(No Model.) 3 Sheets—Sheet 1.

C. R. MERES.

COMBINED WATER HEATER AND STEAM GENERATOR.

No. 592,915. Patented Nov. 2, 1897.

Fig. 1.

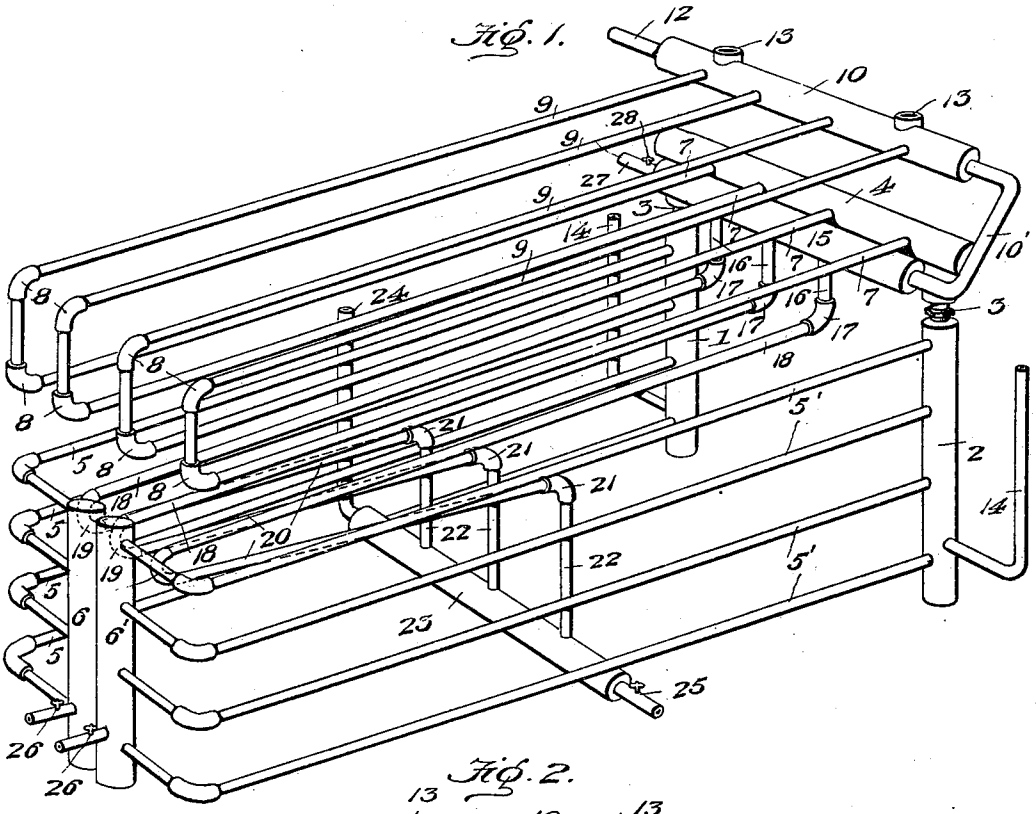
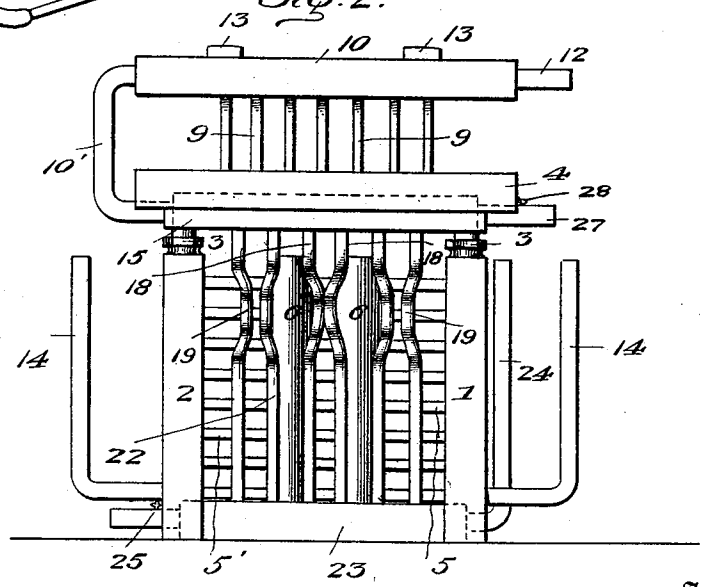


Fig. 2.



