

June 25, 1929.

H. E. DUNN

1,718,338

CEMENT BLOCK TAMPER

Filed July 12, 1926

4 Sheets-Sheet 1

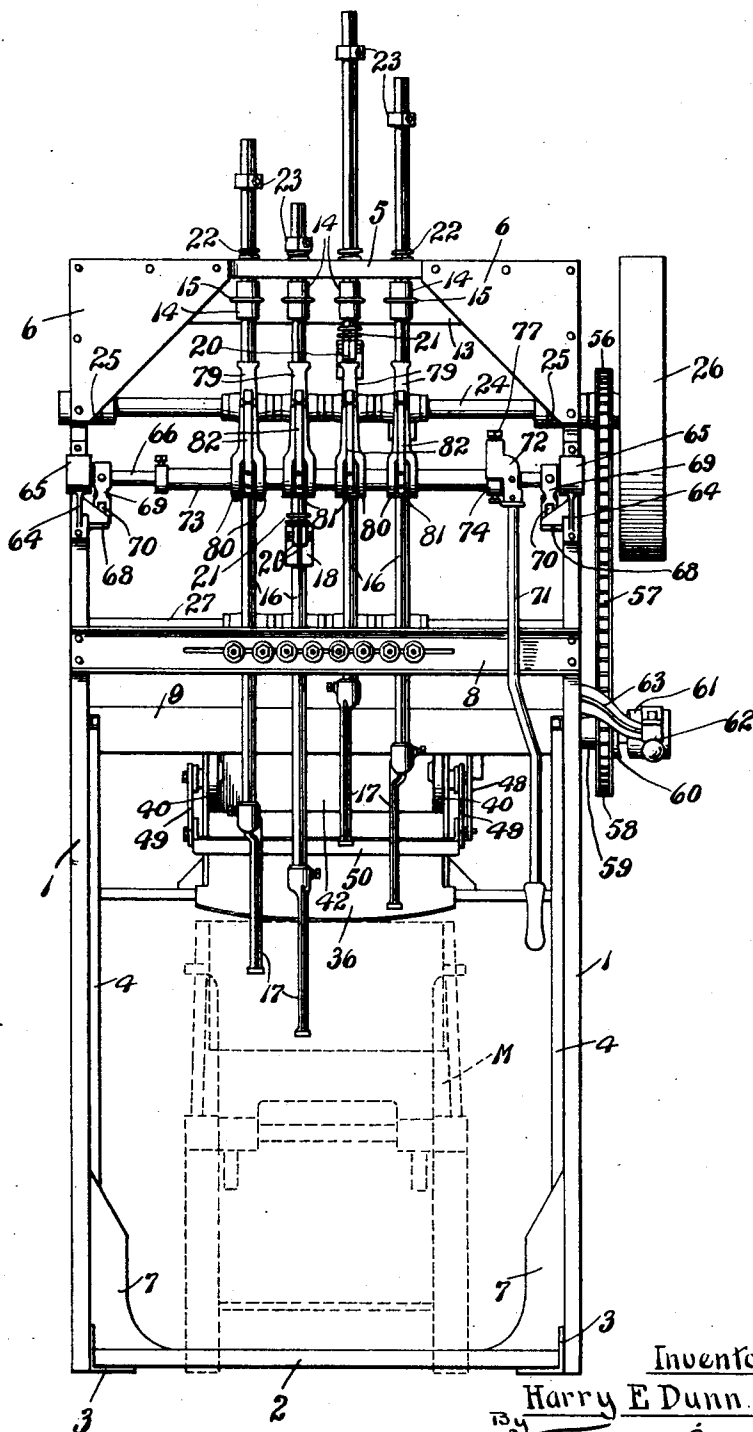


Fig. 1.

