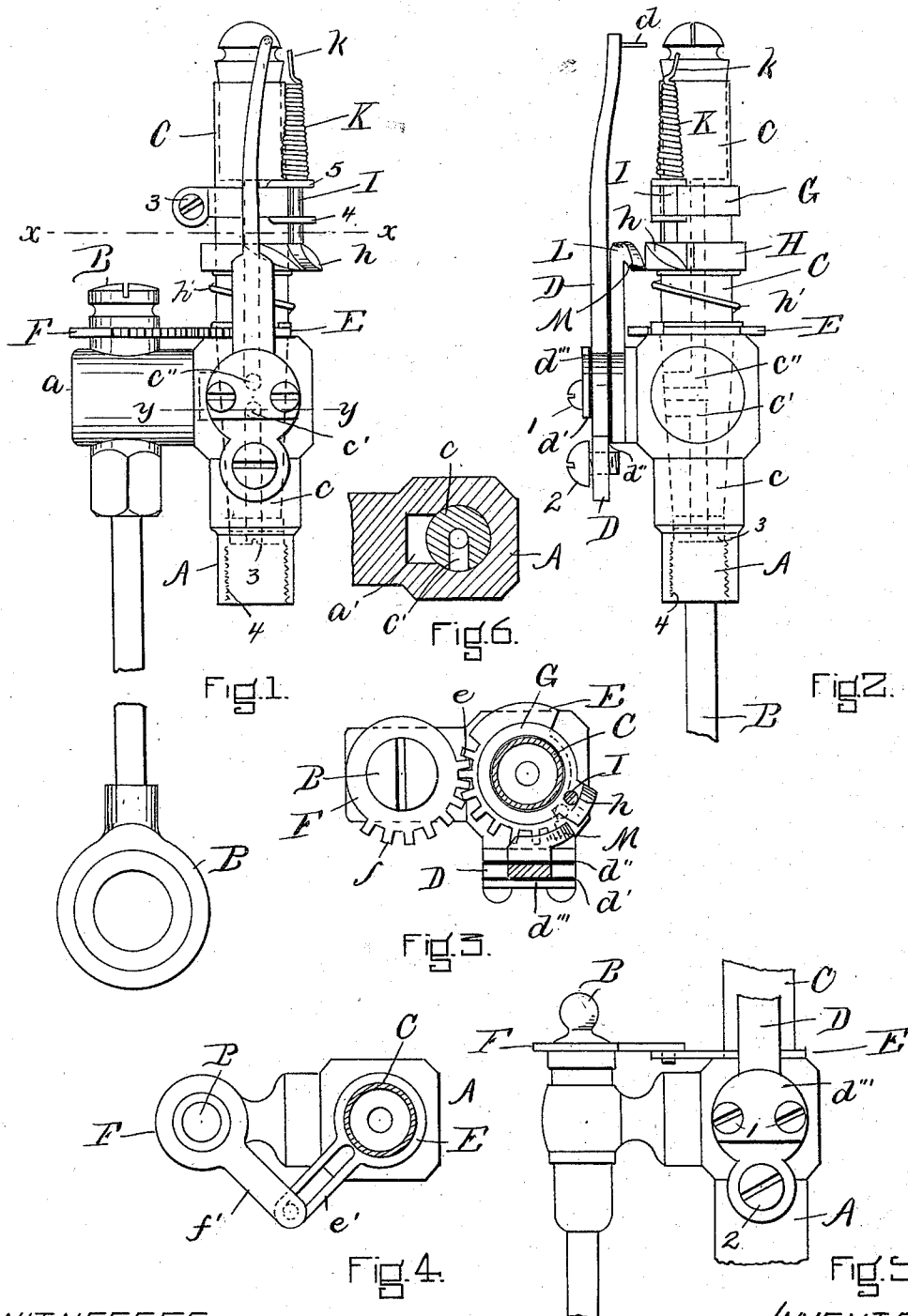


(No Model.)

J. A. & G. A. O'NEILL.
ELECTRIC GAS LIGHTING BURNER.

No. 555,968.

Patented Mar. 10, 1896.



WITNESSES.

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SAME PLACE.

ELECTRIC GAS-LIGHTING BURNER.

SPECIFICATION forming part of Letters Patent No. 555,968, dated March 10, 1896.

Application filed November 16, 1895. Serial No. 569,210. (No model.)

