P. DUMESNIL.

BLOWPIPE.

APPLICATION FILED JULY 11, 1907.

1,107,272. Patented Aug. 18, 1914.

Fig. 1

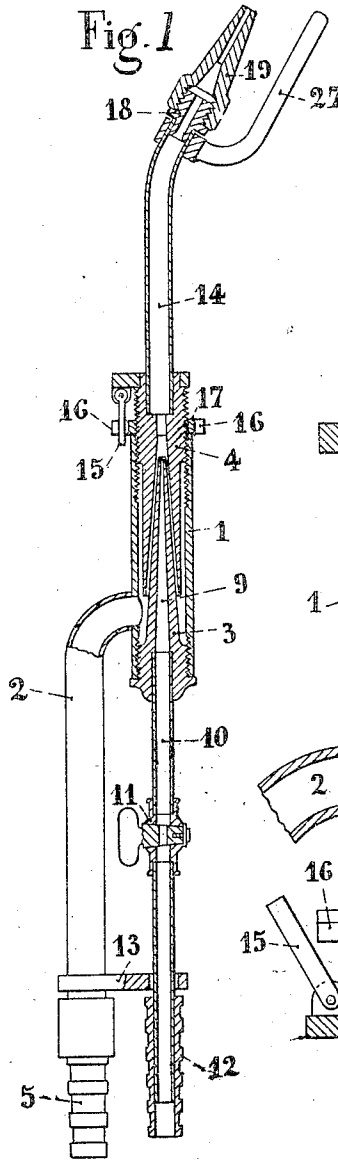


Fig. 2

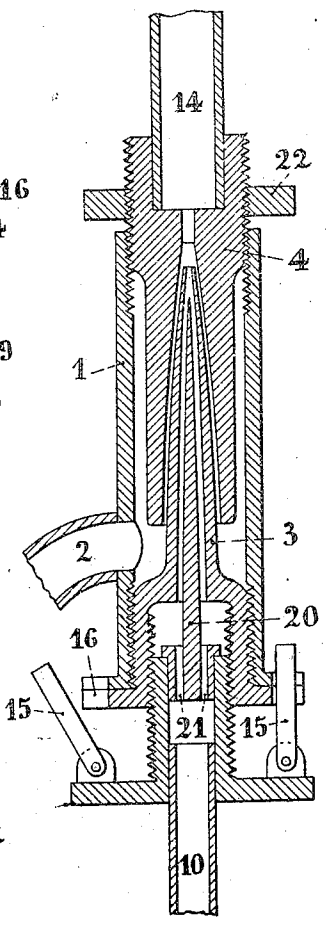
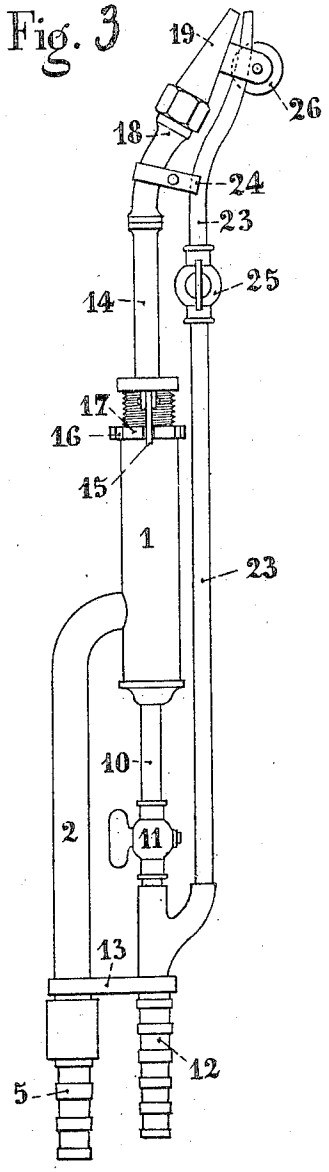


Fig. 3



Witnesses:

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BLOWPIPE.

1,107,272. Specification of Letters Patent. Patented Aug. 18, 1914.

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To all whom it may concern:

Be it known that I, PAUL DUMESNIL, a citizen of the Republic of France, residing at Paris, Department of Seine, in France, have invented new and useful Improvements in Blowpipes, of which the following is a full, clear, and exact description.