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4 Sheets-Sheet 2

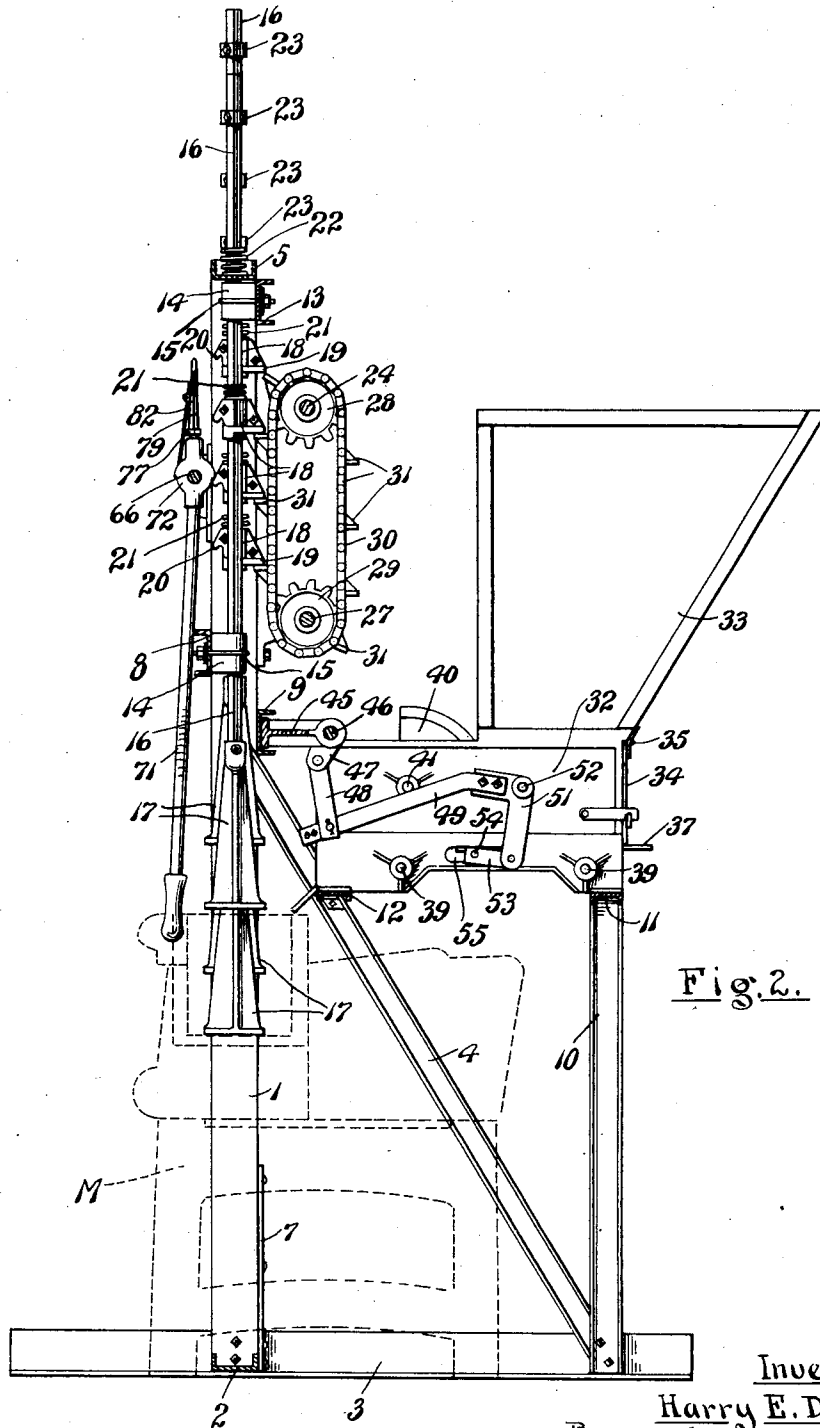


Fig. 2.

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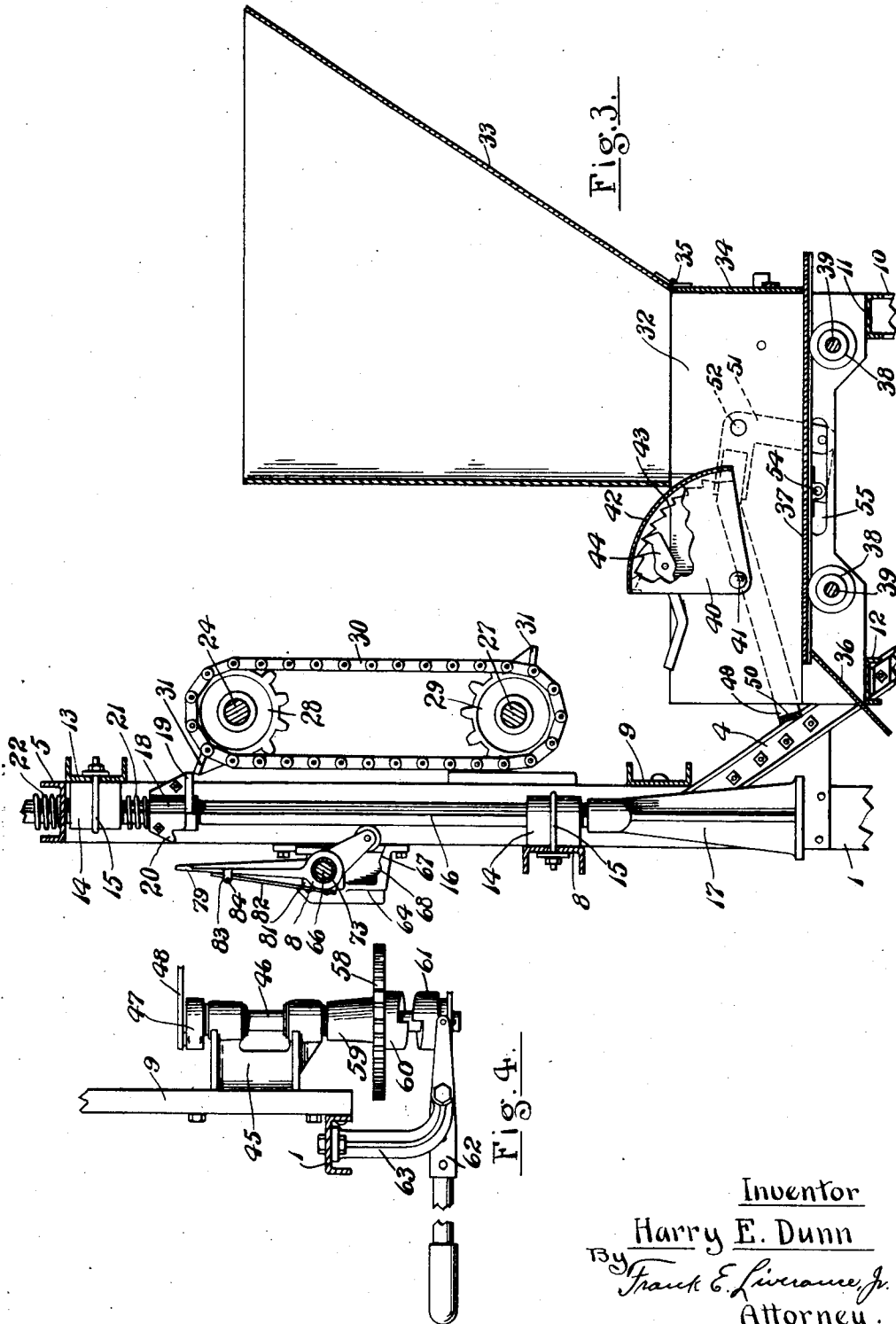
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

