

A. CAMPBELL.
Pottery Shapes for Building-Blocks to resemble Stone.

No. 219,343.

Patented Sept. 9, 1879.

FIG. 1.

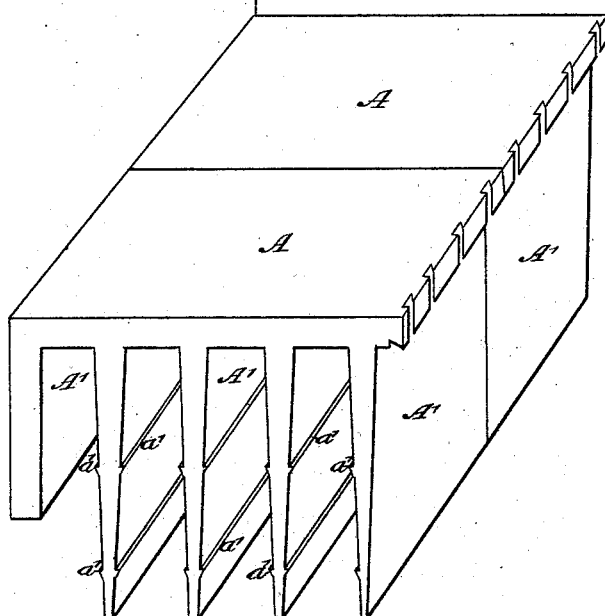


FIG. 3.

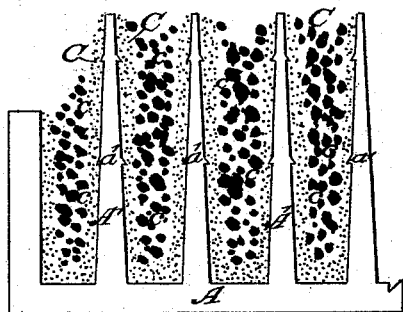
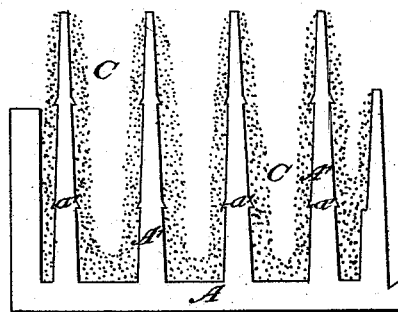


FIG. 2.



— WITNESSES: —

E. B. Bolton
Charles C. Stetson

— INVENTOR: —

Augustine Campbell
by his attorney
Thomas L. Stetson

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FIG. 4.

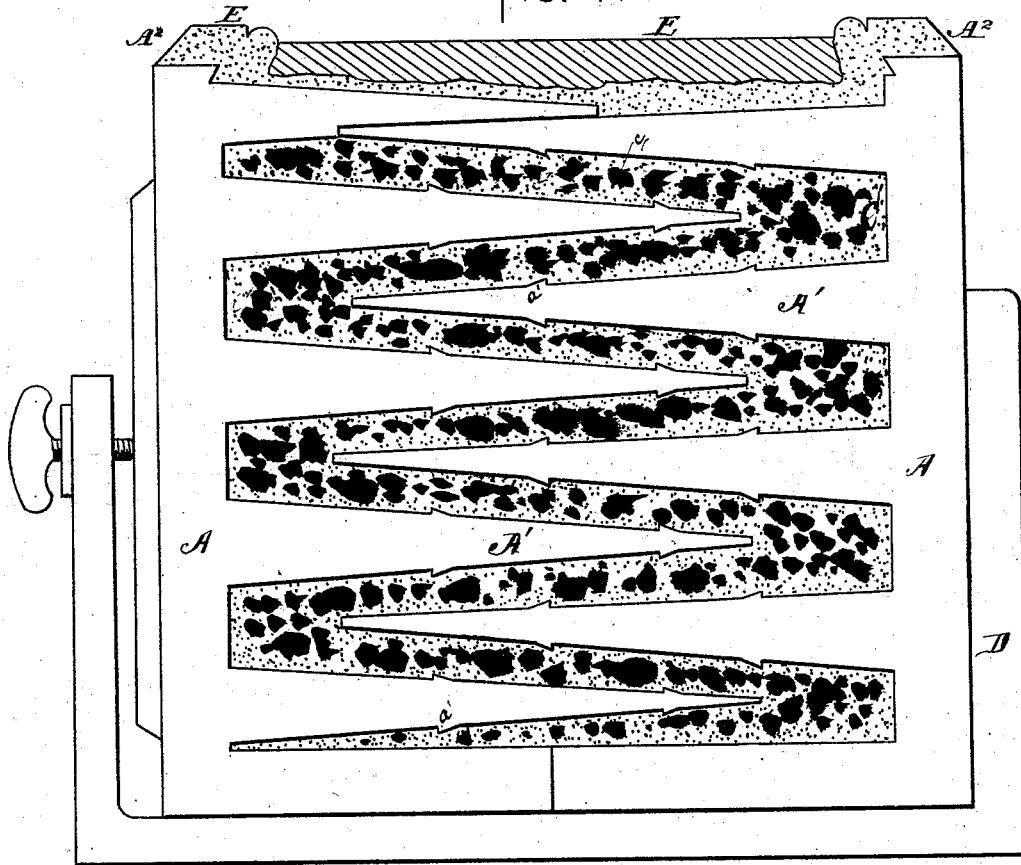
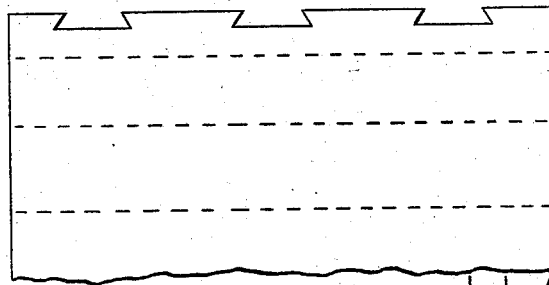


