

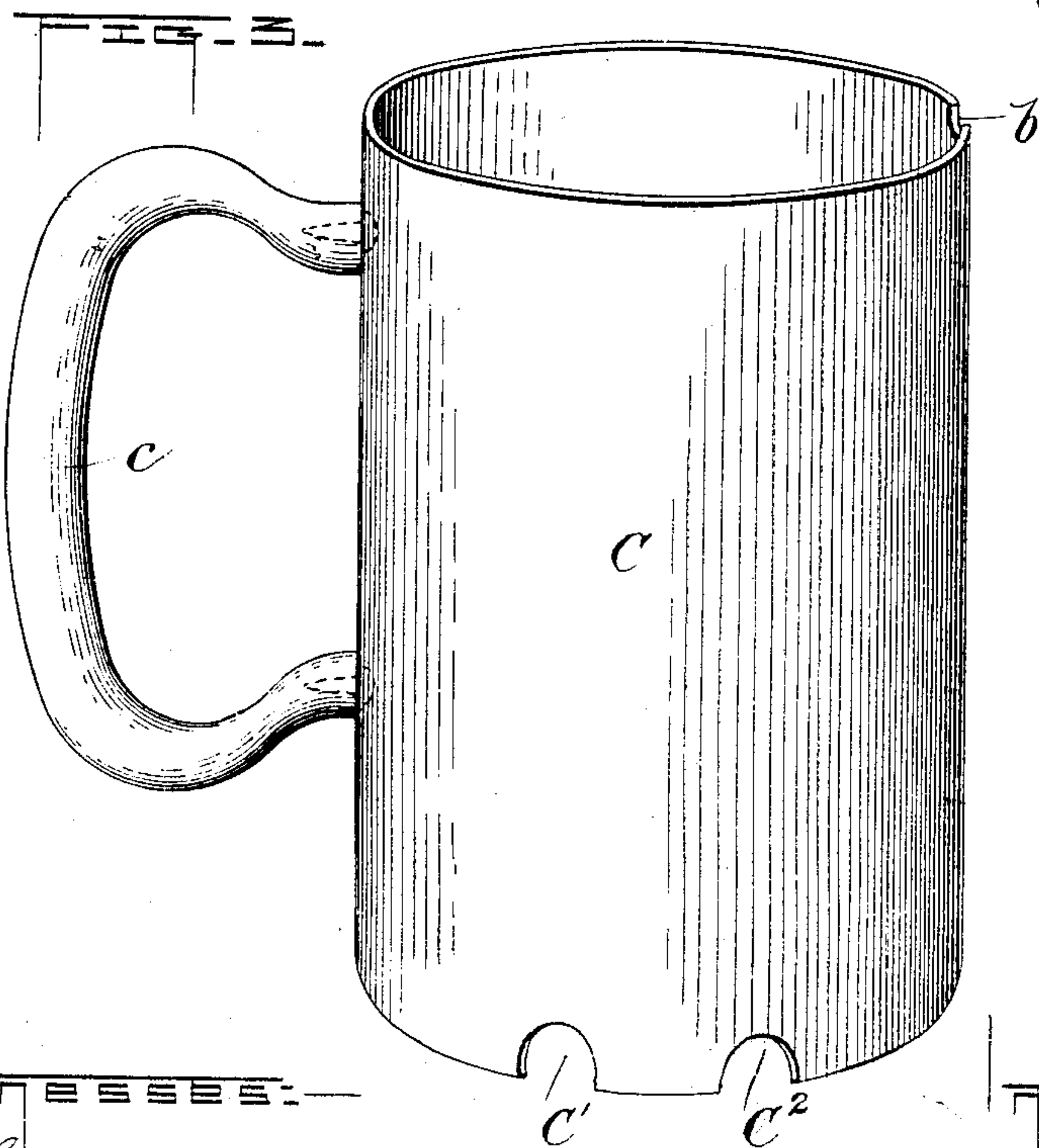
