

No. 829,659.

PATENTED AUG. 28, 1906.

T. LENNON.
WATER HEATING FURNACE DOOR.
APPLICATION FILED JUNE 30, 1905.

Fig: 1.

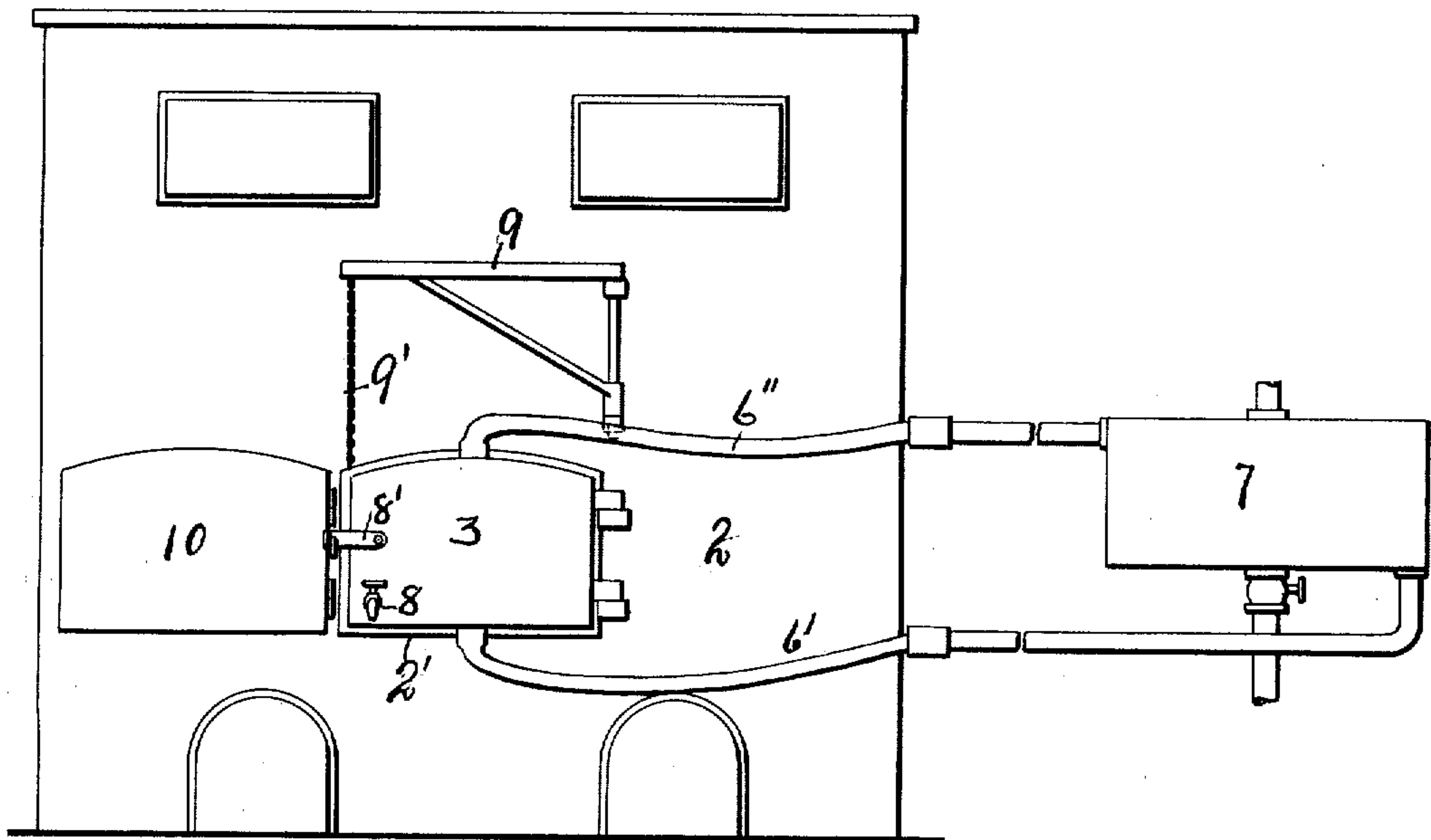


Fig: 2.