This invention relates to improvements in blow-pipes.

In a great number of blow-pipes of known construction, the regulating cones are very short, about 1 to 2 centimeters and of an angle of more than 30°; they are therefore neither long nor tapered and they do not permit a sufficiently precise regulation, the regulating devices being further not arranged so that they can be secured in position and the gas supply therefore becomes easily irregular. The regulating of the combustive gas is effected by means of an external regulating screw so that a lateral conduit has to be provided for the gas supply, whereby the construction of the blow-pipe is complicated and becomes difficult to manipulate.

The blow-pipes of known construction comprise two members, the secondary or auxiliary blow-pipe being separate from the main blow-pipe although it is fixed to the same and this secondary pipe serves for conducting the combustive gas through an outer independent pipe which does not communicate with the blow-pipe proper. There are blow-pipes with mechanical supports such as guides or rollers for mechanically actuating the blow-pipes, but hand blow-pipes having a guide arm or finger or a guide roller fixed directly on the blow-pipe so as to facilitate the manipulation of the same are not known. The present invention has for its object to obviate the hereinbefore mentioned inconveniences of the hand blow-pipes of known construction and to improve the construction of hand blow pipes in such a manner that they become very simple, easy to transform, possess all the desired advantages and adapted to be used for the execution of any kind of work to be done by hand and for which blow-pipes could be used.

The improvements essentially consist in the particular construction of the body of the blow-pipe, which is composed of three parts, the position of said parts the one with regard to the others being easy to regulate and said parts being adapted to be secured in any required position so as to avoid the getting out of order or out of the proper position of the several parts of the apparatus; in the arrangement that a secondary removable and exchangeable blow-pipe is provided in derivation upon the main blow-pipe and finally in the application, in connection with a hand blow-pipe, of a guide-arm or finger and of a supporting roller for facilitating the hand-work.

The present invention is hereinafter particularly described in reference to the accompanying drawing in which the same letters of reference indicate the same elements and which represent, by way of example, the preferred form of execution of the improved blow-pipe, based upon the principle of Alvergnet's air or filter pump, instantaneously transformable and adapted to be used for the various operations to be effected by hand.

Figure 1 represents in section an improved blow pipe destined to be used for soldering. Fig. 2 shows in section the main-part of the blow-pipe with the means for regulating and fixing in position the tapered cones. Fig. 3 is an elevation of the same kind of blow-pipe destined to be used for cutting out.

The main part of the blow-pipe is composed of three movable pieces.

In Fig. 1 the principal part of the blow-pipe is designated by 1 and it has the shape of a pipe internally threaded at both ends. This main body 1 carries laterally the supply pipe 2 for the combustible gas, a long fixed conical pipe 3 for the combustive gas and a conical bored member 4 for regulating the escape of the gas. A tubular-joint 5 is screwed upon pipes 2 which has a chamber destined to receive a device for preventing the back burning. The inner cone 3 which is long and tapered is screwed into the body 1. Said inner cone is bored at 9 in axial direction and carries the inlet pipe 10 for the combustive gas with cock 11 and tubular joint 12. The pipes 2 and 10 are connected the one with the other by means of a ring 13 or in any other convenient manner. The outer conical bored member 4 is screwed into the body 1 and carries the outlet pipe 14 for the gaseous mixture. In the outer part of the conical bored member 4 there are fixed one or more pawls 15, preferably spring influenced, which engage with notches 16 of the crown 17 of the body 1, said crown being graduated or not, as the case may be; said pawls serving to prevent back rotation

of the cone and to maintain the regular gas supply. The pipe 14 is conveniently curved and has at its end a tubular joint 18 upon which the nozzle 19 of the blow-pipe is screwed through which the gaseous mixture flows out.

The apparatus operates as follows:—The combustible gas flows in through pipe 2 and expands in the body 1 and in the conical bored member 4, the combustive gas flowing in through pipe 10 and cone 3 and, its pressure being superior to that of the combustible gas, it takes the combustible gas along into the pipe 14. The gases admix in said pipe 14 and expand to admix more intimately in flowing out of the nozzle 19. The conical members are very long and tapered, they have a length of more than four centimeters and their generating lines form an angle of less than 30° so as to insure a very precise regulation. The regulation of the conduits for the combustible gas is effected by means of the conical bored member 4 which is more or less screwed into the body 1 of the blow-pipe and fixed in its position by means of the pawl 15.

