

(No Model.)

H. STUTSMAN.

WATER HEATER.

No. 369,891.

Patented Sept. 13, 1887.

Fig. 2

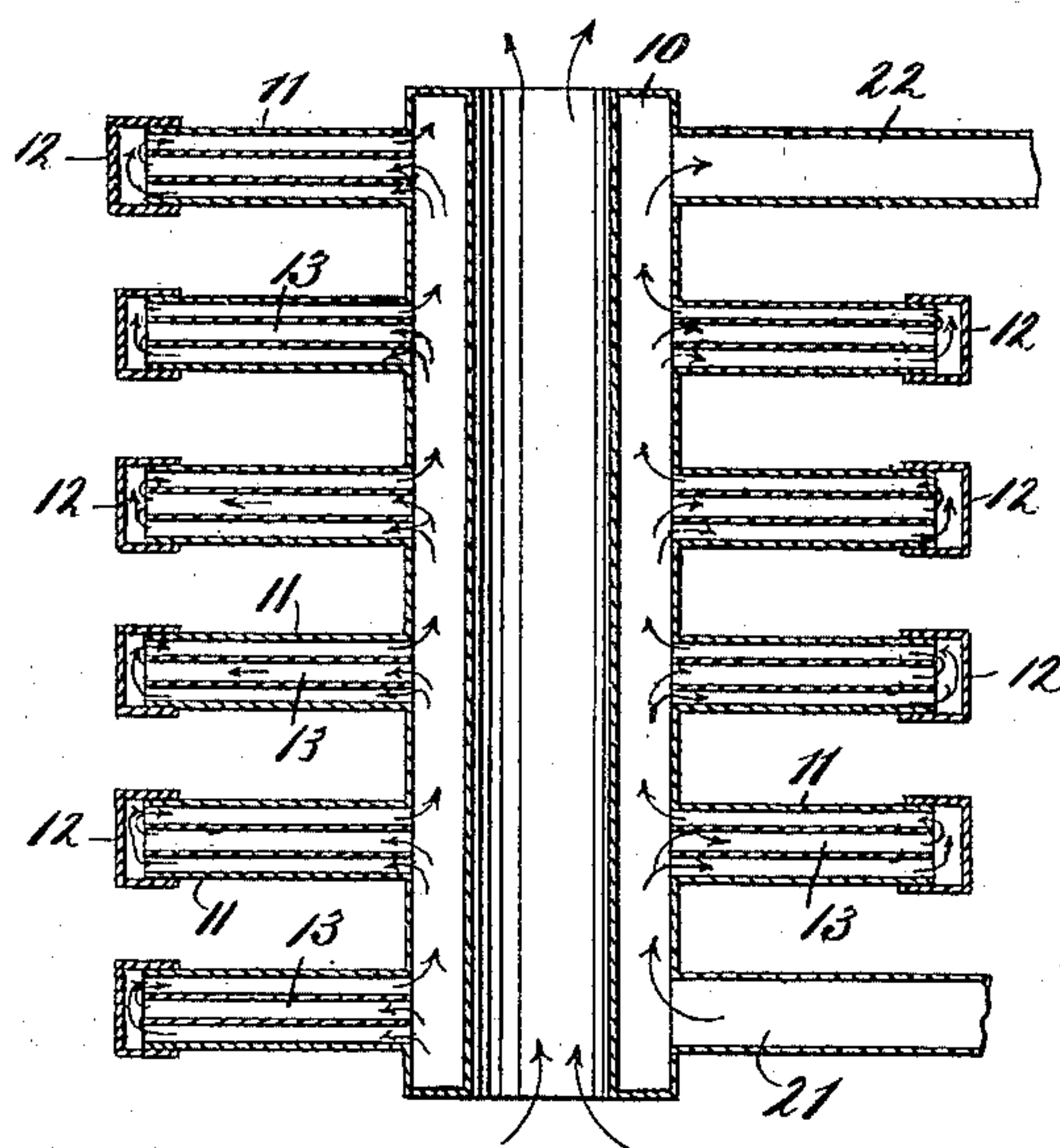


Fig. 1

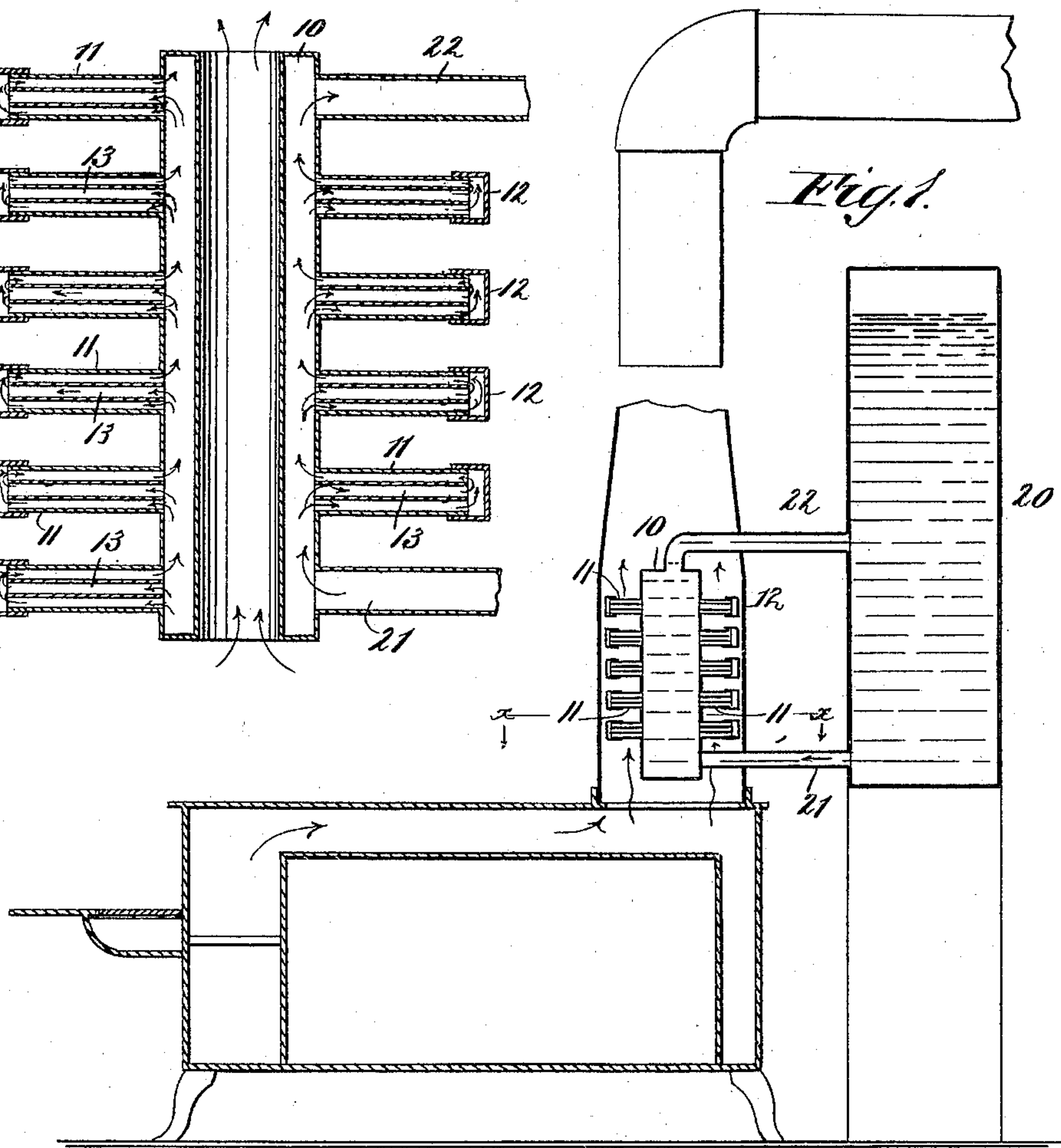


Fig. 3.

