

J. A. ROSS.

CEMENT BLOCK MACHINE.

APPLICATION FILED FEB. 10, 1910.

1,005,884.

Patented Oct. 17, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

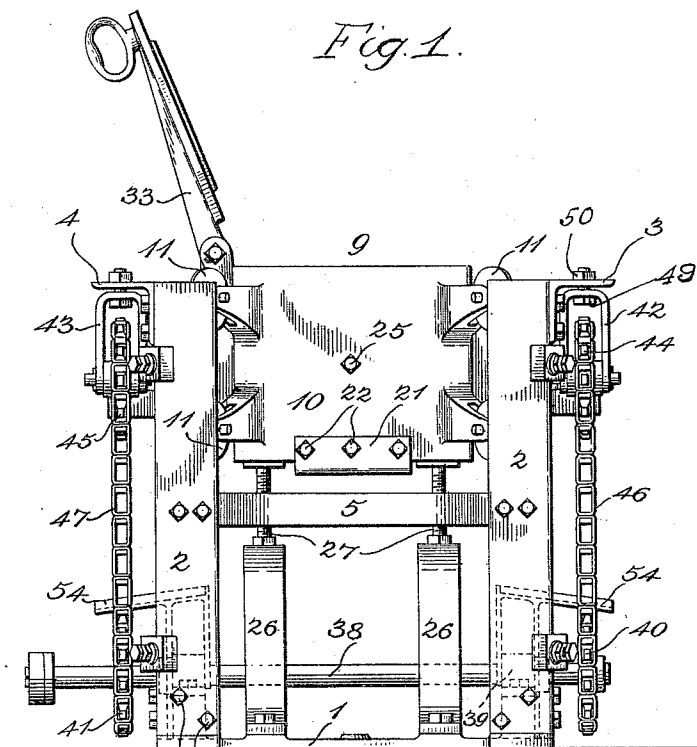
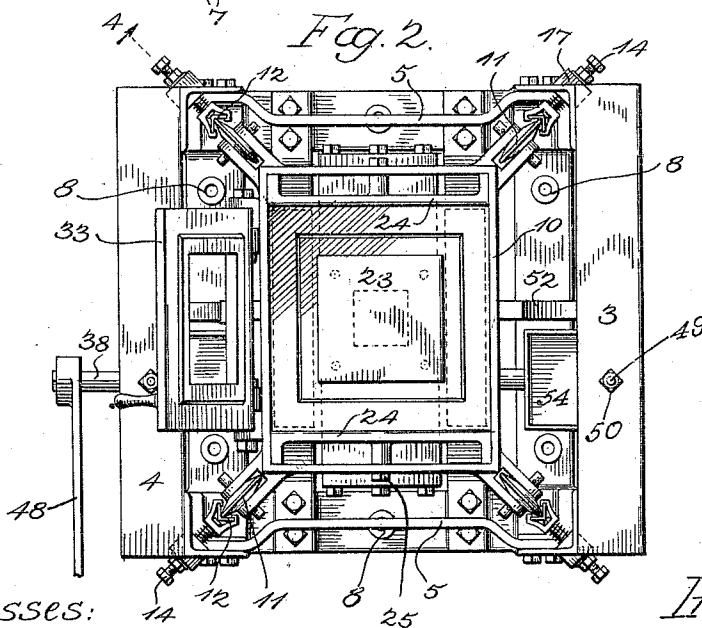


Fig. 2.



Witnesses:

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Inventor:

