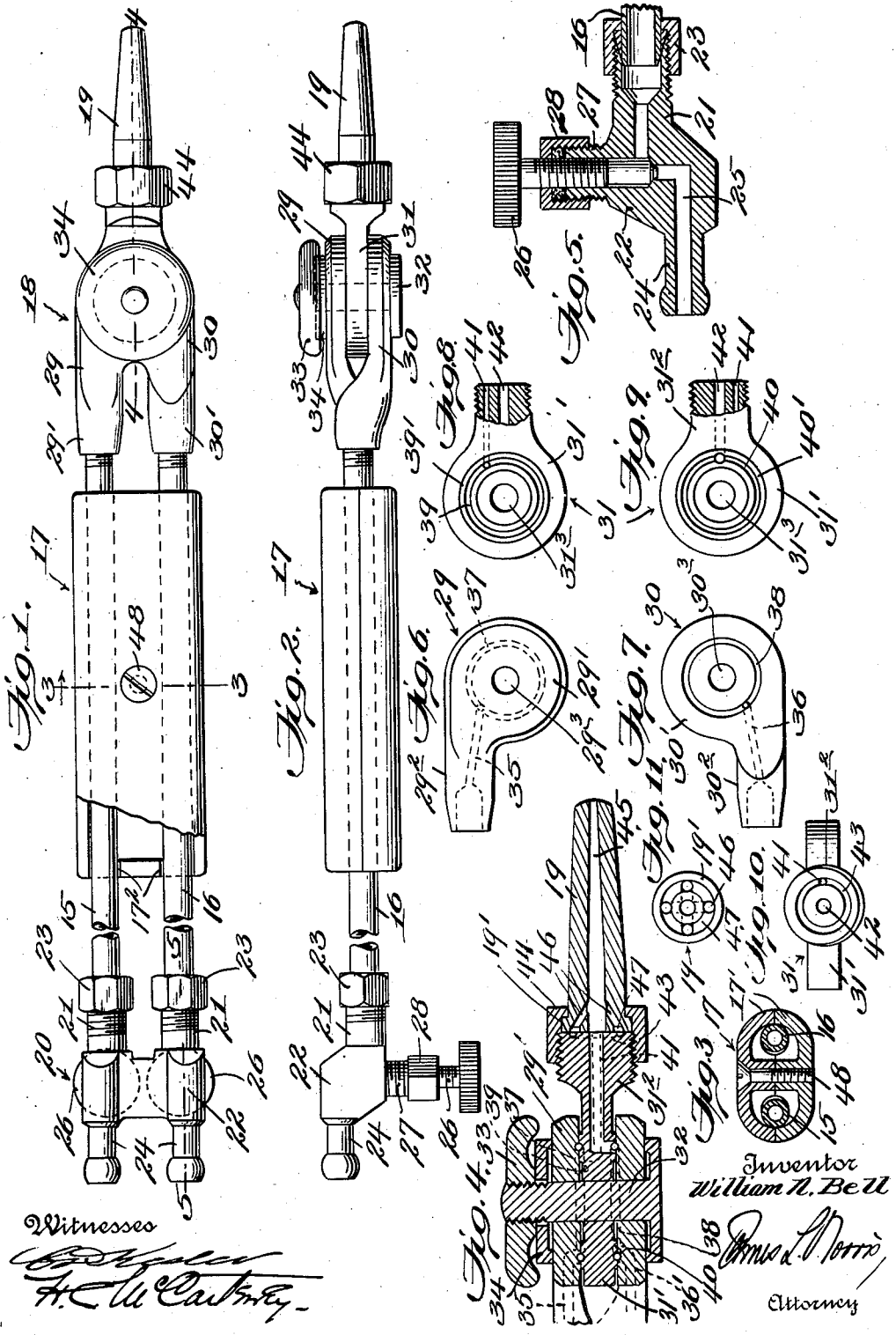
W. N. BELL.

WELDING TORCH.

APPLICATION FILED JULY 2, 1914.

1,121,457.

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UNITED STATES PATENT OFFICE.

WILLIAM N. BELL, OF CHATTANOOGA, TENNESSEE.

WELDING-TORCH.

1,121,457. Specification of Letters Patent. Patented Dec. 15, 1914.