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Fig. 3.

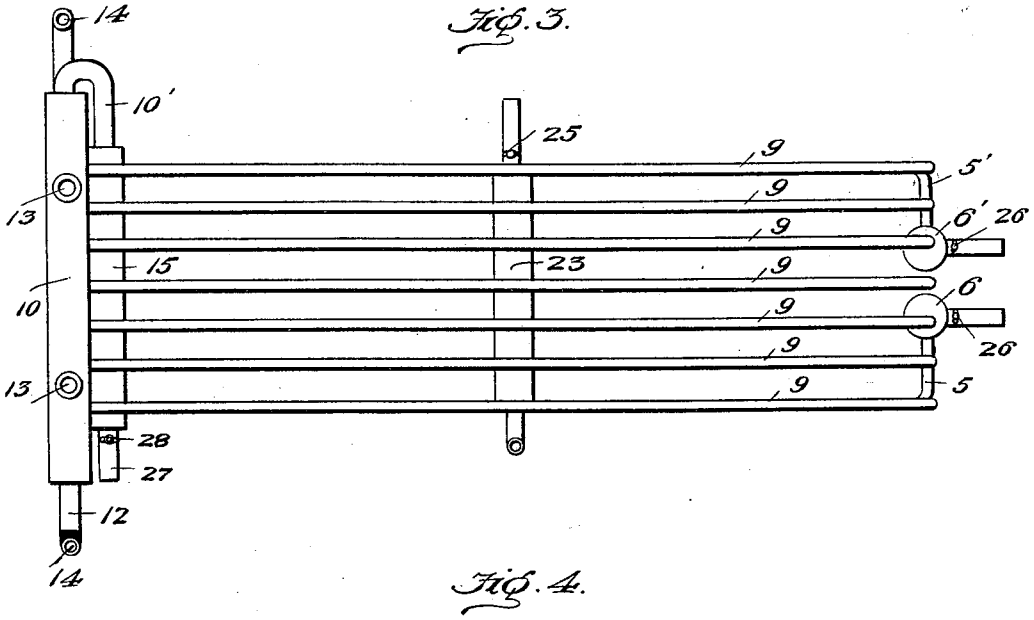
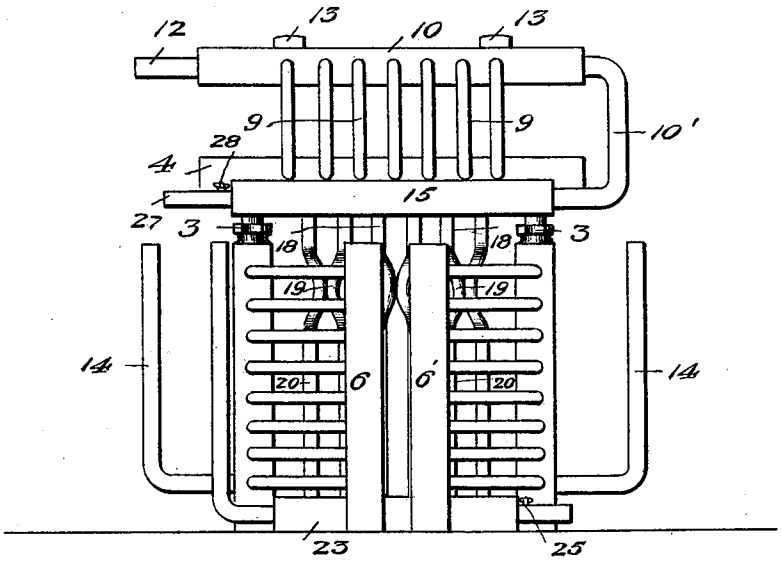


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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COMBINED WATER HEATER AND STEAM GENERATOR.

