Dec. 2, 1924.

1,517,364

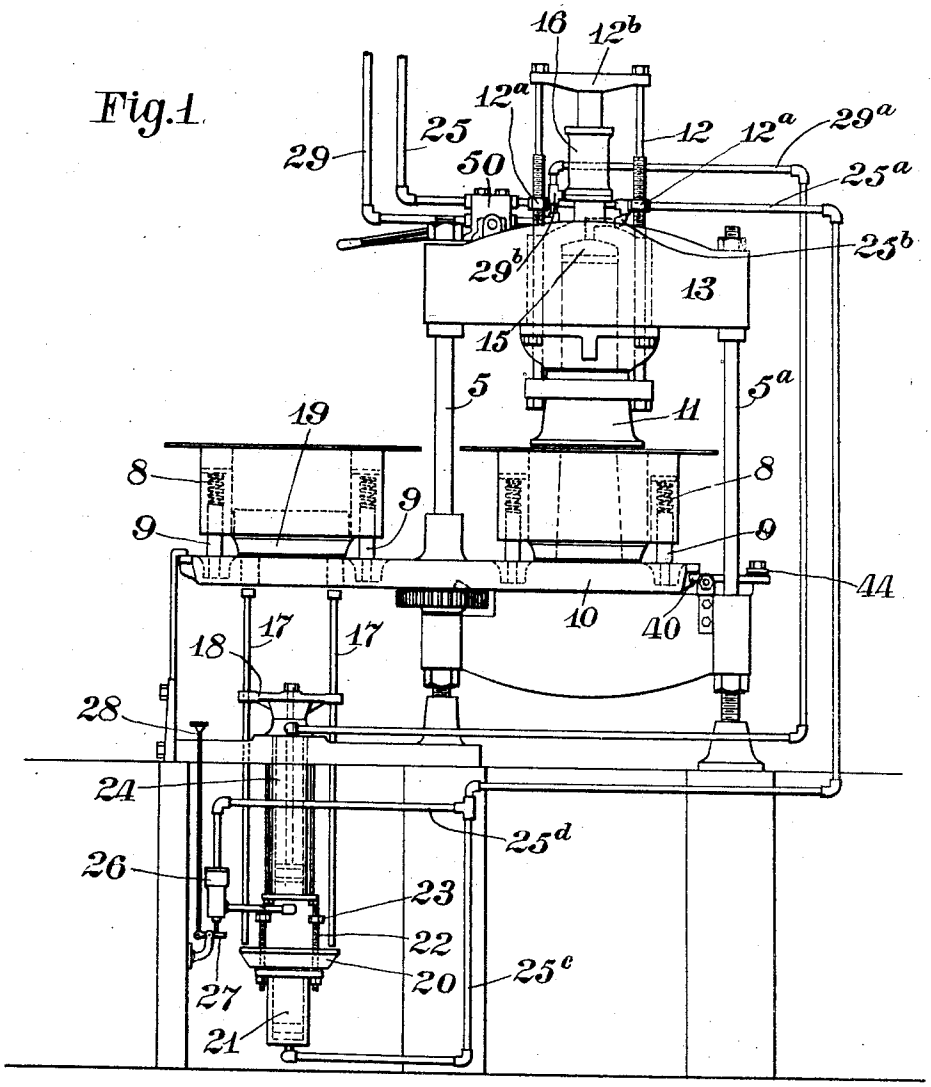
W. L. KENY

CONCRETE BLOCK MACHINE

Filed May 25, 1922

2 Sheets-Sheet 1

Fig.1.



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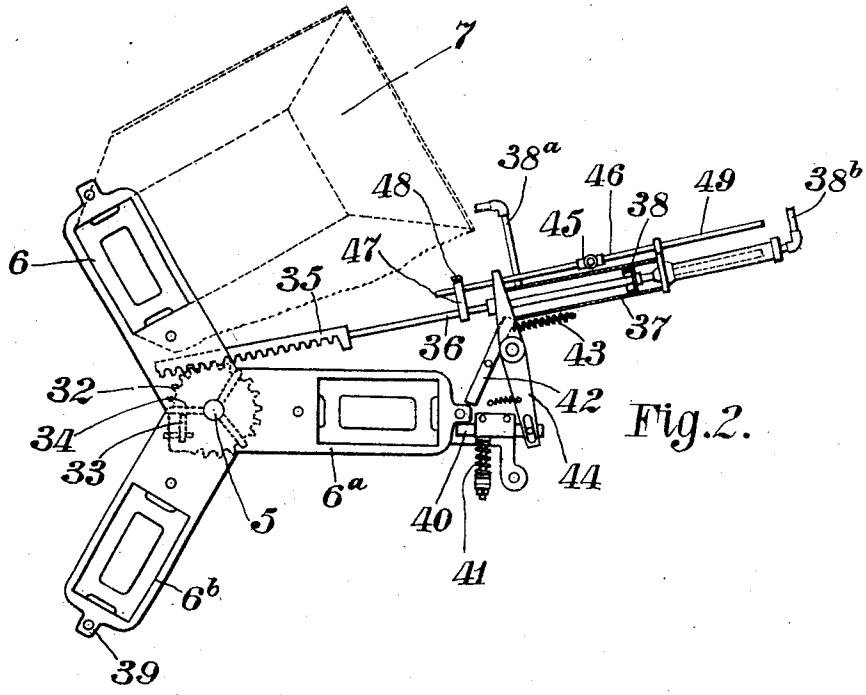


Fig.2.