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To all whom it may concern:

Be it known that I, WILLIAM N. BELL, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Welding-Torches, of which the following is a specification.

The present invention has reference to welding torches, and it proposes an improved implement of that general class or character having certain hereinafter-described improvements in or relating to the construction of its head and nozzle, and the mounting of the latter in the said head, whereby the nozzle may be set at any desired angle to the body of the implement, for the purpose of directing the flame toward the work.

It also comprehends certain further improvements, likewise fully explained hereinafter, in connection with the construction of the handle, that element being designed for sliding movement longitudinally of the gas-supply pipes toward and from the head, so as to enable the hand of the operator to be brought closer to or farther away from said head, and the instrument itself shifted toward or from the work when used in connection with a vise or other clamp.

An embodiment of the invention is illustrated in the accompanying drawing, whereof:—

Figures 1 and 2 are plan and side views, respectively, of the improved torch; Fig. 3 is a transverse section on line 3—3, Fig. 1; Figs. 4 and 5 are enlarged longitudinal sections taken on the lines 4—4 and 5—5, Fig. 1, respectively; Figs. 6 and 7 are outer and inner face views, respectively, of one of the fixed members of the head; Figs. 8 and 9 are opposite face views of the movable member of the head; Fig. 10 is a front end view of the said movable member; and Fig. 11 is a rear end view of the nozzle.

The torch has been shown in the said drawing as designed for use in connection with oxygen and acetylene, and will be so described in the matter following, but it is to be understood that in place of the gases specified, other suitable gases may be used, if preferred, so that no limitation to such gases is contemplated.

Referring more particularly to said drawing, 15 and 16 indicate, respectively, the oxygen and acetylene supply pipes of the implement, 17 the handle slidable thereon, 18 the head of the said instrument, 19 the nozzle, and 20 the combined attaching and regulating device connected with the supply pipes.

The pipes 15 and 16, which may be of any desired dimensions, are fitted at their rear ends in a pair of tubular extensions 21 formed on the body 22 of the device 20, and are held in place by means of a pair of cap-nuts 23 in the manner depicted in Fig. 5, the said body being further provided, at the opposite side thereof from the extensions 21, with a pair of nipples 24, adapted for connection with the usual flexible hose, (not shown), which deliver the gases thereto from the main sources of supply. The two pairs of extensions and nipples are connected by passages 25, the angularly offset central portions of which lead transversely through the body 22 adjacent the ends thereof, the flow of the gases through these passages being controllable at the will of the operator, preferably through the agency of suitable needle valves 26, whose stems are threaded in nipples 27 provided on said body and are held in place by cap-nuts 28. The bores of the nipples 27 are extended inwardly of the body 22, so as to open into the angles of the central portions of the passages 25 and receive the inner portions of the valve stems in the usual manner.

The front ends of the pipes 15 and 16 are connected to the head 18 of the implement, as shown in Figs. 1 and 2, and in the construction illustrated, which may, for present purposes, be considered as preferred, the said head consists of relatively-fixed outer members 29 and 30, and an intermediate movable member 31. The members 29 and 30 consist of flat, disk-like body portions 29′ and 30′, and hollow, tangential stems 29^2 and 30^2, the said body portions being provided with central openings 29^3 and 30^3, through which, and through a registering opening 31^3 formed centrally of the similarly-shaped body portion 31′ of the intermediate member 31, passes the stem of a removable connecting bolt 32. The body portions of the fixed members 29 and 30 are disposed in spaced, parallel relation, as represented in Figs. 2 and 4, and receive between them the body portion of the movable member 31, the arrangement being such, therefore, that the latter member may be

turned or rotated in either direction. To retain the said movable member in adjusted position, the projecting terminal portion of the bolt stem is threaded, and is equipped with a thumb-nut 33, the head or base of which is adapted to frictionally engage a washer 34 through which the bolt stem also passes, the said washer resting upon the outer face of the member 29.