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Fig. 5.

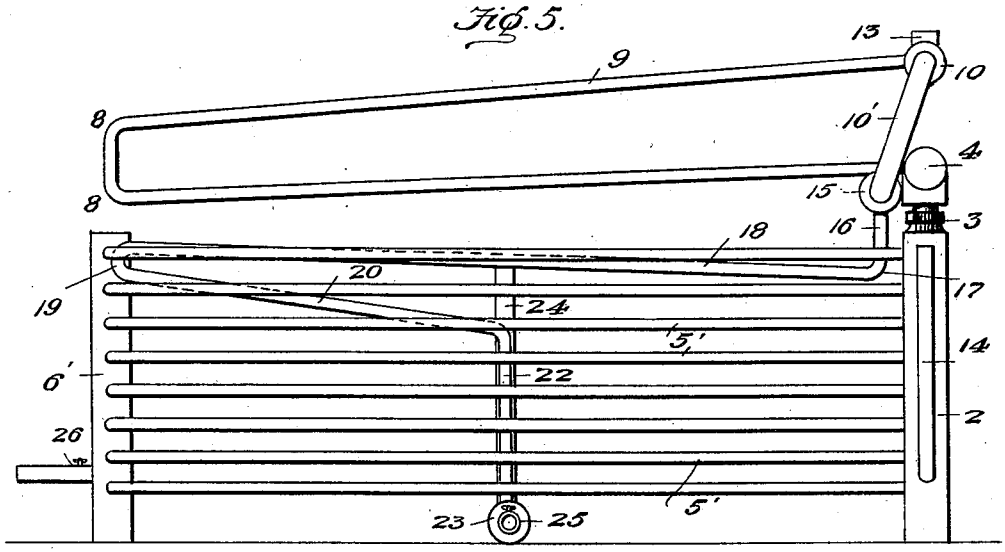
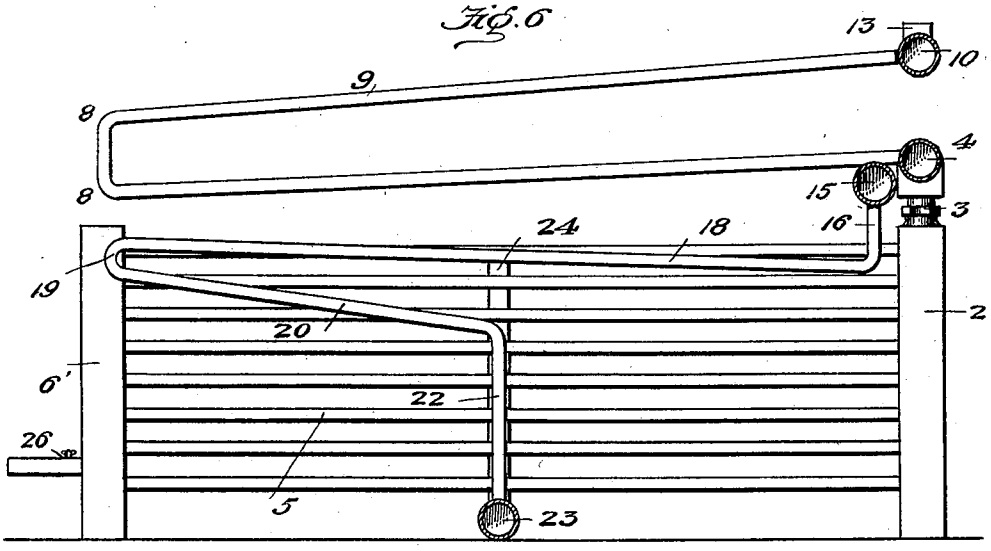


Fig. 6



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UNITED STATES PATENT OFFICE.

CHARLES R. MERES, OF NORWALK, OHIO.

COMBINED WATER-HEATER AND STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 592,915, dated November 2, 1897.

