R. J. HOWDON.

Casting Bottoms on Sheet-Metal Vessels.

No. 137,204. Patented March 25, 1873.

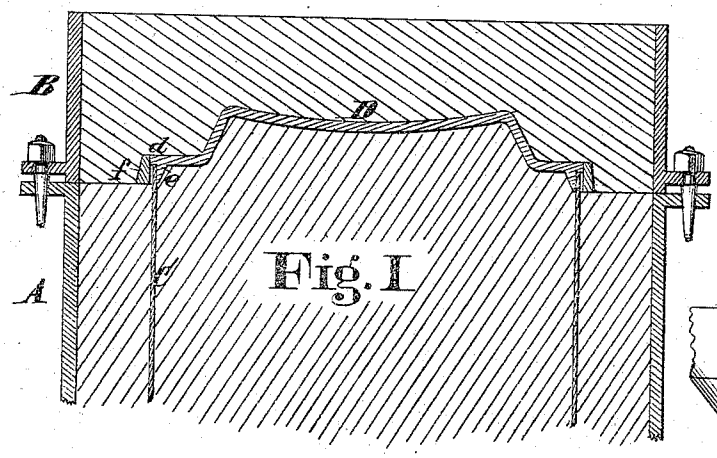
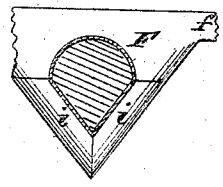


Fig. 1

Fig. 4



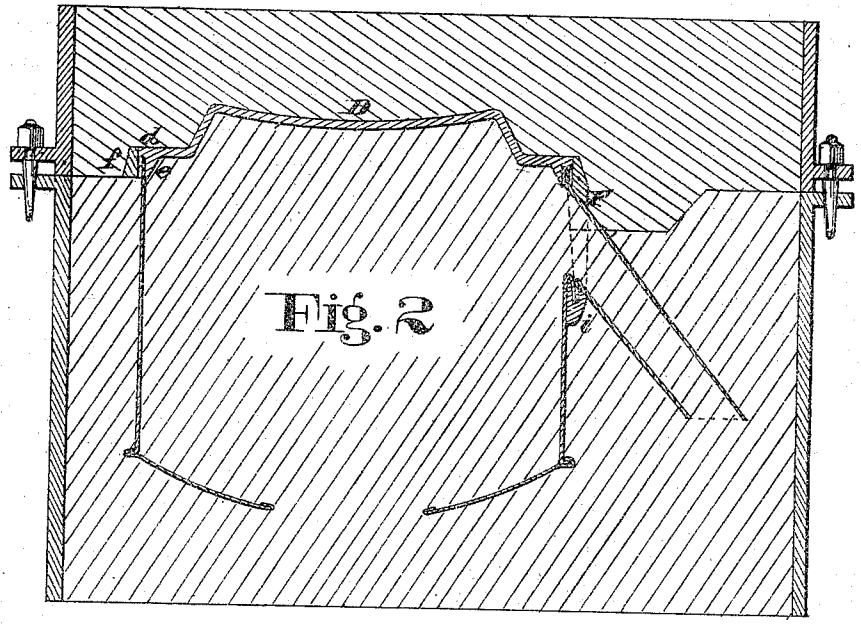


Fig. 2

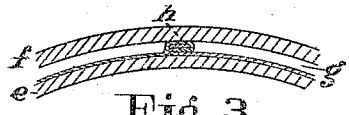


Fig. 3

Attest

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ROBERT J. HOWDON, OF CINCINNATI, OHIO.

IMPROVEMENT IN CASTING BOTTOMS ON SHEET-METAL VESSELS.

Specification forming part of Letters Patent No. **137,204**, dated March 25, 1873.

To all whom it may concern:

Be it known that I, ROBERT J. HOWDON, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Casting Bottoms to Sheet-Metal Vessels, of which the following is a specification:

Nature and Objects of Invention.

My invention relates to the formation of cast-metal bottoms for sheet-metal vessels, when the bottom is cast directly upon the vessel; and consists, first, of a construction of the pattern which enables the sand to be smoothly and entirely cleaned from around the lower edge of the vessel upon which the bottom is to be cast, and insures a thorough and perfect fitting of the casting to the sheet metal inside and out around the projections of the vertical joints, &c.; and, second, of a device for the patterns for tea-kettles and such vessels as have spouts, which enables the smooth casting of the metal bottom so as to embrace the junction of the spout and vessel in one piece.

Description of the Accompanying Drawing.

Figure 1 is a vertical section through a flask and its cope, showing a pattern embodying the first part of my invention in position upon the lower edge of a sheet-metal vessel. Fig. 2 is a vertical section of the same, showing a pattern embodying the second part of my invention as applied to a tea-kettle. Fig. 3 is a plan, showing a vertical joint of the sheet metal in the side of a vessel with a pattern embodying my invention surrounding it. Fig. 4 is an elevation of that portion of the pattern which embodies the second part of my invention.

General Description.

A is the main body of a flask, of which B is the cope. C is the body of a kettle or other sheet-metal vessel placed in the sand, and D is the pattern for the casting, constructed as follows: D is the circular disk, shaped to any preferred form of bottom, whose circumference *d* sits closely upon the lower edge of the sheet metal projecting slightly over it. It has a raised circular flange or rim, *e*, whose outside is perpendicular to its plane at the edge of the vessel, and presses closely against the inner surface of the sheet metal. Surrounding this disk is a ring, *f*, the inner edge of which is fitted to the edge of the disk and surrounds the sheet metal on the outside at a distance regulated by the projection of the disk over the metal. In removing the cope after the formation of the mold this ring *f*, fitting loosely, is either lifted off with the cope or removed separately. The pattern D, whose flange *e* fits tight to the inner surface of the sheet metal, requires to be pried off by any suitable instrument, after which the loose sand around the edge is cleaned away. The projection of the circumference *d* over the edge furnishes a space between the metal and the ring *f*, which space *z*, Fig. 3, is necessary to prevent the interference of the ring with the vertical joints *h* of the metal, but when the loose sand filling this annular space is cleaned away the molten metal will flow closely around said joints in the casting, and the tight fitting of the flange *e* in the inside enables a much neater fitting in that respect of the casting than if the pattern was made in one piece, which, if fitted with equal closeness, would in its removal tend to lift the vessel itself from the mold, and shake and injure the surfaces of the sand. In casting the bottom so as to embrace the base of the spout of a tea-kettle or similar vessel, as in Figs. 2 and 4, the ring *f* is formed with an ear, F, and the cope and flask are arranged correspondingly, as in Fig. 2. This ear F extends as high as the center of the spout's base (Fig. 4) and has a semicircular recess to fit around it. The upper side of the spout is flattened, giving it a triangular or Λ-shaped cross-section, and the ea F is extended around it by means of two straight supplementary strips, *i i'*, which are removed after the ring is lifted off by being drawn out in the direction of their length.

Claims.

1. A pattern for molding and casting bottoms on sheet-metal vessels, consisting of the disk D, flanged rim *d e*, and ring *f*, arranged and acting substantially as and for the purpose specified.

2. In combination with the elements of the first clause, the ear F and supplementary strips *i i'*, substantially as and for the purpose described.

In testimony of which invention I hereunto set my hand.

ROBERT J. HOWDON.

Witnesses:

FRANK MILLWARD,

J. L. WARTMANN.