No. 826,970. PATENTED JULY 24, 1906.

M. T. STEVENS.

METHOD OF MOLDING.

APPLICATION FILED MAY 10, 1902.

Fig. 1.

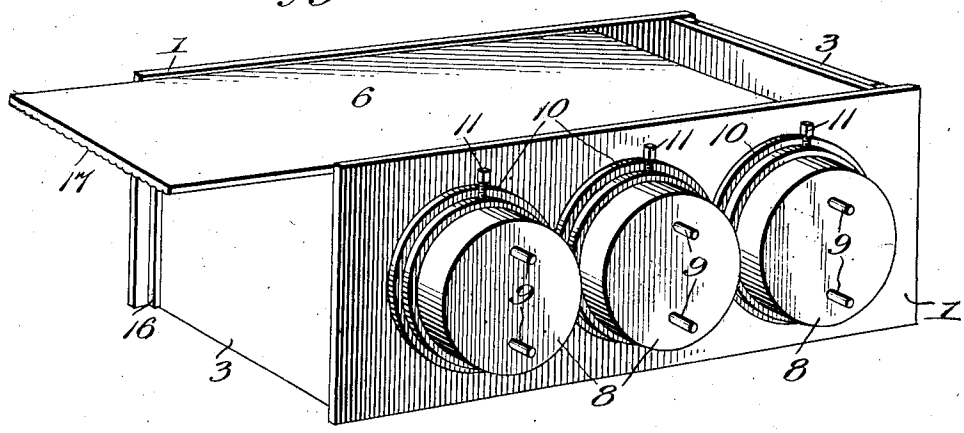



Fig. 2.

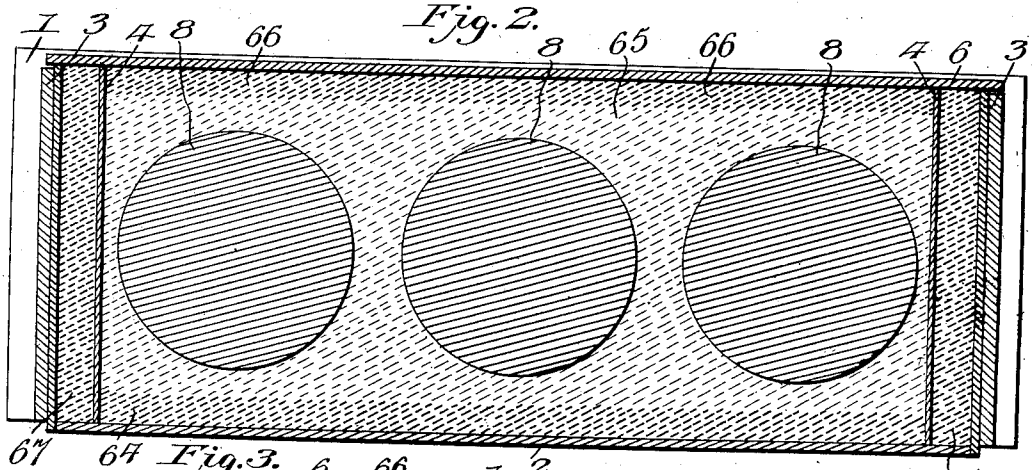



Fig. 3.

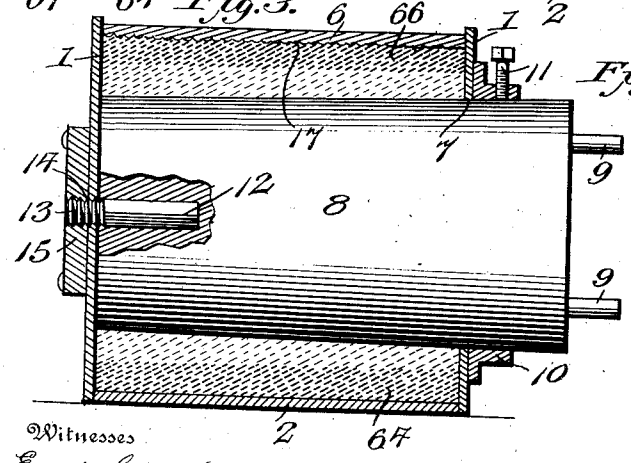
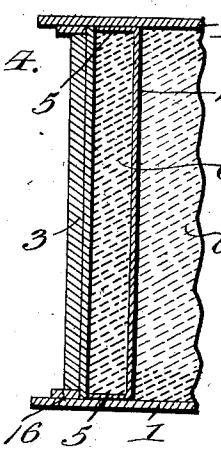



Fig. 4.




