

No. 717,238.

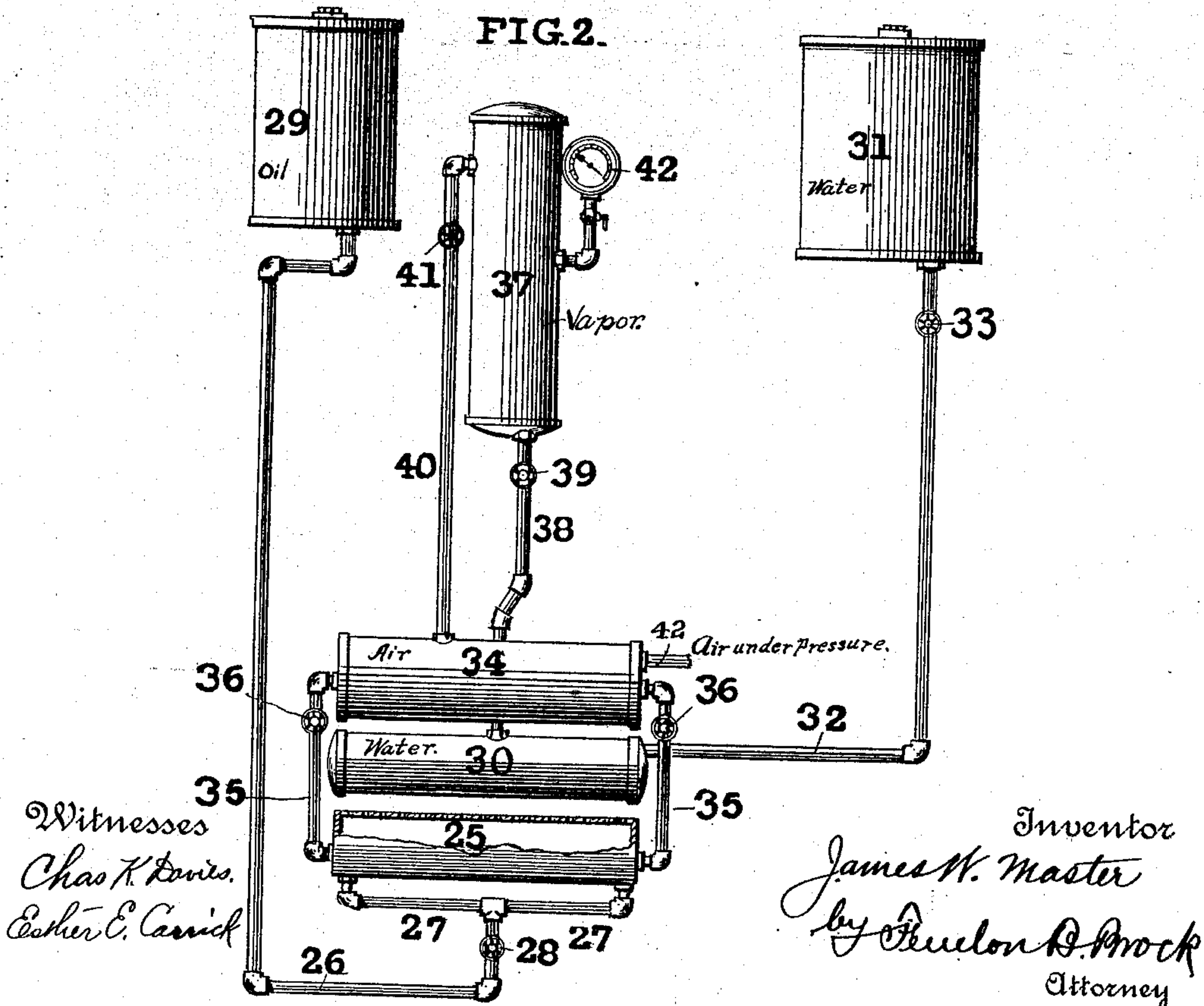