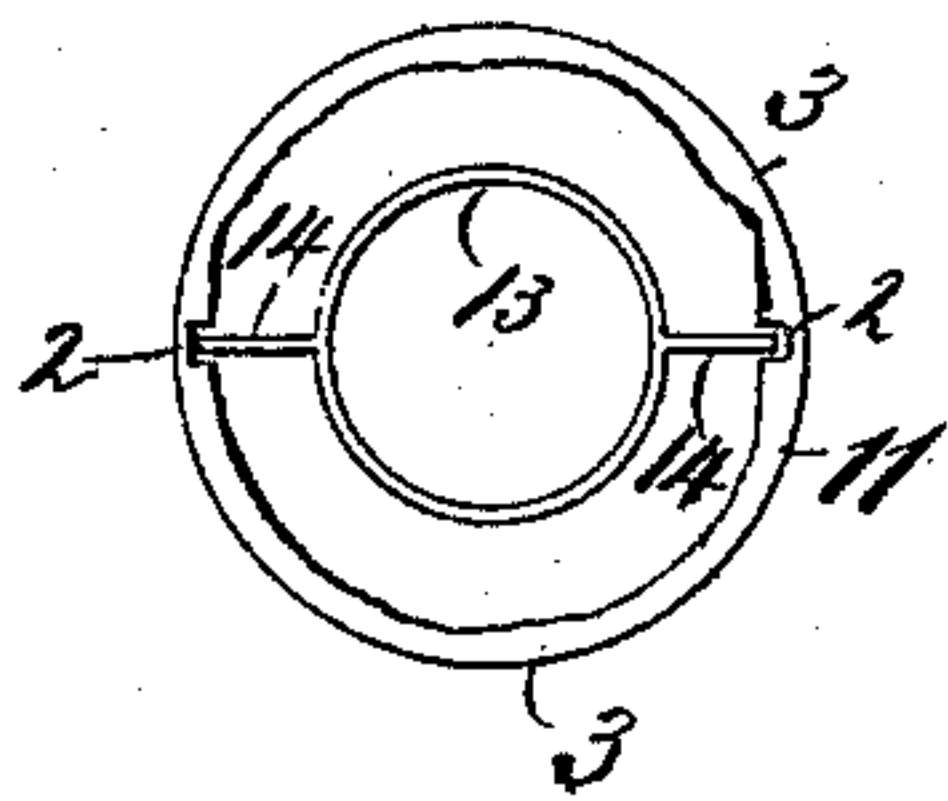


Fig. 4

