W. A. MOSSMAN.

WELDING TORCH.

APPLICATION FILED FEB. 26, 1914.

1,118,215.

Patented Nov. 24, 1914.

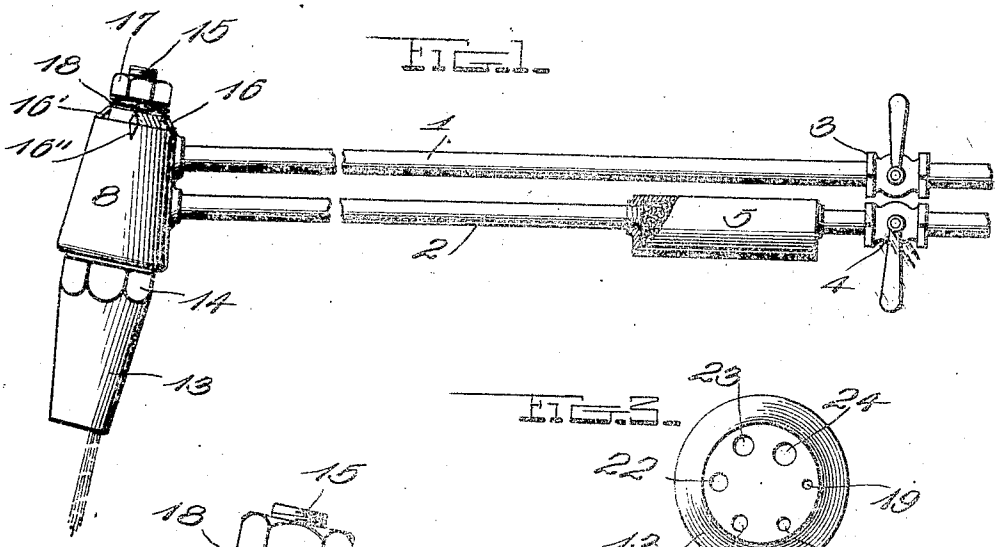


FIG. 1.

FIG. 3.

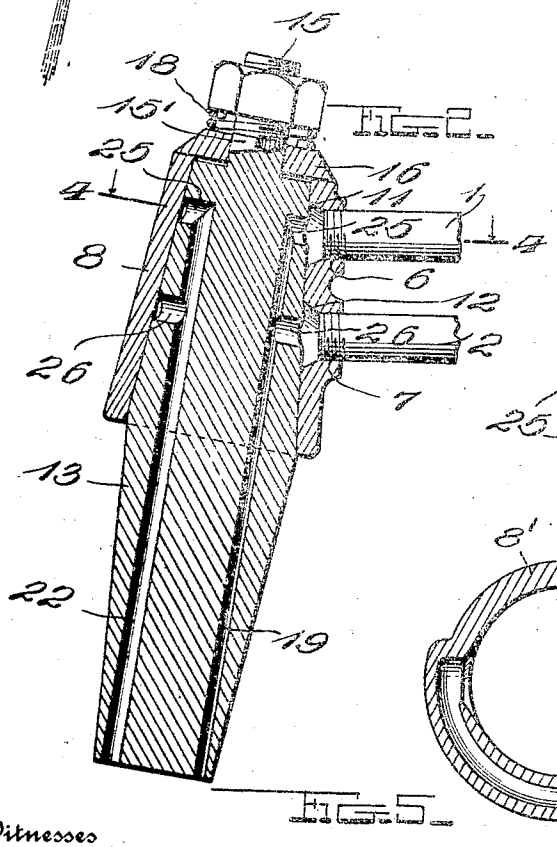


FIG. 2.

