Aug. 2, 1949. A. KISSAM 2,477,753

CONCRETE BLOCK MOLDING MACHINE

Filed May 24, 1946 2 Sheets-Sheet 1

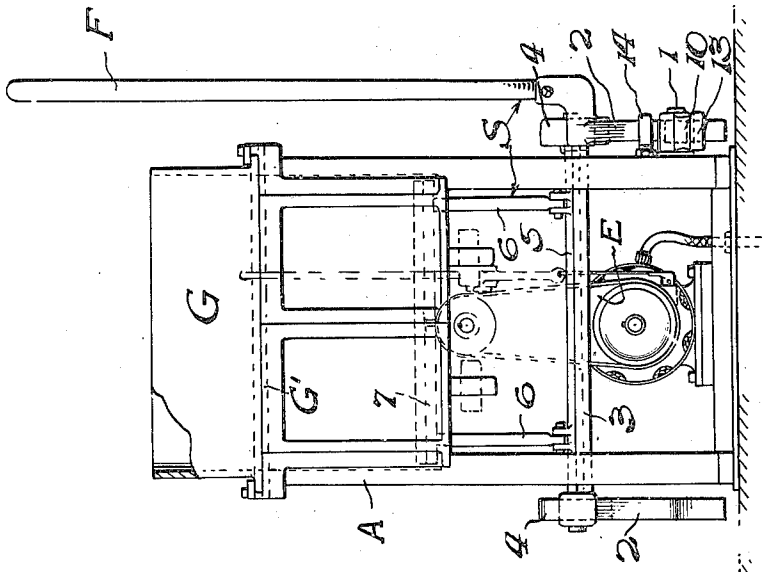


Fig. 2.

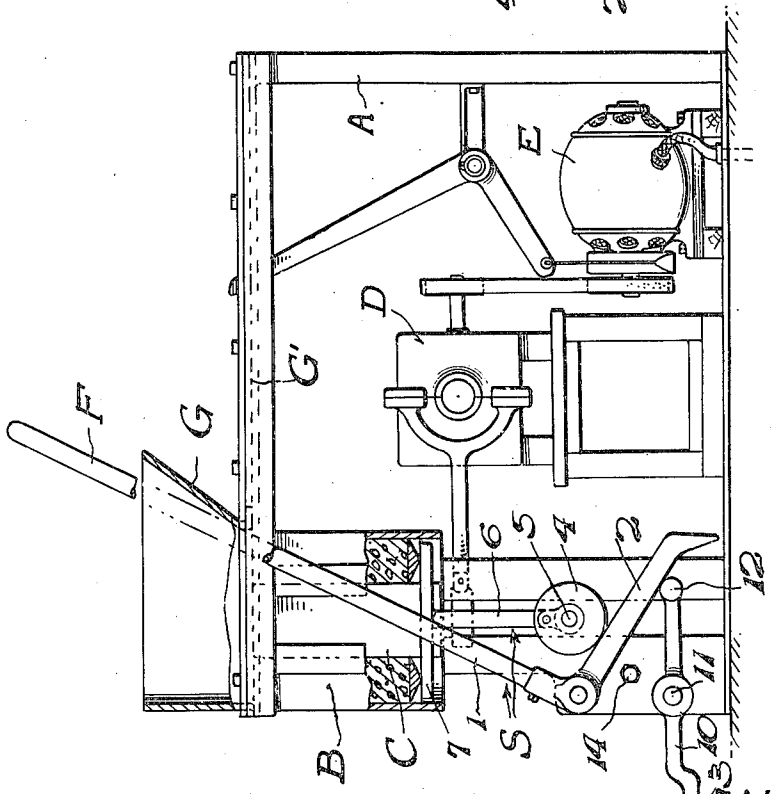


Fig. 1.

