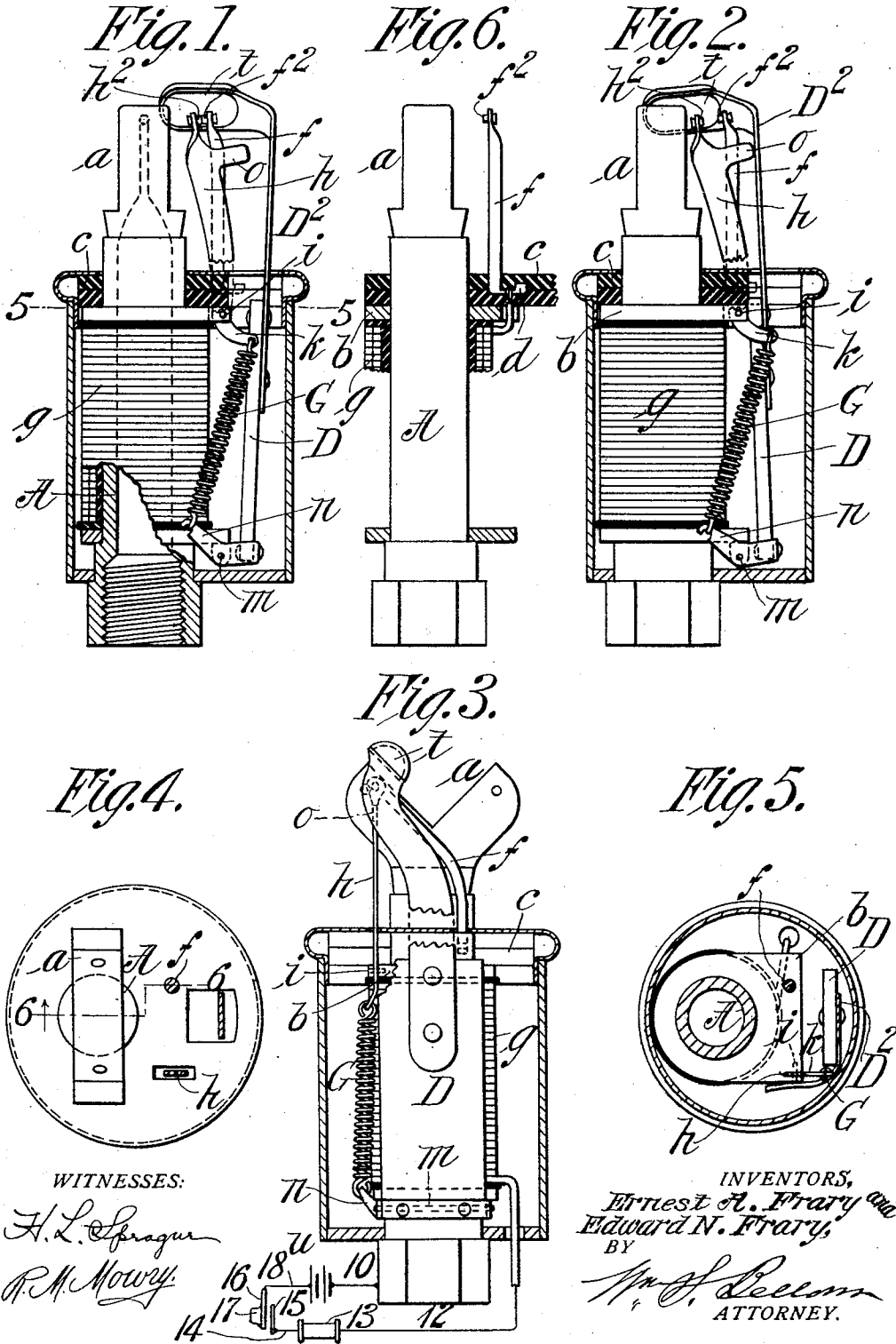


E. A. & E. N. FRARY.
GAS LIGHTING BURNER.
APPLICATION FILED AUG. 18, 1910.

1,001,192.

Patented Aug. 22, 1911.



UNITED STATES PATENT OFFICE.

ERNEST A. FRARY AND EDWARD N. FRARY, OF SOUTH DEERFIELD, MASSACHUSETTS.

GAS-LIGHTING BURNER.

1,001,192.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed August 18, 1910. Serial No. 577,826.

To all whom it may concern:

Be it known that we, ERNEST A. FRARY and EDWARD N. FRARY, citizens of the United States of America, and residents of South Deerfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Gas-Lighting Burners, of which the following is a full, clear, and exact description.

This invention relates to an electric lighting gas burner having for its object to provide in such a burner, by most simple and inexpensive means, all the requisites for the automatic lighting of the gas issuing at the tip or ignition portion of the burner upon the establishment of a current through the electromagnet which forms part of the device.

Another object is to provide in conjunction with the spark producing portion of the burner a hood which will be positioned, temporarily, and at the time of the making of the spark, adjacent the ignition point of the burner so that the gas issuing from the latter will be prevented from becoming diffused and will consequently be, with greater certainty, lighted.

Other objects are to provide constructions and combinations of parts in the gas lighting burner whereby the same is entirely reliable and efficient.

The invention is described in conjunction with the accompanying drawings and is set forth in the claims.

