July 27, 1948. R. S. REED 2,446,061

CONCRETE BLOCK MOLDING MACHINE

Filed Dec. 6, 1946 2 Sheets-Sheet 1

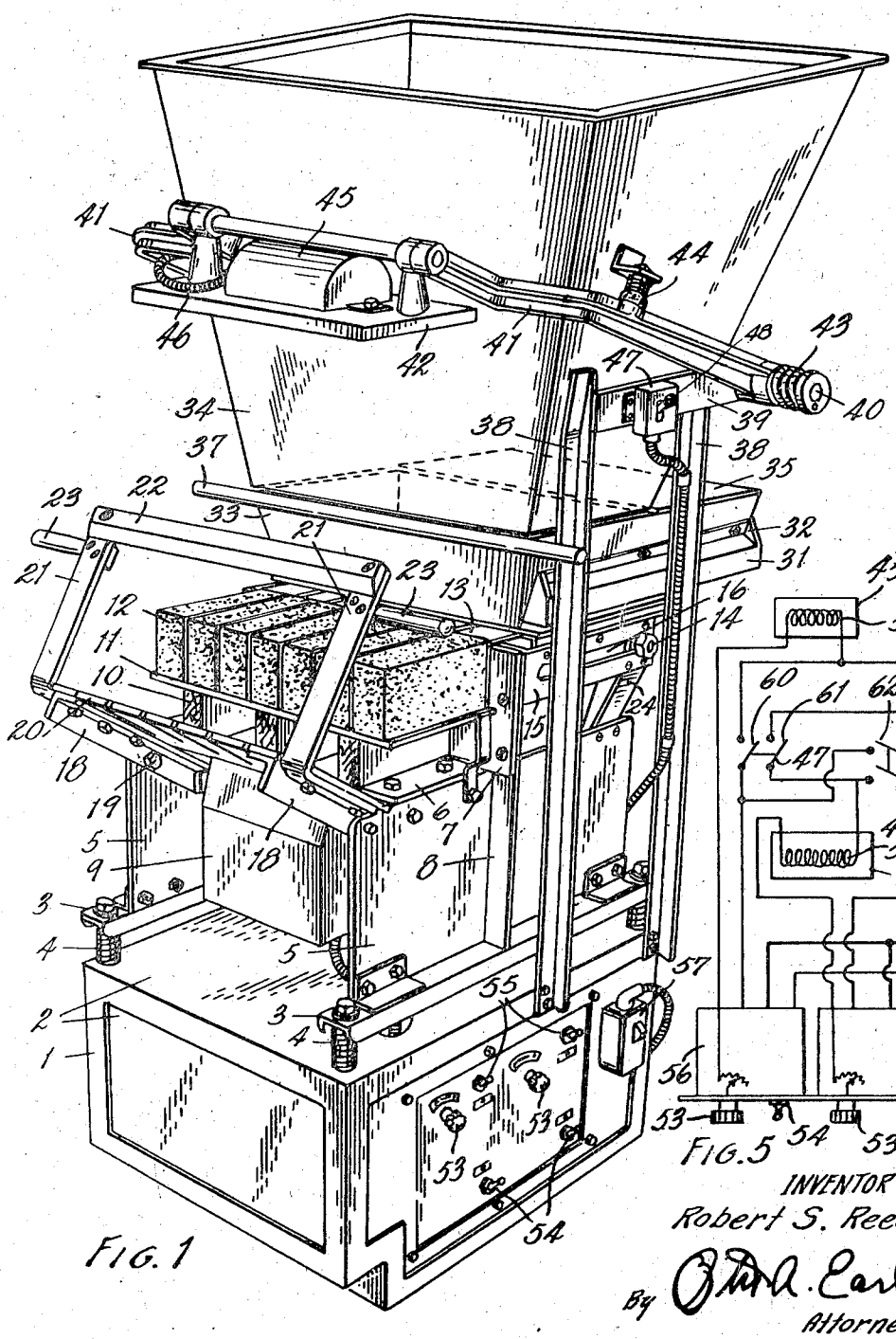


FIG. 1

FIG. 5

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CONCRETE BLOCK MOLDING MACHINE