The afore-mentioned ends of the pipes 15 and 16 are fitted in the interiorly-threaded ends of the stems 29^2 and 30^2, respectively, which latter have their bores communicating with internal passages 35 and 36 that lead through the body portions of the members 29 and 30 and open laterally at their inner ends into annular passages 37 and 38 formed in the inner faces of said body portions, as depicted in Figs. 6 and 7. The opposite faces of the body portion 31′ of the member 31 are likewise provided with annular passages, indicated by the numerals 39 and 40, which register, respectively, with the passages 37 and 38, and the stem 31^2 of this member is formed with a pair of passages 41 and 42, having deflected inner ends which open, respectively, into the said passages 39 and 40, the passage 42 having a slightly greater diameter than the passage 41 and being located axially of said stem, while the said passage 41 is located to one side of such axis and opens at its outer end into an annular passage 43. The passages 39 and 40 are formed in raised, annular shoulders 39′ and 40′.

In consequence of the particular construction and arrangement of the various passages, as above described, communication is always provided between the two passages 35 and 41 by means of the two registering annular passages 37 and 39, irrespective of the position of the movable member 31 relative to the fixed members 29 and 30; and, similarly, between the two passages 36 and 42 by means of the registering annular passages 38 and 40, all of the said annular passages having the same diameter. Accordingly, the oxygen, which flows through pipe 15 into passage 35, and thence into passages 37 and 39, will always be free to flow from the last-named passage into and through the outlet passages 41 and 43; while, in like manner, the acetylene will flow through pipe 16 into passage 36, thence into passages 38 and 40, and finally into and through its outlet passage 42.

The nozzle 19 of the implement is detachably secured directly to the stem 31^2 of the movable head member 31, and is here shown as constituted by a tapered tube provided at its rear end with a circumferential flange 19′, which is clamped against the threaded stem end by a cap-nut 44. The axial bore 45 of the nozzle registers with the passage 42, and is formed adjacent its rear end with a series of short, inclined branch passages 46 that lead outwardly therefrom and open into an annular passage 47 formed in the rear end face of the said nozzle in registration with the annular passage 43 in the end face of stem 31^2. The acetylene thus flows from passage 42 into the bore or passage 45, while the oxygen flows from passage 41 into passage 43, as previously stated, and thence through the branch passages 46 into passage 45, where it mixes with the acetylene, communication between the passages 41, 46 and 45 being insured for all positions of the nozzle owing to the formation of the registering annular passages 43 and 47.

The handle 17 preferably consists of upper and lower counterpart hollow sections 17′, which are disposed against opposite sides of the supply pipes 15 and 16, and are detachably clamped together against said pipes in any suitable manner, as, for example, by means of a screw 48, (Figs. 1 and 3), the end members of the said sections being provided with mating seats 17^2 wherein the pipes are received. This arrangement, as will be understood, enables the handle to be shifted bodily in either direction along the pipes, after the clamping screw 48 has been loosened, and to be thereafter retained in adjusted position by merely tightening said screw.

The entire invention, its operation and its advantages, are believed to be apparent from the foregoing, and, hence, to require no further description or explanation.

I claim:—

1. In a welding torch, the combination, with a pair of gas supply pipes; of a head embodying a pair of juxtaposed, hollow, structurally-separate, fixed members to which the forward ends of said pipes are attached, and a single, hollow member disposed directly between and movable relatively to the fixed members and in constant communication with the same, said fixed and movable members having intercommunicating gas passages; and a nozzle attached to said movable member and having its bore communicating with the interior thereof.

2. In a welding torch, the combination of a head comprising a pair of separate, fixed members having disk-like hollow body portions arranged in juxtaposed relation and hollow stems connected to said bodies, and a movable member having a disk-like hollow body interposed between and communicating with the bodies of said fixed members; gas-supply means attached to the stems of said fixed members; and a nozzle attached to said movable member and in communication therewith.

3. In a welding torch, the combination of gas-supply pipes; a head attached thereto;

a nozzle rotatably connected with said head; and a handle slidable upon said supply means toward and from said head.

4. In a welding torch, the combination of gas-supply means; a head attached thereto; a nozzle attached to said head; and a handle slidable upon said supply means toward and from said head, said handle embodying counterpart sections disposed upon opposite sides of said supply means, and means for clamping said sections together.

5. In a welding torch, the combination of rigid, gas-supply pipes; a head attached thereto; a nozzle attached to said head; and a handle slidable upon said pipes toward and from said head, said handle comprising separable upper and lower sections disposed upon opposite sides of said pipes, and means for clamping said sections together.

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

WILLIAM N. BELL.

Witnesses:
FRANK S. COSDEN,
CHAS. A. STEWART.