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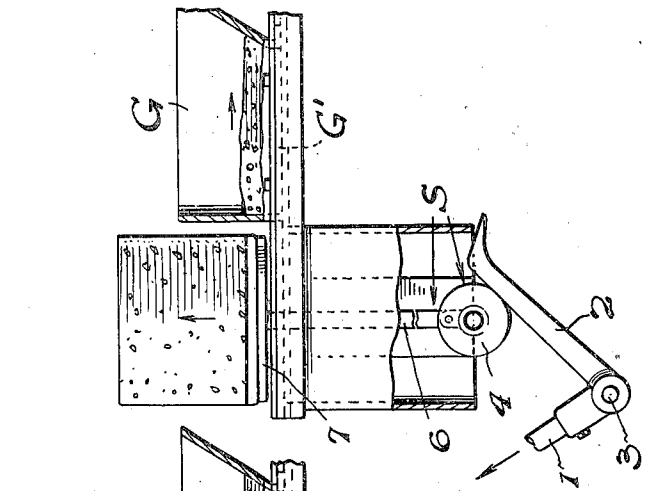


Fig. 5.

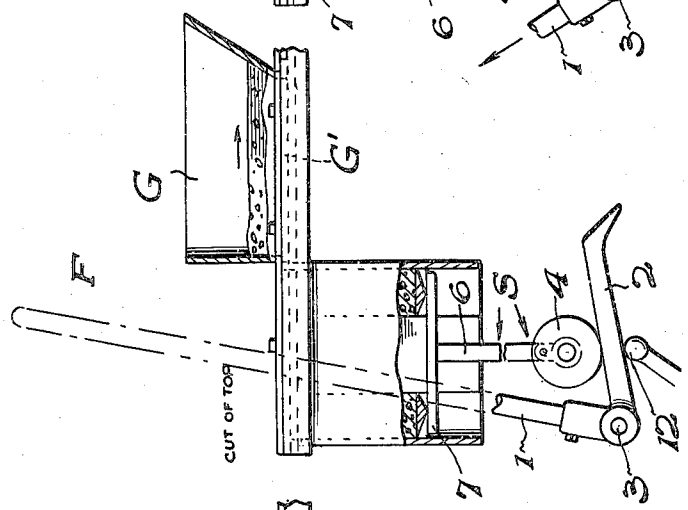


Fig. 4.

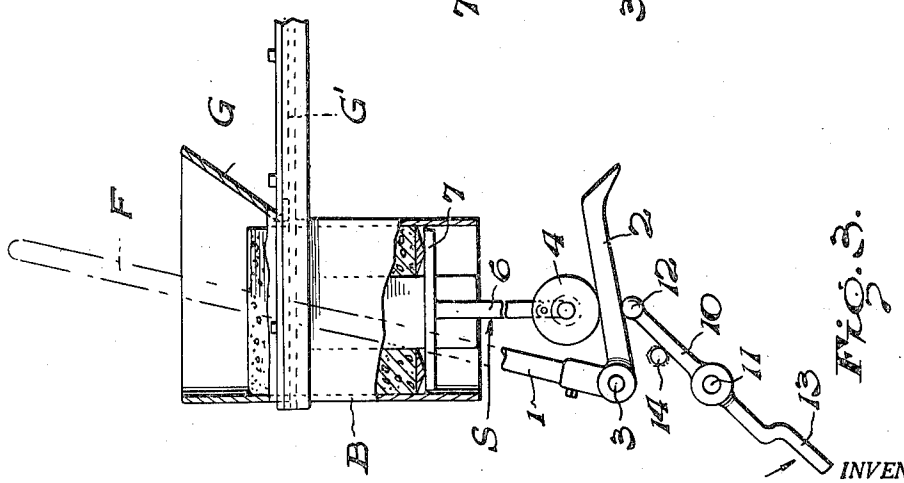


Fig. 3.

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UNITED STATES PATENT OFFICE

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CONCRETE BLOCK MOLDING MACHINE

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3 Claims. (Cl. 25—41)

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This invention relates to apparatus for making concrete blocks, and more particularly to a novel means for making them true in all dimensions.

