B. FOLEY.

LIQUID FUEL BURNER.

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1,304,293.

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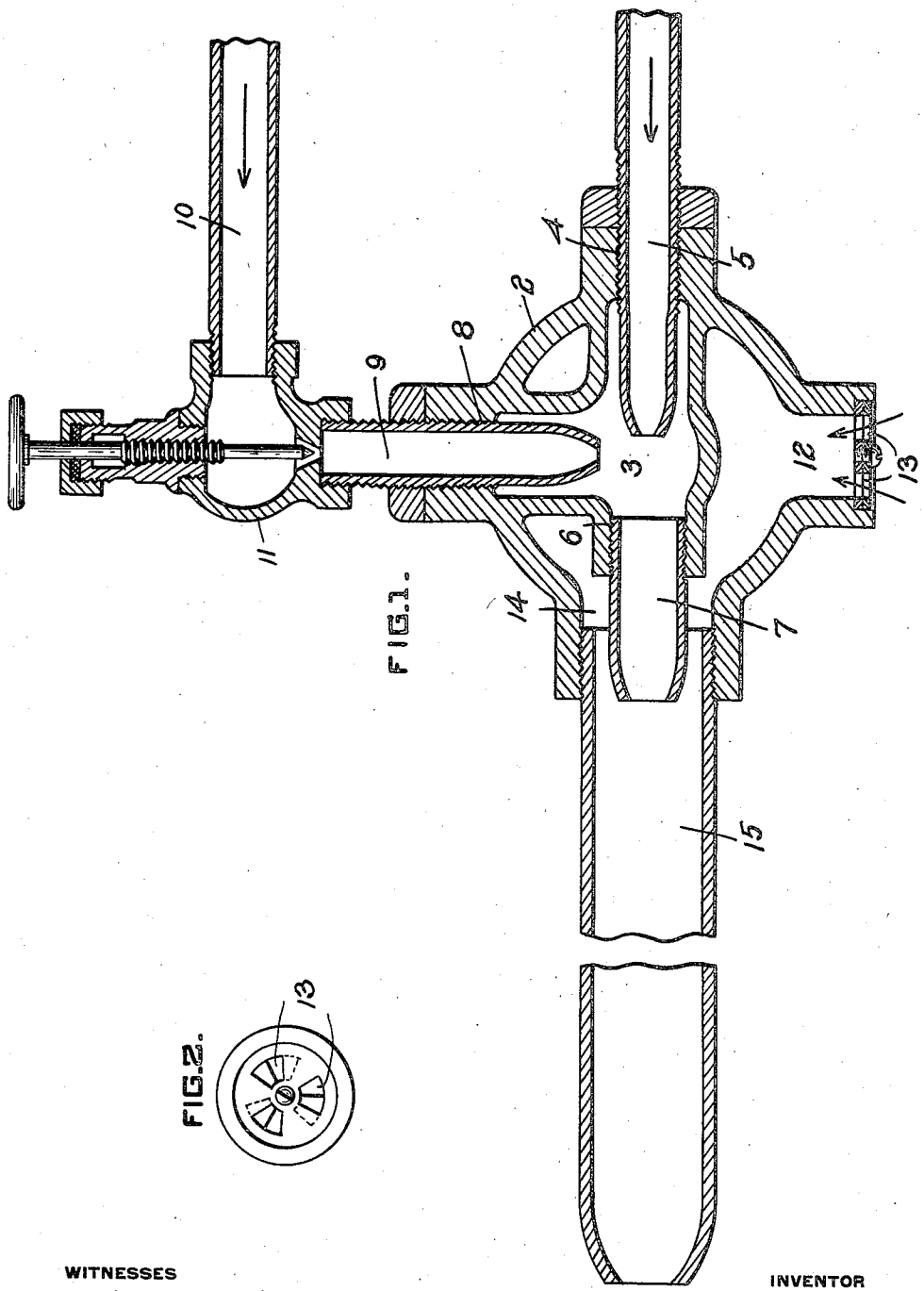


FIG. 1.

FIG. 2.

WITNESSES

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BENJAMIN FOLEY, OF YOUNGSTOWN, OHIO.

LIQUID-FUEL BURNER.