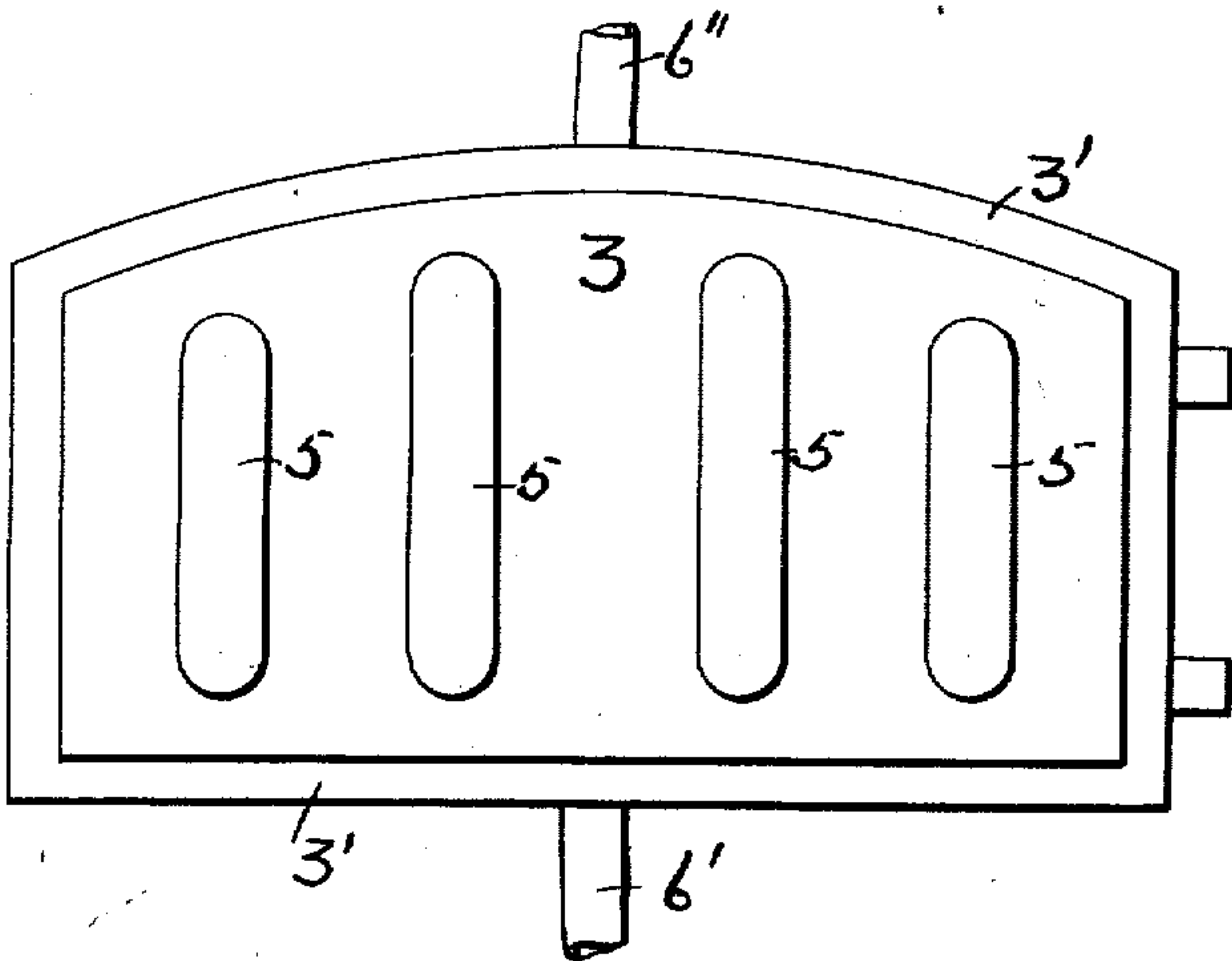
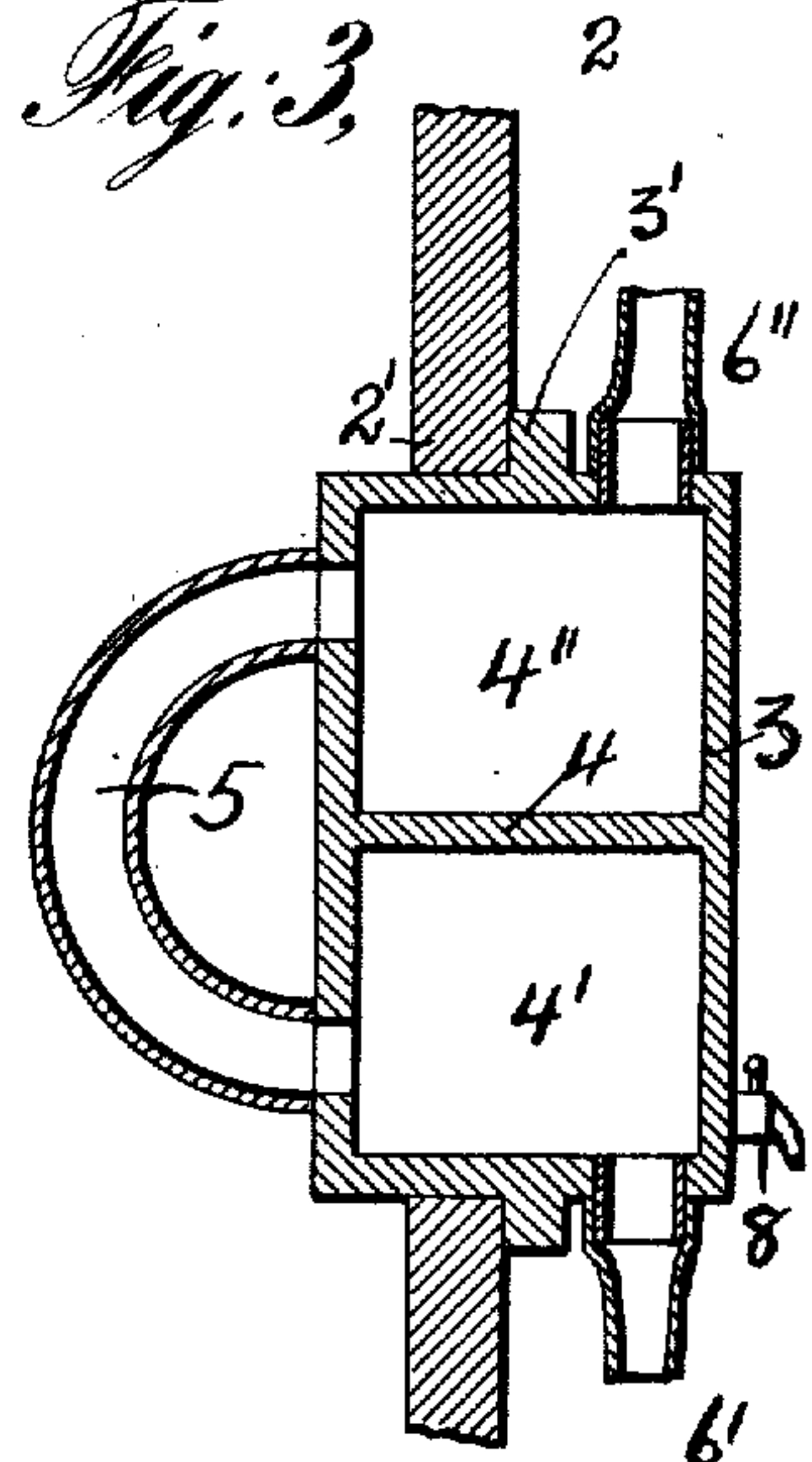


