J. A. FERGUSON.

CONCRETE BLOCK MAKING MACHINE.

APPLICATION FILED MAY 15, 1916.

1,214,530.

Patented Feb. 6, 1917.

2 SHEETS—SHEET 1.

Fig. 1

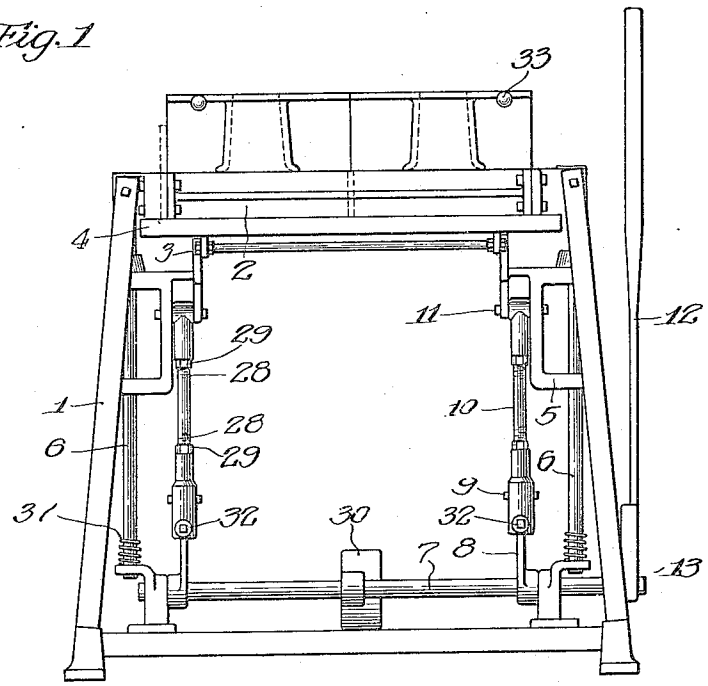
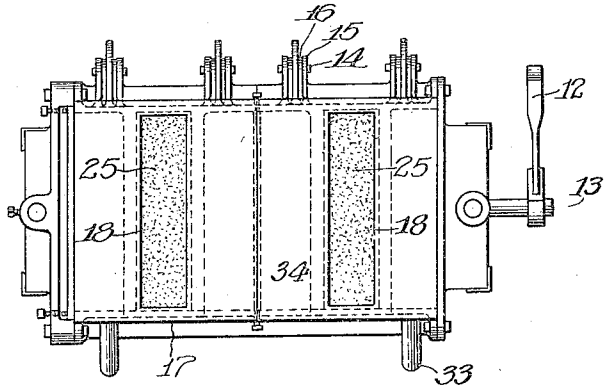


Fig. 2



Witnesses:

R. Bauerle

A. J. Sauser.

Inventor:

John A. Ferguson

By William E. Williams

Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 3

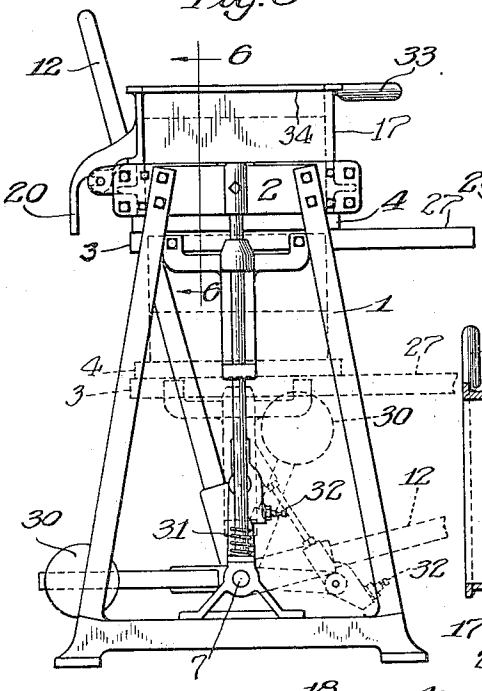


Fig. 4

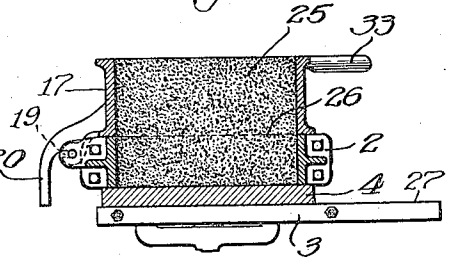


Fig. 5

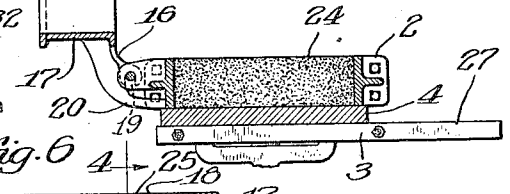


Fig. 6

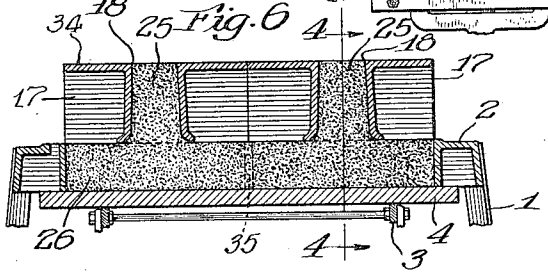


Fig. 7

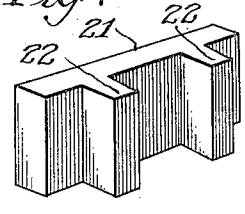


Fig. 8

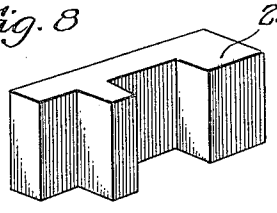
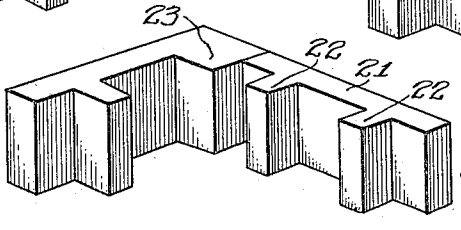


Fig. 9



Witnesses:

R. Bauerle

G. J. Sauer.

Inventor:

John A. Ferguson

By William Edwin

Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN ALBERT FERGUSON, OF DENVER, COLORADO.

CONCRETE-BLOCK-MAKING MACHINE.

1,214,530. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed May 15, 1916. Serial No. 97,651.

To all whom it may concern:

Be it known that I, JOHN A. FERGUSON, a citizen of the United States, residing at Denver, in the county of Denver, State of Colorado, have invented a new and useful Improvement in Concrete-Block-Making Machines, of which the following is a specification.

The object of my invention is to make a cheap efficient concrete block making machine, that will make the best kind of concrete with a full water saturated mixture, and make the several peculiar styles of blocks required and be easily arranged to make the variations in blocks that are needed to fill the requirements of given structure.

Reference will be had to the accompanying drawings in which:

Figure 1. is a front elevation of the machine. Fig. 2. is a plan view. Fig. 3. is an end elevation. Fig. 4. is a transverse section through the molding form and table line 4—4 of Fig. 6. Fig. 5. is a similar view to that of Fig. 4 at one position of operation. Fig. 6. is a transverse view to that of Fig. 4 on line 6—6 of Fig. 3. Fig. 7. is a perspective view of one of the blocks made by the machine being the block used in the straight body portions of the wall. Fig. 8. is a perspective view of a block used at the corners of the wall. Fig. 9. shows the corner blocks.

Concrete block machinery heretofore used has generally required a mixture containing not too much water so that on removal from the machine the block would keep its shape while the cement sets. Often not enough water is used and the blocks are defective and very porous, making a poor wall. The best concrete is made using plenty of water and I so design my blocks and machine that I can use just as plastic a mixture as will insure the best results.

In the drawing 1 indicates the frame of the machine which is made in any suitable manner and supports the main holding flask or mold form 2, which latter makes a part of the frame.

3 indicates the movable platen frame, which is only a frame work and supports the bottom or follow boards 4. The platen frame 3 is supported at its ends by blocks 5, supported in sliding contact with vertical rods 6, in the frame. A bell crank shaft 7 journaled in the frame at the bottom is connected by levers 8 at hinges 9 to links 10, connected by hinge pins 11 to blocks 5 and frame 3, and actuates the frame 3 up and down as desired through the medium of the operating lever 12 fixed at 13 to shaft 7 at the right end of the machine.

The lowest position of the platen frame 3 is indicated by the dotted line position shown in Fig. 3. On the back of flask member there are hinge pins 14 held in lugs 15 on the flask, and hinged to these pins by any suitable lugs 16 there are pocket or segment mold members 17 provided with pocket or mold form spaces 18. The hinge lugs 16 of the pocket members 17 are slotted at 19 so that these mold members may be quickly lifted off and changed for others having variations in shape or location, of the pockets. Stop projections 20 are provided on the members 17 for retaining the members 17 in position as indicated by Fig. 5.

The members 17 that are shown in the figures have pockets of the form required to make blocks like that shown in Fig. 7. The block of Fig. 8 is used at a corner of the wall.

In the use of the machine the members 17 are lifted as shown by Fig. 5 by means of a handle 33 and the table or platen frame 3 is lowered as shown by the dotted lines in Fig. 3, then a bottom or follow board 4 is placed on the frame 3 and the whole is lifted by lever 12 bringing the board up snugly under the open bottom of the mold frame 2, forming the bottom thereto, whereupon the concrete is filled in and tamped as is indicated by 24 Fig. 5, while the members 17 are in an upright position.

The concrete is a wet mixture of the best kind and the grouty portions settling down on to the board forming a full filled smooth non-porous face for the blocks.

When the tamping is completed as indicated in Fig. 5 the members 17 are lowered over the main mold frame 2 as is shown by the other figures and then the concrete is filled into the pockets 18 and tamped down as indicated by 25 Figs. 4 and 6 forming a homogeneous connection with the main slab along the dotted line 26. When this tamping is completed the lever 12 is pulled forward lowering the frame 3 bottom board 4 and the block with them, the latter coming out of the mold as the board goes down, a slight taper to the sides of the mold facilitates the blocks movement out of the molds. When the frame 3 is down to dotted posi-

tion shown in Fig. 3. The board 4 with its burden of concrete is drawn out on the extension portions 27 of frame 3 and removed to a place of repose, the board 4 remaining under the plastic block until it sets sufficiently to permit the board to be removed for further use. A number of boards 4 being required to keep the machine in active operation.