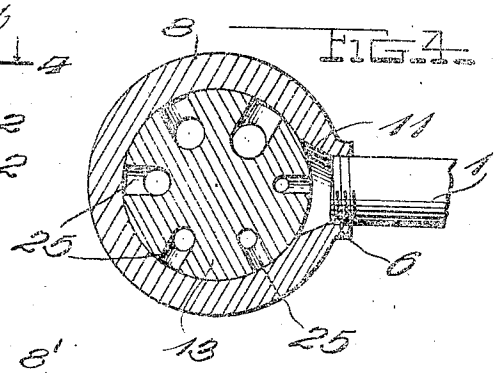


FIG. 4.

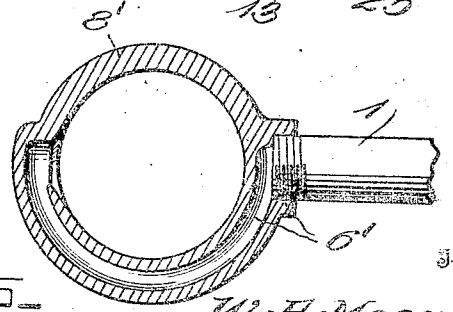


FIG. 5.

Witnesses

O. R. Finn

E. Hunter

Inventor

W. A. Mossman

By A. Bowerman & Co.

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM A. MOSSMAN, OF PRINCETON, INDIANA.

WELDING-TORCH.

1,118,215. Specification of Letters Patent. Patented Nov. 24, 1914.

Application filed February 26, 1914. Serial No. 821,220.

To all whom it may concern:

Be it known that I, WILLIAM A. MOSSMAN, a citizen of the United States, residing at Princeton, in the county of Gibson and State of Indiana, have invented certain new and useful Improvements in Welding-Torches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in welding torches and more particularly to those burning a mixture of a number of gases (in the present case, oxygen and acetylene).

The primary object of the invention is to overcome the heretofore necessary process of inserting a new tip in the torch whenever a larger or smaller flame was necessary. To this end the invention resides in providing a combination gas regulator and burner which is rotatably mounted in such a manner as to allow any one of a number of different sized ports to be brought into register with the gas inlet pipes, thus varying the size of the flame.

A secondary object is to construct said combined regulator and burner in such a manner that the flame of the torch need not be extinguished when adjustments are being made.

With the above objects in view, the invention resides in certain novel features of construction and combination herein described, and claimed, and shown in the drawings, wherein:

Figure 1 is a side elevation of my improved welding torch; Fig. 2 is a vertical longitudinal section through the casing and the combined regulator and burner; Fig. 3 is a bottom plan view of said burner and regulator; Fig. 4 is a horizontal section on the line 4—4 of Fig. 2; and Fig. 5 is a similar view showing a slightly different feature of construction.

In the accompanying drawings, I have shown an oxygen inlet pipe 1 and an acetylene inlet pipe 2, said pipes leading from suitable sources of supply and being provided respectively with cut off valves 3 and 4 and the pipe 2 being provided with a receptacle 5 which is adapted to receive a packing of mineral wool or the like and thereby prevent a flare back of the acetylene gases. It may here be stated that the gases flowing through the pipes 1 and 2 are under pressure suitable to the work to be done.

The free ends of the pipes 1 and 2 are threaded into upper and lower openings 6 and 7 formed in the side of a substantially cylindrical casing 8, said casing being open at both ends. The inner ends of the openings 6 and 7 are enlarged as shown at 11 and 12 for a purpose to appear.

Rotatably mounted within the casing 8 is a combined gas regulator and burner 13, which is substantially cylindrical in contour and is of greater length than the casing 8, the portion thereof projecting beyond said casing being provided with a plurality of flat faces 14 for the reception of a wrench or similar tool, for the purpose of rotating said regulator and burner. The upper end of said last mentioned element is provided with a central stem 15, which projects outwardly therefrom and through an indicating ring 16 and receives a nut 17 on its outer end, which end is threaded for this purpose. A coil spring 18 is preferably employed between the indicating ring 16 and the nut 17 whereby the combined regulator and burner 13 is held in tight engagement with the interior wall of the casing 8, and whereby said engagement may be loosened to allow said burner and regulator to be rotated.

