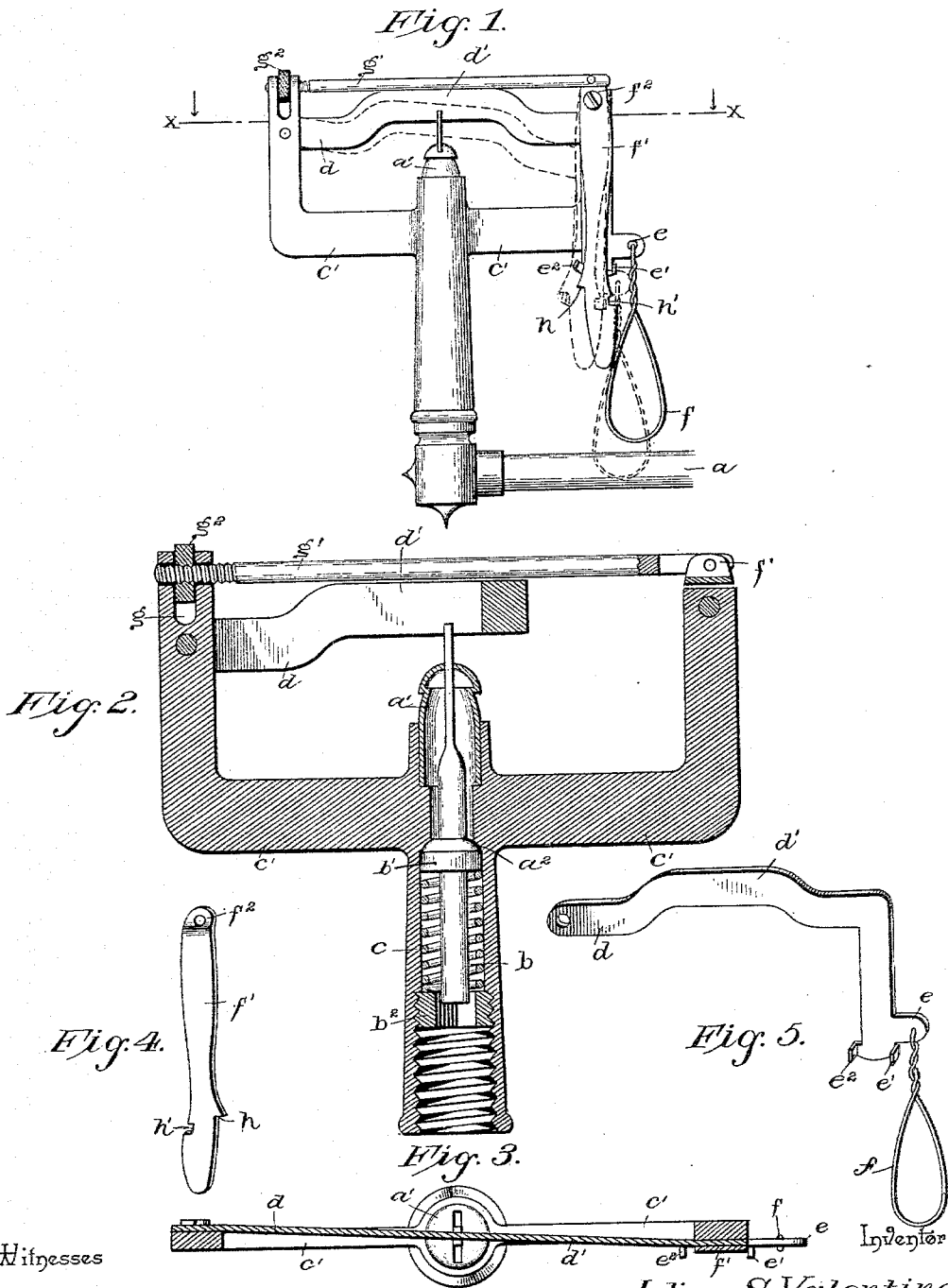


(No Model.)

J. S. VALENTINE.
GAS BURNER.

No. 531.703.

Patented Jan. 1, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

JULIUS S. VALENTINE, OF LANSING, MICHIGAN.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 531,703, dated January 1, 1895.

Application filed March 7, 1894. Serial No. 502,717. (No model.)

To all whom it may concern:

Be it known that I, JULIUS S. VALENTINE, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented a new and useful Gas-Burner, of which the following is a specification.

My invention has special reference to those gas burners which are provided with means whereby the flow of gas is automatically cut off when the flame is extinguished; and my primary object is to construct a more effective arrangement and one which will be surer in operation than any heretofore known.

Other objects are contemplated, such as cheapness and durability, and ease of operation, all of which will be apparent upon an understanding of the invention.

To these several ends my invention consists of certain peculiar features of construction and combination and arrangement of parts which I will now describe in detail and finally embody in the claims.

In the accompanying drawings:—Figure 1 represents a side elevation of a gas burner constructed after the manner of my invention. Fig. 2 is a longitudinal section of the same; Fig. 3, a section on line xx of Fig. 1, and Figs. 4 and 5 detached views of some of the parts.

In the drawings the reference letter a , indicates the gas conducting pipe which is provided with a burner tip a' . This tip may, of course, be of any preferred construction. Formed in the body of the burner is a shoulder a^2 , and the gas passage above this shoulder is reduced in size. Extending through the gas passage of the burner a , is a rod b , which is round at that part which is located within the burner, but when the tip a' is reached the rod assumes a flattened shape so that it will be free to pass through the slot in the tip a' .

