March 15, 1932. F. J. STRAUB 1,849,889

BLOCK MOLDING MACHINE

Filed Nov. 16, 1928 2 Sheets-Sheet 1

Fig. 1.

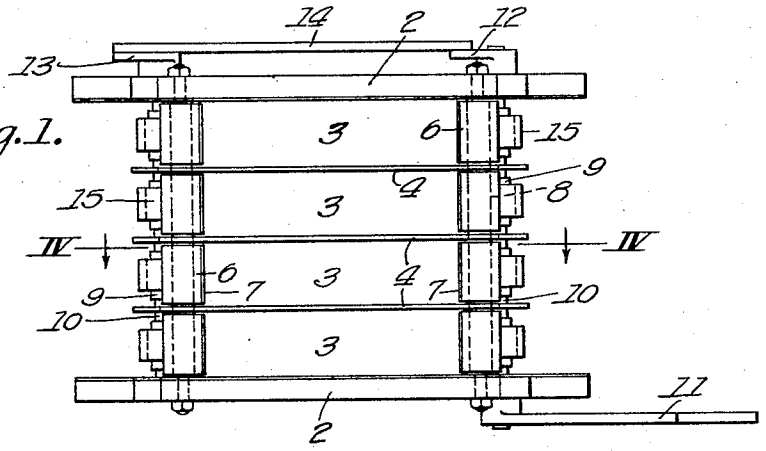
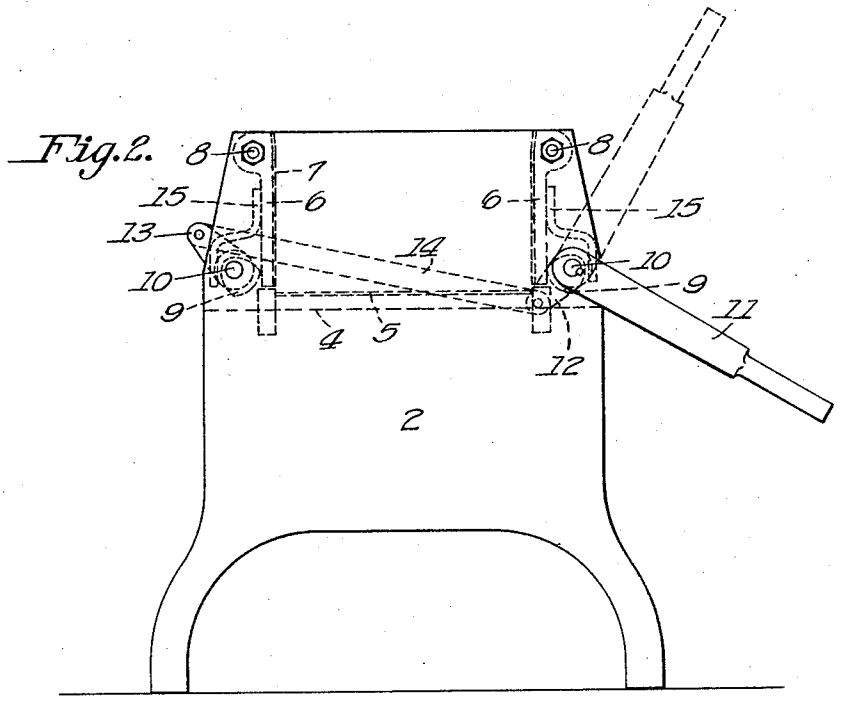


Fig. 2.



INVENTOR

Francis J. Straub

by C. M. Clarke

attorney

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Fig. 3.