Witnesses

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## METHOD OF MOLDING.

No. 826,970. Specification of Letters Patent. Patented July 24, 1906.

Application filed May 10, 1902. Serial No. 106,812.

*To all whom it may concern:*

Be it known that I, MAURICE T. STEVENS, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented new and useful Improvements in Methods of Molding, of which the following is a specification.

This invention relates to a method of molding and forming hollow building-blocks or artificial stone, pipes, and the like; and it consists in the several steps which will be more fully hereinafter described and claimed.

The present method contemplates the use of cement or other suitable plastic material for the formation of building-blocks, pipes, or other devices, which is rendered practicable by an assemblage of an inner moist filling of such material and end or surrounding layers or portions of relatively dry material of a similar character to which pressure is applied to produce a block, pipe, or other device wherein the density is equal throughout the entire molded form. This desirable result is attained by the utilization of the relatively dry layers or portions at the ends or surrounding the inner moist filling by having the said relatively dry layers or portions absorb the moisture from the inner filling to cause the cement or plastic material to closely adhere and become tenaciously homogeneous when dry and practically of the same degree of hardness as the ordinary burned or fired building-blocks and pipe-sections now commonly in use.

Figure 1 is a perspective view of a mold embodying a plurality of cores. Fig. 2 is a longitudinal vertical section of the mold shown by Fig. 1. Fig. 3 is a transverse vertical section taken through the plane of one of the cores. Fig. 4 is a horizontal section of a portion of one end of the mold.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The mold comprises suitable thin sheet-metal sides 1, a bottom 2, ends 3, removable end partitions 4, having terminal angular flanges 5, and a pressure-top 6, which is free to be moved or vibrated longitudinally for a purpose which will be presently explained. The one side 1 has a series of enlarged apertures 7 therethrough for the removable reception of tapering cores 8, which are of greater length than the width of the entire mold and are provided at their enlarged ends with gripping-pins 9 for engagement by a spanner or similar device to remove or apply the said cores. On each of the cores is a flanged sleeve 10, provided with a set-screw 11, whereby the cores will be held in proper projected position in relation to the mold as an entirety and by means of which also the width of the mold may be accommodated. The opposite end of each of the cores has a squared or angular shank 12 embedded therein and formed with a projecting screw-threaded terminal 13, which engages a screw-threaded opening 14 in the opposite side and a stationary screw-plate 15 over the said aperture 14. By the use of ends 3, varying in length, molds having different widths can be produced, and the cores 8 are constructed to accommodate this transverse adjustment. When the transverse extent of the mold is varied or changed, the sleeves 10 are correspondingly shifted on the cores, so that the flanges thereof will bear against the outer surface of one of the sides 1, or that having the opening 7 therein. The ends 3 are held in place during the assemblage of the sides, bottom, and ends by suitable stop-strips 16 on the inner opposing faces or surfaces of the opposite sides 1, adjacent to the ends of the latter. The end partitions 4 are held inwardly a distance within the mold from the ends 3 by the flanges 5, and at a certain time the said partitions are withdrawn from the mold.

The top 6, as before indicated, is adapted to be vibrated longitudinally and also to exert downward pressure on the plastic material or cement disposed within the mold. The under side of the said top is corrugated or otherwise shaped, as at 17, to cause an ornamental surface to be formed on the molded block. In applying pressure to the top 6 for the purpose of rendering the material within the mold homogeneous and equally dense many different methods can be employed; but the simplest mode of doing this would be to apply weights to the said top, and thereby force the latter closely down on the material within the mold, which is used in the formation of the building-block.