In the drawings:—Figure 1 is a side elevation partially in section of the gas lighting burner with parts thereof in their normal positions. Fig. 2 is a similar view showing the parts as in their relative positions when the conditions for the lighting of the burner are established. Fig. 3 is an elevation with the casing in section of the burner as seen at right angles to Fig. 1. Fig. 4 is a plan view of the burner with some parts in section as taken on the plane of the top of the inclosing casing. Fig. 5 is a horizontal section as taken on the plane indicated by line 5—5, Fig. 1. Fig. 6 is a partial sectional view as taken on line 6—6, Fig. 4, for showing certain arrangements hereinafter referred to.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the body of the gas burner made of iron and tubular; and in this device such tubular body constitutes the core of an electromagnet; and the

said tubular burner body is provided at its upper end with a gas delivery tip *a* here represented as of the branched formation as usually employed for the burning of acetylene gas.

b represents an iron plate or block formed as an integral part of or tightly fitted to an upper portion of the burner body, but below its top, the same constituting an offside pole piece for the electromagnet. Above this plate or block which constitutes the pole piece of the electromagnet is a body *c* of insulating material here represented as constituted by two layers of hard fiber embedded in which is the angularly turned base member *d* (Fig. 6) of an upstanding rigid rod or post *f* which constitutes a fixed terminal, the end portion thereof having a short hub like projection or boss *f*²; and the coil or winding wire *g* of the electromagnet, the core of which is made by the tubular body of the burner, is connected as particularly shown in Fig. 6 to the said fixed terminal *f*. *h* represents a movable member which constitutes the other terminal, the end of which is provided with a short hub like projection or boss *h*² for, normally, an abutment and perfect contact against the similarly formed extremity of the fixed terminal *f*. The said member *h* is by the pin *i* pivotally mounted upon a suitable part of the body of the burner whereby it has its appropriate swinging movement and is also in metallic connection with the body of the burner which is utilized to form part of the conductor for the electromagnetic circuit. The lower extremity of the pivotally mounted movable terminal is provided with a short lever arm *k*, the useful purpose served by which being hereinafter set forth.

D represents the armature for the electromagnet mounted for its swinging movement toward and away from the pole member *b* of the electromagnet on the horizontal pivot *m* at the lower portion of the burner body, and the armature is, adjacent its pivot, provided with a lever arm *n* which is below, and at a considerable distance from, the aforementioned lever extension *k* of the movable terminal *h*.

G represents a comparatively light spiral spring which in stretched condition is connected at its opposite ends to the lever-like extensions *k* and *n*. This single spiral spring is operative to both force the armature away from the pole of the electro-

magnet and to force the movable terminal *h* to contact with the fixed terminal *f*.

The movable terminal member has at its upper portion an angularly extending lug *o*; and the armature *d* is provided with a thin upward extension *D*², the upper extremity of which is angularly bent and made of hollowing form to constitute a hood *t*, clearly shown in Figs. 1, 2 and 6, and the location of which is over the contacting points *f*² and *h*² of the terminals and near the ignition point of the gas burner tip.

This gas lighting burner may have the wiring connections or circuit establishing conductors provided and arranged as most simple and expedient according to the situation and circumstances of the use of the device; and for the purpose of ample illustration in Fig. 3, a battery *u* is indicated, wire 10 connecting with the iron body of the burner while the coil wire *g* of the electromagnet has the wire 12 connected thereto which runs to a spark coil 13, and from the spark coil wire 14 runs to a plate 15 coacting with which is a spring plate 16 having a push button 17, and from such push button plate wire 18 returns to connection with the battery.

When the push button is pressed the circuit is closed with the result of causing the armature to move against the pole of the electromagnet, causing by its abutment against the lug *o* a forcing of the movable terminal from the position shown in Fig. 1 to the circuit breaking position shown in Fig. 2, whereupon a spark is created which usually causes the ignition of the gas issuing from the tip *a* of the gas burner. Normally the hood is out of line with the delivery opening of the tip but is brought opposite such delivery opening at the time the spark is made. So soon as the circuit is broken for the making of the spark, the electromagnet is deenergized and the spring *G* becomes effective for both withdrawing the armature to its normal position away from the pole of the electromagnet and for restoring the movable terminal *h* to its position of contact with the fixed terminal *f*, whereupon the circuit is reestablished and the action is repeated for the making of another spark,—the spark making actions being successively accomplished so long as the portion of the circuit controlled by the push button remains closed.

We claim:—

1. A gas burner having combined therewith an electromagnet, a fixed terminal and a movable terminal normally in contact with each other with one of which the winding wire or coil of the electromagnet connects, and said movable terminal having a projection extending angularly therefrom and an armature coacting with the electromagnet and adapted to have in its movement toward the latter an engagement with the said projection of the movable terminal.

2. A gas burner having combined therewith an electromagnet having a rigid and a movable terminal normally in contact with each other adjacent the ignition point of the burner and electrically connected with the winding wire of the electromagnet, an armature for the electromagnet pivoted on the body of the burner and having a circuit breaking coaction with the said movable terminal and provided at its upper end with a hood which extends over and in proximity to the contacting end portions of the said terminals.

3. In a gas lighting burner in combination, a tubular burner body which constitutes a core of an electromagnet, the upper portion of which is provided with a gas delivery tip, a magnet coil wound around the tubular burner body, a fixed terminal with which the coil is connected and the upper end of which is in proximity to the burner tip, a movable terminal member pivotally mounted and in metallic connection with the body of the burner and having its upper end normally in contact with the upper end of the fixed terminal and provided with a lever arm, an armature pivotally mounted on the burner body and having a circuit breaking coaction with the movable terminal member provided with a lever extension, having at its upper end an angularly extending projecting hood the location of which is over the upper ends of said terminals and a light spiral spring connected with the lever arms of both the armature and the movable terminal member.

Signed by us at Springfield, Mass., in presence of two subscribing witnesses.

ERNEST A. FRARY.
EDWARD N. FRARY.

Witnesses:

G. R. DRISCOLL,
W. S. BELLWS.