(No Model.)

# C. W. STEVENS.

## PROCESS OF MAKING ARTIFICIAL STONE.

No. 583,515. Patented June 1, 1897.

Fig. 1.

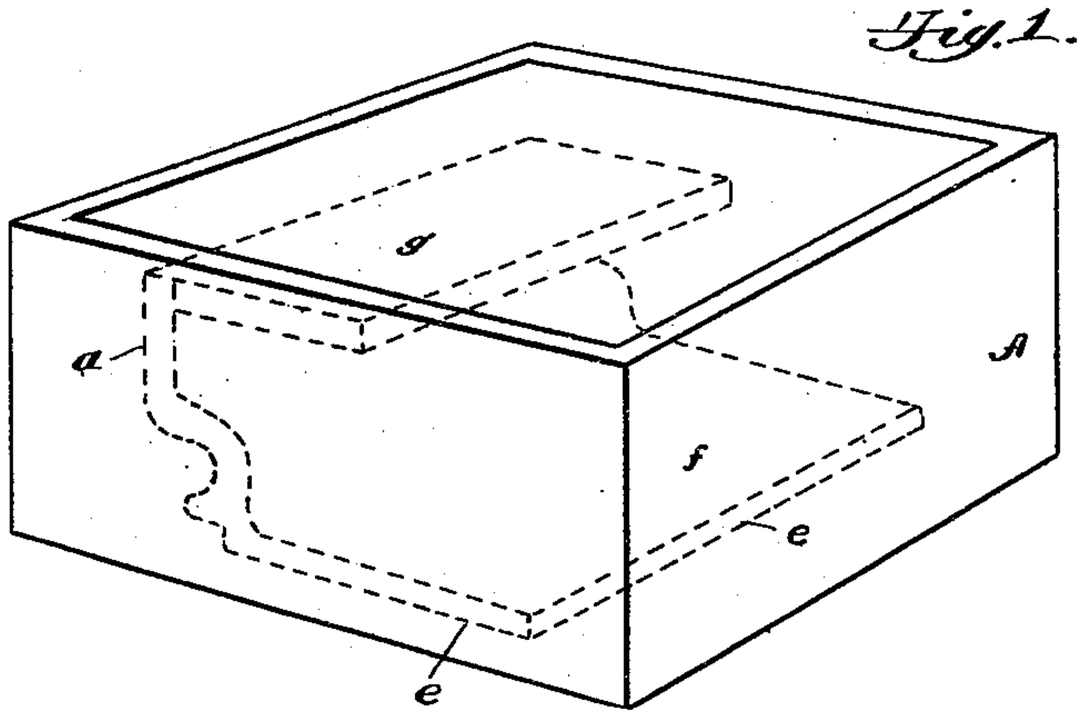



Fig. 2.

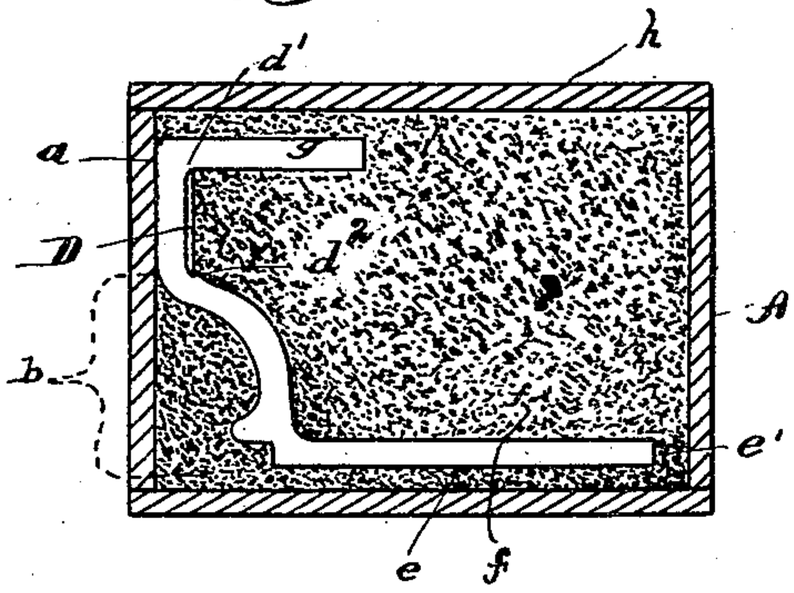



Fig. 4.