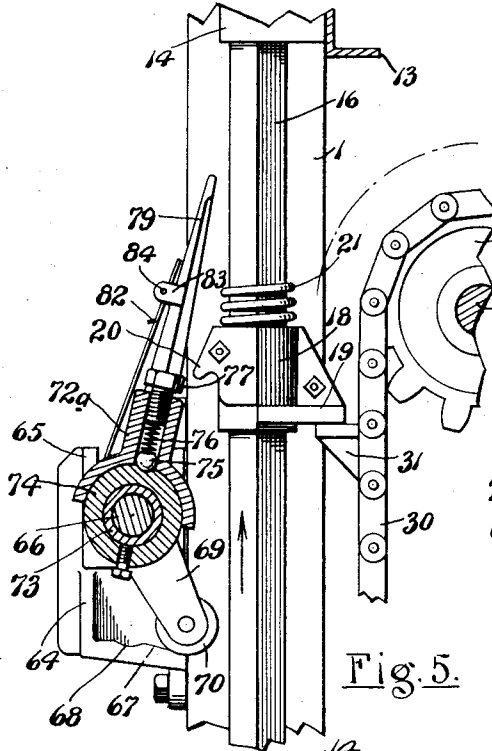


Fig. 5.

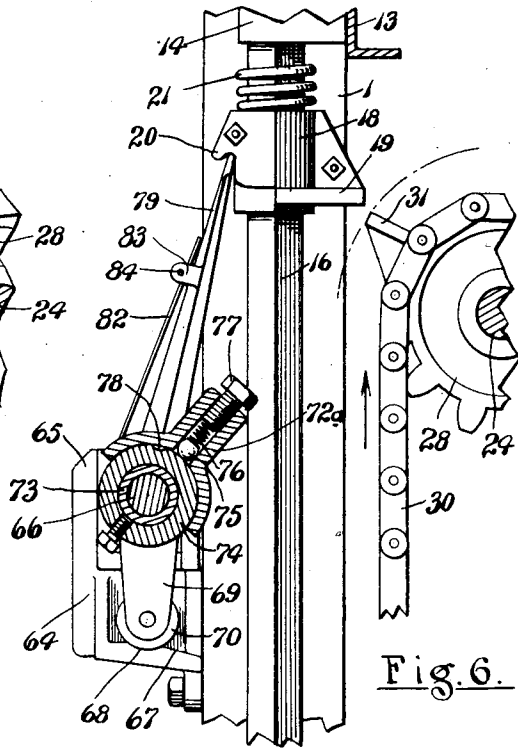


Fig. 6.

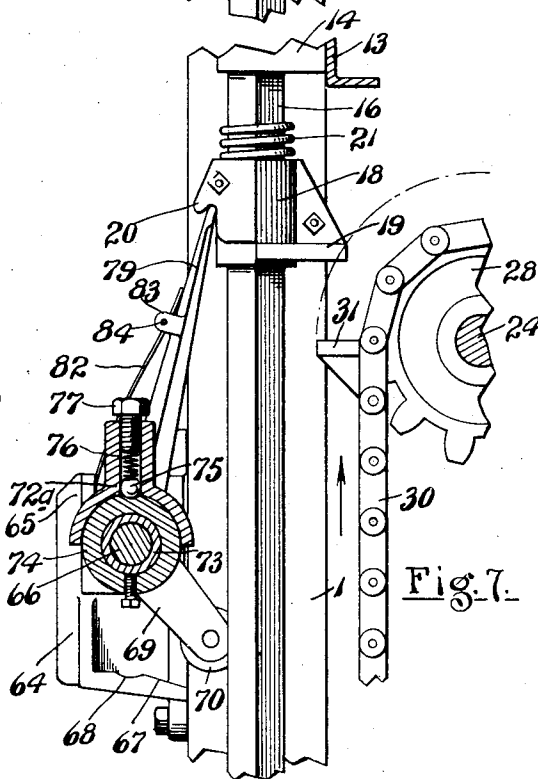


Fig. 7.

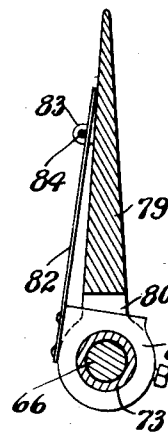


Fig. 8.

