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

Automatic Gas-Lighter.

No. 206,032. Patented July 16, 1878.

Fig. 1.

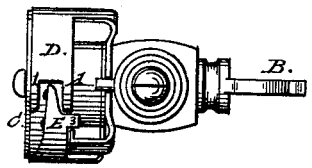


Fig. 2.

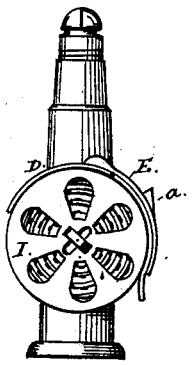


Fig. 4.

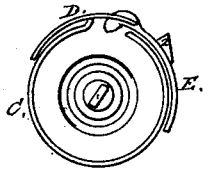


Fig. 5.

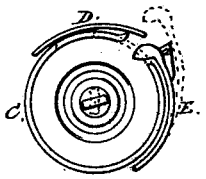
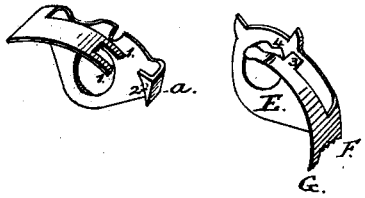


Fig. 3.



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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 AUTOMATIC GAS-LIGHTERS.

Specification forming part of Letters Patent No. **206,032**, dated July 16, 1878; application filed May 20, 1878.

To all whom it may concern:

Be it known that we, JOHN L. MILLER, of Washington, in the county of Washington, District of Columbia, HENRY H. TALLMADGE, of New York, in the county of New York and State of New York, and ELIJAH BROWN, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Gas-Lighters, which is fully set forth in the following specification.

Our invention has for its objects to overcome the many defects in the construction of the ordinary automatic gas-lighting apparatus resulting from the absence of suitable organization and arrangement of the several parts; and with these ends in view our invention consists in the peculiar construction and arrangement of the several parts whereby the percussion-pellets are positively drawn and held in position to be exploded by the spring-hammer, as will be presently more fully explained.

Our invention also consists in forming the tail of the spring-hammer with suitable serrations and projections to insure the ready severance of the useless projecting tape, as will be hereinafter more fully set forth.

Our invention also consists in a novel cap or cover to the tape-receptacle, and the mode of securing the same in place.

In the gas-lighters generally in use, and of that class to which our invention relates, considerable difficulty is experienced in bringing the successive pellets into position to be exploded by the spring-hammer, which is due to the failure of the hammer to hold the tape with sufficient tenacity to draw it from its receptacle as the gas-cock is closed, or to prevent its retreat when the cock is opened, and as a result of the mislocation of the pellets. When the cock is opened to admit the passage of gas and to raise and let fall the hammer, the latter not striking the pellet, it fails to be exploded, and thus the device is ineffective. Another disadvantage existing in the lighters referred to consists in the absence of any means for effectually severing the used or waste tape, which, as its length increases, tends to wrap around the box or receptacle and interfere with the working of the hammer. And still another disadvantage in the class of lighters referred to consists in the awkward construction and arrangement of the cap or cover to the box, which consists, usually, of a flanged cover, the flange designed to enter the box in frictional contact with its circular wall, and when the tape is introduced in its coiled condition it becomes exceedingly difficult to introduce the cover without the flange coming in contact with the same.

Our invention overcomes all of the objections and disadvantages named, and, while the lighter is simple and economic in construction, is positive and effective in its operation.

To enable those skilled to understand the construction and operation of our improved gas-lighter, we will proceed to describe the same in detail, referring by letters to the accompanying drawings, in which—

Figure 1 is a top view of a gas-burner with one of our improved lighters attached. Fig. 2 is a back elevation of the same; Fig. 3, a perspective view of the spring-hammer and its trip. Fig. 4 is a rear view with tape-box open and tape removed, and the hammer in position assumed to explode the pellet; and Fig. 5 is a similar view, showing hammer held down by the trip, the dotted lines showing position of hammer when it has been raised and just before it falls.

Similar letters denote like parts in the several figures.

