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OXYACETYLENE TORCH.

APPLICATION FILED NOV. 30, 1912.

1,069,455. Patented Aug. 5, 1913.

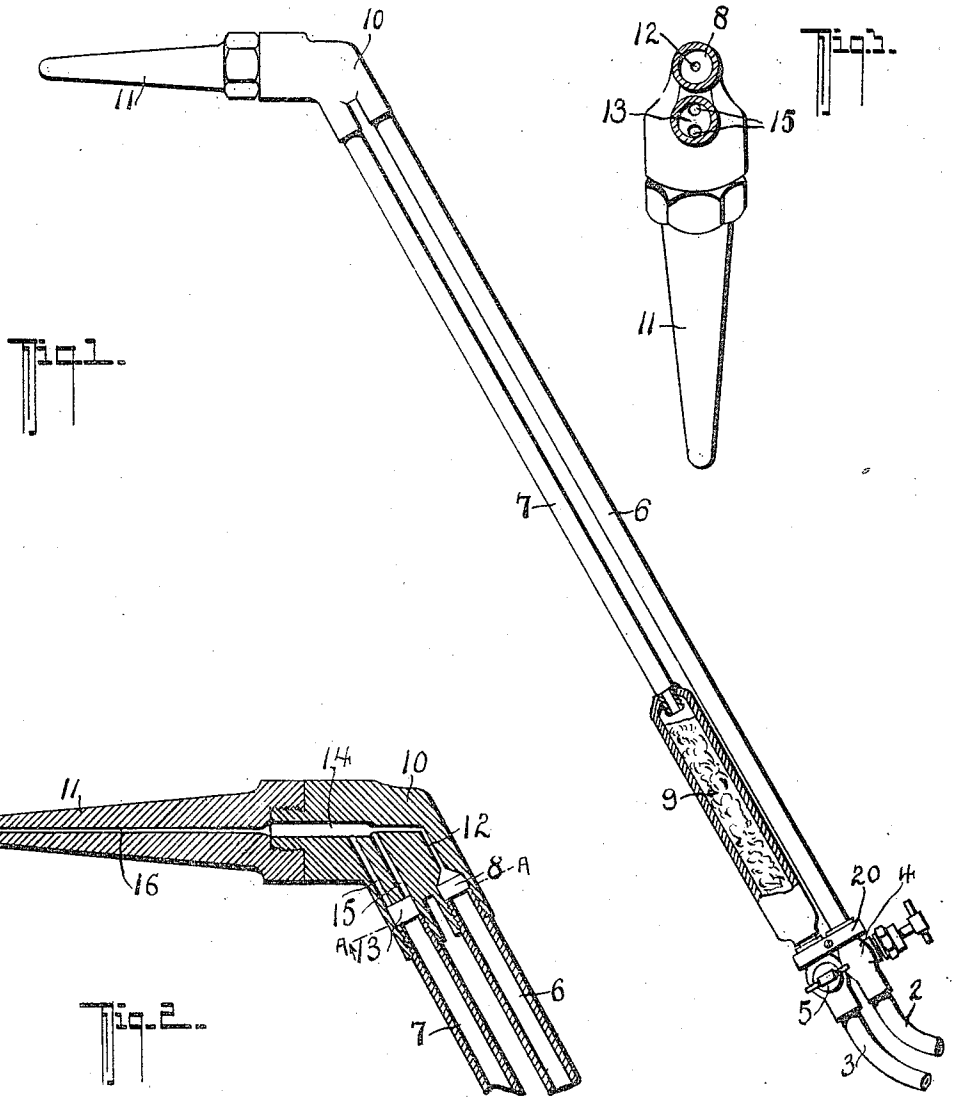

Fig. 1.

Fig. 1.

Fig. 2.

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OXYACETYLENE-TORCH.

1,069,455. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed November 30, 1912. Serial No. 734,282.

To all whom it may concern:

Be it known that we, THOMAS MONTGOMERY and ANDREW LOCHOK, citizens of the United States of America and of the Dominion of Canada, respectively, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Oxyacetylene-Torch, of which the following is a specification.

This invention relates to an oxy-acetylene torch and the improvement is directed to the simplification of the number of parts and of the ducts in the combining head, whereby the device is not only rendered cheaper to construct and to maintain, and is lighter to handle, but it is incidentally much more effective in its action.

In the numerous existing forms of oxy-acetylene torches elaborate provision is made by means of removable combining cones, perforated plugs, and tortuous ducts for the two gases which are introduced with the object of obtaining more intimate mixture of the acetylene with the oxygen and for preventing the ignition blowing back. These features we have demonstrated to be unnecessary and disadvantageous. They not only complicate the construction and add to the weight but they hinder the effective progress of the gases to the orifice of the tip by generating conflicting eddies which impede the flow. These objections we have overcome in the torch which is the subject of this application by adopting a combining head constructed of one piece through which simple direct ducts communicate with a combining passage which delivers the gases to the tip which is formed as a removable part solely to meet the requirement of variation in the dimension of the flame required.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a side elevation of the torch and part section of the back firing check chamber. Fig. 2 is a longitudinal section of the combining head to an enlarged scale, and Fig. 3, a cross section of the same on the line A A showing the acetylene and oxygen apertures.

