(No Model.)

G. J. GALBRAITH.

ELECTRIC HAND LIGHTING GAS BURNER.

No. 562,891. Patented June 30, 1896.

Fig. 1.

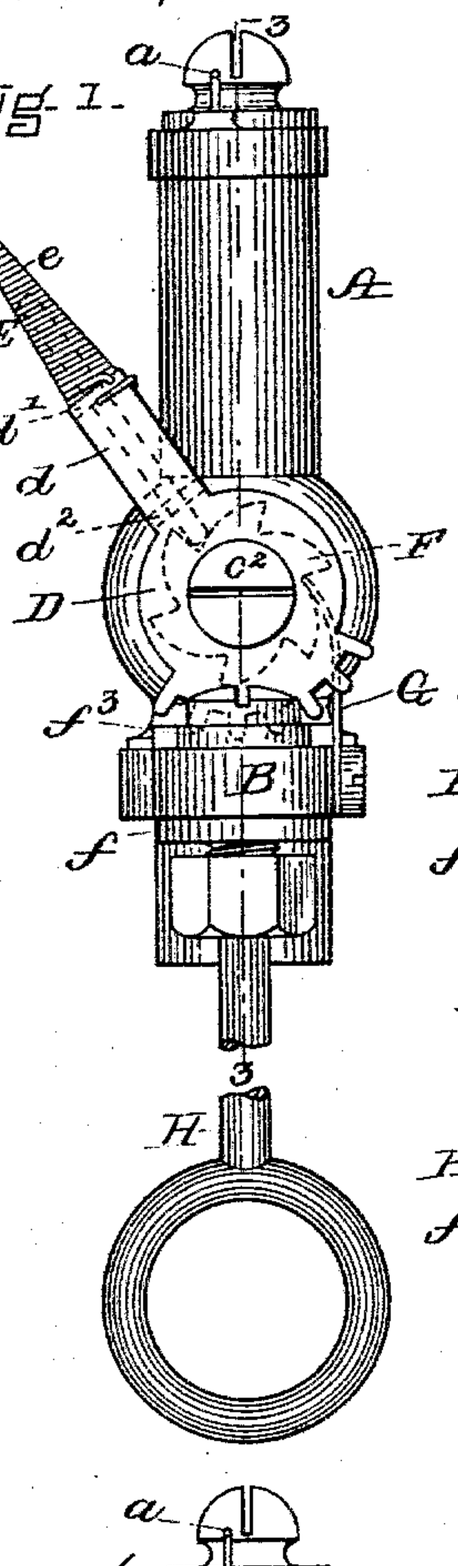


Fig. 2.

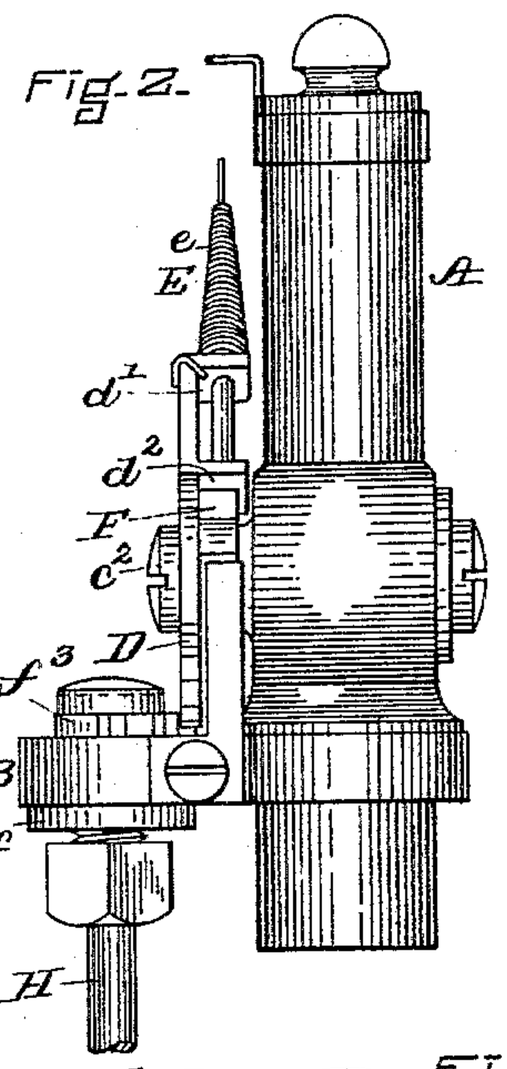


Fig. 3.