To all whom it may concern:

Be it known that we, JAMES A. O'NEILL and GEORGE A. O'NEILL, of Boston, county of Suffolk, and Commonwealth of Massachusetts, have invented a new and useful Improvement in Electric Gas-Burners, of which the following is a specification.

Our invention relates to that class of burners in which the gas-valve is operated by a thumb-key and not by a chain, and in which the gas is turned off or turned on by the use of the thumb and finger, and also in which the gas-burner pillar is rotated and carries with it one of the spark-making electrodes.

Our invention consists in changes in the construction and method of operation by which two novelties are accomplished: First, the handle is not an extension of the gas pillar or plug, by reason whereof the burner can be placed upon the ordinary gas fixture or bracket and an ordinary shade used in connection with the same, thus avoiding a special arrangement for the gas-shade and thus avoiding a special arrangement or any other departure from an ordinary gas-fixture, thus insuring a better flow of gas and doing away with unnecessary elbow-joints. The second novelty is in the devices for operating the movable electrode, which, although old as an element, is put into a different combination with the other old elements and has a different method of operation.

Our invention will be clearly understood from the following drawings, in which similar letters and figures refer to similar parts, and in which—

Figure 1 is a view of the entire burner, showing the key and its connections for operating the gas-valve. Fig. 2 is a side view of the burner, in which the key is not shown, but the devices for raising and lowering the electrodes are shown. Fig. 3 is a horizontal section through the line X X of Fig. 1. Fig. 4 is a horizontal section showing an alternative arrangement for communicating the motion of the thumb-key to the revoluble burner-pillar. Fig. 5 is a plan of the way of connecting the device shown in Fig. 4 with the

revolving pillar. Fig. 6 is a section through the line *y y* of Fig. 1.

The parts of our invention are as follows:

A is the burner-body, having the side extension *a*, in which the key B is supported.

C is the burner-pillar, which extends down into the body A and tapers, as shown by dotted lines in Figs. 1 and 2, into a valve portion *c* (shown in section in Fig. 6 and by dotted lines, Figs. 1 and 2) and having the ports *c' c''*.

A is provided at its lower extremity with the screw-thread 4 to attach it to the gas-bracket. The tail-screw 3 holds the valve part and burner-pillar within the body A. The gas passing up the bracket is emitted through the port *c* into the space *a'* of the portion *a* and again enters the burner-pillar through the port *c''*, the valve being solid between said ports, and so on to the burner-tip, whenever the burner-pillar is revolved, as hereinafter described, so as to bring the port *c'* opposite to the space *a'*.

D represents the fixed electrode, which is fastened by the pins 1 and 2, of which pin 1 holds the cap *d^s*, insulations *d' d''*, and the part L, together with said electrode D, to the side of the burner-body A, as shown best in Fig. 2.

d is the end of the stationary electrode, with which the movable electrode makes and breaks contact, as hereinafter described.

E is a fixed collar surrounding the burner-pillar C having the teeth *e* or the link *e'*, according to its construction, as hereinafter mentioned.

F is the collar rigidly connected with the key B and having either the teeth *f* or the arm and pin *f'*, according to its construction, as hereinafter mentioned.

G is a permanent collar fastened to the burner-pillar C by the pin 3 and having the guide parts 4 5.

H is a movable collar encircling the burner-pillar C and having the cam part *h* and supported upon the spiral spring *h'*, which normally holds said collar in the position shown in Figs. 1 and 2. I is a pin rigidly soldered

to and moving with said collar H and extending up into the spiral spring K through the guides 4 and 5. The spiral spring K terminates in the movable electrode *k*.

5 L is a hook or detent piece having the head M, which is adapted to gear with the cam *h* of the collar H in the operation of the burner, as hereinafter described.

The sectional Fig. 6 shows the body A, the lower tapering-valve portion *c* of the burner-pillar C, its port *c'* in the position when the gas is turned off, as in Fig. 1, and said Fig. 6 also shows the space *a'* in the extension *a* of the body A, opposite which the port *c'* is brought when the gas is turned on.