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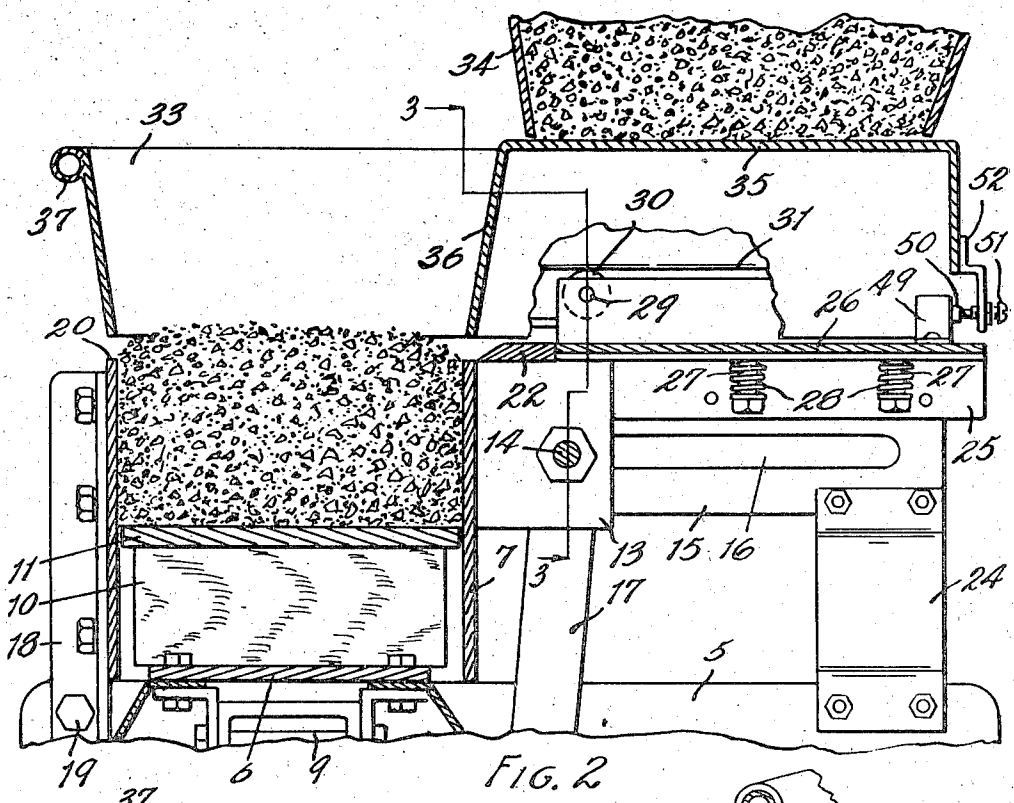


FIG. 2

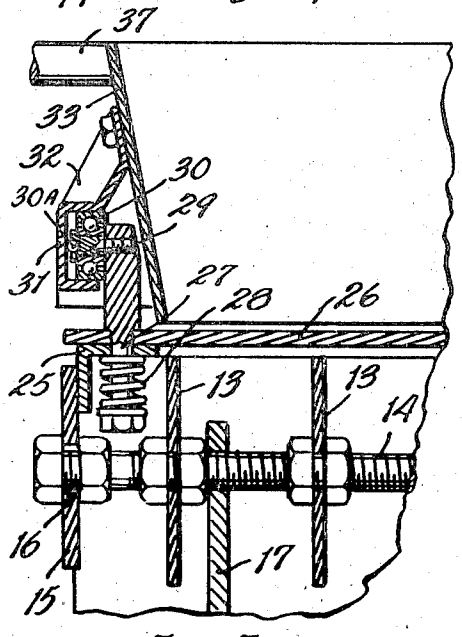


FIG. 3

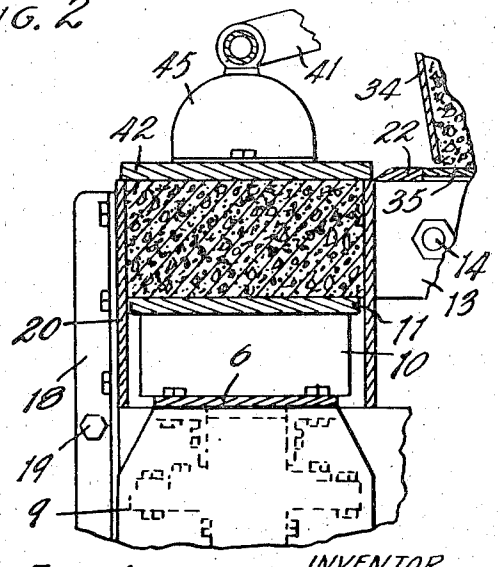


FIG. 4

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UNITED STATES PATENT OFFICE

2,446,061

CONCRETE BLOCK MOLDING MACHINE

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Application December 6, 1946, Serial No. 714,400

25 Claims. (Cl. 25—41)

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This invention relates to improvements in a concrete block molding machine.

The principal objects of this invention are:

First, to provide means for accelerating the charging or loading of a vibratory molding machine for forming concrete bricks.

Second, to provide a vibratory brick molding machine with a finishing vibrator for compacting and smoothing the top surfaces of bricks formed in the machine.

Third, to provide a storage hopper and charging drawer for holding and quickly admitting the proper amount of concrete to the molding cavity of a vibratory brick molding machine.

