J. L. MILLER, H. H. TALLMADGE & E. BROWN

Lighting Device for Gas-Burners.

No. 211,102. Patented Jan. 7, 1879.

Fig. 1.

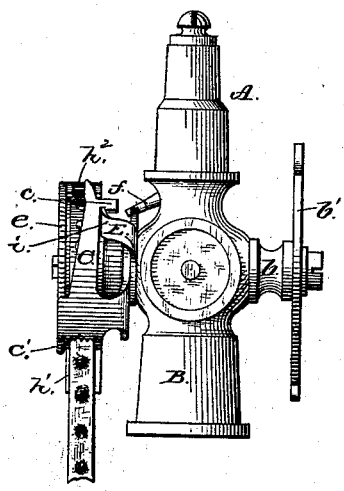


Fig. 2.

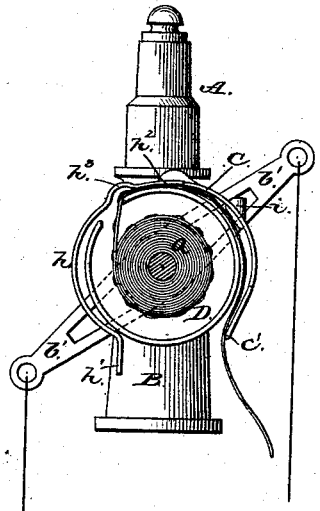


Fig. 4.

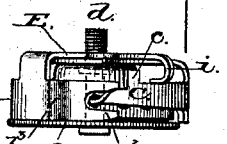


Fig. 5.

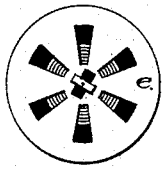
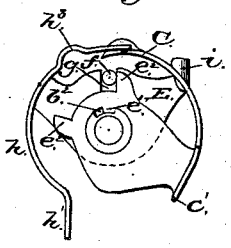


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN L. MILLER, OF WASHINGTON, DISTRICT OF COLUMBIA, AND HENRY H. TALLMADGE AND ELIJAH BROWN, OF NEW YORK, N. Y.

IMPROVEMENT IN LIGHTING DEVICES FOR GAS-BURNERS.

Specification forming part of Letters Patent No. **211,102**, dated January 7, 1879; application filed December 10, 1878.

To all whom it may concern:

Be it known that we, JOHN L. MILLER, of Washington city, District of Columbia, and HENRY H. TALLMADGE and ELIJAH BROWN, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Self-Lighting Gas-Burners; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of our invention. Fig. 2 is a front elevation, with the cap or cover of the fulminating-chamber removed. Fig. 3 is a view showing cam and operating mechanism working the hammer and feed. Fig. 4 is a top view of the fulminating-tape chamber and exploding mechanism, and Fig. 5 is a view of the perforated cover.

This invention relates to self-lighting gas-burners wherein a chamber for containing the fulminating-ribbon is attached to the plug-cock, and provided with suitable feed mechanism and a spring-hammer for exploding the fulminating-pellets on the ribbon when the gas is turned on, the whole operation being performed by the turning on and off of the gas, all of which will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawing similar letters of reference indicate corresponding parts of the invention.

A is an ordinary gas-burner attached to a simple taper plug-cock, B, the plug *b* of which is provided at its larger or outer end with the rocking lever b^1, its smaller end carrying the spring-hammer C and fulminating-tape chamber D. The screw *d* passes through the center of the chamber D, securing it and the spring-hammer to the plug *b*. The outer end of the screw *d* is provided with a rectangular head, which passes through a corresponding rectangular slot in the cover *e* of the chamber D, said cover *e* being held securely and in its place by placing it on the screw *d*, under the rectangular head, and simply turning a quarter of a circle, so as to bring the slot in the cover to a right angle with the head of the screw *d*. A roll of fulminating-tape, *a*, is coiled within the chamber D. The cover *e* is radially perforated to allow inspection of the contents of the fulminating-chamber D.

The smaller end of the taper plug *b* is provided with a slot or keyway, b^2, cut in the direction of its length. The recessed end of the chamber D, which is secured to the smaller end of the plug *b*, is made to encircle the plug *b* at its end, and has a corresponding projection, e^1, which fits into the slot b^2 of the plug *b*, thus rigidly securing the chamber D to it, whereby the motion given to the lever b^1 for operating the plug *b* is imparted to the chamber D.

