

No. 773,927.

PATENTED NOV. 1, 1904.

C. A. CLEVELAND.
HOT WATER HEATER.
APPLICATION FILED OCT. 17, 1901.

NO MODEL.

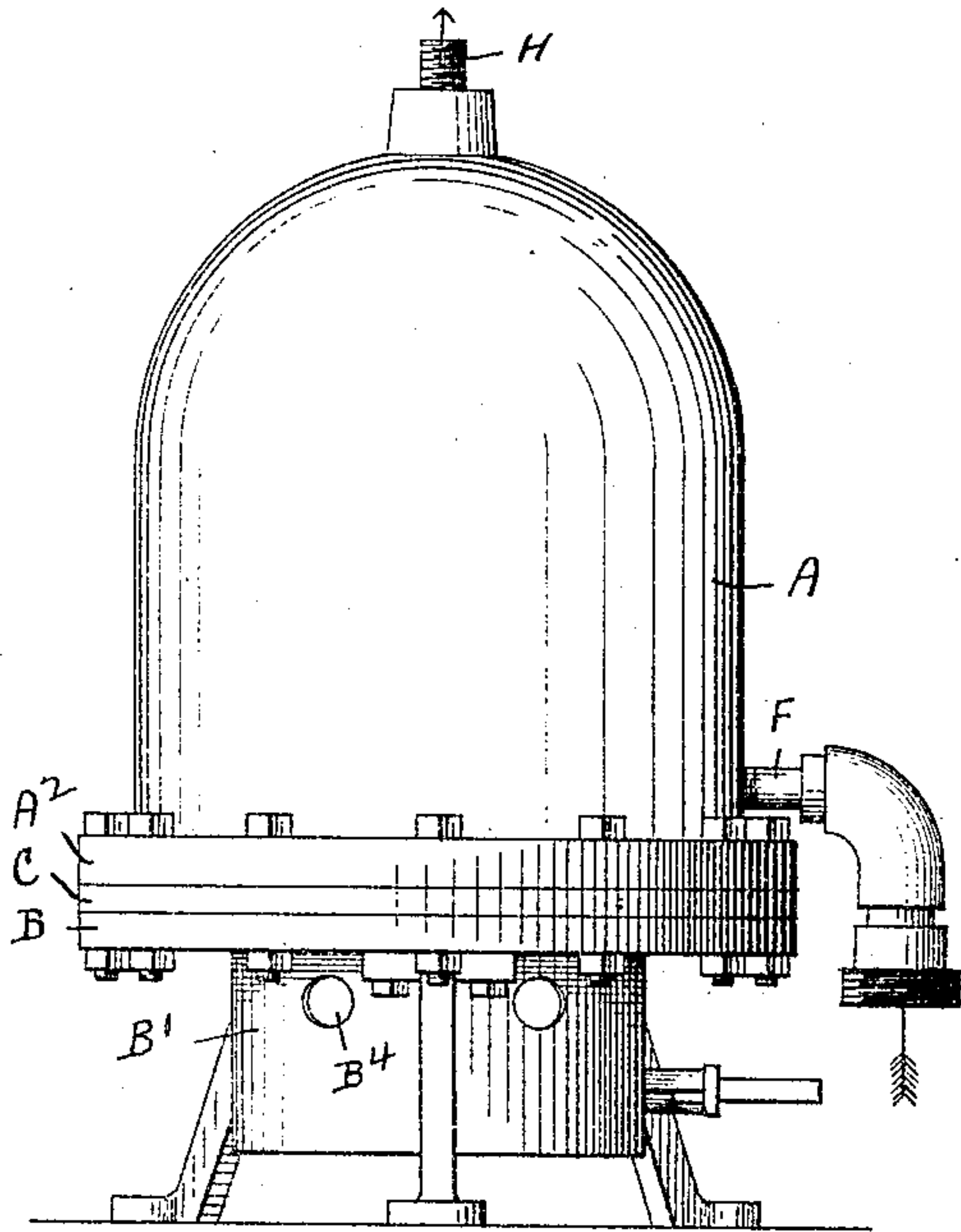


Fig. 1.

