

(No Model.)

N. MARSHALL.

LIGHTING ATTACHMENT FOR GAS BURNERS.

No. 504,735.

Patented Sept. 12, 1893.

Fig:1.

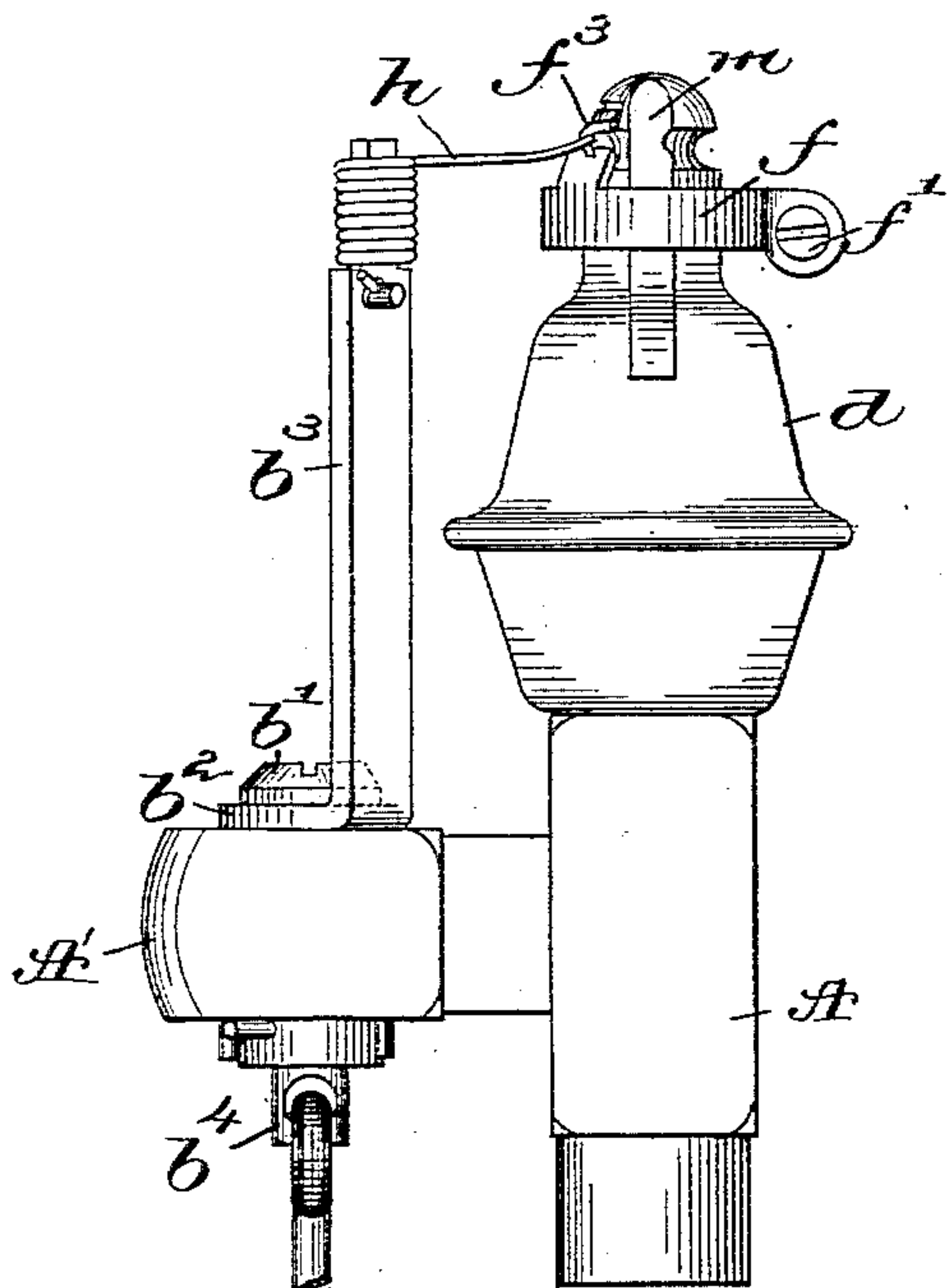


Fig:2.