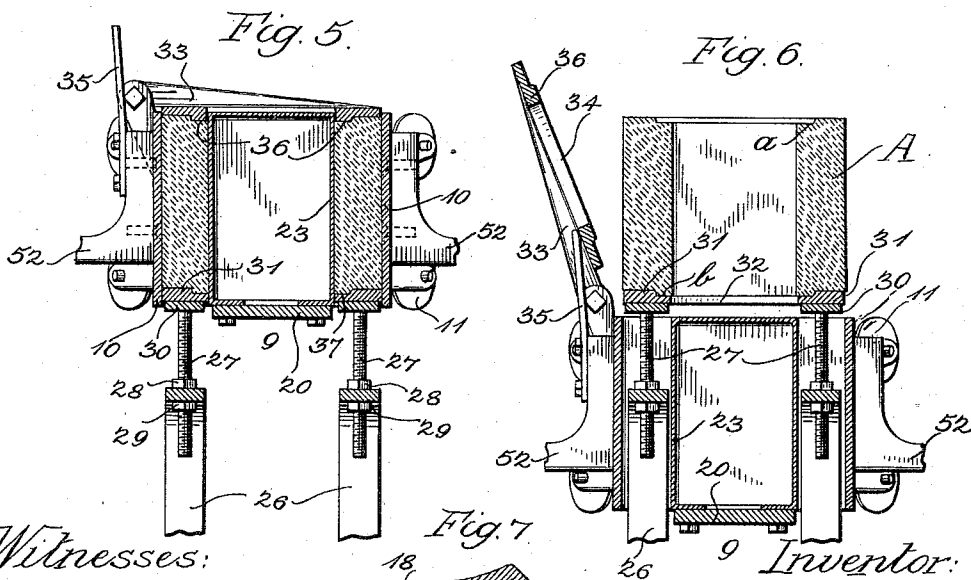
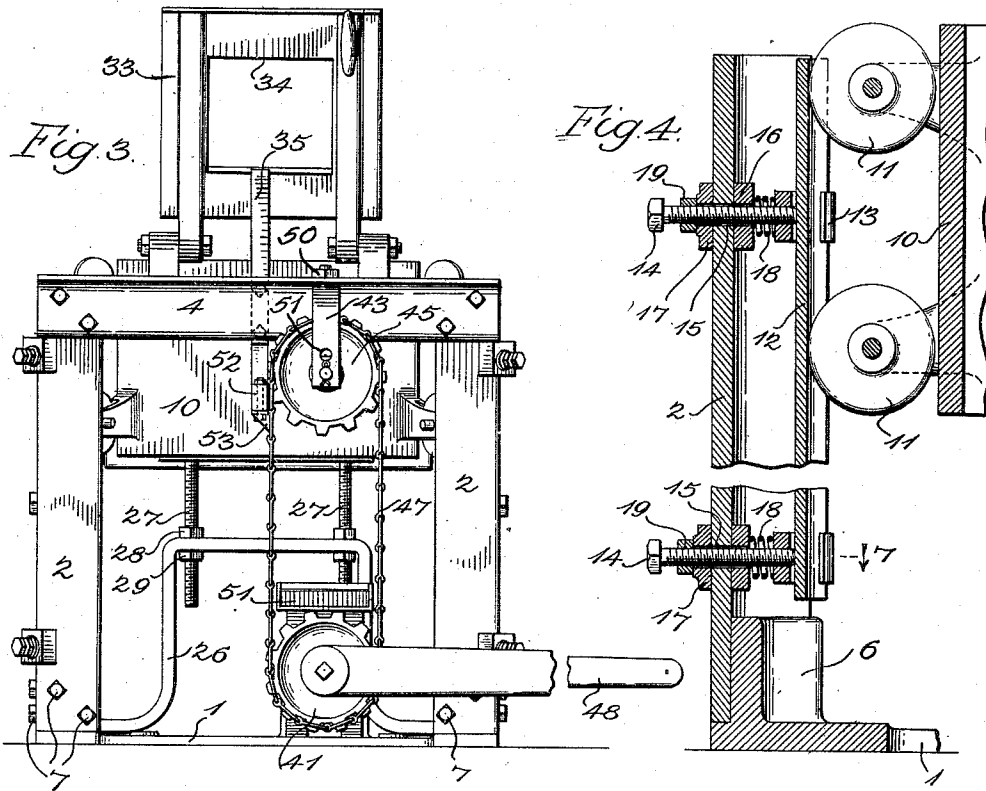
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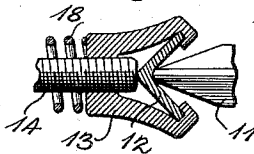
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN A. ROSS, OF CHICAGO, ILLINOIS.

CEMENT-BLOCK MACHINE.

1,005,884.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. ROSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cement-Block Machines, of which the following is a specification.

This invention relates to machines for forming building blocks of cement or other plastic material, the embodiment herein shown being adapted for molding hollow chimney blocks.

One object of the invention is to provide improved means for guiding the mold in its movements.

A further object is to provide improved means for adjusting the mold to make different sizes and shapes of blocks.

Another object is to produce a mold for forming blocks which are adapted to interlock with each other in the building structure.

Other objects and advantages will become apparent from the detailed description hereinafter given.

In the accompanying drawings, Figure 1 is a side elevation of a cement block machine embodying the features of my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a rear elevation of the machine. Fig. 4 is an enlarged fragmental section through the guiding means for the mold, taken on line 4 of Fig. 2. Fig. 5 is a section through the mold and the block therein. Fig. 6 is a view similar to Fig. 5, but showing the mold withdrawn from the block. Fig. 7 is a fragmental horizontal section through the mold guiding means, taken on line 7 of Fig. 4.