The combined burning and regulating element 13 is provided with a plurality of longitudinally extending bores or ports 19, 20, 21, 22, 23 and 24, each of said ports being of a different size and preferably gradually increasing in diameter from the port 19 to the port 24. Said ports open through the periphery of the element 13, as clearly shown at 25, said openings lying in the same horizontal plane with the inlet opening 6. Spaced below the openings 25 and communicating through the periphery of the element 13, with the interior of the ports 19 to 24, is a plurality of openings 26 which are disposed in the same horizontal plane as the opening 7 and are of suitable sizes to readily perform their functions.

With the parts as above described, when the combined burning and regulating element 13 is rotated so that the bore or port 19 is in communication with the inlet pipes 1 and 2, a mixture of oxygen and acetylene gas will be discharged through the lower end thereof and consequently a very fine flame will be obtained. When, however, a larger

flame is necessary, the element 13 may be rotated to the proper extent to bring certain of the other ports into register with said inlet pipes and thus it will be readily seen that the size of the flame may be increased to the desired extent. During this turning of the element 13, the flame need not be extinguished, since the enlarged inner ends 11 and 12 of the openings 6 and 7 are of sufficient size to allow two of the openings 25 and 26 to register therewith, while said element is being rotated, but, as clearly shown in Fig. 4, when said element is in one of its adjusted positions, but one of the openings 25 and 26 will be in register with its respective inlet opening. This I consider an extremely important feature of my invention.

For the purpose of determining the proper location of the openings 25 and 26 in respect to the openings 6 and 7, I have provided the indicating ring 16 with a plurality of indicating notches 16′, which are equal in number to the number of ports within the element 13, and are designed to co-act with a similar indicator 16″ on the upper edge of the casing 8. Although it would probably be understood, it might be well to here state that the indicating ring 16 is carried by the stem 15 which stem is squared as at 15′ for its reception.

From the positioning and arrangement of parts so far described, it will be seen that the flame will be discharged from the rear side of the element 13. This may be found of disadvantage in certain uses of the device in which it may become necessary to have the flame discharge from the forward side of the burner.

In order to overcome this objection, I may construct the casing 8′ as shown in Fig. 5, wherein the inlet openings 6′ are continued around one side of said casing and enter the side opposite the points at which they enter in the previously described form of the invention. By this arrangement of the inlet ports, it will be readily seen that the flame will be discharged from the forward portion of the burner, and that the rest of the mechanism above described, may be employed to equal advantage with this form of casing.

Although I have described my invention with considerable minuteness, I do not wish to be limited to details of construction other than those amplified in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a welding torch, the combination with a hollow casing, open at its opposite ends and a pair of spaced inlet pipes in communication with the interior of said casing, of a combined burner and regulating element rotatably mounted in said casing and having a plurality of ports opening through one of its ends and its periphery and passages leading from said periphery into said ports, one of said ports and one of said passages being in communication with said inlet pipes, a stem on the inner end of said combined burner and regulator and projecting through one of the open ends of said casing, an indicating ring fixed on said stem and in contact with the end of said casing, said ring and said casing having co-acting indicating characters, a nut on said stem and a yielding element between said nut and said washer, said combined burner and regulating element having its periphery tapered.

2. In a welding torch, a hollow casing having spaced opening into its interior, said openings being enlarged at their inner ends, inlet pipes communicating with said openings, and a combined burner and regulating element revolubly mounted in said casing and having a plurality of different sized longitudinal ports opening through its outer end and through its periphery, the openings in the periphery lying in the plane of one of said inlet openings, said combined burner and regulating element also having a plurality of passages through its periphery and in communication with said ports, said passages lying in the plane of the other inlet opening and said ports and passages being spaced from adjacent ports and passages distances less than the width of said inlet openings.

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

WILLIAM A. MOSSMAN.

Witnesses:
JAMES A. SPROWL.
GEORGE W. STROPBELL.