FIG. 5.



— WITNESSES: —

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UNITED STATES PATENT OFFICE.

AUGUSTINE CAMPBELL, OF PERTH AMBOY, NEW JERSEY.

IMPROVEMENT IN POTTERY SHAPES FOR BUILDING-BLOCKS TO RESEMBLE STONE.

Specification forming part of Letters Patent No. **219,343**, dated September 9, 1879; application filed August 2, 1879.

To all whom it may concern:

Be it known that I, AUGUSTINE CAMPBELL, of Perth Amboy, county of Middlesex, and State of New Jersey, have invented certain new and useful Improvements relating to Pottery Shapes for Building-Blocks to Resemble Stone, of which the following is a specification.

I bake or technically burn in a suitable kiln two plates of properly-worked clay, which may be of coarse texture, but strong, giving them the desired rectangular outline to constitute two opposite flat faces of a building-block of the desired size. Any impressions or graining of which the compact clay is susceptible may be produced on the outer faces; but for general purposes they should be plane. On the inner faces are strong and broad projections. There is a convenience of molding these in straight parallel bars extending across the inner face. This also affords an advantage in the facility of interlocking, as will presently appear. The faces of these projections are ridged longitudinally to afford a still stronger hold on the material to be afterward applied.

The pottery plates for two principal faces of a building-block opposite to each other being thus produced in clay and thoroughly burned, I apply on the back face a mortar composed of water-lime or any other suitable lime mixed with sand. I believe that a liberal proportion of broken stone, gravel, brick-dust, and other hard and durable materials may be incorporated with this filling-mortar without serious prejudice to the work, and with economy in some localities. The mortar is applied in sufficient quantity to fill, or nearly fill, the cavities between the ridges. Then two of the burned-clay shapes, with their filling of mortar, being applied together and subjected to pressure, the result is a strong and durable block.

By gaging the quantity of mortar applied and pressing the block always to a certain point the blocks may be made of a very uniform thickness. The soft material will generally be allowed to exude a little from the sides, and be cut off and removed to leave a square edge. After removal from the press, it is retained for a time in clamps, which preserve the squareness of the block.

On one of the edges, which is to serve as the face when the block is in use in a building or wall, I apply a considerable thickness of fine mortar made of a material and texture to imitate brown-stone or other fashionable building material. I propose usually to make this finished face on one of the narrow ends or edges of the block.

While the added material of the face is soft, it is shaped by pressure against a surface, so as to give it any desired figure. For some work it may be preferred plain. For other work, as for corner work of buildings, it may be shaped with a sunk panel or a raised panel; or it may be impressed with corrugations or serrations in any desired order. I propose to thus produce a curved and branching indentation known as "vermiculated work."

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a perspective view of a continuous piece of the properly-worked clay as it comes from the die, (not represented,) having an aperture of corresponding form. Fig. 2 shows the same after having been cut off in proper lengths, burned, and thinly coated on the entire ridged side with fine mortar free from any large masses. Fig. 3 shows the same after the remaining spaces between the ridges have been nearly or quite filled with a strong but coarse mortar largely made up of gravel, broken brick or broken stone, or the like coarse but strong and enduring material. Figs. 2 and 3 above are cross-sections. Fig. 4 is a cross-section representing two of the filled shapes properly applied together and pressed, and showing the further finish of a center veneer of expensive stone, held in place and surrounded by the handsome cement which is to form the outer face in use. The exuding material is cut off at the sides. This view also shows the adjustable clamp which holds the block while hardening. Fig. 5 is a side view of one of the blocks at right angles to Fig. 4, showing the dovetailed notches on the edge which aid to hold the facing material.

