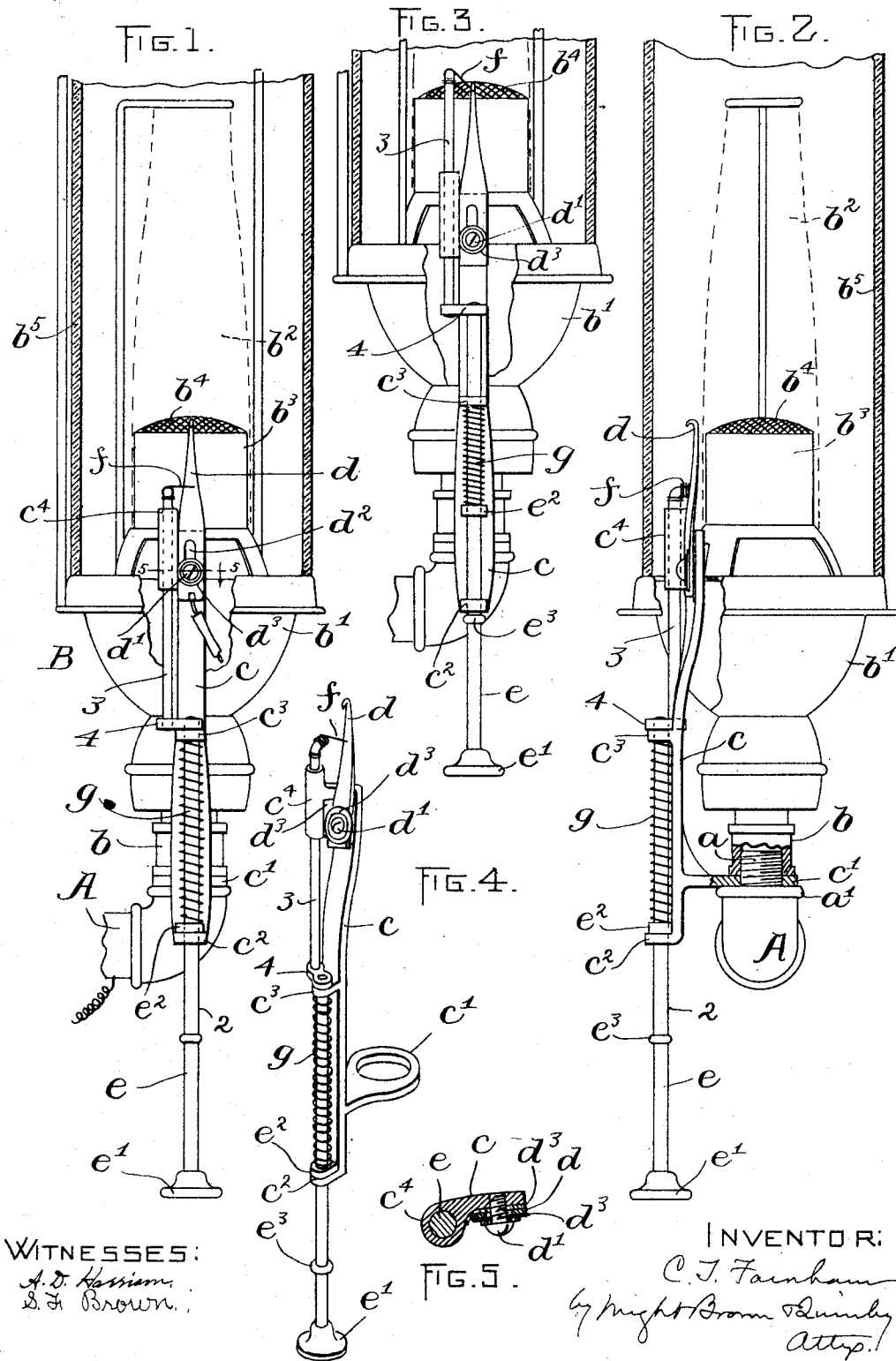


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ELECTRIC LIGHTER FOR INCANDESCENT BURNERS.

(Application filed Mar. 27, 1899.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES T. FARNHAM, OF MANCHESTER, NEW HAMPSHIRE.

## ELECTRIC LIGHTER FOR INCANDESCENT BURNERS.

SPECIFICATION forming part of Letters Patent No. 631,628, dated August 22, 1899.

Application filed March 27, 1899. Serial No. 710,580. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES T. FARNHAM, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Electric Lighters for Incandescent Burners, of which the following is a specification.

This invention relates to incandescent gas-burners; and it has for its object to provide an improved electric-lighting device therefor.

The invention consists in the improvements which I shall now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a front elevation, with parts broken away, of an incandescent burner provided with an igniting device constructed in accordance with my invention. Fig. 2 represents a side elevation thereof, partly broken away. Fig. 3 represents a view similar to Fig. 1, showing the electrodes in igniting position. Fig. 4 represents a perspective view of the lighting device detached. Fig. 5 represents a detail sectional view, on an enlarged scale, on the line 5 5 of Fig. 1.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, A designates the gas-supply pipe to which the burner is attached, and B designates an incandescent burner of the ordinary type.

