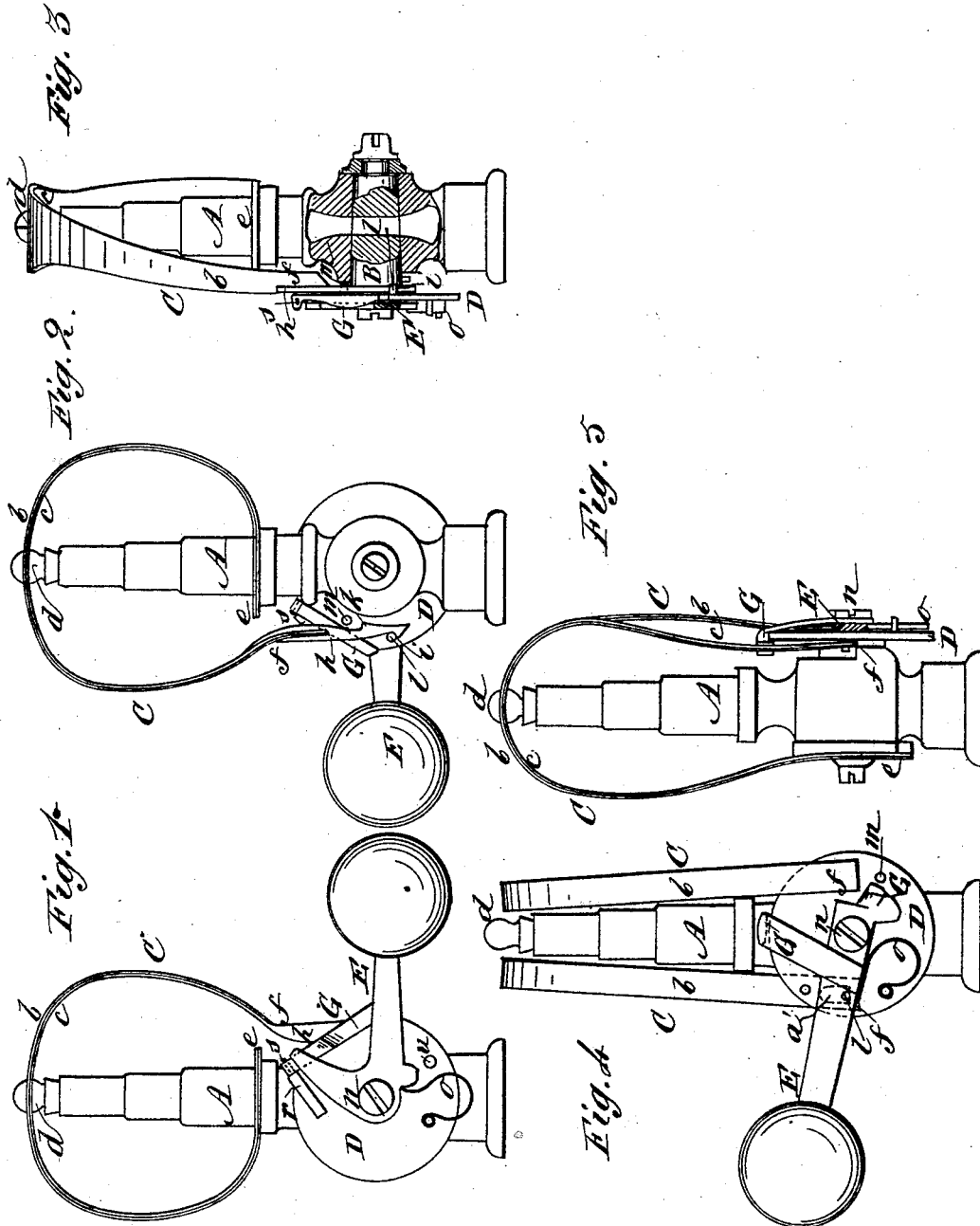


(No Model.)

W. W. SHERMAN.  
SELF CLOSING GAS BURNER.

No. 342,139.

Patented May 18, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE

WILLIAM W. SHERMAN, OF SAN FRANCISCO, CALIFORNIA.

## SELF-CLOSING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 342,139, dated May 18, 1886.

Application filed January 12, 1886. Serial No. 188,378. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. SHERMAN, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Self-Closing Gas-Burners, of which the following is a full, clear, and exact description.

This invention has more particularly for its object the prevention of accident and loss of life from asphyxia, as caused by the inflamed gas being accidentally extinguished or blown out at the burner, and it relates to that class of devices for the purpose in which a spring subject to control by the flame operates when the flame is so extinguished to close the key or cock which controls the burner.

The invention consists of the combinations of parts, including their construction, substantially as hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figures 1 and 2 represent opposite side views of an automatic or self-closing gas-burner embodying my invention; Fig. 3, a partially sectional or broken elevation of the same at right angles to Figs. 1 and 2. Figs. 4 and 5 are opposite side views of a modification of the whole device shown in the previous figures.

Referring, in the first instance, to Figs. 1, 2, and 3 of the drawings, A indicates a gas-burner of the ordinary or any suitable construction, and B its key or cock. C is a compensating-spring composed of an outer brass spring, *b*, and inner steel spring, *c*, soldered or otherwise united together, to provide for the contraction of the whole spring when exposed to heat of the burning gas. This compensating-spring is bent to extend on opposite sides of the burner and to pass up over or in proximity to the top of the burner around or outside of the burner-tip *d*. Its one lower end, *e*, is secured to the burner and its opposite end, *f*, is left free or loose and provided with a catch, *h*, having notches or teeth *i k*, arranged one above the other on opposite sides or edges of it. These notched portions engage, respectively but not simultaneously, with pins *l m* on

a plate or piece, D, secured to one end of the cock B, said pins being arranged at a slightly greater distance apart than the notches or teeth *i k* of the catch. Pivoted to the cock, as at *n*, is a weighted lever, E, which is held up to its place on or against the outside of the plate D by a spring, *o*, a bent arm of the lever then resting against a fixed stop, *r*, or upper end of a cam-shaped lever, G, pivoted at its upper end, as at *s*, to said stop, and being arranged on its back to come in contact with the free end of the spring C or catch *h* thereon. On the plate D may be a pin, *u*, for the lever E to strike or bear against when closing the cock by hand through the intervention of said lever, but this pin might be dispensed with, as the tension of the spring *o* may be sufficient to secure the turning of the cock by the lever.

