E. H. LAWRENCE AND R. E. CRANE.

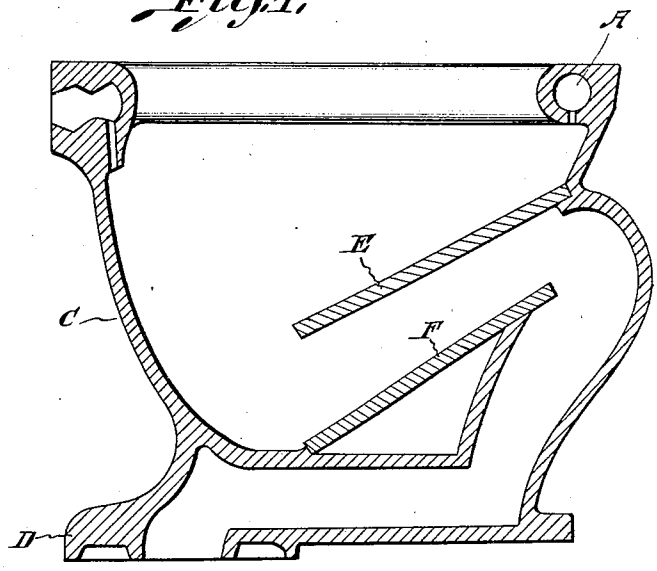
METHOD OF MAKING SANITARY EARTHENWARE.

APPLICATION FILED AUG. 5, 1919.

1,337,663. Patented Apr. 20, 1920.

2 SHEETS—SHEET 1.

Fig. 1.



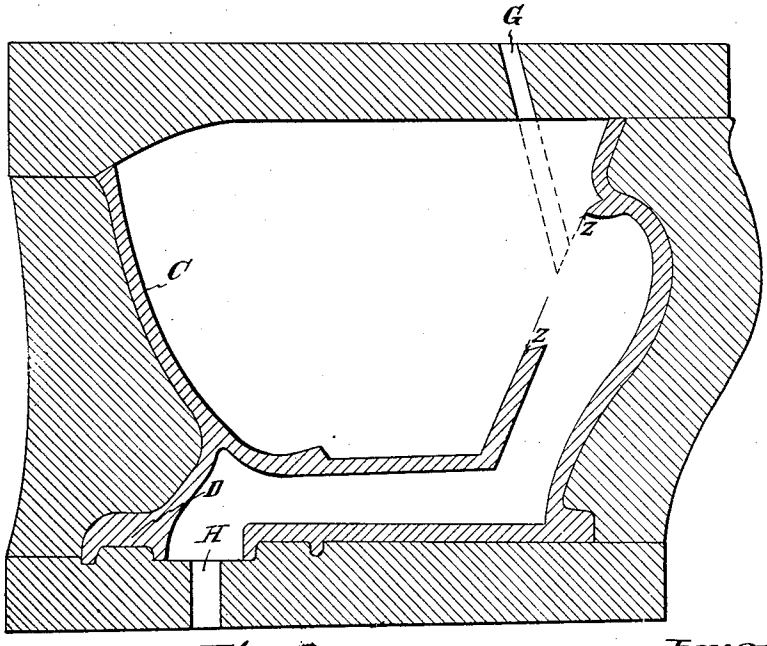


Fig. 2.

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Fig. 3.

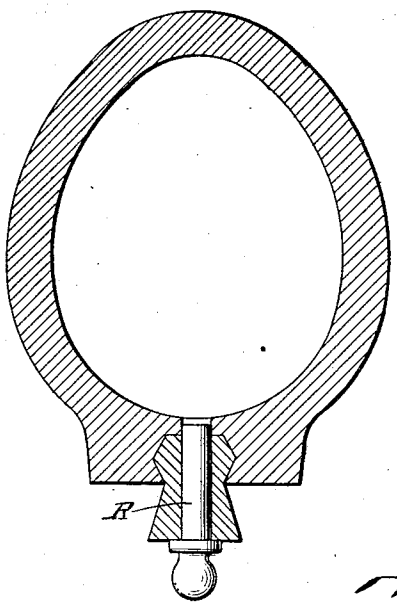
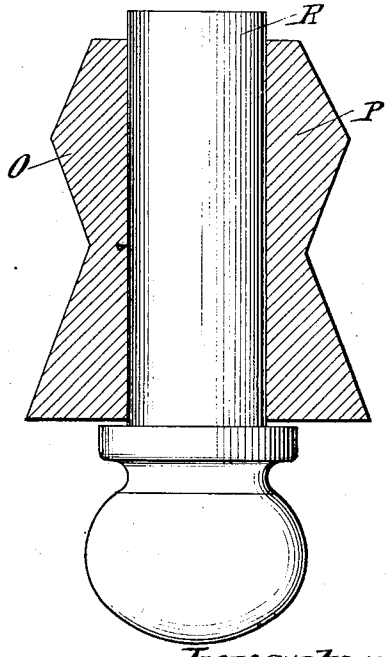


Fig. 4.



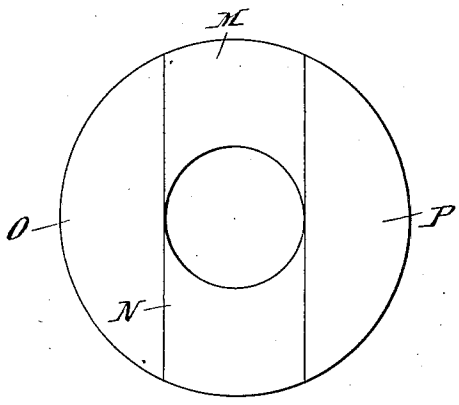


Fig. 5.

