A. H. BERNHARD.

GASEOUS FUEL BURNER.

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917,405. Patented Apr. 6, 1909.

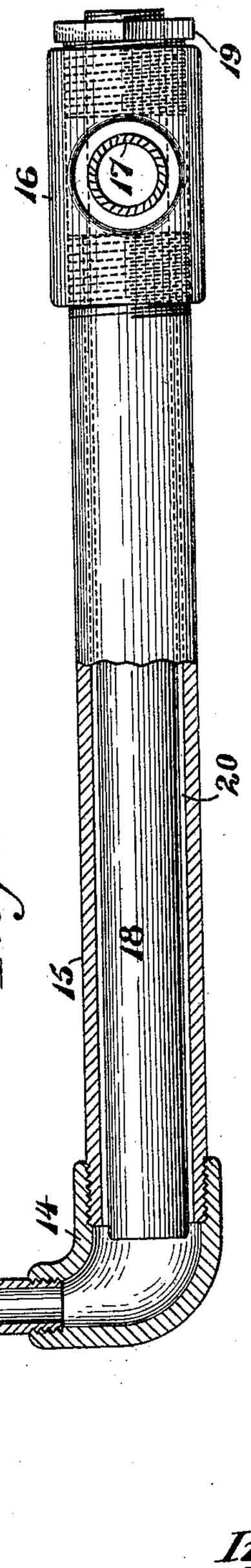

Fig. 1.

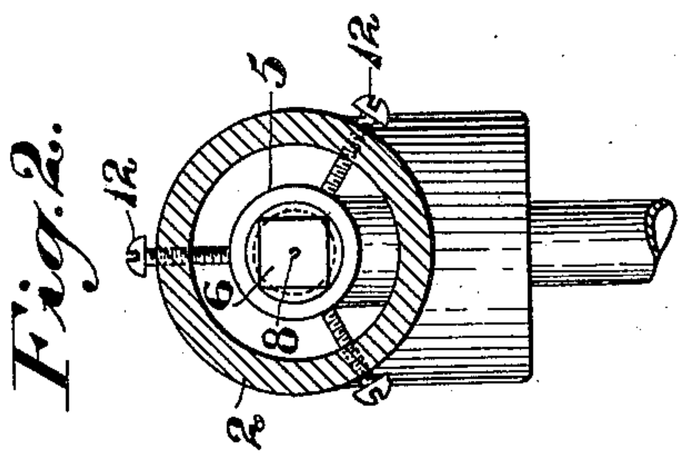

Fig. 2.

Witnesses:-

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ALVIN H. BERNHARD, OF MILL VALLEY, CALIFORNIA.

GASEOUS-FUEL BURNER.

No. 917,405. Specification of Letters Patent. Patented April 6, 1909.

Application filed January 13, 1908. Serial No. 410,631.

To all whom it may concern:

Be it known that I, ALVIN H. BERNHARD, a citizen of the United States, residing at Mill Valley, in the county of Marin and State of California, have invented certain new and useful Improvements in Gaseous-Fuel Burners, of which the following is a specification.

My invention relates to improvements in gaseous fuel burners.

The object of my invention is to provide a gaseous fuel burner which is simple in construction and insures perfect combustion in operation.

My invention consists in the novel construction and combination of parts shown in the accompanying drawing, described in the following specification and claimed in the appended claims.

Referring to the figures shown in the said drawing Figure 1 is a sectional view of the said burner and is also a sectional view of connected parts partly broken away. Fig. 2 is a sectional view of said burner taken on lines *x*—*x* of Fig. 1.

In the drawings, A represents the said burner.

2 indicates a tee, 3 a plug supported in one end of said tee and 4 a plug supported in the other end of said tee.