The links 10 are adjustable in their length by threads 28 and nuts 29 and when the lever 12 is thrown back bringing the links 10 and lever 8 on centerline, the board 4 will fit sufficiently tight under the mold form 2 as to prevent leakage of the grout along the bottom edges. A counterbalancing weight 30 holds the lever normally in an upright position when shoved back to full line position in Fig. 3. Springs 31 on guide rods 6 cushion the stopping of the frame 3 on its downward movement. Adjusting screws 32 permit the adjustment of the links 10 and levers 8 to get them in direct alinement for upward position of registration.

The wall made by my blocks is finished on the inside by the wooden or metal lathing being secured to the inside faces of projections 22 and 23, thus inclosing hollow spaces between the projections.

The blocks as shown by Fig. 7 are shaped as to the location of the projections so that every other layer may be laid up "breaking the joints" at the ends and tying the wall together. The corner blocks being shaped to suit the requirements as shown by Fig. 9.

Surrounding the pockets 18 of the members 17 there are flanges 34 that act as a table for the reception of the concrete to be filled into the pockets 18, and at the same time these flanges act as a cover for the body of the main mold, not open to the pockets, to prevent the filling falling on to the main body portion of the block.

When short blocks are to be made shorter than the length of the main mold frame a division wall is placed into the main mold chamber thus damming off the balance of the space. The dotted lines 35 in Fig. 6 indicate such a division wall.

What I claim is:—

1. In a machine of the class described, a main mold form frame, a movable bottoming frame adapted to be raised and lowered under the main mold form frame; with a set of removable forms hinged to the main frame and adapted to be lifted clear of the main mold while the latter is being filled and to be lowered and filled after the filling of the main mold form.

2. In a machine of the class described, a molding frame adapted to mold a block with the outer or wall face downward, a series of detachable members having mold pockets and adapted to be set over the main mold and filled in a manner to build projections on to the plastic mass held in the main mold.

3. In a machine of the class described, a main mold frame open at the top and bottom, a movable bottom board carried on a vertically moving supporting frame and adapted to be lifted by the frame into close contact with the bottom of the main mold to form a bottom thereto; with detachable mold members hinged to the frame and adapted to be moved in position over the main mold and provided with mold form pockets adapted to be filled from the top and open at the bottom whereby the filling of the pockets adds projections on to the main molded body, means for lowering the movable frame, board and plastic block downward from the molds.

4. In a machine of the class described, a mold frame horizontally disposed and open at the top and closed with a movable board at the bottom; a series of pocketed members detachably connected and adapted to be adjusted over the top of the main mold frame.

5. In a machine of the class described, a main mold form horizontally disposed, a series of mold pocket members hinged to the mold form by slotted hinge connections, to facilitate their removal and replacement.

6. In a machine of the class described, a main mold form horizontally disposed, a series of mold pocket members mounted in movable relation to the top of the mold form and provided with pockets open at the top and the bottom; with a movable frame carrying a movable bottom board, and mounted in adjustable relation to the bottom of the main mold form, and means for raising and lowering the movable frame for releasing the blocks from the frame.

7. In a machine of the class described, a mold frame adapted to be filled from the top and the finished block to be drawn from the bottom, a vertically moving frame mounted to move to and from the bottom of the mold frame, links hinged to the frame and to a bell crank whereby the frame is moved, a movable bottom board on the movable frame and adapted to close the bottom of the main mold, said links adjustable in their length for adjusting the fit of the bottom board to the mold frame.

8. In a machine of the class described, a mold form mounted horizontally and adapted to be filled from the top and unloaded from the bottom, a vertically moving bottoming frame mounted in suitable guides and adapted to move in relation to the bottom of the mold, and close the same by means of a movable board carried on the frame; said frame moved by links connected to a bell crank and said links adjustable in their length and adjusted to close the bottom of the mold through the

medium of the board when the bell crank is at the summit of its travel whereby a position of repose is obtained.

9. In a machine of the class described, the horizontally disposed main mold form, a movable frame mounted underneath the main mold form and adapted to reciprocate to and from the bottom of the mold, a link motion for actuating a movable frame and adjusted to register its greatest upward movement when in a position of repose; with a counterbalancing weight adapted to hold the links in said reposed position.

10. In a machine of the class described, a main mold frame horizontally disposed whereby the outside or front wall face of the block is molded downward, a secondary set of mold pocket members mounted in removable relation to the top of the main mold, said pocket members having a table surface on a level with the top of the mold pockets whereby the main mold is covered during the filling of the pockets.

Signed at the city fo Denver, the county of Denver, the 8th May, 1916.

JOHN ALBERT FERGUSON.

Witnesses:
LEE C. BEAK,
FRED F. DEHN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."