrust the pin valve in, as seen in Fig. 5, thus automatically cutting off the flow of gas before a sufficient quantity has escaped to produce asphyxiation or injury.

I am aware that it is not broadly new to provide means for automatically cutting off the supply of gas when the flame has been extinguished otherwise than by the use of the cock intended for that purpose, but so far as I am aware the means which I have employed are novel in their combination.

A novel and useful feature of my improved burner is its adaptability to the saving of gas. Heretofore in burners of this kind provision is made for cutting off the supply of gas only when the flame has been extinguished, but with my improved devices should the gas pressure be so strong that an undue amount of gas would be consumed, the bar will be over-heated and the pin valve drawn so far out as to partially close the supply way, thus diminishing the supply. The device therefore operates not only as a safety burner, but

also as a gas saving and flame regulating device.

I claim:

1. In combination with a gas burner a thermostatic bow having one end secured to the side of the burner and arched above the tip thereof, a pin valve secured with the free end of said bow, a transverse aperture through which the pin valve slides, said aperture intersecting the supply way of the burner and a cam ring sleeved upon the body of the burner and adapted to thrust the bow outward whereby to withdraw the valve to cause its port to register with the supply way, said cam adapted when released to slide down so as to clear the bow, substantially as described.

2. The combination with a gas burner having a supply way and a transverse aperture intersecting said supply way, a thermostatic bow having one end secured to the burner and the other to a pin valve adapted to slide in said aperture, said pin valve being normally in position to close said aperture, means for moving the pin valve to cause its port to register with the supply way, said bow when over heated being adapted to further withdraw the pin so as to partially close the port thereof whereby the quantity of gas consumed is regulated, substantially as described.

ARTHUR SPEAR.

Witnesses:

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