(No Model.) 2 Sheets—Sheet 1.

J. WALTHER.

HOT WATER HEATER.

No. 585,727. Patented July 6, 1897.

FIG. 3.

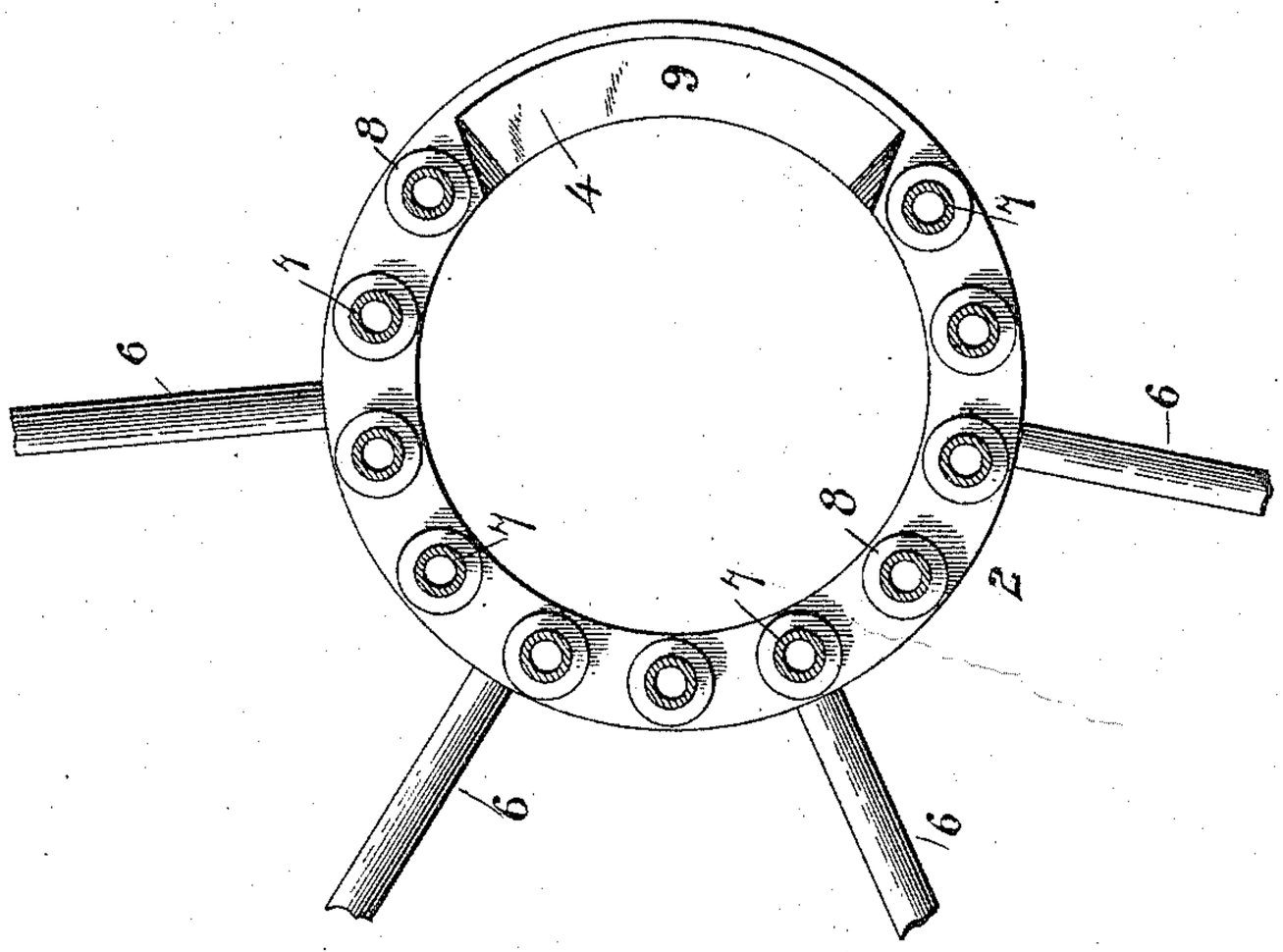
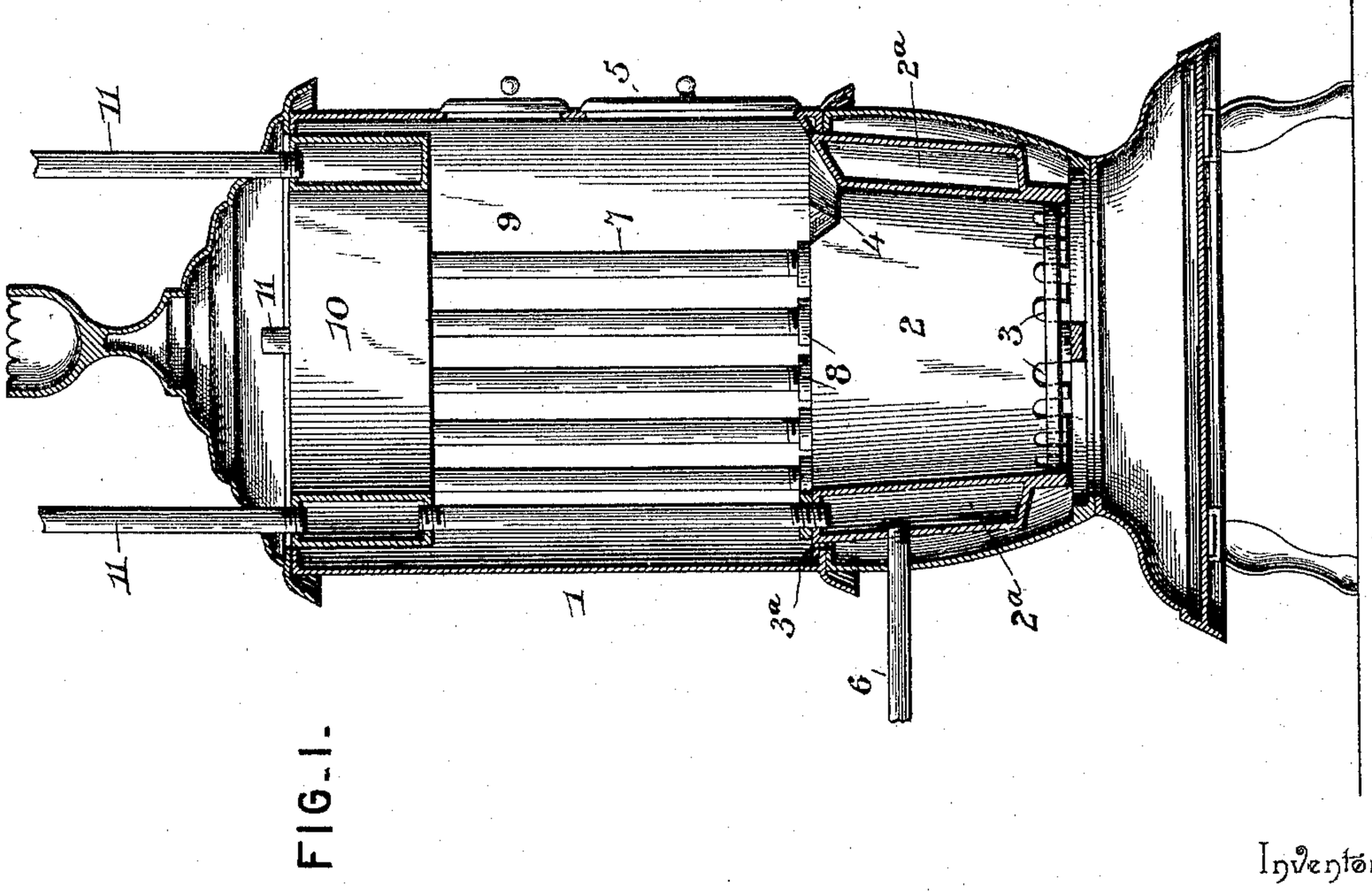


