March 30, 1926. 1,578,467

J. M. PHILLIPS ET AL.

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 1

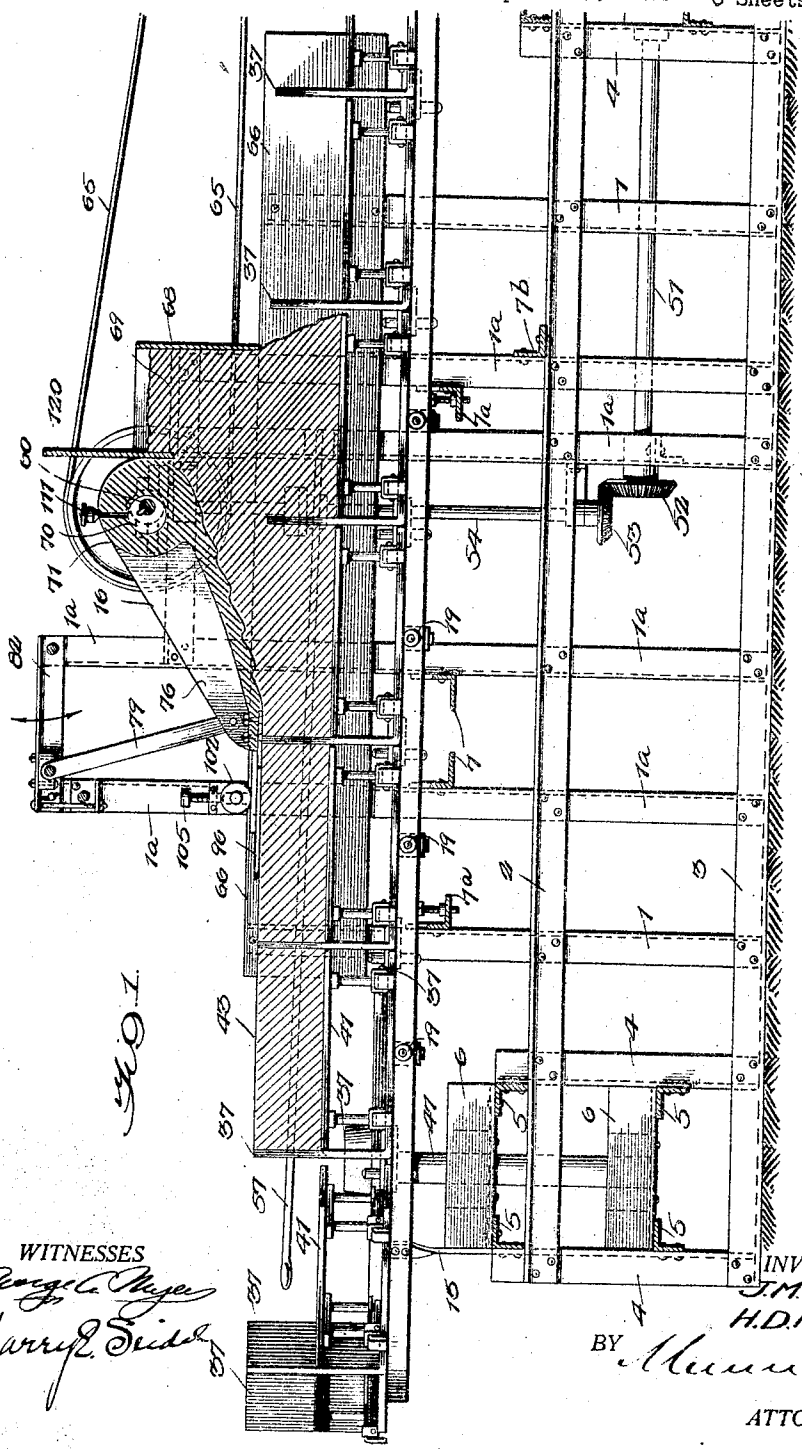


FIG. 1.

WITNESSES

George A. Meyer

Harry E. Seidel

INVENTOR

J. M. PHILLIPS,

H. D. PHILLIPS,

BY Munn & Co.

