

J. H. DRAEGER.
BLOWPIPE.

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917,934.

Patented Apr. 13, 1909.

Fig. 1.

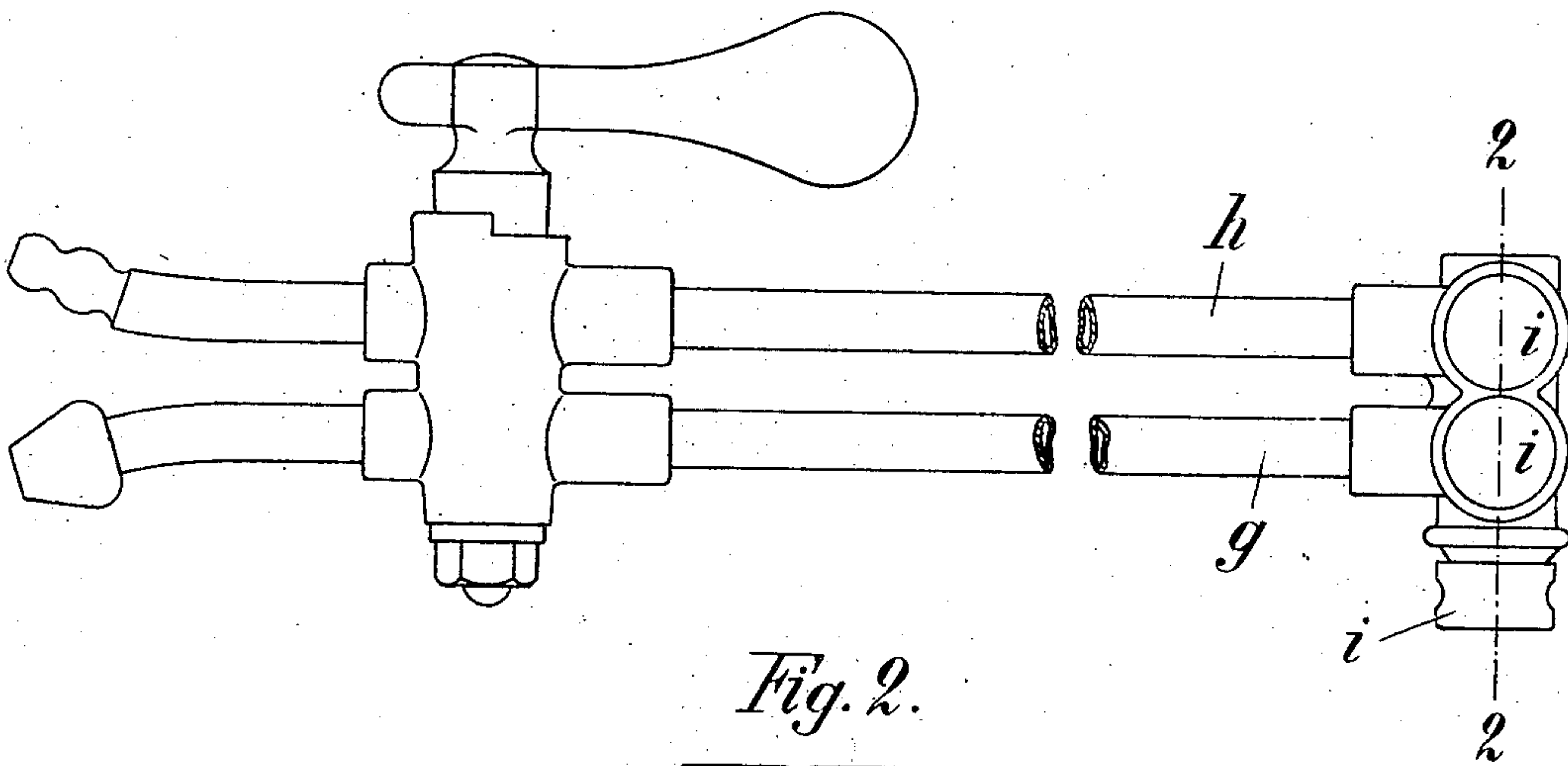
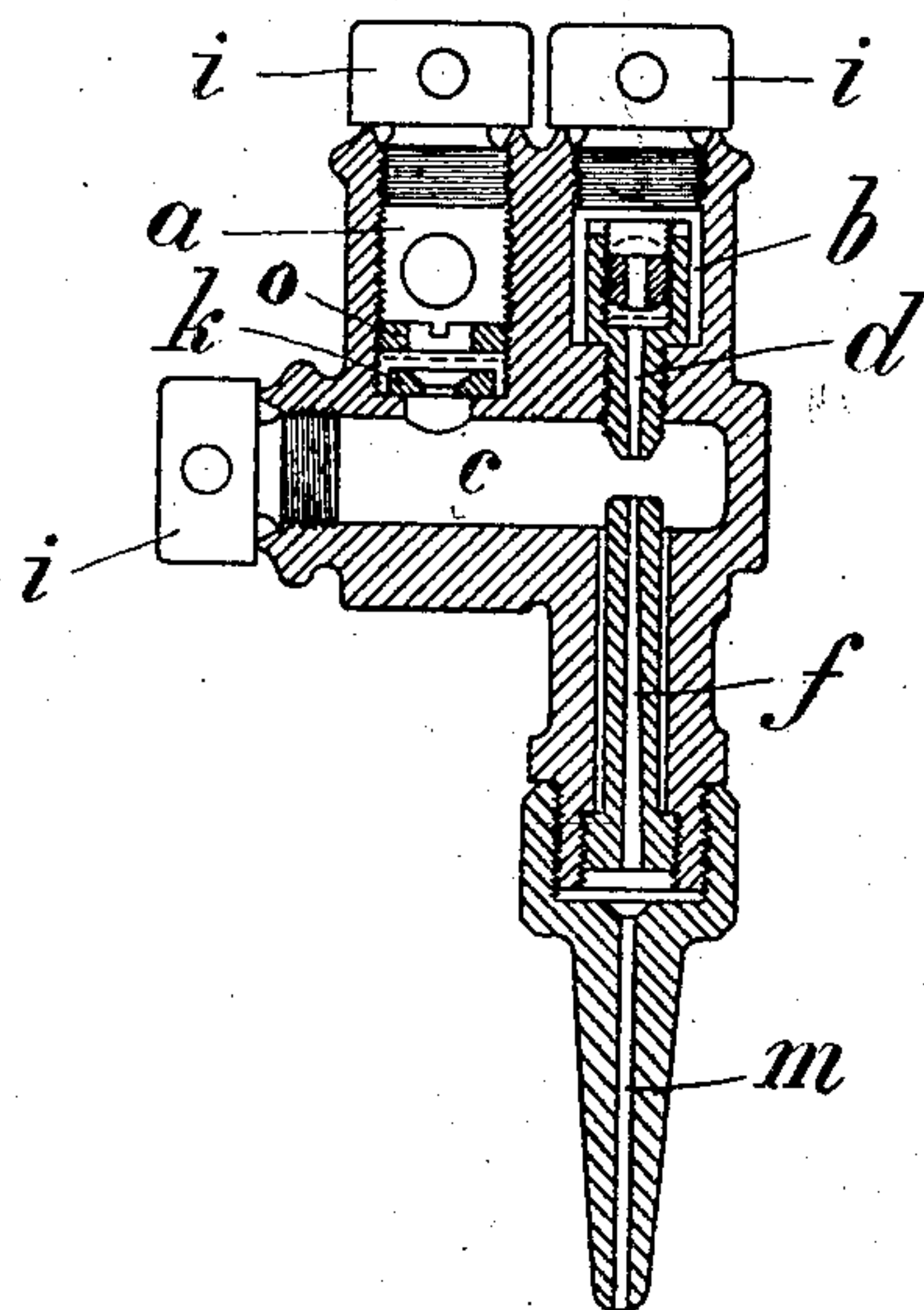


