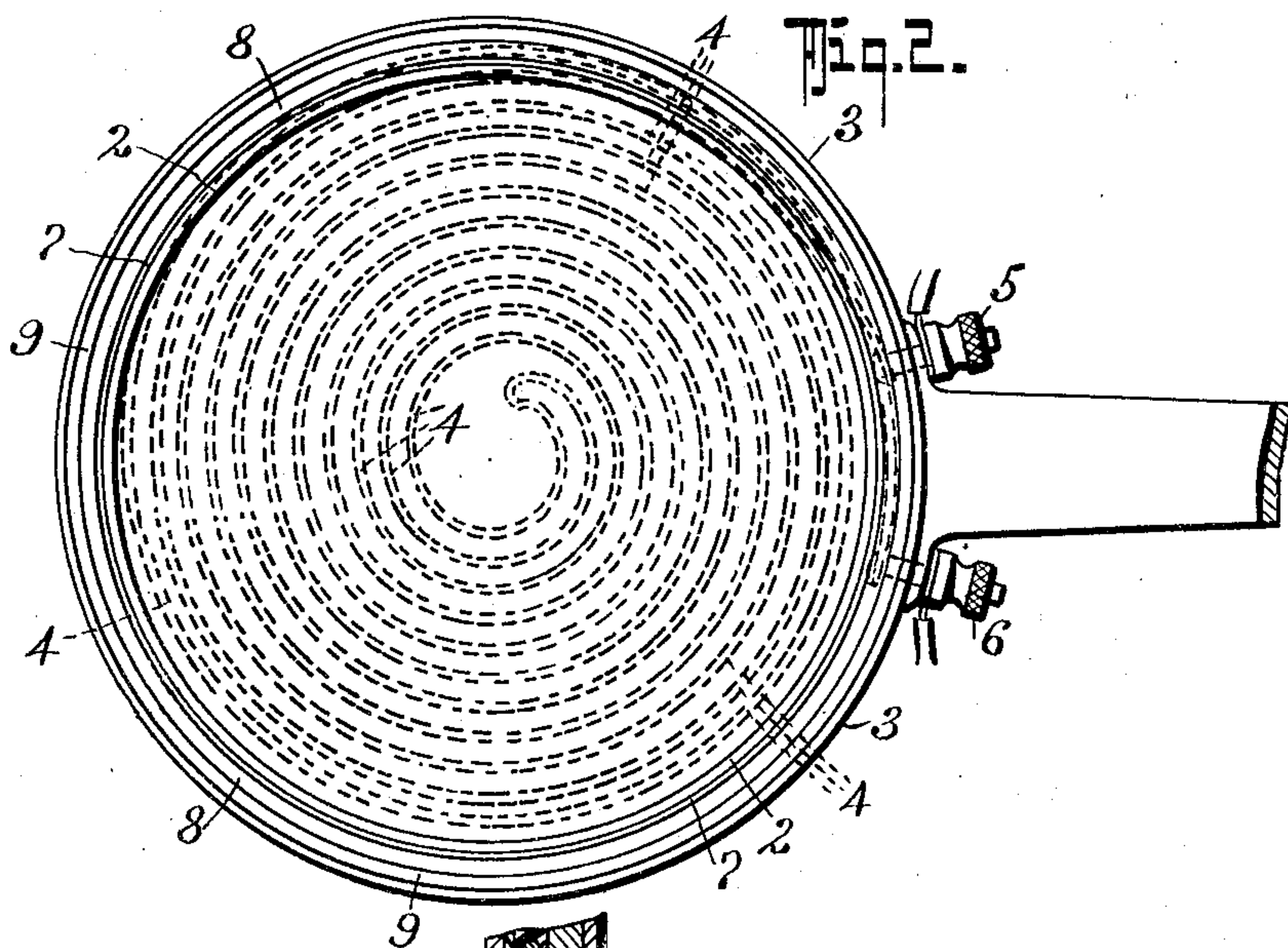
