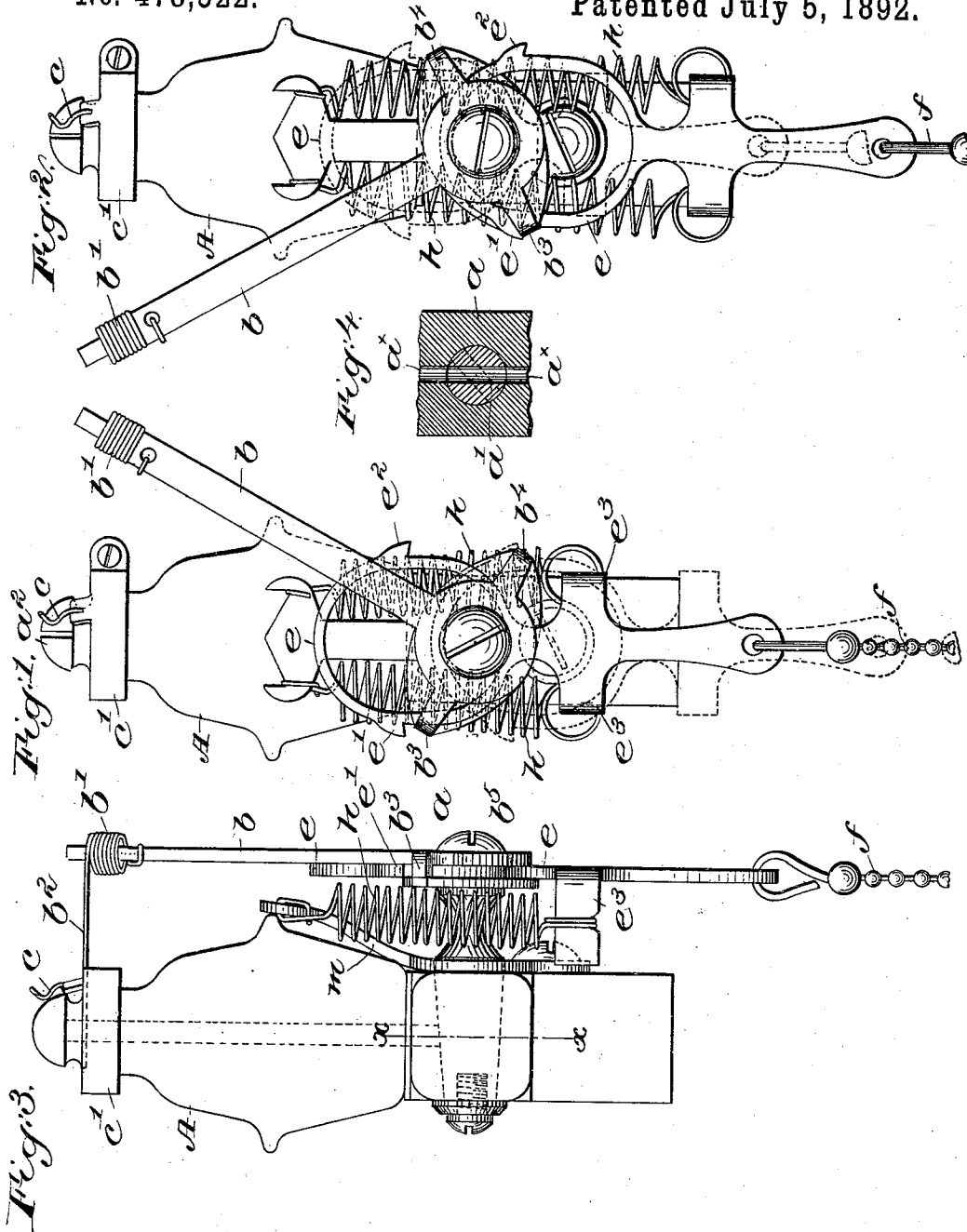


(No Model.)

D. J. QUINN & P. W. HOFFMANN.  
GAS LIGHTING DEVICE.

No. 478,522.

Patented July 5, 1892.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 478,522, dated July 5, 1892.

Application filed November 27, 1891. Serial No. 413,290. (No model.)

*To all whom it may concern:*

Be it known that we, DAVID J. QUINN, of Brookline, county of Norfolk, and PAUL W. HOFFMANN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Electric Gas-Lighting Attachments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to electric-lighting attachments for gas-burners, and has for its principal object to improve the same, whereby a greater movement of the gas-plug may be produced in order to avoid as far as possible all danger of leakage.

Another object of this invention is to provide improved mechanism for actuating the spark-striking arm.

Figure 1 represents in elevation a gas-lighting attachment embodying this invention; Fig. 2, a similar view with the parts in different position; Fig. 3, a side elevation of the device, as shown in Fig. 1, and Fig. 4 a sectional detail of the valve.

Referring to the drawings, A represents a gas-burner of usual form and construction, it having an interior gas-passage  $a^x$  controlled by a suitable plug or other valve  $a$ , a passage  $a'$ , which extends laterally through said valve, registering with the passage  $a^x$  when the valve is in one position, to permit gas to rise through the passage  $a^x$  to the tip or burner  $a^2$ , such passage being cut off by rotation of the said valve into its other position, as represented by dotted lines.