FIG. 1.



Witnesses
Jas. K. McCathran.
R. M. Smith.

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C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

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HOT WATER HEATER.

No. 585,727. Patented July 6, 1897.

FIG_2_

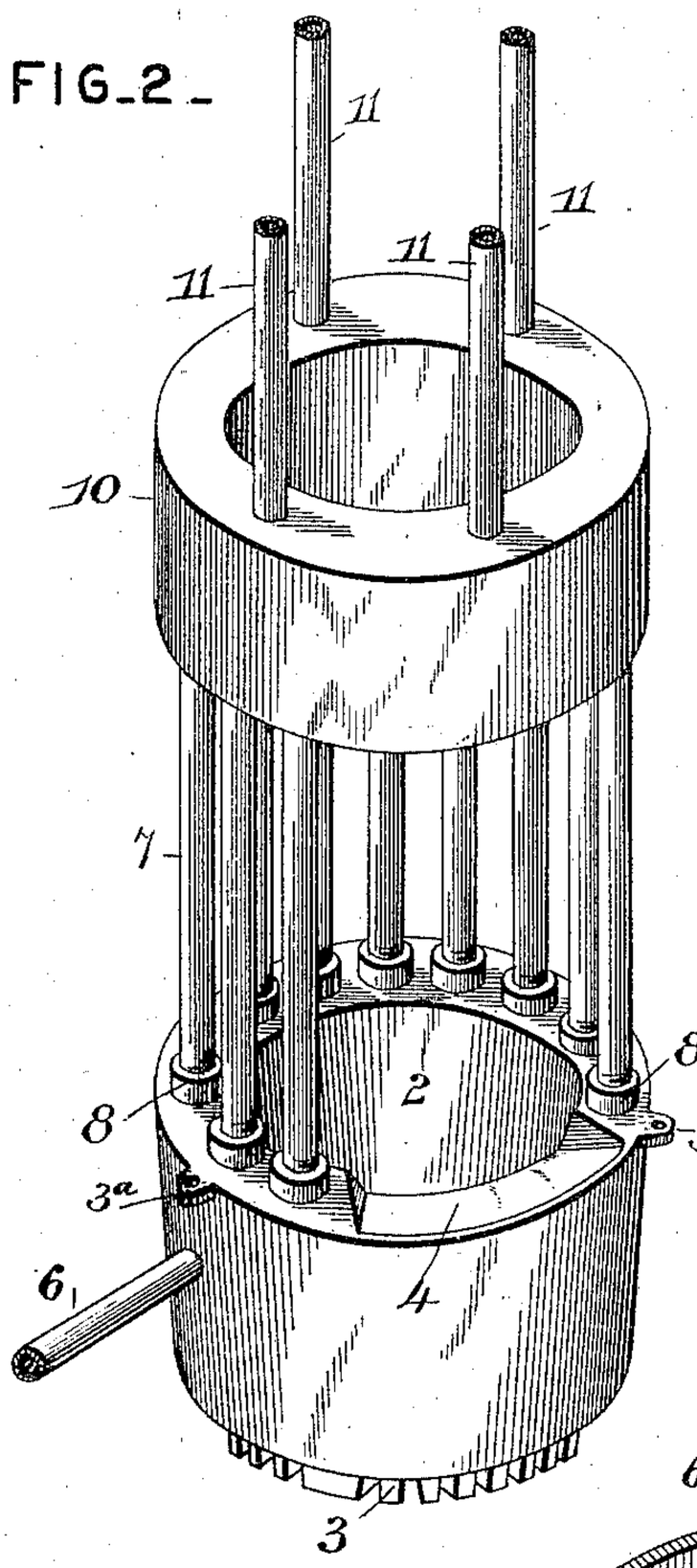


FIG_5_

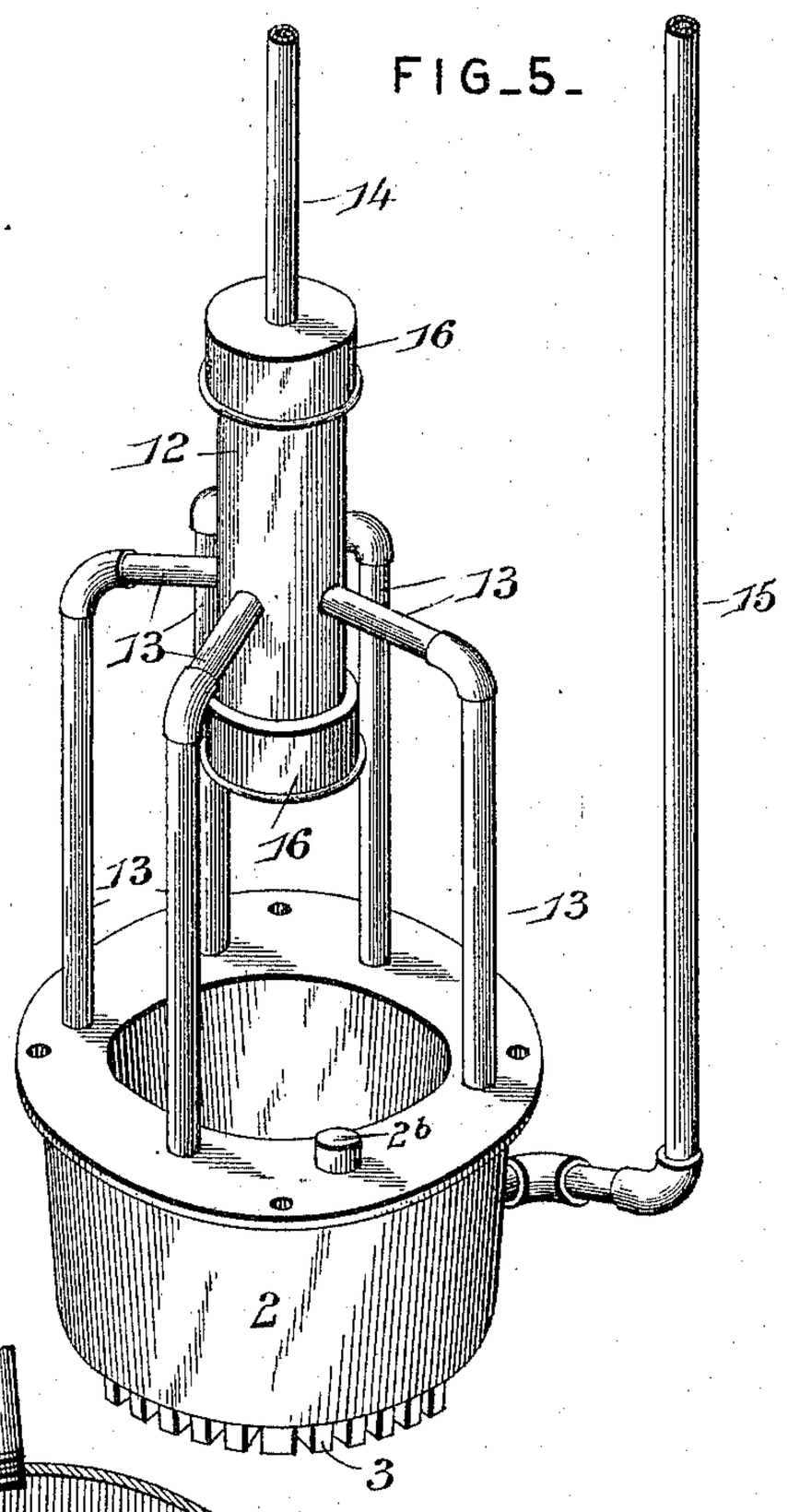
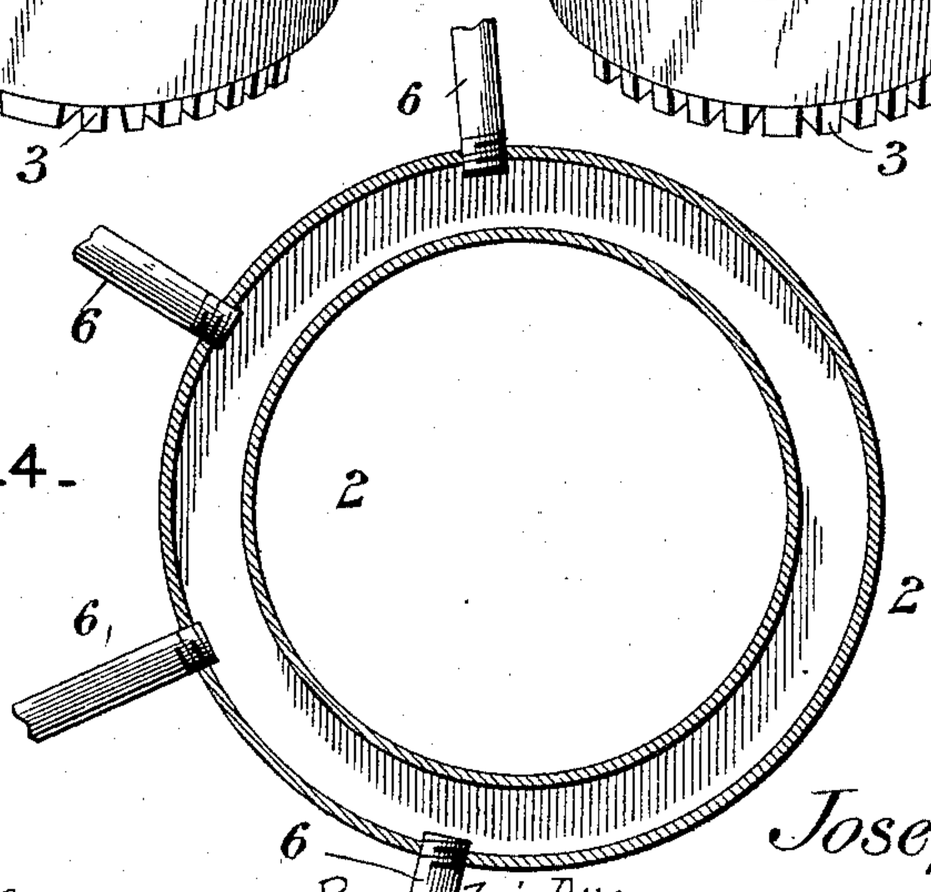