One fault in present-day block making practice, especially in machines of the vibrator type, is that the lower part of the block is more compact or of greater density than the upper portion. This often causes blocks to be of uneven height and the corners tend to sag badly. It also often happens that the degree of compactness or density is not uniformly the same throughout the block, and when the stripper means is put in operation, it initially develops the maximum pressure of its stroke due to static inertia caused by the green block frictionally adhering to the sides of the mold. This initial resistance of the block to stripper pressure causes shortening of its vertical dimension slightly before it begins to move out of the mold, thus resulting in blocks of unequal height. Heretofore, with a view to overcoming this difficulty, it has been the practice either to use a hand presser or a power-head presser of some sort on top of the mold contents, but either of these methods slow down the block making operation, and do not always correct the fault.

Accordingly, a primary object of the invention is to provide means for making the block true to all dimensions, particularly its vertical dimension, irrespective of the character of the mix or difference in compactness or density. That is to say, it is proposed to provide a mold box slightly deeper than that which would be required by the usual procedure, and also employing instrumentalities to insure pushing the block upwardly a short and predetermined distance through the mold box, thus subjecting the block to preliminary ejecting pressure and its concomitant shortening tendency, while at the same time also pushing the poorly compacted portion beyond the top of the mold where it is cut off by the bottom of the filling hopper used as a straight edge when it is pushed rearwardly from the filling position. In this way the uniform fixing of the block dimensions is assured.

A further object of the invention is to provide a simple and practical device which assures a measured, uniform, initial stroke to the stripper means so that the latter is always moved a definite initial distance for each block thereby uniformly pushing up each block the same distance for dimension processing by manipulation of the material feeding hopper.

With the foregoing and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, arrangement and combination of parts hereinafter more fully described, illustrated and claimed.

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A preferred and practical embodiment of the invention is shown in the accompanying drawings in which:

Figure 1 is a diagrammatic side elevation of a concrete block making machine having the present improvements applied thereto, the pallet being in the bottom of the mold box.

Figure 2 is a front end elevation of the apparatus shown in Figure 1.

Figure 3 is a detail vertical sectional view through the mold box with the stripper shown in the slightly elevated position to partially push the block out of the mold and into the hopper.

Figure 4 is a view similar to Figure 3 illustrating the stripper lever elevated the predetermined distance and the hopper moved rearwardly to cut off the top of the block.

Figure 5 is a view similar to Figure 4 showing the proper dimensional block fully projected out of the mold and ready to be lifted out on the pallet.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

A concrete block making machine of conventional type is designated as A in Figure 1 and consists generally of a mold box B containing cores C capable of vibration by an appropriate vibration producing mechanism D, a motor E, and a lever F for operating the stripper means S. The mold box B is supplied with cementitious material by the slidable hopper G.

The lever F comprises a handle 1 and an angularly disposed lifting arm 2 carried by a shaft 3 pivotally supported on the framework of the machine. A second lifting arm 2 is mounted on the opposite end of shaft 3. The lifting arms 2 are adapted to engage the rollers 4 carried by shaft 5 of the stripper means which includes the upwardly directed arms 6 at opposite ends of the shaft and adapted to actuate the pallet 7 in the bottom of the mold box B, and which pallet supports the block to be formed.

Under ordinary circumstances, the formed block is stripped from the mold by rocking the lever F on its shaft 3, the stripping action being a continuous stroke imparted by the operator to completely lift the block out of the mold. This practice, however, has the disadvantage heretofore pointed out, and in order to remedy the objections recited, the distinctive feature of the present invention resides in means for imparting a definite measured preliminary stroke to the stripper lever F.

According to the embodiment of the invention shown in the drawing, the present invention comprises a control lever 10 medially pivoted as at 11 to the frame of the machine below the shaft 3 for the stripper lever F. The forward end of the lever 10 is provided with a roller 12 which

engages the underside of one arm 2 of the stripper lever while the rear end of the lever 10 is provided with a foot engaging portion 13. When the lever F is in the at rest position shown in Figure 1 and the mold box B contains a formed block, the operator will first rock the lever 10 by foot pressure on the portion 13 thereof and thus move the roller 12 upwardly against the arm 2 until said lever strikes or engages the stop 14 on the machine frame. This limited movement of the lever 10 will have the effect of lifting the stripper lever F a definite and predetermined distance for the initial part of its stroke. Thus, it would be apparent that the block will be lifted out of the mold by a predetermined distance which will be the same for all blocks made by the machine.

