

No. 631,037.

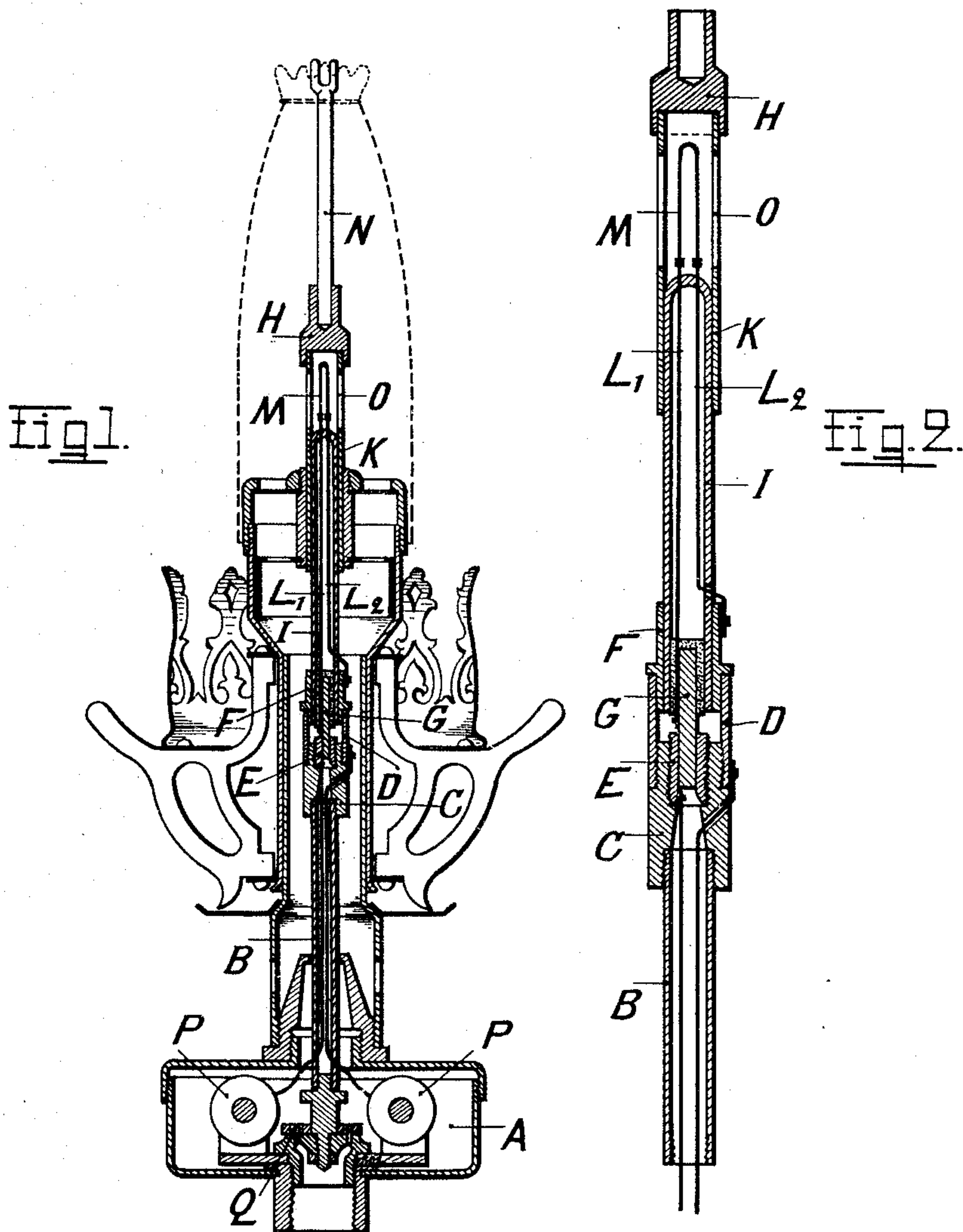
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C. FRANZEN.

ELECTRIC APPLIANCE FOR CONTROLLING SUPPLY OF GAS TO BURNERS, &c.

(Application filed Feb. 20, 1899.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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ELECTRIC APPLIANCE FOR CONTROLLING SUPPLY OF GAS TO BURNERS, &c.

SPECIFICATION forming part of Letters Patent No. 631,037, dated August 15, 1899.

Application filed February 20, 1899. Serial No. 706,195. (No model.)

*To all whom it may concern:*

Be it known that I, CARL FRANZEN, a subject of the German Emperor, residing at 39 Christophstrasse, Cologne, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Electrical Appliances for Controlling the Supply of Gas to Burners and Effecting its Ignition from a Distance, of which the following is a full, clear, concise, and exact description.

My invention relates to combined electrical devices for controlling the gas-supply to and effecting the ignition and extinction of gas-burners from a distance.

The invention consists in connecting the electrical resistance by the heating of which the gas-current is caused to ignite in series with the electromagnets governing the controlling device, thus making the use of separate conductors for both devices superfluous, in giving the said electrical resistance a position in which it is capable of inflaming the gas, but at the same time is not liable to be affected by the heat of the flame when ignited, and in so constructing the said igniting device that it can be easily replaced when defective.

