

(No Model.)

J. M. THAYER.
HOT WATER HEATER.

No. 378,633.

Patented Feb. 28, 1888.

Fig. 1.

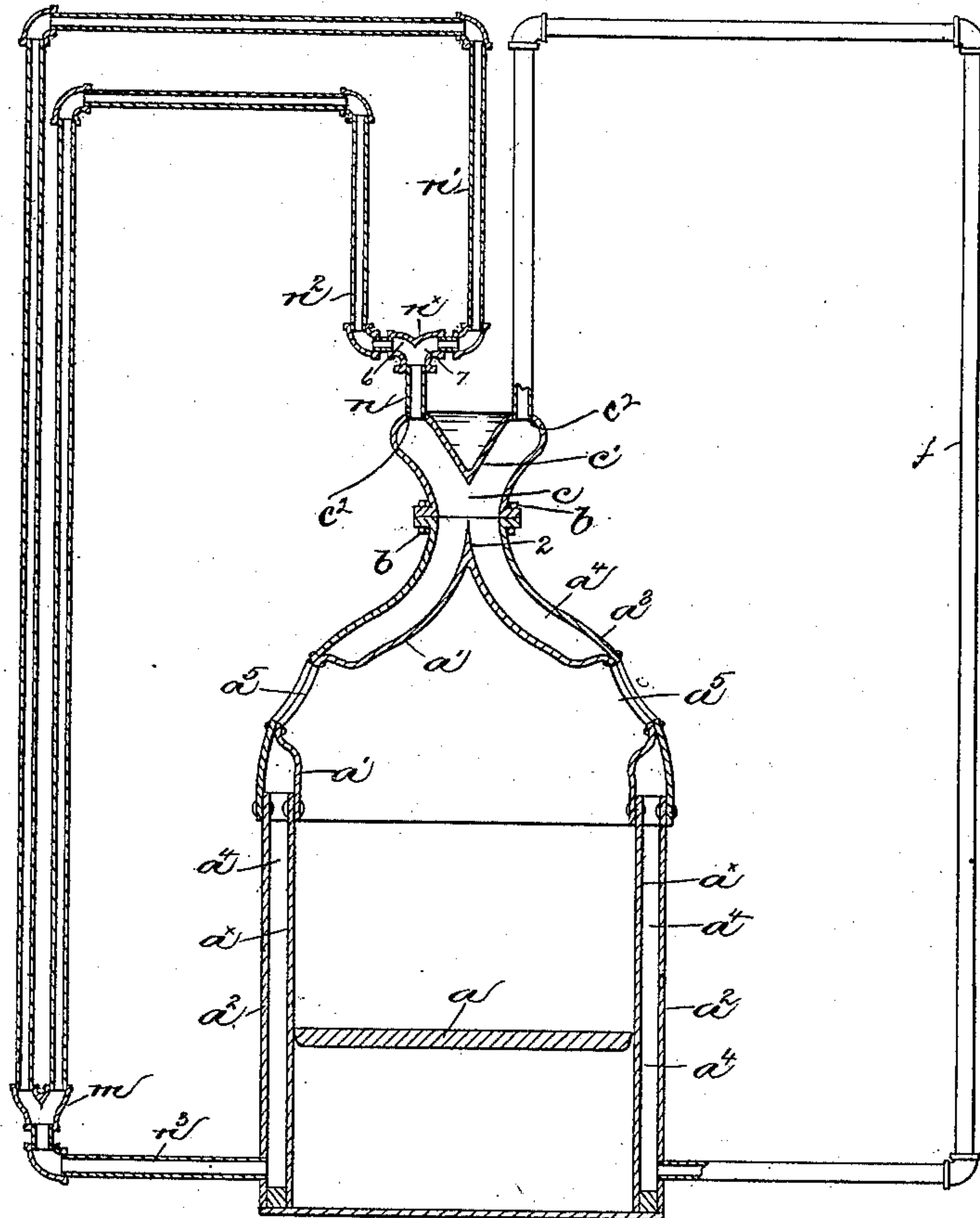
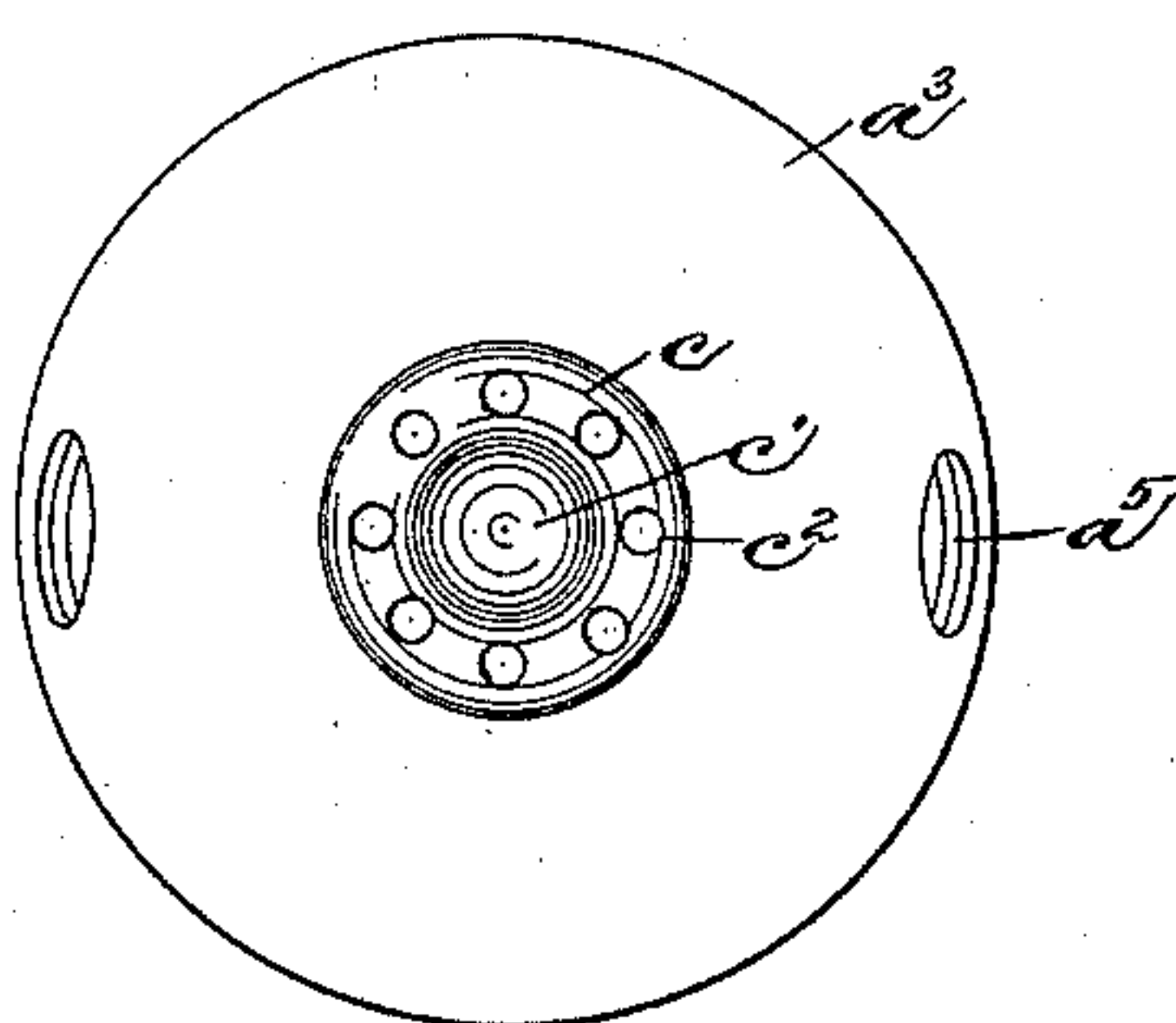


