D. CROSSLEY.

MOLD FOR CERAMIC WARE.

APPLICATION FILED FEB. 19, 1912.

1,030,389.

Patented June 25, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

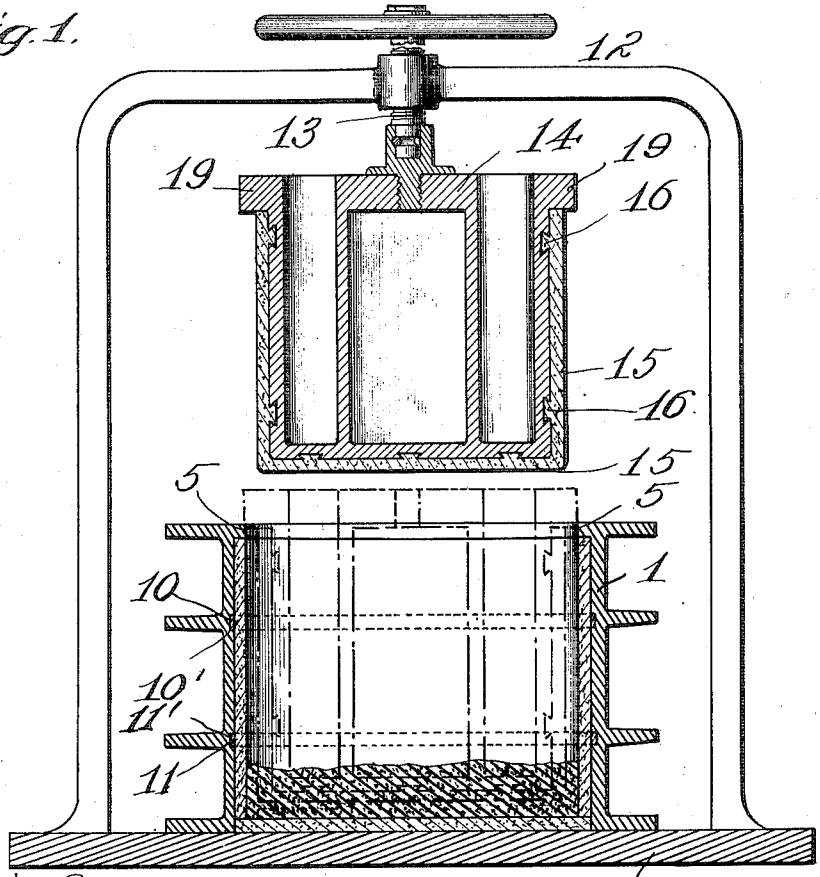
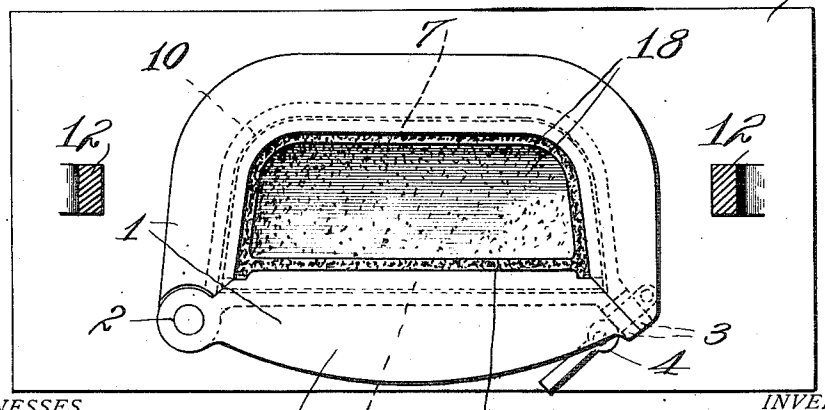


Fig. 2.



WITNESSES

G. A. Fauerochmidt.

Francis A. Reinoldt.

INVENTOR

David Crossley.

By D. L. Reinoldt. Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

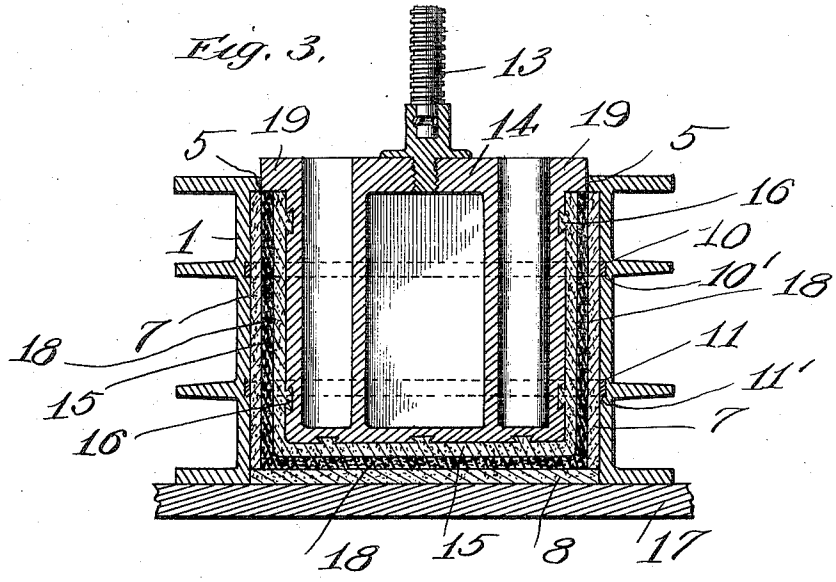


Fig. 4.