It is evident that, owing to the diminution of the pressure the vacuum obtained in the improved blow-pipe, and consequently the force with which the gas is drawn in, is much greater than in the devices of known construction. Further, the gases are much more intimately admixed in this improved apparatus than has been possible before owing to the different size of the mixing chambers, so that the blow-pipe can be perfectly used with ordinary lighting gas.

Fig. 2 shows the device for regulating the orifices for the passage of the two gases by means of a third auxiliary removable cone which is mounted in the conical bored member 3 (Fig. 1). After the conical bored member 3 has been screwed into the body 1 an auxiliary cone 20 which is solid is screwed into the conical tube 3 for regulating the space through which the gas is conducted. The combustive gas from pipe 10 flows through the openings 21 which are provided in the shoulder of the cone 20 and escapes through the cone 3. The pawls 15 are destined to avoid any alteration of said passages for the gas. In lieu of the pawls 15 one or two counter-nuts 22 could be employed which have to be screwed home for preventing the getting out of order of the device, as has been shown in Fig. 2 upon the threaded part of the conical bored member 4.

Fig. 3 represents the blow pipe used for soldering the same as shown in Fig. 1 but particularly adapted for cutting out and provided with an auxiliary tube 23 mounted in derivation upon the pipe 10 of the blow-pipe. Said tube 23 serves for directing the jet of combustive gas upon the part of the work piece which has been previously made red hot by the blow pipe, effecting thus the cutting out of said part by local overoxydation. The removable tube 23 is conveniently maintained in position by means of a clamp 24 and it has a cock 25. The roller 26 placed upon the pipes near the ends of the same serve for supporting the hand blow pipe, to guide the same and to maintain it continuously at the proper distance of the work-piece (see Fig. 3). In lieu of the roller 26 any suitable support conveniently arranged so that it can rest upon the work-piece to be cut out may be used, a lateral arm or finger 27 of said support (see Fig. 1) bearing upon the edge of a guide piece which corresponds in shape to the line to be cut out or to be soldered may be employed. If both, the roller 26 and the finger 27 are used the blow pipe is supported at two points whereby its stability is greatly increased. The cocks 11 and 25 regulate the inflow or admission of the combustive gas and they can be arranged at any suitable point.

I claim:—

1. A blow pipe comprising a main body, a conduit lateral to the main body and communicating therewith to conduct acetylene gas into the main body, two conical members in said body disposed one within the other, the outer member communicating with the interior of the body whereby acetylene gas is supplied to the outer member, an inlet pipe communicating with the inner member whereby oxygen gas is supplied to the inner member, said inner member communicating with the outer member to supply oxygen to mix with the acetylene gas in the outer member, said conical members and body formed with engaging screw threads whereby the space between the members may be varied and the amount of acetylene gas regulated, means for locking the conical members against rotation, a nozzle and a mixing pipe communicating with the outer conical member and nozzle to mix the gases and convey the combustible mixture to the nozzle, substantially as described and for the purpose set forth.

2. A blow pipe comprising a main body, a conduit lateral to the main body and communicating therewith to conduct acetylene gas into the main body, two conical members in said body disposed one within the other, the outer member communicating with the interior of the body whereby acetylene gas is supplied to the outer member, an inlet pipe communicating with the inner member whereby oxygen gas is supplied to the inner member, said inner member communicating with the outer member to supply oxygen to mix with the acetylene gas in the outer member, said conical members

and body formed with engaging screw thread whereby the space between the members may be varied and the amount of acetylene gas regulated, means for locking the conical members against rotation, a nozzle and a mixing pipe communicating with the outer conical member and nozzle to mix the gases and convey the combustible mixture to the nozzle, in combination with an auxiliary removable pipe branched on the main oxygen pipe, a cock on said auxiliary pipe and means near the nozzle for supporting and guiding the apparatus, the said auxiliary pipe being intended to supply a supplementary jet of oxygen at the same pressure as that in the main pipe and to direct the said jet upon the heated part of the work piece, substantially as described and for the purpose set forth.

PAUL DUMESNIL.

In presence of—
PAUL RUPUY,
VICTOR MARENDOWSKI.