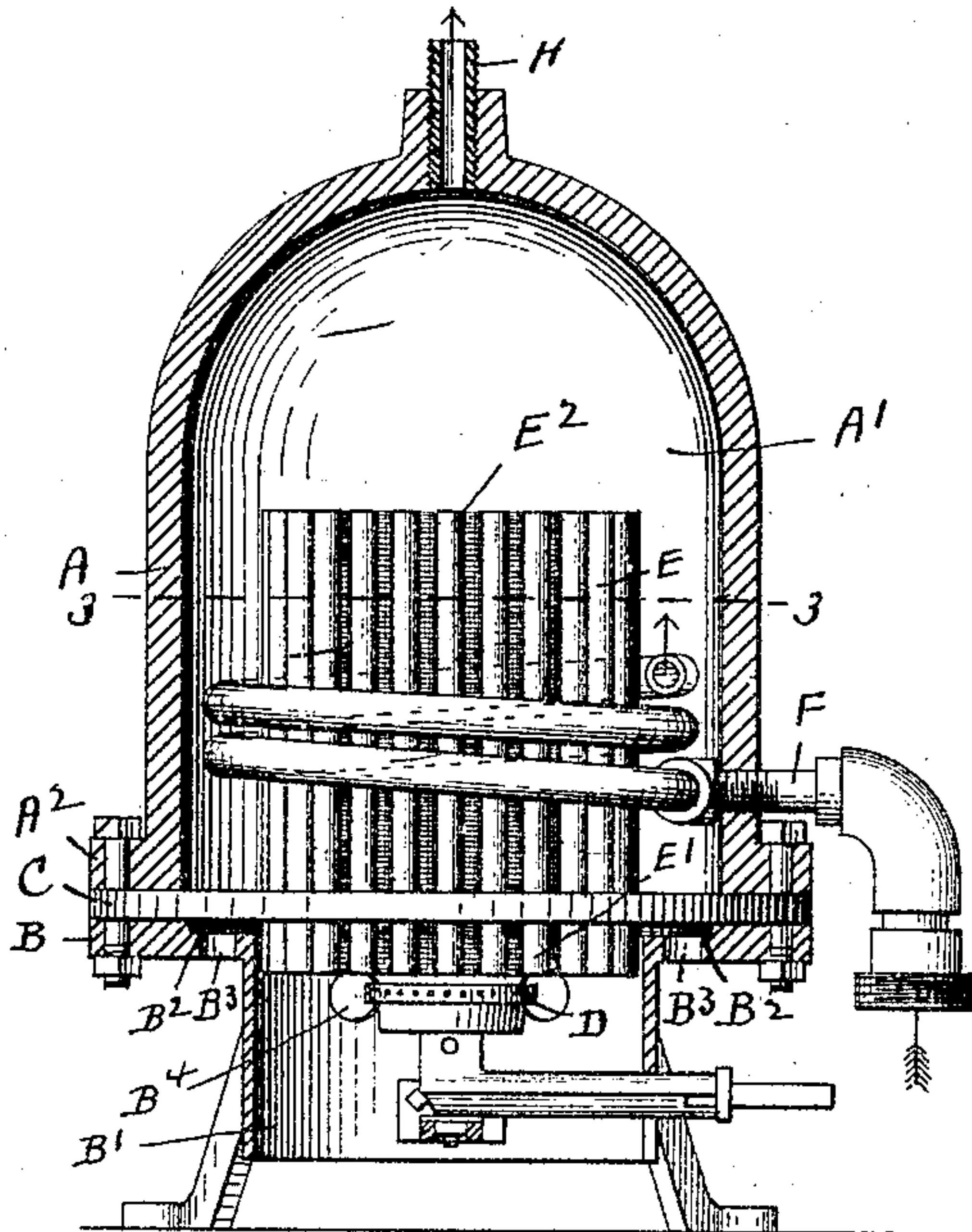


Fig. 2.