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES M. THAYER, OF RANDOLPH, MASSACHUSETTS.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 378,633, dated February 28, 1888.

Application filed January 15, 1887. Serial No. 224,427. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. THAYER, of Randolph, county of Norfolk, and State of Massachusetts, have invented an Improvement in Hot-Water Heaters, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to construct a hot-water heating apparatus whereby the heat-distributing medium—i. e., water contained in a jacket surrounding the furnace or fire-pot—is enabled to circulate freely from
15 the top of the heater through pipes back to the base or bottom of the water-jacket.

The invention consists of the apparatus operating after this manner for heating by hot water, constructed and arranged essentially
20 as I will now proceed to specify and, in conclusion, particularly claim.

Figure 1 shows in vertical section a heater and a sufficient number of pipes to illustrate the present invention; and Fig. 2, a top or
25 plan view of Fig. 1 with the pipes removed, the said figure showing the distributor as provided with a number of openings.

The interior wall, a^x , of the heater is surrounded by a conical top part, a' , thus forming a combustion-chamber, in which is placed
30 a grate, a , and surrounding all is a water-jacket, $a^2 a^3$, leaving a water-space, a^4 . The interior of the heater is reduced in diameter until the top of the combustion-chamber terminates in a conical point or sharp edge, 2,
35 while the outer shell or casing, $a^2 a^3$, of the water-jacket is kept substantially parallel with the interior $a^x a'$ of the combustion-chamber to form about the point or edge 2 an outlet or
40 passage for the discharge of water from the water-jacket.

Suitable smoke-flues, as a^5 , are formed through the interior a' and the water-jacket to lead smoke out from the combustion-chamber.

45 The apex or point 2 of the shell of the combustion-chamber lies at the center of the outlet-orifice of the water-jacket. A distributor, c , of frusto-conical shape, is attached to the outlet of the water-jacket, the smaller open
50 end of the said distributor being of the same diameter as the diameter of the said outlet-orifice, so that when the distributor is placed

upon and bolted to the outer wall of the water-jacket, as by the bolts b , a continuous, free, and unobstructed passage is presented to
55 the distributor.

The distributor is provided centrally with a conical separator, c' , of sufficient size to leave a space between the cone c' and the outer wall of the distributor of substantially the
60 same width as the width of the outlet from the water-jacket, the apex of the conical separator c' occupying a position directly in line with and quite near to the apex 2 of the portion a' of the heater.

The upper end of the distributor or "distributing-chamber," as it may be termed, around the base of the conical separator c' , is provided with a series of holes or openings,
65 c^2 , (see Fig. 2,) into which the circulation-pipes are fitted or otherwise attached, the number of holes depending upon the number of circulation-pipes employed.

I have herein shown in section one circulating-pipe, it being fitted into the distributor c
75 at the top and returning to the lower end of the water-jacket a' to complete the circuit.

The single pipe n , fitted into the top of the distributor c , is provided with a coupling, n^x , of peculiar construction, the coupling receiving
80 two branch circulating-pipes, $n' n^2$, which convey the water to different parts of the building, said pipes being shown as joined by a peculiar coupling, m , to a single pipe, as n^3 ,
85 connected to the water-jacket.

The couplings n^x and m are provided at their interior with a projecting division-wall or separator having a sharp edge produced by the meeting of two curved surfaces, as 6 7,
90 such point of junction or meeting of the two curved surfaces coming directly opposite the center of the inlet-port of the coupling, so that the entering water strikes the said sharp edge, and is thereby divided, each half or portion
95 freely moving into the respective pipes $n' n^2$. This form of coupling avoids the friction usually caused by water striking a flat interior surface, as of an ordinary coupling.

The two branch pipes are joined to the pipe n^3 by the coupling m , the interior of which is
100 provided with curved surfaces similar to that of coupling n , above described, so that should the water flow faster in one pipe, as n' , than in the other, as n^2 , the affinity of the particles

of the one stream for the particles of the other would, under such circumstances, by commingling one with the other, increase the movement of one and retard the other to equalize the force of the stream as soon as possible, so as to prevent the friction ordinarily produced when two streams meet in an ordinary T-coupling.

It is obvious that, instead of joining both of the branch pipes n' n^2 to the return-pipe n^3 , one of the said pipes—as n^2 , for instance—may return directly to the lower end of the water-jacket, and the other to be coupled with the return-pipe n^3 . The pipe f may serve to illustrate this construction last referred to as applied to pipe n^2 .

I claim—

In an apparatus for heating by the circula-

tion of hot water, the heater consisting of the water-jacketed combustion-chamber having the conical top part provided with the dividing-wall 2, in combination with a combined separator and distributor, c , arranged substantially as shown, and the circulating-pipes leading from said distributor back to the water-jacket, all arranged to operate substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES M. THAYER.

Witnesses:

BERNICE J. NOYES,
FRED L. EMERY.