The embodiment of my invention which I have chosen for the purpose of illustration comprises a framework which may include a base plate 1, side standards 2, cross bars 3 and 4 connecting the upper ends of the standards 2 at the front and rear of the machine, respectively, and braces 5 connecting the middle portions of the standards 2 at the sides of the machine. The standards 2 and the cross bars 3 and 4 may be angle irons, as shown, the lower ends of said standards fitting about upstanding lugs 6 on the base plate 1, and being secured to said lugs by means of bolts 7.

8 are openings in the base plate 1 adapted

to receive fastening means for securing the machine to a floor.

The mold 9 is vertically slidable within the framework of the machine, the flask 10 of said mold carrying a pair of rollers 11 at each of its corners, which rollers are arranged to travel in guides 12 carried by the side standards 2. The guides 12 may be in the form of angle irons, as shown in Fig. 7. When the machine is in use, small portions of the concrete being placed in the mold 9 are very frequently spilled upon the rollers 11 and between said rollers and their guides 12, the grinding action caused by such particles of concrete wearing said rollers and guides away. To compensate for this wear I have made the mounting for said guides yielding and adjustable with reference to the standards 2. As shown in Figs. 4 and 7, each of the guides 12 is removably carried by a pair of clips 13 which have a screw-thread engagement with bolts 14 extending loosely through the openings 15 in the corner of one of the standards 2. When the ends of the bolts are turned into engagement with the guides, said guides are securely clamped in the clips 13.

16 and 17 are washers fitting the angle of the standard 2. Surrounding the bolts between the inner washers 16 and the clips 13 are coiled springs 18 which tend to move the guides 12 inwardly toward the mold 9. The extent to which the springs 18 may move said guides is limited by means of adjusting nuts 19 threaded upon the bolts 14 and bearing upon the outer sides of the washers 17.

The bottom of the mold 9 is formed in this instance of a plate 20 of less width than the flask 10, said plate having its ends 21 bent up to lie alongside the flask and being held in place by means of screws 22 passing through said bent up ends 21 into the flask. Removably secured to the bottom plate 20 within the flask 10 is a core 23, which forms a central opening in the chimney block A.

In the present embodiment, the flask 10 is oblong, filler pieces 24 (Fig. 2) being inserted in each end thereof to form a square central opening, said filler pieces being held in place by means of screws 25. If it be desired to make a block of larger dimensions, the filler pieces 24 may be removed, and a correspondingly larger size of core may be substituted for the square core 23. It is ob-

vious that cores of various sizes and shapes may be used.

Two members 26, of inverted U-shape in the form herein shown, are secured to the base plate 1 below the mold 9 and in position to enter the spaces between the sides of the bottom plate 20 of the mold and the sides of the flask 10 when the mold is lowered. Extending through each of said members are two vertical screw-threaded rods 27, said rods being adjustable to different heights by means of nuts 28 and 29 threaded on said rods above and below the members 26. Carried at the upper end of the pairs of rods of the respective members 26 are plates 30 upon which the pallet 31 of the mold is adapted to rest. Said pallet has an opening 32 therein for the reception of the core 23. It will be seen that by adjusting the rods 27 vertically, the height of the pallet 31 in the mold may be varied so as to form blocks of different heights.

Hinged to one side of the flask 10 is a cover 33 having an opening 34 therein for the reception of the upper end of the core 23.

35 is a stop arm on the flask 10 against which the cover 33 may rest. Upon the under side of said cover surrounding the opening 34 therein is a depending flange 36 which forms a depression *a* in the block A. The pallet 31 has a depression 37 in its upper face surrounding its opening 32, said depression 37 forming a lip *b* upon the block A. In building a chimney of blocks thus formed the depression *a* of one block receives the lip *b* upon the adjacent block, thus interlocking the blocks and making a solid structure.

The means for lowering the mold 8 away from the pallet 31 and block A after the latter has been formed comprises a rock shaft 38 journaled in bearings 39 upon the base plate 1, said shaft having two sprocket wheels 40 and 41 fixed thereto at the front and rear of the machine, respectively. Supported from the horizontal flange of the cross bars 3 and 4 above the sprocket wheels 40 and 41 are U-shape bearing members 42 and 43 having sprocket wheels 44 and 45 journaled therein. An endless chain 46 runs over the wheels 40 and 44 at the forward side of the machine, and a similar chain 47 runs over the wheels 41 and 45 at the rear side of the machine.

48 is a lever fixed to the shaft 38 for rocking said shaft.

In order to take up the slack in the chains 46 and 47 due to their stretching, so that said chains may be kept taut at all times, I have made the bearing members 42 and 43 vertically adjustable in the frame. As shown in Figs. 1 and 3, said bearing members are supported by bolts 49 extending through the horizontal flanges of the cross bars 3 and 4. Nuts 50 threaded upon the

upper end of said bolts provide means for adjusting the height of the bearing members 42 and 43. Should further adjustment be necessary, the sprocket wheels 44 and 45 may be removed from their bearing openings and mounted in higher openings 51 in the members 42 and 43.