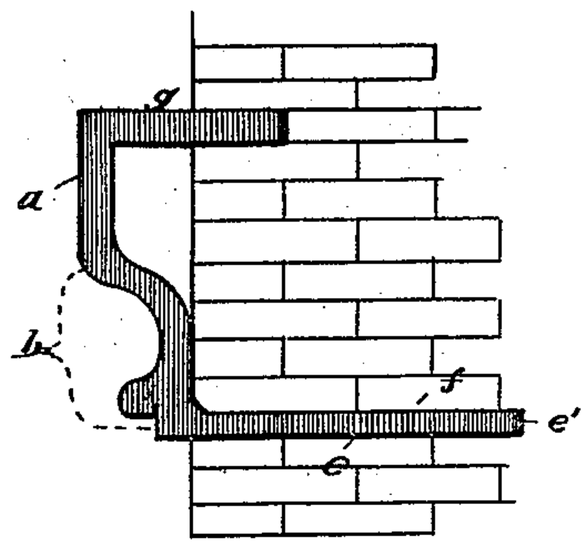
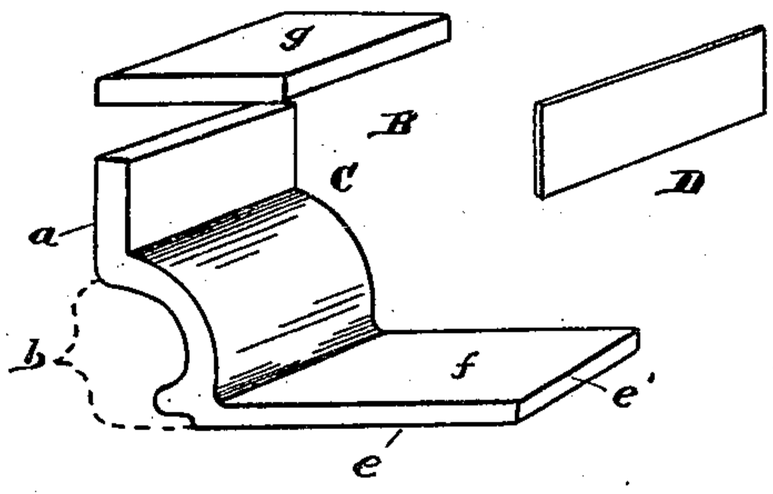



Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## PROCESS OF MAKING ARTIFICIAL STONE.

SPECIFICATION forming part of Letters Patent No. 583,515, dated June 1, 1897.

Application filed September 7, 1895. Serial No. 561,771. (No specimens.)

*To all whom it may concern:*

Be it known that I, CHARLES W. STEVENS, a citizen of the United States, residing at Lansing, county of Ingham, State of Michigan, have invented a certain new and useful Improvement in Processes of Making Artificial Stone; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to the manufacture of artificial stone, and has for its object an improved process of manufacturing either plain or ornamented artificial stone.

In carrying out the process the stone may be made either in the place where it is to be permanently used or in a factory, whence the finished blocks or pieces of stone are removed to their place of ultimate use. The process of making the stone is the same, but the appliances would differ somewhat under the different conditions.

The process consists in making a mold in sand or a mold partly of sand and partly of other material, facing the mold with the material of which the artificial stone is made, filling in behind the facing thus made with sand, and then saturating the mass of sand and material with water.