Figure 1 is a vertical section through an ordinary Welsbach gas-burner fitted with my improved controlling and igniting device; and Fig. 2 is likewise a vertical section of parts, drawn on an enlarged scale, showing details.

The letters of reference signify the same parts in both figures.

I is a glass tube closed at the upper end and containing two conductors  $L^1$  and  $L^2$ , which pass through the upper closed end of said tube and unite to form the loop, preferably made of platinum wire and adapted to be heated by an electric current passing through it and thereby to ignite the gas. The upper portion of said tube carries the sleeve K, preferably made of sufficiently refractory metal and provided at its upper end with the head-piece H, adapted to carry the ordinary stem N, which in its turn carries the incandescent mantle. The sleeve K is also provided with two or more openings O, placed in such a position as to admit the gas issuing from the burner to the resistance M.

At the lower end of the glass tube I two metal pieces are united to it by any suitable

cement—namely, on its outside the sleeve F and on its inside the pin G. The two conductors  $L^1$  and  $L^2$  are led down and connected, respectively, to these two pieces F and G.

The controlling device A is only shown by way of giving an example, since I do not consider it to form part of my improved arrangement, which might as well be combined with any other known electrical controlling device.

The electromagnet P is supposed by means of a ratchet-wheel and pawl to actuate the rotatable disk Q, having a series of peripheral holes, so that in one position of the said disk a perforation thereof is brought opposite the gas-supply passage, so as to admit the gas to the burner, while in another position the solid part of the disk covers the said passage, so as to cut off the gas-supply. On the vertical fixed axis of this electromagnet appliance on which the said perforated disk is made to rotate is fixed a small tube B, that extends up within the tubular mixing-chamber of the Welsbach burner, (which may conveniently be carried on the top of the casing of the said electrical appliance,) and at a certain point within such chamber it has fixed to its upper end a cylindrical head-piece C, of insulating material, on the upper end of which is fixed a socket D, of conducting material. The insulating-head has a central passage, in which is fixed a small tube E, of conducting material.

The one lead of the winding of the electromagnet of the above-described perforated disk is passed up the tube B and is fixed to the small central conducting-tube E of the head, and the second lead of the said winding is also passed up through the first-described tube and through a lateral hole in the insulating-head C and is fixed to the conducting-socket D on the top of the head.

The lower end of the above-mentioned sleeve F is made to fit into this socket D, and the above-mentioned pin G is made to fit into the tube E, thus making conductive contacts between F and D and between G and E, respectively.

It will be seen that by the above connections of the lower and upper wires, respectively, with the conducting parts of the insulating-head and the conducting parts of the



glass tube that fit into the same a closed circuit is formed, extending from the winding of the one electromagnet-limb up through the platinum wire loop or coil and down again to the winding of the second electromagnet-limb, so that when a current is passed from a distance through the electromagnet for actuating the perforated disk such current at the same time passes through the platinum loop or coil and in heating this to incandescence effects the ignition of the mixture of gas and air issuing through the burner.

As the metal tube carrying the glass tube and its wires is removably fitted into the head of the lower tube, it will be seen that the glass tube, with its platinum igniter, can be readily replaced by a new one when defective. The central position thus given to platinum wire loop is considered an important novelty. Hitherto such igniting resistances were invariably placed outside the flame, and it was believed that the temperature at the center of the burner was too high to allow a thin platinum wire placed in this position to be maintained in good condition for any length of time, as is proved by the fact that the stem of refractory material which carries the mantle was hitherto invariably carried down considerably below the place where according to my invention the platinum loop is fixed.

Although I have described my invention more particularly in connection with Welsbach burners, it will be evident that it can also be applied to other forms of gas-burners.

Having now described apparatus embodying my invention, I claim as new, and desire to secure by these Letters Patent, the following:

1. In apparatus of the class described, the combination with a gas-burner, of a centrally-disposed socket or receptacle provided with contacts D E, a stem I having coacting contacts F G adapted to be removably inserted in said socket, the said stem being adapted to carry an incandescent mantle at its upper

end, and a loop of refractory conducting material O electrically connected with the contacts and carried by the stem centrally within the flame of the burner, substantially as described.

2. The combination with a gas-burner adapted to be electrically controlled, of electrical contact parts forming a socket or receptacle associated with said burner, and a removable stem provided with an igniting-conductor and with coacting contact parts adapted to fit within the socket and maintain the conductor in position to ignite the gas issuing from the burner, substantially as described.

3. In apparatus of the class described, the combination with a burner, of an igniting device comprising a refractory electrical conductor and connected contact parts, and a receptacle or socket provided in the burner having coacting contact parts adapted removably to support the igniting device centrally in position within the flame of the burner and establish electrical connection with the igniting-conductor, substantially as described.

4. In igniting apparatus for electrically-operated incandescent gas-burners, the combination with the burner, of electromagnetic means for controlling the flow of gas thereto, a socket provided with electrical contact parts in electrical connection with said means, and an igniting device comprising a stem with coacting contact parts adapted to be removably inserted within the socket and an igniting-conductor electrically connected with said contacts and carried at the upper end of the stem centrally within the flame, substantially as described.

In witness whereof I have hereunto subscribed my name this 28th day of January, A. D. 1899.

CARL FRANZEN.

Witnesses:

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