J. F. GILBERT AND T. NEVILLE.

WATER COOLING CONSTRUCTION FOR WELDING TORCHES.

APPLICATION FILED NOV. 9, 1920.

1,389,301. Patented Aug. 30, 1921.

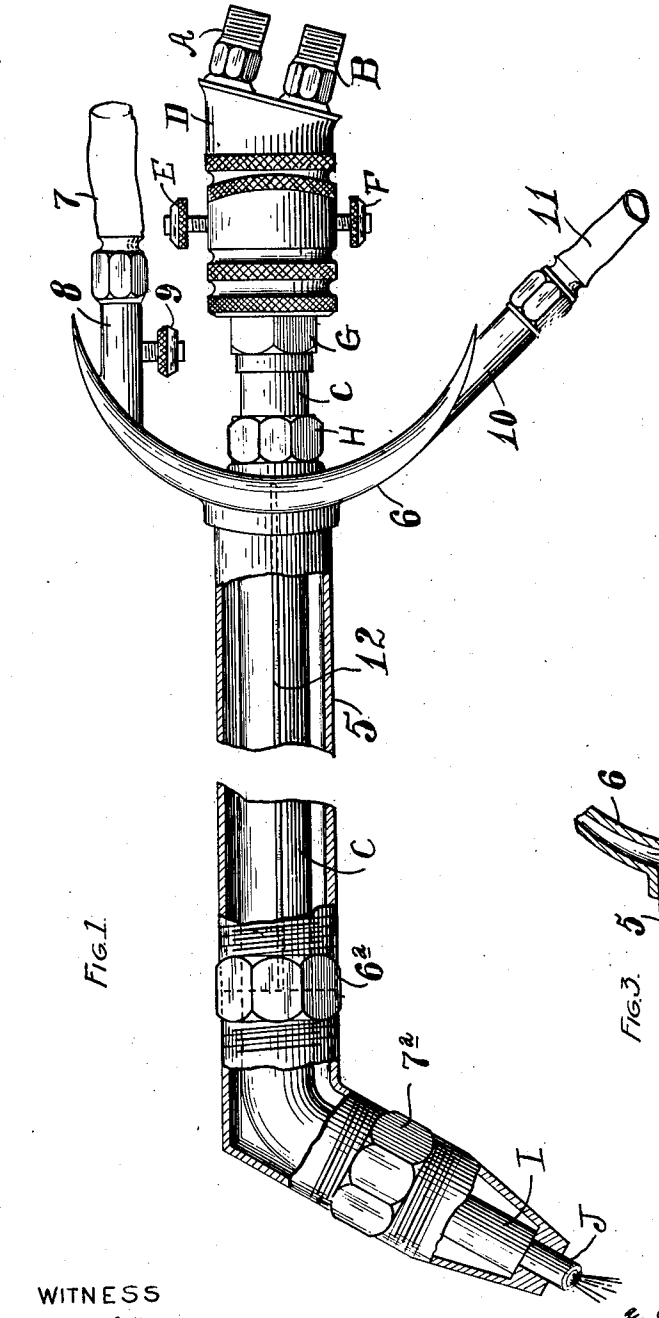


FIG. 1.

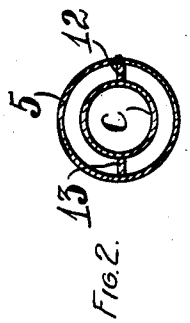


FIG. 2.

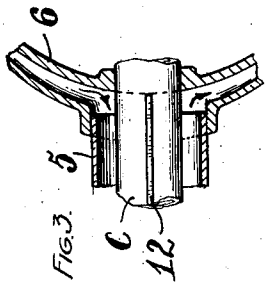


FIG. 3.

WITNESS

A. H. Wright

INVENTORS

James F. Gilbert

and Thomas Neville

BY

Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES FRANK GILBERT AND THOMAS NEVILLE, OF SEWARD, TERRITORY OF ALASKA.

WATER-COOLING CONSTRUCTION FOR WELDING-TORCHES.

1,389,301. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed November 9, 1920. Serial No. 422,895.

To all whom it may concern:

Be it known that we, JAMES F. GILBERT and THOMAS NEVILLE, citizens of the United States, and residents of Seward, Territory of Alaska, have invented a new and useful Water-Cooling Construction for Welding-Torches, of which the following is a specification.

This invention relates in general to welding and the like torches and has reference more particularly to a water cooling construction for such torches.

The primary object of the invention is to provide a water cooling attachment, so to speak, which may be applied to a conventional type of torch without departing or materially changing the original construction of the torch.

A further object of the invention is to so construct the water cooling attachment that the water will be caused to circulate throughout the greater length of the torch, and thus realize an effective cooling arangement.