ATTORNEYS

March 30, 1926. 1,578,467

J. M. PHILLIPS ET AL

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 2

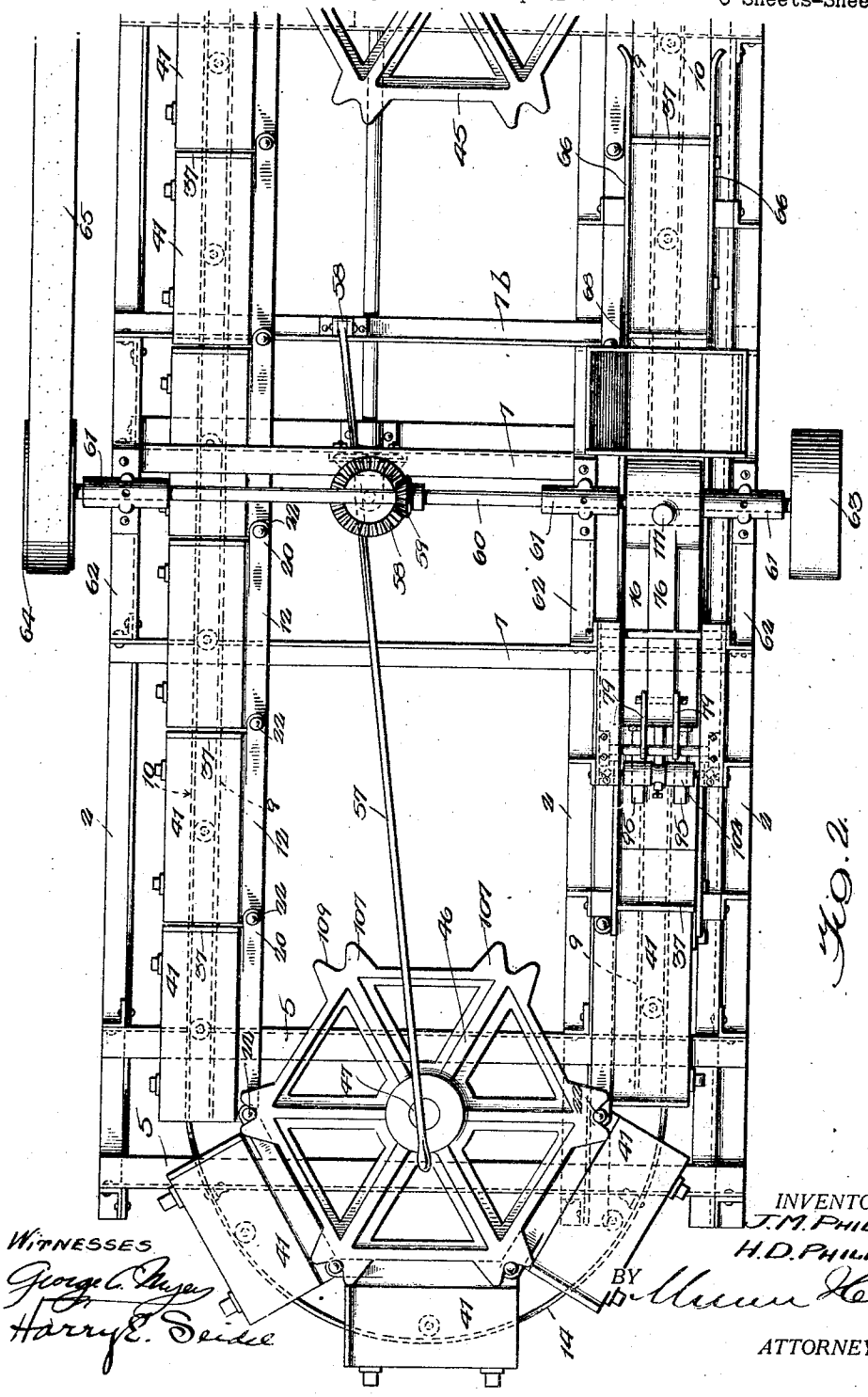


Fig. 2.

INVENTOR
J. M. PHILLIPS,
H. D. PHILLIPS,
BY Munn & Co.
ATTORNEYS

WITNESSES
George A. Thayer
Harry E. Seidel

March 30, 1926. 1,578,467

J. M. PHILLIPS ET AL

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 3

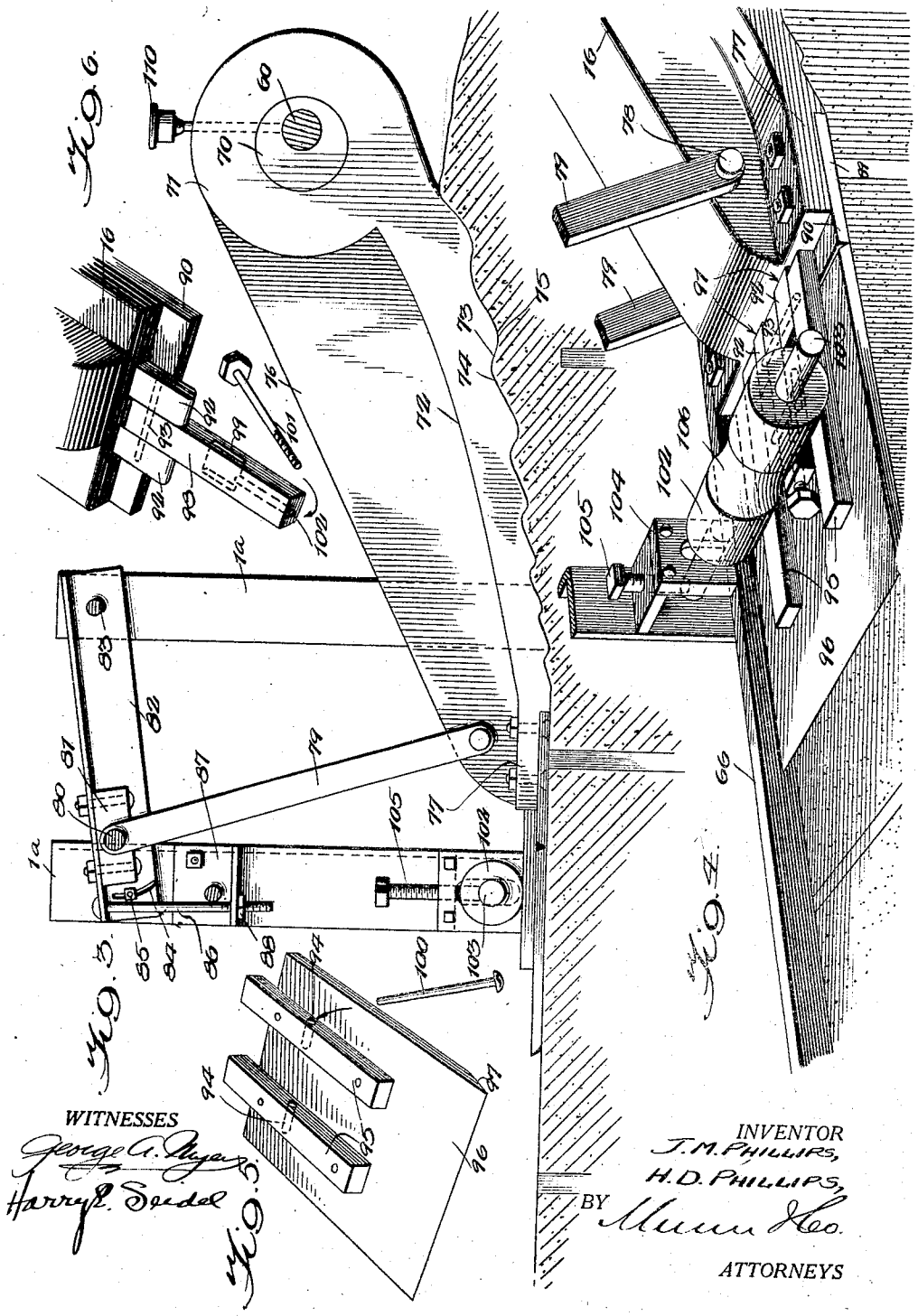


Fig. 6.

Fig. 4.

Fig. 5.

Fig. 5.

WITNESSES

George A. Myers

Harry E. Seidel

INVENTOR

J. M. PHILLIPS,

H. D. PHILLIPS,

BY Munn & Co.

