

(No Model.)

G. L. HOGAN.

ELECTRICAL GAS LIGHTER AND EXTINGUISHER.

No. 389,151.

Patented Sept. 4, 1888.

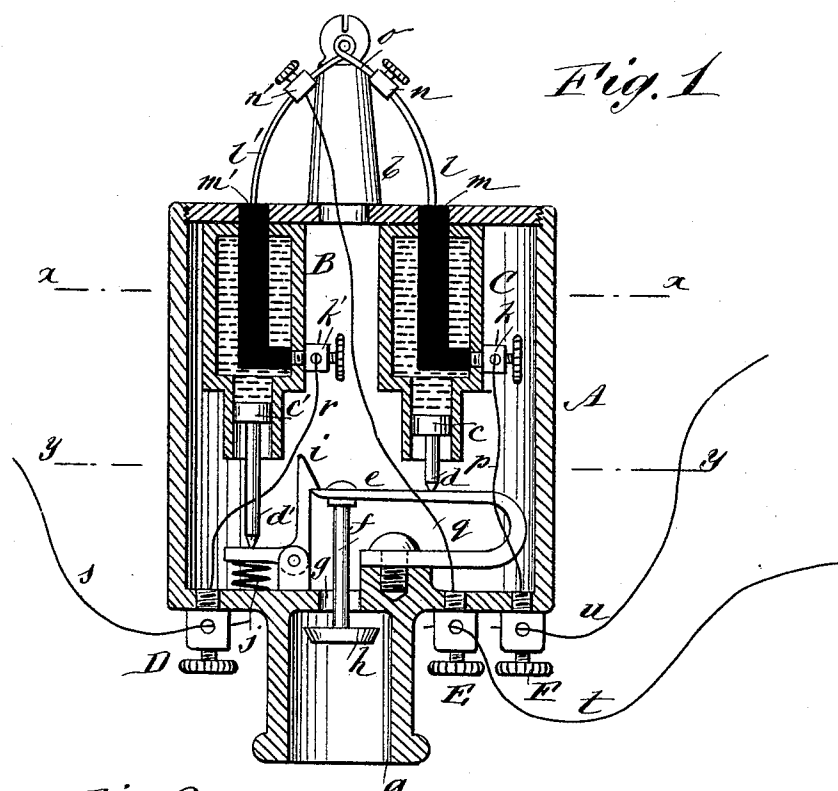
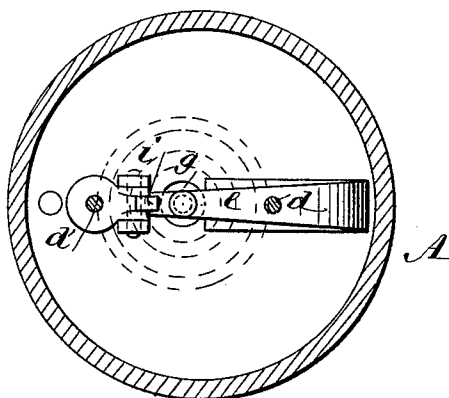
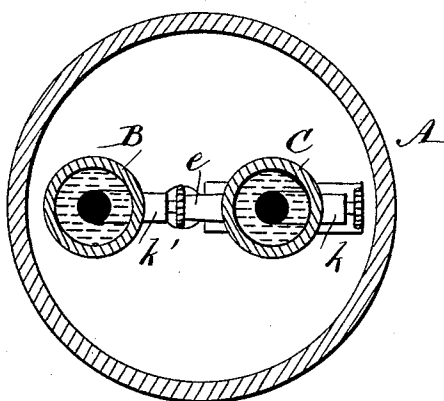


Fig. 1

Fig. 2

Fig. 3



WITNESSES:

C. Verneux

C. Sedgwick

INVENTOR:

G. L. Hogan

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE LEWIS HOGAN, OF OLMSTEAD, KENTUCKY.

ELECTRICAL GAS LIGHTER AND EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 389,151, dated September 4, 1888.

Application filed February 18, 1888. Serial No. 364,449. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LEWIS HOGAN, of Olmstead, in the county of Logan and State of Kentucky, have invented a new and Improved
5 Electric Gas Lighter and Extinguisher, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a vertical transverse section of
10 my improved gas lighter and extinguisher. Fig. 2 is a horizontal section taken on line *xx* in Fig. 1, and Fig. 3 is a horizontal section taken on line *yy* in Fig. 1.

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

The object of my invention is to provide a gas lighter and extinguisher in which the turning on and shutting off of the gas will be effected by the heating action of the current, and
20 in which the gas will be ignited by an incandescent wire.