Having described the general mechanical features of the invention, reference will now be made to the cycle of operation.

The stripper means including the pallet 7 is lowered to the bottom of the mold box B, and the hopper G containing the charge of cementitious material is moved over the mold box and the latter filled with the mix, the hopper helping to guide the material therein. The compacting means is then put in operation. Such compacting means in the present case is a vibrating pair of cores and the concrete is compacted within the mold box. After the vibrating means has been operated for the desired length of time, it is stopped and the operator applies foot pressure at 13 to the lever 10 until it comes in contact with the stop pin 14, thereby moving the arm 2 of the lever F upwardly a definite distance. The effect of operating the lever 10, and in turn the stripper lever F for a measured distance is to raise the stripper means, including the pallet, a short distance, thereby elevating the block a predetermined distance upwardly through the mold box so that the upper portion of the block remains in the hopper G. At this point the hopper G is pushed rearwardly to clear the mold box opening thereby removing the portion of the block projecting above the mold box and retaining it on the table G' and within the hopper G so that the cut off portion may become a part of the next charge. During this phase of the procedure, the operator maintains foot pressure at 13 on lever 10 and then the handle 1 of the stripper lever F is operated (Figure 5) to complete its upward stroke to remove the block and pallet from the mold. The block on the pallet is then removed from the machine. This cycle of operation is repeated for each block, and as will be apparent from the description, assures blocks of uniform height.

I claim:

1. A concrete block making machine, comprising, in combination, a mold box, vibration producing mechanism for compacting the concrete in the mold box to increase its density, a feed hopper slidably mounted above the mold box and movable from a position in registry therewith to a rearward position, a pallet for supporting the embryo block in the mold box, and means for stripping the block from the mold box, said means including, a rockable stripper lever and cooperating arm means below the pallet and on said lever whereby when the latter is moved in one direction the pallet may be lifted in the mold box, and a rockable control lever having one end adapted for foot engagement and the other end adapted for engagement with said arm means on the stripper lever to move said arm means below the pallet a predetermined initial distance thereby to lift the pallet for a portion of its stripping stroke to project the upper portion of the block into the zone of the mouth of the feeding hopper, whereby when the latter is moved rearwardly, the upper portion of the block will be removed.

2. A concrete block making machine, comprising, in combination, a frame, a mold box supported in the frame, vibration producing means for compacting concrete in the mold box to increase its density, a feeding hopper slidably mounted on the frame and movable from a position to supply the mold box with a concrete mixture to a position rearward of the mold box, a pallet in the mold box, arm means below the pallet, a stripper lever pivoted to the frame, lifting arm means rigid with the stripper lever and disposed substantially at right angles thereto and adapted for engagement with said arm means below the pallet, and a control lever medially pivoted to the frame beneath said lifting arm means of the stripper lever, said control lever having foot engaging means at one end and lifting arm engaging means at the other end, whereby, when the said control lever is foot depressed, the lifting arm means will be moved for a predetermined initial portion of the stroke of the stripper lever to elevate the contents of the mold box into the mouth of the hopper, whereby, when the latter is moved rearwardly, the upper portion of the block is cut off prior to manipulating the stripper lever thereto its full stroke to lift the decapitated block from the mold.

3. In a concrete block making machine, a frame, a mold box supported in the frame, a feed hopper slidably supported in the frame above the mold box and movable from a position in registry with the mold box to a position rearwardly thereof, a pallet in the mold box, arm means below the pallet, a stripper lever of substantially bell-crank formation pivoted to the frame, and including a manually operable portion and a portion for engaging said arm means below the pallet, and a control lever medially pivoted to the frame below the point of pivotal connection of said bell-crank lever therewith, said control lever having one end adapted for receiving foot pressure and the other end adapted to engage the portion of the bell-crank lever which engages said arm means, whereby when the control lever is depressed the bell-crank lever will move through the initial portion of its stroke to lift the pallet and the block so that the upper portion of the latter is projected into the mouth of the hopper, and the latter upon rearward movement out of registry with the mold box will cut off the upper portion of the block prior to manual manipulation of the bell-crank lever to completely lift the block from the mold box.

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The following references are of record in the file of this patent:

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