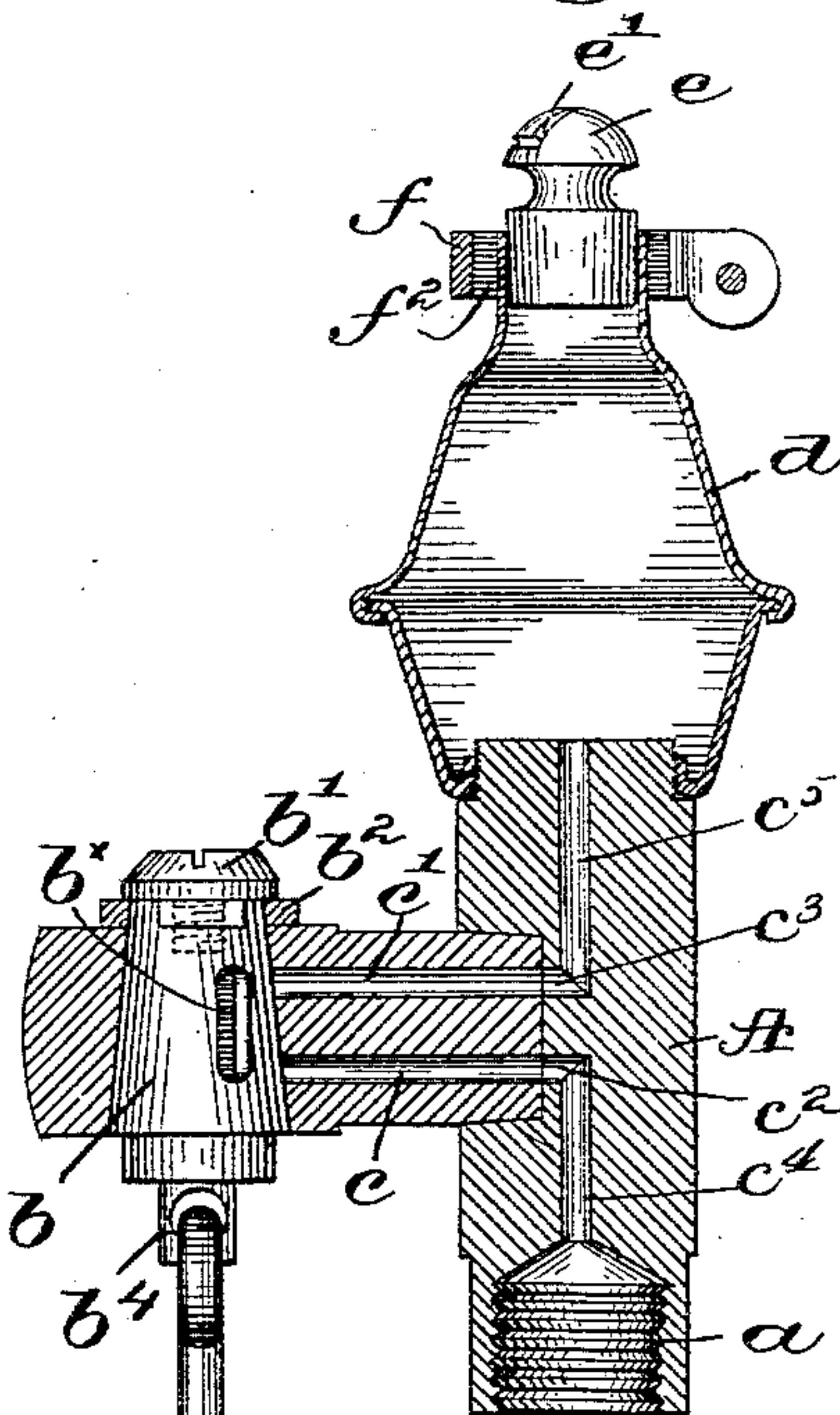


Fig:3.