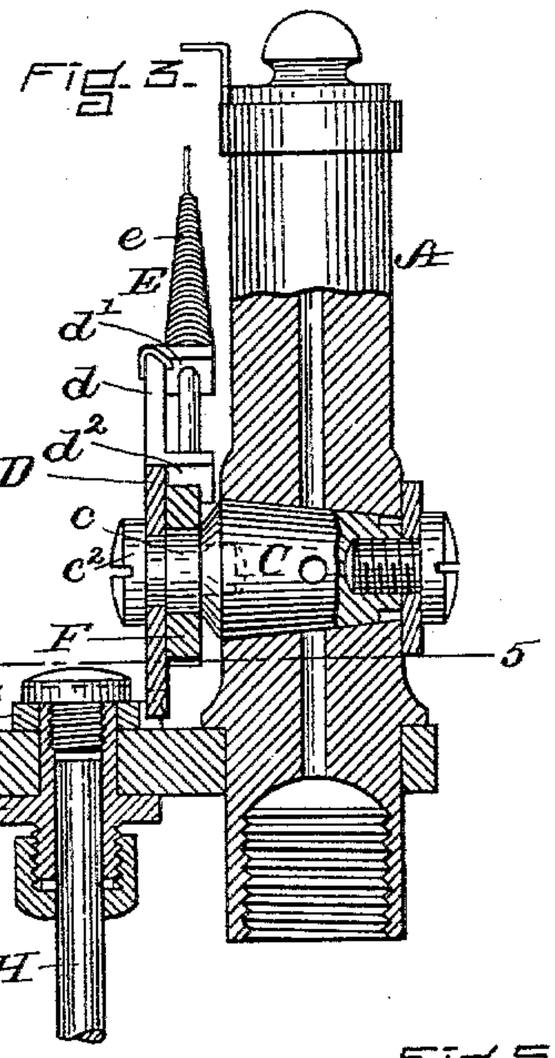


Fig. 4.

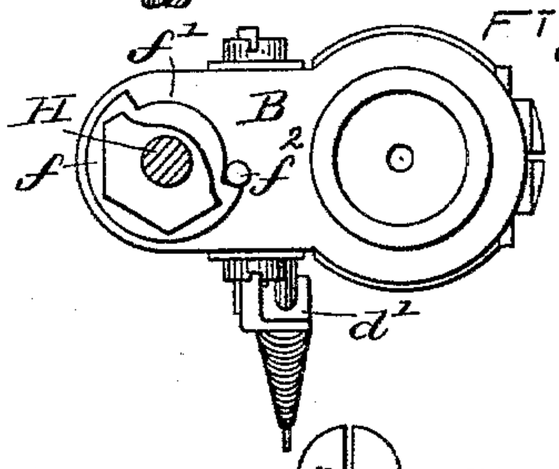


Fig. 5.

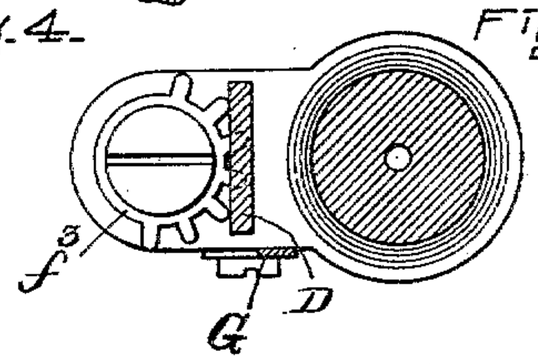


Fig. 6.

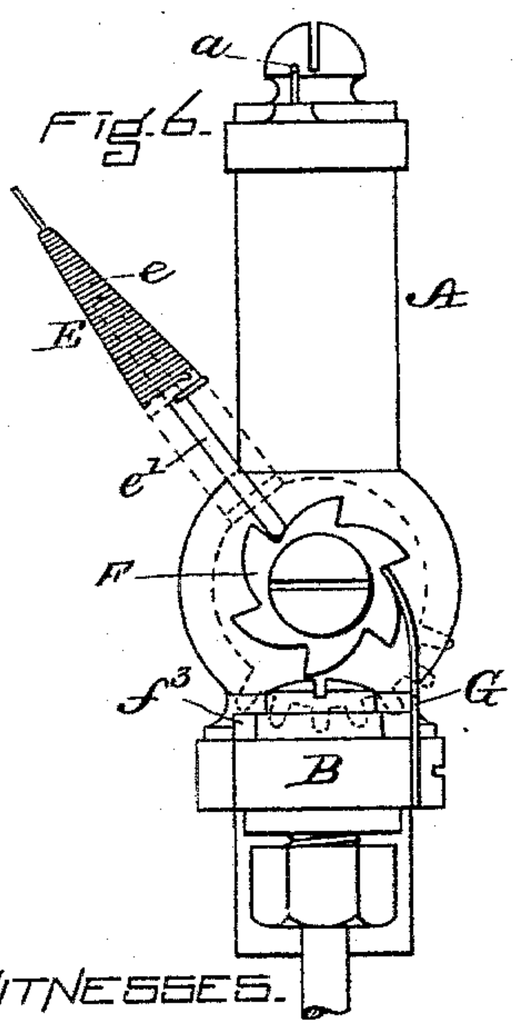


Fig. 7.