Fourth, to provide a charging drawer and hopper for a brick molding machine which are so associated with the vibratory mechanism that the concrete will be shaken or vibrated from the walls of the drawer and hopper by controlled vibration of the vibratory mechanism.

Fifth, to provide electrical connections and controls for the vibratory mechanism of a brick molding machine which will operate automatically both upon actuation of the charging drawer and the finishing vibrator to start the vibrators when the charging drawer is being emptied into the molding cavity and when the finishing vibrator is brought into operative position and also to stop the vibrators when the molding operation is completed and before the mold forming walls can be moved from supporting relation to the bricks.

Sixth, to provide a vibratory brick molding machine with a pair of individually regulatable magnetic vibrators which are both actuated by movement of the charging drawer and top finishing vibrator of the machine.

Other objects and advantages relating to the details and economies of the invention will be apparent from the description to follow and the claims.

The drawings, of which there are two sheets, illustrate a preferred form of my brick molding machine.

Fig. 1 is a perspective view of the machine with a series of bricks formed therein and ready for removal.

Fig. 2 is a fragmentary vertical longitudinal cross sectional view through the charging drawer and molding cavity of the machine and illustrating the charging drawer in forward position having just deposited a charge of mortar in the molding cavity.

Fig. 3 is a fragmentary transverse vertical cross sectional view along the broken line 3—3 in Fig. 2.

Fig. 4 is a fragmentary longitudinal cross sectional view similar to Fig. 2 but showing the charging drawer in retracted position and the finishing vibrator in operative position at the completion of the molding operation.

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Fig. 5 is a schematic wiring diagram of the electrical controls of the machine.

Reference is made to my co-pending application for Brick or block casting machine, Serial No. 704,246, filed October 18, 1946, in which application I disclosed a molding machine having a single magnetic vibrator for vibrating a pallet on which a charge of concrete was positioned and divided into a series of individual brick forms. This invention is an improvement and addition to the machine disclosed in the above application in that a charging drawer, storage hopper, top finishing vibrator and certain automatic controls have been added as will be more particularly described as the specification proceeds to render the molding machine easier and faster to operate.

In the drawings the reference character 1 indicates a base formed of welded angle iron members and enclosed by suitable sheet metal panels 2 to contain the power rectifier and controlling mechanism for the vibrators. Mounted on top of the base 1 are a pair of channel support rails 3 which are cushioned by the coil spring mounts 4. The rails 3 serve as supports for the side plates 5 which are connected along their upper edges by the base plate 6 and a backing plate 7 which extends vertically across the tops of the side plates intermediate of their ends. Angle bars 8 secured along the outer sides of the side plates support the backing plate 7.

The base plate 6 has secured to its underside a magnetic vibrator indicated at 9. The top of the base plate supports a series of spacer blocks 10 arranged to receive a removable pallet 11 on which the bricks 12 are formed.

The backing plate 7 is slotted to pass a series of vertical divider plates 13 which are connected at their rear ends to the threaded spacer bolt 14. The ends of the bolt 14 are supported in guide plates 15 secured to the tops of the angle bars 8 and defining horizontal slots 16 along which the ends of the bolt may be reciprocated. The spacer bolt is connected to a pair of levers 17 (see Figs. 2 and 3) which are pivoted on the side plates 5 and connected by means of links, not shown in this application, to the front levers 18 pivotally mounted at 19 to the front corners of the side plates. The front levers 18 are connected by a front plate 20 which is vertically slotted to receive the forward ends of the divider plates as they are moved forwardly by the spacer

bolt 14. L-shaped brackets 21 are secured to the ends of the front plate and extending backwardly over the ends of the backing plate 7 where they are connected by the wiping bar 22. Handles 23 are provided on each of the brackets 21.

The machine as described thus far is the same as that described more fully in the above mentioned application and operates in the same manner. The front plate 20, front levers 18, brackets 21 and handles 23 are so connected to the lever 17 and spacer bar 14 that forward rotating motion of the handles 23 will move the front plate away from the pallet and at the same time will retract the spacer bar 14 and divider plates 13, drawing the plates through the slots in the backing plate to leave the bricks 12 freely supported on the pallet 11.

In this improved molding machine the rear ends of the guide plates 15 are braced with respect to the side plates 5 by brackets 24 and have the inwardly turned angle members 25 secured to their top edges. The angle bars 25 serve as supports for a bottom plate 26 which extends therebetween and over the top of the divider plates 13. The wiper bar 22 on the L-shaped brackets 21 rests in flush relationship with the front edge of the bottom plate when the bar and handles 23 are lowered (see Fig. 2). A series of shouldered pins 27 extend downwardly through the sides of the bottom plate and the angle bars 25 and are yieldingly secured on the underside thereof by the coil springs and nuts 28. The upper ends of the pins 27 carry stub shafts 29 for supporting the rollers 30. The rollers support the elongated channel rail portions 31 of brackets 32 along the sides of a charging drawer 33 so that the drawer is slidable thereon. Thrust bearings 30A keep the drawer properly aligned.

