W. E. DENNISON.

PROCESS OF MANUFACTURING ARCHITECTURAL TERRA COTTA IN COLORS FOR BUILDING PURPOSES AND THE PRODUCT OF SUCH PROCESS.

APPLICATION FILED APR. 18, 1916.

1,228,538. Patented June 5, 1917.

Fig. 1.

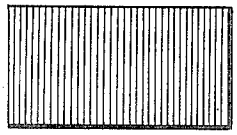


Fig. 2.

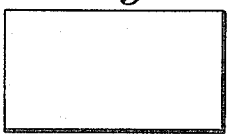


Fig. 3.

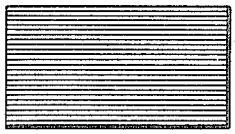


Fig. 4.

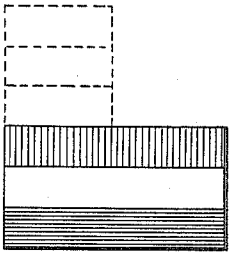


Fig. 5.



Fig. 7.

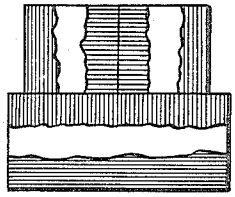


Fig. 6.

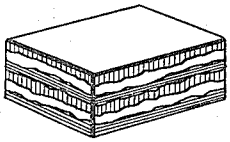


Fig. 8.

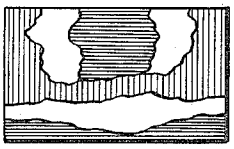


Fig. 9.

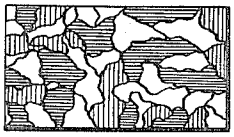


Fig. 12.

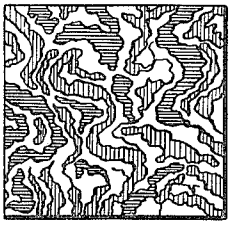


Fig. 10.



Fig. 11.

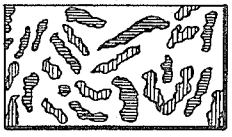


Fig. 13.

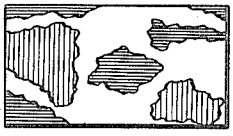


Fig. 14.

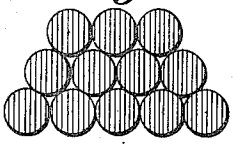


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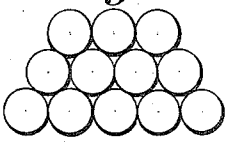


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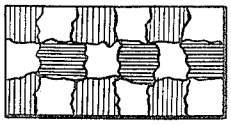


Fig. 18.

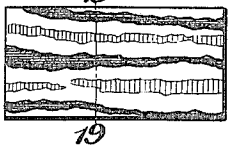


Fig. 16.

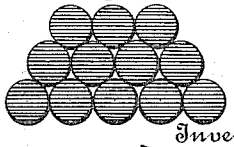


Fig. 19.



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PROCESS OF MANUFACTURING ARCHITECTURAL TERRA-COTTA IN COLORS FOR BUILDING PURPOSES AND THE PRODUCT OF SUCH PROCESS.

1,228,538. Specification of Letters Patent. Patented June 5, 1917.

Application filed April 18, 1916. Serial No. 92,038.

To all whom it may concern:

Be it known that I, WALTER E. DENNISON, a citizen of the United States, and a resident of the city of Alameda, county of Alameda, and State of California, have made a new and useful Invention, to wit, a Process of Manufacturing Architectural Terra-Cotta in Colors for Building Purposes and the Product of Such Process; and I do hereby declare the following to be a full, clear, concise, and exact description thereof.

The object of my invention is to produce architectural terra cotta of any desired shape and contour to be used for building purposes and having a general resemblance in appearance to travertin, onyx, lava, variegated marble, or other geological formations, whether stratified, foliated, convoluted, undulated, conglomerated, or mottled, this application being a continuation of my prior application Ser. No. 35,082, filed June 19, 1915, as to all matter which is common to the two applications. In this specification I use the generic term terra-cotta building blocks as identifying the product produced by my process, it being understood that such product may be of any desired size, shape, and contour.

Referring to the drawings:

Figures 1, 2 and 3 are views of slabs of differently colored clays in a plastic state.

Fig. 4 is a view of a stratified or laminated mass of differently colored slabs of clay shown in Figs. 1, 2 and 3.

Fig. 5 is a view of said mass after compression.

Fig. 6 is a view illustrating how such mass may be worked in one way in a desirable stratified design.

Figs. 7 and 8 are views illustrating how the mass may be worked in another way into another desirable stratified design.

Figs. 9, 10 and 11 are views illustrating how the mass may be worked in still another way into a stratified mottled design.

