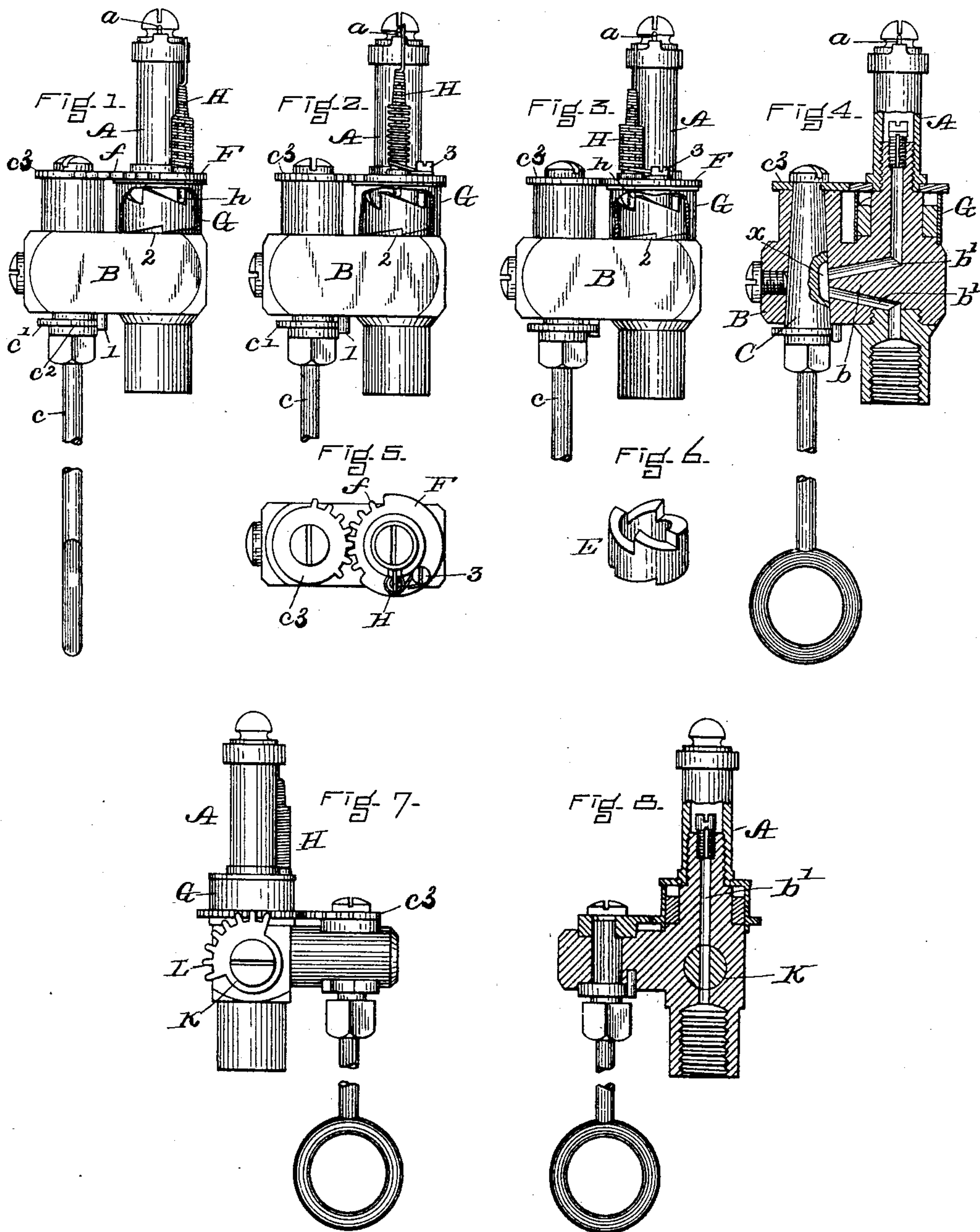


(No Model.)

H. C. THOMSON.
ELECTRIC HAND LIGHTING GAS BURNER.

No. 562,937.