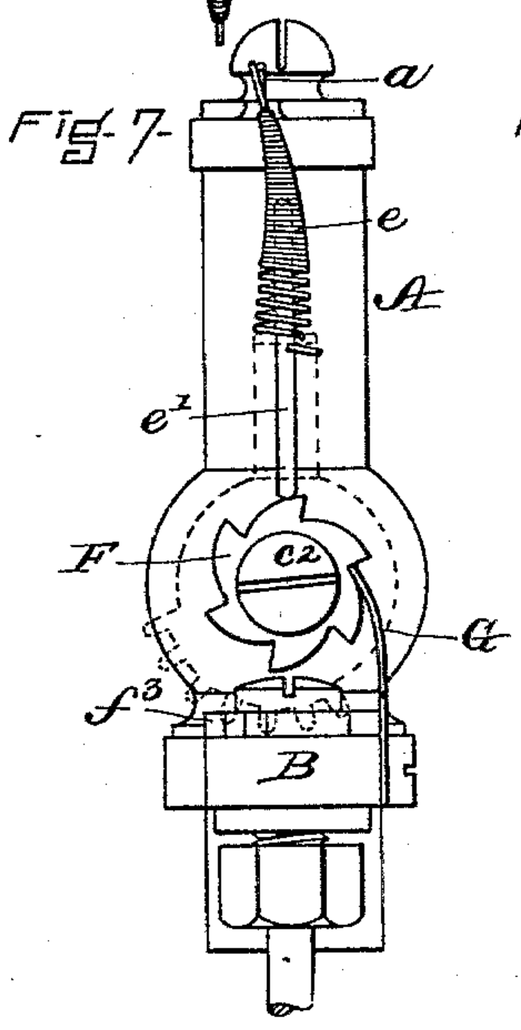
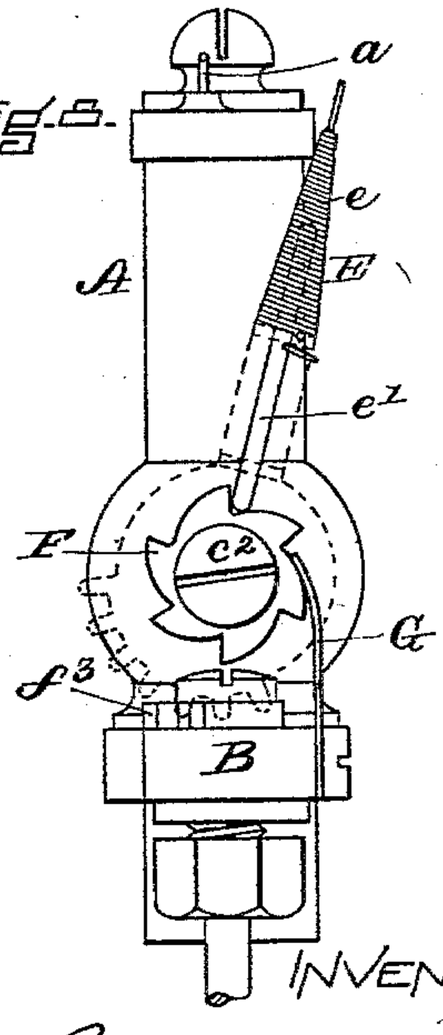


Fig. 8.



WITNESSES.

Charles H. Hanson

Stephen A. Foster

INVENTOR.

Geo. J. Galbraith

UNITED STATES PATENT OFFICE.

GEORGE J. GALBRAITH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ELECTRIC GAS LIGHTING COMPANY, OF SAME PLACE.

ELECTRIC HAND-LIGHTING GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 562,891, dated June 30, 1896.

Application filed April 18, 1896. Serial No. 588,153. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. GALBRAITH, of Boston, Massachusetts, have invented a new and useful Improvement in Electric Hand-Lighting Gas-Burners, of which the following is a specification.

My invention relates to that class of electric gas-lighting burners in which the gas-valve is opened and the vibrating electrode simultaneously operated.