Fixed to the rod b , at a point just below the shoulder a^2 is a collar b' , which, in connection with the shoulder, forms the valve for regulating the flow of gas through the burner. The lower end of the rod b , extends downwardly to a point near the bottom of the burner and is held incapable of lateral movement by the gasket or collar b^2 which is screwed into the burner body and which fits

loosely around the rod b , allowing it longitudinal movement. Interposed between the collar or gasket b^2 and the valve collar b' is a spiral spring c , which operates to keep the collar b' in close engagement with the shoulder a^2 , and consequently close the valve and shut off the flow of gas.

Formed integral with the body of the burner and projecting from opposite sides thereof are the arms c' , which are two in number and which project outwardly and thence upwardly as shown in the drawings. Pivoted to the end of the left hand arm c' is the lever d , which projects across to the companion arm, and which curves, at the point d' , upwardly and thence downwardly. At this curve, d' , the lever d , engages the upper end of the rod b , which is bifurcated at such end to insure the connection. By means of this lever the rod b , is pushed down as will be fully described later on.

The right hand end of the lever d , is free and, when the right hand arm c' is reached, it curves downwardly. From this curve the lever projects downwardly parallel with the vertical portion of the arm aforesaid until its horizontal portion is reached. Here it is provided with the eye e , and the lugs e' and e^2 . The eye e , is connected to the pendent ring f , by which the burner is operated, as will fully appear hereinafter.

Pivoted to the upper end of the right hand arm c' is a lever f' , which has a short upwardly extending arm f^2 . This arm is pivotally connected to the expansion bar g , which extends horizontally across from one of the arms c' to the other and directly over the burner tip a' . At the left hand arm c' the upper end is bifurcated at g' and each of these bifurcated portions is provided with an opening through which the bar g passes. At this point the bar g is screw-threaded and provided with a nut g^2 , which is arranged between the bifurcations of the left hand arm c' . By this means the bar may be adjusted longitudinally for a purpose which will hereinafter appear.

The longer and downwardly extending arm of the lever f' projects parallel with the vertical portion of the right hand arm c' and with the vertical part of the lever d , to a point below the level of the arm c' , at which it is

provided with the notch h' , and shoulder h . The notch h' is adapted to receive the stud e' , and this is effected by moving the lever d downwardly until the notch is reached whereupon the lever f' will snap the notch h' into engagement with the stud e' . By this means the lever d is held downwardly and consequently the valve of the burner open.

The preferred construction of my invention having now been described I will proceed to set forth its mode of operation and use.

The normal positions of the parts are shown in full lines in the drawings, and to light the gas the pendent ring f , is drawn downwardly until the stud e' engages the notch h' which engagement will result in the holding open of the burner valve, or the disengagement of the shoulder a^2 and collar b' . This will permit the gas to pass out of the tip a' , whereupon it may be ignited. When the flame of the gas acts upon the expansion bar g , the bar will be caused to increase in length and this will rock the lever f' on its fulcrum, causing its long arm to move to the left far enough to disengage the notch h' and stud e' . This disengagement will be immediately followed by the engagement of the stud e^2 and shoulder h , and this will hold the valve open and allow the burner to operate.

If, for any cause, the flame should be extinguished the heat upon the bar g will cease and in a short time this bar will resume its normal size. This will be followed by the swinging of the lever f' to the right which will disengage the shoulder h , and stud e^2 and allow the spring c to return the rod b' to its normal position and consequently close the valve, thus cutting off the gas. By this construction it will be seen that it is impossible for the gas to be blown out, without the burner-valve being subsequently closed and in a time short enough to prevent any material escape of gas.

To turn the gas off intentionally the lever f is pushed to the right, thereby disengaging the shoulder h' , and stud e^2 and allowing the spring c to close the valve.

From the above description it will be apparent that my invention is extremely simple and that, owing to the simplicity of its parts, disarrangement is quite impossible. It will also be seen that the operation is easy and can be effected by very little work.

As to the means for automatically closing the valve when the flame is extinguished it will be easily seen that these are of a most effective character, and no further explanation of their advantages is deemed necessary.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A gas-burner having a spring actuated valve controlling its outlet, in combination with an expansible rod arranged in the field of heat from the flame, a lever pivoted at an intermediate point and having one of its arms connected to the expansible rod, the other arm of said lever having a shoulder, a second lever connected to said valve and having a stud to engage the shoulder of the first lever, whereby said second lever is held in a depressed position when the expansible rod is heated, and means for holding said second lever depressed temporarily during the ignition of the gas, substantially as specified.

2. A gas-burner having a spring actuated valve controlling its outlet, in combination with an expansible rod, a lever having one arm connected to the expansible rod and its other arm provided with a shoulder h , an operative notch h' disposed closer to the free end of the lever than said shoulder, and a second lever connected to the said valve and provided with opposite lugs e' and e^2 to engage the shoulder h and the notch h' respectively, substantially as specified.

3. A gas burner comprising the combination of a spring actuated valve, a rod connected to the valve and extending out of the burner slot, a lever connected to the rod and provided with a stud, a second lever having a shoulder adapted to engage the stud of the first and to hold it with the valve open, and an expansive bar connected to the second lever and arranged so as to be acted on by the flame from the burner, the bar being so arranged that upon contraction owing to the extinguishment of the flame, the valve will be allowed to close, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JULIUS S. VALENTINE.

Witnesses:

RUFUS H. WHEELER,
OLIVER WHEELER.