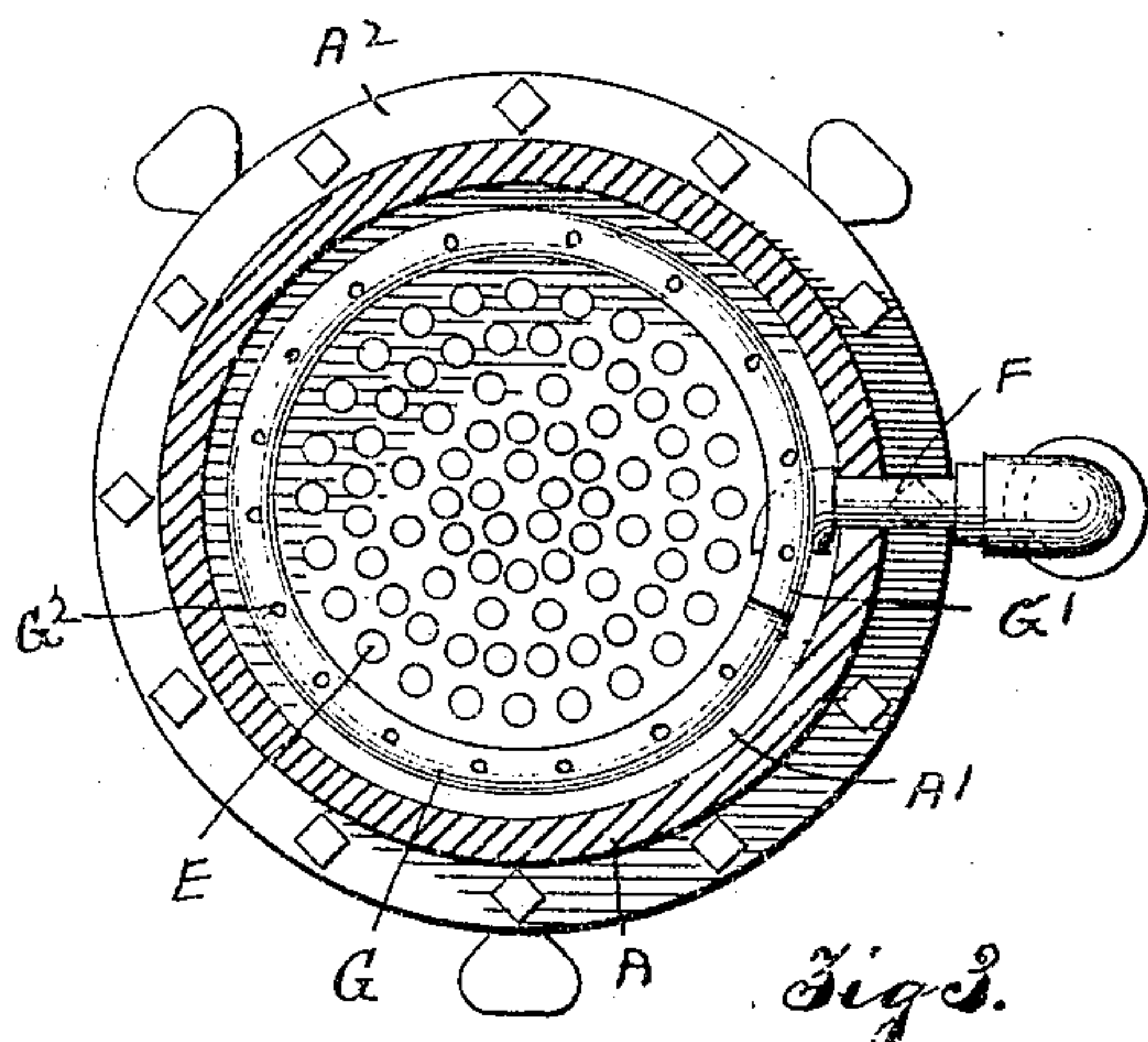


Fig. 3.