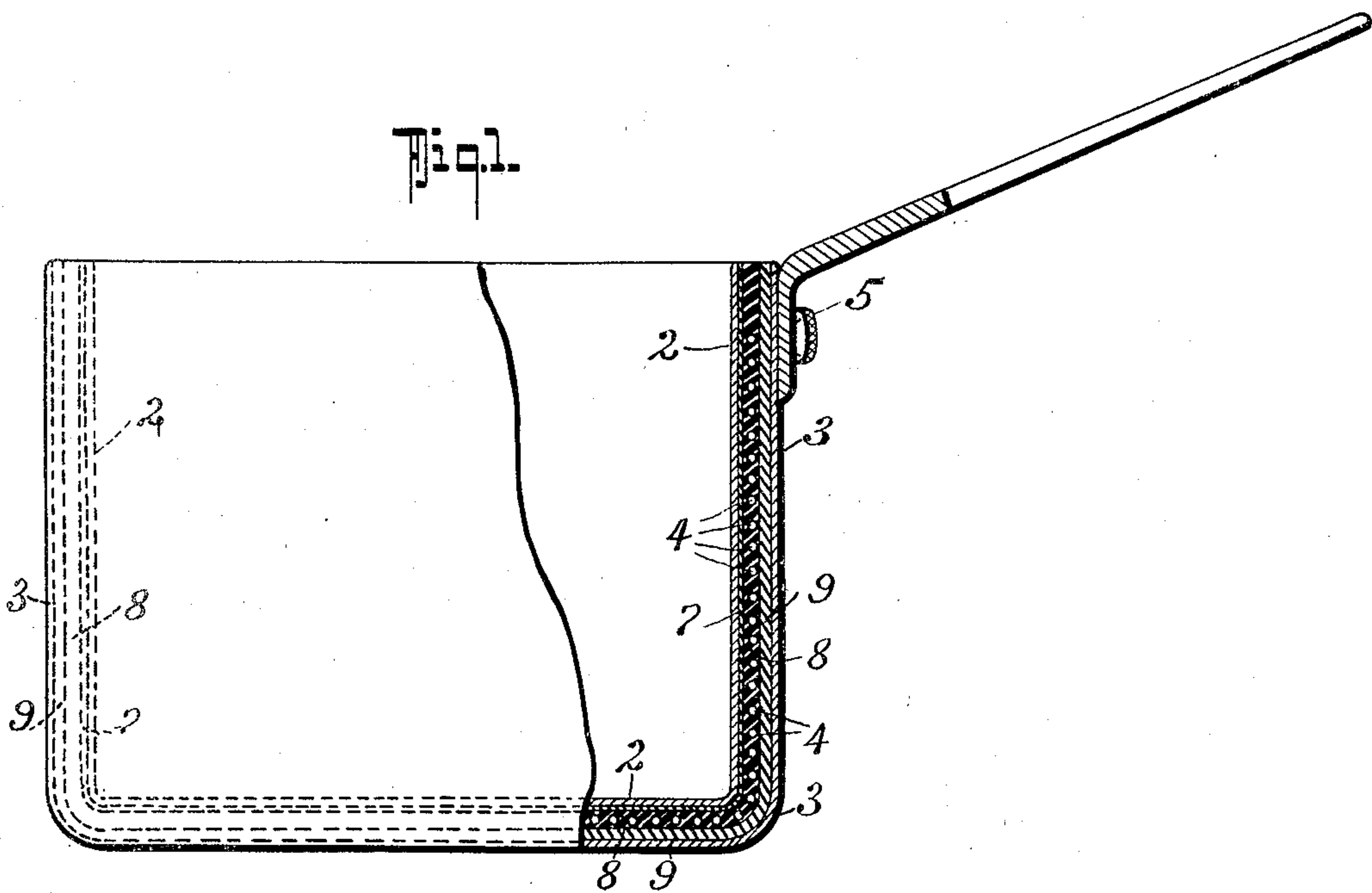