The walls of the charging drawer are sloped inwardly to register with the top of the molding cavity formed by the front plate 20, backing plate 7 and divider plates 13 at its bottom edge and to register with the bottom of a hopper 34 along its upper edge. A closure plate 35 extends between the sides of the charging drawer along their rear portions and is turned downwardly as at 36 (see Fig. 2) to form the rear side wall of the charging drawer. A handle 37 is secured along the front edge of the charging drawer by means of which it may be moved on the rollers.

The hopper 34 is supported from the base 1 by means of the four vertical angle irons 38 secured two on each side of the base and hopper. The bottom end of the hopper is open and free to discharge into the charging drawer 33 when the drawer is in retracted position, the concrete thus entering the drawer being supported on the bottom plate 26. When the drawer is drawn forwardly on the rollers 30 the rear wall 36 of the drawer scrapes the charge of concrete from the bottom plate 26 and across the wiping bar 22 into the molding cavity. At the same time the closing plate 35 comes into closely spaced relationship with the bottom of the hopper to prevent the escape of the concrete remaining in the hopper. The yielding spring mounts 28 on the bottoms of the pins 27 permit the charging drawer 33 and rollers 30 to be raised slightly to clear any small stone which might become wedged between the bottom of the charging drawer and the bottom plate 26.

The tops of the angle bars 38 which support the hopper are connected by straps 39, the rear ends of which carry stub shafts 40 on which are pivotally mounted the arms 41 for supporting a

top finishing vibrator having a smooth finishing plate 42. Coil springs 43 are locked between the ends of the arms and the shafts 40 to spring balance the arms in raised position and bumpers 44 are mounted on the sides of the hopper to act as stops for the arms in their raised position. The top finishing head includes a magnetic vibrating mechanism enclosed in a hood and which is arranged to vibrate the whole head including the plate 42. The head, indicated in its entirety by the reference character 45, may be brought into operating contact with the mortar in the mold cavity as indicated in Fig. 4 by depressing the arms 41. A suitable electric cable 46 is arranged to supply current to the vibrating mechanism.

Secured to one of the straps 39 is a snap switch 47 having an operating lever 48 extending into the path of travel of one of the arms 41. The switch 47 is thus arranged to be closed by downward movement of the arms 41 and finishing vibrator 45 and to be opened by upward movement of the arms. A second switch 49 (see Fig. 2) is secured to the upper surface of the bottom plate 26 underneath the side rail bracket 32 and outside of the side wall of the charging drawer 33. The switch 49 is of the microswitch character having an actuating lever 50 arranged to be operated by contact with the adjustable screw 51 mounted in a bracket 52 on the rear of the charging drawer. The switch 49 is arranged to be open except when actuated and depressed by the screw 51. Thus the switch 49 will be open at all times except when the charging drawer is in its full forward position as is shown in Fig. 2.

As was described in the previously mentioned application the magnetic vibrating mechanism employed in this machine is a commercial product which in and of itself does not form a part of this invention. The vibrators include magnetic coils which are supplied with a pulsating electric current of variable amplitude from suitable rectifying and rheostat control mechanisms mounted in the base. As is most clearly illustrated in Figs. 1 and 5 the power supply 56 for the vibrators 9 and 45 is separately adjustable by operation of the rheostat knobs 53, plate current switches 54 and filament current switches 55. This power supply mechanism is indicated in the wiring diagram by the power supply boxes 56. A single power supply switch 57 is provided for turning off both rectifiers simultaneously.

One of the desirable features of this machine is the manner in which the vibrators are connected to their power supply and controlled by switches. The magnetic coil of the finishing vibrator 45 is indicated in the circuit diagram at 58 and the coil of the lower or main vibrator is indicated at 59. The snap switch 47 is provided two contacts which are made and broken simultaneously by actuation of the lever 48 by the arm 41. One contact 60 completes the circuit to the upper coil 58 and the other contact 61 completes the circuit to the lower coil 59 regardless of the position of the switch 49. The microswitch 49 is provided with one contact 62 which also completes the circuit to the upper vibrator coil 58 and a second contact 63 which completes the circuit to the lower coil 59 independently of the position of the switch 47. It should thus be apparent that when the charging drawer is drawn forwardly to deposit a charge of mortar on the pallet 11 the microswitch 49 will be actuated to start both the main vibrator 9 and the finishing vibrator 45. The vibration, particularly of the main vibrator 9, will be transmitted through the side

plates 5, guide plates 15 and pins 27 to the charging drawer 33 to shake the charge of mortar cleanly out of the drawer into the molding cavity. Thus there will be no residue left on the walls of the charging drawer to become partially dried and spoil the quality of later charges of concrete with which it might become mixed. When the drawer is retracted the vibrators will be automatically turned off by opening of the switch 49 and will be started again when the finishing vibrator 45 is lowered to the top of the molding cavity. Both vibrators will then operate continuously until the operator raises the finishing vibrator to actuate the lever 48 and switch 47 with the arm supporting the finishing vibrator. The operator will be guided in the operation of the finishing vibrator by the sound of the vibrator 45 which will give a dead sound until the plate 42 contacts the divider plates 13 at which time it will cause a metallic rattle indicating that the material is completely compacted.

