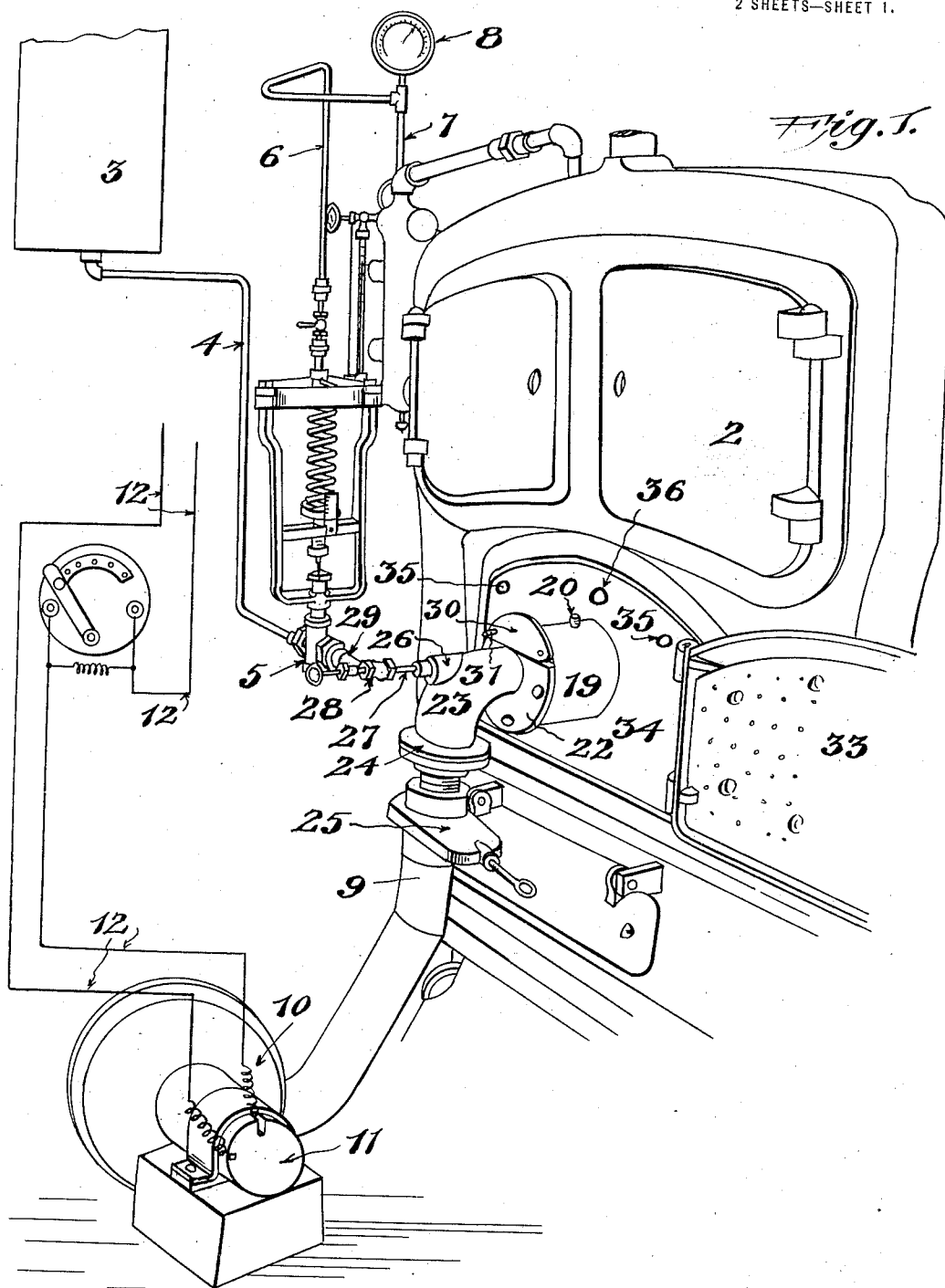


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APPLICATION FILED AUG. 17, 1920.

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Patented June 14, 1921.