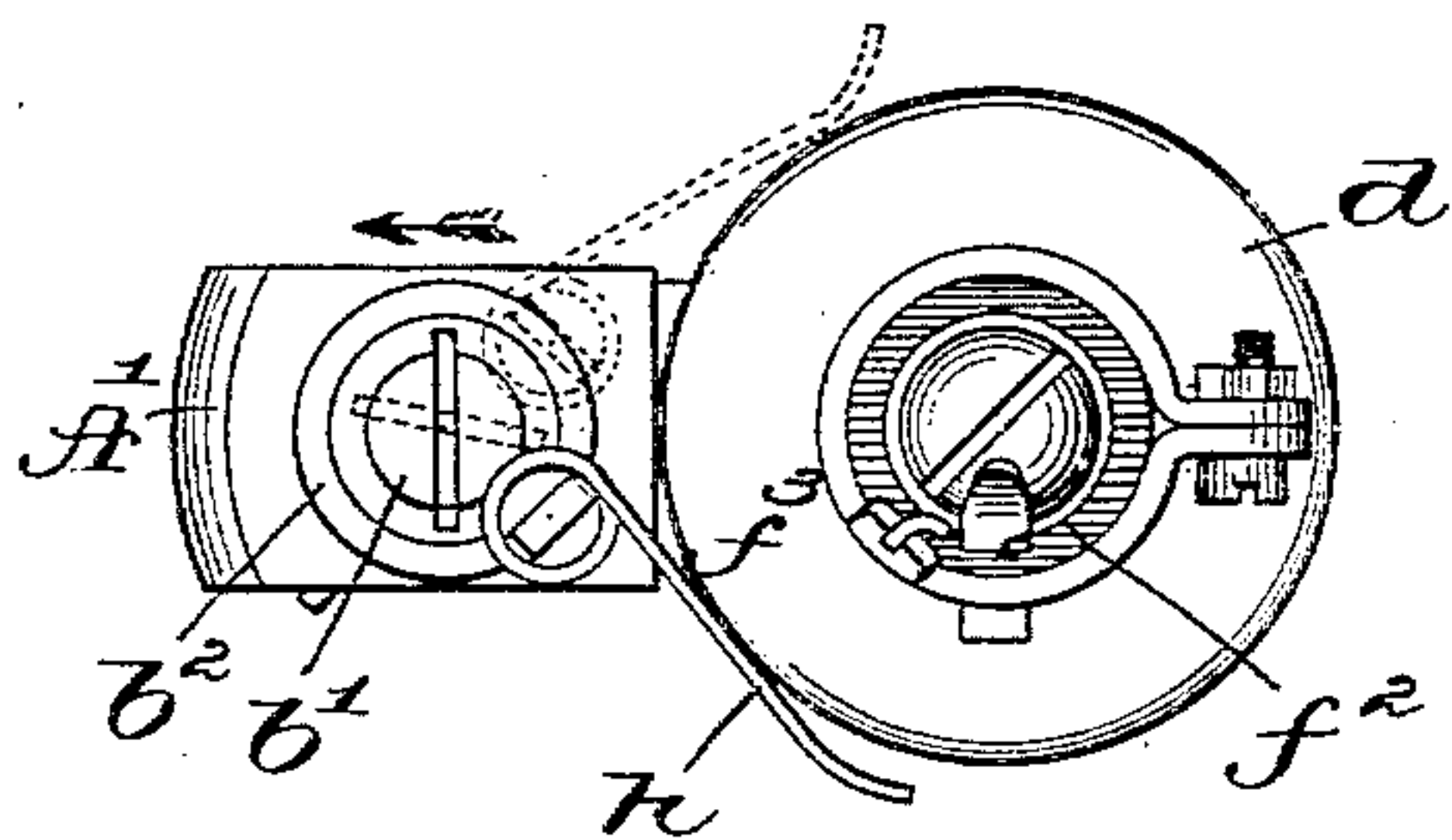


Fig:4.