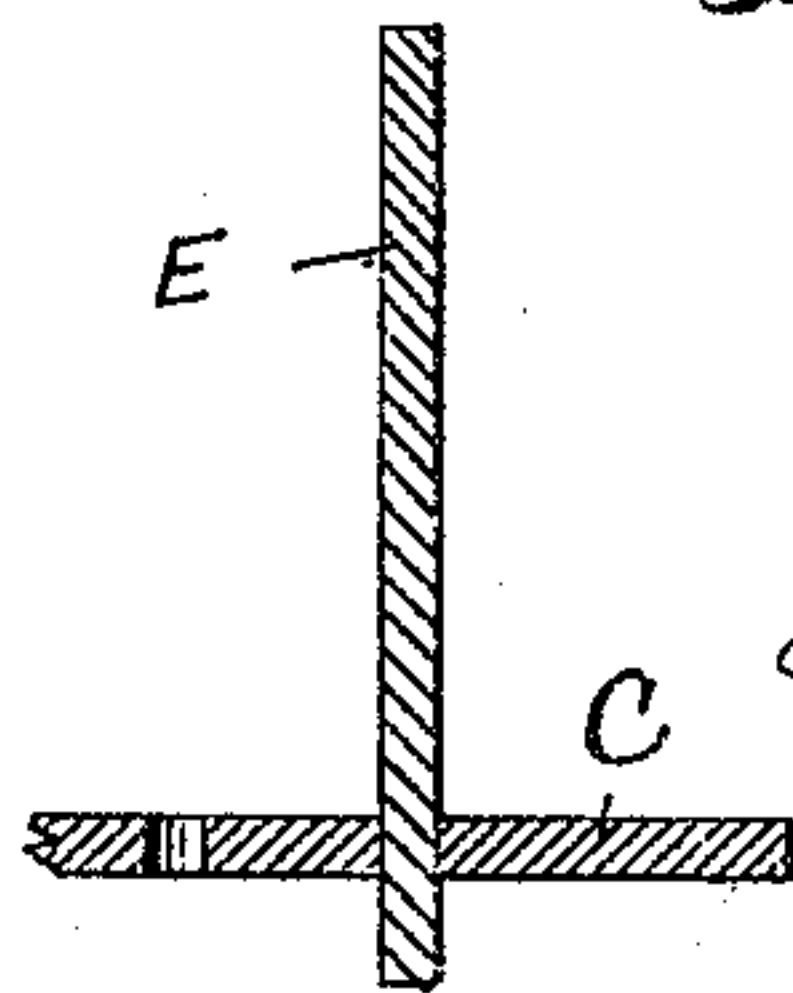


Fig. 4.

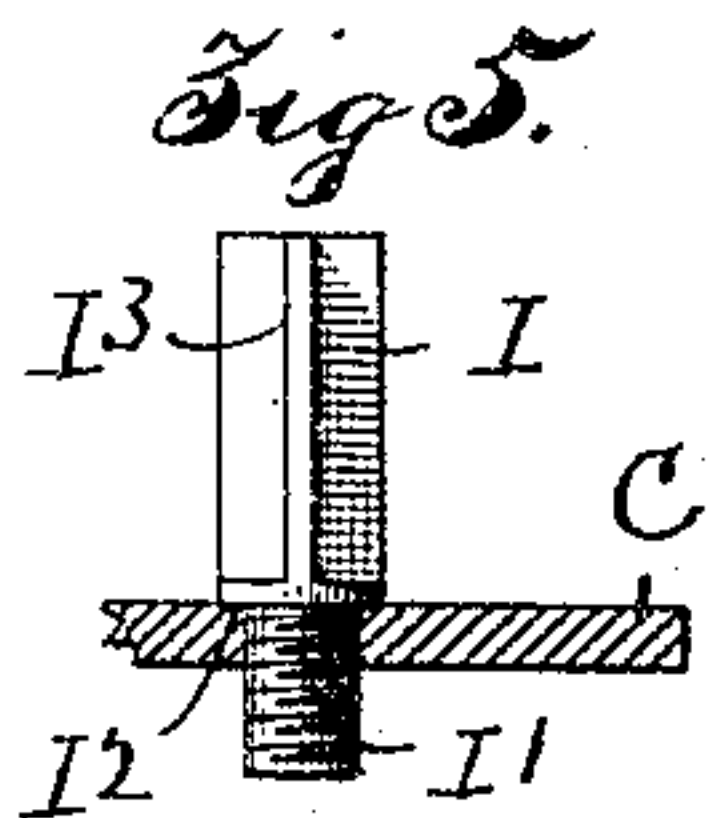


Fig. 5.



Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES A. CLEVELAND, OF WORCESTER, MASSACHUSETTS.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 773,927, dated November 1, 1904.

Application filed October 17, 1901. Serial No. 78,904. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. CLEVELAND, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a useful Improvement in Hot-Water Heaters, of which the following is a specification, accompanied by drawings, forming a part of the same, in which—

Figure 1 represents a side elevation of a hot-water heater embodying my invention. Fig. 2 is a central vertical sectional view with the crown-sheet shown in full. Fig. 3 is a transverse sectional view on line 3 3, Fig. 2. Fig. 4 is a sectional view of a portion of the crown-sheet and of one of the heat-conducting rods, and Figs. 5 and 6 show a modified form of the heat-conducting rod.

Similar reference-letters refer to similar parts in the different views.

My invention relates to a hot-water heater intended for heating water for household and barbers' uses and for similar purposes; and it consists in the construction and arrangement of parts, as hereinafter described, and pointed out in the annexed claims.

Referring to the accompanying drawings, A represents a shell or case, preferably dome-shaped and inclosing a water-chamber A'. The shell A is provided at its lower edge with a flange A², to which is bolted an annular base-plate B, and between the base-plate B and the flange A² a circular crown-sheet is clamped, forming the bottom of the water-chamber.

The annular base-plate B is provided with a concentric depending circular flange B', within which is located a burner D, adapted to burn gas, oil, or other convenient fuel. The upper surface of the annular base-plate B is recessed to provide a concentric air-space B² beneath the crown-sheet C, and the recessed portion of the base-plate is provided with a series of holes B³ to permit the products of combustion and the heated air ascending upwardly through the depending flange B' to impinge against the under side of the crown-sheet and pass through the air-space B² and holes B³. In some cases it may be advisable to provide holes B⁴ in the depending flange B', as shown in Figs. 1 and 2.

The crown-sheet C is preferably made from a plate of sheet-steel, and secured therein by soldering or otherwise is a series of heat-conducting rods E, preferably of copper and projecting a short distance below the crown-sheet, with their lower ends E' entering the space inclosed within the depending flange B'. The upper ends E² extend upwardly for a considerable distance into the water-chamber A'. Water under pressure is admitted to the water-chamber A' through the pipe F, which communicates upon the interior of the shell with a coiled pipe G, containing two or more coils and encircling the series of heat-conducting rods E. The coiled pipe G may be open at its upper end G', or the upper end may be closed and the pipe be provided with a series of small holes G², through which water is admitted to the chamber A' from a water-main or other source of water-supply.

At the top of the shell A is a pipe H, through which heated water can be withdrawn from the chamber A'.

The heat-conducting rods E, as represented in Figs. 2 and 3, are cylindrical in cross-section throughout their entire length and are driven through holes in the crown-sheet and soldered thereto. The shape of the heat-conducting rods may, however, be varied and other means of attachment to the crown-sheet may be adopted.

In Figs. 5 and 6 a modified form I of heat-conducting rod is shown, having a screw-threaded attachment to the crown-sheet. The heat-conducting rod I is cylindrical at its lower end and is provided with a screw-thread I', by which it is screwed into a screw-threaded hole in the crown-sheet and against a shoulder I². The upper portion of the heat-conducting rod I is fluted, as at I³, for the purpose of increasing the surface in contact with the surrounding water.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination in a water-heater, of a crown-sheet and a series of heat-conducting rods passing through said crown-sheet and entering the water-chamber of the heater, a water-supply pipe entering the bottom of the water-chamber and having a coiled section

inclosed in the water-chamber and surrounding said heat-conducting rods with the inner end of the water-supply pipe communicating with the water in the water-chamber.

- 5 2. The combination of a shell or case provided with a flange, an annular plate bolted to said flange and provided with a recess in its upper face, a crown-sheet, clamped between said plate and said flange, a depending
10 flange on said annular plate, and a burner in-

closed in said depending flange and a series of holes in said annular plate communicating with its recessed surface, substantially as described.

Dated this 14th day of October, 1901.

CHARLES A. CLEVELAND.

Witnesses:

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