Similar letters of reference indicate like parts in all the figures.

A A¹ are the burned-clay pieces, A being

the body, and $A^1 A^1$ the ribs on each. The longitudinal ridges on the faces of the ribs A^1 are shown by a' . These clay masses $A A^1$ may be produced by any ordinary or suitable means. I propose to force the properly-mixed clay by hydraulic pressure through a die having the form required, and to cut off the shaped clay in proper lengths by a wire, as is well known to clay-workers.

The burning of the clay shapes may be conducted in kilns in the manner usually employed in burning brick and pottery.

C is a mortar of lime or cement, mixed in a pug-mill or otherwise with a proper proportion of sand, and with a liberal quantity of small stone, broken brick or pottery, or the like, (indicated by c .) This mortar is applied by hand or machinery, and forced down to tightly fill the spaces between the webs or ridges A^1 .

The mortar C is of two grades, a thin coating of a finer grade being applied first, and the coarser material with the masses c applied afterward. It will therefore be observed that the coarse particles c are not equally distributed in the space. The quantity of mortar applied may be just sufficient to fill the grooves, or it may be considerably more, or it may be considerably less, so that when the shapes $A A^1$ are applied together the ridges of one applied in the grooves of the other, their extremes will pass each other and partially interlock.

I attach much importance to this quality of the block, and I take care in so forming the shapes $A A^1$ that I make it easy to match them in this manner.

The clay shapes give great strength to the blocks; but the mortar adds so greatly thereto that fire-cracks or other considerable faults may exist in the clay shapes without seriously detracting from the final value of the block.

When the mortar $C c$ has been applied in sufficient quantity in two of the blocks, and the blocks, with their contents, have been properly put together, so that the projections A^1 are joggled or in a position to interlock, the pressure is gaged so as to bring the blocks always to a uniform thickness. In this operation the surplus of mortar exudes, and is cut off by a suitable tool worked by hand or machinery.

On removing the block from the press it is inclosed for a brief period in an adjustable clamp, D , which holds the edges in the required plane condition, so that as the mortar sets the block shall be mathematically shaped. After the removal of the block from the clamp D it is thinly coated on one end, A^2 , with an inch (more or less) of mortar made with brown-stone dust, liquid quartz, and stone-dust, or other suitable material, to form the face to be exposed in the wall or in the building. While this is soft it is impressed by a die,

(not shown,) which molds it with the required figure.

For some purposes a plane surface is the best that can be presented. For such work the molding-die is plane. For corner-blocking, and for certain positions in basement-walls, over windows, &c., the molding-surface is curved to produce paneling or other desired shapes.

Modifications may be made. I can vary the thickness of the clay bodies A , and also the thickness and depth and the number of the projections A^1 . I can vary the size of the blocks within wide limits. I propose, for ordinary purposes, to make the blocks eighteen inches long, twelve inches deep, and twelve inches wide.

I can vary the filling $C c$ within wide limits. I propose, in some cases, to fill with tempered clay, either alone or mixed with gravel or the like, and to burn the blocks complete. In such cases the clay shapes $A A^1$, having been previously burned, serve an important function in maintaining the shape of the masses and preventing injurious shrinkage and warping.

The plane straight ridges produced by forcing the plastic clay through a die are particularly well adapted to allow of easily matching; but I am not confined to this shape. The ridges on one plate may be in two sets, crossing each other like the walls of a honey-comb, and the projections on the other may be isolated points adapted to match loosely and easily therein. The shapes and arrangement may be subjected to a great amount of variation, as peculiarities in the material may require.

According to any of the modifications, the blocks are eminently fire-proof, and make unusually strong work.

If desired, the facing or veneer of fine stone may cover the entire exposed surface of the block, being secured by cement or otherwise.

I claim as my invention—

1. The pottery shapes $A A^1$, adapted to serve in building-blocks, and to form extended locking-surfaces to engage with any suitable filling material, as herein specified.

2. The pottery building-block described, composed of the pottery shapes having projections A and A^1 and mortar filling C and c , applied together as herein specified.

3. A building-block made in two sections, with interlocking arms and interposed cementing material, as and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 29th day of July, 1879, in the presence of two subscribing witnesses.

AUGUSTINE CAMPBELL.

Witnesses:

W. COLBORNE BROOKES,
E. B. BOLTON.