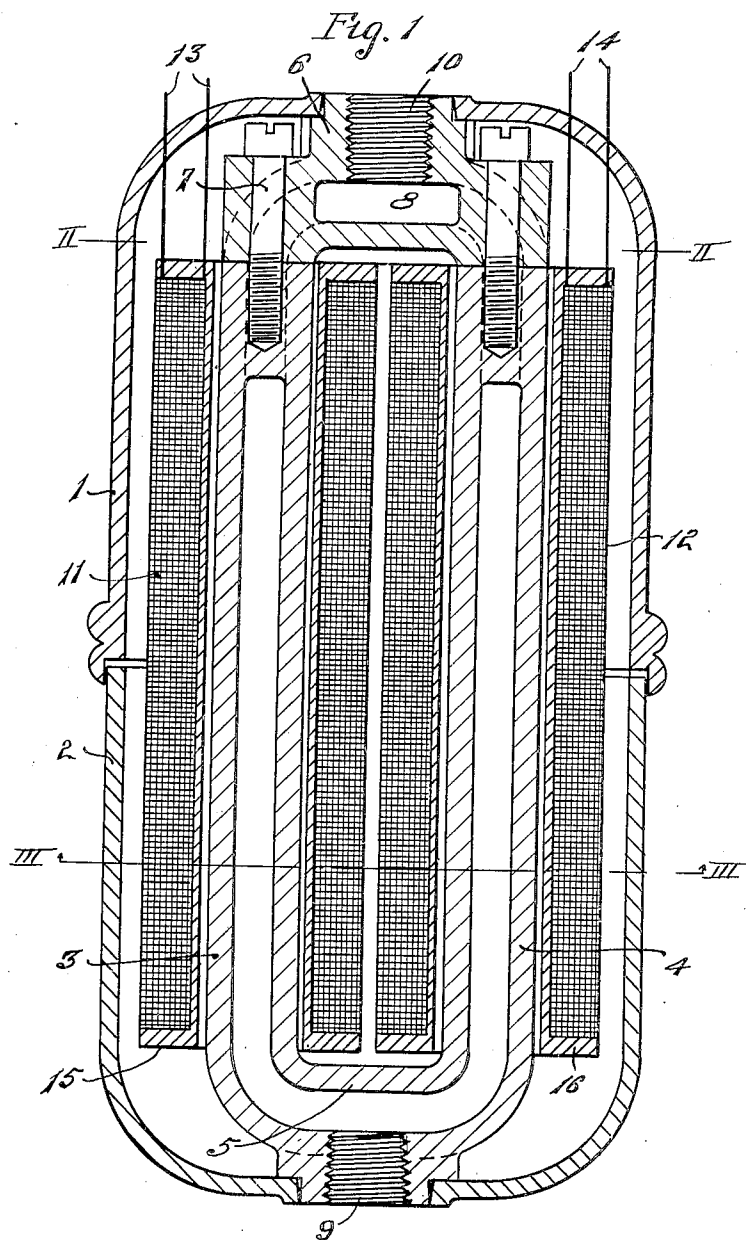


C. A. BACKSTROM.
INDUCTION WATER HEATER.
APPLICATION FILED SEPT. 12, 1916.

1,261,470.

Patented Apr. 2, 1918.
2 SHEETS—SHEET 1.



WITNESS:

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Fig. 2

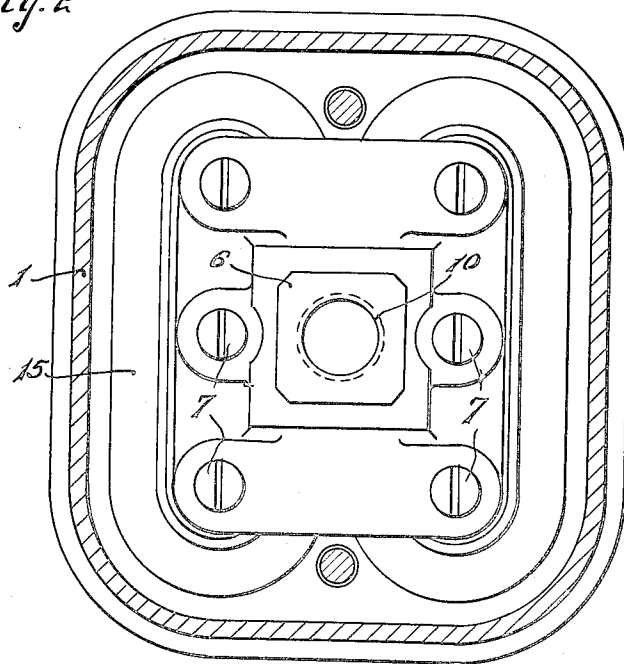
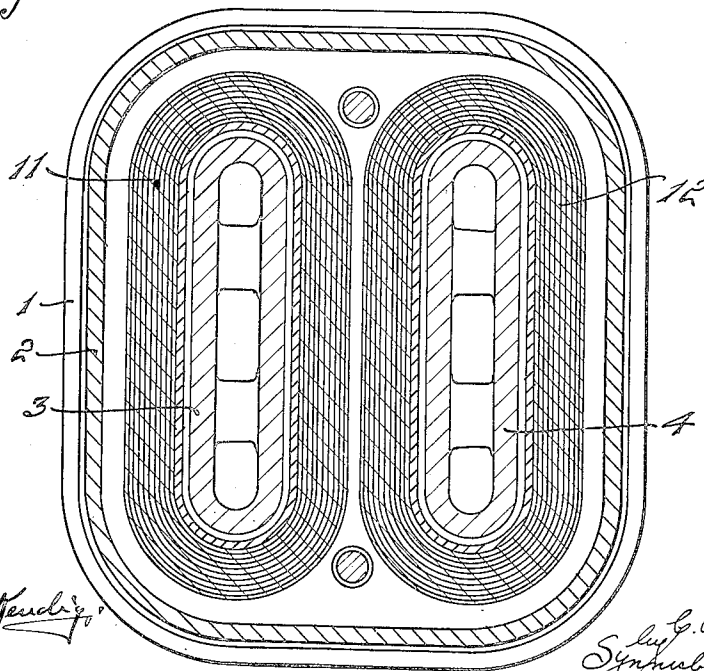


