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Patented Sept. 3, 1901.

H. C. THOMSON.

SAFETY DEVICE FOR AUTOMATIC ELECTRIC GAS LIGHTING APPARATUS.

(Application filed Aug. 6, 1900.)

(No Model.)

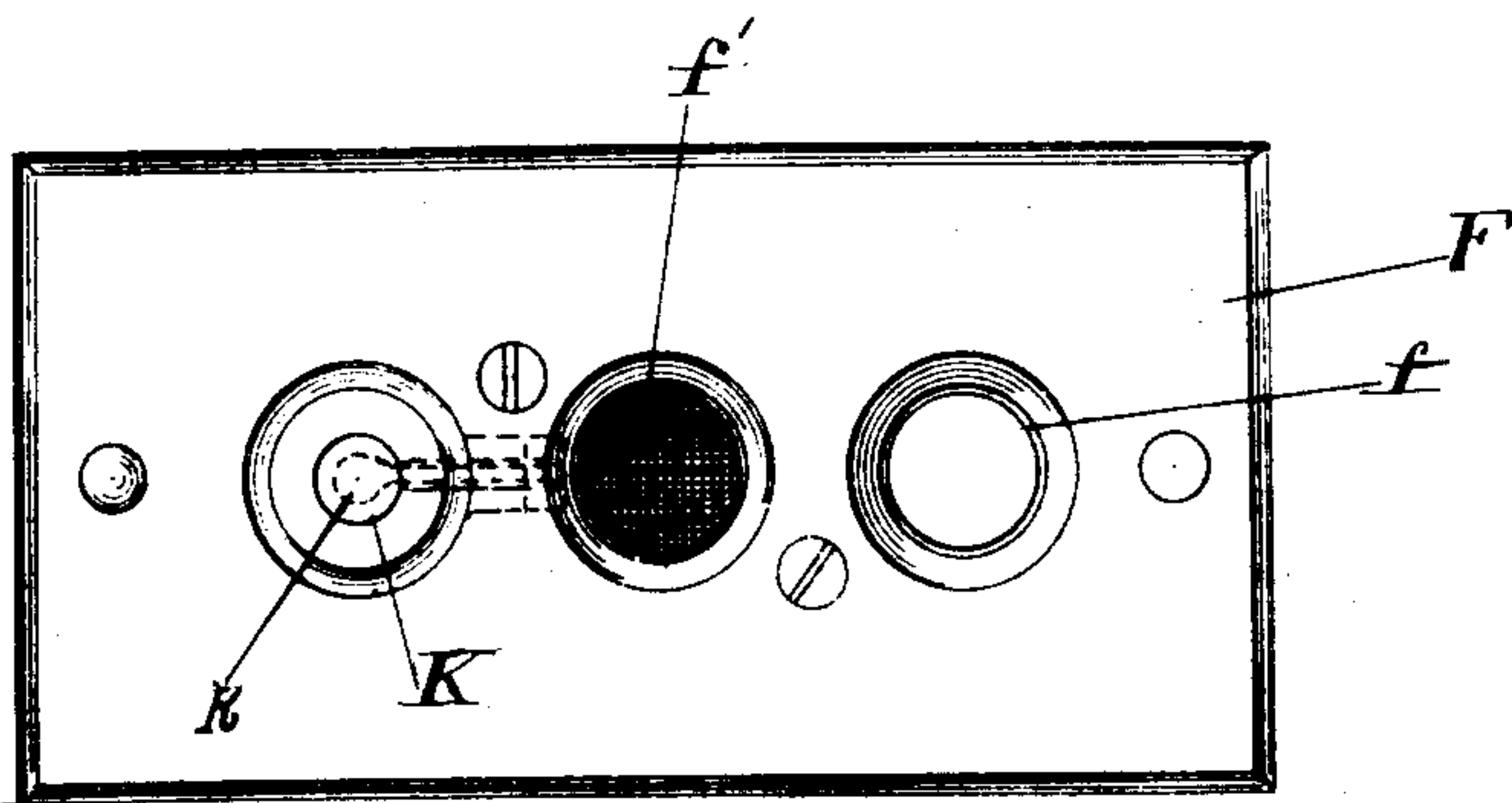
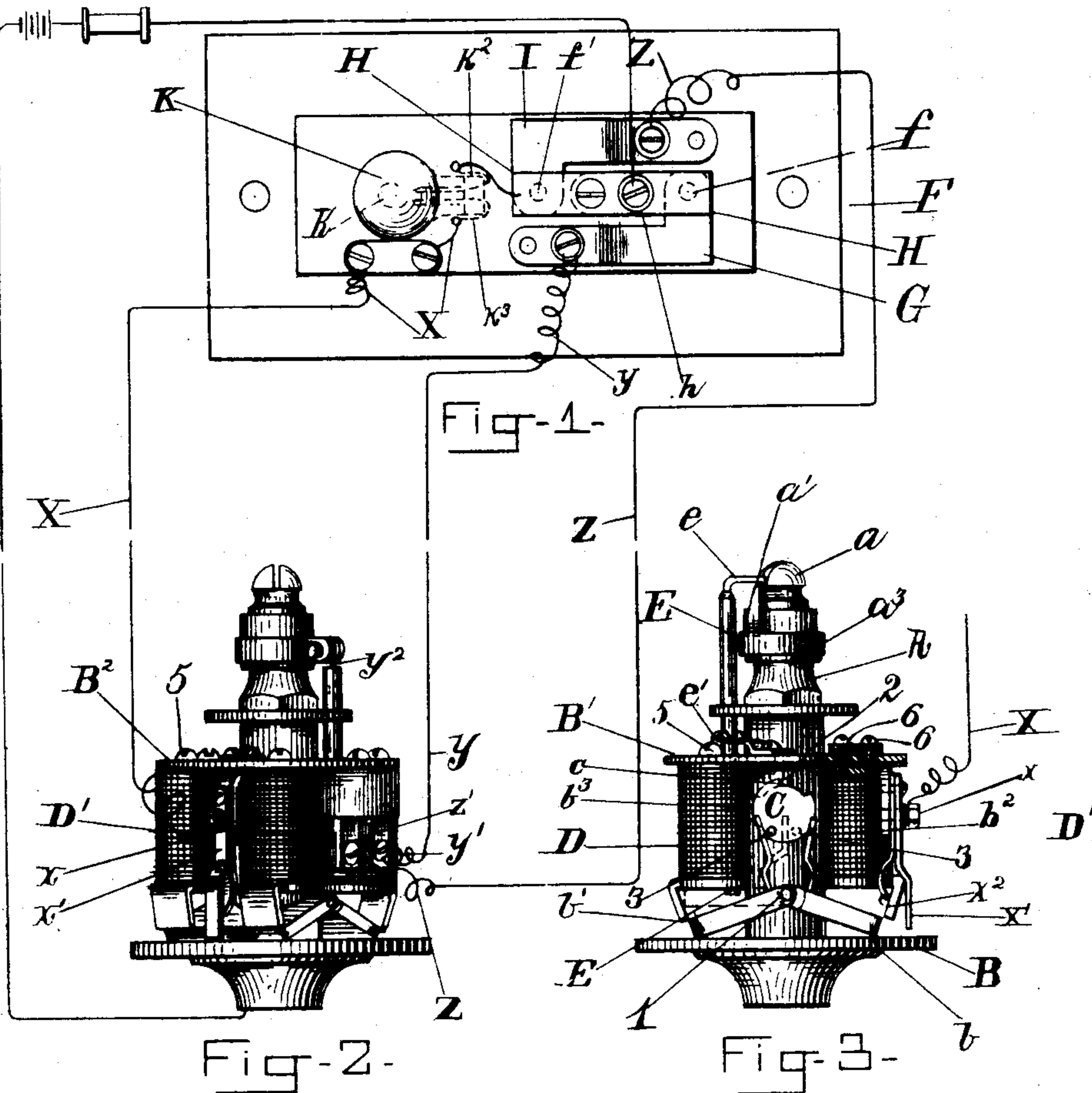