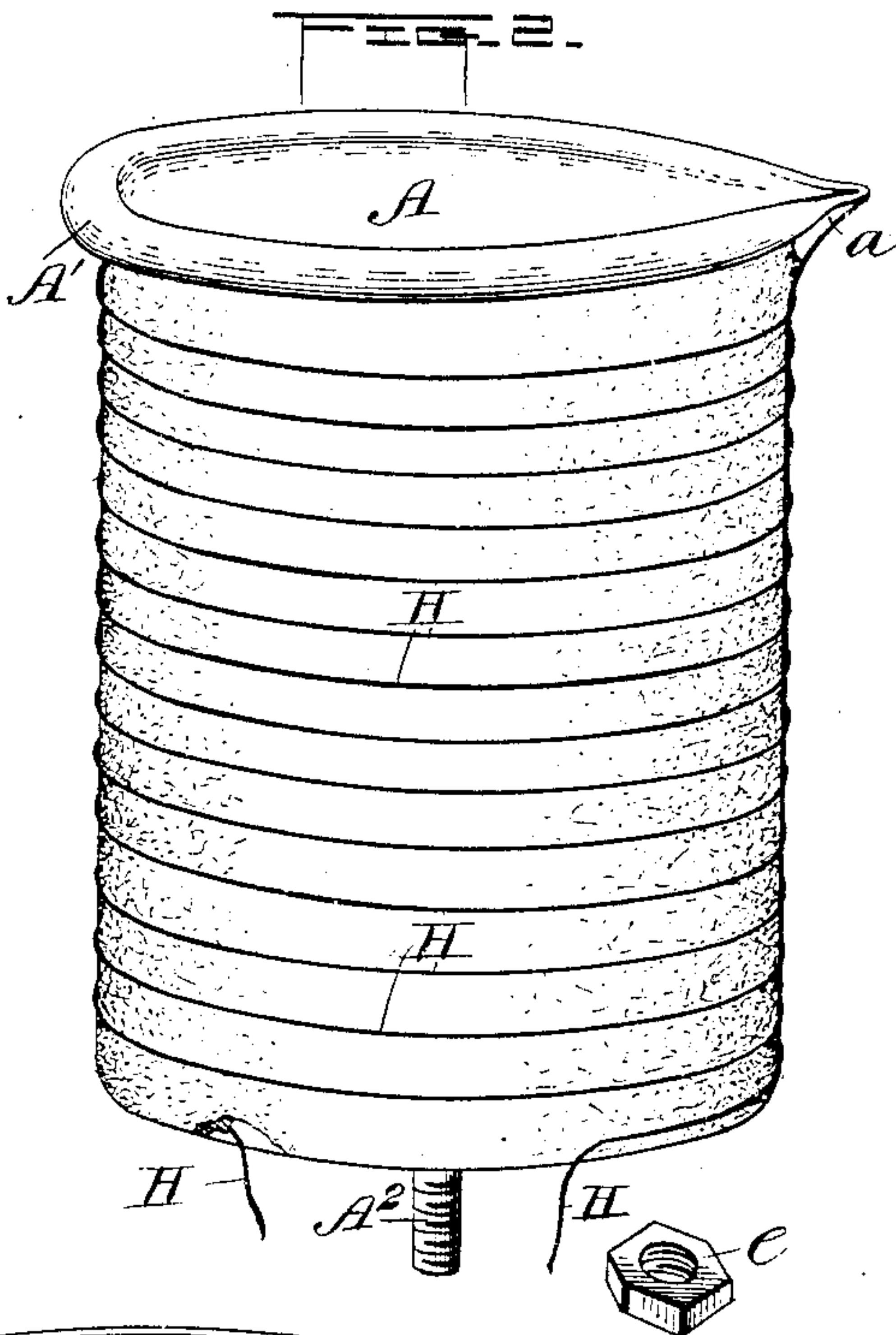