ATTORNEYS

March 30, 1926. 1,578,467

J. M. PHILLIPS ET AL

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 4

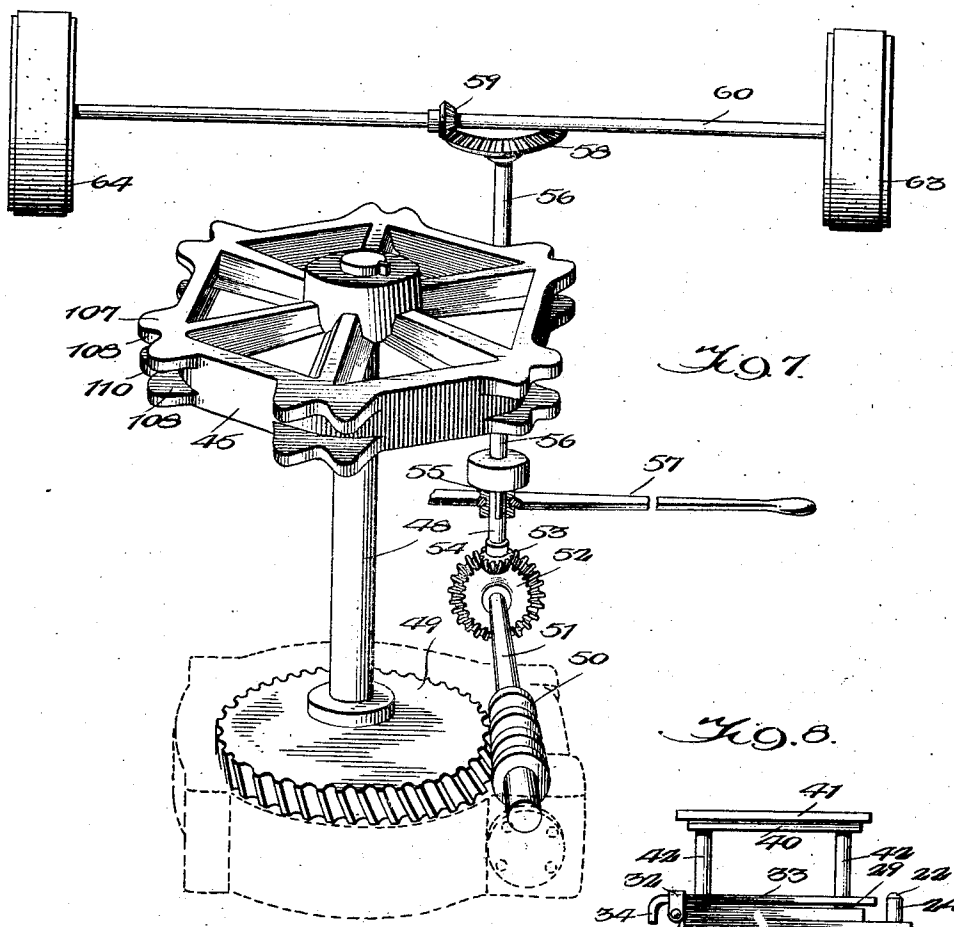
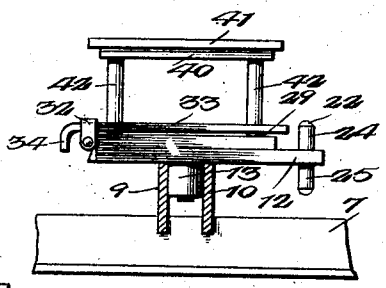


Fig. 7.

Fig. 8.



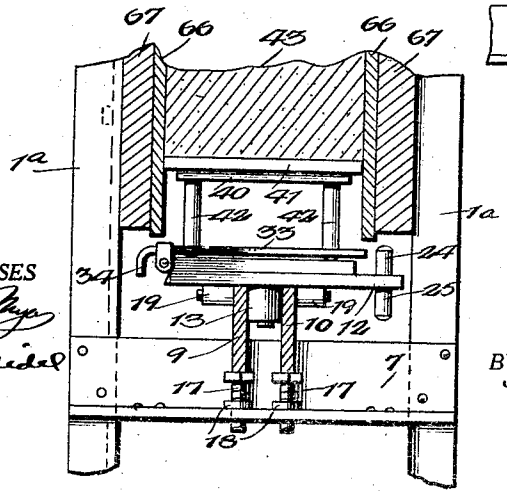


Fig. 9.

WITNESSES

George L. Chapman

Harry P. Seidel

INVENTOR

J. M. PHILLIPS,

H. D. PHILLIPS,

BY Munn & Co.

ATTORNEYS

March 30, 1926.

1,578,467

J. M. PHILLIPS ET AL

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 5

Fig. 10.

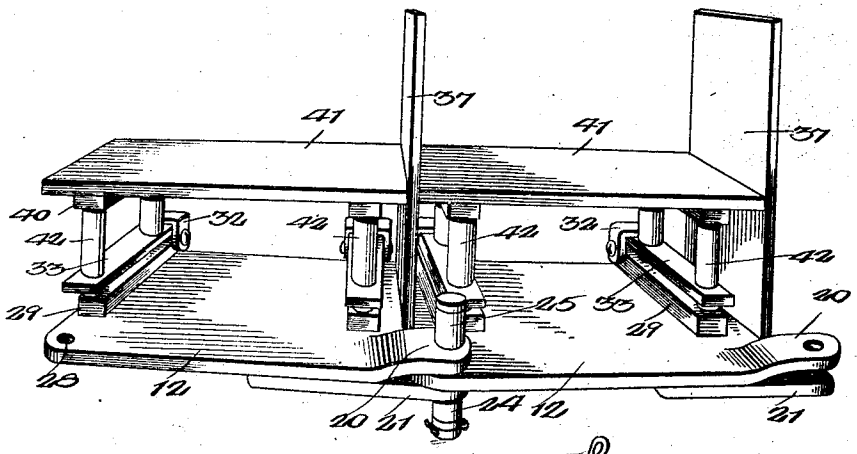


Fig. 11.

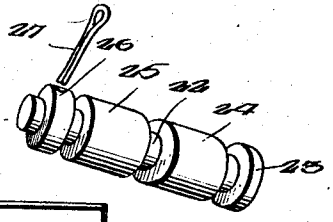


Fig. 12.

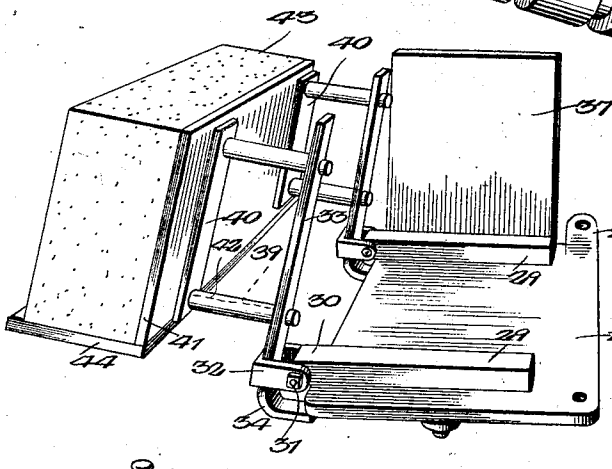
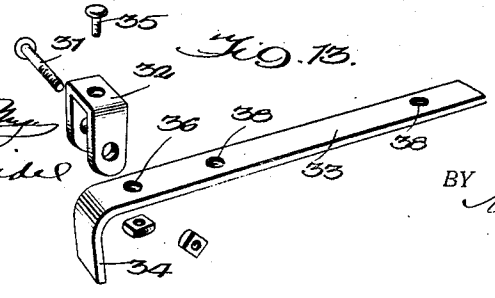


Fig. 13.