The main purpose of my invention is to diminish the manufacturing expense of thumb-key electric gas-burners, and at the same time retain the accuracy and simplicity of operation characterizing this class of burners, although a part of my invention is practical in other classes of electric burners.

My invention consists in selecting and adapting in form the proper parts, in new combinations of parts, and in a new combination as an entirety.

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

Figure 1 is a front elevation with the gas turned off. Fig. 2 is a side elevation with the gas turned off. Fig. 3 is a vertical section on line 3 3 of Fig. 1. Fig. 4 is an inverted plan. Fig. 5 is a horizontal section on line 5 5 of Fig. 3. Figs. 6, 7, and 8 are views showing the movable electrode and its controlling parts in different positions.

I will now describe the drawings.

A is the ordinary burner-pillar, having the fixed electrode *a*.

B is a bracket which is affixed to the burner-pillar, encircling the same and supporting the thumb-key.

C is an oscillating or vibrating gas-cock, having its stem *c* extending beyond the pillar and held by the screw c^2. D is a plate which is rigidly attached by said screw to the stem of the gas-plug, and has an arm *d*, provided with lugs or catches d' d^2.

E is the movable electrode, consisting of a coiled spring *e*, one end attached to the arm *d* of the plate D, and its point adapted to make and break contact with the fixed electrode *a*, and of a pin e', retained by the spring *e* and lugs *d* d^2, and resting upon the cam F. The toothed edge cam F is loosely journaled upon the valve-stem and free to rotate in either direction the distance of one cam-tooth, but having its full rotation in the reverse way from the hands of a watch.

G is a pawl to prevent the cam F moving with the hands of a watch more than one tooth at a time.

H is an elongated spindle and thumb-key, carrying a plate *f*, which is cut away in the space f', and f^2 is a stop for limiting its rotation. f^3 is a toothed plate, carried by said spindle, above the bracket B and gearing with the plate D.

The operation of my burner will be readily seen. When it is in the position shown in Fig. 1, a quarter-turn of the thumb-key will, by means of said gearing, tilt the plate D, carrying the spring-electrode E, and thereby cause a ratchet of the cam to elevate the pin e' within the spring *e*, the pawl G preventing rotation of the said cam. As the thumb-key turns, the gas is admitted to the tip, and the movable spring-electrode *e* rides up on a tooth of cam F and makes and breaks contact with the fixed electrode *a*, causing a spark to ignite the issuing gas. The spring-electrode then falls back into the next tooth of the cam F under stress of spring *e*.

If it is desired, the gas-flame may be lowered and again raised without bringing the two electrodes in contact, inasmuch as the cam F moves with the plate D, excepting when prevented by the pawl. In turning off the gas the pin e' rotates the cam F. The result is that the movable electrode cannot be elevated except from the position in which the gas is entirely turned off and no danger of short-circuiting is possible.

While I am not the inventor of the electrode composed of the spring *e* and pin e', I am the first to use this in combination with a vibrating plate-piece and a vertical cam capable of complete rotation in but one direction, which combination may be used in other varieties of burners than such as are actuated by a rigid stem and thumb-key. I therefore do not limit my invention to thumb-cock burners so far as applicable elsewhere; but,

Having described my improvement, what I wish to protect by Letters Patent and to claim is—

1. In an electric hand-lighting gas-burner, the combination of a plate D having the arm *d*, the spring *e*, and the pin *e'*, the toothed edge cam F, upon the edge of which the pin *e'* is moved vertically and means for vibrating the same; substantially as shown.

2. In an electric hand-lighting gas-burner, the combination of a geared plate D *d*, adapted to support a spring-electrode, a spring-electrode *e*, and pin *e'*, both carried by said plate an edge cam F loosely journaled its edge serving to raise the spring-electrode *e*, a stop to limit the rotation of the edge cam and means for moving the edge cam and plate; substantially as described.

3. In an electric hand-lighting gas-burner, the combination with a stationary gas-pillar A, fixed electrode *a*, and gas-cock C, of a toothed edge cam F loosely journaled upon the valve-stem, a geared plate-piece D rigidly attached to or moving with the gas-cock stem and adapted to support a spring-electrode, a spring-electrode E, *e*, *e'*, the pin *e'*, adapted to ride vertically over the teeth of said cam, a turn-key, preferably arranged in a different vertical plane from the burner-pillar, and intermediate mechanism to communicate the movement of the key to the plate-piece, movable electrode and gas-valve: all substantially as described.

In witness whereof I hereunto set my hand this 15th day of April, 1896.

GEO. J. GALBRAITH.

In presence of—

CHARLES H. HANSON,
STEPHEN A. FOSTER.