Fig: 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

THOMAS LENNON, OF NEW YORK, N. Y.

WATER-HEATING FURNACE-DOOR.

No. 829,659.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed June 30, 1905. Serial No. 267,698.

To all whom it may concern:

Be it known that I, THOMAS LENNON, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Water-Heating Furnace-Doors, of which the following is a specification.

My invention relates to water-heaters, and more particularly to a water-heater forming a door for a furnace; and the object thereof is to utilize the water-heating surface which is usually occupied by a door of the ordinary construction and to so construct it and connect it with a circulating system that the door may be used to heat water for ordinary household purposes, and particularly used for heating water for apartment-houses.

To this end I have devised the constructions and combinations of parts to be hereinafter described, and distinctly set forth in the appended claims.

In the drawings, Figure 1 is a front view of a furnace provided with a water-heating door connected to a circulating system. Fig. 2 is an inside face view of the door. Fig. 3 is a vertical transverse section of such a door and the casing immediately surrounding it.

Like numerals indicate like parts in the several views.

2 designates a furnace of any ordinary form, having the usual fuel-opening. Hinged to one side of the door-casing 2' is the door 3, having around its circumference the seating-flange 3', which when the door is closed fits against the door-casing, as shown in Fig. 3. As shown in Figs. 1 to 3, the door is hollow and is divided into an upper and lower chamber by a transverse horizontal partition 4. The lower chamber 4' is connected to a source of cold-water supply or to the ordinary boiler or water-tank. Connecting the lower chamber with the upper one on the inside of the door is a series of heating-tubes 5, which project into the fire-space and over the grate and the supported fire. By these tubes water which enters the chamber 4' is conducted out therefrom into contact with the heating-surface of the fire and then into the upper or hot-water chamber 4'', whence it passes off to the aforesaid boiler 7 or any other part of a circulating system.