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING SANITARY EARTHENWARE.

1,337,663. Specification of Letters Patent. Patented Apr. 20, 1920.

Application filed August 5, 1919. Serial No. 315,480.

To all whom it may concern:

Be it known that we, EDWARD H. LAWRENCE and RAYMOND E. CRANE, citizens of the United States, residing at Cameron, West Virginia, and Wilmette, Illinois, in the counties of Marshall and Cook, respectively, have invented certain new and useful Improvements in Methods of Making Sanitary Earthenware, of which the following is a specification.

Our invention relates to that method of manufacturing water closet bowls and similar articles of earthenware which consists in reducing the plastic clay to a liquid by means of the addition of soda or other similar materials and pouring the clay into a plaster mold, which plaster absorbs a large part of the water from the liquid which has the effect of causing the clay to become dense adjacent to the plaster. As this dense thickness of clay gradually becomes thick on account of the absorption of the mold the closet bowl is gradually formed.

The object of our invention is to simplify the manufacture of a fixture of this type so that the amount of labor will be reduced and also to eliminate some of the usual difficulties caused by so many of the inaccurate methods now in use.

We accomplish these objects by the method shown in the accompanying drawings in which Figure 1 illustrates a vertical sectional view of a water closet made by the method described herein. Fig. 2 illustrates a vertical sectional view of a mold containing the body of the closet as shown in Fig. 1, together with the core for this body portion in place. Fig. 3 shows a rim mold for making the water supply rim and illustrates in detail the method of removing the core which forms the inlet opening or rim supply which is adapted to receive the usual metal fitting commonly used for this purpose. Fig. 4 illustrates an enlarged view of a portion of Fig. 3. Fig. 5 illustrates an end view of the core shown in Fig. 4 after the central plug is removed.

Similar letters refer to similar parts throughout the several views.

The main parts of the closet bowl made by the mold illustrated are the hollow rim A which is supplied from the inlet B, the main body mold C which is integrally and simultaneously formed with its base or foot D. The upper partition E which is illustrated by lines and also partition F also shown by line, are made with separate molds by the usual method and stuck into the main body portion C after it has partly dried. It will be readily understood by those skilled in the art that the absorption of clay will take place wherever a suitable porous plaster surface comes in contact with the liquid clay, the crust thus forming against this porous substance forming the article.

The place of this formation is illustrated in Fig. 2. In Fig. 2 it will be noted that there is a portion adjacent the core which is denoted by the letters Z—Z which shows no absorption and consequently no thickness of material at this point. We have succeeded in accomplishing this effect by thoroughly covering the plaster surfaces at Z—Z with shellac so that the plaster is rendered nonporous and consequently the usual absorption and forming of a clay thickness at this point is not accomplished. We find this method of making the opening at this point a much more satisfactory way than the ordinary way of forming a clay wall at Z—Z and later cutting it out by hand. The inaccuracy usually found in such hand cutting in many instances causes a very objectionable variation which often hinders the proper operation of the fixture. Passages G and H are the supply and discharge openings for the liquid slip.

Fig. 3 illustrates the method of inserting a five part plug which forms a core around which the liquid clay is poured to form the inlet opening. It is important that this inlet opening be substantially uniform in size and shape for the reason that the standard size brass inlet fitting or spud is inserted in this opening and a great deal of trouble has been caused in cast closets for the reason that the usual method of hand cutting of these spud openings has resulted in unevenness and variations in size so that the fittings have pulled out when subjected to unusual stresses and in many cases serious leakage and damage has occurred.

In inserting the five part core shown in Figs. 4 and 5 into the rim mold illustrated in Fig. 3, the four parts M—N—O and P are placed in the rim opening in their proper location in respect to each other and the plug R which serves as a key is inserted in

the center opening, thus effectually locking them into place until plug R is withdrawn. When inserting these five part plugs, first the parts O and P are placed in this hole and the parts M and N are placed between them in such manner as to leave the circular opening for the plug R. After the liquid clay has been poured and hardened the plug R will be withdrawn and the four remaining parts of the plug removed.

We realize that the process of manufacturing such fixtures as closet bowls by the process of pouring liquid slip is not new but we believe the improvements shown in the molds and cores which constitute a part of this invention are new and a substantial advance in the art of manufacturing these fixtures.

What we claim therein as new and desire to secure by Letters Patent is the following.

1. A mold for manufacturing a closet bowl or other similar fixture comprising the outside mold and a core, both mold and core being made of an absorbent material a portion of said core being covered with a non-absorbent material for the purpose of rendering it impervious to the liquid clay which comes in contact with said impervious portion so that a crust of clay will not be formed at the point adjacent said impervious surface.

2. A mold for the body portion of a closet bowl with the upper and lower walls of the up-leg of the trap omitted, a plastic core for determining the inside shape of said closet bowl, the portion of said mold adjacent to where the down leg of the trap begins being covered with a substantially impervious surface so that an opening will be naturally formed at this point when the mold is filled.

3. A mold comprising a surface of plaster or other absorbent material which surface is adapted to receive and shape a liquid body; a portion of said receiving surface being covered with shellac or other non-absorbent material to prevent absorption at said covered part, substantially as described.

In testimony whereof we affix our signatures in presence of witnesses.

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RAYMOND E. CRANE.

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