A represents the burner, and B the gas-cock, to the rear end of which is secured the tape-box C, of sheet-metal, and cylindrical in form. D is the usual sheet-metal spring, one end of which lies over the opening in the top of the box C, from which the tape is fed, and the other formed into a trip, to trip the spring-hammer E. This spring D differs from those in use in the forms of the two extremities. That portion lying over the tape-orifice is extended and bifurcated, forming two prongs, 1 1, and leaving a space between them for the hammer to strike the outside wall of the box C, the object of this construction being to "strip" the tape from the hammer after a pellet has been exploded, and which has a tendency to adhere to the hammer, producing, on the reverse movement of the gas-cock, a buck-

ling of the tape. The other end of the spring D has the usual trip-surface *a*, bent over to form an angular face, 2, the inclined lower edge of which is about concentric with the periphery of the box C, and distant above the same about the thickness of the projection 3 on the spring-hammer E, and slightly thickened up at its lower edge, for the purpose hereinafter explained.

The hammer E is made in the usual form, except that the lower end is serrated, as shown at F, and formed with a short lip, G, the latter holding the waste-tape against lateral thrust, while the serrations F sever the tape.

The flat portion of the hammer-plate, which fits in position over the rear end of the gas-cock, is stumped out, leaving an inwardly-projecting angle, 4, one side of which passes the usual cut-away on the cock, and permits the rotation of the same without affecting the hammer until the cut-away reaches the other side of the angle 4, so that the cock may be turned to lower the flame without changing the position of the hammer; and likewise a partial reverse movement may be made to return the box C to position while the projection 3 rests against the lower thickened edge of strip, and the point of the spring-hammer presses on the tape and prevents its retreat with the box.

Instead of the usual nicked screw for confining the several parts to the cock, we employ a screw extending axially through the box to form a shaft or spindle for the tape to revolve upon, and having its extreme end formed into a sort of flattened button, over which the cover I is passed by a longitudinal slot or opening in the center, which cover is secured in place by rotating it into about the position seen at Fig. 2, the under edges or shank of the button being so fashioned as to draw the cover tight. This cover we also make open or perforated, in order that the tape within the box may be inspected to ascertain the quantity contained without removing the cover.

Having described the construction, we will now briefly explain the operation of the several parts of our improved lighter.

When the gas is on, the parts are in the position seen, as shown at Fig. 1, the hammer having exploded the exposed pellet between the prongs 1 1 of the spring D. As the cock is rotated to shut off the gas the box C is rotated, and by reason of the peculiar form of the orifice in the back-plate portion of hammer-spring, previously explained, the hammer remains until its point is permitted to drop into the usual tape-opening in the wall of the box, thus closely confining the tape. Continuing the rotation of the cock, the hammer is also rotated with it, and the projection 3 is forced under the angular pieces 2 of the spring-trip, and thus firmly presses the point of the hammer against the tape and box, insuring the movement of the tape with the box until the gas has been completely turned off. Now, on the return movement of the cock the projection 3 on the hammer strikes the thickened edge of the trip, and is temporarily arrested, while the box continues, independently of the hammer, until a sufficient length of tape has been drawn out by the contact of the hammer to expose a single pellet. The hammer-projection then mounts the trip *a* and is raised up, while the box continues and carries the exposed pellet between the prongs 1 1, where it is held by the spring D until the projection 3 of the hammer passes over the top of the trip and explodes it.

It will be observed that the cock may be turned from the full-head position shown at Fig. 1 to the point where the projection 3 on the hammer is about to be released from under the angular fuse 2 of the trip, and back again to full head, without affecting the tape, so that the gas may be turned to a taper and again raised without disarranging the parts or wasting a pellet.

What we claim as new, and desire to secure by Letters Patent, is—

1. The feed-spring D, having its upper end extended and slotted, substantially as and for the purpose set forth.

2. The hammer-trip A, formed with an angular face, 2, for forcing down and confining the hammer, substantially as and for the purpose set forth.

3. The hammer-plate E, having its lower end serrated at F, and provided with the lip G, substantially as and for the purpose set forth.

4. The open box-cover I, with a central longitudinal slot, in combination with the securing-screw extended and formed with a button, substantially as and for the purpose set forth.

Witness our hands.

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

Witnesses to the signature of Jno. L. Miller:

F. H. SIMPSON,
JOHN HARTNETT.

Witnesses to the signature of Henry H. Tallmadge:

GEO. BURGESS,
WM. C. MCINTIRE.

Witnesses to the signature of Elijah Brown:

T. FRANCIS GIBBONS,
THOMAS F. BYRNE.