Sept. 25, 1923. 1,468,841

J. R. SMITH

DOUBLE BOILER

Filed Feb. 23, 1922

Fig. 1.

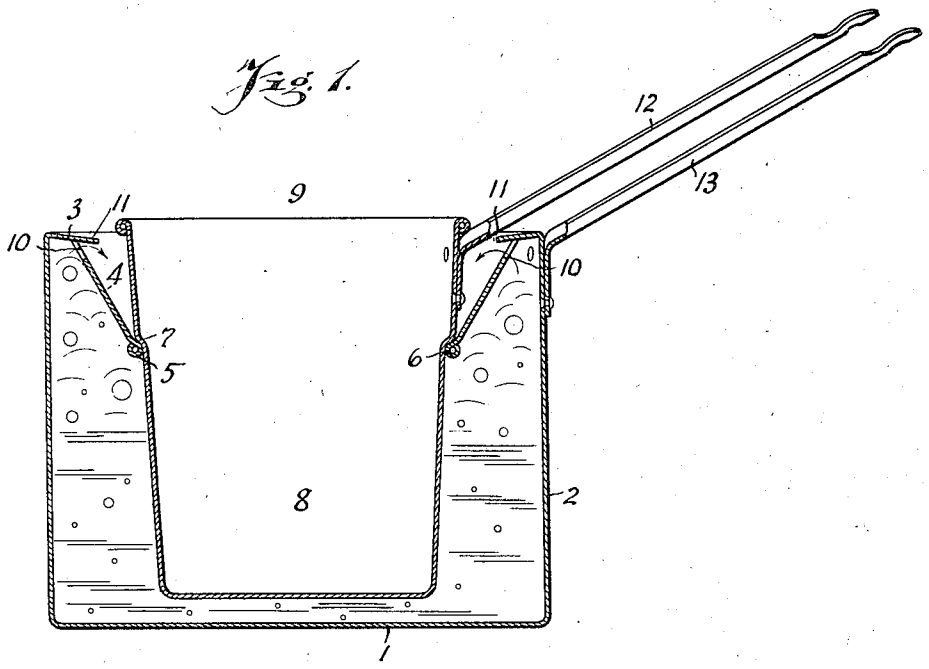
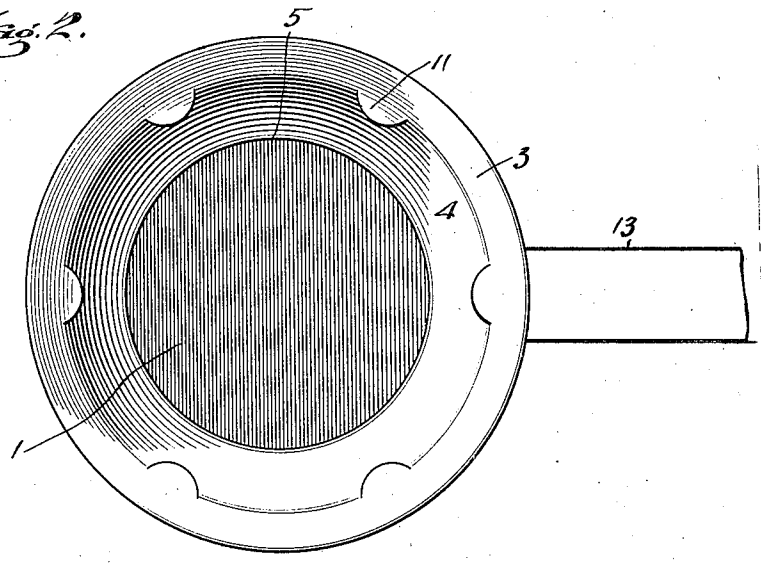


Fig. 2.



WITNESSES

Thos. H. Leibman

Robert S. Hulsizer

INVENTOR

JAMES ROSS SMITH

BY Munn & Co

ATTORNEYS

Patented Sept. 25, 1923. 1,468,841

UNITED STATES PATENT OFFICE.

JAMES ROSS SMITH, OF PALO ALTO, CALIFORNIA.

DOUBLE BOILER.

Application filed February 23, 1922. Serial No. 538,674.

To all whom it may concern:

Be it known that I, JAMES ROSS SMITH, a citizen of Canada, and a resident of Palo Alto, in the county of Santa Clara and State of California, have invented a new and Improved Double Boiler, of which the following is a full, clear, and exact description.

This invention relates to a double boiler, and has for an object the provision of a boiler so constructed that the maximum amount of surface of the inner container is subjected to the direct action of and contact with the boiling water.

Another object resides in the provision of means whereby in the ebullition of the water, due to the steam bubbles, splashing the water out of the boiler is effectively prevented so that the objectionable results thereof are avoided and the original amount of water is kept in contact with the inner boiler much longer than is usually the case.

A further object resides in the provision of means whereby substantially the whole surface of the inner container is subjected to the heat, very little of the inner container projecting above the level of the outer container.