A still further object of the invention is to so produce the attachment that it may be made at a comparatively modest cost and sold to the trade, either independent of the torch or together therewith.

The invention possesses other objects which will be made apparent as the description proceeds with reference to the accompanying drawing.

In said drawing, Figure 1 is a side view partly in section of the attachment as applied to a torch.

Fig. 2 is a cross-section and Fig. 3 is a detail view in longitudinal section of a portion of the hand shield and the water jacket of the attachment.

Referring now to the drawing in detail, the torch which has been selected for the purpose of illustration, is of a more or less conventional type and includes the connections (A) and (B) for the oxygen and an acetylene hose. These connections communicate with the tubing (C) through the part (D) of the torch which in turn is equipped with the customary cut-off valves (E) and (F), one of which will be arranged to control the admittance of the acetylene and the other to control the admittance of the oxygen.

The tubing (C) may be made up into sections and joined by suitable nipples (G) and (H) or it may be made from one piece of tubing; this is immaterial. The tubing (C) terminates in a downwardly presented reduced end (I) with its extreme end (J) still further reduced in diameter and comprising the discharge nozzle of the torch.

The water cooling construction preferably consists in a water jacket (5) which is made in sections, one of which extends almost the entire length of the straight part of the tubing (C) and with two other sections is made to conform to the bend of the downwardly presented end of the tubing. The sections of the water jacket may be joined by the unions (6^a) and (7^a). The divided sections become necessary in order that the same may be slipped over the tubing. The end of the water jacket, which surrounds the downwardly presented end of the tubing, is conical in shape, and closed at its extreme end with the exception of an opening through which the nozzle (J) of the tubing projects.

The annular flange or shoulder made by reducing the end of the tube offers an abutment against which the closed end of the water jacket bears, and as the opening just mentioned is of a size to make a close fit for the nozzle (J), and by reason of the abutment at the shoulder mentioned, the end of the water jacket is sealed. If necessary, of course, any well known means may be resorted to such as gaskets or the like, to effect an absolutely tight seal at this point.

The opposite end of the water jacket will terminate in communication with the hollow hand shield (6) and will seal the opening in the hand shield through which the tubing (C) passes. A packing gland may be used in connection with the nipple (H); this as well as other details are of minor importance in so far as concerns the salient features of the invention.

As stated, the hand shield (6) is hollow and provides a distributer for the circulation of cooling water, for instance, water from any suitable source of supply may be introduced into the shield from the flexible tubing (7) through the connection (8) which is controlled by the valve (9), and with a sufficient force behind the water it will be caused to flow from the hand shield into the jacket (5).

The opposite side of the hand shield is

equipped with an outlet connection (10) which is connected to a flexible tubing (11) which will return the water to the source of supply or, if desirable, the water from the outlet may be wasted.

To prevent the introduction of the water into the hand shield from being immediately permitted to pass through the outlet, a suitable baffle or the like is provided and in its preferred form comprises a partition represented by the strips (12) and (13) which are carried by the water jacket and so arranged as to assume positions on opposite sides of the tubing (C) and adapted in this way to divide the water jacket longitudinally. These strips, if desirable, may even be carried by the tubing (C) at any rate, regardless of whether they are fixed to the tubing or the inner circumference of the water jacket, they will accomplish the same object. They will extend within the hand shield and terminate on the inside thereof on opposite sides of the opening for the tubing (C).

In so far as concerns the present or illustrative embodiment, the opposite ends of the strips will terminate at the end of the longest section, or rather the straight section of the water jacket, for instance, at the union (6^a). This length of the same will be sufficient to effect the desired circulation of the water. Of course, they may be extended to the downwardly presented section but this would interfere with a convenient assembly. It is to be understood that the space between the tubing (C) and the water jacket beyond the termination of the strips will be filled with water.

The strips, as thus constructed, will direct the incoming water along one side of the tubing (C) and back along the opposite side before it will pass through the outlet (10).

We claim:

1. A torch of the character described having a surrounding water jacket, a hollow hand shield communicating with said jacket, a partition in said jacket also dividing the said shield, a water intake and outlet connected to the hollow shield on opposite sides of the division thereof, said intake adapted to be connected to a suitable source of water supply; whereby water may be admitted to the jacket and caused to circulate along one side thereof, and thence along the opposite side and out the outlet.

2. A torch of the character described and as set forth in claim 1 and in which the water jacket is made in sections adapted to be formed together in assembling the same around the torch.

3. A torch of the character described and as set forth in claim 1 and in which the water jacket is made in sections adapted to be formed together in assembling the same around the torch and in which the said partition extends longitudinally through the greater length of the torch and terminates at the end of the longest section thereof.

JAMES FRANK GILBERT.
THOMAS NEVILLE.