WITNESSES

George C. Mayo

Harry E. Sides

INVENTOR

J. M. PHILLIPS,

H. D. PHILLIPS,

BY Munn & Co.

ATTORNEYS

March 30, 1926.

1,578,467

J. M. PHILLIPS ET AL

CONCRETE BLOCK MAKING MACHINE

Original Filed April 25, 1924 6 Sheets-Sheet 6

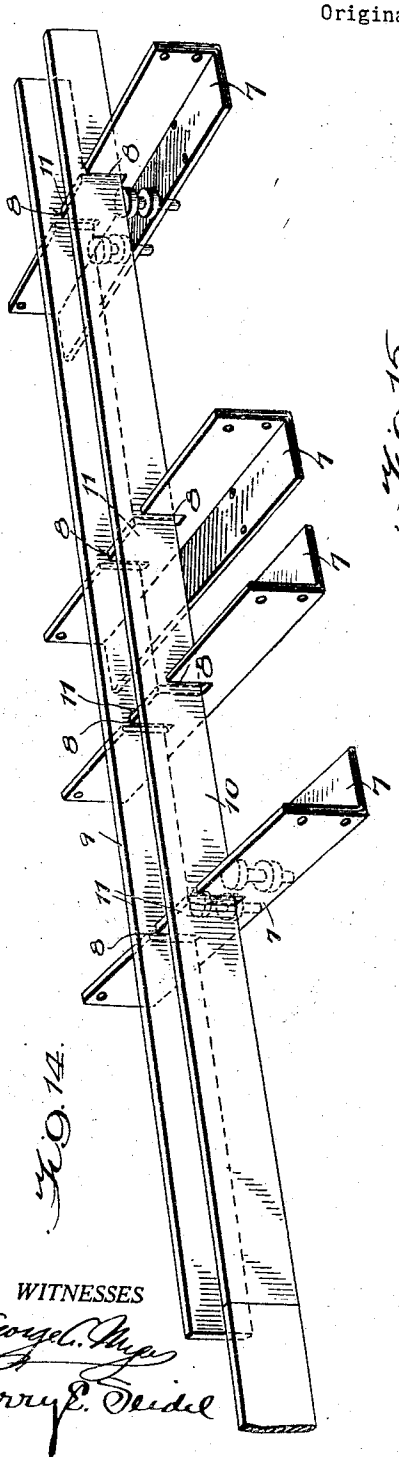


Fig. 14.

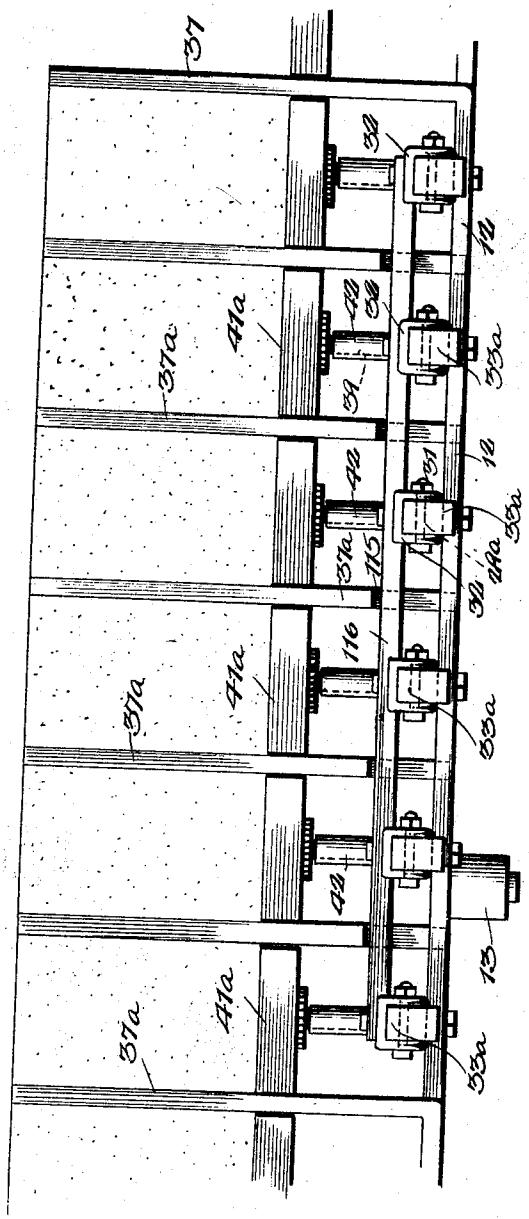


Fig. 15.

WITNESSES

George C. Myer

Harry E. Seidel

INVENTOR

J. M. PHILLIPS,

H. D. PHILLIPS,

BY Munn & Co.

ATTORNEYS

Patented Mar. 30, 1926. 1,578,467

UNITED STATES PATENT OFFICE.

JAMES M. PHILLIPS AND HENRY D. PHILLIPS, OF STANFORD, KENTUCKY, ASSIGNORS OF ONE-TENTH TO MATT R. HARGAN, ONE-TENTH TO J. WELCH ROCHESTER, ONE-TENTH TO C. HAYS FOSTER, ONE-TENTH TO LOGAN R. HUGHES, AND ONE-TENTH TO KENDRICK S. ALCORN, ALL OF STANFORD, KENTUCKY.

CONCRETE-BLOCK-MAKING MACHINE.

Application filed April 25, 1924, Serial No. 708,980. Renewed May 26, 1925.

To all whom it may concern:

Be it known that we, JAMES M. PHILLIPS and HENRY D. PHILLIPS, citizens of the United States, and residents of Stanford, in the county of Lincoln and State of Kentucky, have invented certain new and useful Improvements in Concrete-Block-Making Machines, of which the following is a specification.

This invention relates to concrete block making machines and has for its object the provision of a device which will thoroughly tamp the concrete block forming mixture into moving moulds so that the finished product will be in such a state that the same may be removed from the moulds at a predetermined point in the travel of the mould carrier and be handled without injury to the green blocks.

