April 29, 1924. 1,492,248

F. HACHMANN

HANDHOLE CAP

Filed Jan. 17, 1921

Fig. 1

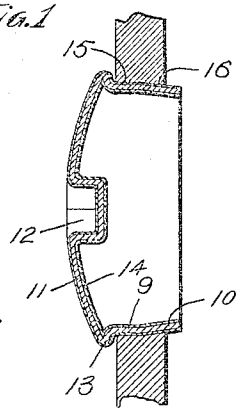


Fig. 2

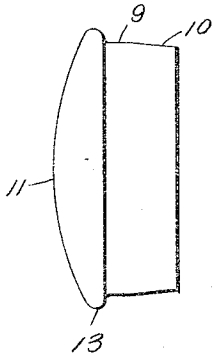


Fig. 3

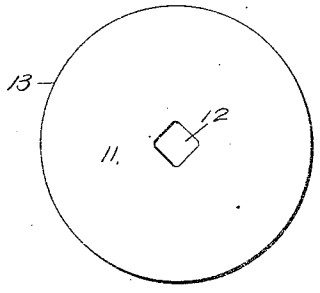


Fig. 4

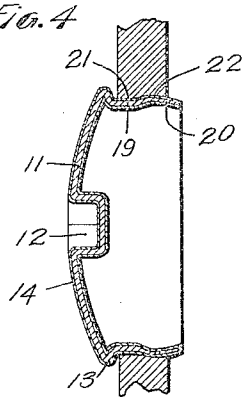


Fig. 5

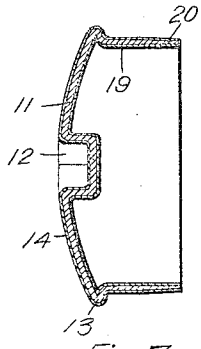


Fig. 8

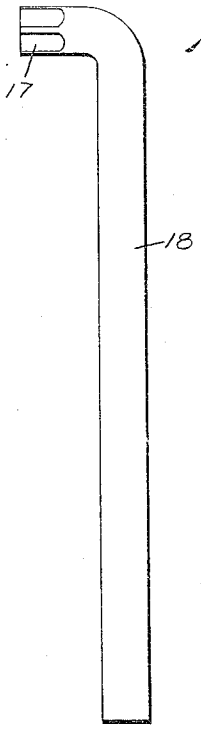


Fig. 6

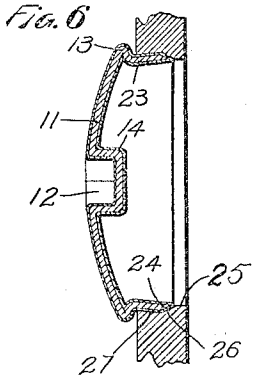
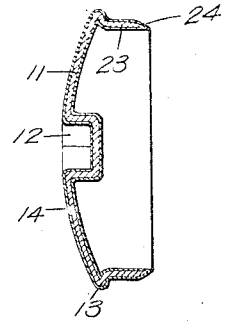


Fig. 7



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UNITED STATES PATENT OFFICE.

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HANDHOLE CAP.

Application filed January 17, 1921. Serial No. 437,755.

To all whom it may concern:

Be it known that I, FREDERICK HACHMANN, a citizen of the United States, and resident of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Handhole Caps, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in hand hole caps, and has for its primary object a hand hole cap for use in boilers, oil still, and the like, and one in which the use of a gasket is entirely eliminated.

A further object is to construct a hand hole cap which does not require the use of a rolling in tool to seat it.

In the drawings:

Fig. 1 is a sectional view of my improved cover, showing the same seated in a boiler sheet;

Fig. 2 is a side elevation of the same;

Fig. 3 is a face view;

Fig. 4 is a vertical cross section of a modified form of hand hole cover, showing the same seated in a boiler sheet;

Fig. 5 is a cross sectional view of the same before being seated;

Fig. 6 is a vertical cross sectional view of a modified form of a hand hole cap, showing the same seated in the boiler sheet;

Fig. 7 is a similar view before being seated; and

Fig. 8 is an elevation of the wrench made use of for seating the cap.

