M. E. SMITH.

APPARATUS FOR MAKING CEMENT BUILDING BLOCKS.

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962,104. Patented June 21, 1910.

Fig. 1.

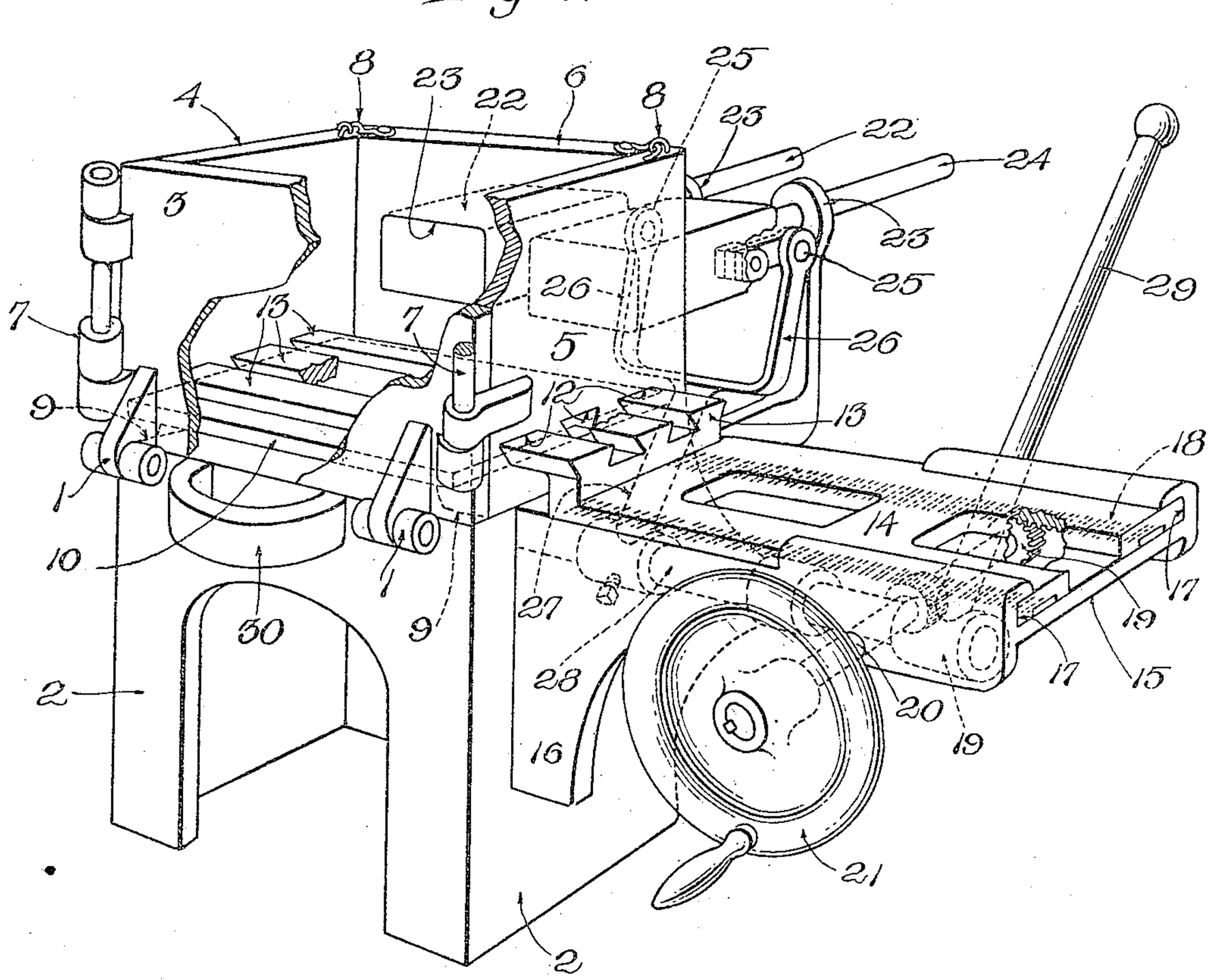
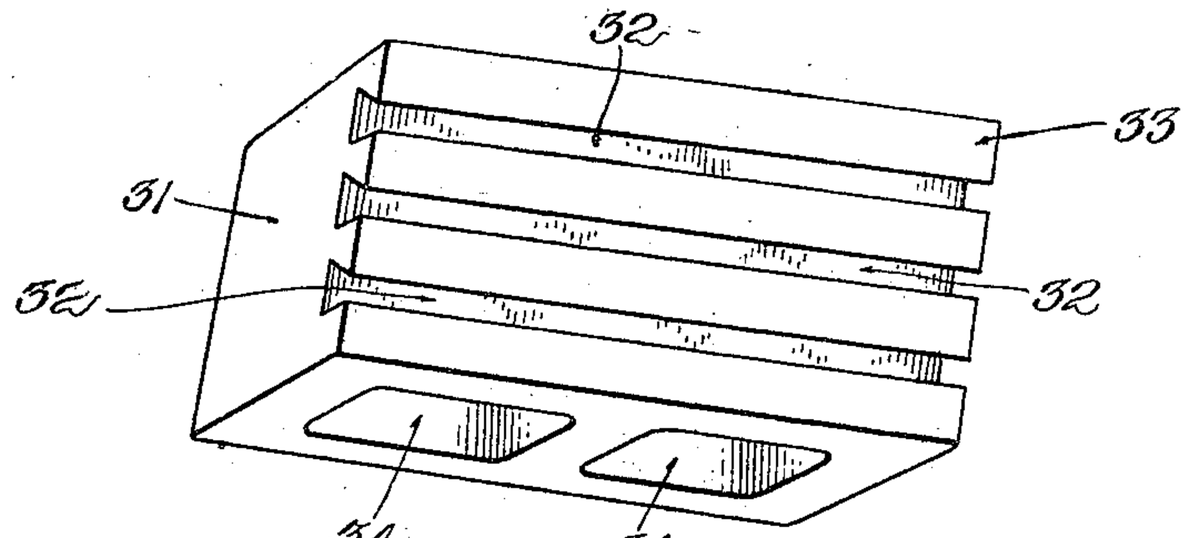


