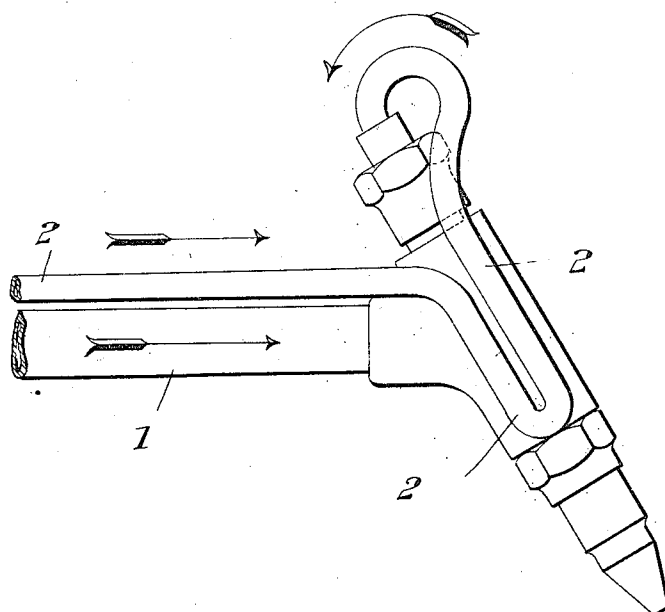


A. G. LE CHATELIER.
BLOWPIPE.
APPLICATION FILED JULY 28, 1910.

Patented July 9, 1912.

1,032,072.



Witnesses:

E. W. Moore.

H. E. Buckley.

Inventor

André Gabriel Le Châtelier
by Frank S. Carter

UNITED STATES PATENT OFFICE.

ANDRÉ GABRIEL LE CHATELIER, OF MARSEILLE, FRANCE.

BLOWPIPE.

1,032,072.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed July 28, 1910. Serial No. 574,374.

To all whom it may concern:

Be it known that I, ANDRÉ GABRIEL LE CHATELIER, a citizen of the French Republic, and resident of Marseille, France, have invented a certain new and useful Blow-pipe, of which the following is a specification.

This invention has reference to a method of and means for regulating the feed of the gases in blow-pipes.

It has been observed that in apparatus such as oxyhydrogen, oxy-acetylene or other blow pipes in which one of the gases under a low pressure is drawn along by means of an injector or some mixing device, owing to the pressure under which the other gas is used, the flame originally regulated to suit the work to be done deteriorates gradually as the blow-pipe becomes heated. If for example an oxy-acetylene blow-pipe be employed in which the acetylene procured by a generator is drawn along by a current of oxygen under pressure, it will be noticed that the flame which was properly regulated to commence with becomes gradually oxidizing. This might be very detrimental to the quality of the work to be done, particularly in the case of the autogenous soldering of iron and steel, the effect of the oxidation being to reduce considerably the resistance of the metal to the soldering. The action of this phenomenon may be readily observed by heating at one point a pipe in which a gaseous current circulates fed from a reservoir whence the gas issues at a definite pressure; it will be found that the volume of gas discharged goes on diminishing as the local heating of the pipe is increased. It is as if the heating produced a resistance to the circulation of the gas, a resistance which may be compared to a counter-pressure which would have the same retarding effect upon the flow of the gas. It is clear consequently that the disturbing influence of the heating will be so much the greater the smaller the original pressure at which the gas issues. It follows that the heating of the body of the blow-

pipe will have its greatest retarding effect on that gas which is admitted to it under the lowermost pressure, and consequently the relative proportion of the second gas in the mixture will increase. In the case of the oxy-acetylene blow-pipe for example the proportion of acetylene will diminish more quickly than that of the oxygen and the flame becomes oxidizing, as already indicated above.

The object of the present invention is to remedy this defect and this is readily accomplished by utilizing the phenomenon itself of the resistance produced by the heating of the passage in which the gas circulates. For this purpose all that is necessary is to modify the course of the pipe which leads the high pressure gas to the mixing chamber—the oxygen, in the case of the oxy-acetylene blow-pipe—so that this pipe receives a supplementary heating upon a certain portion of its length, for example by causing it to deviate so as to approach sufficiently the head of the blow-pipe.

The figure of the accompanying drawing shows this arrangement in elevation.

In this figure, 1 is the feed tube of the gas under low pressure (combustible gas) and 2 is the high pressure gas tube (for the oxygen) arranged as explained above. The correctness of the views which have led up to this method is demonstrated in another way by the fact that if the length of pipe submitted to the action of the flame be increased unduly, the object in view is overstepped, causing a derangement, the reverse of that which it is desired to obviate. By suitably regulating for each blow pipe the arrangement of the tube with a view to the heating of the high pressure gas, there will be no deterioration of the flame during the progress of the work, either in the one direction or in the other, a result which is so much the more important seeing that this deterioration when it takes place comes about gradually and escapes for some time the attention of the workman.

Having now fully described my said in-

vention what I claim and desire to secure by Letters Patent, is:—

In a blow pipe, the combination of a nozzle and pipes leading thereto for conveying gases under different pressures into said nozzle, the pipe conveying the gas under high pressure having a portion exteriorly of the nozzle looped, the two legs of the looped portion extending parallel

to the nozzle and the loop thereof extending toward the mouth of the nozzle and terminating at the rear thereof. 10

In testimony whereof I have hereunto set my hand in presence of two witnesses.

ANDRÉ GABRIEL LE CHATELIER.

Witnesses:

JEAN BRUNEL,
M. MOURUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."