2 SHEETS—SHEET 1.



INVENTOR

Arthur E. Hauck

BY HIS ATTORNEY

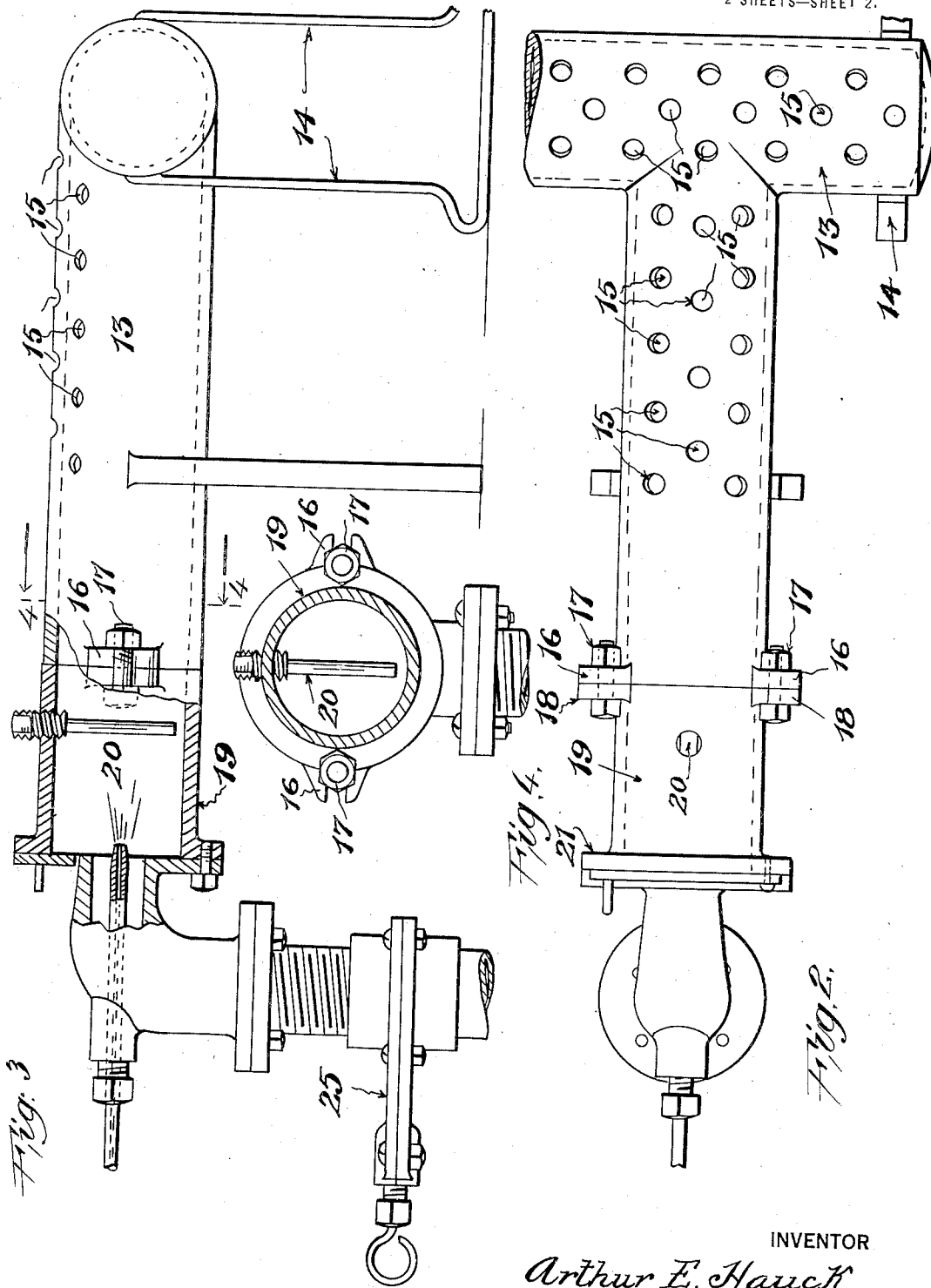
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UNITED STATES PATENT OFFICE.

ARTHUR E. HAUCK, OF NEW YORK, N. Y.; ADOLPH H. STEIN EXECUTOR OF SAID
ARTHUR E. HAUCK, DECEASED.

AUTOMATIC OIL-BURNER FOR FURNACES.

1,381,708.

Specification of Letters Patent. Patented June 14, 1921.

Application filed August 17, 1920. Serial No. 404,097.

To all whom it may concern:

Be it known that I, ARTHUR E. HAUCK, a citizen of the United States, and a resident of the city of New York, county of Kings, and State of New York, have invented a new and useful Improvement in Automatic Oil-Burners for Furnaces, of which the following is a specification.

The object of my invention is to provide an economical oil burner which will automatically keep steam at any desired pressure in a boiler and a further object is to provide a reliable device of the kind in question. This, and other objects are accomplished by my invention, one embodiment of which is hereinafter more particularly set forth.

For a more detailed description of my invention reference is to be had to the accompanying drawings forming a part hereof, in which—

Figure 1 is a perspective view of a furnace provided with my invention.