Automatic opening of the vibrator switches by the raising of the finishing vibrator and retracting the charging drawer assures that there will be no vibration of the pallet after the bricks have been properly formed and after the divider plates have been withdrawn from between the bricks, it being impossible for the operator to raise the handles 23 and wiping bar 22 while the finishing vibrator is in lowered position or when the charging drawer is in advanced position. This interlocking of the electrical vibrator controls and the mechanical mold forming and charging controls is important since vibration of the bricks after they are in an unconfined, freely supported position on the pallet might crack the newly formed bricks.

The entire machine is thus controlled by operation of the front plate and handles 23, charging drawer and handles 37 and finishing vibrator 42. The charging drawer assures rapid and accurate measurement of the correct supply of concrete and the hopper 34 permits easy and quick supply of concrete to the machine without requiring time consuming measurements or synchronizing of the concrete mixed to the molding machine. The top finishing vibrator assures that the upper surface portions of the bricks are adequately vibrated and finished as well as the lower portions thereof. The preliminary operation of the vibrators prevents concrete from sticking to the walls of the charging drawer or hopper and also imparts some preliminary vibration to the mass to insure proper filling of the drawer. The machine functions to rapidly and inexpensively produce individual bricks of a uniform, highly compacted and smoothly finished character.

I have used the term brick and brick molding machine as a matter of convenience and the machine illustrated is designed for molding blocks of brick size and dimensions but it will be understood that the blocks may be of any desired size and dimension.

I have described my invention in a highly practical commercial embodiment thereof so that others who are skilled in the art may reproduce the same without further disclosure.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In combination with a brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate and a plurality of translatable vertical plates slidable through said other plates, a magnetic vibrator arranged to vibrate said pallet and cavity defining plates, a bar connected to said translatable plates to effect translation thereof and interconnected with said movable plate to be retracted from said cavity upon movement of said movable plate from cavity defining position, guide members for said bar connected to said fixed vertical plate, a bottom plate supported on said guide members and above the retracted positions of said translatable plates, a charging drawer having rail members on the sides thereof, rollers supported from the sides of said bottom plate and engaged with said rail members, said rollers being yieldingly held down on said bottom plate, said charging drawer having a volume equal to the volume of mortar compactable in said molding cavity, an open bottom hopper secured to said machine independently of said cavity forming walls and registering with the top of said charging drawer in the retracted position of said drawer, a closure plate secured to the top of said charging drawer and at the rear thereof and arranged to close the bottom of said hopper in the advanced position of said drawer, a second magnetic vibrator pivotally mounted on said hopper and adapted to be swung into operative position at the top of said molding cavity, a pair of electrical rectifying and regulating units in said machine, a switch arranged to connect said vibrators to said units, said switch being operatively associated with said second vibrator to energize both of said vibrators when said second vibrator is in operative position, and a second switch arranged to connect said vibrators to said units, said second switch being operatively associated with said charging drawer and arranged to energize said vibrators only when said drawer is in advanced position.

2. In combination with a brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate and a plurality of translatable vertical plates slidable through said other plates, a magnetic vibrator arranged to vibrate said pallet and cavity defining plates, a bar connected to said translatable plates to effect translation thereof and interconnected with said movable plate to be retracted from said cavity upon movement of said movable plate from cavity defining position, guide members for said bar connected to said fixed vertical plate, a bottom plate supported on said guide members and above the retracted positions of said translatable plates, a charging drawer having rail members on the sides thereof, rollers supported from the sides of said bottom plate and engaged with said rail members, said rollers being yieldingly held down on said bottom plate, said charging drawer having a volume equal to the volume of mortar compactable in said molding cavity, an open bottom hopper secured to said machine, independently of said cavity defining plates and registering with the top of said charging drawer in the retracted position of said drawer, a closure plate secured to the top of said charging drawer and at the rear thereof and arranged to close the bottom of said hopper in the advanced position of said drawer, a second magnetic vibrator pivotally mounted on said hopper and adapted to be swung into operative position at the top of said molding cavity, an electric power source for said vibrators in said machine, a pair of rheostats for independently regulating the amount of power supplied to said vibrators, a switch arranged to

connect said vibrators to said rheostats, said switch being operatively associated with said second vibrator to energize both of said vibrators when said second vibrator is in operative position, and a second switch arranged to connect said vibrators to said rheostats, said second switch being operatively associated with said charging drawer and arranged to energize said vibrators only when said drawer is in advanced position.