Application filed February 10, 1897. Serial No. 622,850. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. MERES, a citizen of the United States, residing at Norwalk, in the county of Huron and State of Ohio, have invented certain new and useful Improvements in a Combined Water-Heater and Steam-Generator; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in a combined water-heater and steam-generator, and more particularly to that class of heaters for which Letters Patent No. 536,837 were granted to me on the 2d day of April, 1895.

The object is to provide a simple, compact, efficient, and economical heater of this class for domestic purposes, as well as churches, schools, hothouses, public buildings, and in fact all places where a safe and reliable heater is required.

To these ends the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the accompanying drawings the same reference-numerals indicate the same parts of the invention.

Figure 1 is a perspective view of my improved heater with the brickwork removed. Fig. 2 is a front view of the same. Fig. 3 is a top plan view; Fig. 4, a rear end view. Fig. 5 is a right side elevation, and Fig. 6 is a longitudinal central section.

1 and 2 represent the vertical front manifolds, closed at the bottom and connected at their upper ends by right and left hexagon nipples 3 3 with the horizontal manifold 4. A series of horizontal parallel pipes 5 extend rearwardly from the manifold 1, and their rear ends are turned horizontally inward and connect with a vertical manifold 6.

A similar series of horizontal pipes 5′ also extend rearward and connect with the vertical manifold 6′. These two series of pipes 5 and 5′ form the side walls of the combustion-chamber.

7 7 represent a series of pipes arranged in the same horizontal plane, and they extend rearward from the horizontal manifold 4 to a series of return-elbows 8 8, from which a second series of pipes 9 9 incline upwardly and connect with the outflow-manifold 10. This manifold 10 is provided with a lateral outflow connection 12 and with vertical outflow connections 13 13. These connections 12 and 13 lead to and supply the usual radiators (not shown) which are located at suitable points in the building.

The return-pipes (not shown) from the radiators are led to the vertical pipes 14 14, connected to the lower ends of the manifolds 1 and 2, and they form the return-pipes of the system.

From one end of the outflow-manifold 10 a return-elbow 10′ leads to the contiguous end of a horizontal manifold 15, from which a depending series of short pipes 16 16, connected to elbows 17 17, from which lead a series of pipes 18 18 rearwardly to return connections 19 19. From these connections 19 shorter inclined pipes 20 20 lead to the elbows 21 21, which are connected to vertical pipes 22 22, terminating in a manifold 23, which with the vertical pipes last mentioned form the usual bridge-wall at the rear end of the grate-bars.

It will be observed that the pipes 18 18 form the roof of the combustion-chamber, and with the exception of the grate-bars and furnace-door it will be seen that the circulation-pipes entirely encompass the furnace proper.

A vertical stand-pipe 24 is connected to one end of the manifold 23, which leads to the usual supply-tank and at the same time forms the expansion-pipe for the entire system.

A blow-off cock 25 is connected to the opposite end of the manifold 23, and similar blow-off cocks 26 26 are connected to the lower ends of the vertical rear manifolds 6 6′.

A connecting-pipe 27 and valve 28 are attached to one end of the horizontal manifold 15, and from this point the heated water may be utilized for domestic purposes, such as for cooking purposes or for consumption.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

Having thus described my invention, what I claim is—

The combination with the front manifolds 1 and 2, the rear manifolds 6 6′, their horizontal connecting-pipes 5 5′ extending on each side of the combustion-chamber, the manifold 4 connected to the upper ends of the front manifolds 1 and 2 by the short pipes 3 3, in combination with the manifold 23 provided with the expansion-pipe 24, the vertical connecting-pipes 22, the pipes 20 leading upwardly and rearwardly therefrom, the pipes 18 extending forwardly from said pipes 20, and terminating in the manifold 15, the outflow-manifold 10 connected thereto by the elbow 10′, and the series of horizontal pipes 7 connecting the manifolds 10 and 4, substantially as shown and described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

CHARLES R. MERES.

Witnesses:
CHARLES SUBER,
JOHN H. BUTT.