Another object of the invention is the provision of a tamping device which will tamp the green materials into moving moulds without injury to said moulds, the tamping face of the device being corrugated in a manner to direct the lines of force at an angle and rearwardly of the vertical rather than in a direct vertical manner.

Another object of the invention is the provision of a mould block having a pivotally mounted base whereby the finished product may be readily removed from the mould by tilting the base.

A still further object of the invention is the provision of an adjustment for elevating the bases of the moulds for forming blocks of varying heights.

Another object of the invention is the provision of a shearing plate for the tops of the green blocks and which is pivotally connected to the tamping head and oscillated thereby.

A still further object of the invention is the provision of a driving mechanism for the moulds which is simple, efficient and which will periodically feed the moulds beneath the tamping head.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawing forming a part of the specification; nevertheless it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a vertical longitudinal section of the moulding machine taken longitudinally of the tamping head.

Figure 2 is a fragmentary plan view of the machine.

Figure 3 is a detached side view of the tamper and its cooperative supporting elements.

Figure 4 is a view in perspective of the tamping head and the shearing plate connected with the tamping head.

Figure 5 is a view in perspective of the shearing plate.

Figure 6 is a fragmentary view of the tamping head and the mounting for the shearing plate.

Figure 7 is a view in perspective of the operating mechanism for the moulds.

Figure 8 is an end view of a mould.

Figure 9 is a transverse vertical section of a mould when filled.

Figure 10 is a view in perspective of a pair of moulds showing the manner of connecting the moulds in an endless band.

Figure 11 is a view in perspective of the pivot pin for connecting the moulds in an endless band.

Figure 12 is a view in perspective of the mould tilted for removing the green block.

Figure 13 is a view in perspective of the elements for pivotally connecting the mould to the base plate.

Figure 14 is a view in perspective of the tracks which guide the moulds in their endless travel.

Figure 15 shows a slightly modified form of moulds for forming small bricks.

Referring more particularly to the drawings it will be seen that the frame or bed upon which the track and the moulds are supported is entirely of angle iron construction and a sufficient number of irons are employed for the purpose of providing a structure sufficiently rigid to withstand the vibration incident to the operation of the machine.

The frame consists of a plurality of vertical standards 1 and 1ª which are connected longitudinally by means of side bars 2 and base bars 3. At the extreme opposite ends of the frame are located pairs of vertical standards 4 which are connected by pairs of angle irons 5 transversely of the frame and which are in turn connected by means of reinforcing bars 6. A plurality of transverse bars 7ª connect a pair of the longitudinal bars 2 together which carry the track above the tamping mechanism for reinforcing the standards at this point. Bars 7 carry the track not only under the tamping head but those portions of the track which are opposite the tamping head.

The transverse bars 7 and 7ª are provided with spaced vertical slots 8, as shown more particularly in Figure 14 in which are adapted to be seated a pair of spaced tracks 9 and 10. The upper edges of the tracks 9 and 10 extend sufficiently above the flanges 11 between the slots 8 of the angle bars 7 and 7ª to support the bases 12 of the moulds to permit a roller 13 which depends from the bases 12 of the moulds to freely pass the upper edge of the flanges 11, while the tracks 9 and 10 are supported by the notches 8 in the vertical flanges of the angle irons. The outer track members 10 are carried to the opposite ends of the machine and curved, as shown at 14, beyond the opposite end of the block making machine and supported by brackets 15 at these points which are secured to the horizontal angle irons 5. The inner track members 9 terminate short of the ends so that the bases of the moulds are carried entirely by the curved portions 14 of the outer tracks 10.

The portion of the tracks below the tamper 16 rests upon adjustable bolts 17 which are screwed into the horizontal angle irons 7ª and locked in place by means of nuts 18. The bolts provide a means for elevating the portions of the tracks just below the tamper 16 when the tracks are sufficiently worn from continued use of the device.

The mould boxes are connected in an endless chain and driven around the tracks by a suitable mechanism which will be presently described with the base plates 12 resting on the upper edges of the tracks 9 and 10 and engaged by the rollers 19 projecting laterally from the outer faces of said tracks. The roller 13 depending vertically from the base plate 12 engages the inner faces of the tracks 9 and 10 and cooperates with the rollers 19 for maintaining the moulds on said tracks.

Each mould comprises a base plate 12 having at its forward end a perforated finger 20 offset from the plane of the base 12. A perforated lug 21 is secured to the bottom of the base plate in alinement with the finger 20 and reinforces the finger. A pin 22 is received within the perforations of the finger 20 and the lug 21 and is provided with a head 23 engaged by a sleeve 24 which, at its lower end, rests upon the upper face of the finger 20. A sleeve 25 on the pin 22 below the lug 21 engages said lug and is maintained in position on the pin 22 by means of a perforated disc 26 and a cotter pin 27. The opposite end of each base plate is perforated as shown at 28 (Figure 11) and adapted to be received between the finger 20 and the lug 21 and receives the pin 22 whereby the opposite ends of the base plates 12 are pivotally connected together and form an endless chain.

A pair of cleats 29 are rigidly secured to the upper faces of each base plate and provided with a perforated projecting end 30 adapted to receive a bolt 31. Said bolt is adapted to pivotally connect the U-shaped member 32 to the outer free end 30 of each cleat.

An arm 33 has a return bent portion 34 adapted to engage the under face of the base plates 12 when the mould is located in a tilted position. A bolt 35 passing through perforations in the bridging portion of the U-shaped member 32 and the perforation 36 of the arm 33 is adapted to lock said arm to the U-shaped member. A partition plate 37 is secured in a vertical position at the forward end of each base plate 12. Each of the arms 33 are perforated as shown at 38 to receive a bolt 39 which is screwed into a cleat 40 secured to the pallet 41 of the mould per se.

A sleeve 42 on the bolt 39 is adapted to determine the space between the bottoms 41 of the moulds and the arms 33. The length of the sleeve 42 also determines the height of the blocks 43 formed in the moulds. A table 44 is located adjacent the point where the blocks 43 are removed from the moulds when the moulds are tilted laterally from the bases 12.

At each end of the frame is placed a driving spider 45 and an idling spider 46. The spider 46 is mounted on the upper end of a vertical shaft 47 upon which the spider idly revolves while spider 45 is rigidly connected with the upper end of the driven shaft 48. The lower end of shaft 48 is connected with a worm gear 49 which in turn meshes with a worm 50 on the end of a drive shaft 51. This shaft is extended towards the center of the machine and is provided with a bevelled gear 52 meshing with a pinion 53. Pinion 53 is rigidly connected with a shaft 54 and a clutch mechanism 55 connects shaft 54 with the shaft 56 when a lever 57 is operated to throw the clutch in position. The lever 57, shown more particularly in Figure 2, is pivotally connected at 58 on a transverse bar 7ᵇ and ex-

tends forwardly or rearwardly and above the spider 46 where it may be conveniently grasped by the operator for operating the clutch.

