No. 886,940

PATENTED MAY 5, 1908.

R. BUSQUET & M. RAMASSOT.

INCANDESCENT GAS BURNER.

APPLICATION FILED FEB. 26, 1906.

Fig. 1.

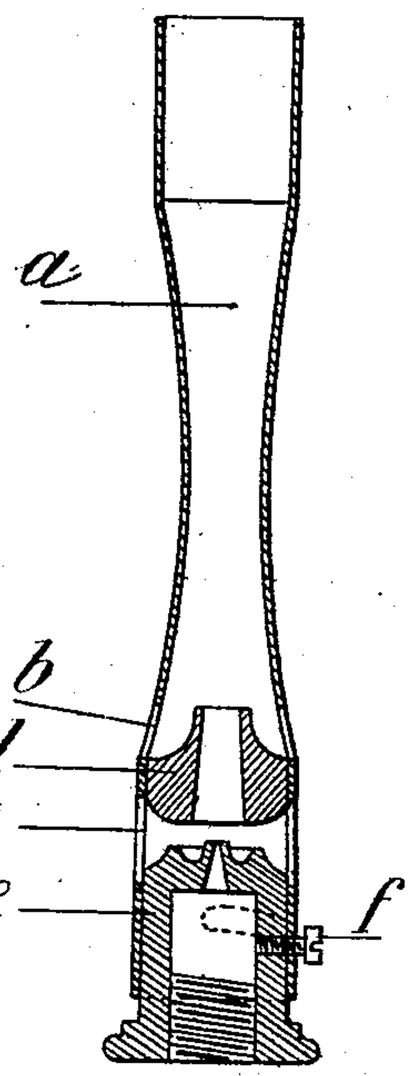
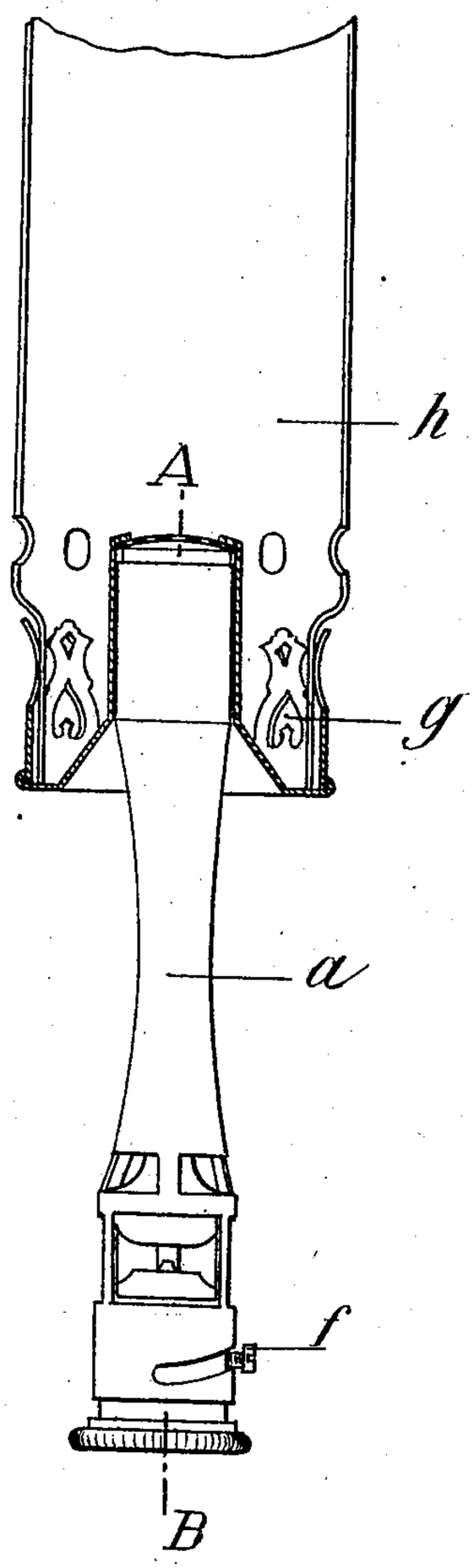


Fig. 2.



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UNITED STATES PATENT OFFICE.

RAYMOND BUSQUET AND MARIUS RAMASSOT, OF LYON, FRANCE.

INCANDESCENT GAS-BURNER.

No. 886,940. Specification of Letters Patent. Patented May 5, 1908.

Application filed February 26, 1906. Serial No. 303,095.

To all whom it may concern:

Be it known that we, RAYMOND BUSQUET and MARIUS RAMASSOT, both of Lyon, Rhône, France, engineers, have invented a new and useful Improvement in Incandescent Gas-Burners, which improvement is fully set forth in the following specification.

The incandescent gas burner which forms the object of this invention consists of a burner tube in which the injector is formed in two parts, viz. a nozzle and a combining tube. These two parts are arranged one above the other in such a manner as to form between them an annular channel of cone section for the inlet of air.

The combining tube of special shape is fixed in a burner tube of a parabolic shape, the base of which is provided with holes for the inlet of air. The lower portion of this tube is cylindrical and fits easily over the second or nozzle portion, in such a manner that the separation of the two parts forming the injector can be exactly regulated and stopped by means of a helicoidal groove and a stop screw.