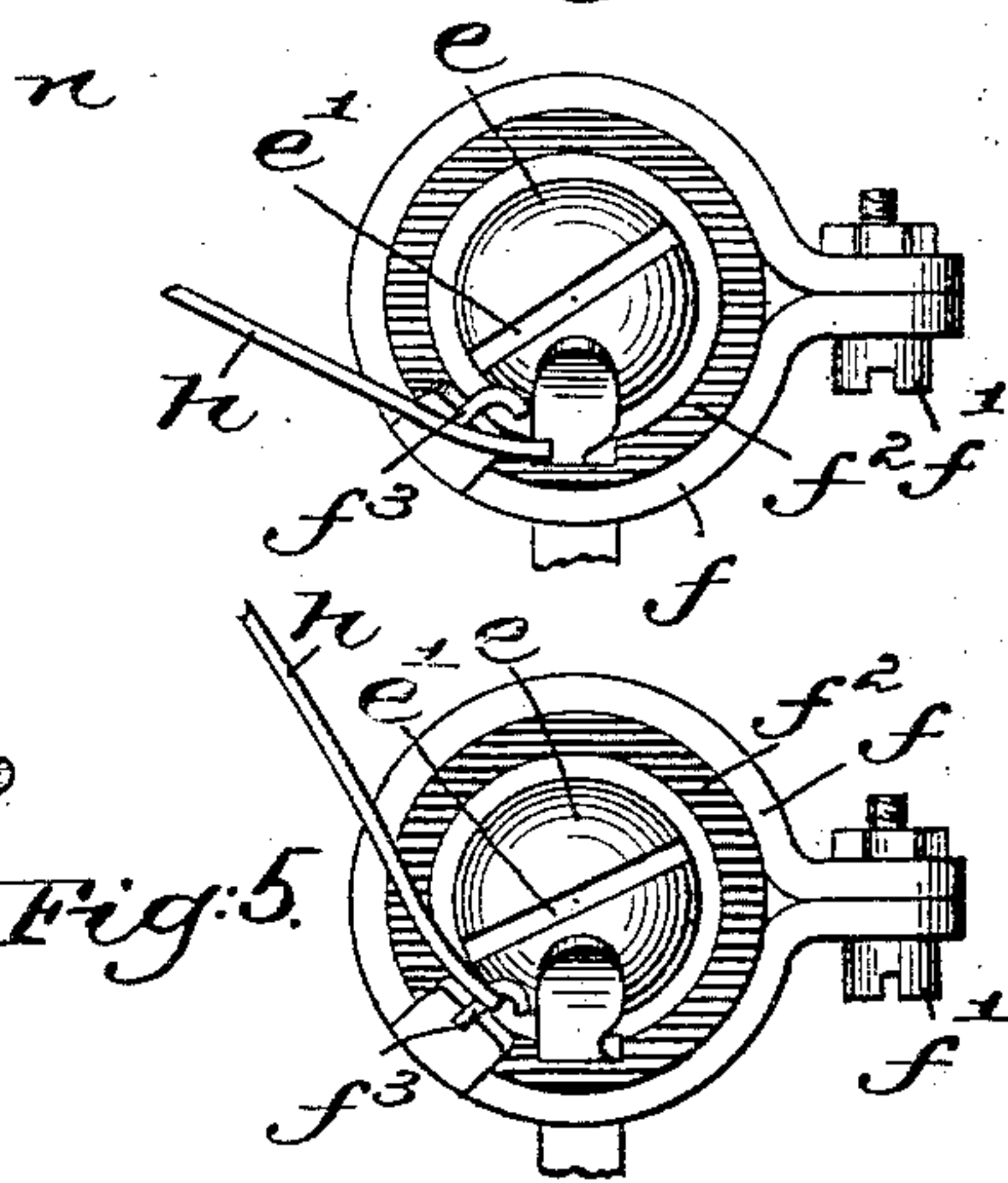
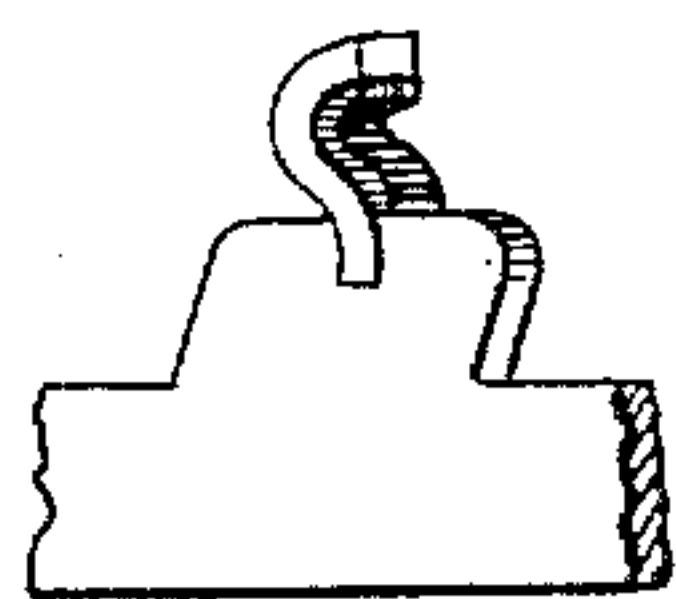


Fig:6.



witnesses.