The upper end of shaft 56 is provided with a gear 58 meshing with a pinion 59 on a driving shaft 60. The shaft 60 is mounted in bearings 61 carried by the short horizontal beams 62 which are secured to the vertical standards 1ª. A fly wheel 63 is connected with one end of the shaft 60 and a driving pulley 64 is connected with the other end over which is entrained a belt 65.

Located between the spaced vertical standards 1ª at one portion of the track and below the tamper 16 are a pair of spaced side walls 66 which are maintained in position by means of blocks 67. By placing narrower blocks between the side walls 66 and the vertical standards 1ª wider building blocks may be produced in the moulds when desired. Of course, the pallets of the moulds must be correspondingly enlarged to meet the changed condition. These side walls 66 extend very nearly the length of the machine and adjacent the moulds where the tamping of the material within the moulds is accomplished. A hopper 68 is located above the moulds and at the rear of the tamper 16 is adapted to feed materials 69 into the moulds which is compressed by the tamper head 16.

An eccentric 70 is mounted on the shaft 60 above the side walls 66 and is adapted to be received by a passage in the elevated end 71 of the tamper 16. The tamping of the flat portion 72 of the head of the tamper 16 has corrugated under face which is so constructed that the corrugations 73 form a short concave face while the portion 74 of the corrugation forms a long concave face and the two together combine to provide a transverse convex rib 75. A rib 76 is formed integrally with the upper wall of the tamper head and extends from the cylindrical portion 71 of the tamping head to the lower reduced end which has a straight portion 77. The lower end of the rib is provided with a transverse passage through which is inserted a bolt 78 to which are connected the links 79. These links are supported at their upper ends by means of a rod 80 secured in bearings 81 on the angle iron bars 82. The angle iron bar 82 is pivotally connected at 83 on one of the vertical standards 1ª while the other end of the bar 82 is provided with an arcuate shaped slot 84 adapted to receive a bolt 85 mounted on the other angle iron bar 1ª. A rod 86 is secured to the angle bar 82 and has its lower end inserted through a perforation in the horizontal flange of the angle bar 87 connected to the standard 1ª A nut 88 on the threaded end of the rod 86 is adapted to adjust the movable end of the angle iron 82 for adjusting the vertical height of the lower free end of the tamper 16. It must be borne in mind that there are two angle irons 82 located in spaced relation with a duplication of the adjusting means for the bars.

The under face of the straight portion 77 of the tamper 16 is cut away to receive a plate 89. This plate is bolted as shown in Figure 4, to the tamper head and projects forwardly as shown at 90 from the tamper. The tamper above the plate 90 is provided with longitudinal slots as indicated at 91 in which are secured a pair of bars 92. These bars project outwardly beyond the outer free end of the plate 90 and are provided with a transverse passage adapted to receive a hinge pin 93.

A pair of cleats 95 are rigidly secured in spaced relation to the top of a shearing plate 96. The outer edge of the shearing plate is bevelled, as shown at 97 with the sharp edge thus formed projecting above the upper ends of the mould boxes in order to prevent injury to the same. A bar 98 pivotally mounted on the pin 93 and between the bars 92 projects forwardly of the tamper 16 and rests upon the top of the shearing plate 96. This bar is provided with a transversely enlarged passage 99 adapted to receive a pin 100. This pin passes through perforations 94 in the cleats 95 for connecting the bar 98 to said cleats. A threaded bolt 101 is screwed into a passage 102 formed longitudinally of the bar 98 and is adapted to engage the pin 100 for varying the tension on the pin and regulating the play between the bar 98 and the plate 96. The inner abutting ends of the plates 96 and 89 are sheared away from each other in order to provide sufficient space to permit a slight pivotal action of the plate 96 relative to the plate 89.

A roller 102 is provided with a shaft 103 which has its ends received within a bearing 104. A bolt 105 screwed into the top of the track which carries the bearing 104 is adapted to engage the ends of the shaft 103 for adjusting the vertical position of said roller. The roller is provided with a groove 106 intermediate its ends and directly over the link or bar 98. It must be borne in mind that a bearing bracket 104 is located above each side wall 66 for receiving the opposite ends of the shaft 103.

Either of the spiders 45 or 46 is provided with pairs of spaced radial lugs 107 and 108 which are provided with notches 109 and 110 respectively which are adapted to engage the sleeves on the pin 22. The notch 109 engages sleeve 24 while notch 110 engages sleeve 25 with the lugs 107 and 108 straddling the tongue 20 and lug 21. The spider 45 is driven, as has been explained, and as the lugs engage the sleeves on the pin 22, the moulds are carried through a curved

path on the member 14 of the track at one end of the machine. The spider 46 which idles at the opposite end of the machine is adapted to cooperate with the spider 45 in directing the mould boxes around the curved portion 14 of the track at the end of the machine where the spider 46 is located.

Oil boxes 111 mounted in the bearings which support the shaft 60 are adapted to lubricate the shaft at these points.

When it is desired to form bricks of relatively small size and which are multiples of the ordinary block made by the machine, the base plate 12 is equipped with a plurality of arms 33ª pivotally mounted on the bolt 31 and connected by means of a U-shaped member 32 to a cleat 29ª secured to the base 12. The partition plates 37ª are secured to the base 12 and are provided with notches 115 adapted to receive a rod 116 which is secured to the plurality of arms 33ª so that the arms may be actuated simultaneously with the bottoms 41ª of the moulds. A sleeve 42 on a bolt 39 is adapted to maintain the bottom 41 of the mould box at a predetermined height above the cleats 29ª. By removing the sleeve 42 and placing a longer or shorter sleeve the length of the brick may be varied. In either case the bolt 39 is turned in such a manner as to shorten or lengthen the space between the bottom 41ª of the moulds and the cleats 29ª.