The spring-hammer C encircles the smaller end of the plug *b*, and is provided with a projection, which fits into the slot b^2 in the plug *b*, but which does not completely fill the slot b^2, thereby allowing lost motion between the plug and hammer, the object of which will be hereinafter fully described.

The spring-hammer C is also provided with two circumferential projections, e^2 e^2, which alternately come in contact with a pin on the body of the cock B, the projections e^2 e^2 serving to limit the play of the hammer C, and, as the hammer C is attached to the plug *b*, thereby limits the play of the plug *b* itself, allowing it to be turned far enough one way to admit gas to the burner A, and reversely to shut it off.

The plate E, which encircles the smaller end of the plug *b*, is located between the spring-hammer C and the side of the cock B, and has a slot, *g*, which engages with the pin *f*, securing it rigidly in place, and preventing it from having any motion whatever.

The plate E has an extension, *h*, bent at a right angle to it, so as to extend partially around the periphery of the chamber D. The lower end, h^1, of the plate E is turned radially outward, as shown, and its upper end, h^2, is forked, to hold the fulminating-pellets in place, and prevent the tape buckling or puckering while the hammer C explodes them. Immediately back of the forked end h^2 the extension *h* is raised, as shown at h^3, to hold the next pellet in its proper place while the preceding one is being exploded. The space

between the raised portion h^3 and the forked end h^2 is just equal to the space between the pellets on the tape.

The plate E is also provided with a V-shaped projection or trigger, i, which comes in contact with an extension, c, of the hammer C, causing the hammer to ride upon and over it, thereby raising the hammer by the operation of turning on the gas, and allowing it to fall and explode the pellet; and as the gas is turned off the operation is reversed, the hammer projection c passing under the trigger i, causing it to impinge upon the tape between it and the periphery of the chamber D, and draw out sufficiently to place another pellet between the forked end h^2 in position to repeat the operation of exploding the pellet and lighting the gas. The rear end, c', of the spring-hammer C is provided with sharp teeth, which carry the used tape around and against the radial arm h^1, which operation serves the purpose of giving the tape a downward inclination, which prevents it from continuing around the chamber, and interfering with and becoming entangled with the exploding mechanism, obviating a fault heretofore common in this class of gas-lighters. At the same time the teeth, pressing the tape against arm h^1, partially perforate it, making it easy to sever when it becomes too long.

The operation of the device is as follows: The gas being off, the lever b^1 is at its limit to the left. On turning it to the right the cock allows the gas to pass through it and out at the burner A. At the same time the hammer C is carried forward, the projection c strikes the rigid trigger i, rides upon and over it, and after passing over it the hammer falls upon and explodes the pellet, thereby lighting the gas.

We are aware that this has been done before; but the operation was uncertain; and the self-lighting burners heretofore constructed were not reliable, owing to the imperfections in the feeding and exploding mechanism, and also in the manner of producing the lost motion, which was heretofore accomplished by an angular projection working on the usual cut-away portion of the taper plug-cock, which in practice is subject to wear, and is not positive in its action.

In our invention we have overcome these difficulties and produced a perfect and reliable self-lighting burner that will not fail, and yet so simple in construction that with ordinary care it will last a life-time.

Having thus described our invention, what we claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. The plug b, provided at its smaller end with the keyway or slot b^2, in combination with the spring-hammer C, having projection e^1, working in slot b^2, so as to produce a lost motion, substantially as and for the purpose set forth.

2. The plate E, having the radial projection h^1, in combination with the spring-hammer C, having teeth at its lower end, c', and stops e^2 e^2, and the lever b^1, substantially as and for the purpose set forth.

3. In a self-lighting gas-burner, the plate E, the projection h of which is provided with the forked end h^2 and raised portion h^3, in combination with the spring-hammer C, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JOHN L. MILLER.
HENRY H. TALLMADGE.
ELIJAH BROWN.

Witnesses to signatures of Miller and Tallmadge:

E. H. BRADFORD,
H. J. ENNIS.

Witnesses to signature of Elijah Brown:

T. F. GIBBONS,
THOMAS J. HOEN.