3. In combination with a brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate and a plurality of translatable vertical plates slidable through said other plates, a magnetic vibrator arranged to vibrate said pallet and cavity defining plates, a bar connected to said translatable plates to effect translation thereof and interconnected with said movable plate, guide members for said bar, a bottom plate supported on said guide members and above the retracted positions of said translatable plates, a charging drawer having rail members on the sides thereof, rollers supported from said bottom plate and engaged with said rail members for slidably supporting said drawer over said bottom plate, said charging drawer having volume equal to the volume of mortar compactable in said molding cavity, an open bottom hopper secured to said machine and registering with the top of said charging drawer in the retracted position of said drawer, a closure plate secured to the top of said charging drawer and at the rear thereof and arranged to close the bottom of said hopper in the advanced position of said drawer, a second magnetic vibrator, arms pivotally mounted on said hopper and supporting said second vibrator to be swung into operative position at the top of said molding cavity, a pair of electrical rectifying and regulating units in said machine, a switch arranged to connect both of said vibrators to said rectifying means, said switch having an actuating lever in the path of travel of said arm and operable thereby to energize both of said vibrators when said second vibrator is in operative position, and a second switch arranged to connect both of said vibrators to said rectifying means, said second switch being mounted on said bottom plate and actuatable by said charging drawer and arranged to energize said vibrators only when said drawer is in advanced position to deliver a charge of mortar to said cavity.

4. In combination with a brick molding machine having a molding cavity defined by fixed and movable plates, a magnetic vibrator arranged to vibrate said cavity defining plates, a bar connected to part of said movable plates to effect movement thereof, fixed guide members for said bar, a bottom plate supported on said guide members above and to the rear of said cavity, an open bottom charging drawer having rail members on the sides thereof, rollers supported from said bottom plate and engaged with said rail members to support said drawer for sliding motion from over said bottom plate to over said cavity, said charging drawer having volume equal to the volume of mortar compactable in said cavity, an open bottom hopper supported on said machine and registering with the top of said charging drawer in the retracted position of said drawer, a closure plate secured to said charging drawer and arranged to close the bottom of said hopper in the advanced position of said drawer, a second magnetic vibrator pivotally mounted on said machine and adapted to be swung into operative position at the top of said molding cavity, a pair of electrical rectifying and regulating units in said machine, a switch arranged to connect said vibrators to said units, said switch being mechanically associated with said second vibrator to energize both of said vibrators when said second vibrator is in operative position, and a second switch arranged to connect said vibrators to said units, said second switch being mechanically associated with said charging drawer and arranged to energize said vibrators only when said drawer is in advanced position.

5. In combination with a brick molding machine having a molding cavity defined by fixed and movable plates, a magnetic vibrator arranged to vibrate said cavity defining plates, a bottom plate supported above and to the rear of said cavity, an open bottom charging drawer supported for sliding motion from over said bottom plate to over said cavity, said charging drawer having volume equal to the volume of mortar compactable in said molding cavity, an open bottom hopper supported on said machine and registering with the top of said charging drawer in the retracted position of said drawer, a closure plate secured to said charging drawer and arranged to close the bottom of said hopper in the advanced position of said drawer, a second magnetic vibrator pivotally mounted on said machine and adapted to be swung into operative position at the top of said molding cavity, an electrical power source in said machine, a switch arranged to connect said vibrators to said power source, said switch being mechanically associated with said second vibrator to energize both of said vibrators when said second vibrator is in operative position, and a second switch arranged to connect said vibrators to said power source, said second switch being mechanically associated with said charging drawer and arranged to energize said vibrators only when said drawer is in advanced position.

6. In combination with a brick molding machine having a molding cavity with a removable pallet therein, a first vibrator arranged to vibrate said pallet, a hopper having an open lower end, a charging drawer slidable between a retracted position underneath said hopper and an advanced position over said cavity, a second vibrator, a pair of arms pivotally mounted on said hopper and supporting said second vibrator, said arms being swingable to bring said second vibrator into operating finishing position at the top of said cavity, a pair of power supply units for said vibrators, a switch mounted on said hopper and arranged to be closed by lowering motion of said arms and opened by raising motion of said arms, said switch being arranged to connect said vibrators to said power supply units, and a second switch arranged to be closed by said drawer when said drawer is in advanced position, said second switch being arranged to connect said vibrators to said power supply units independently of said first switch.