H. MIETH.  
ELECTRICALLY HEATED VESSEL.  
APPLICATION FILED JAN. 3, 1911.

993,314.

Patented May 23, 1911.

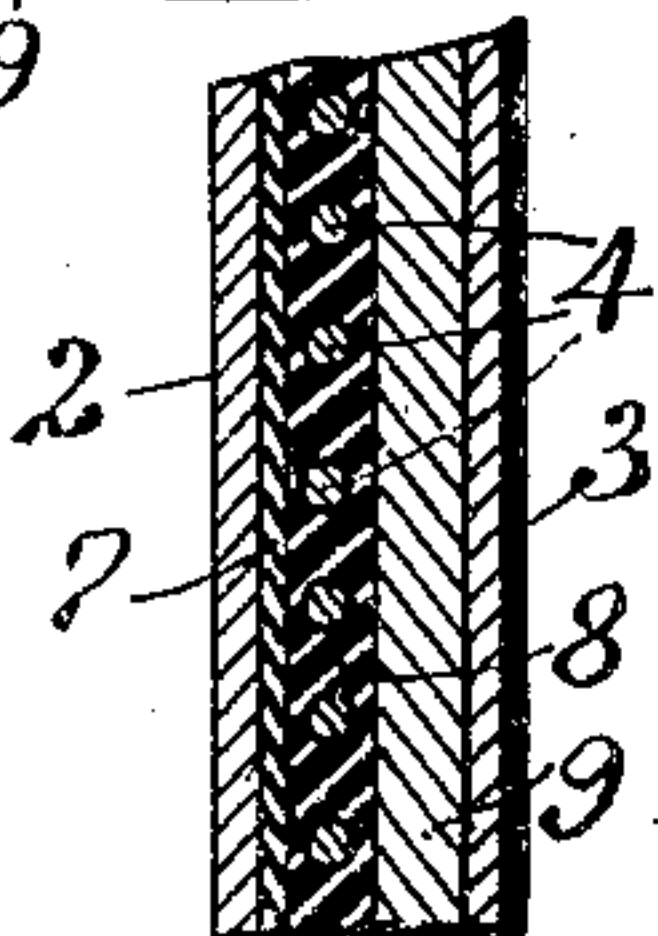


WITNESSES:

H. Woodard

John E. Schrott

Fig. 3.



INVENTOR

Herman Mieth

BY

Fred G. Dietrich & Co.  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

HERMAN MIETH, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

## ELECTRICALLY-HEATED VESSEL.

993,314.

Specification of Letters Patent. Patented May 23, 1911.

Application filed January 3, 1911. Serial No. 600,410.

*To all whom it may concern:*

Be it known that I, HERMAN MIETH, a citizen of the United States of America, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Electrically-Heated Vessel, of which the following is a specification.

This invention relates to an electrically heated water vessel for the heating of water or other liquid.

Attempts have previously been made to heat liquid by means of electricity either by means of an immersed resistance coil in the liquid itself in which case a considerable loss is incurred by short circuiting between the coils through the liquid, and this system is also open to objection in that the current is such as will fuse the coil if it is not immersed in the liquid. Another system in common use is to connect what is termed a heating pad to the under side of the vessel, the coil in this case being secured between layers of insulating material but this construction does not enable the coil to be in close contact with the wall of the vessel and much of the heat is, on this account, lost as it may pass by radiation from the other side of the pad. These defects I have overcome in the invention which is the subject of this application by inclosing the heating coil between an outer and inner casing forming the bottom and sides of the vessel by which construction I am enabled to place the coil on very thin insulation in contact with the inner wall of the vessel and by filling in between the coil with an electrical non-conducting cement by which means the adjacent coils are efficiently insulated from one another and by providing a heat non-conducting layer inside of the outer casing of the vessel no appreciable amount of the heat generated in the coil may pass other than through the inner wall of the casing where it is imparted to the liquid within it.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a vertical section through a vessel having my heating provision, Fig. 2 is a top plan view of the vessel, part of the handle being broken off, Fig. 3, an enlarged detail of a section of the coil within its insulation and casing.