Fig. 3



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UNITED STATES PATENT OFFICE.

CHARLES A. BACKSTROM, OF CRAFTON, PENNSYLVANIA, ASSIGNOR TO PITTSBURG WATER HEATER COMPANY, A CORPORATION OF NEW JERSEY.

INDUCTION WATER-HEATER.

1,261,470.

Specification of Letters Patent.

Patented Apr. 2, 1918.

Application filed September 12, 1916. Serial No. 119,673.

To all whom it may concern:

Be it known that I, CHARLES A. BACKSTROM, a citizen of the United States, residing at Crafton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Induction Water-Heaters, of which the following is a specification.

The invention relates to induction water heaters designed for heating water or other liquids for house heating and domestic use or other purposes. The primary objects of the invention are; the provision of a heater of simple construction and high efficiency; and the provision of a heater in which the loss in the return magnetic circuit is utilized for heating the water. One embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a longitudinal section through the heater; Fig. 2 is a section through the heater casing on the line II—II of Fig. 1, the parts in the heater being shown in end elevation; and Fig. 3 is a section on the line III—III of Fig. 1.

Mounted in the separable halves 1 and 2 of the heater casing is the U-shaped core having the branches or legs 3 and 4 of magnetizable material, such as iron, such core being preferably formed in one integral casting and connected at its lower ends by the portion 5. At the other end of the core is a cap plate 6 cored out hollow and held in position by means of the bolts 7, such cap plate also being of magnetizable material, such as cast iron. The passages through the branches 3 and 4 register at their upper ends with the passage 8 through the cap, such passage being shown partially in dotted lines. Water is admitted to one end of the heater as at 9, and discharged at the other end through the opening 10.

Surrounding the core branches 3 and 4 are the coils or windings 11 and 12 having suitable supply leads 13 and 14, these windings being preferably mounted upon suitable spool members 15 and 16 of brass or other similar material.

In operation an alternating current is sup-

plied to the windings 11 and 12, causing the heating of the core. The end connections 5 and 6 between the two branches constitute the means for completing the magnetic circuit, and these connections are more or less heated, but there is no loss of heat due to this fact, since these connections transmit their heat to the water flowing there-through. The same advantage would be present in case only a single winding were used, in which case the other branch would constitute the return connection for the magnetic circuit. Under these conditions the heat imparted to the return connection would be transmitted to the water, thus making the heater efficient.

It will be seen that the construction is very simple and cheap, and that it involves a high degree of efficiency, since a very large percentage of the heat imparted to the metal in the heater is transmitted to the water. Other advantages incident to the construction will readily be apparent to those skilled in the art.

What I claim is:

1. In an induction heater, a pair of parallel hollow members of magnetizable metal constituting a core, a winding on each member, hollow metal connecting means between the ends of the members, a water inlet to one of said connecting means, and an outlet from the other of said means.

2. In an induction heater, a pair of parallel hollow members of magnetizable metal constituting a core, a winding on each member, hollow metal connections joining adjacent ends of the members together, a water inlet to one of said connections, and an outlet from the other, one of said connections being removably secured in position.

3. In an induction heater, a pair of hollow members of magnetizable metal constituting a core and arranged in parallel and oblong in cross-section, a hollow metal connecting means at each pair of member ends, a water inlet to one of said connecting means, and an outlet from the other.

CHARLES A. BACKSTROM.