R. D. CONRAD.

OIL BRAZING BURNER.

APPLICATION FILED APR. 3, 1908.

955,946.

Patented Apr. 26, 1910.

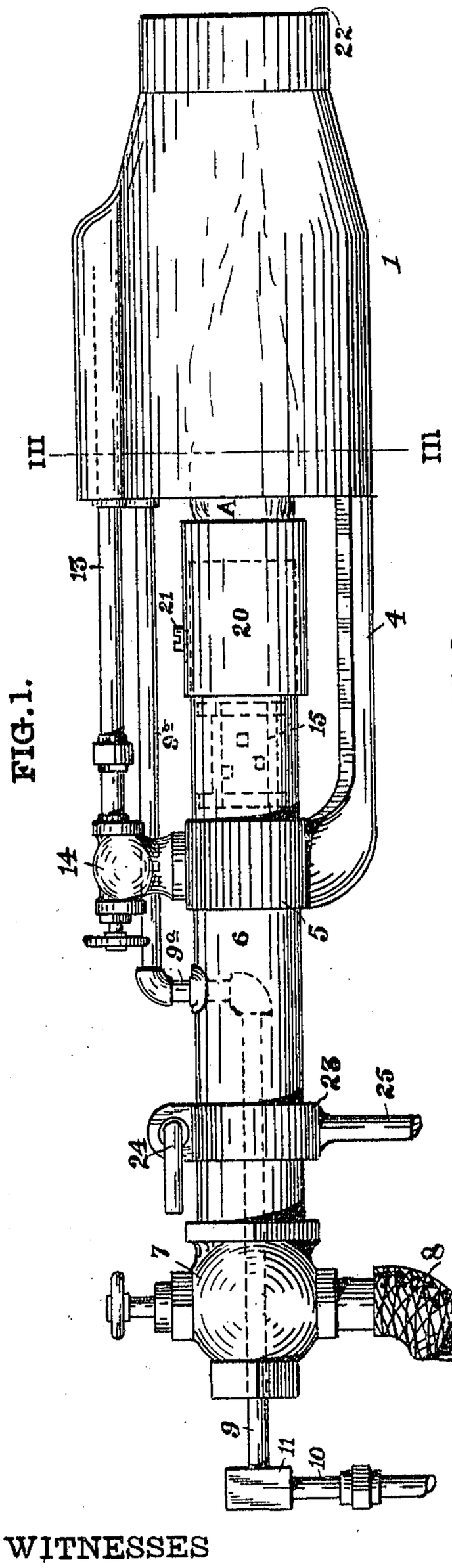

FIG. 1.

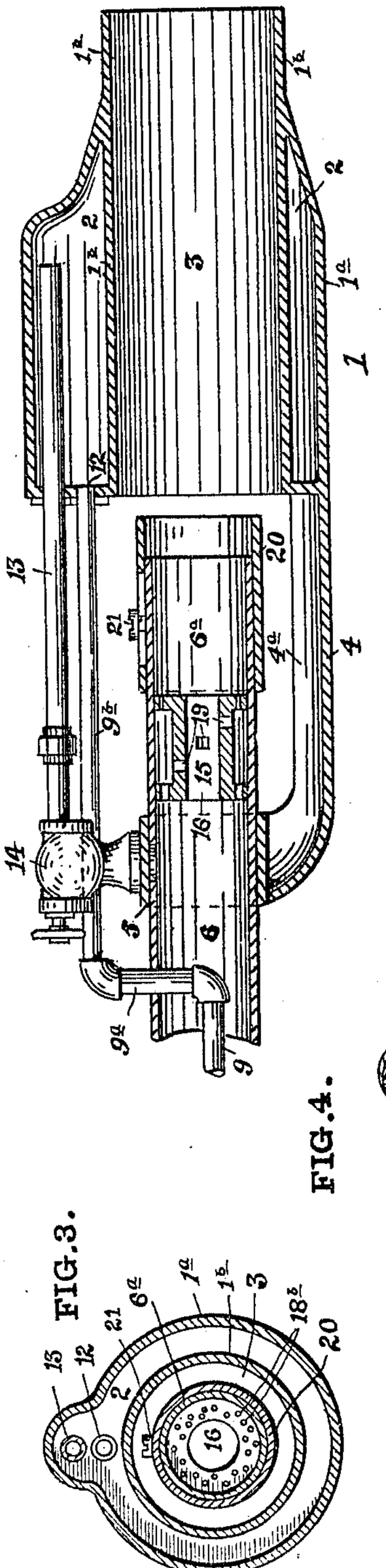

FIG. 2.