In these drawings 2 represents the inner and 3 the outer wall or casing of the coil

which casings form the sides and bottom of the vessel. The wires 4 which form the coil are preferably wound double, as shown in Fig. 2, and commencing at the center of the bottom extend outward to the cylindrical wall up which they are coiled to a short distance from the top where they are connected to the terminals 5 and 6. The surfaces of the inner casing 2 on which the coil is tightly wound is first covered with a thin layer 7 of efficient insulation such as a vitreous enamel or sheet mica and the coil is tightly wound on it. Thereafter the interspace between the coils is filled in with an electrical non-conducting cement 8 that will effectually insulate the coils from one another and between the wires of the coils so insulated and the outer casing wall 3 of the vessel is placed a layer 9 of heat non-conducting material. No particular care need be taken that this heat non-conducting layer is tightly packed within the casing as any air space will itself act as a non-conductor. In a vessel so constructed the wires of the coil are effectively insulated not only from the inner casing 2 of the vessel but also from one another and the coils are as close as practicable to the inner wall consistent with such insulation and any heat generated in the coil must pass through the inner wall of the vessel as the heat non-conducting layer 9 will prevent any passage outward. Furthermore the coil and its insulation is effectively protected against possible injury to which it might be readily exposed in a vessel of this character. The construction also lends itself to the formation of a light and strong vessel as the inner casing 2 may be of very thin aluminium as it will be backed up and strengthened by the coil and insulating layers and thereafter by the outer wall of the casing 2 which may be of steel or other suitable metal.

I am aware that prior to my invention electrical resistance coils have been used for generating heat and that such have been inclosed between flat layers of insulating material to form a "heating pad" so that I do not claim the use of such broadly but

What I claim as my invention and desire to be protected in by Letters Patent, is:

1. An electrically heated vessel which comprises an inner shell, an outer coating of insulation for said shell, an outer shell in which said inner shell is set, said inner shell being spaced from said outer shell, an inner



heat insulating lining for said outer shell and spaced from said inner shell, a heating coil wound around said inner shell within the space between the shells, and a cement  
5 filler in said space between said shells to unite the same and embed said heating coil.

2. An electrically heated vessel, comprising in combination, an inner metal lining forming the vessel, a layer of thin insulation  
10 on the outer side of the lining, a wire coil on the insulation, insulating cement filling the interspaces between the coils of the wire, a layer of heat non-conducting material on the outside of the coil and an outer casing  
15 inclosing the coil and means for connecting the terminals of the coil to an external circuit said cement extending from said layer of thin insulation to said layer of heat non-conducting material.

20 3. An electrically heated vessel, comprising in combination, an inner metal lining forming the containing vessel, a thin layer of insulating material on the outside of the lining, a coil of wire in close contact with  
25 the insulating layer, insulating cement filling the interspace between the coils of the wire and covering them, a layer of heat non-conducting material on the outer side of the insulated coil, a metal casing inclosing  
30 the coil and means for connecting the terminals of the coil to an external circuit.

4. An electrically heated vessel that comprises an inner and outer cup like shell, each of said shells having a flat bottom, said inner shell being of a smaller size than said  
35 outer shell to leave a space between the shells, an electrically insulating coating on the outside of said inner shell, a heat insulating lining on the inside of said outer shell, a cement filler in the space between said  
40 shells to unite said covering and lining, and a resistance coil wound around said inner shell and embedded in said filler, said coil consisting of an endless loop wound in a double spiral commencing at substantially  
45 the geometric center of the bottoms of said shells and then extending in a flat spiral over the bottom of the inner shell and then extending in a tubular spiral around the side wall of said inner shell with the ends of  
50 said loop terminating adjacent to the upper edges of said shells, and means for securing the terminals of an electric circuit to said coil ends.

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

HERMAN MIETH.

Witnesses:

ROWLAND BRITTAIN,  
WM. S. SOUTAR.