Fig. 12 is a view illustrating how the mass may be worked in still another way into a stratified foliated design.

Fig. 13 is a view illustrating a conglomerate mass of differently colored clays after being worked into a desirable design.

Figs. 14, 15 and 16 are views of balls or spheres of differently colored clays.

Fig. 17 is a view of a mass of clay worked up from said balls or spheres after compression into a desirable design.

Fig. 18 is a view of a block made of differently colored clays having different shrinkage or refractoriness in fire, and

Fig. 19 is a view in cross-section on the line 19—19, Fig. 18.

There are several specific ways of carrying out my process, but all of one generic character. The simplest way is as follows:

I select several differently colored clays and put them into separate plastic masses and then break off chunks, lumps, or handfuls of these differently colored clays either alternately or at random and dash them with considerable force into a mold of architectural form, so that they will tenaciously adhere to the interior walls of said mold; when the interior of the mold is thus completely incrusted with the plastic clays, I press, pound, knead, or work the plastic mass into compactness against the walls of the mold to cause the clay to penetrate and fill every depression, indentation, and cavity of the mold; then I strengthen the hollow back of the plastic mass thus molded with crossbars of clay, or fill the hollow with plastic clay, in the usual way of making architectural terra-cotta; after the clay is thus molded into the desired product and sufficiently dried out by evaporation of moisture, the molded product is removed from the mold and then burnt in a kiln in the usual way in manufacturing architectural terra-cotta. The colorings and markings of the finished product thus produced not only appear on the surface, but extend through the mass, and give to the said product a conglomerate or mottled appearance of an attractive character.

The clays so operated on may be of different, or they may be tempered so as to have the same, shrinkage or refractoriness in fire. In the first case a corded or beaded surface of the finished product will be produced by the vitrification of some of the clays to a greater degree than the adjoining clays, which result is one never heretofore produced in the manufacture of terra-cotta. In case the different clays are of the same shrinkage or refractoriness in fire, or, if different, are so tempered during the treatment as to be the same, then the said corded or beaded surface of the finished product

will not be produced, but a smooth surface will be produced.

A modification of the above described process is to take chunks, or lumps, or balls, or fragments of the several initial plastic masses and superimpose them upon one another, or promiscuously assemble and mix them together, and by compression produce a new composite plastic mass composed of all the differently colored clays, which mass, when bisected, will show all the colors of the component parts in a conglomerate structure; I then proceed to break off chunks, lumps, or handfuls of the composite mass and carry out the molding, drying, and burning operations already described.

In case I desire to produce architectural terra-cotta building blocks having a more orderly structural arrangement and continuity of colors than is possible by the methods already described, I form separate masses of differently colored clays in a plastic state and then slice them into slabs or layers, as shown in Figs. 1, 2 and 3, and superimpose these slabs or layers one upon the other in alternation so as to form a mass or block of differently colored stratified clays, as shown in Fig. 4; said stratified mass is then compressed into coherency, as shown in Fig. 6, after which I cut slices from the stratified mass and lay these slices against the sides and bottom of the mold and then press, pound, or work them into every depression, indentation and cavity of the mold, taking care to produce as little disturbance as possible of the arrangement of structure and continuity of colors, and then the subsequent steps of drying and burning, heretofore described, are completed, and the finished product is produced.

A further carrying forward of my process is as follows: After forming a composite stratified mass or block of differently colored clays and compressing them into coherency as last described, I then bisect the mass in a vertical plane through the center into two pieces, approximately halves, and superimpose one of the bisected halves on the other half with the stratifications or markings of the two halves showing the same trend; I then compress the two superimposed halves into coherency, thereby reducing the thickness of the strata and obtaining an undulating or wavy effect; this process of cutting, superimposing and compressing may be further continued if desired, but once is generally sufficient; I then cut the final mass into slices and press them into the mold in the way already described and finish by drying and burning the molded product in a kiln as already described.

A modification of the last described process is as follows: Instead of superimposing one of the bisected halves of the composite mass or block upon the other half in such manner as to show on the cut faces the same trend of stratifications and markings, I superimpose one of the bisected halves upon the other half with the stratifications and markings of the two halves showing a different trend—one horizontal and the other vertical; or I may take one of the bisected halves and bisect it into two halves and then up-end or superimpose these two last named halves side by side on the other half of the original block, as shown in Fig. 7, whereby the stratified arrangement of the two original halves is in horizontal position as to the lower half and vertical position as to the upper half. I then compress the new mass into coherency, whereby it loses its former stratified effect of undulating lines and takes on a foliated or convoluted appearance similar to the grain of burls in various woods when sliced with or across the grain according to the effect desired, as shown in Figs. 7 and 8 of the drawings.