FIG. 3.

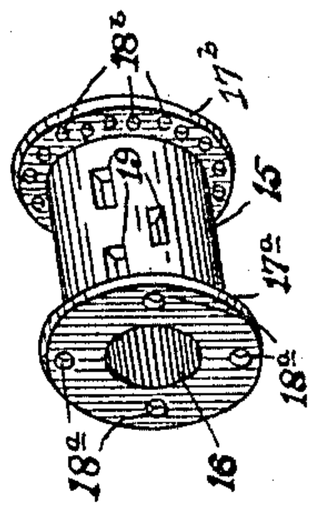

FIG. 4.

WITNESSES

Robt. H. Dilworth

Harry Frank

INVENTOR

Richard D. Conrad

BY

Audley Simpson

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

RICHARD D. CONRAD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO RICHARD W. MUELLER, OF PITTSBURG, PENNSYLVANIA.

OIL BRAZING-BURNER.

955,946. Specification of Letters Patent. **Patented Apr. 26, 1910.**

Application filed April 3, 1908. Serial No. 425,010.

To all whom it may concern:

Be it known that I, RICHARD D. CONRAD, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Oil Brazing-Burners, of which the following is a specification.

My invention relates to brazing burners and particularly to such burners adapted to the use of oil or similar fuel as the heating agent.

The object of my invention is to provide a burner for brazing purposes which will have the advantage of being used with oil as fuel, thus giving it portability.

A further object is to provide high efficiency and the intense heat requisite for brazing thereby permitting the use of a spelter which fuses at a very high temperature.

It must be understood that my burner differs materially in its functions from the small hand torches well known in the art; my improved burner being designed essentially for use in brazing cracks and breaks in large castings in the repair of which a very high degree of heat must be applied and concentrated at the crack to be brazed.

The nozzle of my burner is of very large diameter, in practice about two and one half inches, and as the quantity of volatilized oil passing to the flame is very great it is important to thoroughly mix the said volatilized oil with the necessary quantity of air. The means for accomplishing this mixing is therefore an important feature of my invention.

In the accompanying drawings which form part of this specification: Figure 1 is a longitudinal view of my improved burner. Fig. 2 is a longitudinal section through a portion of same. Fig. 3 is a cross section of Fig. 1 at the line III, looking toward the rear of same; and Fig. 4 is a perspective view of the mixer cylinder.

Referring again to the drawings for a detailed description of my invention: 1 is a cylindrical casting formed with the walls 1^a, 1^b and which form the inclosed chamber 2 surrounding the bore 3 which is open at both ends. An extension 4 terminates in a collar 5 and is curved on its upper surface 4^a to serve as a pan to receive the drippings from the mixer. A pipe 6 passes through the said collar 5 and supports the casting 1. At the outer extremity of this pipe 6 is a valve 7 connecting with a supply of air under pressure by means of a suitable hose or tube 8, the valve 7 being for the purpose of adjusting the supply of air through the pipe 6. Passing into the pipe 6, preferably through the casing of the valve 7, is a small pipe 9 connecting with a tank (not shown) by means of the connecting pipe 10 and the joint 11, whereby a supply of oil is conveyed out through the side of the pipe 6 through the pipes 9^a and 9^b into the chamber or reservoir 2 at the point 12. The oil in the chamber 2 is converted into a gas first by heating the casting 1 by some extraneous means, preferably a pan of burning oil placed beneath same, and is thereafter maintained at the necessary heat by the flame within the bore 3, as will be seen presently.