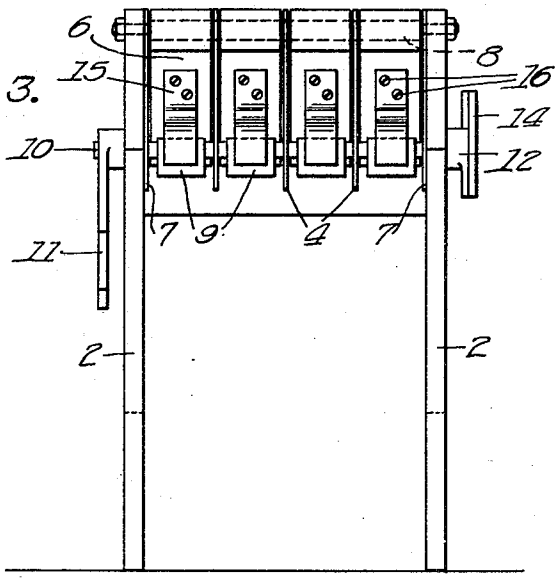
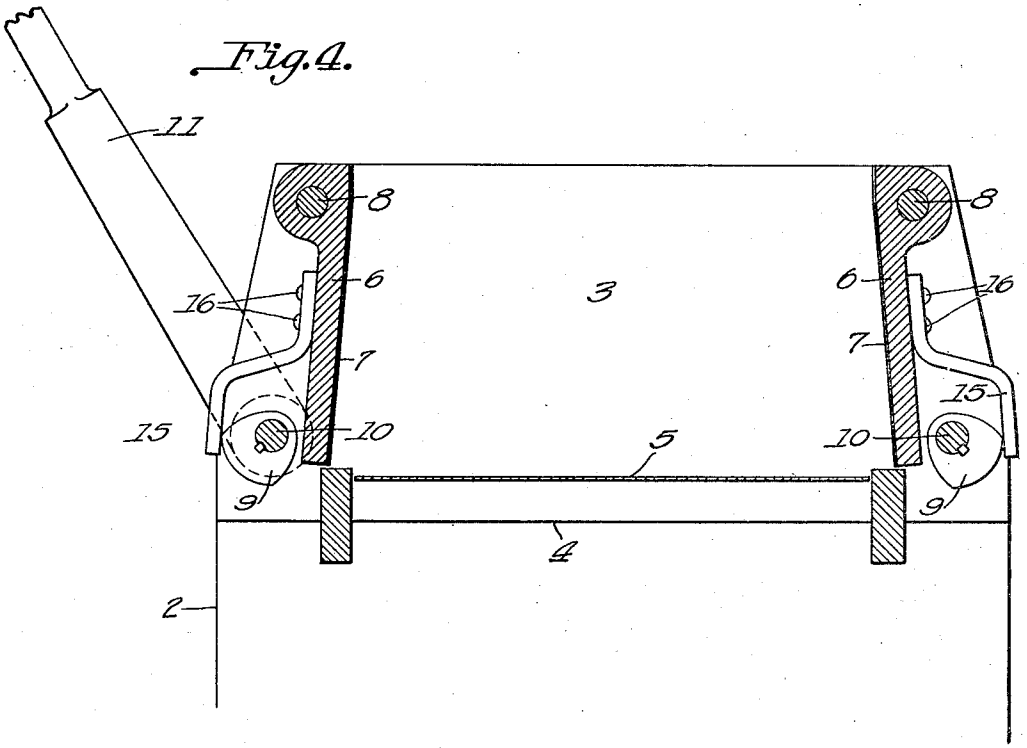


Fig. 4.



INVENTOR

Francis J. Straub

by C. M. Clarke

Attorney

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UNITED STATES PATENT OFFICE

FRANCIS J. STRAUB, OF NEW KENSINGTON, PENNSYLVANIA

BLOCK MOLDING MACHINE

Application filed November 16, 1928. Serial No. 319,901.

My invention relates to improvements in molding machines for concrete building blocks and the like.

In the manufacture of such blocks, any suitable aggregate mixed with water and a binding material, as cement, and of proper consistency, is ordinarily charged into the interior of a forming mold and therein subjected to the tamping action of any suitable means, as reciprocable tamps, for packing the aggregate successively from the bottom or top, as it is charged into the mold.

The operation is generally the same, whether the entire cavity of the mold is filled, or whether the aggregate is filled within the mold around upstanding cores for the formation of transverse openings in the finished block.

I have found that in such operation, utilizing molds of the usual construction, certain portions of the block fail to receive sufficient compression to form blocks of uniform density throughout, the lower outer edge portions of the block being frequently too open or incomplete, due to failure of the aggregate to completely and solidly fill such portions.

My invention has in view to overcome such inequality and lack of density by means of movable walls, adapted to inwardly compress the opposite sides or end portions of the block laterally, whereby to compensate for such lack of compression and to render the block throughout of uniform consistency and solidity.

One preferred embodiment of the invention is illustrated in the enclosed drawings, which show the mold portion of an entire block making machine, certain other standard features of which, as elevating and discharging mechanism, being omitted, in which:

Fig. 1 is a plan view of one form of plural chambered molding machine provided with my invention;

Fig. 2 is a view of the same in end elevation;

Fig. 3 is a view of the machine in side elevation;

Fig. 4 is a transverse vertical section on the line IV—IV of Fig. 1.

Referring to the drawings, 2 are the main end plates or frames of the machine, at the upper portion of which are provided one or more molding cavities 3. These, as shown, are plural in number, extending between the end plates 2 with transverse division plates 4 at intervals, defining the width of the block to be formed, as will be readily understood.

Partition plates 4 may be permanent or removable as desired, and mounted in any suitable manner, providing smooth-faced walls between which the aggregate may be charged and tamped upon the usual supporting pallet 5, first laid in the bottom of the mold cavity.