In order to provide for the opening of the door 3, I connect the chambers 4' 4'' to the circulating system by flexible pipes 6' 6'', of rubber or any suitable material, which will

yield when the door is opened and follow the movement of said door. These may be connected to the door in any suitable manner. 8 is a draw-off cock located at the bottom of the lower chamber 4' to permit the outlet of water from the circulating system and the door-chambers. 8' indicates the usual latch for holding the door closed. As a door of this construction may be of considerable weight when filled with water and is therefore liable to sag, I prefer to support its free end by a chain 9', attached to a crane 9, hinged to swing with the door 3. Other means, however, may be devised for supporting the free end of the door, and I do not wish to be limited to this method.

By opening the door more or less the amount of heat to which the water is subjected may be varied at will; but in case it is desired not to use the door 3 at all I provide the furnace with a door 10, hinged to the casing 2' on the opposite end from door 3. This may be used when the door 3 is entirely swung out.

The operation of my water-heater is plain. Water in the chambers 4' 4'' and the tubes 5 will be heated and pass out through the upper connection to the boiler, giving place to water from the boiler. Thus a constant circulation will be maintained.

The advantages of my invention are obvious. It utilizes a portion of the furnace which has heretofore gone to waste. The projecting tubes take the heat from the center of the furnace, and the door being provided with two compartments connected by said tubes or with the coils the water circulates of itself.

Heretofore large furnaces used for heating houses where a constant heat was maintained could not also be used for the purpose of water-heating, at least conveniently, for the reason that there was no means of decreasing the heat applied to the water when it had been sufficiently heated. Water-backs would heat the water; but they heated it beyond necessity. My invention obviates this and is of great use in apartment-houses, where it has been necessary heretofore to use a separate heater for heating hot water. By my invention the furnace used for heating the houses may also heat the water, while at the same time the heating-coils may be withdrawn partially or entirely from the fire. The value of the device is evident from the fact that a door constructed as described in any

ordinary furnace will heat enough water for twelve or fourteen families.

I am aware that furnaces have been provided with hollow fire-doors filled with cold water for the purpose of keeping down the temperature of said doors; but none of such doors have been provided with a means for compelling circulation nor with inwardly-projecting water-heating tubes, and they are therefore not fitted to perform the functions of my door.

While I have shown what I believe to be the best embodiment of my invention, I do not wish to be limited to the exact details shown, as it may be varied in many ways without departure from the spirit and intent of my invention.

Having described my invention, what I claim is—

1. A water-heating door for furnaces, having an upper and a lower chamber separated by a partition, tubes leading from one chamber projecting inwardly into said furnace beyond the inner surface of the door and then leading to said other chamber whereby the water in one chamber shall pass out into said tubes, be heated and then pass to the other of said chambers and connections from each of said chambers to a hot-water-circulating system, substantially as described.

2. A water-heating door for furnaces, having an upper and a lower chamber separated by a partition, tubes leading from one chamber projecting inwardly into said furnace beyond the inner surface of the door and then

leading to said other chamber whereby the water in one chamber shall pass out into said tubes, be heated and then pass to the other of said chambers, and flexible connections from each of said chambers to a hot-water-circulating system, substantially as described.

3. A water-heating door for furnaces, having an upper and lower chamber separated by a partition, a tubular connection between said upper and lower chambers to permit the flow of water from one to the other projecting into the furnace, connections from each of said chambers to a hot-water-circulating system, and a swinging support for the said door adapted to support the free end thereof in its open position, substantially as described.

4. A water-heating door for furnaces, having an upper and lower chamber separated by a partition, a connection between said upper and lower chambers projecting into the furnace beyond the rear face of the door to permit the flow of water from one to the other, connections from each of said chambers to a hot-water-circulating system, and an auxiliary door, oppositely mounted to the water-heating door and adapted to close the furnace-opening when the water-heating door is opened, substantially as described.

Signed at New York, in the county of New York and State of New York, this 27th day of June, A. D. 1905.

THOMAS LENNON.

Witnesses:

Mrs. I. M. GRIFFITHS,
F. B. WRIGHT.