Louis N. Small.

Edward F. Allen.

Inventor

Norman Marshall  
by Crosby & Gregory  
Attys.



# UNITED STATES PATENT OFFICE.

NORMAN MARSHALL, OF BOSTON, MASSACHUSETTS.

## LIGHTING ATTACHMENT FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 504,735, dated September 12, 1893.

Application filed November 25, 1892. Serial No. 453,016. (No model.)

*To all whom it may concern:*

Be it known that I, NORMAN MARSHALL, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Gas-Burners and Lighting Attachments Therefor, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to gas burners of the class provided with a laterally extended arm in which is placed the valve, the axis of the valve being parallel to the axis of the burner, one of the objects of the invention being to  
15 improve and cheapen the construction of burners of this class.

The invention further comprehends a guard for the fixed contact to prevent short circuiting of the battery when the valve is only partially turned.

20 Other features of the invention will be hereinafter described and set forth in the claims.

25 Figure 1, of the drawings represents in side elevation a gas burner and lighting attachment therefor embodying this invention; Fig. 2, a vertical section of the same; Fig. 3, a top view of the burner shown in Fig. 1; Figs. 4 and 5, enlarged details illustrating the use of  
30 the guard for the fixed contact to be hereinafter described; and Fig. 6, a modification to be described.

Referring to the drawings, A is the solid body of the burner internally threaded at its  
35 lower end, as at *a*, to permit it to be screwed to the threaded nipple upon any usual gas fixture or chandelier.

The body A has a laterally extended portion or arm A' which consists of an independent arm inserted in the side of the main body, the said arm A' having a vertical conical opening for the plug valve *b* retained in position within the arm by the usual screw  
40 *b'*, between which and the upper face of the arm is inserted a washer *b<sup>2</sup>*.

From the valve at one side lead two parallel gas passages *c*, *c'*, which at the inner end of said arm connect respectively with the outwardly turned ends *c<sup>2</sup>*, *c<sup>3</sup>* of the two body-passages *c<sup>4</sup>*, *c<sup>5</sup>*, which enter the body A from  
50 its opposite ends, one of the passages *c<sup>4</sup>* leading to the lower end of the body A to commu-

nicate with the gas passage within a fixture to which the body is applied, while the other passage *c<sup>5</sup>* leads to the upper end of the body 55 and opens into the hollow burner *d* fitted at its upper end with a gas tip *e* provided with the usual slot *e'* through which the gas may issue.

The above construction is exceedingly 60 cheap to manufacture, for the valve seat may be ground in the arm before the latter is applied to the body, and by reason of the solid body having the gas passages provided with the out-turned ends it is possible to drive the 65 arm into the body and have the ports properly connected without difficulty, the solid body together with the solid arm providing a very firm and durable construction.

The valve *b* is herein shown as provided 70 with a vertical slot or channel *b<sup>x</sup>*, which, when the valve is turned into proper position establishes a communication between the passages *c<sup>4</sup>*, *c<sup>5</sup>* to permit gas from the fixture to pass to the tip *e*; but when the valve is partially rotated into its position Fig. 2, the 75 channel *b<sup>x</sup>* is moved bodily away from the entrances to the gas passages, said valve, in such position cutting off communication from one passage to the other, as shown. 80

A split ring *f* clamped about the neck of the burner *d* by means of a screw *f'* and insulated from the burner by means of a washer *f<sup>2</sup>* is provided with a fixed electrical contact *f<sup>3</sup>*, with which, in the present construction, 85 co-operates the flexible or spring wire arm *h* constituting a movable contact attached to the end of a bar *b<sup>3</sup>*, herein shown as formed integral with the washer *b<sup>2</sup>* referred to. It is not, however, desired to restrict this inven- 90 tion to the particular form or construction of fixed and movable contacts, the term "fixed" as used, implying a contact attached to the burner, while the term "movable" implies a contact movable with relation thereto to strike 95 a spark.