My invention consists in the combination, with a gas-burner, of two cylinders provided with pistons and containing mercury, electrical
25 conductors passing through the mercury, but electrically insulated therefrom by heat-conducting material, and a spring-valve held open by a spring-actuated catch-lever, the mercury-cylinders being arranged so that the expansion
30 of the mercury in one cylinder will open the spring-valve, while the expansion of the mercury in the other cylinder will release the spring-valve and allow it to close.

It also further consists in the combination,
35 with the mercury-cylinders, of an igniting-wire adapted to be heated by the current to a sufficient degree to ignite the gas, all as herein-after more fully described.

The casing A, which contains the working
40 mechanism of the burner, is provided at its lower end with a collar, *a*, for shutting the gas-supply pipe, and a burner, *b*, of the ordinary construction, is inserted in the top of the casing. Two cylinders, B C, are secured to the
45 inner surface of the top of the casing. The cylinder C is reduced in diameter at its lower end and provided with a piston, *c*, having a rod, *d*, extending downward and resting upon the U-shaped spring *e*. One end of the U-
50 shaped spring *e* is attached to the bottom of

the casing A, and to the free end of the said spring *e* is attached a valve rod, *f*, which passes through an opening, *g*, into the collar *a*, where it is provided with a valve, *h*, adapted to close the opening *g* when the spring *e* is released. 55
Opposite the free end of the spring *e*, in ears projecting upward from the bottom of the casing A, is pivoted a right-angled catch-lever, *i*, which is forced into engagement with the free end of the spring *e* by the spiral spring *j*, resting upon the bottom of the casing A and tending to press the horizontal arm of the catch *i* upward. 60

The cylinder B is reduced in diameter at its lower end and provided with a piston, *c'*, having a rod, *d'*, which rests upon the horizontal arm of the catch-lever *i*. In the side of the cylinder C is inserted a binding-post, *k*, from which a wire, *l*, extends through the mercury and upward toward the top of the burner *b*. 65
The said wire *l*, within the cylinder C, is inclosed in electrical insulating material *m*. In like manner a binding-post, *k'*, is inserted in the side of the cylinder B, and the conductor *l'* extends from the said binding-post through 70
the said cylinder, and is inclosed within the cylinder in the electrical insulating material *m*. The wires *l l'* are provided with clamps *n n'*, which receive the ends of a looped platinum wire, *o*, which is supported by the said 80
clamps near the tip of the burner *b*.

In the bottom of the casing A are inserted three binding-posts, D E F. The binding-post F communicates electrically with the binding-post *k* by the wire *p*. The binding-post E communicates electrically with the clamp *n'* by the wire *q*, and the binding-post D communicates electrically with the binding-post *k'* by the wire *r*. 85

Three conductors, *s t u*, are required for operating my improved burner. When it is desired to turn on the gas, the current is sent through the conductor *u*, binding-post F, through the wire *p*, binding-post *k*, wire *l*, platinum wire *o*, wire *q*, binding-post E, and wire *l'*, back to the generator. The heating effect of the wire *l* within the cylinder C expands the body of mercury surrounding the insulation *m* of the said wire and presses the piston *c* downward, thereby opening the valve 90
100

h. When the valve *h* is fully opened, the end of the spring *e* is caught by the catch lever *i* and held. The current in flowing through the platinum wire *o* heats the wire and ignites the gas.

When it is desired to extinguish the gas, the current is sent through the wires *s t*, thereby heating the wire *l'* in the cylinder B, expanding the body of mercury contained by the said cylinder, pushing down the piston *c'*, thus causing the piston-rod *d'* to press on the horizontal arm of the catch-lever *i*, turning the lever so as to release the spring *e*, when the said spring closes the valve *h*.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric gas lighter and extinguisher, the combination, with the gas-valve, of a spring adapted to close the valve, a cylinder containing mercury and provided with a piston adapted to act upon the closing-spring of the valve, and an electrical heating device for

heating the mercury in the cylinder, substantially as described.

2. In an electric gas lighter and extinguisher, the combination, with the valve-opening spring, of a catch-lever adapted to hold the valve open, a cylinder containing mercury and provided with a piston arranged to act upon the catch-lever, and an electric conductor adapted to heat the mercury and cause it to expand so as to release the catch-lever, substantially as described.

3. In an electric gas lighter and extinguisher, the combination of the casing A, the gas-supply valve *h*, the U-shaped spring *e*, the spring-actuated catch-lever *i*, the mercury-cylinders C B, provided with pistons *c c'*, the wires *l l'*, the clamps *n n'*, the platinum wire *o*, and the electrical connections, substantially as described.

GEO. LEWIS HOGAN.

Witnesses:

WM. EDMUNDS,
M. J. INGRAM.