Fig. 2.



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APPARATUS FOR MAKING CEMENT BUILDING-BLOCKS.

962,104. Specification of Letters Patent. Patented June 21, 1910.

Application filed January 31, 1910. Serial No. 540,950.

To all whom it may concern:

Be it known that I, MARCUS E. SMITH, a citizen of Canada, and resident of Watertown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Apparatus for Making Cement Building-Blocks, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

Comparatively recently, building blocks made out of cement have become popular as a building material, and my present invention relates to a machine for so shaping these blocks that they will readily and firmly retain an external facing or skin of plaster or cement so as to conceal the joints and thereby render the external appearance of the building more attractive.

To this end, my invention resides in providing a machine with means for forming horizontally across the face of the blocks mortar-holding grooves, preferably dovetailed in cross section, in connection with means for forming transversely thereof, *i. e.* vertically, dead-air spaces or transverse openings for rendering the blocks light and dry.

The further details of my invention will appear more fully in the course of the following description, taken with reference to the accompanying drawings, in which I have shown a preferred embodiment of the invention.

In the drawings, Figure 1 is a perspective view of one embodiment of my invention; and Fig. 2 is a perspective view of the cement block or product of the machine.

It will be understood that my invention is applicable to any of the well known machines for forming cement blocks, and that therefore I am not limited to the constructional details of the preferred machine herein shown.

Hinged at 1 to the upper end of a suitable base 2 are a back 3 and ends 4, 5 of a cement mold, said back and ends coöperating with a stationary front side 6. The ends 4, 5 are hinged at 7 to the back 3, and adapted to be secured by any suitable means, as by catches 8, to the front 6 when a block is being molded or shaped. The ends 4, 5 are provided on the inner sides at their lower edges with ledges 9 adapted to receive a removable bottom or face-plate 10. Just above this bottom or face-plate, the end 5 is provided with openings 12, herein shown as three in number, to receive fingers 13 which have a corresponding dovetail shape, snugly fitting the openings 12 and freely reciprocable therethrough so as to move within the mold or box 3—6 directly on top of the removable bottom or face-plate 10. These fingers 13 are carried by and preferably formed integrally with a frame 14 arranged to slide on a table 15 which extends horizontally from the adjacent end of the base 2, being supported by integral brackets 16. The frame 14 is guided in ways 17 formed by the upwardly projecting and overturned edges of the table 15, and said frame is provided on its under side adjacent its opposite edges with racks 18 whereby it is reciprocated by pinions 19 on a shaft 20 operated by a crank or wheel 21. Extending at right angles to the fingers 13 are forming-plungers 22 whose front ends extend into openings 23 formed for said plungers in the stationary front wall 6 of the forming box or mold, said plungers having rod-like stems 24 extending at their opposite ends through stationary guide brackets 25 for guiding and supporting the plungers. Pivoted to each plunger is a branch 26 of an arm 27 fast at its lower end on a rock shaft 28 operated by a crank handle 29 whereby the plungers may be moved into and out of the mold when desired.

In use, the box or mold having been closed together as shown in the drawings, the bottom or face-plate 10 is dropped thereinto to rest on the ledges 9, and then the frame 14 is moved toward the mold until the fingers 13 occupy the position shown in the drawings, resting directly on the bottom or face-plate 10 and extending across the mold lengthwise thereof. Thereupon cement is poured into the mold so as entirely to cover the fingers 13 and approximately reach up to the level of the bottoms of the plungers 22. Thereupon the handle 29 is rocked forward so as to move the plungers forward entirely across the mold. The remaining portion of the cement is then poured into the mold until the latter is entirely full. As soon as the cement has set sufficiently, the plungers 22 are backed out of the mold by swinging the handle 29 back to the right, Fig. 1, and the fingers 13 are similarly withdrawn by turning the wheel 21 over to the right, thereby rotating the pinions in the