7. In combination with a brick molding machine having a molding cavity with a removable pallet therein, a first vibrator arranged to vibrate said pallet, a hopper having an open lower end, a charging drawer slidable between a retracted position underneath said hopper and an advanced position over said cavity, a second vibrator, a pair of arms pivotally mounted on said hopper and supporting said second vibrator, said arms being swingable to bring said second vibrator into operating finishing position at the top of said cavity, a pair of power supply units for said vibrators, and a switch mounted on said

hopper and arranged to be closed by lowering motion of said arms and opened by raising motion of said arms, said switch being arranged to connect said vibrators to said power supply units.

8. In combination with a brick molding machine having a molding cavity with a removable pallet therein, a first vibrator arranged to vibrate said pallet, a hopper having an open lower end, a charging drawer slidable between a retracted position underneath said hopper and an advanced position over said cavity, a second vibrator, a pair of arms pivotally mounted on said hopper and supporting said second vibrator, said arms being swingable to bring said second vibrator into operating finishing position at the top of said cavity, a pair of power supply units for said vibrators, and a switch arranged to be closed by said drawer when said drawer is in advanced position, said switch being arranged to connect said vibrators to said power supply units.

9. In combination with a brick molding machine having a molding cavity with a removable pallet therein, a first vibrator arranged to vibrate said pallet, a hopper having an open lower end, a charging drawer slidable between a retracted position underneath said hopper and an advanced position over said cavity, said drawer having a closure plate thereon arranged to close the bottom of said hopper while said drawer is in advanced position, a second vibrator, a pair of arms pivotally mounted on said machine and supporting said second vibrator, said arms being swingable to bring said second vibrator into operating finishing position at the top of said cavity, a power supply for said vibrators, a switch mounted on said hopper and arranged to be closed by lowering motion of said arms and opened by raising motion of said arms, said switch being arranged to connect said vibrators to said power supply, and a second switch arranged to be closed by said drawer when said drawer is in advanced position, said second switch being arranged to connect said vibrators to said power supply independently of said first switch.

10. In combination with a brick molding machine having a molding cavity with a removable pallet therein, a first vibrator arranged to vibrate said pallet, a hopper having an open lower end, a charging drawer slidable between a retracted position underneath said hopper and an advanced position over said cavity, said drawer having a closure plate thereon arranged to close the bottom of said hopper while said drawer is in advanced position, a second vibrator, a pair of arms pivotally mounted on said machine and supporting said second vibrator, said arms being swingable to bring said second vibrator into operating finishing position at the top of said cavity, a power supply for said vibrators, and a switch arranged to be closed by said drawer when said drawer is in advanced position, said switch being arranged to connect said vibrators to said power supply.

11. In combination with a vibratory brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate swingable into parallel relationship with said fixed plate and a plurality of translatable vertical plates slidable through said fixed vertical plate, a bottom plate secured in horizontal position above the retracted position of said translatable plates, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with the top of said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate carried on the back of said charging drawer and arranged to close the bottom of said hopper when said drawer is in advanced position, the volume of said drawer being equal to the uncompacted volume of material necessary to compactly fill said molding cavity, and a pair of magnetic vibrators arranged to vibrate the walls of said molding cavity, said vibrators having uncushioned connections to said drawer and hopper whereby the vibration thereof will shake said drawer and hopper to prevent mortar from sticking to the wall thereof.

12. In combination with a vibratory brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate swingable into parallel relationship with said fixed plate and a plurality of translatable vertical plates slidable through said fixed vertical plate, a bottom plate secured in horizontal position above the retracted position of said translatable plates, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with the top of said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate carried on the back of said charging drawer and arranged to close the bottom of said hopper when said drawer is in advanced position, the volume of said drawer being equal to the uncompacted volume of material necessary to compactly fill said molding cavity, and a pair of magnetic vibrators arranged to vibrate the walls of said molding cavity, one of said vibrators having uncushioned connections to said hopper whereby the vibration thereof will shake said hopper to prevent mortar from sticking to the walls thereof.

13. In combination with a vibratory brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate swingable into parallel relationship with said fixed plate and a plurality of translatable vertical plates slidable through said fixed vertical plate, a bottom plate secured in horizontal position above the retracted position of said translatable plates, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with the top of said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate carried by said charging drawer and arranged to close the bottom of said hopper when said drawer is in advanced position, the volume of said drawer being equal to the uncompacted volume of material necessary to compactly fill said molding cavity, and a pair of magnetic vibrators arranged to vibrate the walls of said molding cavity, said vibrators being mechanically connected to said drawer and hopper whereby the vibration thereof will shake said

drawer and hopper to prevent mortar from sticking to the walls thereof.