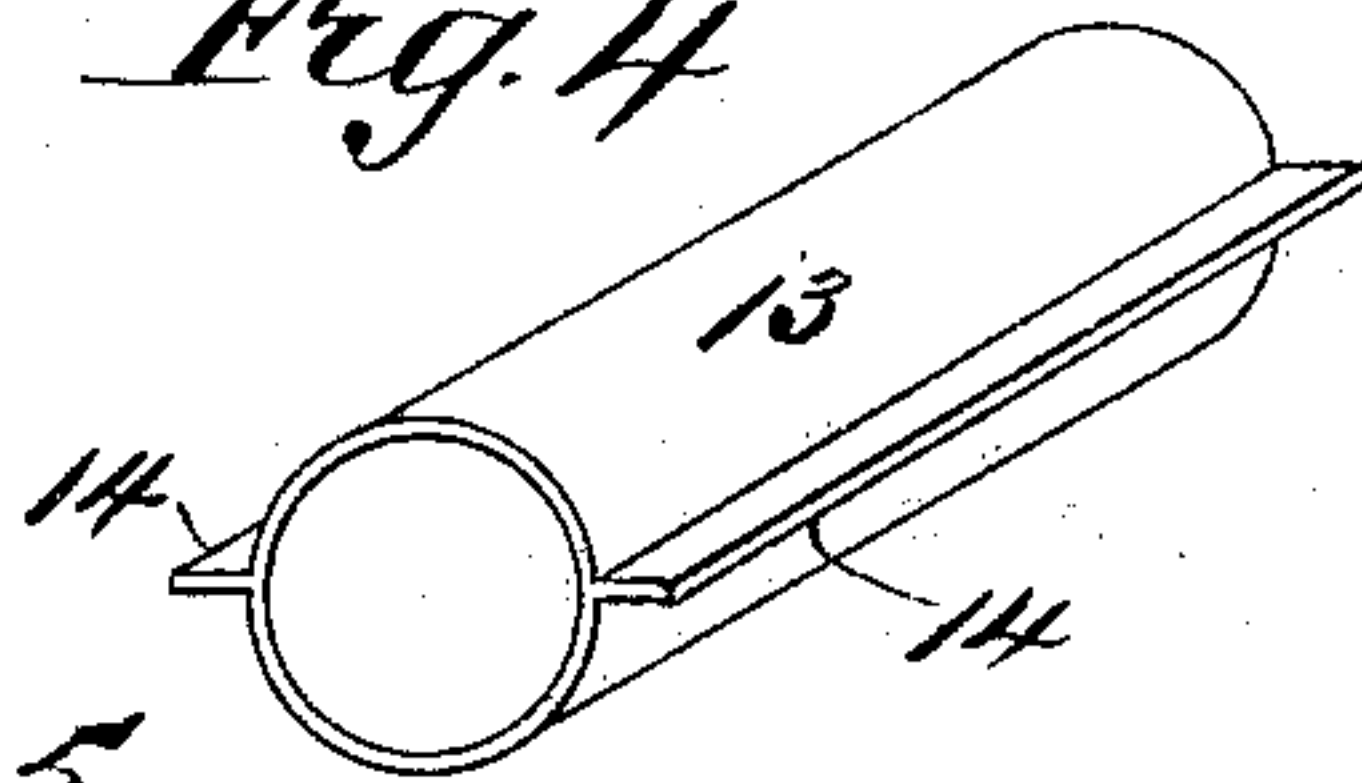
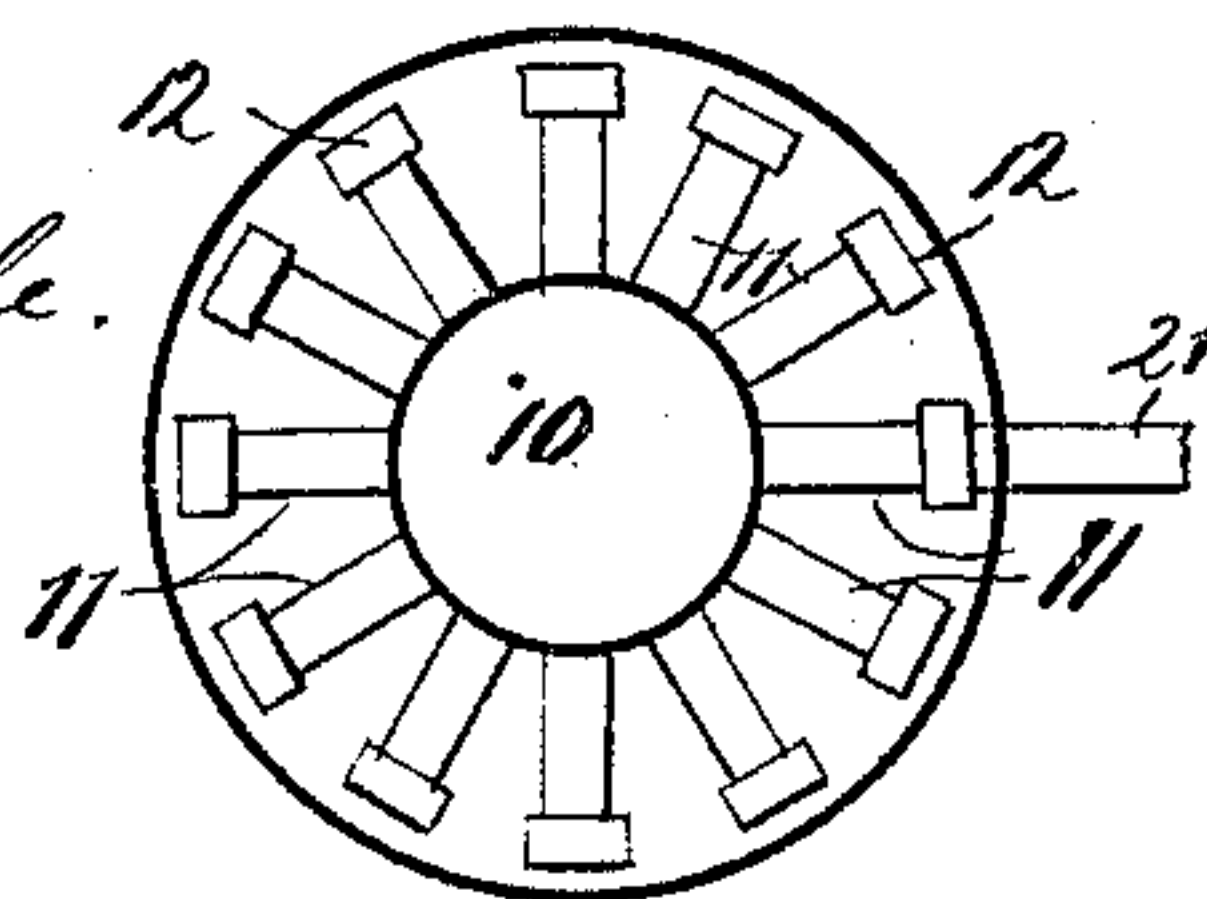