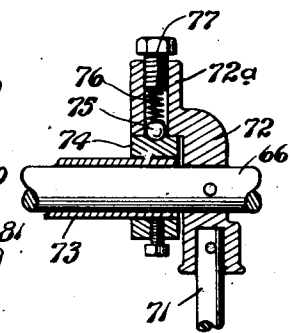


Fig. 9.

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UNITED STATES PATENT OFFICE.

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CEMENT-BLOCK TAMPER.

Application filed July 12, 1926. Serial No. 121,753.

This invention relates to a tamping machine, being more particularly concerned with a machine for tamping cement blocks. It is an object and purpose of the present invention to provide a machine of this character wherein a plurality of blocks may be made in a form or mould, the cementitious material being fed into the form and the material continuously tamped until the form or mould is filled, making a plurality of the blocks. A further object of the invention is to provide a machine in which the tampers may be worked when it is necessary for tamping cementitious material, but all of which, when a form or mold has been completely filled and the blocks are completed, may be elevated to an upper position and held therein and rendered inoperative for a desired interval or while the form or mold has had the blocks formed removed therefrom, the driving mechanism for the machine being continuously in operation during this interval. A yet further object of the invention is to provide a very simple means for immediately bringing the tamping members again into operation after the blocks have been removed from the form and it is again ready to receive material for making additional blocks. It is also an object and purpose of the present invention to provide a feeding mechanism for feeding the cementitious material to the mold or form, driving said feeding mechanism from the power shaft which also furnishes power to actuate the tampers and to provide a manually operable means for rendering said feeding mechanism inoperative when it is desired, it being evident that said feeding mechanism should be inoperative while the completed blocks are being removed from the mold. These and various other objects and purposes, not at this time particularly enumerated, all for the general object and purpose of producing a relatively simple, economically constructed, easily assembled and durable and efficient machine will appear fully and in detail as understanding of the invention is had from the following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a front elevation of the tamping machine.

Fig. 2 is a vertical section through the machine taken near the right hand side of the machine shown in Fig. 1.

Fig. 3 is a fragmentary enlarged vertical section of the upper portion of the machine

and through the feeding apparatus therefor.

Fig. 4 is a somewhat enlarged plan of the manually operable means for connecting and disconnecting the feeding mechanism with the drive shaft of said machine.

Figs. 5, 6 and 7 are fragmentary enlarged sections showing the means used for holding the tamper members in upper position, different positions of said mechanism for effecting different results being shown in the different Figures 5, 6 and 7.

Fig. 8 is a vertical section through one of the retaining members used to hold a tamper member in upper inoperative position and,

Fig. 9 is a fragmentary vertical section through a detail of construction illustrative of the method of manually operating the retaining members shown in Figs. 5 to 8, inclusive.

Like reference characters refer to like parts in the several views of the drawings.

In the construction, a supporting frame for the mechanism is provided including two vertical spaced apart channel posts 1 connected at their lower ends to bottom angle bars 3 between which is a cross connecting channel 2. Diagonal brace bars 4 extend from an intermediate point in the length of each of the vertical posts 1 to the lower bars 3, as best shown in Fig. 2. The upper end of the posts 1 are connected by second cross member 5, suitable gusset plates 6 and 7 being used to strengthen and reinforce the supporting frame at its upper and lower corners. There are also two other cross connecting bars indicated at 8 and 9 between the posts 1, the bar 8 being at the front side of the frame and the bar 9 at the rear side and slightly below the bar 8. Two vertical posts 10 connected at their upper ends by cross member 11 extend upwardly from the bottom members 3 of the frame and a cross bar 12 also extends between and is connected to the diagonal brace bars 4, in front of and in substantially the same horizontal plane with the cross bar 11, described, as shown in Fig. 2. There is also, at the upper end of the frame, and at its rear side, a cross bar 13 located immediately below the upper bar 5. All of these bars or members of the frame, except the horizontal members 3, are preferably of channel form for purposes of lightness and strength.

In front of the cross bar 13 and back of the cross bar 8, a plurality of vertical guides 14 are mounted, being preferably secured by means of U-clips 15 to the bars, and these

bars are slotted so that the guides 14 may be adjusted to different positions if it is desirable or necessary, this being sometimes required for blocks of different dimensions.

5 Rods 16 preferably square in cross section are slidably mounted to pass vertically through the guides 14 and each at its lower end is equipped with a tamping foot 17. The tamping feet 17 are detachably connected to the lower ends of the rods 16 and may be replaced by others of different dimensions for different sizes of blocks. On each of the rods 16 a sleeve 18 is secured having a rearwardly projecting part 19 at its rear side, and a forwardly extending hook 20 at its front side.

15 Each of the sleeves 18 is made of two parts which are bolted together and clamped against a rod 16. On each rod 16, above each sleeve 18, a short coiled spring 21 is located. Similarly a short coiled spring 22 is located around each rod 16 above the upper member 5 of the frame and on each rod 16 near its upper end a collar 23 is adjustably secured, it being evident that the downward movement of a tamper member is limited by the collar 23 striking against a spring 22 and that such spring serves to absorb any shock which otherwise would occur by the striking of the collars directly against the upper cross member 5.

20 Similarly on the upward movement of rods 16, the springs 21 insure that there will be no abrupt shock of the upper ends of sleeves 18 ever striking against the under sides of the upper guides 14.