1,304,293. Specification of Letters Patent. Patented May 20, 1919.

Application filed December 31, 1917. Serial No. 209,649.

To all whom it may concern:

Be it known that I, BENJAMIN FOLEY, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification.

Among the objects of my invention are to provide a new and improved liquid fuel burner particularly adapted for use in connection with a liquid tar fuel, a burner of the class specified in which a relatively high pressure air or steam supply source is utilized for projecting the fuel and creating a vacuum for the purpose of drawing regulated supplies of low pressure air into the burner structure to be mixed with the fuel.

In the accompanying drawing, which illustrates an application of my invention,

Figure 1 is a vertical sectional view of a burner structure embodying my invention; and

Fig. 2 a plan view of a damper employed for regulating the quantity of air admitted to the burner.

Referring to the drawings, 2 designates a casing preferably of cylindrical form and having its interior formed to provide a chamber 3 into which the liquid fuel and the high pressure air or steam are introduced. As illustrated and as preferred, chamber 3 communicates at its outer end with a longitudinal passageway 4 in which is mounted a pipe or nozzle 5, the latter being adapted to communicate with a source of high pressure air or steam, not shown. The inner end of the chamber communicates with a passageway 6 into which is entered a pipe or nozzle 7, and intermediate the passageways 4 and 6 and communicating with the top of the chamber, is a passageway 8, the latter being adapted to receive a pipe or nozzle 9.

Liquid fluid is supplied to chamber 3, from a suitable source of supply, not shown, through pipe 10, a needle valve structure 11, and the pipe or nozzle 9.

In addition to the parts mentioned, the casing is provided with an air inlet passage 12 having a damper 13 and a passage 14, the latter being in communication with a laterally and horizontally extending pipe 15 of sufficient length to project through a furnace wall.

In the operation of the burner, as illustrated, the liquid fuel, for example, liquid tar, is fed down through nozzle 9 in regulated quantities and into the high pressure air stream, which latter is delivered to and passes through the burner and, owing to the arrangement of parts as shown, travels under a high velocity with its pressure somewhat reduced.

The commingled fuel and high pressure air, or steam if the latter is employed, in passing out of the end of pipe or nozzle 7 creates a vacuum adjacent the end of the concentrically disposed nozzle 7 and between the outer surface of the nozzle and the interior of pipe 15, which will have the effect of drawing atmospheric or low pressure air in through the air inlet passageway 12, through the interior of the casing, and into pipe 15, where it mixes with the fuel.

What I claim is:—

1. In a liquid fuel burner, a casing having its interior divided by walls forming an interior chamber, a high pressure fluid passageway in communication with the chamber, a liquid fuel supply passage also in communication with said chamber, tubular elements projecting from said passageways into the interior chamber, a tubular mixing chamber beyond the interior chamber, a low pressure air supply passageway in communication with the mixing chamber, and a concentrically disposed discharge nozzle in communication with the interior chamber and having an end projected into the tubular mixing chamber.

2. In a liquid fuel burner, a casing having an interior chamber, a fluid pipe in communication with a source of high pressure fluid entered in the chamber, a liquid fuel supply pipe also entered in the chamber, said pipes having their ends at right angles to each other and terminating within said chamber, a tubular mixing chamber projected from the casing, and a discharge nozzle leading from the interior chamber projecting into and arranged concentrically with the mixing chamber to create and maintain a vacuum adjacent the end of the discharge nozzle, whereby low pressure air is drawn into the mixing chamber by the passage of the high pressure fluid through the burner structure.

3. In a liquid fuel burner, a casing having its interior divided by walls forming an interior chamber, a longitudinally extending inlet passageway, an outlet passageway, a vertically extending inlet passageway inter-

mediate of the first mentioned passageways, a tubular member disposed in each of the inlet passageways and projecting into the interior chamber, a tubular member in the outlet passageway in communication with the interior chamber, a tubular mixing chamber beyond the interior chamber, and a low pressure air supply passageway in communication with the mixing chamber, said tubular member in said outlet passageway having an end projected into the tubular mixing chamber.

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

BENJAMIN FOLEY.

Witnesses:
O. I. FELL,
WALTER B. COLLINS.