Dec. 3, 1929. A. F. HOTTINGER 1,737,847

METHOD FOR MAKING TERRA COTTA ARTICLES

Filed Oct. 3, 1927

Fig. 1

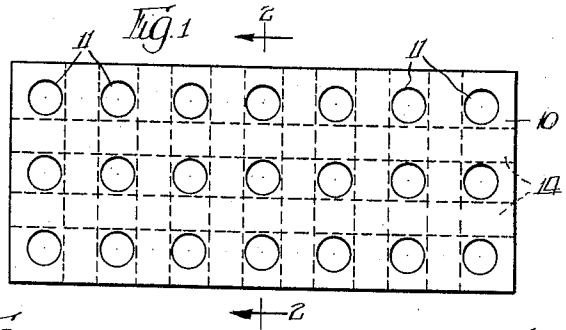


Fig. 2

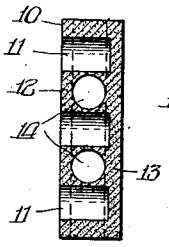


Fig. 3

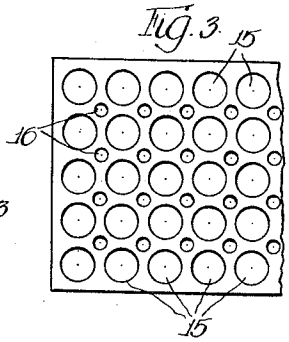


Fig. 6

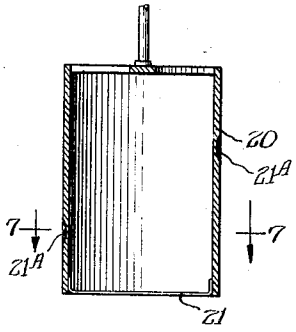


Fig. 5

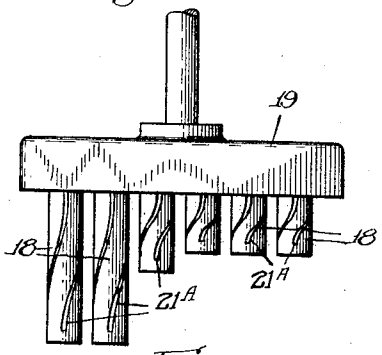


Fig. 7A

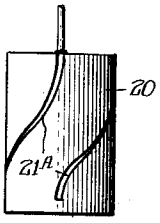


Fig. 7

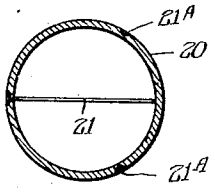


Fig. 8

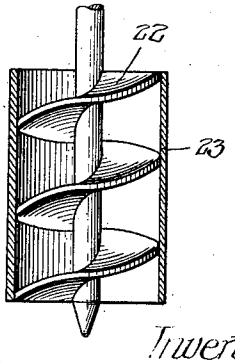
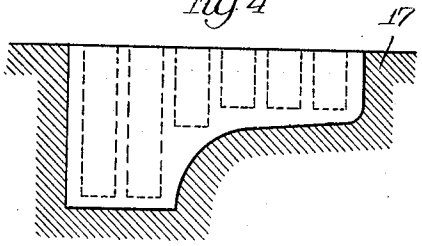


Fig. 4



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UNITED STATES PATENT OFFICE

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METHOD FOR MAKING TERRA-COTTA ARTICLES

Application filed October 3, 1927. Serial No. 223,542.

The present invention relates to methods for making terra cotta articles.

Many methods have been proposed for making terra cotta articles, but, in so far as applicant is informed, all of the methods which have been given a practical demonstration have left much to be desired. The ordinary practice now is to provide a mold, lining the face and the sides of said mold with layers of clay, and then put in cross ribs. Though this method is used in practice, it is almost impossible to get a perfect bond of the material. Another method which has been employed is to extrude the clay, but this method has decided practical limitations.

An object of the present invention is to provide a method for forming terra cotta articles whereby better bonding and better continuity of material is provided.

A further object is to provide a method for producing terra cotta articles which will provide greater strength per unit of weight than has heretofore been possible.

A further object is to provide a method of producing terra cotta articles which will leave the material in better condition for burning than has heretofore been the case, and which will avoid warping.

A further object is to provide a method of producing terra cotta articles in which drying is more readily accomplished than has been the case with prior methods.

A further object is to provide an improved terra cotta article.

Other and further objects will appear as the description proceeds.

Referring to the drawings—

Figure 1 shows a terra cotta article looking at it from the rear side and showing holes extending from said rear side and longitudinal holes spaced between said first mentioned holes;

Figure 2 is a section taken along the plane indicated by the arrows 2—2 of Figure 1;

Figure 3 is a rear view of a slightly modified terra cotta article;

Figure 4 is a side view of a terra cotta article having an irergular front surface;

Figure 5 is a view illustrating a tool which may be used in forming an article such as shown in Figure 4;

Figure 6 is a sectional view illustrating a clay removing tool which may be used in the practice of the present invention;

Figure 7 is a sectional view taken along the plane indicated by the arrows 7—7 of Figure 6;

Figure 7ª is a view in elevation of the tool shown in Figures 6 and 7, illustrating means for insuring the ready removal of said tool from the clay; and

Figure 8 is a modified form of clay removing tool.