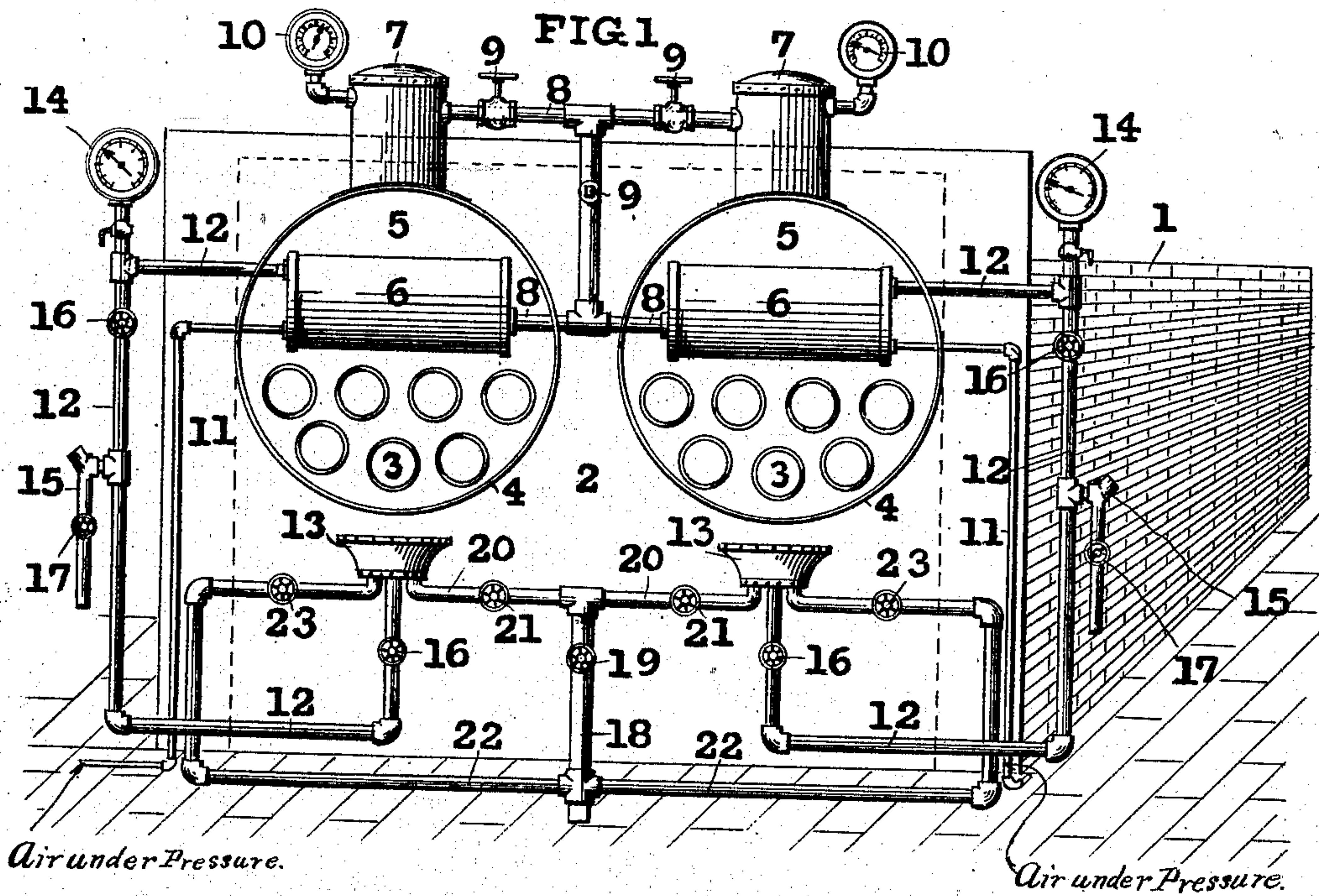
Patented Dec. 30, 1902.