In these drawings 2 and 3 represent the nipples to which the flexible hose pipes of the oxygen and acetylene gas supply are respectively connected. These supply nipples are provided with ordinary needle valves 4 and 5 suited to the requirements. These needle valves 4 and 5 are connected to the head 10 of the torch by lengths of tubes 6 and 7, that tube 7 for the acetylene having an enlarged chamber 9 adjacent to the valve, which chamber is charged with asbestos wool or the like to check a blow back. The head 10 into which the ends of these tubes 6 and 7 are screwed, is composed of one casting having a threaded nipple onto which the delivery tip 11 is screwed, the connection having preferably two ground joints.

The axis of the tip and its nipple is at the customary angle to the oxygen and acetylene pipes to be convenient for manipulation.

From the tapped bore 8 of the oxygen tube 6 a duct 12 is drilled about three sixty-fourths of an inch in diameter, one portion of it being in axial alinement with the tube 6 and the other in axial alinement with the tip 11. That portion of this duct, which is in axial alinement with the tip, is chambered, as at 14, to approximately seven sixty-fourths of an inch in diameter, to form a combining duct, which chambering extends from the tip connection to approximately the junction of the acetylene ducts 15 therewith. Two acetylene ducts 15 are drilled parallel to the axis of the acetylene tube 7 and in the plane of the oxygen duct 12 and combining duct 14. They are approximately three thirty-seconds of an inch in diameter and are drilled from the inside diameter of the tapped hole 13 into which the acetylene tube 7 is screwed. The tip 11 is drilled with a bore of uniform diameter, to the dimension required for any particular work, and at the butt or attachment to the head is in the smaller sizes countersunk or flared from the diameter of the combining duct 14. The tubes 6 and 7 are connected together adjacent to the needle valves 4 and 5 by a small clamp 20 in two halves held together with a small screw or bolt at the middle. So constructed the torch is sufficiently rigid for manipulation without an inclosing tubular casing, and the weight is considerably lessened. The progress of the gases is direct to the jet and is not interfered with by conflicting currents.

The delivery of the acetylene to the oxygen through two forwardly angled ducts

arranged side by side to deliver one after the other, insures a satisfactory admixture of the gases without interfering with their progress.

While the improvement, as set forth in this specification, was originally designed to simplify the torch in the number of its parts and thereby render it cheaper to manufacture and lighter to manipulate, we attribute the marked improvement in the efficiency directly to this simplification, owing to the more direct progress of the gases and the less interruption due to conflicting eddies, and also to the efficient admixture of the acetylene with the oxygen in the manner described.

Having now particularly described our invention, we hereby declare that what we claim as new and desire to be protected in by Letters Patent, is:

1. An oxy-acetylene torch having a combining head constructed of a single piece with provision for the attachment of the oxygen and acetylene delivery pipes thereto and for the attachment of a nozzle, said head having a duct for the oxygen in alinement with the oxygen delivery pipe, which duct is enlarged adjacent to the nozzle connection, and actylene ducts from the acetylene pipe connection to the enlargement of the oxygen duct, which acetylene ducts are parallel to one another and in the plane of the oxygen duct.

2. An oxy-acetylene torch having a combining head made of a single piece with provision for the attachment of the pipes delivering the oxygen and acetylene gases and for the attachment of the tip, said head having a duct for the oxygen drilled in alinement with the oxygen delivery pipe and with the axis of the tip, and two acetylene ducts side by side in the approximate plane of the oxygen duct, said acetylene ducts parallel to the axis of the acetylene delivery pipe and delivering into the oxygen duct.

3. An oxy-acetylene torch, including a combining head constructed of a single body having a nozzle receiving end, a nozzle mounted on said end and having a longitudinal bore, said head having a longitudinal bore alining with the nozzle bore, said head including projections tapped to receive the oxygen and acetylene supply pipes, supply pipes tapped into said projections, said head having a bore for effecting communication between said oxygen supply pipe projection and said first mentioned head bore, and including a portion entering said first mentioned head bore at one end, said head having a pair of parallelly disposed acetylene ducts or bores for conveying the acetylene to said first mentioned head bore, said acetylene conveying bores or ducts entering said first mentioned head bore at an acute angle, all of said bores lying in the same plane, substantially as shown and for the purposes described.

4. An oxy-acetylene torch having a combining head composed of a single piece having an oxygen duct in it to one end of which the oxygen supply pipe is connected and to the other the delivery tip in axial alinement with the adjacent part of this duct in the head, which duct is chambered or enlarged adjacent to the tip connection, two ducts from the acetylene supply connection and delivering successively into the enlarged portion of the oxygen duct, a length of pipe connected to the oxygen duct and a length of pipe having an enlarged chamber connected to the acetylene duct and means for delivering a supply of oxygen and acetylene to these pipes and for controlling the amount.

5. In an oxy-acetylene torch, a head 10 formed of a single body having a mixing bore 14 extending inwardly from the discharging end of the head, an oxygen pipe 6 and an acetylene pipe 7 connected to deliver separately into said head, said head including a duct 12 for conveying oxygen from the oxygen pipe into the mixing bore, the discharge end of said duct 12 lying in longitudinal alinement with the mixing bore, said head including a pair of parallelly disposed acetylene ducts 15 that communicate with the mixing duct 14 and extend at an acute angle therefrom, all of said ducts and bores lying in the same longitudinal plane substantially as shown and for the purposes described.

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

THOMAS MONTGOMERY.
ANDREW LOCHOK.

Witnesses:
ROWLAND BRITTAIN,
MAY WHYTE.