Fig-4-

WITNESSES

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SAFETY DEVICE FOR AUTOMATIC ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 681,754, dated September 3, 1901.

Application filed August 6, 1900. Serial No. 25,984. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. THOMSON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Safety Device for Automatic Electric Gas-Lighting Apparatus, of which the following is a specification.

My invention relates to a safeguard consisting of an electric signaling device electrically connected with automatic electric gas-lighting apparatus; and the objects of my invention are, first, to provide a means for automatically announcing to the operator with certainty the extinguishment of the light and the turning off of the gas in such apparatus, situated at a distance from or out of sight of the operator, and, second, a construction, combination, and arrangement of the essential devices by which my purpose is accomplished into a practical instrumentality. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the back of the push-button plate, showing the signaling device and the electrical circuits. Fig. 2 is a perspective of an automatic electric gas-lighting burner, showing the circuit connections with the push-button plate of Fig. 1. Fig. 3 is a side elevation of the automatic electric gas-lighting burner, one coil of the right-hand magnet being removed and a part of the structure shown in section and the circuit connections indicated. Fig. 4 is a front view of the push-button plate and the signaling part of the apparatus.

Similar reference characters refer to similar parts throughout the several views.

Figs. 2 and 3 show enough of an automatic electric gas-lighting burner to illustrate the application thereto of my invention. I will now describe these drawings.

The burner-pillar A, above the lower platform B, has the lava tip *a* and the fixed electrode *a'*. The double armatures *b b'* are loosely pivoted at 1 to the burner-pillar, and from these respectively project the pins *b² b³*.

The oscillating gas-cock (not shown) has its spindle rigidly attached to the plate C, which

has a notch *c* playing against a pin 2 to limit the oscillation of the gas-cock, and said plate C also supports the pin 3, against which alternately play the pins *b² b³*, according to which armature is moved, for partially rotating said plate to open or to close the gas-valve. The magnets D D' are properly supported from the upper platform B' by the screws 5. The moving electrode is the rod E, having the platinum tip *e* normally held in contact with the fixed electrode *a'* by the spring *e'*, and said movable electrode E extends down and projects sufficiently below the magnet to be elevated by the armature *b'* when the magnet D is energized.