25 A shaft 24 is mounted near the upper end of and back of the vertical supporting frame on suitable brackets 25 which extend rearwardly from the vertical posts 1 of the frame. This shaft is equipped with a drive pulley 26 at one end, which may be driven by a belt from any suitable source of power. A second shaft 27 is located directly below the shaft 24 and is supported on the posts 1 in the same manner as is shaft 24. Directly back of each of the tamper rods 16 an upper sprocket wheel 28 is attached to the upper shaft 24 and a lower sprocket wheel 29 is attached to the lower shaft 27. Chains 30 pass around these sprocket wheels, it being evident that in the construction shown with four of the tamping rods 16 there are four of the chains 30. At two equally spaced apart points in the length of each chain 30, lugs 31 are secured which on the upper run of the chain come against the under side of the rearward projections 19 on the sleeves 18, serving to lift the tamping rods 16 with their attached tamping feet 17 to upper position or substantially to that shown in Fig. 3. And when a lug 31, as it moves to the rear to turn around an upper sprocket wheel 28 disengages from the part 19, the rod 16 and its attached foot 17 drops by gravity. Underneath the tamping feet 17 a mold or form indicated in dotted lines at M is positioned between the vertical side

posts 1 of the frame. And the mold, with the machine shown, will be equipped to make four blocks and each tamping foot 17, as it drops will strike against cementitious material held in the mold, tamping and condensing the same as is necessary for the best production of cementitious products.

The cementitious material is fed to the mold or form automatically. The feeding mechanism is located back of the tamping devices and includes vertical sides 32 spaced apart and supported on the cross bars 11 and 12 of the supporting frame previously described. A hopper 33 to receive the cementitious material extends above and is attached to the rear portions of the said sides 32. A door 33 is hingedly connected at its upper edge at 35 to the lower rear edge of the hopper. This door is normally latched in closed position, as shown in Fig. 2, but may be opened whenever it may be desired to clean the mechanism, as is at times necessitated by the setting of cementitious material against the sides and bottom of the feeding device. At the front part of the sides 32 and between them a downwardly and forwardly inclined member 36 is secured as shown.

A bottom 37 is mounted for reciprocating movement on rollers 38 carried on rods 39 extending between said sides 32 of the feeding mechanism. This bottom is located immediately above the upper edge of the member 36 and below the lower edge of the rear door 34, as shown in Fig. 3. The material placed in the hopper 33 falls by gravity onto this bottom and with the reciprocation thereof by mechanism which will be later described, the material is carried forward on the forward movement of the bottom 37, other material from the hopper 33 then dropping in back of that which has been carried forward so that on the rearward movement of the bottom 37 the material is pushed off at front end of said bottom 37, striking the inclined member 36 which directs it into the mold or form.

It is desirable that the quantity of material fed to the mold or form shall be regulated and this is done by means of a regulating gate, which comprises two sector shaped ends 40 pivoted to the sides 32 and 41 and connected by the curved member 42, as shown in Fig. 3. A ratchet 43 is located under the member 42 near one end thereof to engage with which is a dog 44 pivotally mounted near the upper edge of the side 32. It is obvious that with this construction the gate may be adjusted and held in different positions and that the distance between the bottom 37 and the lower edge of the member 42 may be varied so as to regulate the passage of the cementitious material under said gate.

The operating mechanism for reciprocating the bottom 37 is driven from the main

drive shaft 24. A bracket 45 is secured to the cross bar 9 of the supporting frame having bearings at its rear end in which a shaft 46 is rotatably mounted. Said shaft at one end is equipped with a crank arm 47 which is connected by a link 48 with one side 49 of a U-shape bar which passes around the front end of the feeding mechanism, bars 49 being located, one at the outer side of each of the sides 32 and connected by the cross bar 50, as shown in Figs. 1 and 3. Said bars 49 at their rear ends are connected to bell-crank levers 51 pivotally mounted at 52 on the sides 32. Each of the bell-crank levers has a downwardly extending arm pivotally connected to a link 53 which extends forward and has a pivotal connection to a rod 54 connected to and located at the under side of the bottom member 37. The sides 32 below the bottom member 37 are slotted at 55 so as to permit the movement of rod 54 as the plate 37 is reciprocated.

Rotation of the shaft 46 oscillates the bell-crank levers 51 about their pivots 52 with a consequent reciprocation of the bottom member 37. This results in feeding the cementitious material placed in the hopper 33 to the mold or form at periodical intervals. The shaft 46 is driven from the drive shaft 24 through a sprocket wheel 56 thereon driving an endless chain 57 which also passes around a second sprocket wheel 58 fixed to a hub 59 loosely mounted on the shaft 46 and at its outer end being formed to make one member 60 of a clutch. The other member 61 of said clutch is splined on the shaft 46 and may be moved into or out of engagement with the clutch member 60 by means of the hand lever 62 pivotally mounted between its ends and carried by a bracket 63 secured to a vertical post 1 of the frame of the machine. (See Figs. 1 and 4.) During the time that the blocks are being removed from the mold or form it is, of course, clear that continued feeding of the material should not take place. The feeding is stopped by disengaging the clutch member 60 and no feeding of material will take place even though the drive shaft 24 continues to rotate at its usual speed.