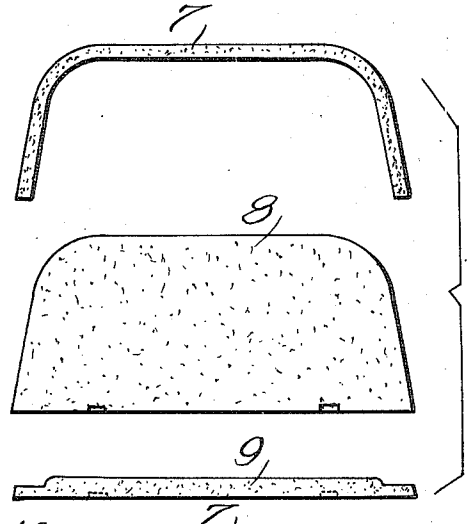
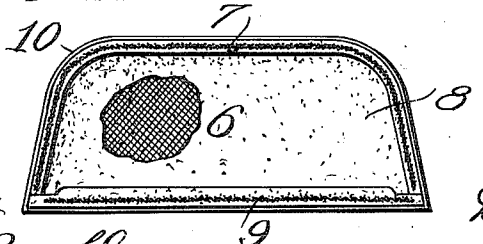


Fig. 5.



WITNESSES

G. A. Pancherschmidt

Francis A. Reinhold

INVENTOR

David Crossley.

By D. F. Reinhold Attorney

UNITED STATES PATENT OFFICE.

DAVID CROSSLEY, OF TRENTON, NEW JERSEY.

MOLD FOR CERAMIC WARE.

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Application filed February 19, 1912. Serial No. 678,718.

To all whom it may concern:

Be it known that I, DAVID CROSSLEY, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Molds for Ceramic Ware; 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.

My invention relates primarily to the ceramic art, has especial reference to means for molding articles of clay, has for its object economy and exactness in the manufacture of earthenware articles, such as closet-tanks, lavatories, sinks, bath tubs and the like made under pressure derived from a screw-press, hydraulic or power press or equivalent means, by the aid of plaster molds; and the invention consists in certain improvements which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification:—Figure 1 represents a vertical longitudinal section partly in elevation of one form of devices embodying my invention, with the plunger out of the mold. Fig. 2 is a top plan view showing the molded article of clay in the mold. Fig. 3 is a vertical longitudinal section showing the plunger in the mold and the clay displaced by pressure to form the article contained in the mold. Fig. 4 shows the parts of the plaster mold in detail, and Fig. 5 is an end view of the same showing the parts assembled.

Reference being had to the drawings and the designating characters thereon, the numeral 1 indicates a preferably cast iron flask or case made in two parts pivotally connected by a hinge 2 and having flanges 3, 3, on the opposite side of the flask adapted to be clamped in position to close the flask by a suitable clamp as 4, or of any other preferred form. The flask is open at both ends, the inwardly extending horizontal flange 5 at the upper end reducing its area to prevent the clay from pushing up the plaster mold and for a purpose hereinafter more fully described, and the inner surface of the flask is machined or finished to present an even surface for the plaster mold to form a continuous bearing thereon to prevent any breakage through or by pressure exerted on the mold.

6 indicates the plaster of Paris mold, to provide a smooth outer surface of the article molded and is of the contour of the exterior of the article. The mold shown for the purpose of illustrating my invention comprises a section 7 forming the body or major portion of the mold, a section 8, forming the bottom of the mold, and a section 9, forming the front of the mold, and said sections are securely held in position by metallic bands 10 and 11, which surround the assembled mold.

12 indicates a conventional press provided with a screw threaded rod 13, which is properly connected to the metallic plunger 14 for applying pressure to the plunger for displacing the clay, and filling the space between the plaster mold and the plunger and forming the molded article under pressure. The plunger is of the contour of the interior of the article molded and is provided with a covering or external wall 15 of plaster of Paris which incloses or surrounds the body of the plunger and also covers the lower end to provide or form a smooth inner surface for the article to be molded. The plaster is secured to the plunger by dove-tails 16, or in any preferred manner. The plunger 14 is provided with a shoulder 19, which in the descent of the former, enters the opening in the upper end of the flask 1, bounded by the laterally extending flange 5.

