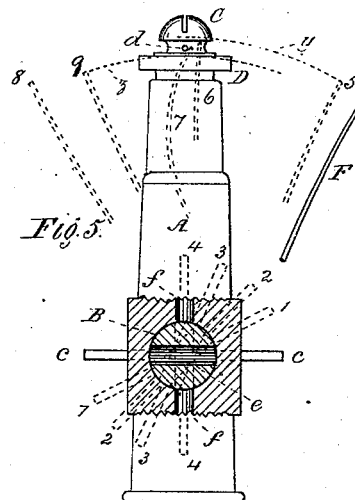
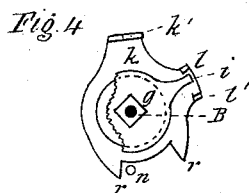
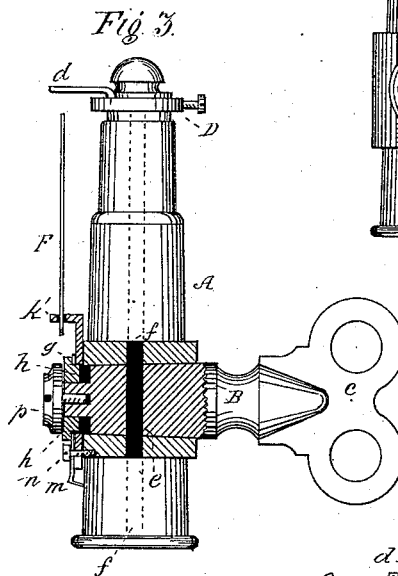
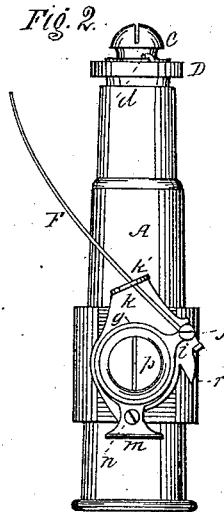
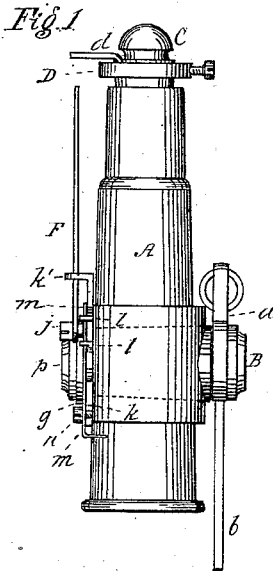


(No Model.)

A. L. BOGART.
ELECTRIC LIGHTING GAS BURNER.

No. 306,128.

Patented Oct. 7, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

A. LIVINGSTON BOGART, OF JAMAICA, NEW YORK.

ELECTRIC-LIGHTING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 306,128, dated October 7, 1884.

Application filed December 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, A. LIVINGSTON BOGART, of Jamaica, in the county of Queens and State of New York, have invented a new and useful Improvement in Electric-Lighting Gas-Burners; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to an improvement in electric-lighting gas-burners of the kind which have a fixed and a movable electrode to produce a spark, and a stop-cock that is operated in the usual manner, without a ratchet or other device for producing a step-by-step movement of the same; and the object of the invention is to construct a burner of this description in such manner that by the forward movement of the stop-cock the gas is turned on, an electric contact is made and a spark produced to ignite the gas, and the movable electrode is carried out of reach of the flame, and prevented from being again brought within the flame or in contact with the fixed electrode until the plug of the cock, in its return movement, has advanced beyond the point where the supply of gas is entirely shut off from the burner.

The invention consists in the combination, in an electric-lighting gas-burner having a stop-cock operated in the usual manner, without a ratchet or other device for producing a step-by-step movement, of mechanisms for turning on the gas, producing a spark, and carrying the movable electrode beyond and out of reach of the flame, and whereby said movable electrode is prevented, in its return movement, from either being brought into the flame or into contact with the fixed electrode until the gas has been entirely shut off from the burner in said return movement; and it also consists in the novel constructions and combinations of parts, all as hereinafter particularly set forth and described.

By means of my said invention the cumbersome and complicated mechanisms by which the above-mentioned results have heretofore been attained are entirely dispensed with, and a burner is produced which is extremely simple in its construction, very efficient in its operation, and easily managed.

In the accompanying drawings, Figure 1

represents a side elevation of my improved electric-lighting gas-burner. Fig. 2 is a front elevation of the same; Fig. 3, a side elevation partly in section; Fig. 4, a detail, hereinafter explained; and Fig. 5, a sectional elevation showing the relative movements of the movable electrode and the plug of the cock.

Similar letters of reference indicate the same parts in all the several figures.

A represents the pillar or body of the burner.

B is the plug, which may be operated either by a lever, *a*, and wire *b*, as shown in Fig. 1, or by a thumb-piece, *c*, as shown in Figs. 3 and 4.