The end walls 6, which may be faced with an inner sheet metal lining 7 if desired, are pivotally mounted at their upper portions upon transverse supporting bars 8 at each opposite side of the machine, and are capable of inward and outward swinging movement thereon, under the actuating effect of means adapted to throw the walls outwardly or inwardly at each side simultaneously.

For such purpose, I utilize suitably designed cams or eccentrics 9, mounted on actuating shafts 10 to which they are keyed or otherwise secured for rotative movement by rotation of the shaft 10. Said shafts are provided, one with a hand operating lever 11 and a short lever 12 and 13 respectively, one for each shaft.

Levers 12 and 13 are connected by a bar 14, so that as the hand lever 11 is operated it will transmit a corresponding movement through lever 12 and connection 14 to lever 13, so that both shafts 10 will be rotated together, but in the opposite direction. Such opposite direction movement is easily accomplished by arranging one of the levers downwardly and the other upwardly, as shown in Fig. 2.

Each wall 6 is provided at its outer side with a keeper or guard 15, bolted or screwed to the outer side of the mold wall 6, as at 16.

The brackets or guards as thus made extend downwardly and outwardly within range of the extended portions of cams 9, so that when they are thrown outwardly by proper lever action, the side walls 6 will be correspond-

ingly swung outwardly on their pivoting supporting bars 8, as in Fig. 4.

When the lever is reversed, as to the position shown in Fig. 2, then the cams are rotated in the opposite direction and bear inwardly against the lower face portions of the side 6, thrusting them inwardly to vertical position, whereby to define perpendicular limiting faces for the block in formation.

It will thus be seen that while the upper area of the mold cavity in each case is substantially unvarying, the lower portion may be materially decreased by such inward movement of the walls, so that the ends are brought into parallelism for forming a rectangular block, which may be then ejected upwardly.

The desirable effect of such inward movement of the walls is to compress the aggregate at the lower edge portions of the block, increasing its density, filling out any voids, and resulting in a substantially uniform block formation throughout.

The cam actuation of the mold walls may be supplemental to the filling and tamping operation, or they may be gradually adjusted inwardly as the tamping progresses, dependent on conditions, consistency of the aggregate, or other controlling factors.

If it is desired to use the mold in the ordinary manner, the cams may be set inwardly so as to maintain the walls vertical throughout the filling and tamping operation in the manner of an ordinary mold.

It will be understood that the hand lever operation of shafts 10 may be substituted by any power operated mechanism, or foot treadle device, whereby to effect the desired inward and outward movement to the end walls.

Also that the machine may be variously changed or modified in detail construction as to application of movement to either pair of walls, i. e., end or side, or by designing different parts of the machine to adapt it to any special shape, size, or design of block, but that all such changes are to be understood as within the province of the skilled mechanic and the scope of the following claims.

What I claim is:

1. In a molding machine provided with a rectangular open top block-forming cavity, opposite end walls having a pivoting mounting support at their upper portions between intervening side walls and means for swinging their lower portions outwardly between the side walls to oppositely sloping positions during charging and inwardly to vertical compressing positions against the mold contents.

2. In a molding machine provided with opposite confining simultaneously outwardly and simultaneously inwardly swinging side walls each having a cam bracket, the combination therewith of actuating cams between each wall and its bracket for imparting inward and outward movement to the walls, and means for actuating the cams together to engage the walls and brackets respectively in opposite directions.

3. In a molding machine provided with opposite confining simultaneously outwardly and simultaneously inwardly swinging side walls each having a cam bracket, the combination therewith of actuating cams between each wall and its bracket for imparting inward and outward movement to the walls, shafts for said cams, and lever mechanism for actuating the shafts and cams together to engage the walls and brackets respectively in opposite directions.

4. In a molding machine, the combination with fixed side walls and a supporting bottom, of adjustable end walls pivotally mounted at their upper portions between the side walls for outward and inward movement therebetween, each end wall having an outwardly extending cam bracket, a pair of actuating shafts therefor each having a cam located between one of said walls and its bracket, and means for actuating both of said shafts and their cams together.

5. In a molding machine, the combination with fixed side walls and a supporting bottom, of adjustable end walls pivotally mounted at their upper portions between the side walls for outward and inward movement therebetween, each end wall having an outwardly extending cam bracket, a pair of actuating shafts therefor each having a cam located between one of said walls and its bracket, a lever on each shaft, a link connecting said levers, and an operating lever on one of said shafts.

6. In a molding machine, the combination of a pair of opposite fixed walls, intervening movable walls having a pivoted mounting support at their upper portions between the fixed walls, and means for swinging the lower portions of the pivoted walls outwardly between the fixed walls to oppositely sloping positions during charging and then inwardly to vertical compressing positions against the mold contents.

In testimony whereof I hereunto affix my signature.

FRANCIS J. STRAUB.