5 shows a tee inclosed in the chamber formed by the tee 2 and the plugs 3 and 4. The tee 5 supports in one end the plug 6 and in the opposite end the plug 7, these plugs provided respectively with orifices 8 and 9. The tee 5 is kept in its proper position in said chamber by the screws 12, held in apertures in the wall of the tee 2, and by nipple 13 secured in the vertical branch of tee 5. The lower end of nipple 13 is secured in elbow 14, and said elbow is supported by tube 15. A circular rod 18 extends centrally through the tube 15 and is held in position in the union 16. The diameter of the rod 18 is less than that of the interior of tube 15 so that an annular channel 20 is provided between the exterior of said rod and the interior surface of said tube. A tube 17 extends into the side aperture of said union 16 for the supply of gas to the device which flows in the annular channel between the rod 18 and inner wall of the tube 15, and thence upward through nipple 13 into the central chamber in tee 5, and thence through the central horizontal channels 8—9 in plugs 6 and 7 into the respective spaces between the mouths of said central channels and the oppositely positioned channels 10 and 11, where the gas meets the ascending currents of air entering the aperture between the wall of nipple 13 and tee 2, the discharge of the consequent burning fluid taking place through the respective apertures 10 and 11. The form of the apertures 8 and 9 is such as to concentrate the volume of gas passing therethrough to secure the most effective result, the center line of said apertures 8 and 9 being the center line of said apertures 10 and 11, resulting in obtaining more effective combustion. The expulsion of the gas into the mixing chamber opposite the orifices 8 and 9 may be accomplished by any suitable method known in the art.

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

1. In a gaseous fuel burner the combination of a tee, plugs having longitudinal apertures extending therethrough secured in the lateral branches of said tee, a tee secured in the central chamber of said first named tee, plugs having longitudinal apertures extending therethrough secured in the horizontal branches of the tee in said chamber, a tubular nipple secured in the vertical branch of the last-named tee, a horizontal supply pipe connected to the lower end of said nipple, a longitudinal rod of less diameter than the interior of said supply pipe positioned therein and out of contact with the inner surface of said pipe, and a supply pipe connected to the last-named pipe and delivering therein, substantially as described.

2. In a gaseous fuel burner the combination of a tee, plugs having longitudinal apertures extending therethrough secured in the lateral branches of said tee, a tee secured in the central chamber of said first-named tee, plugs having longitudinal apertures extending therethrough secured in the horizontal branches of the tee in said chamber, said apertures being outwardly contracted, a tubular nipple secured in the vertical branch of the last-named tee, an elbow and a horizontal pipe connected to the lower end of said nipple, a longitudinal rod of less diameter than the interior of said horizontal pipe positioned therein and out of contact with the inner surface of said pipe, and a supply pipe connected to the last-named pipe and delivering therein, substantially as described.

3. In a gaseous fuel burner the combination of a tee, plugs having longitudinal apertures extending therethrough secured in the

lateral branches of said tee, a tee centrally positioned in the chamber of the first-named tee, plugs having longitudinal apertures extending therethrough secured in the horizontal branches of the tee in said chamber, said apertures being outwardly contracted and being in alinement with the apertures of the outer plugs, a tubular nipple secured in the vertical branch of the last-named tee, an elbow and horizontal pipe connected to the lower end of said nipple, a tubular rod of less diameter than the interior of said horizontal pipe positioned centrally therein whereby an annular equidistant chamber is formed between the exterior of said rod and the inner surface of said pipe, and means secured to said pipe for delivering the supply through said chamber.

4. In a gaseous fuel burner, the combination of a tee, plugs having longitudinal apertures extending therethrough secured in the lateral branches of said tee, a tee centrally positioned in the first-mentioned tee, plugs having longitudinal apertures extending therethrough secured in the lateral branches of the second-named tee, the apertures in said plugs being interiorly wider and exteriorly narrower, the lower branch of said first mentioned tee being open, a vertical supply pipe connected to the lower branch of the inner tee, a horizontal supply pipe connected to said vertical supply pipe, and a rod arranged within said horizontal supply pipe and out of contact with the inner surface of said pipe.

In testimony whereof I affix my signature, in presence of two witnesses.

ALVIN H. BERNHARD.

Witnesses:

F. E. FARMER,

CHAS. J. STANLEY.