Secured to the flask 10 at opposite sides thereof are two arms 52. The outer ends of the arms 52 rest upon and are secured to projections 53 fixed to the chains 46 and 47. It will now be apparent that when the shaft 38 is rocked by means of the lever 48 the mold 9 will be moved up or down. Any suitable means may be provided for locking the lever down, so as to prevent gravitating movement of the mold 9.

In order to prevent the concrete mixture and other foreign matter from dropping upon the bearings 39 for the rock shaft 38, I provide shelves 54 above said bearings in position to intercept such falling matter.

Assuming the parts to be in the position indicated in Figs. 1, 2 and 3, the operation is as follows: After the space in the mold 9, between the flask 10 and core 23 has been filled with concrete and tamped, the lid is thrown down and pressed against the concrete, the depending flange 36 upon the under side of said lid forming a depression *a* in the concrete. When the concrete has sufficiently "set" the shaft 38 is rocked to lower the mold from around the block A, the plates 30 holding the pallet 31 and the block elevated. When the mold has been lowered to the point indicated in Fig. 6, a suitable implement may be inserted between the top of the flask 10 and the pallet 31 and the block removed from the machine. The shaft 38 is then rocked to raise the mold to its normal position when it may be again filled with concrete.

I would have it understood that I do not limit myself to the exact construction herein shown and described, for various modifications within the scope of the invention will occur to persons skilled in the art.

I claim as my invention:

1. In a cement block machine in combination, a frame comprising vertical standards, guide bars resiliently carried by said standards for lateral rectilinear movement, and a mold vertically slidable in said guide bars, said guide bars constituting the sole means for guiding said mold.

2. In a cement block machine, in combination, a frame; guide bars mounted within said frame; means tending to move said guide bars inwardly; means for limiting such movement of the guide bars; and a mold slidably mounted in said guide bars.

3. In a cement block machine, in combination, a frame having openings therein; guide bars; bolts secured at one end to said guide bars and passing loosely through said open-

ings; coiled springs surrounding said bolts between said frame and said guide bars, said springs tending to move said guide bars inwardly; adjusting nuts threaded on said bolts and limiting the spring-caused movement of said guide bars; a mold slidable in said guide bars; and means for sliding said mold.

4. In a cement block machine, in combination, a rectangular frame having corner standards composed of angle-irons; braces connecting said standards; guideways comprising angle-irons yieldably and adjustably carried by said corner standards; a rectangular mold having pairs of lugs on each corner; rollers journaled in said lugs and adapted to travel in said guideways; and means for moving said mold.

5. In a cement block machine, in combination, a frame comprising vertical standards composed of angle-irons, said standards having openings therethrough; guide bars carried by said standards, said guide bars being formed from angle-irons; clips engaging said guide bars; bolts passing loosely through said openings and threaded in said clips for securing said clips upon said guide bars; washers surrounding said bolts at the inner and outer angles of said standards; adjusting nuts turned on said bolts at their outer ends, said nuts bearing against the outer washers and limiting inward movement of said guide bars; coiled springs surrounding said bolts and interposed between the inner washers and said clips, said springs tending to move said guide bars inwardly; and a mold slidably mounted in said guide bars.

6. In a cement block machine, in combination, a frame comprising four vertical standards, crossbars 4 connecting the upper ends of certain of said standards, crossbars 5

connecting the middle portions of certain of said standards, a mold slidably mounted in the frame, means permanently mounted in the lower portion of the frame and adapted to support the material in said mold, a rock shaft journaled in the lower portion of the frame, a sprocket wheel fixed on each end of said rock shaft, a sprocket wheel rotatably carried by each of the crossbars 4, endless chains each running over one of the last mentioned sprocket wheels and over one of the sprocket wheels on said shaft, arms on said mold and fixed to said chains, and a lever fixed on said rock shaft, whereby said mold is drawn downwardly to telescope with said material-supporting means and strip the mold from the block when said lever is swung in one direction, said mold being elevated into position to receive material when said lever is swung in the opposite direction.

7. In a cement block machine, in combination, a frame comprising vertical standards, a mold slidably mounted on said standards, said mold having a bottom plate of less width than the width of said mold, a pallet in said mold, a core carried by said bottom plate, two bars having their ends fixed in the lower portion of the frame, the middle portion of said bars being bent upwardly into U shape to enter the mold at the spaces at the sides of said bottom plate, and a pair of bolts threaded in each of said U-shaped bars, the upper ends of said bolts supporting said pallet, said mold being slidable downwardly to telescope with said bolts and with said U-shaped bars to strip said mold from the block.

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Witnesses:

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