J. W. MASTER.

VAPOR BURNER.

(Application filed June 12, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 717,238, dated December 30, 1902.

Application filed June 12, 1902. Serial No. 111,356. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILLIAM MASTER, of San Diego, county of San Diego, and State of California, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare that the following is a full and clear description thereof.

My invention relates to vapor-burners for stoves and furnaces.

10 The object of my invention is to provide a vapor-burner for stoves or furnaces to which oil, steam, and air are fed in proper proportions for vaporizing the oil at the burner.

15 My invention produces highly efficient results.

20 With these purposes in view my invention consists in the following construction and combination of parts, the details of which will first be fully described and the features of novelty then set forth in the claims.

25 Figure 1 represents a perspective view of a boiler-furnace to which my invention has been applied. Fig. 2 represents an elevation of parts specially applicable for a heating-stove.

1 represents a boiler of any suitable construction.

2 is a boiler-front, the particular boiler shown being of the fire-tube type.

30 3 represents the fire-tubes of the cylindrical boilers 4.

5 is the smoke-box at the front, through which the return-tubes 3 discharge.

35 6 represents hot-air chambers located in the smoke-box 5 and adapted to be heated by the products of combustion therein.

7 represents the steam-domes of the boilers 4.

40 8 represents pipe connections leading from both steam-domes 7 to the hot-air chambers 6. Pipes 8 are provided with valves 9 for the purpose of regulating the supply of steam.

10 represents steam-indicators.

45 11 represents pipes which are connected with an air-pump for supplying air to the hot-air chambers.

12 represents pipes leading from the hot-air chambers to the burners 13 beneath the boilers. Pipes 12 are provided with indicators

50 14 and air-injectors 15 for the purpose of sup-

plying air to the burners and also to the hot-air chambers.

16 represents valves in pipes 12 for regulating the supply of air, and valves 17 control the injectors. 55

18 represents the main oil-feed pipe, provided with a valve 19 and having branch pipes 20, provided with valves 21, leading to the burners 13. Still another branch pipe 22 leads from main pipe 18 to the oil-burners 13 60 from the sides opposite the pipes 20 and are also provided with valves 23 for regulating the oil-supply.

This type of vapor-burner is easy to install and regulate and results in an increased saving of oil as fuel. 65

The form illustrated in Fig. 2 is designed more particularly for a heating-stove. 25 is a burner-head provided with an oil-pipe 26, having branches 27 and a valve 28 for regulating the supply of oil thereto. Pipe 26 is carried upwardly to a tank 29, which supplies the oil as required. 30 is a water-chamber located just above the burner 25 and is supplied with water from an elevated reservoir 31 and a pipe 32, provided with a valve 33. Above the water-chamber is located an air-chamber 34. This chamber has connection with the burner-head 25 by means of pipes 35 at each end thereof, having regulating-valves 36. The hot-air chamber and the water-chamber communicate indirectly through a vapor-tank 37, which is preferably located in the smoke-pipe of the heating-stove. This vapor-tank 37 communicates 85 with the water-and-steam chamber 30 by means of the pipe 38, having valve 39, and the vapor-chamber communicates with the hot-air chamber through pipe 40, having valve 41. 42 is an indicator for the vapor-tank. In operation the usual vaporizing takes place. The water-chamber 30 vaporizes the water therein, which ascends through the pipe 38 to the vapor-tank, exposed to the waste products of the combustion of the stove 95 and which tend to dry the same somewhat. This vapor is forced downwardly into the hot-air chamber 34, which dries or superheats the hot air and steam, from which it is transferred to the burner-head for vaporizing the 100

oil through the pipes 35. Any suitable supply of air may be maintained by such means as are described in connection with Fig. 1.

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

1. In a vapor-burner, the combination of a burner, a water-chamber located above the burner, a hot-air chamber located in contact
10 with the waste products of combustion, a vapor-chamber communicating with the water-chamber, means for supplying air under pressure to the burner through the hot-air
15 chamber, and means for supplying vapor under pressure to the burner from the vapor-chamber through the hot-air chamber.

2. In a stove or furnace, the combination of a burner, a water-chamber located immediately above the burner, a hot-air chamber lo-

cated in contact with the waste products of
20 combustion, an oil-pipe leading to the burner, air-pipes leading from the hot-air chamber to the burner, a vapor-tank located in the smoke box or pipe, a pipe connection between the water-chamber and the vapor-tank, a pipe
25 connection between the vapor-tank and the hot-air chamber, elevated tanks for oil and water, a pipe connection from the water-tank leading to the water-chamber and a pipe con-
30 nection from the water-tank leading to the burner.

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

JAMES WILLIAM MASTER.

Witnesses:

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