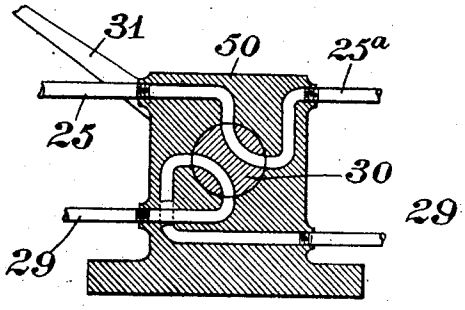


Fig.3.

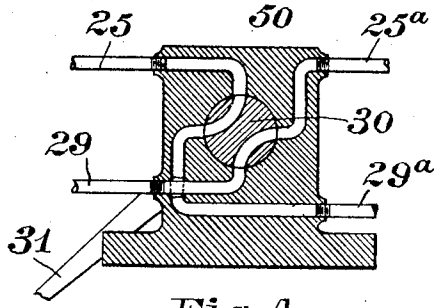


Fig.4.

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UNITED STATES PATENT OFFICE.

WILLIAM L. KENY, OF COLUMBUS, OHIO.

CONCRETE-BLOCK MACHINE.

Application filed May 25, 1922. Serial No. 563,644.

To all whom it may concern:

Be it known that I, WILLIAM L. KENY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Concrete-Block Machines, of which the following is a specification.

The objects of the invention is to provide an improved machine for the rapid multiplication of concrete blocks and in which the principal operations are performed by fluid pressure.

The invention is embodied in the example herein shown and described, the features of novelty being finally claimed.

In the accompanying drawings—

Figure 1 is a diagrammatic view in side elevation with some parts omitted for the sake of clarity.

Fig. 2 is a plan view illustrating the mold revolving mechanism.

Figs. 3 and 4 illustrate in section on a larger scale a four way valve employed in the construction, showing the cock set in two different positions.

In the views 5 designates a central shaft or column around which three molds 6, 6^a and 6^b spaced equidistantly apart are intermittently propelled. The plan of operation generally is that while one of the molds is being charged with the concrete mixture a second is having the charged concrete compressed and the third is having the compressed block removed.

The empty mold at 6 is supplied with the concrete mixture through a suitable hopper 7, shown in broken lines, the freshly filled mold having its mixture compressed at 6^a and the pressed block ejected at 6^b.

Each mold box is yieldingly supported on springs 8 interposed on the upper ends of guide pins 9 fixed on one of the arms forming a suitable table 10, rotatable about the column 5. The vertically yielding mold box permits the compacting of the material of the block in the mold.

The concrete compressor comprises presser head 11 carrying a pair of guide rods 12, 12 extending upward through a stationary cross head 13 supported between the column 5 and a supplementary column 5^a, said guide rods having threaded portions provided with nuts 12^a thereon for limiting the downward movement of the presser head. The presser head 11 has a suitable piston extending upward therefrom into a cylinder 15 (shown in broken line Fig. 1) to be actuated by fluid pressure to depress the head while the rods 12 carry at their upper ends a cross head 12^b provided with a smaller piston extending downward into a cylinder 16 to receive fluid pressure for raising said head.

The means for ejecting the pressed block comprises a pair of rods 17, 17 fixed in a carrier head 18, said rods being moved upward through holes in the table to engage the palet 19 at its lower side when the block is to be ejected. The carrier head 18 is provided with a rod and piston head with a cylinder 24, said piston adapted to be actuated by fluid pressure both upward and downward. At first the rods 17 are moved upward a limited distance by a head 20 having a piston extending downward into a cylinder 21, said piston being actuated upward by fluid pressure. The means for limiting the first movement of the rods 17 upward consists of a pair of stationary screws 22, 22 fixed on the upper end of cylinder 21 and having stop nuts 23 thereon. The purpose of this initial ejection of the block is to permit a small portion of the top of the block to be removed and smoothed off level with the top of the mold so that the main body of the block shall have a given dimension vertically thus insuring uniformity of the blocks in that respect.