Fig. 2 is a plan view of a burner embodying my invention.

Fig. 3 is a side elevation of the same, partially in section, and

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3 looking in the direction of the arrows.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My improved burner 1 is put in any suitable furnace 2 and is connected to an oil tank 3 through a pipe 4 and a regulating valve 5. The regulating valve 5 is shown as a valve which is governed by steam pressure and is connected by a steam pipe 6 with pipe 7 which runs from the boiler to a pressure gage 8, although any proper regulating valve, suitably connected, may be employed. Air is brought under pressure to the burner 1 through a pipe 9 from a blower 10 which is run by a motor 11 which is connected to any suitable source of electricity by means of wires 12 and the usual electrical connections.

The burner 1 is also provided with a burner tube 13 which may be given any suitable shape, as the letter T, and it is supported by legs 14 from a grate or ash pit, as may be convenient. Except for the flame openings 15 at its top this tube 13 is closed.

Near its front this tube 13 is provided

with perforated ears 16 which receive bolts 17 which pass through corresponding ears 18 on a stud pipe 19 and this pipe 19 has a radially extending rod 20 fixed therein and extending almost, but not quite across the interior. In the preferred embodiment of my invention it is shown placed at the center and vertically. The purpose of this pipe is to be heated and so facilitate combustion in the burner tube 13.

The front end of the stud pipe 19 of the burner tube 13 is provided with a flange 21 to which is bolted a corresponding flange 22 which is integral with an elbow 23 which is also provided with a second flange 24 which is connected to the pipe 9 and through which air is forced as above set forth. If desired, an air valve 25 may be placed in the pipe 9 so as to regulate the amount of air which flows to the elbow 23.

This elbow 23 is also provided with a boss 26 which is perforated and adapted to receive a pipe 27 which is connected to a hand-valve 28 which is in turn connected to a stud pipe 29 that runs to the regulating valve 5 and this regulating valve is connected to the pipe 4 as above described. The pipe 27 extends to the interior of the stud pipe 19 as shown in Fig. 3 and forms an atomizing nozzle which sprays oil or other fuel into the interior of the burner tube 13.

As stated above, the flange 22 covers only the lower portion of flange 21. The upper portion of the flange 21 is covered by a pivoted plate 30 which has a small handle 31 at one side and a pivot 32 at the other as shown in Fig. 1. My improved burner may be applied in any suitable way. In the embodiment of my invention here shown, it is applied by opening the furnace door 33 and closing the opening, usually closed by a door, by a sheet of metal or other material 34 which fits the doorway and surrounds the stud pipe 19. It is preferable to provide this sheet metal 34 with any suitable means for holding the same in place, as bolts 35, and it is also provided with a peep hole 36 which is preferably located above the pipe 19 so that a fireman can view the flame of the burner.

In view of the foregoing, the operation of my improved burner will be readily understood. It is started by throwing the cover 30 into its open position and the hand-

valve 28 is then opened to permit a limited flow of oil and a little waste or other suitable material may be ignited and dropped in through the opening uncovered by the
5 door 30 which is then closed and then the air blast may be turned on gradually and the hand-valve 28 opened further, if necessary, and then combustion takes place in the burner tube 13 beginning with the inner end
10 of the nozzle pipe 27. The bar 20 is soon heated to a white heat and it thereby tends to ignite any gases not previously ignited which pass by it so that a complete combustion takes place in the burner tube 13 and
15 hot flames will issue from the flame openings 15 and rise upwardly to heat the furnace and particularly the part which heats water which is converted into steam in the conventional manner.
20 The furnace is shut down by closing the hand-valve 28 and shutting off the air supply and it is regulated by setting the automatic valve 5 according to the steam pressure desired so that the flow of oil will de-

pend upon the pressure in the boiler, the flow being a maximum when the steam pressure is low and a minimum when it is high.

What I claim is:

1. A furnace provided with an oil burner composed of a burner T tube with flame perforations in its upper surface, means for supporting said tube, an inwardly extending bar adapted to rest in the path of a flame, means for supplying fuel oil for the burner tube and means for supplying air. 35

2. A furnace provided with a burner tube adapted to be inserted through a doorway of a furnace, a sheet surrounding the same and closing the doorway, means for supporting the burner tube in the furnace, means for supplying air under pressure to said burner tube, means for supplying fuel oil and automatic means for regulating the oil supply. 40

In testimony whereof I have hereunto set my hand this 10 day of August, 1920. 45

ARTHUR E. HAUCK.