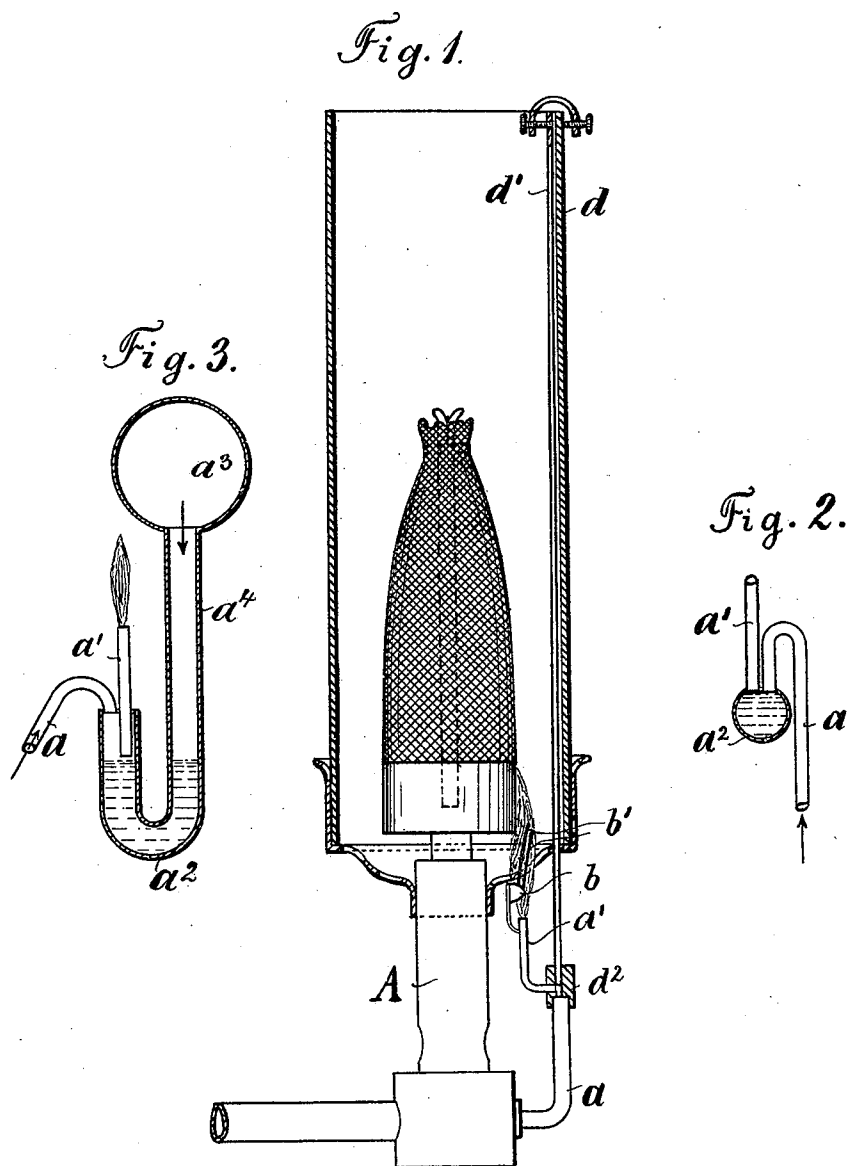


(No Model)

J. M. CANELLOPOULOS & H. O. KRATZ-BOUSSAC.
AUTOMATIC GAS LIGHTING DEVICE.

No. 582,619.

Patented May 18, 1897.



Witnesses:
B. S. Ober,
W. G. L. Higgins

Inventors,
Jean M. Canello-poulos
Henri Othon Kratz-Boussac.
By Henry Oth
Attorney.

UNITED STATES PATENT OFFICE.

JEAN M. CANELLOPOULOS AND HENRI O. KRATZ-BOUSSAC, OF PARIS,
FRANCE.

AUTOMATIC GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 582,619, dated May 18, 1897.

Application filed September 29, 1896. Serial No. 607,340. (No model.) Patented in Germany March 21, 1896; in Hungary April 13, 1896, No. 6,102; in Norway April 15, 1896, No. 5,024; in Switzerland April 15, 1896, No. 12,118; in Luxemburg April 19, 1896, No. 2,491; in Austria May 2, 1896, No. 46/1,745; in Italy June 30, 1896, XXXI, 41,356, LXXXI, 156, and in Spain July 28, 1896, No. 18,925.

To all whom it may concern:

Be it known that we, JEAN M. CANELLOPOULOS and HENRI OTHON KRATZ-BOUSSAC, residing at Paris, France, have invented certain new and useful Improvements in Automatic Gas-Lighting Devices, (for which patents have been obtained in Germany, dated March 21, 1896, not yet numbered; in Italy, Vol. XXXI, No. 41,356, Vol. LXXXI, No. 156, dated June 30, 1896; in Luxemburg, No. 2,491, dated April 19, 1896; in Norway, No. 5,024, dated April 15, 1896; in Austria, No. 46/1,745, dated May 2, 1896; in Switzerland, No. 12,118, dated April 15, 1896; in Spain, No. 18,925, dated July 28, 1896, and in Hungary, No. 6,102, dated April 13, 1896;) and we do hereby declare the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention has relation to self-lighting gas-burners in which platinum black or sponge, together with a platinum wire heated to incandescence by the black, when brought into contact with illuminating or heating gas and air is used as an igniter for the gas issuing from the main burner.

It is well known that platinum-black, when subjected to the action of a flame, whether the igniting or main-burner flame, is soon converted into a carbide and becomes useless as a heating medium for the platinum wire.

