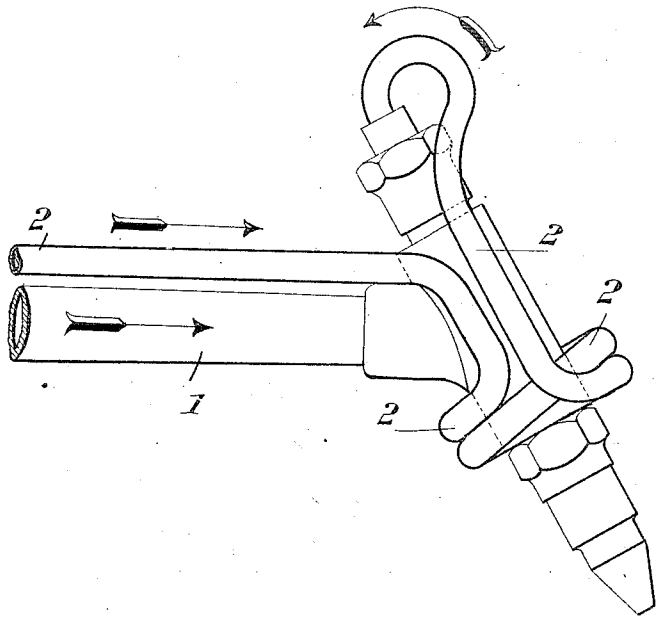
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BLOWPIPE.

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1,067,929.

Patented July 22, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

ANDRÉ GABRIEL LE CHATELIER, OF MARSEILLE, FRANCE.

BLOWPIPE.

1,067,929. Specification of Letters Patent. Patented July 22, 1913.

Application filed September 10, 1908. Serial No. 452,493.

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 certain new and useful Improvements in Blowpipes, of which the following is a specification.

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

It has been observed that in apparatus such as oxyhydric, oxy-acetylenic 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-acetylenic blow-pipe be employed in which the acetylene produced 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 oxidization being to increase 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 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-acetylenic blow-pipe for example the proportion of acetylene will diminish more quickly than that of the oxygen and the flame will become 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-acetylenic blow-pipe—so that this pipe receives a supplementary heating upon a certain portion of its length, for example by causing it to make one or more turns around the head of the blow-pipe in proximity to the flame.

In the accompanying drawing: the figure shows this arrangement in elevation.

In the 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 invention, what I claim and desire to secure by Letters Patent, is:—

1. In a blow pipe, the combination of a nozzle with pipes conveying gases of different pressures into said nozzle, the pipe having the gas under higher pressure embodying a portion extending longitudinally of the nozzle and a portion coiled around said nozzle back of the discharge port of said nozzle and a portion extending into the rear end of said nozzle in alinement with said discharge port, whereby the gas passing through the coil is heated and expanded, substantially as specified.

2. In a blow pipe, the combination of a nozzle with pipes conveying gases under different pressure into said nozzle, one of said pipes having a looped portion lying

along the sides and parallel to the length of the said nozzle, the looped portion of said pipe terminating back of the end of the nozzle in the zone of the heat from the flame of said nozzle whereby the gas in said looped portion is heated and expanded, substantially as specified.

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

ANDRÉ GABRIEL LE CHATELIER.

Witnesses:
JEAN KLOCK,
MARIUS MOURIEZ.