Referring first to Figures 1 and 2, a terra cotta article is indicated by the numeral 10, which article is provided with holes 11—11, which holes extend from the rear wall 12 of said article to a region spaced from the front wall 13 of said article, whereby said front wall 13 is imperforate. Said article 10 is provided with the longitudinally extending holes 14, which holes 14—14 are disposed intermediate of rows of said holes 11—11.

Referring now to Figure 3, a terra cotta article is disclosed in which the holes 15—15 extending from the rear wall thereof are symmetrically disposed relative to one another. In a practical embodiment of the present invention said holes 15—15 are about two inches in diameter. In the spaces defined by sets of four of said relatively large holes 15—15 are smaller holes 16—16, which in said practical embodiment are about ¾ of an inch in diameter.

Referring to Figure 4, it will be noted that the terra cotta article having the irregular front face is provided with holes extending from the back wall thereof, which holes are of varying depths, depending upon the dimensions between said back wall and the various portions of said irregular front face.

It is an important feature of the present invention that the holes in the terra cotta articles are provided by removing the clay; said clay being bored out, cut out or punched out to provide said holes. The terra cotta article may be formed in a mold 17, and clay of uniform texture may be filled into said mold, after which the holes referred to are provided

by removing the clay. Holes extending from the rear of the terra cotta article may be provided by gangs of clay removing tools. Figure 5 illustrates in side elevation a gang of tools suitable for providing holes in the terra cotta article shown in Figure 4. The clay removing tools are indicated by the numerals 18—18, said tools being adjustably mounted within the head 19, which may be supported in any preferred manner.

Figures 6, 7 and 7ª illustrate one form of tool which may be used, said tool comprising a cylinder 20 having a wire 21 diametrically disposed across the lower end thereof. It will be clear that the cylinder 20 may be inserted into the clay and then given a half turn. Said half turn will result in the cutting of a column of clay which will be removed with the cylinder 20. In order to prevent the cylinder 20 from becoming air locked within the clay, the exterior of said cylinder is provided with a plurality of uniformly spaced grooves 21A—21A which permit access of air between said cylinder 20 and the clay. Said grooves 21A—21A are preferably slanting from top to near the bottom of the tool or they may be arranged spirally. The grooves 21A—21A should stop a little short of the lower cutting edge of the cylinder in order that said lower cutting edge may be intact.

Figure 8 represents another form of clay removing tool comprising an auger 22 disposed within the cylinder 23.

By the improved method of forming the subject matter of the present invention, uniformity of material is insured, said uniformity not being disturbed after having been first determined, and perfect bonding is therefore provided. According to the present invention, greater strength is had, the material having arch construction whereby strength and weight may be coordinated. The matter of burning is greatly simplified, inasmuch as the sections can be much thinner than has been the case heretofore. With this thinner material it is comparatively simple to get uniform treatment. Better and straighter ware is provided, for the reason that the perforations are small and numerous, giving more support to the surface of the material and avoiding the present tendency of terra cotta ware to sink between the ribs. The matter of drying is simplified by the present invention, due to the uniform thin structure. Inasmuch as no filling is required, strength is greatly increased. By reason of the provision of a large number of small dead air spaces, heat and sound insulation are improved over prior practice. The present invention has the further advantage that it provides an article which is easier to refire than has been the case heretofore, this advantage accruing from the fact that the method produces relatively thin sections. A further advantage accrues from the fact that the terra cotta article as illustrated in Figures 3 and 4, is closed on all sides but one, thereby giving a good hold for mortar and saving cost of backing material.

The present invention is to be distinguished particularly from methods of producing ware by extruding clay from machines. The present invention provides ware in which the perforations all have bottoms, leaving each face except one of the terra cotta article imperforate.

Many modifications will occur to those skilled in the art. It is intended to cove all such modifications that fall within the scope of the appended claims.

What is claimed is:—

1. The method of making a terra cotta article which consists of applying plastic material to a mold and removing portions of said plastic material to provide holes by simultaneously pressing open-ended hollow cylinders axially into said material while said material is in said mold, admitting air to the exterior of said cylinders to prevent the locking of said cylinders within said material, severing from the remainder of said material the columns of said material within said cylinders, and withdrawing said cylinders from said mold with portions of said material therein.

2. The method of making a terra cotta article which consists of applying plastic material to a mold and removing portions of said plastic material to provide holes, which holes have their inner extremities closed by said material by simultaneously pressing open-ended hollow cylinders axially into said material while said material is in said mold, admitting air to the exterior of said cylinders to prevent the locking of said cylinders within said material, severing from the remainder of said material the columns of said material within said cylinders, and withdrawing said cylinders from said mold with portions of said material therein.

3. The method of forming a terra cotta article having a front face of irregular contour which consists in filling a mold with plastic material and simultaneously pressing open-ended hollow cylinders axially into said material on the side opposite to said irregular face while said material is in said mold, admitting air to the exterior of said cylinders to prevent the locking of said cylinders within said material, severing from the remainder of said material the columns of said material within said cylinders, and withdrawing said cylinders from said mold with said columns of said material therein, said tools being positioned to approach said face without reaching said face.

Signed at Chicago, Illinois, this 29th day of September, 1927.

ADOLPH F. HOTTINGER.