FIG_4_



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UNITED STATES PATENT OFFICE.

JOSEPH WALTHER, OF AURORA, NEBRASKA.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 585,727, dated July 6, 1897.

Application filed May 17, 1895. Renewed May 25, 1897. Serial No. 638,141. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WALTHER, a citizen of the United States, residing at Aurora, in the county of Hamilton and State of Nebraska, have invented a new and useful Hot-Water Heater, of which the following is a specification.

This invention relates to that class of hot-water heaters in which a series of water-pipes are arranged within a stove, exposed to the direct action of the heat, and adapted to convey hot water to any desired point, where the same may be utilized.

The object of the present invention is to provide a simple, inexpensive, and efficient hot-water heating apparatus which may be applied to any ordinary round stove and which will be capable of heating in a very short space of time an amount of water sufficient to properly heat the several rooms or apartments of the house in which the stove is placed.

The invention consists in a hot-water heater having certain novel features and details of construction and arrangement of parts whereby certain advantages in point of simplicity and efficiency are attained, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a vertical section through what is known as a "Round Oak" stove, with my improved hot-water heater applied thereto and also shown in section. Fig. 2 is a perspective view of the heater attachment complete and ready to be applied. Fig. 3 is a horizontal section through the center of the heater. Fig. 4 is a similar section through the lower annular water-chamber and fire-box. Fig. 5 shows an upper water-chamber of different form and an arrangement of connecting-tubes corresponding thereto and communicating therewith.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

The reference-numeral 1 indicates the stove to which my improvements are applied, and this should be of the kind wherein a large and unobstructed fire-space is provided. The stove illustrated in the drawings is what is known in the trade as the "Round Oak" stove, though it will be apparent that this improvement may be used in connection with any form of stove in common use. Located in the base of the stove 1 is an annular fire-pot 2, which is made of cast metal and formed with a circular water-chamber 2^a. The lower end of the fire-pot 2 is provided with the downwardly-projecting lugs 3, which are disposed around the same, several of said lugs being made of increased relative size and adapted to receive and support the grate. 2^b designates a screw-cap for giving access to the interior of the chamber 2^a for the purpose of cleaning the same when necessary. The fire-pot is supported by means of a series of lugs 3^a, which rest upon an internal flange or ledge formed integral with the drum or base of the stove, as shown.

The upper edge of the fire-pot 2 is horizontally disposed with the exception of the point 4, which lies adjacent to the door 5 of the stove and which slants downwardly and inwardly, so as to facilitate the introduction of fuel into the stove. Passing through openings formed in the lower portion of the stove are the inlet or return pipes 6, which are preferably four in number and which communicate with the interior of the chamber 2^a. These pipes pass off from the stove and proceed to the point or apartment where the heat of their contents is to be utilized, as will be better explained hereinafter.