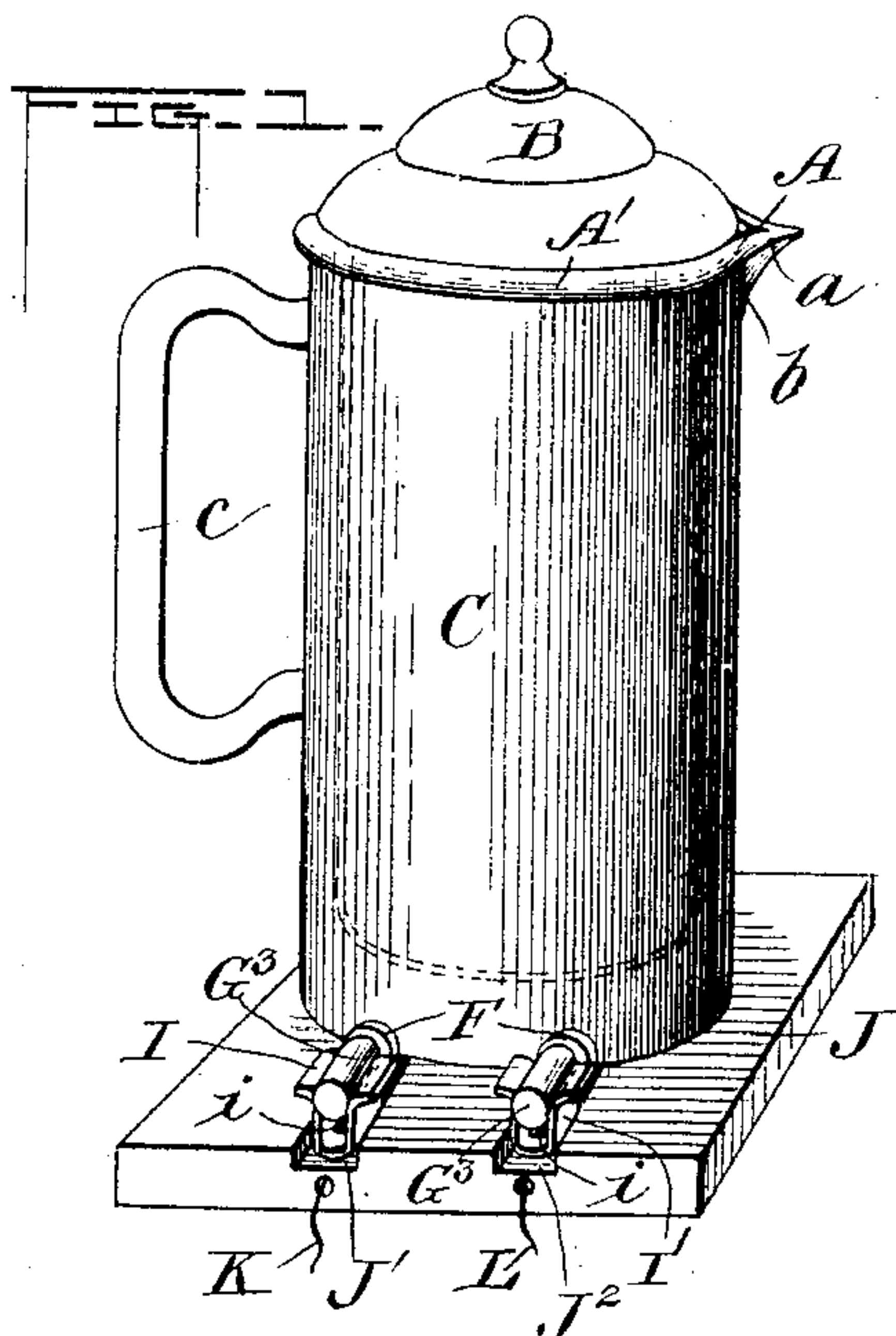
(No Model.)