F is an ordinary face-plate having the white and black push-buttons *f f'*, and in the well-known way the use of these buttons alternately admits the current to the magnet D for the purpose of energizing it to turn on the gas, separate the electrodes, and provide an igniting-spark, and to the magnet D' to shut off the gas. The push-button *f* closes the circuit Y by bringing the spring G in connection with the plate H, and the push-button *f'* closes the circuit Z by bringing the spring I in connection with the plate H, the plate H connecting with the battery through screw *h*. The circuit in lighting the gas will be as follows, viz: Upon pressing push-button *f* the current coming from the battery to screw *h* will pass on through plate H, spring G, circuit-wire Y, binding-post *y'*, magnet D, insulated wire *y²*, insulated collar *a³*, electrodes *a' e E*, spring *e'*, through the burner to ground. The circuit in turning off the gas will be as follows, viz: Upon pressing push-button *f'* the current coming from the battery to screw *h* will pass by plate H, spring I, circuit-wire Z, binding-post *z'*, magnet D' to B² in the upper platform B', at which point the wire from the magnet is connected with said platform, and so to ground.

I will now explain the drawings as showing my invention or safety device.

K is a small incandescent lamp. An auxiliary circuit X passes through said lamp, so that whenever the push-button *f'* is pressed the wire *k* may be rendered incandescent in the way now to be described. The auxiliary

circuit X is from battery to screw h , plate H, spring I, wire k^2 , lamp-wire k , wire k^3 , circuit-wire X, screw x , to the standard x' , upon the rear of which is the contact-piece x^2 , 5 (preferably having some spring action for sake of the contact,) supported by screws 6 and insulated, as shown in Fig. 3. When the armature b is attracted upon its magnet being energized, the current is allowed to 10 pass through the circuit X by reason of a contact between said spring x^2 and armature b to ground. In the drawings I have shown the auxiliary circuit X as made and broken between the contacts x^2 and the armature; 15 but it will be plain to those skilled in the art that it is not essential to make and break that circuit at that point, but only at some convenient point and at the right moment of time. In the drawings when the elevation 20 of said armature b has brought the pin b^2 in contact with the pin 3 upon the plate C, rotating the gas-valve and shutting off the gas, and as the current cannot pass through the auxiliary circuit X unless contact be made 25 between the armature b and the pin x^2 , it is evident that if the visual signal K k becomes momentarily incandescent the operator is made aware that the gas-cock has been rotated, the gas turned off, and the flame extinguished, because the construction is such 30 that no contact between the armature b and the circuit-closing spring x^2 can occur and be maintained unless the gas has been fully shut off—that is, the auxiliary circuit is so arranged 35 that movement of the armature b closes the auxiliary circuit X in turning off the gas, thereby rendering the wire k incandescent. In order to insure this, it will be proper that the magnet D' be wound with a wire of greater 40 resistance than that of D in view of the great resistance of the incandescent-lamp wire.

In the drawings I have shown a small incandescent lamp K k to serve the purposes of a visual signal; but evidently a different visual signal or a small buzzer or other aural 45 signal may be substituted for this incandescent lamp K k without departing from my invention or securing other than the result obtained by me, as above shown, by which I 50 make the automatic burner to itself automatically announce with certainty whether it has fully performed its function of completely

turning off the gas when the light is extinguished.

The danger which my invention seeks to 55 remedy is that in this variety of apparatus the gas-cock may fail to be perfectly closed when the light is extinguished, whereby escape of the gas may continue; but under my invention it will be seen that the auxiliary 60 circuit operating the incandescent lamp or other signal can only operate upon condition of the gas-cock having been fully closed, and the apparatus automatically announces the fact as to this. 65

Having described my invention, what I claim is—

1. In combination with the gas-extinguishing circuit of an automatic electric gas-lighting apparatus having an armature, an auxiliary electric circuit, a circuit-closing contact-piece, and its insulated support, as part of 70 said auxiliary circuit, adapted to complete the auxiliary circuit upon making contact with some part of the burner when the gas has been 75 turned completely off, and a signaling device operated by said auxiliary circuit, substantially as described.

2. The combination with an automatic electric gas-lighting burner and its circuits, of an 80 auxiliary circuit X, a signaling device operated by said auxiliary circuit, and contact-pieces adapted to close said auxiliary circuit when the gas has been turned completely off, 85 substantially as described.

3. In combination with an electric gas-lighting burner as described, the two electric circuits Y and Z for turning on and off the gas, the push-buttons and plate F, f, f' , the signaling device K, k , the auxiliary circuit X, the 90 contact-piece x^2 , and the insulated support x' therefor, said contact-piece being adapted to close said auxiliary circuit by contact with the gas-extinguishing armature and thereby 95 simultaneously operate the signaling device; substantially as described.

In testimony whereof I hereunto set my hand this 4th day of August, 1900, in presence of two witnesses.

HENRY C. THOMSON.

Witnesses:

FRED C. CHAMBERLIN,
JAMES A. HURLEY.