The operation of my device is as follows: The materials which form the blocks are placed in the hopper 68 and are fed by gravity into the mould boxes travelling beneath said hopper. As shown more particularly in Figure 1 the materials are permitted to be heaped above the mould boxes and are only restricted by a partition 120. The shaft 60 is driven through either of the pulleys 63 or 64 or by both if desired and shaft 56 is driven in its turn from shaft 60 by means of the gears 58 and 59. Operation of the clutch 55 by the lever 57 causes rotation of the gear 49, shaft 48 and driving spider 45. Said spider drives the endless train of mould boxes and fits them slowly beneath the hopper and tamping head. Rotation of shaft 60 causes the tamping head 16 to be reciprocated through the eccentric 70 and the materials are packed into the mould boxes in a direction which is at an acute angle to the vertical. This line of movement of the tamping head thoroughly tamps materials into the boxes to form a mass of uniform texture so that when the moulds reach the releasing point they may be removed in a green state without injury to the blocks thus formed. The suspension of the free end of the tamper by the link 79 aids in controlling the directional movement of the tamper and restricts its tamping action to a short and predetermined stroke. The shearing plate 96 is oscillated or shifted longitudinally of the train of moving mould boxes and properly removes excess materials from the top of the moulds.

The notches of the lugs 107, 108 engage the sleeves of the connecting pin between the mould boxes and force the mould boxes around the curved portion 14 of the track and draw the mould boxes at a predetermined speed beneath the tamping head and hopper and continuously to and past the point of release of the blocks formed in the moulds.

The concrete employed in the manufacture of the blocks is a damp mixture of concrete or any other materials desired and when effectively tamped within the mould boxes the blocks will be in position to be removed after they have reached the point which is adjacent the return of the moulds to the hopper.

It must be borne in mind that the peculiar action of the tamper in compressing the materials into the moulds for evenly distributing the materials in the moulds plays a large part in the production of blocks which may be readily removed in a green state from the moulds in a short space of time. The action of the block making machine is continuous so that the blocks are removed during the constant travel of the mould boxes.

The under or working face of the tamping head is slightly convexed and the corrugation cooperating with the convexed surface packs the materials in the moulds in such a manner that when the moulds pass beyond the tamping head, the materials are evenly distributed throughout the full depth and width of the moulds providing for a uniform texture of the block, so that when the green blocks reach the discharging point in their travel in the machine the blocks may be readily handled without danger of injury to the same.

What we claim is:

1. In a concrete block moulding machine, a rotating member, a tamping head having one end eccentrically connected to the rotating member to cause oscillation of the head, the working face of said tamping head being corrugated, each corrugation comprising a rib having curved inclined sides, with the side facing rearwardly being of greater extent than the other side.

2. In a continuous block moulding machine, a rotating member, a tamping head having one end eccentrically connected to the rotating member to cause oscillation of said head, and a shearing plate connected to the free end of the tamping head.

3. In a continuous block moulding machine, a rotating member, a tamping head having one end eccentrically connected to the rotating member to cause oscillation of said head, a shearing plate connected to the

free end of the tamping head, and a roller for maintaining the shearing plate in position.

4. In a continuous block moulding machine, a rotating member, a tamping head having one end eccentrically connected to the rotating member to cause oscillation of said head, and means for swingably supporting the free end of the tamping head.

5. In a concrete block moulding machine, a rotating member, a tamping head having one end eccentrically connected to the rotating member to cause oscillation of the head, the working face of said tamping head being provided with corrugations, each corrugation comprising a rib and curved sloping sides, one side being of greater extent than the other side, said side of greater extent being inclined toward the pivotal connection of the tamping head, a shearing plate connected to the free end of the tamping head, and a link for swingably supporting the free end of said head.

6. In a continuous block moulding machine, a rotating shaft, a tamping head connected eccentrically with the shaft for causing oscillation of the tamping head, a pair of elongated side plates disposed upon opposite sides of the tamping head, a sectional travelling carrier movable beneath the tamping head, a base member or pallet pivotally connected to each section, division plates mounted upon one end of each section of the travelling carrier, said base member and division plates when moving through the side plates cooperating with the side plates to form the moulds beneath the tamping head, and means operatively connected with the driving shaft for moving the travelling carrier.

7. In a continuous block moulding machine, a frame, an endless track mounted on the frame, a series of connected moulds adapted to ride on the track, each having a base plate with spaced perforated fingers extending longitudinally from one end of the base plate, the opposite end of the base plate being perforated, and a pin connecting the perforated fingers with the perforated end of an adjacent base plate of a mould.

8. In a continuous block moulding machine, a track, a series of moulds connected together in an endless train, means for pivotally connecting the inner adjacent ends of the moulds and including a pin, a spider having spaced notches at its periphery adapted to engage the pins on the moulds for driving the same, and means for operating the spiders.

9. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base plate, a pallet spaced above the base plate and swingably connected with the base plate.

10. In a continuous block moulding machine an endless sectional conveyor, each section comprising a base plate, a pallet spaced above the base plate and swingably connected with the base plate, and means for varying the spacing between the base plate and the pallet.

11. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base member, arms pivotally connected to the base member, a pallet connected to the arms and spaced above the base member, and a division plate connected to one end of the pallet.

12. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base member, arms pivotally connected to the base member, a pallet connected to the arms and spaced above the base member, and a division plate connected to one end of the pallet, a stop connected with the arms adapted to engage the base plate for limiting tilting movement of the pallet relative to the base member.

13. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base member, arms pivotally connected to the base member, a pallet connected to the arms and spaced above the base member, a division plate connected to one end of the pallet, and pins pivotally connecting the inner adjacent ends of the base members and projecting above and below the base members.

14. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base member, arms pivotally connected to the base member, a pallet connected to the arms and spaced above the base member, a division plate connected to one end of the pallet, said base member being provided with spaced fingers projecting from a longitudinal edge of the base member, and means for connecting the fingers to the end of an adjacent base member of a section.

15. In a continuous block moulding machine, an endless sectional conveyor, each section comprising a base member, arms pivotally connected to the base member, a pallet connected to the arms and spaced above the base member, a division plate connected to one end of the pallet, said base member being provided with spaced fingers projecting from a longitudinal edge of the base member, said fingers adapted to straddle the juxta-positioned end of an alined base member of an adjacent section, and a pin connecting the fingers with the end of said base member.

16. In a continuous block moulding machine, a combined endless sectional conveyor and mould boxes, each section comprising a base member, arms pivotally mounted adja-

cent their ends at one side edge of the base member, a pallet spaced above the base member, a sleeve and bolt for connecting the arms with the pallet and maintaining the same in spaced relation, said pallet and arms adapted to be tilted relative to the base member.

17. In a continuous block moulding machine, a combined endless sectional conveyor and mould boxes, each section comprising a base member, arms pivotally mounted adjacent their ends at one side edge of the base member, a pallet spaced above the base member, a sleeve and bolt for connecting the arms with the pallet and maintaining the same in spaced relation, said pallet and arms adapted to be tilted relative to the base member, said arms being provided with curved ends adapted to engage the base member for limiting tilting movement of the pallet.