A still further object resides in the provision of a boiler wherein the body of water surrounding the inner container is much more ample than has hitherto been provided.

Another object resides in the provision of means whereby this water, when expanded by heat and steam, bubbles (instead of escaping at the seat of the inner container as in the ordinary boiler), rushes up into the extension chamber, and the steam and excess water escape through apertures there provided, and the hot water and condensed steam, after bathing the upper part of the inner boiler, are again returned to the outer boiler at the seat of the inner one.

A further object resides in the particular construction and arrangement of parts which are hereinafter described and claimed and shown in the accompanying drawings.

The invention is illustrated in the drawings, of which:—

Figure 1 is a vertical section taken through the boiler.

Fig. 2 is a plan view of the boiler with the inner container removed.

The double boiler shown in the drawings comprises an outer container having a broad base 1 and a curved cylindrical side wall 2. Along the upper edge of the wall 2 of the outer container an inwardly extending flange such as 3 is provided which, preferably, is inclined slightly downwardly. This flange portion is not very wide. Within this flange portion 3 a sloping cup-shaped flange 4 is formed and on its inner lower edge is provided with a bead or rolled edge 5 in which any suitable strengthening or reinforcing means, such as wire 6, may be disposed. With this bead 5 a shoulder 7, formed on the side wall of the inner container 8, rests. The dimensions of the inner container with respect to the outer container are such that when supported on the bead 5 the top edge 9 of the inner container extends only slightly above the level of the outer container. The width and depth of the inner container are such that ample space is provided on the sides and at the bottom of the inner container so that plenty of water surrounds the inner container. The upper portion of the outer container between the wall 2 and the downwardly sloping cup-shaped flange 4 forms a sort of extension chamber. The bubbles of steam and expanded water rise into this chamber and, naturally, seek an outlet.

Along the upper edge of the cup-shaped flange or top plate 4 are provided a plurality of apertures 10. These apertures are formed by cutting the metal of the flange and turning up lips 11 above each aperture from the metal thus cut. These lips projecting slightly downwardly over each aperture 10 will tend to deflect any water and steam which may pass through the apertures 10 downwardly along the upper surface of the cup-shaped or sloping plate 4 whereby the water or the condensed steam will get back into the outer container between the inner container 8 and the bead 5. It will be apparent, therefore, that by providing a supporting bead or edge for the inner container considerably below the level of the upper edge of the outer container I am enabled to lower the inner container into the outer vessel or container more than is usually the case, and by providing the apertures 10 above mentioned I permit the surface of the inner container above the bead to be subjected constantly to the action of steam and hot water so that substantially the entire surface of the side and bottom of the inner container is properly and efficiently heated.

The lips 11 act as shields above the aper-

tures to prevent the steam and water from splashing out of the vessel. The flanges 3 and 4 forming the top covering plate of the outer container may, of course, be made of separate material from the metal of which the container is formed, but, preferably, the entire outer container, including the flanges, is made of one piece of material. Of course, each container or vessel is provided with the usual handles 12 and 13.

What I claim is:

1. A double boiler comprising an outer container having a downwardly and inwardly sloping flange on its upper edge, the lower edge of the flange adapted to support an inner container, said flange having a plurality of apertures in its surface to permit the escape of fluid from the outer container to the upper surface of the flange, and means disposed above each aperture to deflect the fluid downwardly to prevent splashing.

2. A double boiler construction comprising an outer container, an inwardly and slightly upwardly sloping narrow flange formed along the upper edge of the container, a second flange portion extending inwardly from the inner edge of the first-mentioned flange and sloping downwardly at a sharp angle for a desired distance, the lower edge of the second flange adapted to support an inner vessel or container, said second flange portion adjacent the edge of the first flange portion having apertures formed therein, and a plurality of lips or metal, struck from the metal of the flange portions, extending over said apertures in a line with the direction of the first-mentioned flange portion to form shields over said openings.

3. A double boiler construction comprising an outer container, an inwardly and slightly downwardly sloping narrow flange formed on its upper edge, a second flange extending inwardly from the inner edge of the first mentioned flange and sloping downwardly sharply a desired distance, the lower edge of the second flange adapted to support an inner vessel or container, and a plurality of lips struck up from near the top of the second flange to form apertures therebeneath to permit fluid to escape from the outer container, said lips acting as shields to deflect the fluid downwardly and prevent splashing.

4. A double boiler construction comprising an outer and inner container, a cover integrally formed on the upper edge of the outer container, said cover sloping downwardly and inwardly, and having a central aperture, the inner edge of the cover being reinforced or rolled, a wire disposed within the rolled edge of the cover to strengthen the same, a shoulder formed on the inner container and adapted to rest on the beaded edge of the cover, and a plurality of lips struck-up from the cover near the upper edge thereof to form apertures in the cover and permit the escape of fluid therethrough, the lips forming plates to deflect the fluid downwardly and prevent splashing.

JAMES ROSS SMITH.