In the construction of my device I employ a cup-shaped member having a cylindrical wall 9. This wall is provided on its edge with the inwardly inclined portion 10. Formed integral with the wall 9 is a dish-shaped portion 11, which is provided in its center with a rectangular depression 12. That portion of the wall 9 adjacent the cover 11 is provided with an outwardly extending bead or flange 13. This much of my device is made by stamping and drawing the same out of a sheet of metal.

After the cover has been formed, it is next given a coating 14. This coating is preferably of zinc because the zinc has the peculiar characteristic of forming a binder between the cap and the edge of the hand hole. Before inserting the cap in the hand hole, the hole is first prepared by means of a suitable tool so that a portion of the periphery will be cylindrical, as indicated by the numeral 15, and a portion tapering, as indicated by the numeral 16, this corresponding to the portions 9 and 10 of the wall of the cap. After the hole has been thus prepared, the cap is seated therein from the inside of the boiler shell, and given a slight tap with a hammer. The rectangular portion 17 of the wrench 18 is then inserted in the rectangular depression 12 and the cap given a partial turn. This partial turning will upset the grain of the zinc and this upsetting of grain will have a tendency to prevent the cap from being pushed out of the hole when accidentally bumped against, although it does not interfere with the removal of the cap when it is necessary to open the hand hole.

The cap is also further firmly seated by the pressure inside the boiler acting against the dish-shaped portion 11, while the bead or flange 13 will prevent the cap being forced entirely through the hole.

In Figs. 4 and 5 I have shown a modified form in which the dish-shaped portion 11 is provided with a bead or flange 13, and formed integral with this flange 13 is a cylindrical wall 19, its front end being tapered, as indicated by the numeral 20. This tapering is done by imparting additional pressure to the wall 19, so that the metal becomes thinner. In the use of this cap a rolling in tool is necessary, since the hole in the boiler sheet is provided with the cylindrical portion 21 in which a groove 22 is formed, while preparing the hole for the reception of the cap. This groove 22 is, however, very slight, being in actual practice only about two-thousandths of an inch deep, although this depth may be varied as found desirable.

This cap is also provided with the rectangular recess 12 and the zinc coating 14. This coating holds the cap after the cap has been removed from the hole and replaced, since the groove 22 is so slight as to allow the material to be sprung out of it and back again, by the use of a little force.

In Figs. 6 and 7 I have shown another modification. This form is also provided with the dish-shaped cover 11, the central recess 12 and the bead or flange 13, and formed integral with the flange is the cylindrical wall 23, which has its outer edge beveled, as at 24. This cap, after being formed,

is given the coating 14 of zinc. The hole in the boiler sheet is provided with the cylindrical portion 25, which is adjacent the outer face of the boiler sheet. Adjacent this cylindrical portion is formed a depression 26, which corresponds to the taper or bevel 24, and adjacent the depression 26 the hole flares inwardly, as indicated by the numeral 27. In seating this cap, it is also necessary to use a tool for the first seating; the subsequent seatings are performed merely by a hammer and the wrench 18. The inclination of the tapered portion is very slight, approximately the same as the depth of the groove 22, so that the cap can be forced out of place and back in again by tapping the same with a hammer.

The coating of zinc, in addition to acting as a retainer for the cap, also prevents its rusting and makes it possible to use the same cap over and over again. It also will permit the cap to be firmly seated in a hole which is slightly irregular, as the zinc will gather in these irregularities and prevent leakage around the edge of the hole.

Having fully described my invention, what I claim is:

A hand hole cap formed from a single sheet of relatively thick material, and provided with a dish-shaped closed end, a cylindrical wall formed integral with said dish-shaped end, an outwardly extending flange circular in cross section formed integral with the wall and end, the material in which the wall is formed being drawn down thinner at its free open end than at the end adjacent the flange, a coating of soft material of uniform thickness incasing said cover, whereby a leak proof joint is obtained, the dish-shaped cover being provided with a means for receiving a wrench whereby the cap may be tightly seated in a crown sheet without the use of a rolling-in tool or expander.

In testimony whereof, I have signed my name to this specification.

FREDERICK HACHMANN.