2 Sheets—Sheet 1.

W. MITCHELL.
ELECTRICALLY HEATED VESSEL.

No. 474,398.

Patented May 10, 1892.



Witness:
W. Harry Muzzy

Willis Mitchell
by
W. H. Babcock
Attorney

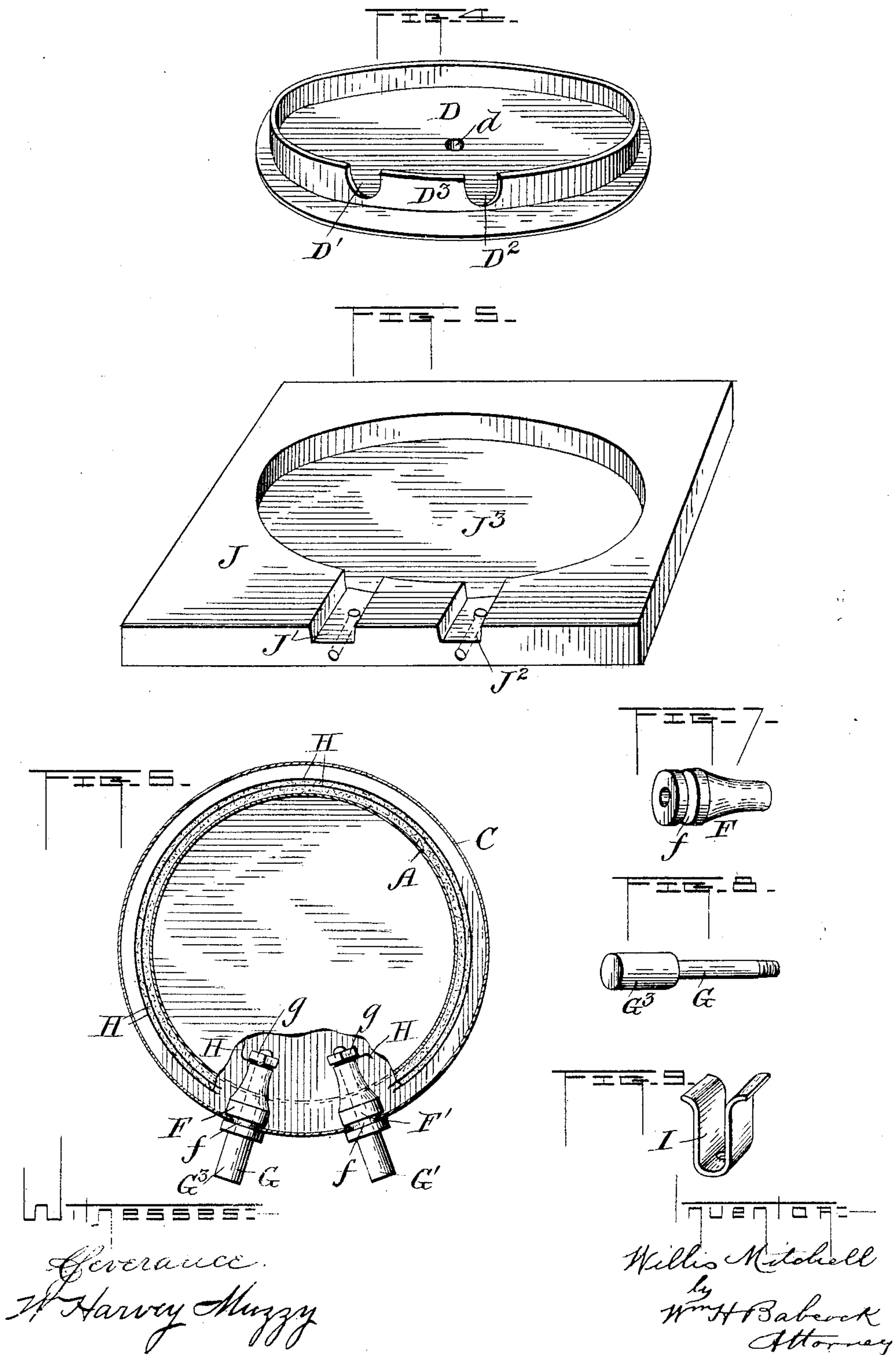
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UNITED STATES PATENT OFFICE.

WILLIS MITCHELL, OF MALDEN, ASSIGNOR TO THE BUTTERFIELD-MITCHELL
ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS.

ELECTRICALLY-HEATED VESSEL.

SPECIFICATION forming part of Letters Patent No. 474,398, dated May 10, 1892.

Application filed September 5, 1891. Serial No. 404,838. (No model.)

To all whom it may concern:

Be it known that I, WILLIS MITCHELL, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electrically-Heated Receptacles and Connections Therefor; and I do hereby 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.

The chief object of this invention is to make convenient and satisfactory electrical connections by new and improved combinations and constructions of devices with pots, boilers, and other heating devices inclosed in receptacles or shells from which the electric wires must be insulated.

To this end my invention consists in the devices hereinafter set forth, constructed, and combined as claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a heating-pitcher thus arranged and provided, the interior receptacle or pitcher proper being indicated by dotted lines. Fig. 2 represents in enlarged detail view this inner receptacle or pitcher proper and its winding and the nut for holding it in place. Fig. 3 represents a similar view of the outer shell. Fig. 4 represents a detail perspective view of the base. Fig. 5 represents a similar view of the recessed board into which the pitcher is set, as in Fig. 1. Fig. 6 represents a transverse section taken above the electrical connections and partly broken away to show the latter. Fig. 7 represents a detail perspective view of the grooved insulating-sleeve. Fig. 8 represents a similar view of the brass bolt making the electrical connection and its bolt. Fig. 9 represents a detail view of one of the U-shaped springs hereinafter described.