The flask 1 and the mold 6 rest upon a base, table, or the like 17, while the article 18 is being molded.

The operation is as follows: The flask 1 is opened by swinging the side 20 outward, when the plaster-mold 6 is inserted, with the bands 10, 11 engaging the grooves 10′, 11′, the side 20 is then closed and secured by the clamps 3, 4. Clay in a predetermined quantity is then put in the mold 6 and the plunger 14 forced down slowly into the mold by the screw 13, which gradually displaces the clay in the mold, but there is no pressure exerted on the clay until the shoulder 19 enters the opening in the upper end of the case surrounded by the flange 5, when the

further descent of the plunger produces an equalization of density throughout the molded article and augments the absorption of the liquid in the clay by the porous mold. The plunger 14 is then raised out of the mold, the flask 1 opened and the mold 6 with the molded article contained therein removed from the flask, and slipping of the sections of the mold prevented by the bands 10 and 11 until the mold is placed upon a suitable rack to dry.

While I have shown the application of a conventional screw press to the plunger it is obvious that for molding of large articles, hydraulic or power presses may be employed as required to furnish the necessary pressure.

In the formation of the plaster mold, it is reinforced by embedding therein galvanized steel window screen wire to stiffen the mold, and in forming the article molded, the clay is mixed with grog and the clay is very stiff, and to prevent the clay sticking to the mold, oil is also used in some classes of clay.

It is obvious that the plaster of Paris mold is absorbent, and that other absorbent material may be used.

Having thus fully described my invention, what I claim is—

1. A metallic flask or case, a mold of absorbent material engaging the inner surface of the wall of the flask and having the contour of the exterior of an article to be molded, a plunger adapted to enter said mold and having the contour of the interior of said article, and means for operating said plunger for gradually displacing clay and filling the space between the mold and the plunger with the clay, and for applying pressure to the upper part of the article to produce equalization of density throughout said article.

2. A two part metallic flask or case separably secured together, a sectional plaster mold engaging the interior of the flask and having the contour of the exterior of an article to be molded, a movable plunger having the contour of the interior of said article and adapted to enter said mold, and means for operating said plunger for gradually displacing clay, filling the space between the mold and the plunger with clay and for equalizing the density throughout the article.

3. A metallic flask or case, a sectional mold of absorbent material engaging the inner surface of the wall of the flask and having the contour of the exterior of an article to be molded, bands surrounding and securing the sections of the mold, a plunger having the countour of the interior of said article and adapted to enter the mold, and means for operating said plunger for gradually displacing clay, filling the space between the mold and the plunger with clay and for equalizing the density throughout the article.

4. A metallic flask or case machined or finished on its interior, a mold of plaster engaging the inner surface of the wall of the flask and having the contour of the exterior of an article to be molded, a plunger having the contour of the interior of said article provided with a shoulder at its upper end adapted to enter the end of the flask, and means for applying presssure to said plunger for gradually displacing clay in the mold, filling the space between the mold and the plunger with clay and for equalizing the density throughout the article.

5. A metallic flask or case, a plaster mold engaging the inner surface of the wall of the flask and having the contour of the exterior of an article to be molded, a plunger having the contour of the interior of said article and provided with a porous covering or outer surface, and means for applying pressure to the plunger for displacing clay and filling the space between the mold and the plunger with clay for equalizing the density throughout the article.

6. A metallic flask having a removable side and provided with internal grooves or recesses, a sectional plaster mold closely engaging the interior surface of said flask and provided with bands for securing said sections in position and engaging said recesses, a plunger, and means for forcibly displacing clay and forming an article under pressure.

7. A metallic flask, a mold of plaster within the flask of the contour of the exterior of an article to be molded, a plunger within the mold having the contour of the interior of said article and forming a space between the mold and the plunger of the contour of the article, and means for operating said plunger to displace clay in the mold, fill said space with clay and for completing said article under pressure.

8. A flask having open ends and a removable side, a mold having the contour of the exterior of an article to be molded engaging the inner surface of the wall of the flask, a plunger having the contour of the interior of said article, said mold and said plunger forming a space having the contour of the completed article, and means for operating the plunger to form the clay article and complete it under pressure.

9. A flask or casing having a removable member, a plaster mold engaging the wall of said flask and having the contour of the exterior of an article to be molded, and insertible and removable from said flask, a plunger having the contour of the interior of the article and movable within the mold,

and means for displacing clay and for equalizing its density.

10. A metallic flask, a mold of reinforced absorbent material within said flask and having the contour of the exterior of an article to be molded, a plunger within said mold having the contour of the interior of said article and provided with an absorbent covering, and means for distributing the clay and for equalizing its density.

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

DAVID CROSSLEY.

Witnesses:

FRANK M. TOMER,

WM. J. HARRIS.