When the machine is operating with the clutch members 60 and 61 connected, the material is fed into the molds carried by the form indicated at M and the tamping members are lifted and dropped falling on to the cementitious material which is fed into the mold with a resultant tamping and condensing of the material. When a mold is filled and the blocks completed, the lever 62 is operated to stop the feeding of the material to the mold. After the blocks are fully tamped it is necessary to stop operation of the tamping members and hold them elevated out of the way and above the mold so that the blocks may be removed therefrom and the form made ready for the formation of suc-

ceeding blocks. Mechanism for accomplishing this is provided as will now be described.

At the front side of the machine and a short distance below the plane of the drive shaft 24, two brackets 64 are secured, one to each of the vertical posts 1. These brackets extend forwardly from the posts and at their upper sides are formed to make vertical guides 65 in which bearings for the end of a rock shaft 66 are mounted for vertical movement. Below the guides 65 each bracket is formed with an inwardly extending portion having an upwardly and outwardly inclined upper side 67 in which a concave recess 68 is made, best shown in Figs. 5 and 7. Near each end of the shaft 66 an arm 69 is secured, the same normally extending downwardly and to the rear and being equipped at its lower end with a roller 70 adapted to engage against the inclined side 67, described, it being evident that on rocking the shaft 66 in a clockwise direction, (referring to Figs. 5 and 6) the rollers 70 will ride on the inclines 67 lifting the shaft 66 a short distance; and when said rollers reach the recesses 68 the shaft will be held in its elevated position. The means used to rock the shaft 66 is a long handle 71 which is connected to a member 72, it in turn being pinned to the shaft; and an outward pull on the lower end of the handle 71 causes this rocking of the shaft and its simultaneous elevation when the rocking is carried far enough. Normally the handle members 71 lies in the position shown in Fig. 2 occupying such position through gravity.

On the shaft 66 an elongated sleeve 73 is loosely mounted, one end thereof adjacent the member 72, being equipped with a collar 74 which is rigidly secured to the sleeve. The opposite end of the sleeve 73 bears against a collar shown in Fig. 1, secured to the shaft 66. The member 72 is formed at its upper portion with a laterally offset part 72^a which extends over the collar 74. The part 72^a has a vertical passage through it in the lower part of which and bearing against the collar 74, is a ball 75 held against the collar 74 by spring 76, the tension of which may be regulated by the screw 77 threaded into the upper end of the opening made in the part 72^a. The ball normally seats in a concave recess 78 in the collar 74. In front of each of the tamping rods 16 a member 79 is located, the same being divided at its lower end to make spaced apart collars 80 which are loosely mounted on and around the sleeve 73. The members 79 taper upwardly and come nearly to a point at their upper ends. Between the separated or divided lower ends 80 of each member 79 a collar 81 is located which is secured to the elongated sleeve 73 by a set screw so as to turn therewith. From each of said collars a leaf spring 82 secured at one end to the collar, extends upwardly between ears 83 extending outwardly from each member 79 and

underneath a pin 84 extending between said ears.

With this construction, when the hand lever 71 is in its normal position, as shown in Fig. 2, the engagement of the ball 75 with the collar 74 turning the sleeve 73 with shaft 66, moves all of the collars 81 with said sleeve and, through the connection made by the springs 82 with the members 79, turns said members to substantially vertical position as shown in Figs. 2 and 3, wherein the members 79 are spaced a distance from the tamping rods 16. Therefore, in the normal operation of the machine and with the parts described occupying their normal position, the elevation and dropping of the tamping members takes place independent of and in no way influenced by the construction described.

When the mold has been filled and blocks formed and tamped therein and it is desired to remove the blocks, the continuing operation of the tamping members 16 with the attached tamping feet 17, is arrested with a holding of all of the members in an elevated position, all of the tamping feet 17 being held in the same plane above the upper sides of any of the blocks which have been tamped and formed. This is accomplished by grasping the handle 71 and moving the same outward at its lower end. With this operation shaft 66 is rocked and the members 79 are turned inwardly to the position shown in Fig. 5, in which position, as the sleeves 18 on the respective tamping rods 16, come to their uppermost positions, the hooks 20 are engaged over the upper ends of the members 79. The tamping rods cannot thereafter fall but are all held in upper position until a release of the members 79 from the hooks 20 has been effected.

It is desirable, however, that the lugs 31 shall not continue to strike against the parts 19 projecting rearwardly from sleeves 18 during the time that the tamping members are not in operation and to obviate this the handle rod 71 is moved still farther outward after all of the hooks 20 on the various sleeves 18 have been engaged over the upper ends of the members 79. With such further operation of the handle rod 71 a further rocking of the shaft 66 takes place, the rollers 70 on the arms 69 traveling upwardly on the inclines 67 to elevate the shaft 66 and consequently elevate all of the members 79 and the sleeves 18 and their connected tamping rods 16; so that the parts 19 are raised to a position such that lugs 31 on the chains 30 pass freely by and do not strike thereagainst, as shown in Fig. 6. This further rocking of the shaft 66 results in the spring pressed ball 75 disengaging from the retaining seat or recess 78 in collar 74. Sleeve 73 does not rock beyond the position to which it was turned to in the first instance, but the shaft 66 rocks farther so as

bring arms 69 and rollers 70 into engagement with the inclines 67 to elevate the mechanism, as described.