Fig. 2.



Witnesses.

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BLOWPIPE.

No. 917,934.

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To all whom it may concern:

Be it known that I, JOHANN HEINRICH DRAEGER, a subject of the German Emperor, and resident of Lübeck, in the German Empire, have invented a certain new and useful Improvement in Blowpipes, of which the following is a specification.

This invention relates to improvements in blow-pipes and particularly to that class of blow-pipes provided with sucking nozzles, and especially used for welding metal articles by aid of gas for instance acetylene. In burners of this kind the acetylene is drawn into the burner by a stream of compressed air or oxygen.

The object of the present invention is to construct the burner so as to enable a single apparatus to be used for a wide range of purposes for instance for welding iron-plates of a great number of thicknesses. Up to the present it was only possible to weld plates of a certain thickness by the aid of a single apparatus, so that a large plant was necessary when oxyhydrogen or gas-blow-pipes were used, and heretofore it was necessary to control the gas, drawn in by the sucking-nozzle, by means of a regulating-valve or cock, which frequently was operated by experts who seldom fulfilled this difficult task to satisfaction.

In the drawing accompanying and forming a part of this specification I have shown in detail an advantageous form of embodiment of the invention which to enable those skilled in the art to practice the same, will be set forth in detail in the following description while the novelty of the invention will be included in the claims succeeding the description.

Referring to said drawing, Figure 1 is an elevation of a blow-pipe constructed according to the present invention and Fig. 2 a section drawn to the line 2—2 of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in the views of the drawing by the same reference letters.