C is the tip of the burner, and D an insulated metal ring or collar, carrying the fixed electrode *d*, which latter is located in close proximity to the orifice of the burner, in the usual manner. The plug B is a one-way plug, having but one gasway, *e*, and this gasway *e* and the gasway *f* through the burner are respectively of such diameter that about one-eighth of a complete revolution of the plug B will suffice to fully turn the gas on or off. The enlarged portion of the pillar A, through which the plug B is passed, is cut away or flattened on one side thereof, to permit the free play of the parts hereinafter described.

g is a ring or collar, having an opening at its center, which fits onto the squared end of the plug B, so that said ring is rotated by the plug. This ring *g* is provided with an annular flange, *h*, on that side thereof which is placed next to the pillar A, and is also provided with a short arm, *i*, to which the movable electrode F is attached by means of a set-screw, *j*, or similar means.

k is a plate having a circular opening at its center, which fits onto the annular flange *h* and moves freely thereon, and having also a loop, *k'*, formed at its upper end, through which the electrode F is passed. This plate *k* is also provided with two lips or projections, *l* and *l'*, between which the arm *i* on the ring *g* travels, and against which it impinges to move said plate *k* back and forth, so that when the plug B is turned forward to turn on the gas the arm *i*, after having moved from *l* to *l'* without moving said plate *k*, on coming in contact with *l* impinges against *l*, and thereby rotates the plate and moves forward the electrode F, and

when the plug is turned backward to turn off the gas said arm *i*, after having moved from *l* to *l'*, impinges against *l'*, thereby rotating said plate *k* and moving said electrode in the opposite direction. The plate *k* is thus rotated and the movable electrode *F* thereby moved to and fro by turning the plug *B*, and the projections *l* and *l'* are placed at a sufficient distance apart to permit the upper end of said electrode to rise above the level of the fixed electrode *d* and make contact therewith on the advance movement of the plug to turn on the gas, and to lower said electrode on the return movement of the plug, so that the upper end of said electrode will pass beneath the electrode *d* without making contact therewith.

The construction and relative arrangement of the ring *g* and plate *k* are most plainly shown in the detail, Fig. 4, which represents a plan view thereof.

m is a flat spring, the lower end of which is secured to the pillar *A*, and the upper end of which is made in annular form, its outer edges projecting over the edges at the center of the plate *k* and pressing on the latter. The purpose of this spring *m* is to produce a sufficient degree of friction between the flattened surface of the pillar *A* and the face of the plate *k*, to prevent the latter from turning while the plug is being rotated, so that it shall remain stationary until the arm *i* impinges against one or other of the projections *l* or *l'*, and carries said plate along with it.

n is a set-screw by which the spring *m* is secured to the pillar *A*, and which also serves as a stop to limit the extreme movements of the plate *k* and of the plug *B*, said plate having projections *r r*, which come in contact therewith.

p is a nut for keeping the plug and the parts above described in place, its stem being screwed into the end of the plug, as shown.

The operation is as follows, referring more especially to Figs. 4 and 5, and supposing the gasway *e* of the plug to be in line with the thumb-piece *c*: When the electrode *F* and plug *B* have been brought to the extreme limit of their return movement, they will assume the relative position shown by the full lines in Fig. 5, and the arm *i* rests against the projection *l'*. (See Fig. 4.) When the plug has been rotated a sufficient distance to bring *e* to the position indicated by 1 1, the arm *i* will have been brought into contact with the projection *l* and the electrode *F* raised to the position indicated by 5, the plate *k* having in the meantime re-

mained stationary through the action of the spring *m*. On the further advance of *e* to the line 2 2, *F* will have been carried to 6 by reason of the arm *i* rotating the plate *k*. On the further advance of *e* to the line 3 3, *F* will be brought to the position indicated by 7, in contact with the fixed electrode *d*, and the gasways *e* and *f* will then be in such relative position that on the further advance of the plug the gas will begin to flow through *e* into *f*. During the further advance from 3 3 to 4 4, *F* will spring past *d*, breaking contact and producing a spark while the gas is flowing through the orifice at the tip *C*, and be brought into the position indicated by 8, away from the flame.

The curved dotted line *y* indicates the line of motion of the upper end of *F* in its advance movement. On the return movement, when *e* arrives at the line 3 3, the arm *i* will have been brought against the projection *l'*, and *F* will have been lowered to the position indicated by 9, the plate *k* meanwhile remaining stationary. On the further return movement, when *e* has arrived at the line 2 2, the gas will be shut off from the burner and the top of *F* carried along the line *z*, beneath and out of contact with *d*. From this description it will be perceived that by turning the plug from 4 4 to 2 2 the gas will be entirely shut off, and hence the electrode *F*, on its return movement, is prevented from passing through the flame, and does not come in contact with the fixed electrode *d*, it being understood that the gas is shut off just before the top of *F* passes the electrode *d* and the orifice of the burner.

I claim—

1. In an electric-lighting gas-burner, a one-way plug, *B*, having its gasway *e* arranged in relation to the gasway *f* of the burner, as described, in combination with the ring *g*, provided with an arm, *i*, carrying the movable electrode, and the plate *k*, provided with the projections *l* and *l'* and loop *k'*, said ring *g* being rotated by the plug *B*, as described.

2. In combination with the plug *B* and electrode *F*, the plate *k*, having the loop *k'* and projections *l* and *l'*, the arm *i*, and the ring *g*, carrying said electrode *F*, said ring being attached to and operated by said plug *B*, as shown and described.

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