The pressure for operating the presser head and the ejector is carried through a steady pressure feed pipe 25 leading to a four way valve case 50 and beyond said case is a pipe 25^a having a connection at 25^b with the cylinder 15 and two branches 25^c and 25^d communicating with the cylinders 21 and 24 respectively, but the admission of pressure to the cylinder 24 is controlled by a valve 26 actuated in the opening direction by means of small lever 27 adapted to be operated at will by foot pressure on a rod 28. 29 is the constant fluid pressure return pipe connected with the valve case 50 normally alining with pipe 29^a leading from the upper end of the cylinder 24 to the opposite side of the valve case and having a connection 29^b with the lower end of the cylinder 16. In the case 50 is a four way cock 30 turning in said case (see Figs. 3 and 4) said cock being adapted to be turned by a handle 31

into three positions, towit; one for admitting pressure to the lines 25^a, 25^c and 25^d while discharging from the line 29^a, as shown in Fig. 3 and one for admitting pressure to that portion of the line 29^a beyond the cock casing while discharging lines 25^a, 25^c and 25^d through return pipe 29 at the left of the cock casing. The third position of said handle and valve is one intermediate the other two adapted to close both lines. By shifting said handle 31 the presser head 11 is lowered and the partial ejector raised at will, the full ejection being controlled by the foot actuated lever.

The means for rotating the table with an intermittent motion for bringing each mold into the charging, pressing and ejecting positions are also actuated by fluid pressure. These means include a gear wheel 32 loose on the column 5, said wheel carrying a pawl 33 adapted to engage successively three radial ribs 34 on the lower side of the table 10. The pawl 33 is rocked back and forth by a reciprocable rack 35, the motion of the rack in one direction (to the left Fig. 2) carrying the pawl into position to engage a fresh rib 34 and the motion of the rack in the opposite direction impelling the table through an arc of 120 degrees to fetch the molds into a new operative postion. The rack 35 has a stem 36 extending into a cylinder 37 where it is provided with a piston 38 so that fluid pressure admitted first into one end and then the other the rack may be reciprocated as desired. While the pressure for rotating the table may be taken from the same source as that used in operating the presser and ejecting devices it may have a distinct control (not shown).

It is desirable that the table be locked when turned to its three several positions referred to and for this purpose each branch of the mold table is provided with a lug 39 adapted to abut at one side against a sliding bolt 40 supported laterally by a spring 41 and obstructed from movement in the reverse direction by a pivoted keeper 42 held in latching position by a spring 43. In practice the lug 39 swings into position against the bolt 40 passing the keeper 42 by swinging it aside. The bolt is held in table obstructing position by a spring held lever 44 and the bolt is actuated to release the locked mold table by means of said lever, when the latter is struck by a lug 45 on a rod 46 fastened to the stem 36 on a lateral projection 47 on the stem by means of a set screw 48. The rod 46 is carried back and forth with the reciprocations of the rack, said rod being supported and guided in an eye at 49 on the cylinder 37. Near the end of the pawl retracting stroke of the rack the lug 45 strikes the lever 44 and releases the mold table for the turning of all three of the molds to new positions by the next and reverse stroke of the rack.

What I claim is:

1. In a machine for molding concrete blocks, the combination of a plurality of resiliently supported molds, pallets therefor, means for intermittently moving the molds, pressing means acting on the molds for compacting the concrete mixture therein means for partially ejecting the compacted block, and fluid pressure means for actuating said pressing means and ejecting means.

2. In a machine for molding concrete blocks, the combination of a plurality of molds, means for intermittently moving the same, pressing means for compacting the concrete mixture in said molds, partially operating block ejecting means, and fluid pressure means for actuating said pressing means and ejecting means.

3. In a machine for molding concrete blocks, the combination of a plurality of molds, means for intermittently moving the same, pressing means for compacting the concrete mixture in said molds, ejecting means adapted to initially and partially eject a pressed block from its mold, and fluid pressure means for actuating said pressing and partially operating ejecting means and means controllable at will for fully ejecting the block from its mold.

4. In a machine for making concrete blocks, the combination of a plurality of molds mounted to revolve around an axis, means for intermittently revolving said molds including a reciprocating member, fluid pressure actuated means for reciprocating said reciprocating member, latching means for latching said molds in the position to which revolved including a spring actuated bolt and a spring actuated lever cooperating with said bolt to normally hold said molds in stationary position and means actuated by said reciprocated means to release said bolt and lever from latching position to permit said reciprocated means to revolve the mold.

5. In a concrete block making machine, the combination of a mold box, means for yieldingly supporting the same, means for compacting the plastic concrete in said box, means for partially ejecting the compacted block, and means for limiting the extent of such partial ejection for the purpose explained.

6. In a concrete block making machine, the combination of a mold box, means for yieldingly supporting the same, means for compacting the plastic concrete in said box, means for partially ejecting the compacted block, and adjustable means for limiting the extent of such partial ejection for the purpose explained.

WILLIAM L. KENY.