14. In combination with a vibratory brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate swingable into parallel relationship with said fixed plate and a plurality of translatable vertical plates slidable through said fixed vertical plate, a bottom plate secured to horizontal position above the retracted position of said translatable plates, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with the top of said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate carried by said charging drawer and arranged to close the bottom of said hopper when said drawer is in advanced position, the volume of said drawer being equal to the uncompacted volume of material necessary to compactly fill said molding cavity, and a pair of magnetic vibrators arranged to vibrate the walls of said molding cavity, one of said vibrators being mechanically connected to said drawer whereby the vibration thereof will shake said drawer to prevent mortar from sticking to the walls thereof.

15. In combination with a vibratory brick molding machine having a molding cavity defined by a removable pallet, a fixed vertical plate, a movable plate swingable into parallel relationship with said fixed plate and a plurality of translatable vertical plates slidable through said fixed vertical plates, a bottom plate secured in horizontal position above the retracted position of said translatable plates, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate arranged to close the bottom of said hopper when said drawer is in advanced position, and a pair of magnetic vibrators arranged to vibrate mortar in said molding cavity, one of said vibrators being mechanically connected to said drawer and hopper whereby the vibration thereof will shake said drawer and hopper to prevent mortar from sticking to the walls thereof.

16. In combination with a vibratory brick molding machine having a molding cavity, a bottom plate secured in horizontal position above and offset from said cavity, a charging drawer slidably mounted on top of said bottom plate and having an open bottom closed by said bottom plate when in retracted position and registering with said cavity when in advanced position, a storage hopper supported above said drawer and having an open bottom registering with the top of said charging drawer when said drawer is in retracted position, a closure plate arranged to close the bottom of said hopper when said drawer is in advanced position, and a pair of magnetic vibrators arranged to vibrate mortar in said molding cavity, one of said vibrators being mechanically connected to said drawer and hopper whereby the vibration thereof will shake said drawer and hopper to prevent mortar from sticking to the walls thereof.

17. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said hopper and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid pivotal connections to said hopper whereby said hopper is vibrated by said top vibrator, and switch means mechanically associated with said top vibrator to be turned on by motion thereof toward operating position to energize said vibrators.

18. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said hopper and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid pivotal connections to said hopper whereby said hopper is vibrated by said top vibrator, and switch means mechanically associated with said top vibrator to be turned on by motion thereof toward operating position to energize said first vibrator.

19. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said hopper and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid pivotal connections to said hopper whereby said hopper is vibrated by said top vibrator, and switch means mechanically associated with said top vibrator to be turned on by motion thereof toward operating position to energize said top vibrator.

20. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said supports and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid connections to said hopper whereby said hopper is vibrated by said top vibrator, and a switch mechanically associated with said drawer to be turned on by motion there-

of toward forward position to energize said vibrators.

21. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said supports and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid connections to said hopper whereby said hopper is vibrated by said top vibrator, and a switch mechanically associated with said drawer to be turned on by motion thereof toward forward position to energize said top vibrator.

22. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, a top finishing vibrator pivotally mounted on said supports and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid connections to said hopper whereby said hopper is vibrated by said top vibrator, and a switch mechanically associated with said drawer to be turned on by motion thereof toward forward position to energize said first vibrator.

23. In combination with a vibratory brick molding machine having a base with molding mechanism yieldingly mounted thereon, a charging drawer slidably mounted on the top of said molding mechanism and vibratable therewith, a first vibrator for vibrating said mechanism, supports secured to said base and extending above said drawer, a hopper carried by said supports and arranged to discharge into said drawer in one position thereof, and a top finishing vibrator pivotally mounted on said supports and swingable into operative position at the top of the molding cavity of said machine, said top vibrator having rigid pivotal connections to said hopper whereby said hopper is vibrated by said top vibrator.

24. In combination with a brick molding machine having plates forming a molding cavity and a vibrator for vibrating said plates, a bottom plate member secured to said machine and offset from the top of said cavity, a charging drawer member, rails secured to one of said members, rollers mounted on the other of said members and cooperative with said rails to support said drawer for sliding motion to register with said cavity or said bottom plate member, springs interposed between said rollers and the member on which they are mounted whereby said drawer may be tilted to increase the clearance between the bottom thereof and said bottom plate member, and a hopper supported on said machine and having an open bottom registering with the top of said drawer when said drawer is in registry with said bottom plate member, said bottom plate member and drawer member being vibratable with said cavity forming plates.

25. In combination with a brick molding machine having plates forming a molding cavity and a vibrator for vibrating said plates, a bottom plate member secured to said machine and offset from the top of said cavity, a charging drawer member, rails secured to one of said members, rollers mounted on the other of said members and cooperative with said rails to support said drawer for sliding motion to register with said cavity or said bottom plate member, springs interposed between said rollers and the member on which they are mounted whereby said drawer may be tilted to increase the clearance between the bottom thereof and said bottom plate member, and a hopper supported on said machine and having an open bottom registering with the top of said drawer when said drawer is in registry with said bottom plate member.

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