15 The alternative methods of operating the gas-cock and burner-pillar by means of a key situated outside of the line of the ordinary gas bracket and burner are best illustrated in Figs. 3 and 4. Either may be used which is preferred without departing from the general scope of our invention, the only difference being that in the one case some nicety of workmanship should be observed in constructing the parts with the teeth, as shown in Fig. 3; or if the construction in Fig. 4 be preferred then care will be exercised to make the size and adjustment of the arms *f'* and *e'* conform to the extent which it is desired to give to the rotation of the burner-pillar—usually one-quarter of a turn. As the plug of the valve is inserted in the barrel or body of the burner from above and is slightly tapered toward the end, as is the small end of the body, leakage of gas is unlikely, even if the tail-screw be omitted.

Of course there may be some change in details of construction without departing from our invention. For instance, we might keep the plug in the barrel by a flat spring fastened to the top thereof and made to bear on the plug, and we might further modify the devices for communicating motion to the gas-cock.

25 The operation of the burner can now be described as follows, and will be substantially the same whether the connecting-gear between the key B and the rotating pillar C be as shown in Fig. 3 or in Fig. 4: The burner being in its normal condition, with the gas turned off, as shown in Fig. 1, upon a quarter-turn being made of the key B the movable pillar will be rotated an equal distance by means of the intermediate mechanism shown in Fig. 3 or in Fig. 4, and in rotating the port *c'* in the valve part of the pillar will be brought opposite the space *a'*, thus turning on the gas. Contemporaneously with this operation the rotation of the pillar C will cause the cam *h* upon the collar H to pass over the surface M of the piece L, thereby raising the collar until the movable electrode *k* passes into and out of contact with the end *d* of the fixed electrode, causing a spark by the rupture of the same and igniting the gas. When the cam part *h* passes beyond the sur-

face M, so as not to be longer supported thereby, the stress of the spring K will restore the collar H to the position shown in Figs. 1 and 2, the said collar being held in its normal position by the coil of the spring *h'*.

Of course in turning the gas off the cam part *h* will evidently pass beneath the part M, the effect of which will be to depress said collar H against the stress of the coiled spring *h'* until the cam part *h* passes beyond the part M, whereupon said collar H will be restored to its normal position by the coiled spring *h'*. Upon reversing the operation of the key the gas will be turned off without making a spark.

Having thus described our invention, what we claim is—

1. In an electric gas-lighting burner, the movable collar H, having the cam *h* in combination with the spring *h'*, and the controlling-piece L, having the part M, as and for the purposes described.

2. In an electric gas-lighting burner, in combination with a body and a rotating burner-pillar, the movable electrode-rod I rigidly attached to the movable collar H, the spring-electrode K, the spring *h'*, the plate-piece E, the key B, and devices for connecting the key with the movable burner-pillar, the part L having the surface M and a fixed electrode, all substantially as and for the purposes described.

3. In an electric gas-lighting burner, the combination with a movable burner-pillar adapted to serve as a gas-valve, and provided with a proper movable electrode, of a valve-key situated out of line but, by intermediate devices substantially as shown, connected with said burner-pillar and horizontally attached thereto, and consisting substantially in the spring *h'*, collar H having the cam *h*, and the piece L as means for raising and lowering said movable electrode by the rotation of said burner-pillar, and a fixed electrode adapted to gear with the movable electrode, substantially as described.

4. In an electric gas-lighting burner, the combination with the burner-body A adapted to be connected with gas-brackets, substantially as described, of a burner-pillar tapering into a valve part at its lower extremity and provided with the ports *c'*, *c''*, and solid between said ports, and with a movable electrode and devices whereby the rotation of said burner-pillar will raise and lower the same, and a plate E rigidly connected with said burner-pillar and adapted to receive motion from a key situated in a different vertical plane therefrom, and a fixed electrode and a thumb-key and intermediate devices for communicating motion from said thumb-key to said burner-pillar, substantially as described.

5. In an electric gas-burner, the combination of a burner-body, substantially as shown, a movable burner-pillar, its lower extremity shaped into a plug substantially as described,

a vertically-movable spring-electrode, devices
for causing the elevation and lowering of said
spring-electrode simultaneously with the ro-
tation of said burner-pillar, a fixed electrode,
5 a thumb-key situated in a different vertical
plane from that of said body and pillar, and
intermediate devices for communicating the
rotation of the thumb-key to the burner-pil-
lar, substantially as described and shown.

In witness whereof we have hereunto set to
our hands, in the presence of two witnesses,
this 14th day of November, 1895.

JAMES A. O'NEILL.
GEORGE A. O'NEILL.

Witnesses:

FRED CHAMBERLIN,
STEPHEN A. FOSTER.