The several parts are so arranged and set that when the cock B is closed the lever E occupies an approximately vertical position with its weighted end downward. Upon raising said lever to an approximately horizontal position, the plate D turning with it, the pin *l* is caused to engage with the notch *i* in the catch *h* on the free end of the spring C; but the pin *m* while opposite and a little in advance will be out of engagement with the notch *k*. The gas escaping from the burner-tip, the cock B being open, may then be lighted, and on the spring C becoming heated by the flame the same will be contracted, owing to the difference in the expansive force of the two metals of which said spring is composed. This will cause the outer notched portion, *i*, of the catch *h* to disengage itself from the pin *l*, and at the same time, by the contraction of the spring C, will cause the notched portion *k* of the catch *h* to become engaged with the pin *m*, thus preventing the cock from closing. The gas may now burn as long as required. Should it, however, be extinguished by accident—be blown out, for instance—the spring C upon cooling will expand and the notched portion *k* of the catch be disengaged from the pin *m*, while the notch *i* will be out of engaging line with the pin *l*, and as a consequence the weighted lever E will drop, and turning the plate D along with it will close the cock B and shut off the escaping gas. When, however, it is desired to close the cock by hand

to extinguish the flame, then the lever E being raised and the several parts in the position hereinbefore stated when the gas is burning, said lever is simply depressed by the fingers, which will cause its bent arm to act upon the pivoted cam-piece or tripping-lever G, that will be pressed inward against the compensating spring C or its attached catch *h*, releasing said catch from the pin *m* and keeping it from possible engagement with either pin *m* or *l* and permitting of the free drop or adjustment of the lever E to close the cock.

It will be obvious that the shape or construction of the compensating-spring and the construction of the interposed engaging and disengaging devices between said spring and the operating weight or weighted lever may be variously modified without substantially changing the invention. One such modification is shown in Figs. 4 and 5.

The modification shown in Figs. 4 and 5 represents two compensating-springs C C as being used—that is, one on either side of the burner. These springs are secured at their one end, *e*, to the burner, while the other end, *f*, of each is constructed to engage respectively and successively, when the weighted lever E is raised and the gas is lighted, with pins *l m*, on opposite sides of the plate D, to hold said lever raised and the cock open. Thus the free end of the one spring C has an aperture, *a'*, to effect the first engagement with the plate D by the pin *l*; or a hook may be substituted for the aperture. On the gas being ignited and the springs becoming heated and contracting, this spring C will be disengaged from the pin *l*, and the other spring C be made to engage with or rest on the other pin, *m*, to hold the cock open until the gas is accidentally extinguished or blown out, when the expansion of the free end of the last-named spring will carry it out from the plate D, so as to disengage it from its pin *m*, and the other spring C being then out of engaging position the weighted lever will drop and close the cock.

Either spring C C may be released from its respective pin *l* or *m* after the gas has been lighted, and when it is required to close the cock by hand, by bearing down on the weighted lever E and causing tripping devices or attachments G G, forming part of or secured to said lever, to pass as wedges in between the free ends of the springs C C and the sides of the plate D they are next adjacent to, and to force them away from said plate and out of possible engagement with the pins *l m*, thus allowing, as in the first-described construction of the automatic gas-burner shown in Figs. 1, 2, and 3 the weighted lever to drop or be

adjusted into its downward position to close the cock.

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

1. The combination, with a gas-burner and one or more thermostatic springs having one end connected to the burner, and having its free end provided with a catch having notches, and the plate or disk connected to the cock of the burner, and carrying projections or pins arranged a greater distance apart than the notches of the catch, intermediately of which is disposed the notched spring-catch, of the weighted lever pivoted concentrically of the axis of said cock, and a spring connected to the disk or plate and resting against the lever, the notches of said spring-catch engaging successively with the pins or projections of the disk or plate, substantially as and for the purpose set forth.

2. The combination, with a gas-burner and one or more thermostatic springs having one end connected to the burner, and its free end provided with a catch having notches, and the plate or disk connected to the cock of the burner, and carrying a single projection or pin on one side, and projections or pins on the opposite side, intermediately of which latter pins is arranged the notched spring-catch, of the weighted lever pivoted concentrically of the axis of the gas-burner cock, and having engagement with the single pin of said disk or plate, and the spring connected to said plate or disk, and having its one end resting against the said lever, substantially as and for the purpose specified.

3. The combination, with a gas-burner and one or more thermostatic springs having one end connected to said burner, and having its free end provided with a catch having notches and a plate or disk connected to the cock of the burner, and carrying pins or projections, intermediately of which said catch is arranged, of the weighted lever pivoted concentrically of the axis of the cock of the burner, and having an arm, the spring connected to said plate or disk and resting against said lever, and the tripping-lever connected to the disk or plate and acting upon the free end of the spring, said arm of weighted lever engaging with said tripping-lever, and the notches of the spring-catch engaging successively with the pins or projections of the disk or plate, substantially as and for the purpose set forth.

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Witnesses:

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