It will be seen that the mold is held in shape, or rather the parts are connected, by the cores extending transversely therethrough, and the purpose of these cores is to produce a building-block having ventilating-openings therethrough which become alined when the blocks are superimposed in erecting a wall. This construction of block also increases its

strength and durability, and in the initial method of forming the same the removal of the cores will facilitate the drying out of the blocks, as air will be permitted to circulate through the openings. The tapered form of the cores also assists in the removal of the same, as it will be understood that the gradually-reducing diameter of the said cores will be pulled through the gradually-enlarged portion of the openings in the molded block.

The essential steps of the method consist, mainly, in disposing a layer or portion 64 of relatively dry cement or other plastic material on the bottoms of the mold. The cores 8 must necessarily be set up in operative relation to the casing; but it is not actually necessary that the cores be inserted in the mold before the lower layer or portion 64 of relatively dry cement or other plastic material is disposed in said mold. Again, if cores are not used in the mold the whole interior of the mold will be free for the reception of the cement or plastic material. It will be understood, however, that the cores may be positioned previous to the introduction of the cement or plastic material in the mold, and it will be obvious that so far as the practical effect of the steps of the method are concerned it is immaterial whether the cores be placed in position before the layers or portions of cement or other plastic material are introduced or not. After the lower layer or portion 64 of the cement is disposed in the mold a moist intermediate filling 65 of similar cement or plastic material is placed on the lower relatively dry layer or portion 64 of such material and closely packed against the latter up to the openings for the cores in the mold. The cores are then inserted and the parts of the mold firmly secured, and the filling 65 is gradually introduced between the cores and packed over the latter, and finally a top layer or portion 66 of relatively dry cement or plastic material is disposed over the filling 65, and pressure is then applied to the whole mass to cause the moisture from the filling 65 to be absorbed by the layers or portions 64 and 66 and facilitate the drying out of the molded block, for example, and cause the plastic material as an entirety to closely adhere and become tenaciously homogeneous when dry and practically of the same degree of hardness and density throughout the entire block.

As has been set forth, the pressure can be applied to the top of the mold or both to the top and bottom extremities, and after the mass of cement or plastic material has been thoroughly pressed the forms of the molds having the cores therein will be relieved of said cores when the blocks have become sufficiently dry, or at times said cores may be removed while the blocks are loose or still hard enough to retain their shape in order to permit the air to circulate through the openings provided in the blocks by the removal of the cores. When the cores are left in the molds until the blocks are dry, very little obstruction will be present to resist their removal in view of the tapered form of the cores, and after the cores are removed the sides and ends may be separated and the block is free from the inclosing portions of the mold.

The general method has been explained, wherein the salient features are present; but in addition to the steps pursued in forming the blocks the end partitions 4 are used and produce compartments at the opposite ends of the mold, which are also filled with quantities or end layers 67 of relatively dry cement or other plastic material of a nature similar to that used in the formation of the block. After the mold is filled with the plastic material in its two conditions these partitions 4 are withdrawn and the relatively dry layers 67 at the end become united and press against the upper and lower relatively dry layers and the intermediate filling and also facilitate the absorption of the excess of moisture in the said filling when the pressure is applied to the mold in the different ways set forth.

The improved method herein disclosed is economical and a building-block of practical form can be readily produced.

Having thus fully described the invention, what is claimed as new is—

The herein-described method of molding, which consists in disposing a layer of relatively dry plastic material in the bottom of a mold, superimposing thereon a body mass of moist plastic material, superimposing thereon a second layer of relatively dry plastic material, forming at each end of said mass a wall of relatively dry plastic material in a separated state therefrom bringing said wall into contact with the body mass and layers, applying pressure to the entire mass to homogeneously bind the parts thereof, and then permitting the mass to harden.

In testimony whereof I affix my signature in presence of two witnesses.

MAURICE T. STEVENS.

Witnesses:

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C. W. STEVENS.