The burner comprises a casing having three chambers-*a*, *b*, and *c*, of which *a* and *b* are lying side by side and parallel to one another and communicate with the third chamber *c*, which is provided with a mixing nozzle *f* opposite an oxygen or sucking nozzle *d*, that connects the chamber *b* with the cham-

ber *c*. The mixing nozzle *f* projects into a mouth-piece *m* screwed to the chamber *c*. A gas or acetylene-feed-pipe *g* and an oxygen-feed-pipe *h* connect with the chambers *a* and *b* respectively, at an angle of preferably 90° as shown. The three chambers *a*, *b*, and *c* are closed by screw-caps or studs *i*, which can easily be removed to have access to the inside of the chambers, when it is necessary to exchange the nozzles or clean the same or for other purposes. In the chamber *a* for feeding the gas there is also a nozzle or controlling plate *k* provided with a small opening and adapted to be removed. Preferably a perforated screw-plate *o* is mounted above the controlling plate *k* and between plates *k* and *o* a wire netting or other filter may be arranged to hold back impurities. The object of the small opening in the removable plate *k* is to control the amount of gas passing from the chamber *a* into the chamber *c*. When setting this controlling plate *k* its opening is made to correspond to the passage of the mixing nozzle *f* and to a certain extent to the passage of the mouth piece *m*.

When a metal-plate of a certain thickness is to be welded, oxygen of a predetermined pressure is driven through the burner, exciting a sucking action on the gas, when passing over from the nozzle *d* to the nozzle *f*, so as to entrain the requisite amount of gas along with it. When metal-plates of other thickness are to be welded, all that is necessary to do is to change the mouth-piece *m* for one of another size and to increase or decrease the pressure of oxygen (for instance by regulating a reducing valve arranged in the pipe not shown). In response to the greater or smaller pressure of the oxygen more or less gas will be drawn in, thus keeping up the necessary ratio of mixture. Thus it is possible with one apparatus to weld metal-plates varying from 3 to 6 millimeters in thickness once the controlling plate is properly dimensioned. In this example only four mouth-pieces are necessary the narrowest being used for plates of 3 millimeters, the next following for 3½ to 4 millimeters, the next for 5 millimeters and the widest for 6 millimeters. If it is required to weld plates of still smaller or greater thickness the controlling plate *k* may be exchanged for one having a smaller or larger opening. The adjustment of the controlling plate or the sub-

stitution of one with a different opening is effected by removing the cap *i*. The nozzle *f* is also removable and can be exchanged by another, which is of importance for the first adjustment, that is before the article is brought on the market.

I claim:

1. A blow-pipe comprising a gas-chamber, an oxygen-chamber, a mixing-chamber, the last named chamber communicating with the two first named chambers, a sucking nozzle establishing communication between the oxygen-chamber and the mixing-chamber, a mixing nozzle in the mixing-chamber opposite the sucking nozzle and leading outward from the mixing chamber, and a stationary plate having a small opening to establish communication between the gas-chamber and mixing-chamber, the opening corresponding relatively to the opening of the mixing nozzle, to control the amount of gas entering the mixing chamber.

2. A blow-pipe comprising a gas-chamber, an oxygen-chamber, a mixing-chamber, the last named chamber communicating with the two first named chambers, a sucking nozzle establishing communication between the oxygen chamber and the mixing chamber, a mixing nozzle in the mixing-chamber opposite the sucking nozzle and leading outward from the mixing chamber, a removable stationary plate having a small opening interposed between the gas-chamber and mixing-chamber, the opening corresponding relatively to the opening of the mixing nozzle, to

control the amount of gas entering the mixing-chamber.

3. A blow-pipe comprising a gas-chamber, an oxygen-chamber, a mixing-chamber, the last named chamber communicating with the two first named chambers, a sucking nozzle establishing communication between the oxygen-chamber and the mixing-chamber, a removable mixing nozzle in the mixing-chamber opposite the sucking nozzle and leading outward from the mixing chamber, and a removable plate having a small opening to establish communication between the gas-chamber and the mixing chamber, the opening corresponding relatively to the opening of the mixing nozzle, to control the amount of gas entering the mixing-chamber.

4. A blow-pipe comprising a gas-chamber, an oxygen-chamber, a mixing-chamber, the latter communicating with the two first named chambers, a sucking nozzle establishing communication between the oxygen-chamber and the mixing chamber, a mixing nozzle opposite the sucking nozzle leading outward from the mixing-chamber, a plate having a small opening to establish communication between the gas-chamber and the mixing chamber and a mouth-piece removably attached to the mixing-chamber and forming a prolongation of the mixing-nozzle.

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Witnesses:

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