The process is applicable to any form or style of stone, but is particularly applicable to what may be considered "hollow" stone. I have found it entirely practicable to make stone in the form or shape of hollow building-tile with strengthening cross-webs and stone for cornice-work or ornametal coursework in which the stone was merely a thin shell deeply concaved. I have also found it practicable for making stone with a facing of fine and expensive material, such as required the use of colored sands or mottled work and which are backed up with coarser and cheaper material. The appliances required are a box, that may be compared to a molder's flask, and a quantity of fine sand and generally a pattern of the face or faces of the finished stone and a parting-board or set of parting-boards. These parting-boards should be thin and are preferably of sheet metal and of course are shaped and cut to accord with the pattern. A skilful workman can form the model in many cases without a pattern by "sweeping" it and can frequently dispense with parting-boards, but these appliances aid greatly in making intricate work.

In the drawings, Figure 1 shows in perspective a box or flask. Fig. 2 indicates a section through a flask with stone and sand in position. Fig. 3 shows in perspective a pattern in two pieces and a parting-board. Fig. 4 shows in sectional elevation a cornice-stone set in the brickwork of a wall.

A indicates the flask or box employed in forming a detached piece of stone—that is, one not made in the place it is to remain permanently.

B C indicate a two-part pattern, this form of pattern being shown as illustrative merely and the form of stone shown being adapted to cornice-work.

D indicates a parting-board.

In the case illustrated one side of the flask A is utilized as a part of the mold and the plane face *a* is made against the side of the flask. The molded part between the ends of the caret *b* is molded against sand. The bottom piece *e* is also molded against or on sand.

A layer of molding-sand, moistened enough to hold its shape, is placed in the flask and the pattern placed in position and sand crowded into all the irregular parts, as under the irregular parts indicated at *b*. The pattern is then removed, leaving a matrix of the pattern or of a part of it. With a pattern of the form shown in the drawings this matrix would extend from the junction of the face *a* and the face *b* to the angle between the face *f* and the face *e'*. Over this matrix is now spread the dry stone compound in fine powder, the cement being dry ground Portland or similar cement and the sand being ground stone of the selected variety, its fineness depending on the character of the work to be produced.

The coating of dry powdered-stone material is spread over level parts to the depth of the proposed stone, or very fine expensive material may be spread shallowly and backed up with coarser material. Where the pattern rises vertically, a parting-board is used and this is inserted, as along the line $d'$ $d^2$, and

the stone material filled in on one side, while sand (without any cement) is carried up on the other until all the horizontal parts have been covered with sand. The pattern for the return fold *g* is placed, sand filled around it to the level of the upper face, the pattern removed, and stone material filled in and leveled off. Two or three inches more of sand is filled in, a loose board *h* laid over this, and water poured into the box until the contents are saturated. Provision should be made to have the water drain away slowly, but it should not run through so fast as to wash any of the material out of place.

An expert workman can place material and sand in place oftentimes without the use of the parting-board, and the board *h* is only necessary to prevent displacement of the sand and material.

After the cement has set it is removed from the flask and the molding-sand cleaned off and the stone allowed to cure.

I have found that the most accurate following of fine lines of patterns are attained when the stone material is fine and dry, as with the material in this dry condition even the fine veins of leaves can be copied accurately. However, where it is not desired to make sharp angles and delicate lines a moist material can be used, and if moist enough to adhere slightly the use of parting-boards can be entirely omitted.

What I claim is—

1. The process of forming artificial stone consisting of placing a layer of stone compound between layers of sand and saturating the mass with water, substantially as described.

2. The process of making artificial stone, consisting of forming in sand a partial mold of one or more faces of such stone, filling into the partial mold thus formed a lining of stone compound, covering the exposed faces of stone compound with sand and saturating the mass with water, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES W. STEVENS.

Witnesses:
CHARLES F. BURTON,
VIRGINIA M. CLOUGH.