If I wish to obtain the variegated effect of marble or onyx, I add more bisections and superimposings of the mass of stratified vari-colored plastic clays with which I started, and the molding, drying, and kiln-burning operations, as already described, complete the process.

Instead of using clays of different natural colors I may use clays of the same color and paint or color the surfaces of the slices or layers before superimposing and compressing in order to obtain the vari-colored effect desired. I may also apply glazes to the surfaces of the article and when the article is burned in a kiln, a vitrified effect is obtained. In carrying out this last step, I take the molded article from the mold, after it has been dried out by evaporation, and apply to the surface liquid glazes of any desired color, and then the article so coated is placed in the kiln and burned in the usual manner. The effect would be to produce on the finished article a surface of vitrified or glazed form, which is not only highly attractive in appearance but sheds dust and is impervious to moisture, and lengthens the life of the article.

I am aware that it has heretofore been proposed to manufacture ornamental pottery-ware, such as vases and the like, by the use of differently colored clays; but such use was designed to produce articles showing predetermined geometric patterns or markings and solely for ornamental purposes. My process is designed solely to produce architectural terra cotta for building purposes having the general appearance of travertin, onyx, lava, variegated marble, or other geological formations and does not and cannot produce predetermined geometric patterns or markings, but only patterns and markings of irregular and random character as found in the natural articles which I

imitate, and no two specimens of my completed product will have the same definition or arrangement of coloring and marking, although every specimen will have the coloring and marking of, and will typify, the mass from which made.

It is to be noted that in my process the compression of the differently colored clays is irregular, whereby distortion into veins following irregular courses resembling those of natural geological formations, as described, is effected.

I claim:

1. The process of making architectural terra-cotta building blocks resembling geological formations which consists in dashing with considerable force into a mold, chunks, lumps, or handfuls of differently colored clays while in a plastic condition, pressing the plastic mass into the indentations, depressions and cavities of the mold, allowing the molded mass to dry out by evaporation, removing the molded article from the mold, and burning it in a kiln.

2. The process of making architectural terra-cotta building blocks resembling geological formations which consists in assembling together promiscuously in mass differently colored clays in plastic condition, compressing the mass into coherency, detaching from the mass chunks, lumps, or handfuls of the material and dashing them with considerable force into a mold, pressing the plastic material into the indentations, depressions and cavities of the mold, allowing the molded mass to dry out by evaporation, removing the molded article from the mold and burning it in a kiln.

3. The process of making architectural terra-cotta building blocks which comprises assembling together differently colored layers of clays in plastic condition and compressing the layers into molds irregularly to distort them into veins that follow irregular courses resembling those of natural geological formations, allowing the molded mass to dry out by evaporation, removing the molded article from the mold, and burning it in a kiln.

4. An architectural terra-cotta building block comprised of layers of differently colored clays compressed together irregularly while in plastic condition so as to produce veins or tracings that follow random and irregular courses throughout and resemble the veins of natural geological formations such as travertin, onyx, lava, or variegated marble, said clays being molded to shape while in a plastic condition, then dried out and burned in a kiln.

5. The process of making architectural terra cotta building blocks resembling geological formations, which consists in assembling together promiscuously in mass different colored clays having different shrinkage or refractoriness, compressing the mass together into the desired form in a mold while in a plastic condition, allowing the molded mass to dry out by evaporation, removing the molded article from the mold, and burning it in a kiln.

6. An architectural terra-cotta building block composed of differently colored clays having different shrinkage or refractoriness in fire, compressed together and shaped into the desired form in a mold while in plastic condition, then dried out and burned in a kiln, and showing on its surface a corded or beaded appearance.

7. The process of making architectural terra cotta building blocks resembling geological formations and having a vitrified or glazed appearance on the surface, which consists in assembling together promiscuously differently colored clays in plastic condition so as to produce variegated color effects resembling natural geological formations, compressing them into coherency in a mold, allowing the molded mass to dry out by evaporation, applying to the surface of the molded mass a liquid glaze and finally burning the same in a kiln.

8. The process of making architectural terra cotta building blocks resembling geological formations and having a vitrified or glazed surface which consists in superimposing one upon another layers of differently colored clays in plastic condition, compressing them into a coherent mass, cutting slices from the mass and applying said slices to the interior walls of a mold and compressing them into the indentations and cavities of the walls of the mold, allowing the molded mass to dry out by evaporation, applying to the surface of the molded article a liquid glaze, and finally burning the same in a kiln.

9. An architectural terra cotta building block having a vitrified or glazed surface composed of differently colored clays assembled promiscuously so as to produce variegated color effects resembling natural geological formations and compressed into coherency and shaped in the desired form in a mold while in plastic condition, then dried out and having a liquid glaze applied thereto, and finally burned in a kiln.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 11th day of April 1916.

WALTER E. DENNISON.

In presence of—
JOHN R. OHER.