The valve  $a$  projects through the body of the burner A, as represented, and has fixed to its outer end the spark-arm  $b$ , carrying the coiled spring  $b'$ , the extended end  $b^2$  of which is adapted to co-operate with the fixed contact  $c$  on the ring  $c'$ , clamped about and insulated from the burner A, to strike a spark when the said spark-arm is vibrated, as will be fully hereinafter described.

The spark-arm  $b$  at its pivotal center is provided with two diametrically-opposite ears  $b^3$   $b^4$ , having their ends turned in at right angles to abut against the face of a plate  $b^5$ , also fast on the projecting end of the valve  $a$ . The

plate  $b^5$  is separated from the arm  $b$  by a space sufficient to admit the sliding frame  $e$ , oval in shape and spanning the end of the valve, as shown, said frame at its opposite sides having projections  $e'$   $e^2$ , adapted to co-operate with the inturned ears  $b^3$   $b^4$  on the spark-arm to move the latter when the frame is drawn down by a suitable pull  $f$ . The frame  $e$  has a substantially linear movement and is returned to and normally held in its uppermost position by a pair of springs  $h$ , arranged at opposite sides of the valve  $a$ , said springs at their upper ends being attached to the fixed bracket  $m$  and at their lower ends to the inturned arms  $e^3$  on the frame  $e$ , and said arms may be extended to straddle the neck of the burner A, so as to guide the frame in its vertical movements.

In practice the fixed contact  $c$  on the ring  $c'$  will be connected in usual manner with one pole of a battery or other generator of electricity, while the other pole of the battery will be connected with the gas pipe or burner A and its arm  $b$ ; and, assuming the parts to be in the positions represented in the drawings, Fig. 1, with the valve  $a$  closing the gas-passage  $a^x$ , the operation of the device may be described as follows:

The frame  $e$  will be drawn down by means of the pull  $f$ , causing the projection  $e'$  thereon to catch on the inturned ear  $b^3$  on the arm  $b$  and turn the latter to rotate the valve  $a$  into its position Fig. 2, to permit the gas to rise through the passage  $a^x$  to the tip  $a^2$ , and as the arm  $b$  is moved from its position Fig. 1 to its position Fig. 2 the extended end  $b^2$  of the spring  $b'$  will wipe over the contact  $c$  to close the electric circuit, and as the said end  $b^2$  springs away from the fixed contact after closing the circuit it will strike a spark, to ignite the gas rising through the tip  $a^2$ . The pull being released the springs  $h$  will return the frame  $e$  to its normal elevated position, as represented in dotted lines, Fig. 2, the central opening in the frame where it spans the valve  $a$  being of sufficient size to permit the frame to move laterally to one side as it is restored to its normal position, in order that it may pass up between the ears  $b^3$   $b^4$ . The frame  $e$  having been returned to its normal

position, as in dotted lines, Fig. 2, the flame may be extinguished by again drawing down the frame *e*, which will cause the other projection *e*<sup>2</sup> to catch on the inturned ear *b*<sup>4</sup> or the arm *b* to rotate the valve *a* in the opposite direction back to its former position, to close the passage *a*<sup>x</sup> and extinguish the flame, such movement of the valve carrying the arm *b* back to its former position Fig. 1. Drawing down the frame *e* thus operates to alternately ignite and extinguish the gas, and the range of movement of the valve *e* is so great that there is practically no possibility of leakage.

This invention is not limited to the exact arrangement and construction herein shown and described, for the same may be varied without departing from the spirit and scope of this invention.

We claim—

1. A gas-burner and a rotatable valve to control the passage of gas thereto, a spark-arm fast on and movable with said valve, and a co-operating fixed contact, combined with a reciprocating actuating device for said valve and spark-arm, substantially as described.

2. A gas-burner and a rotatable valve therefor, a pivoted spark-arm provided with ears, and a co-operating fixed contact, combined with a frame having projections to engage the said ears, respectively, on alternate downward movements of said frame to oscillate said valve and arm, substantially as described.

3. A gas-burner, a rotatable valve therefor, a pivoted spark-arm provided with diametrically-opposite ears, and a co-operating fixed contact therefor, combined with a frame span-

ning said valve and having projections upon its opposite sides to engage the said ears to oscillate the said valve and arm when the frame is drawn down, and a spring to return said frame to its normal position, substantially as described.

4. A gas-burner, a rotatable valve therefor, a pivoted spark-arm provided with ears, and a co-operating fixed contact therefor, combined with a frame *e*, having projections to engage said ears and having the guide-arms *e*<sup>3</sup>, substantially as described.

5. A gas-burner, a rotatable valve therefor, an arm fast on said valve and provided with inturned ears, the plate *b*<sup>5</sup>, and a fixed contact to co-operate with said arm, combined with the frame *e*, arranged between said arm and plate and having projections to co-operate with said ears and the springs *h*, substantially as described.

6. A gas-burner, a rotatable valve therefor, an arm fast on said valve and provided with inturned ears, the plate *b*<sup>5</sup>, and a fixed contact to co-operate with said arm, combined with the frame *e*, arranged between said arm and plate and having projections to co-operate with said ears, the bracket *m*, and the springs *h*, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

DAVID J. QUINN.

PAUL W. HOFFMANN.

Witnesses:

FREDERICK L. EMERY,  
FRANCES M. NOBLE.