proper direction to slide the frame 14 outwardly by the engagement of said pinions with the racks 18 until the fingers 13 are entirely out of the mold and have been withdrawn beyond the end 5 thereof. Thereupon the movable portion of the mold, *i. e.* the back 3 and opposite ends 4 and 5, and the bottom or face-plate 10, are turned on the hinges 1 until the back 3 rests in a horizontal position supported on a stop or bracket 30. The ends 4 and 5 are then turned on their hinges 7 out of engagement with the block, which in due course is removed to the drying shed or finishing room. By this means and method a block 31 is manufactured having the construction shown in Fig. 2, in which dovetail grooves 32 extend horizontally across the face 33 of the block, while dead-air spaces or hollow openings 34 extend vertically through the block in a direction transverse to that of the plaster-holding horizontal grooves 32, and yet there is no line of weakness or natural cleavage in the block, because the block is molded as one integral or unitary piece at one molding operation.

Having described my invention, what I claim as new, and desire to secure by Letters Patent is:

1. A machine for making molded cement building blocks, comprising a substantially rectangular mold, a face-plate for the face of the block, means coöperating with said face-plate to form in the face of the block an undercut mortar-holding groove extending lengthwise of the block, and means for forming transverse openings through said block parallel to the face thereof in a direction transverse to said mortar-holding groove.

2. In a machine for making molded cement building blocks, molding mechanism, including means for forming across the face of the block a series of parallel dovetailed grooves, and means for forming through the midst of the block parallel to said face a dead-air passage extending transversely of said dovetailed grooves.

3. In a machine for making molded cement building blocks, a substantially rectangular mold, one end thereof being provided with a plurality of transverse openings adjacent its bottom edge, a frame movable toward and from said mold, provided with a plurality of fingers having a sliding fit in said transverse openings for entering within said mold at the bottom thereof, means to reciprocate said frame and its fingers, one side of said mold having a plurality of relatively large transverse openings extending in a direction transversely of the openings in the adjacent end of the mold, a plunger for each of said side openings of sufficient length to extend across the mold, and mechanism for moving said plungers through said side openings into position across the mold above and transverse to said fingers.

4. In a machine for making molded cement building blocks, a base, a table supported thereby at one end thereof, a mold mounted on said base adjacent said table, a frame carried by said table and provided with a series of straight dovetail-shaped fingers movable through the adjacent end of the mold into position across the bottom of the mold, a plurality of plungers mounted in a plane parallel to the bottom of the mold and above said fingers and movable through the adjacent side of the mold into position across the mold transversely of said fingers, means for moving said fingers inwardly in one direction, and means for moving said plungers inwardly in a direction transverse thereto.

5. In a machine for making molded cement building blocks, a base, a table supported thereby at one end thereof, a mold mounted on said base adjacent said table, a frame carried by said table and provided with a series of straight dovetail-shaped fingers movable through the adjacent end of the mold into position across the bottom of the mold, a plurality of plungers mounted in a plane parallel to the bottom of the mold and above said fingers and movable through the adjacent side of the mold into position across the mold transversely of said fingers, a rack formed on said frame, a pinion mounted in said table to engage said rack, means to rotate said pinion for reciprocating said frame and its fingers into and out of said mold, and means for moving said plungers in a direction transverse to the movement of said fingers.

6. In a machine for making molded cement building blocks, a base, a mold above said base having one side hinged to the base and its opposite ends hinged to said side, the remaining side of the mold being relatively stationary, a table extending from said base at one end of the mold, the latter being provided with a plurality of transverse openings, a frame mounted on said table for movement toward and from the mold and provided with a series of dovetail-shaped fingers for entering said transverse openings and extending lengthwise of the mold at the bottom thereof when the frame is in its forward position, said stationary side of the mold having at approximately midway from its bottom to its top transverse plunger openings, plungers occupying the latter openings and movable therein into position across the mold for forming dead-air passages in the block at approximately right angles to the grooves formed by said fingers when the block is molded, and means for moving said plungers into and out of the mold.

7. In a machine for making molded ce-

ment building blocks, a base, a mold above said base having one side hinged to the base and its opposite ends hinged to said side, the remaining side of the mold being relatively stationary, said hinged ends having inwardly projecting ledges at their lower edges, a removable face-plate normally resting upon said ledges to constitute a bottom for the mold during the molding operation, a table extending from said base at one end of the mold, the latter being provided with a plurality of transverse openings, a frame mounted on said table for movement toward and from the mold and provided with a series of dovetail-shaped fingers for entering said transverse openings and extending lengthwise of the mold on said face-plate when the frame is in its forward position, said stationary side of the mold having at approximately midway from its bottom to its top transverse plunger openings, plungers occupying the latter openings and movable therein into position across the mold for forming dead-air passages in the block at approximately right angles to the grooves formed by said fingers when the block is molded, and means for moving said plungers into and out of the mold.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

MARCUS E. SMITH.

Witnesses:
M. J. SPALDING,
EDWARD MAXWELL.