The power shaft 24 may continue to drive at its usual speed but the tampers will not be in operation, and if the clutch composed of parts 60 and 61 is separated, as it should be, neither will there be feeding of the cementitious material. At this time the blocks may be removed from the form and the form or mold again arranged for the production of the succeeding series of blocks. It is then necessary to bring the tamping members again into operation, disconnecting the same from the members 79. This is accomplished by merely grasping the handle 71 and turning it back to its normal position, shown in Fig. 2. The first effect of this turning back to normal position is to lower the shaft 66, inasmuch as the rollers 70 will disengage from the supporting inclines 67 and recesses 68 therein, and the shaft 66 with the arms 69 and rollers 70 occupy the position shown in Fig. 7. The sleeve 73 will also turn back to normal position as soon as the ball 75 has re-engaged the recess 78, and with such return all of the collars 81 will return but the members 79 will remain in engagement with the hooks 20, this bending and putting all of the springs 82 under tension, as shown in Fig. 7, the normal effect of which will be to draw the members 79 to vertical position as soon as they can disengage from the hooks 20. The lowering of the shaft 66 with its connecting mechanism brings the sleeves 18 to a lower position such that the lugs 31 may engage with the parts 19, and as soon as any lug 31 on a chain 30 which has been continuously moving all of the time, strikes against the under side of a projection 19, it elevates the sleeve 18 and attached tamping rod 16, a short distance, this elevating the hook 20 and causing the disconnection of the hook with its associated member 79, whereupon the flexed spring 82 is brought into play and its force acts to turn the member 79 to its normal vertical inoperative and ineffective position, as shown in Figs. 2 and 3.

It is apparent, therefore, that the construction described, is automatic in its operation so far as stopping the operation of the tampers whenever it is desired, or restarting the same, such operations following upon manually turning the handle rod 71 outward for stopping the tampers and back to normal position for restarting the same. It is, of course, impractical to stop and start the drive shaft 24, this shaft rotating all of the time, the chains 30 continuing to move at full speed. The construction described disconnects the tampers from operation of said chains by merely moving the handle 71 outward, thereafter moving it farther outward so as to elevate all of the sleeves 18

with their rearwardly projecting portions 19 above the elevated lugs on the chains. The construction is durable and efficient and is particularly effective for the purposes for which it is designed. It has proved its value in actual practice. The appended claims define the invention which is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a construction of the class described, a supporting frame, a plurality of tamper rods on said frame and mounted for vertical sliding movements, tamper feet attached to the lower ends of the rods, a sleeve secured to each rod, means continuously operable for engaging with said sleeves to elevate the rods a prescribed distance, disengaging therefrom when the rods have been elevated to a predetermined point to permit the same to drop by gravity, a hook projecting from each sleeve, brackets attached to the supporting frame, bearings slidably mounted on said brackets for vertical movement, a shaft rockably mounted in said bearings, means for manually rocking the shaft, members carried by said shafts, one for each tamper rod, normally extending vertically above said shaft, said members at their upper ends being turned inwardly, when said shaft is rocked, toward the tamper rods and into the paths of movement of said hooks so that said hooks engage with said members on their elevation to a predetermined point, thereby holding the tamper rods from dropping, arms projecting from the shaft, rollers at the ends of the arms, and inclined means on the brackets with which said rollers are adapted to engage to thereby elevate the shaft and the members mounted thereon a further distance on manual rocking of the shaft, this serving to further elevate the sleeves and attached tamping rods.

2. In a machine of the class described, a vertical supporting frame, pairs of guides located in vertical alignment thereon, tamper rods slidably mounted in said guides, tamping feet attached to the lower ends of the rods, a sleeve secured to each tamping rod and formed with a lug projecting therefrom at one side and a hook projecting therefrom at its opposite side, upper and lower shafts carried by said frame, pairs of sprocket wheels on said shafts, chains located around the sprocket wheels, one for each tamper rod, lugs projecting from the chains to engage under the lugs on said sleeves and thereby elevate the tamping rods and attached feet a predetermined distance after which said lugs disengage from each other and the tamper rods fall by gravity, brackets carried by the frame at the opposite side thereof, bearing boxes mounted on said brackets for vertical movement, a shaft rockably mounted in said

boxes, an elongated sleeve loosely mounted on the shaft, a handle rigidly attached to the shaft for manually rocking the same, yieldable means disposed between the sleeve and said handle for normally rocking the sleeve when the shaft is rocked, a plurality of members loosely mounted at their lower ends on the sleeve and extending upward therefrom, each of said members being divided at its lower end, a collar fixed to the sleeve between the lower divided ends of each member, a leaf spring attached to each collar and extending upwardly therefrom its upper end bearing against the outer side of each of said members, ears projecting from each member between which the upper ends of the spring pass, pins disposed between said ears at the outer side of each spring, arms attached to said shaft and extending downwardly and to the rear therefrom and rollers secured to the lower ends of said arms, each of said brackets being formed with an inclined portion against which the rollers are adapted to ride on rocking the shaft, said rollers riding up said inclines, substantially as described.