When the valve is in its position Figs. 1, 2 and 3, to cut off communication between the gas passages, the spring contact arm *h* stands in a position shown in Fig. 3, away from the 100 fixed contact *f<sup>3</sup>*. When, however, the valve is rotated in the direction of the arrow Fig. 3, to move the channel *b<sup>x</sup>* on the valve into position to establish communication between



the gas passages said spring arm  $h$  is moved into engagement with the fixed contact  $f^3$  from which it springs, striking a spark to ignite the gas issuing from the tip. Upon the return movement of the valve to cut off the gas, the end of the arm  $h$  as it sweeps by the burner enters a groove  $i$  in the lava tip which moves the arm above the end of the fixed contact, so that the arm upon its return movement passes above, and out of engagement with the contact, the said arm, therefore, striking a spark only when the valve is moved to turn on the gas.

In electric gas lighters as constructed at the present time it frequently occurs that the valve is rotated sufficiently to bring the spring contact arm into engagement with its co-operating fixed contact, but not sufficiently far to permit the arm to spring out of engagement therewith, the result being that the circuit remains closed between the two contacts, short circuiting the battery. To obviate this, I provide the guard piece  $m$  arranged in front of the fixed contact, as shown, and insulated therefrom, said guard in the construction shown being fixed to the burner  $d$  and therefore insulated from the fixed contact by the insulated washer  $f^2$ . This guard is so placed that the spring arm  $h$  as it is moved in the direction of the arrow Fig. 3, to engage the fixed contact, first engages the guard  $m$  which holds the spring arm out of engagement with the fixed contact until the valve has been rotated sufficiently to cause the arm to spring past into its extreme position, shown by dotted lines Fig. 3, the said arm striking the fixed contact as it snaps past and momentarily closing the circuit, and again immediately breaking the same to strike a spark for the ignition of the gas. It will, therefore, be seen that the valve may be turned sufficiently to admit a small quantity of gas to the tip without danger of the spring arm engaging and remaining in engagement with the fixed contact to short circuit the battery, for the said arm engages the contact only momentarily as it snaps past into its dotted position removed from the fixed contact. This guard may be formed of insulation attached directly to the fixed contact itself if so desired, as shown in Fig. 6, although I prefer the construction shown in Figs. 1 to 5, inclusive.

The valve  $b$  is herein shown as provided with a depending lug  $b^4$ , through an eye in which is passed the hooked end of a wire or other inflexible actuator  $n$ , by means of which the valve may be rotated. This depending actuator may be of sufficient length to drop within easy reach of the person who wishes to turn the valve, yet by being loosely connected to the valve, it may swing in any direc-

tion when struck by an object, so that it cannot possibly be bent, nor do injury, yet in whatever position it may be, if turned, it will also turn the valve.

I claim—

1. The herein described improved gas burner, consisting of a solid body portion  $A$  having gas passages entering from opposite ends and terminating near the middle of the body in outwardly turned ends  $c^2, c^3$ , the laterally extended arm  $A'$  driven into the body portion and provided with ports  $c, c'$  to connect respectively with said out-turned ends  $c^2, c^3$ , and the valve  $b$  and means to actuate the same, combined with a movable contact arm fixedly attached to and movable with the said valve and a co-operating fixed contact on the burner adjacent to the tip thereof, substantially as described.

2. A gas burner; a gas tip, and a fixed electrical contact adjacent thereto, combined with a co-operating movable contact, an actuator therefor, and a guard arranged in front of said fixed contact and to be engaged by the said movable contact in advance of the latter's engagement with the fixed contact and to hold said movable contact away from and out of engagement with the fixed contact, and to permit the said movable contact as it springs away from said guard to momentarily engage said fixed contact as it springs into its extreme position, whereby short-circuiting of the battery by partial movement of the movable contact is avoided, substantially as described.

3. A gas burner, a gas tip, and a fixed electrical contact arranged adjacent thereto, combined with the co-operating movable contact spring, an actuator therefor, and a fixed guard, as  $m$ , arranged in front of the fixed contact to engage with the spring contact in advance of the fixed contact, substantially as described.

4. A body, a gas tip provided with a groove, a gas passage leading thereto, a valve to control the same, a fixed contact arranged adjacent to the said gas tip and below the groove therein, combined with a co-operating movable contact adapted when moved in one direction to engage the fixed contact and when moved in the opposite direction to enter said groove and be thereby carried above and out of engagement with the said fixed contact; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NORMAN MARSHALL.

Witnesses:

FREDERICK L. EMERY,  
M. J. SHERIDAN.