A designates the inner receptacle or pitcher proper, which may be of copper and contains the water or other liquid to be heated; B, its removable cover; C, the exterior shell provided with a handle *c*, and D the base, these constituting the chief parts of the liquid-heating pitcher. The inner receptacle A has an enlarged and rounded top A' to rest on the

upper edge of the outer shell B and a lip or nose *a*, extending out through a recess *b* in the said upper edge. The overlapping construction of the rounded top or rim A' and nose *a* will prevent the liquid which is poured into or out of the said inner receptacle or pitcher from running down between it and the said outer shell among the coils of the wire, hereinafter described. The said pitcher proper or inner receptacle A has on its bottom a downwardly-extending stud A², preferably hard-soldered thereto, which passes through a hole *d* in the center of the base D. The end of this stud is screw-threaded to receive a nut *e* below the said base. By tightening this nut on the said stud the said inner receptacle or pitcher is drawn down and the said pitcher, outer shell, and base are fastened together. The said shell C has in its lower edge on one side two semicircular recesses C' and C², which fit against similar recesses D' D² in an upward annular flange D³ of the base D, each pair of openings C' D' and C² D² forming a circular opening.

F F' designate two insulating-sleeves, which fit into these openings, respectively, each sleeve having an annular groove *f* to receive the edge of the said shell. Through the central bore of each sleeve a metallic bolt G or G' extends, being held in place by a nut *g*. To the inner ends of these bolts G G' the ends of a wire H are attached, which is coiled spirally around the inner receptacle or pitcher A at such intervals between the coils as I have found most effective for heating purposes. As shown, only one winding or layer of coils is employed; but there may be six or seven or more of these windings. Insulating material is of course interposed between the first winding, such as shown, and the pitcher A and between the successive windings or layers of coils and the proximate coils of each layer or winding; or the wire may simply be coated throughout with insulating material.

Each metallic bolt G or G' has its outer end formed into an enlarged head G³. This head fits into the jaws of a narrow U-shaped spring I or I', which is outwardly curved at its upper edges and fastened at the bottom by

a screw i to a recessed bottom board J. The two recessed springs I I' fit into corresponding recesses J' J² of the said board, and the latter has also a larger recess J³ to receive the base D. Wires K L are attached to these springs I I' and complete the circuit through some source of electricity, the bolts G G', and the coiled heating-wire H.

In putting the pitcher together for use as a liquid-heating device I first wind the wire H, as described, on the inner receptacle or pitcher proper. I then set it into the outer shell C on the base D, insert the insulating-sleeves F F' into the openings described, and clamp these parts together, as described, by turning the nut on the stud below the base. The ends of wire H are wound on or attached to the inner ends of the bolts G G' before this fastening or tightening. The heating-pitcher as a whole is then set into the recessed bottom board and the heads of the bolts enter the jaws of the springs, completing the circuit, as stated. The insulating-sleeves are preferably of porcelain or earthenware. Pulverized soapstone may be filled into the space between the outer shell and the inner receptacle or pitcher proper. The connections hereinbefore described may be used with ovens or other inclosed heaters.

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

1. In combination with an inner receptacle and an outer shell, an electrical resistance in the space between them, insulating-sleeves extending through the said shell, and conductors extending through the said sleeves and connected to the ends of the said resistance

for establishing an electrical circuit through the latter, substantially as set forth.

2. In combination with an outer shell and a perforated base, an inner receptacle having a stud extending from it down through the said base, insulating-sleeves extending in through openings in the said base and shell, and a device below said base engaging the said stud to clamp the said parts together, substantially as set forth.

3. In combination with a recessed bottom board or support and U-shaped springs secured therein, wires forming part of an electric circuit in contact with the said springs, and an electrically-heated receptacle having protruding conductors, and a resistance in contact with them, the said conductors entering the said springs when the said receptacle is set into the said bottom board to complete the electric heating-circuit, substantially as set forth.

4. An inner receptacle and wire wound thereon, in combination with an outer shell and base, metallic bolts passing in through the said shell and connected to the ends of the said wire, insulating-sleeves inclosing the said bolts and fitting into openings of the said shell and base, and clamping devices for fastening the said shell-base and inner receptacle together, substantially as set forth.

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

WILLIS MITCHELL.

Witnesses:

EDWIN W. PIERCE,
PELATIAH R. SRIPP.