Our invention has for its object to provide simple and efficient means whereby the platinum-black or, generally speaking, the igniter is shielded from the action thereon of the heat of the main-burner flame, as well as that of the igniting-flame. To shield the igniter from the action of the main-burner flame, we so locate the same relatively to the main burner as not to be influenced by the heat of the flame of such main burner, and to shield said igniter from the action of the igniting-flame we provide means for automatically cutting off the supply of gas to the igniter

after the gas issuing from the main burner has been ignited; but that our invention may be fully understood we will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional elevation illustrating our improvements in their application to a so-called "incandescent burner" wherein the supply of gas to the igniter is cut off by the expansive power of a solid body exposed to the action of the heat emitted at the burner. Figs. 2 and 3 are sectional detail views, the former involving the use of an expansible liquid and the latter air or gas, the pressure of which, when expanded, acting upon a liquid to cut off the supply of gas to the igniter.

In Fig. 1, A indicates a well-known form of Bunsen burner; *a'*, the igniter-burner; *b*, the igniting body, as platinum-sponge; *a*, the gas-supply pipe leading from the main burner A, said pipes *a* and *a'* being connected with a coupling *d*², in which is fitted the lower end of a rod or bar *d'* in such manner as to cover the port leading from the coupling *d*² to the igniter-burner *a* when said bar *d'* expands under the heat from the main burner A. The upper end of the bar *d'* is conveniently secured to the upper end of the chimney *d*, as shown.

When gas is admitted to the main burner A, it will also flow to the igniter-burner *a'* and become ignited by the incandescing body *b*, the flame from the igniter-burner igniting the gas issuing from the main burner. Within a comparatively short time the bar or rod *d'* becomes heated and expands sufficiently to cut off the supply of gas to the igniter-burner *a'*, said bar *d'* being made of a suitable expansible metal. Should the flame of the main burner be accidentally extinguished, the bar *d'* will cool and contract, again establishing communication between the igniter-burner *a'* and its supply-pipe *a*, so that but a comparatively small volume of unconsumed gas will flow from the main burner before it is again ignited. The same result may be obtained by the use of a body of mercury or other expansible liquid in a suitable holder *a*², Fig. 2,

into the upper end of which both the supply-pipe *a* and the igniter-pipe *a'* lead, the heat from the main-burner flame heating the liquid sufficiently to cause it to expand and seal the ports leading to said pipes *a* and *a'*; or we may use a bent tube *a¹*, Fig. 3, provided at its upper end with a bulb *a²*, the leg of the bent tube terminating in the bulb being of such length when applied to a burner that said bulb will be brought within the direct influence of the heat emitted at the burner to cause the gaseous body in said bulb to rapidly expand under the influence of such heat, and by the pressure thus established displace the mercury or other liquid seal to seal the outlet of the gas-supply pipe *a*, as will be readily understood.

As clearly shown in Fig. 1, the igniting body is sufficiently remote from the burner as not to be influenced by the heat of its flame, and in the case in point said igniting body is located in the vicinity of the mixing-chamber, to which air is admitted for admixture with the gas before the latter reaches the burner, which chamber is consequently but little heated.

We are aware that it has been proposed to shield the igniting body (platinum-black) against the more or less intense heat of the burner-flame, and at the same time provide means for admitting the gas to the igniter first, and after ignition of the igniter-jet to the burner, means being also provided to cut off the supply of gas to the igniting body after the gas issuing from the burner has been ignited. In this arrangement the element that controls the flow of gas to the igniter and burner is an expansible body, as a more or less flexible case which may contain air, gas, or a liquid, but this body is to be influenced by the heat of the igniter-flame and not by the heat of the burner-flame. Inasmuch as the igniting body must be sufficiently removed from the influence of the heat of the burner-flame, and in view of the fact that the igniting-flame is but a small jet-flame emitting but a comparatively small amount of heat, and in view of the further fact that the controlling expansible body must necessarily be remote from the burner-flame and more or less remote from the igniter-flame and must

be inclosed in a casing through which the gas flows from the supply-pipe to the burner and igniter, a considerable time will elapse before said expansible body becomes sufficiently heated to unseat the valve that normally closes the gas-passage leading from the supply-pipe to the burner and to seat the normally-unseated valve and cut off the supply of gas from said supply-pipe to the igniter. As is readily seen, this is a very serious disadvantage and is effectually avoided by our invention.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. In a self-igniting gas-burner, the combination with the gas-supply pipe, the burner, the igniter, and passages communicating with said pipe, burner and igniter respectively; of a normally open valve in the igniter-passage, and a body immediately within the influence of the heat of the burner-flame adapted to be expanded thereby and close said valve, for the purpose set forth.

2. In a self-igniting gas-burner, the combination with the gas-supply pipe, the burner, the igniter, and passages communicating with said pipe, burner and igniter respectively, of a normally open valve in the passage leading to the igniter, and a rod within the influence of the heat of the burner-flame adapted to be expanded by such heat and close the valve, for the purpose set forth.

3. In a self-igniting gas-burner, the combination with the gas-supply pipe, the burner, the igniter, and passages communicating with said pipe, burner and igniter; of a rod or bar within the influence of the heat of the burner-flame, and adapted to be expanded thereby and to intercept the flow of gas through the passage leading to the igniter when so expanded, for the purpose set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

J. M. CANELLOPOULOS.
H. O. KRATZ-BOUSSAC.

Witnesses:

CARL S. WILLIAMS,
JOSEPH ARTHUR FOILLARD.