*b* is the stem of the burner, *b'* is the base or body thereof, and *b<sup>2</sup>* is the mantle, all of ordinary construction.

*b<sup>3</sup>* is the usual crown surrounding the mixing-chamber and having a grating *b<sup>4</sup>* over its orifice.

*c* designates a support comprising a plate or bar elongated vertically and having near its lower end a flange *c'*, extending laterally from its rear side and having an aperture or hole in it adapted to receive the threaded end or nozzle *a* of the gas-pipe A. The flange *c'* is clamped between the lower end of the burner-stem *b* and the flange *a'*, existing on the gas-pipe A below the threaded terminal portion *a* thereof, the said flange in the drawings being shown as a portion of a separate elbow piece or bend in the gas-pipe. The support *c* is thus firmly and securely attached between the gas-pipe and the stem of the burner.

*d* represents the fixed electrode of the lighting device, the same being attached to the upper end of the support *c* by one or more screws, one screw *d'* being shown in the present instance, and the electrode is preferably slotted vertically, as at *d<sup>2</sup>*, for the sake of adjustability. A suitable insulation, which may be sheets of mica *d<sup>3</sup>* *d<sup>3</sup>*, is interposed between the electrode *d* and its support *c* and screw *d'*. The upper end of the electrode *d* is hooked or bent outwardly and may be platinum-tipped.

At or near the lower and middle portions of the support *c* the latter is formed with apertured guiding lugs or sockets *c<sup>2</sup>* *c<sup>3</sup>*, and at its upper end said support carries a tubular guide or socket *c<sup>4</sup>*. Mounted in the guides *c<sup>2</sup>* *c<sup>3</sup>* *c<sup>4</sup>* and adapted to slide vertically therein is a push-rod *e*, consisting of a lower portion 2 and an upper portion 3, connected by an offset or plate 4, said lower portion 2 being guided in the lugs *c<sup>2</sup>* *c<sup>3</sup>* and the upper portion 3 in the tubular guide *c<sup>4</sup>*. The extreme upper end of the rod *e* is bent inwardly and a yielding electrode *f* is attached thereto, said electrode being in the present instance a small spiral wire spring, whose free end projects horizontally in position to engage the fixed electrode *d* when the rod *e* is pushed upwardly in its guides. The lower end of the rod *e* is provided with a knob or thumb-piece *e'*, and higher up between the lugs *c<sup>2</sup>* *c<sup>3</sup>* the rod is surrounded by a spring *g*, confined between the upper lug *c<sup>3</sup>* and a flange or boss *e<sup>2</sup>* on the rod. The spring exerts a tension which tends to retract the rod after the latter has been pushed upwardly. A boss or flange *e<sup>3</sup>* on the lower part of the rod *e* acts as a stop to limit the upward movement of the rod by abutting against the lug *c<sup>2</sup>*. The boss *e<sup>2</sup>* or the offset 4 acts as a stop to limit the retractive movement of the rod. It will be seen in Fig. 4 that the boss *e<sup>3</sup>* is squared on its inner edge and abuts closely against the face of the support *c*, whereby the rod is prevented from turning.

Normally the push-rod *e* is retracted or depressed, as represented in Figs. 1, 2, and 4, in which position the yielding electrode *f* is located at a considerable distance below the hooked end of the fixed electrode *d*. The latter is located above the orifice or top of the crown *b<sup>3</sup>* and outside of the latter and of the



mantle  $b^2$ . The terminals of an igniting circuit being connected to the gas-pipe A or a part of the burner B and the fixed electrode  $d$ , respectively, when the rod  $e$  is forced upwardly to the extent of its stroke the yielding electrode  $f$  will brush past the hooked end of the fixed electrode  $d$ , and in so doing will cause a spark. The gas having been previously turned on the stream of mixed gas and air issuing through the meshes of the mantle  $b^2$  will be ignited. Upon the retraction of the rod  $e$  after ignition the yielding electrode  $f$  lies at a considerable distance below the orifice of the burner, and being thus removed from proximity to the flame it is protected from the heat thereof, which protection prolongs the life of the said electrode and preserves the temper of the spring.

It will be observed that the igniting device may be very easily attached to and detached from the burner and gas-pipe, and that it is simple in construction and sure in its operation. The upper parts of the igniter are lo-

cated inside of the chimney  $b^5$  with which the burner is usually provided, and the base  $b'$  may be slightly broken away or provided with an aperture through which the igniter passes.

I claim—

An electric lighter for incandescent gas-burners, comprising a support, a hooked electrode fixed to and insulated from said support, guides on said support, a push-rod mounted to slide vertically in said guides, a yielding electrode carried by said rod and adapted to coact with the fixed electrode, a retracting-spring surrounding said rod, and an apertured flange on the support, adapted to be clamped between a gas-pipe and the stem of a burner.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES T. FARNHAM.

Witnesses:

C. F. BROWN,

A. D. HARRISON.