18. In a continuous block moulding machine, an endless sectional conveyor composed of a plurality of pivotally connected moulds, each mould having a pallet and a division plate secured at one end, spaced side walls extending longitudinally of the moulding machine and between which the pallet and division plate of the moulds are adapted to pass with the side walls cooperating with the pallet and division plate to form a moving mould and which receives the moulds to be tamped therein.

19. In a continuous block moulding machine, an endless sectional conveyor composed of a plurality of pivotally connected moulds, each mould having a pallet and a division plate secured at one end, spaced side walls extending longitudinally of the moulding machine and between which the pallet and division plate of the moulds are adapted to pass with the side walls cooperating with the pallet and division plate to form a moving mould and which receives the moulds to be tamped therein, and means located above the side walls and the moving moulds for tamping materials into said moulds.

20. In a continuous block moulding machine, an endless track, an endless sectional conveyor including moulds, said moulds comprising a pallet and a vertical division plate, means for driving the conveyor on the endless tracks, a pair of spaced walls extending along a portion of the track upon opposite sides and cooperating with the pallet and division plate to form chambers to receive the materials to be moulded, and means located above the walls and moving moulds for tamping the materials into said moving moulds.

21. In a continuous block moulding machine, a tamping head comprising an elongated member having a concave working face, means connected with one end of the head for causing said head to be moved downwardly at an angle to the vertical, a frame adjacent the other end of the head, and links connected with the frame for swingably supporting said end of the tamping head, and means for adjusting the vertical height of the free end of the tamping head.

22. In a continuous block moulding machine, a tamping head comprising an elongated member having a concave working face, means connected with one end of the head for causing said head to be moved downwardly at an angle to the vertical, a frame adjacent the other end of the head, and links connected with the frame for swingably supporting said end of the tamping head, means for adjusting the vertical height of the free end of the tamping head, a shearing plate pivotally connected with the free end of the tamping head, and means for maintaining the shearing plate in a horizontal position.

23. In a continuous block moulding machine, a tamping head comprising an elongated member having a concave working face, means connected with one end of the head for causing said head to be moved downwardly at an angle to the vertical, a frame adjacent the other end of the head, and links connected with the frame for swingably supporting said end of the tamping head, means for adjusting the vertical height of the free end of the tamping head, a shearing plate pivotally connected with the free end of the tamping head, means for maintaining the shearing plate in a horizontal position, and means for adjusting the vertical height of the last mentioned means.

24. In a continuous block moulding machine, a tamping head, a shearing plate connected with the tamping head, the connecting means including a pair of spaced cleats secured to the shearing plate, a pair of cleats secured to the tamping head and projecting over the adjacent end of the shearing plate, a bar pivotally connected with the second mentioned cleats, and a pin pivotally connecting the first mentioned cleat with said bar.

25. In a continuous block moulding machine, a tamping head, a shearing plate connected with the tamping head, the connecting means including a pair of spaced cleats secured to the shearing plate, a pair of cleats secured to the tamping head and projecting over the adjacent end of the shearing plate, a bar pivotally connected with the second mentioned cleats, a pin pivotally connecting the first mentioned cleat with said bar, and means for varying the tension on the last mentioned pin.

26. In a continuous block moulding machine, a supporting frame, an endless track

member mounted on the frame, track sections spaced in parallel relation with the longitudinal sides of the endless track, the portions of the longitudinal sections of the track being free of the endless track and movable vertically, and means for vertically adjusting the movable portions of the track.

27. In a continuous block moulding machine, an endless sectional conveyor including moulds having spaced upstanding pins along their inner edge, means for driving the endless conveyor and comprising a spider having spaced radially disposed lugs provided with notches adapted to periodically engage the pins for propelling the conveyor.

28. In a plastic moulding machine, a support on which plastic material is placed, means for moving said support, a tamping head disposed at an angle to the horizontal and adapted to tamp the material on said support, means for reciprocating said tamping head, and a shearing device connected to and forming an extension of said tamping head.

29. In a plastic moulding machine, a support on which plastic material is placed, means for moving said support, a tamping head disposed at an angle to the horizontal and adapted to tamp the material on said support, means for reciprocating said tamping head, a shearing device connected to and forming an extension of said tamping head, and pivoted means for supporting the rear end of said tamping head.

30. A continuous plastic block moulding machine, comprising an endless moulding support, means for feeding plastic material on said support to form blocks thereon, means for moving the support, in combination with a tamping head positioned above the support to tamp the material thereon, means for supporting said head in a position inclined to the horizontal, means for reciprocating said tamping head, and a shearing device connected with and forming a continuation of said head.

31. A continuous plastic block moulding machine, comprising an endless moulding support, means for feeding plastic material on said support to form blocks thereon, means for moving the support, in combination with a tamping head positioned above the support to tamp the material thereon, means for supporting said head in a position inclined to the horizontal, means for reciprocating said tamping head, a shearing device connected with and forming a continuation of said head, said supporting means for the tamping head comprising a shaft, an eccentric thereon, and a pivotally connected link for supporting the rear portion of the head.

32. A tamping head adapted to be reciprocated over plastic material, said head having a corrugated engaging surface with the corrugations progressively decreasing in width toward the rear part of the tamping head.

33. In a block tamping machine, the combination with an endless carrier, means for feeding plastic material on said carrier during a portion of its travel, means for dividing the material into blocks, a reciprocating tamping head adapted to engage said material, a shearing device for operating on said material after engagement by the tamping head, a frame work overlying said shearing device, and pressure applying means carried by said frame work and engaging said shearing device for forcing the same into contact with the material being treated.

34. In a block tamping machine, the combination with an endless carrier, means for feeding plastic material on said carrier during a portion of its travel, means for dividing the material into blocks, a reciprocating tamping head adapted to engage said material, a shearing device for operating on said material after engagement by the tamping head, a frame work overlying said shearing device, and pressure applying means carried by said frame work and engaging said shearing device for forcing the same into contact with the material being treated, said pressure applying means comprising a roller coacting with said shearing element, and adjustable elements engaging the axis of said roller.

35. In a continuous block making machine, the combination with an endless carrier, means for applying plastic material thereon, side ports for said material, partitions dividing the material into blocks, and means for tamping the material comprising a reciprocating tamping head, a shearer, stationary frame work disposed above said shearer, a pivoted link arm supporting said shearer and one end of said tamping head, adjustable means carried by said frame work for exerting a pressure on said shearer, and an eccentric for reciprocating the shearer and tamping head.

JAMES M. PHILLIPS.
HENRY D. PHILLIPS.