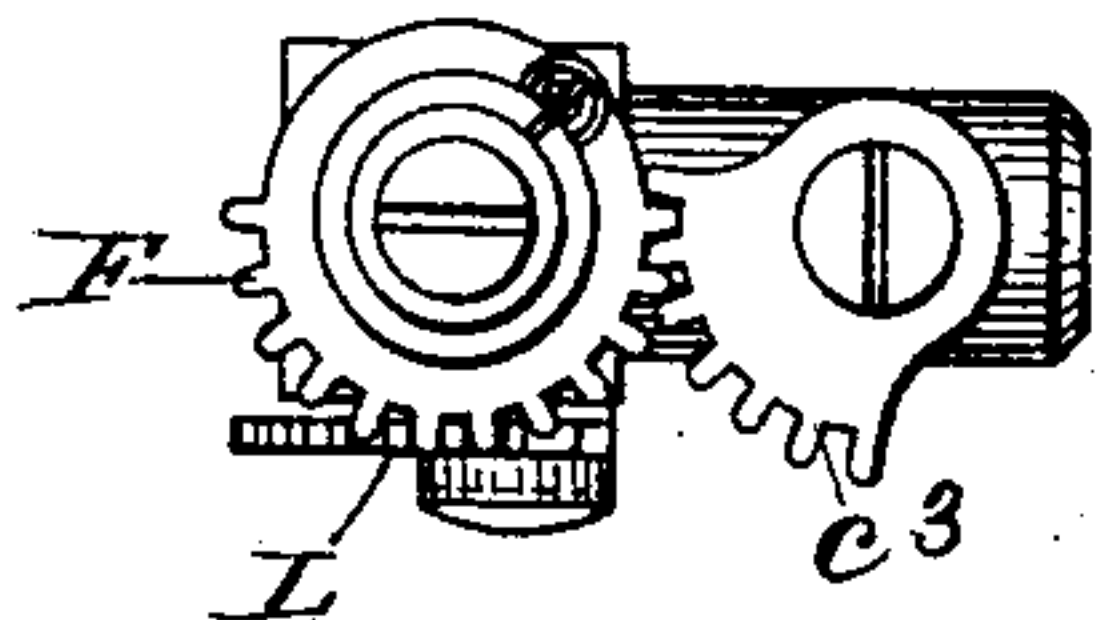
Patented June 30, 1896.



WITNESSES.

Stephen A. Foster
William M. Payson

FIG. 9-



INVENTOR-

Henry C. Thomson

UNITED STATES PATENT OFFICE.

HENRY C. THOMSON, 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. 562,937, dated June 30, 1896.

Application filed April 18, 1896. Serial No. 588,161. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. THOMSON, 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.

My invention consists in new devices for operating the movable electrode simultaneously with the gas-valve and in a new combination of devices.

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

Figure 1 is a front elevation of my improvement with the gas turned off. Fig. 2 is a front elevation of my improvement, showing the electrodes in contact. Fig. 3 is a front elevation of my improvement with the gas turned on. Fig. 4 is a vertical section through the burner with the gas turned on. Fig. 5 is a plan with electrodes in contact. Fig. 6 is a perspective view of the annular cam. Fig. 7 is a rear elevation of a modified form. Fig. 8 is a vertical section showing gas turned on. Fig. 9 is a plan showing gas turned on.

I will now describe the drawings.

A is a burner-pillar threaded for attachment to a fixture, and having the fixed electrode *a*.

B is a bracket making part of the burner-pillar for the purpose of supporting the thumb-cock and also for containing, if desired, but not otherwise, the gas-valve.

b is a partition, or solid part, around which the gas passes in the form shown in Fig. 4, and *b'* the gasway.

C is the gas-plug, having the port *x*, and moved by the thumb-key *c*, which also carries the plate *c'*, cut away at *c''* to play against the stop 1 on the bottom of the bracket B, and the toothed plate *c''*, rigidly attached to the top of the thumb-key. Upon the top of the bracket near the burner are several stops 2.