A gas pipe 13 extends from the upper forward portion of the chamber 2 at its hottest point through the rear end of said chamber and connects with a valve 14 which admits the gas from the chamber 2 through the pipe 13 to the pipe 6 where it comes into contact with the blast of air and is carried through the mixer 15. This mixer 15 is constructed as shown in Fig. 4 and is provided with a central bore 16, a flange 17^a, having a plurality of openings 18^a, openings 19 in the cylindrical portion of said mixer, and a flange 17^b provided with smaller openings 18^b. The air and gas passing through the several openings 16, 18^a, 18^b, and 19 are churned or mixed thoroughly before passing into the nozzle portion 6^a of the pipe 6 where it is ignited as it emerges therefrom as shown in Fig. 1. The nozzle portion 6^a terminates some distance from the bore 3 which is somewhat larger in diameter than the nozzle 6^a as will appear from Fig. 3, and an adjustable hood or sleeve 20 with a set screw 21 is provided to regulate the point of ignition of the flame A. The purpose of this sleeve is to adjust the ignition point so that the flame will give the best result in heating the chamber 2 and it will be apparent that if the nozzle 6^a entered too far the flame would ignite only at the extreme tip 22 of the casting 1 and, if not far enough, the mixture would ignite before entering the bore 3.

23 represents a collar clamped at 24 and

embracing the pipe 6, serving as a standard for supporting the burner. A fragment of standard rod is shown at 25.

Having thus fully described my invention I claim as new and desire to protect by Letters Patent of the United States:

1. In an oil brazing burner, a vaporizer having a bore therethrough, an air-blast tube in alinement with said bore, an oil-supply pipe leading to said vaporizer, a conduit connecting the vaporizer with the air-blast tube, and a mixer in said tube in advance of the point of discharge of the volatilized fuel thereinto, the discharge end of the tube and the inlet end of the bore being relatively positioned to effect combustion within the bore.

2. In an oil brazing burner, a vaporizer having a bore therethrough, said bore forming a combustion chamber, an oil supply pipe connecting with said vaporizer, an air-blast tube in line with the aforesaid bore, a conduit for conveying volatilized fuel from the vaporizer to the air tube, a mixer in said air tube, said mixer comprising a cylinder having a bore therethrough, said cylinder having lateral perforations therein and perforated flanges thereon, and a slidable sleeve to adjust the ignition point of the mixture.

3. An oil brazing burner, comprising a combustion chamber provided with a surrounding vaporizing chamber, an air blast tube the discharge end of which is adjacent the combustion chamber, means for conveying oil to the vaporizing chamber, means for conveying volatilized fuel from the vaporizing chamber and discharging the same into the air blast tube, and a mixer in the air blast tube in advance of the point of discharge of vaporized fuel thereinto.

4. In an oil brazing burner, a vaporizer having a bore therethrough, an air-blast tube in alinement with said bore, an oil-supply tube leading to said vaporizer, a conduit connecting the vaporizer with the air-blast tube and adapted to discharge into the air tube at an angle to the direction of flow of the air, and a mixer in said tube in advance of the point of discharge of the volatilized fuel thereinto, the discharge end of the tube and the inlet end of the bore being relatively positioned to effect combustion within the bore.

5. In an oil brazing burner, a vaporizer having a bore therethrough, said bore forming a combustion chamber, an air-blast tube the discharge of which is adjacent the combustion chamber, means for conveying oil to the vaporizer, means for conveying volatilized fuel from the vaporizer to the air-blast tube, and means carried by the tube and movable in axial alinement with the bore, for controlling the ignition point of the fuel mixture.

6. In an oil brazing burner, a vaporizer having a bore therethrough, said bore forming a combustion chamber, an air-blast tube the discharge of which is adjacent the combustion chamber, means for conveying oil to the vaporizer, means for conveying volatilized fuel from the vaporizer to the air-blast tube, and a sleeve carried by the tube and axially-movable for controlling the ignition of the fuel mixture.

In testimony whereof I have affixed my signature in presence of two witnesses.

RICHARD D. CONRAD.

Witnesses:
JAMES A. NUGENT,
MILDRED CHILLEEN.