3. In a construction of the class described, a supporting frame, a plurality of tamper rods mounted therein for vertical reciprocatory movement, a tamper foot attached to the lower end of each tamping rod, whereby cementitious material held in a form below the tamping feet may be tamped thereby, means for periodically elevating each tamping rod and attached foot a predetermined distance and then releasing the same to drop by gravity, a drive shaft for driving said elevating means, means for receiving and holding a quantity of cementitious material mounted back of said tamper rods, a reciprocating bottom on which said cementitious material rests, and means driven by the drive shaft for reciprocating said bottom to thereby periodically feed cementitious material into the form during the elevation and dropping of the tamper rods and attached feet.

4. In a machine of the class described, a supporting frame, a plurality of tamper rods mounted thereon for vertical reciprocation, means for periodically lifting the respective tamper rods a prescribed distance and then releasing them to drop by gravity, a shoulder on each tamper rod, a rock shaft extending horizontally adjacent the tamper rods, said rock shaft being mounted for vertical movement, holding members loosely mounted on said rock shaft adjacent the respective tamper rods, spring members connecting with said holding members and fixed to said rock shaft and means for manually rocking the rock shaft to yieldably move the holding members toward or away from said tamper rods and into or out of engagement with the shoulder thereon and means for moving the rock shaft vertically.

5. In a machine of the class described, a supporting frame, a plurality of tamper rods mounted thereon for vertical reciprocation, means for periodically lifting the respective tamper rods a prescribed distance and then releasing them to drop by gravity, a shoulder on each tamper rod, a rock shaft extending horizontally adjacent the tamper rods, said rock shaft being mounted for vertical movement, holding members loosely mounted on said rock shaft adjacent the respective tamper rods, spring members connecting with said holding members and fixed to said rock shaft and means for manually rocking the rock shaft to yieldably move the holding members toward or away from said tamper rods and into or out of engagement with the shoulders thereon and coacting means for moving the rock shaft vertically, the lifting movement of the rock shaft occurring subsequent to the movement of the holding members toward the tamper rods.

6. In a machine of the class described, a supporting frame, a plurality of tamper rods mounted thereon for vertical reciprocation, means for periodically lifting the respective tamper rods a prescribed distance and then releasing them to drop by gravity, a shoulder on each tamper rod, a rock shaft extending horizontally adjacent said tamper rods and mounted for vertical movement, a sleeve surrounding said rock shaft and rotatable relative thereto, holding members loosely mounted on said sleeve adjacent the respective tamper rods, spring members fixed to said sleeve and attached to the holding members to yieldingly move the same into or out of engagement with the shoulders of the tamper rods upon oscillation of said sleeve, means actuated by rotation of the rock shaft to raise or lower it vertically, and manually operable means for rotating both the rock shaft and the sleeve in either direction or for rotating the rock shaft independently of the sleeve in either direction.

7. In a machine of the class described, a supporting frame, a plurality of tamper rods mounted thereon for vertical reciprocation, means for periodically lifting the respective tamper rods a prescribed distance and then releasing them to drop by gravity, a shoulder on each tamper rod, a rock shaft extending horizontally adjacent said tamper rods and mounted for vertical movement, a sleeve surrounding said rock shaft and rotatable relative thereto, holding members loosely mounted on said sleeve adjacent the respective tamper rods, spring members fixed to said sleeve and attached to the holding mem-

bers to yieldably move the same into or out of engagement with the shoulders of the tamper rods upon oscillation of said sleeve, means actuated by rotation of the rock shaft to raise or lower it vertically, and manually operable means for rotating both the rock shaft and the sleeve in a direction to engage the holding members with the shoulders of the tamper rods and to then release the sleeve and to farther rotate the rock shaft in the same direction to actuate the said rock shaft lifting means.

8. In a machine of the class described, a supporting frame, a plurality of tamper rods mounted thereon for vertical reciprocation, means for periodically lifting the respective tamper rods a prescribed distance and then releasing them to drop by gravity, a shoulder on each tamper rod, a rock shaft extending horizontally adjacent said tamper rods and mounted for vertical movement, a sleeve surrounding said rock shaft and rotatable relative thereto, holding members loosely mounted on said sleeve adjacent the respective tamper rods, springs members fixed to said sleeve and attached to the holding members to yieldably move the same into or out of engagement with the shoulders of the tamper rods upon oscillation of said sleeve, means actuated by rotation of the rock shaft to raise or lower it vertically, and manually operable means for rotating both the rock shaft and the sleeve in a direction to engage the holding members with the shoulders of the tamper rods and to then release the sleeve and to further rotate the rock shaft in the same direction to actuate the said rock shaft lifting means, said manually operable means also acting on the reverse movement to rotate the rock shaft alone a short distance and to then rotate both the rock shaft and the sleeve.

9. In combination with a tamping machine having vertically reciprocable tamper rods, each having a shoulder thereon, a rock shaft extending horizontally adjacent said tamper rods and mounted in bearings for vertical movement, an arm having a roller fixed near each end of said rock shaft, a stationary cam surface engageable with said rollers whereby the rock shaft is elevated when rotated, a sleeve surrounding said rock shaft and rotatable relative thereto, a plurality of holding members mounted on said sleeve adjacent the respective tamper rods and manually operable means for rotating the sleeve and the rock shaft independently in either direction.

In testimony whereof I affix my signature.

HARRY E. DUNN.