E is an annular horizontal cam, having cam-teeth upon its upper side and slighter

catches on its under side to gear with the stops 2, and hence capable of rotating only in one direction.

F is a flat collar, having a part of its perimeter provided with teeth *f*, which mesh with teeth upon the plate *c''*, and also having attached to it a chamber or box G, in which the annular cam is housed. Rigidly attached to the top of this collar F by a screw 3 is the coiled-spring electrode H, in which rises and falls the pin *h*, the collar F being perforated, so that the pin *h* not only rests in the upper teeth of the annular cam E, but also serves to rotate said cam when the gas is being turned off.

Having described the parts of my burner, its operation will be easily understood.

When the apparatus is in the position shown in Fig. 1 and the gas is turned off, turning the thumb-key will turn on the gas and will also rotate the collar F by means of the gear-teeth between *c''* and F, and thereby cause the electrode-pin *h* to ride up on a tooth of the annular cam E until the spring-electrode H makes contact with the fixed electrode *a*, immediately after which the pin *h* falls into the succeeding tooth upon the cam E by force of the coiled electrode-spring H, leaving the gas ignited. The extent of the rotation is limited by stop 1.

When it is desired to turn off the gas, the thumb-key being turned in the opposite direction rotates, through the gearing, the collar F in the opposite direction, and thereby forces the electrode-pin *h* against a tooth in the annular cam E, causing the annular cam to revolve the space of one tooth, when the apparatus is left in position for a repetition of the turning-on process. It is evident that under this construction the gas-flame may be turned down if too high and again turned up, without making contact between the electrodes.

In Fig. 5 the entire apparatus is the same and operates the same, except that the gear-teeth are placed on the housing G instead of upon the collar F, as in Fig. 1, and are increased in number, while instead of the gas-cock C, an oscillating gas-cock is inserted in the burner-pillar at K, and a toothed plate L rigidly attached to the same, thus enabling

the extended gear upon the chamber or housing G to operate the gas-cock thus placed when moved by the gear c^3 .

I do not limit my electrode-operating combination to use with a thumb-cock, as other well-known devices may be substituted for moving both the valve and electrode.

Having described my invention, what I claim is—

10 1. In an electric hand-lighting gas-burner, the combination with the burner-pillar and fixed electrode of the annular, toothed cam E, stops 2, collar F, spring-electrode H, electrode-pin h , and means for moving the same;
15 substantially as described.

2. In an electric gas-lighting burner, as a device for igniting the gas by operating an electrode both horizontally and vertically, the combination of an annular, toothed cam E,
20 a stop therefor, a horizontal collar F, an electrode composed of a coiled spring H and pin h , therein, playing in said collar and resting on said cam, a thumb-key $c\ c'\ c^2\ c^3$ and intermediate devices for communicating the motion of the key to said collar F, substantially
25 as described and shown.

3. In an electric hand-lighting gas-burner, in combination with a stationary gas-pillar and a fixed electrode, an annular rotating
30 cam E having cam-teeth on its upper side

and catches on its under side, to be rotated in one direction by, and for raising, the movable electrode, the stops 2, a movable electrode composed substantially of the spring H and the pin h , a horizontal collar F, to which
35 the spring-electrode is attached, perforated to receive the electrode-pin h , a gas-valve, a key-stem and means for imparting the motion from the key-stem to the collar and gas-valve, all substantially as described and shown. 40

4. In an electric hand-lighting gas-burner, the combination of the gas-pillar A, a bracket B, supporting the pillar, and having the gas-way b' and solid part b , a conical valve C, having the port x , stem or key $c\ c'\ c^2\ c^3$, a collar F, perforated for the movable electrode,
45 an electrode-spring H, and pin h therein, playing in said collar and supported by a cam, an annular toothed cam, moved by said pin h , and intermediate devices to communicate
50 the motion of the stem-key to the valve and movable electrode; substantially as described and shown.

In witness whereof I hereunto set my hand this 10th day of April, 1896.

HENRY C. THOMSON.

In presence of—

STEPHEN A. FOSTER,
WILLIAM M. PAYSON.