In the accompanying drawing, Figure 1 is a vertical section of the burner and injector taken on the line A B of Fig. 2, which shows a burner provided with a gallery and chimney.

The apparatus shown in Fig. 1 is composed of the different parts hereinafter described.

The burner tube *a*, the upper parabolic portion of which is provided at its base with air inlet holes *b*, has its lower portion cylindrical and provided with holes *c*.

The injector is composed of two parts *d* and *e*. *d* forms a combining tube which has the general shape of a solid formed of two conical frusta having their larger ends joined together; the nozzle *e* is screwed upon the gas pipe and is provided with a frusto-conical top, the small base of which is crater shaped from whence emerges a small twyer. The two parts forming the injector are thus arranged in such a manner as to form between them an annular air channel of truncated conical section. The piece *e* carries a stop screw *f* sliding in a helicoidal groove formed in the cylindrical end of the burner tube *a*, this tube may move frictionally upon the piece *e* in such a manner as to suitably regulate the section of the annular channel.

In Fig. 2, *g* is the gallery, *h* the chimney of glass and the other letters refer respectively to the several parts above described.

The working of the burner is based upon the following principle: By means of the annular channel formed at the adjacent faces of the parts *d* and *e*, the air is led in the most favorable direction and caused to mix at the most suitable point with the gas jet entering through the central twyer, in such a manner as to prevent eddies and other losses of head and to form a moving column of air and gas of maximum energy. This column of gas and air traverses the upper combining portion of the injector and occasions through the holes *a b* the draft of air necessary for the final formation of the gaseous mixture adapted for perfect combustion. Finally this arrangement is made with the view that the initial jet of gas at high pressure and small volume may be transformed into a moving column of air and gas of greater volume, more suitable for the subsequent indrawing of the air, but still retaining its kinetic energy. This combined injector is therefore a real transformer of energy. Further with this apparatus it is easy to properly regulate without the use of air rings, whatever may be the pressure and quality of the gases utilized. This very simple method of regulation which is effected by moving the two members of the injector nearer to or further from one another allows the exact position at which the column of air and gas has its maximum kinetic energy to be ascertained for the purpose of making the best mixture for combustion. Owing to this arrangement there is obtained with the burner, which forms the object of the present invention, a luminous efficiency which greatly exceeds the results obtained hitherto. The said burner provided with a suitable mantle works moreover under the same conditions and as simply as the incandescent burners of other systems. It may be utilized for all other applications of indoor and outdoor lighting without a special arrangement of lamp.

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

1. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle, an air inlet about said nozzle having inwardly converging walls about a substantially horizontal axis, and a combining tube arranged above said nozzle, means for varying the distance between the nozzle and combining tube, and air

inlets to the interior of the burner tube above the injector.

2. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle, an annular air inlet with walls inwardly converging towards the point of the nozzle and about a substantially horizontal axis, and a combining tube arranged above said nozzle, and means for varying the distance between the nozzle and combining tube.

3. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle with a frusto-conical upper face, a combining tube with a downwardly converging frusto-conical lower face arranged above said nozzle, and an annular air inlet with walls formed by the opposing end faces of the nozzle and combining tube, and means for varying the distance between the nozzle and combining tube.

4. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle with a frusto-conical upper face, a combining tube with a downwardly converging frusto-conical lower face arranged above said nozzle, and an annular air inlet with walls formed by the opposing end faces of the nozzle and combining tube, means for varying the distance between the nozzle and combining tube, and air inlets to the interior of the burner tube around the combining tube.

5. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle with a frusto-conical upper face, and an annular crater about its discharge orifice, a combining tube with a downwardly converging frusto-conical lower face arranged above said nozzle, an annular air inlet about said nozzle with walls formed by opposing end faces of the nozzle and tube and inwardly converging towards the point of the nozzle, air inlets to the interior of the burner tube above the injector, and an adjustable connection between one of the injector members and the burner tube whereby to regulate the distance between the nozzle and combining tube.

6. In a gas burner, the combination, with a parabolic burner tube having a lower cylindrical portion, of an injector arranged within said lower portion and discharging into the parabolic portion, said injector comprising a gas inlet nozzle with a frusto-conical upper face and an annular crater about the central orifice, a combining tube with a frusto-conical lower face arranged above said nozzle an annular air inlet about said nozzle with walls formed by the opposing end faces of the nozzle and combining tube and inwardly converging about a substantially horizontal axis toward the nozzle orifice, air inlets to the burner tube immediately above the injector, a helicoidal slot in the cylindrical portion of the burner tube, and a stop fixed to the nozzle and riding in said slot whereby to regulate the distance between the nozzle and combining tube.

7. In a gas burner, the combination, with a burner tube, of an injector discharging into the lower portion thereof, said injector comprising a gas inlet nozzle with frusto-conical upper faces, a combining tube arranged in front of said nozzle and having frusto-conical lower and upper faces, an annular air inlet about said nozzle with walls formed by the opposing end faces of the nozzle and combining tube and inwardly converging about a substantially horizontal axis, air inlets to the burner tube immediately above the injector and opposite the frusto-conical upper face of the combining tube, and a helicoidal engagement between the nozzle and the burner tube whereby to regulate the distance between the nozzle and combining tube.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

RAYMOND BUSQUET.
MARIUS RAMASSOT.

Witnesses:
MARIN VACHONY,
PAUL VEYRE.