Fig. 5.



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HENRY STUTSMAN, OF EAST PORTLAND, OREGON.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 369,891, dated September 13, 1887.

Application filed December 2, 1886. Serial No. 220,483. (No model.)

To all whom it may concern:

Be it known that I, HENRY STUTSMAN, of East Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Water-Heater, of which the following is a full, clear, and exact description.

This invention relates to an improved form of water-heater applicable for use in connection with stoves, ranges, and boilers, the main objects of the invention being to provide for the heating of a large quantity of water without any extra expenditure of heat, and to provide for a perfect circulation of the water within the generator and between the generator and the reservoir, or "boiler," as it is commonly called.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical sectional view of my water-heater, representing the same as it appears when applied for use in connection with an ordinary form of range or cook-stove, which stove is also shown in section. Fig. 2 is an enlarged central sectional view of a modified construction. Fig. 3 is a detail view of one of the circulating-tubes. Fig. 4 is a perspective view of one of the inner tubes, and Fig. 5 is a sectional plan view of the heater or generator.

In constructing such a heater as the one illustrated in the drawings above referred to I provide a central cylindrical vessel, 10, to which there are connected a number of radial tubes or pipes, 11, the inner ends of the pipes being arranged to communicate with the chamber of the vessel 10, the outer end of each tube or pipe being closed by a cap, 12. Within the tubes 11, I arrange tubes 13, that are formed with side flanges, 14, which fit within slots 2, that are cut in inwardly-extending flanges 3, said flanges being formed by the cutting of the tubes 11—that is, the flanges are the burrs formed in the operation of cutting. It will be noticed that the tubes 13 do not extend outward as far as the inner faces of the caps 12, thereby providing for a proper circulation of the water, as will be hereinafter explained.

The cylinder and its connections are placed in communication with a reservoir or boiler, 20, by means of pipes 21 and 22, the pipe 21 leading from the lower part of the reservoir

to the lower part of the cylinder, while the pipe 22 leads from the upper part of the cylinder to the upper part of the reservoir, the water circulating as indicated by the arrows in Fig. 1. If desired, the cylinder 10 may be formed as shown in Fig. 2, where it is represented as being provided with a central passage, 30, through which the products of combustion are free to pass.

In operation the cylinder 10 and its attachments are arranged within the pipe or flue of a range or stove, as indicated in the drawings, when the water within the cylinder and tubes will take courses such as those indicated by the arrows shown in Fig. 2—that is, the water will enter the cylinder through the pipe 21, will pass upward through the cylinder, passing outward at this time through the spaces between the tubes 11 and 13, below the upper part of the tube 13, and through the said tube 13, and inward through the spaces between the said tubes above the top of the inner tube, finally passing outward from the cylinder and into the reservoir through the pipe 22.

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

1. In a water-heater, the combination, with a cylinder provided with radial tubes, of tubes having open ends and supported in the radial tubes, both of the said tubes being in communication with the cylinder, substantially as herein shown and described.

2. In a water-heater, the combination of the following elements, viz: central cylinder, radial tubes carried thereby and formed with flanges or burrs 3, having slots 2, and inner tubes 13, having flanges 14, arranged to fit within the slots 2, substantially as described.

3. In a water-heater, the combination, with a reservoir, of a cylinder connected at top and bottom with the reservoir and provided with radial tubes 11, having closed ends, and tubes 13, having open ends and arranged in the radial tubes, the said tubes 13 having their inner ends flush with the inner ends of the said radial tubes 11, substantially as herein shown and described.

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Witnesses:

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