7 indicates a series of short vertical pipes which communicate with the chamber 2^a at the upper edge of the fire-pot, and are held with a water-tight joint by means of the screw-collars 8, which operate on the pipes and are adapted to bind against the said upper edge. These pipes 7 may be of any desired or preferred number and are arranged to leave an open space 9, corresponding to the opening in the stove covered by the door 5, said space being left to facilitate the introduction of fuel to the fire-box, as will be understood without further description.

From the chamber 2^a the pipes 7 extend upwardly parallel with the sides of the stove, and terminate at a point near the upper end thereof, where they enter and communicate with the interior of the circular chamber or "ring" 10. The circular chamber 10 is of a diameter approximately equal to that of the chamber 2^a, while its vertical extent is preferably less than the corresponding extent of

the chamber 2^a. Thus it will be seen that a communication will be established between the two chambers 2^a and 10, and one which will permit the free circulation of water therethrough.

11 indicates the outlet or flow pipes, which are preferably four in number, corresponding with the number of pipes 6, and which are arranged equidistant around the upper edge of chamber 10 and communicate with the interior thereof. These pipes 11 extend out of the stove by way of the top and conduct the hot water to suitable radiating apparatus, to which the pipes 6 are also connected, whereby the complete circuit is established.

In the operation of my invention the fire is built in the space inclosed by the chamber 2, as usual, and the system filled with water. As the water becomes heated it begins, owing to a well-understood principle, to circulate throughout the pipes, and thereby conveys the heat to the apartments to which the pipes extend. It will be understood that the pipes may be extended to any part of the house and there connected to the usual radiators, as in any other system.

In Fig. 5 I have shown an upper chamber of different form, illustrating how the above-described chamber 10 and attendant parts may be dispensed with and a vertically-elongated chamber 12 substituted in its stead. This chamber 12 is provided with a series of pipes 13, radiating therefrom and extending downwardly to the chamber 2^a, with which they communicate. 14 indicates an outlet-pipe, which passes from the upper end of the chamber 12, while an inlet-pipe is shown at 15 communicating with the main chamber 2^a, said pipe passing into the chamber 2^a at the side, as before described. In the use of this form of upper chamber the pipes 14 and 15 are passed out the top and sides of the stove and to the places to be heated. The chamber 12 is formed with the removable screw-caps 16 at its ends, whereby the ends of the chamber are closed, at the same time affording a means of access to said chamber for cleaning the same. With this form of chamber the products of combustion are deflected outward and pass around said chamber upon the outside, whereas in the case of the annular chamber 10 the heat passes through and circulates within the open center of said chamber. A large surface is thus presented to the direct action of the heat, enabling the water to be thoroughly superheated in a short space of time.

By means of the various parts of the heater being coupled together and supported as shown said heater may be quickly and easily applied and removed from the stove.

Having thus described the invention, what I claim is—

1. The combination with a vertically-elongated stove having a circular fire-box, of a removable hot-water heater comprising an annular water-chamber arranged within said fire-box and constituting within itself the fire-box of the heater attachment, a second water-chamber arranged above the first and also within the stove-body, the main or lower water-chamber being cut away as to a portion of its upper edge to form a downwardly and inwardly slanting fuel-sill, a series of pipes connecting the two chambers and partially inclosing the space between said chambers and arranged to leave an open space registering with said slanting sill and the stove-door opening for permitting the introduction of fuel, and inlet and outlet pipes communicating with said chambers for conducting the water to and from the apartment to be heated, substantially as described.

2. The combination with a vertically-elongated stove, of a removable hot-water heater, comprising an inverted conico-cylindrical fire-box, a series of depending integral lugs or feet disposed around the lower edge thereof, a grate arranged within the lower end of said fire-box, an annular water-chamber formed integrally with and surrounding the fire-box and corresponding in shape thereto, a second annular water-chamber arranged in the upper portion of the stove, a series of pipes extending from one chamber to the other and in communication with both, and pipes connected to said chambers for conducting water to and from the apartment to be heated, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH WALTHER.

Witnesses:
JEROME H. SMITH,
EMMA COLLINS.