R. Z. SNELL.

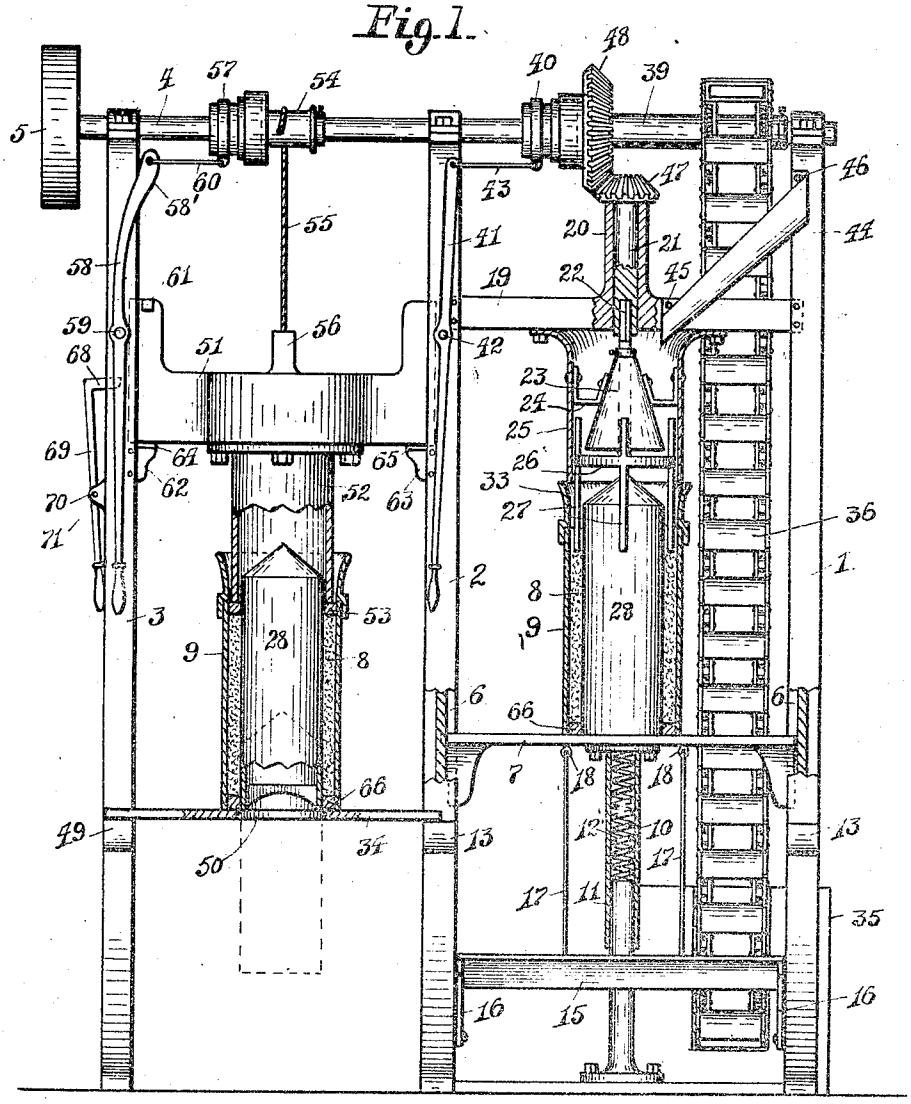
MACHINE FOR MAKING CONCRETE TILING.

APPLICATION FILED JULY 21, 1908.

928,812. Patented July 20, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



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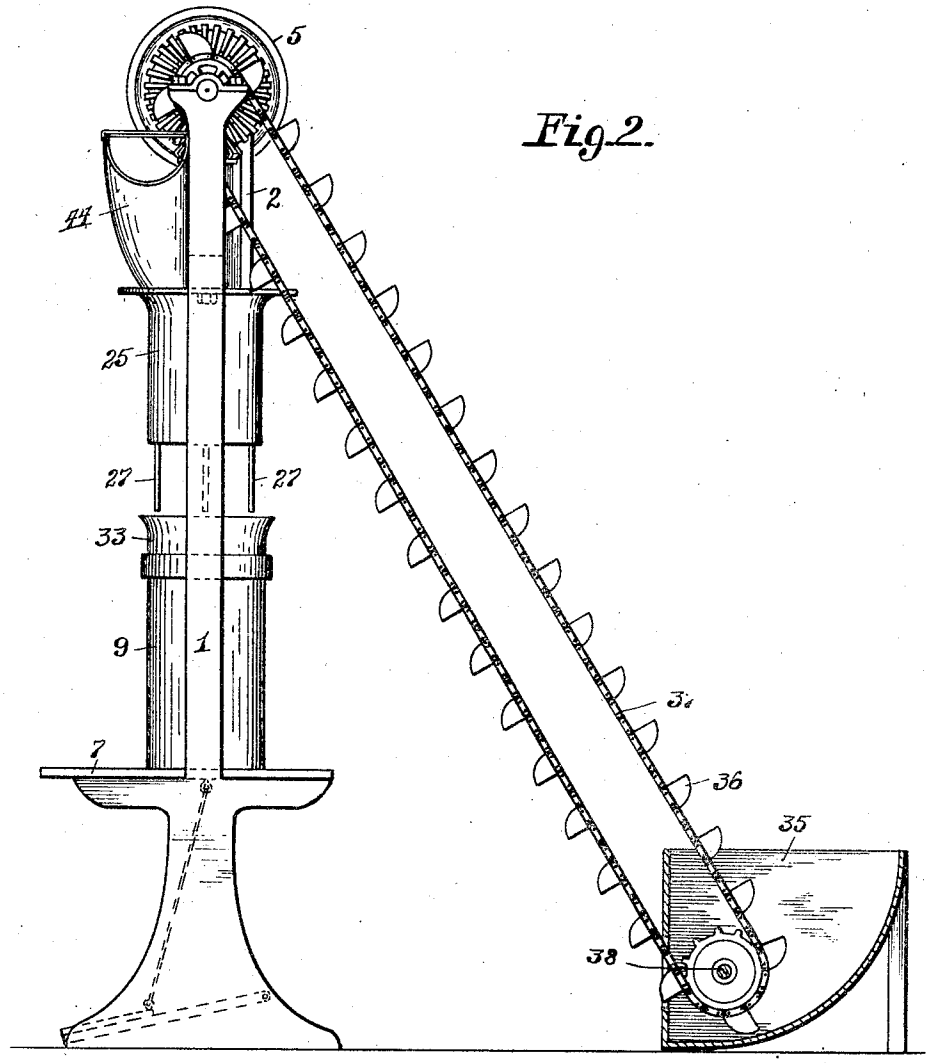
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3 SHEETS—SHEET 2.

Fig. 2.



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MACHINE FOR MAKING CONCRETE TILING.

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3 SHEETS—SHEET 3.

Fig. 3.

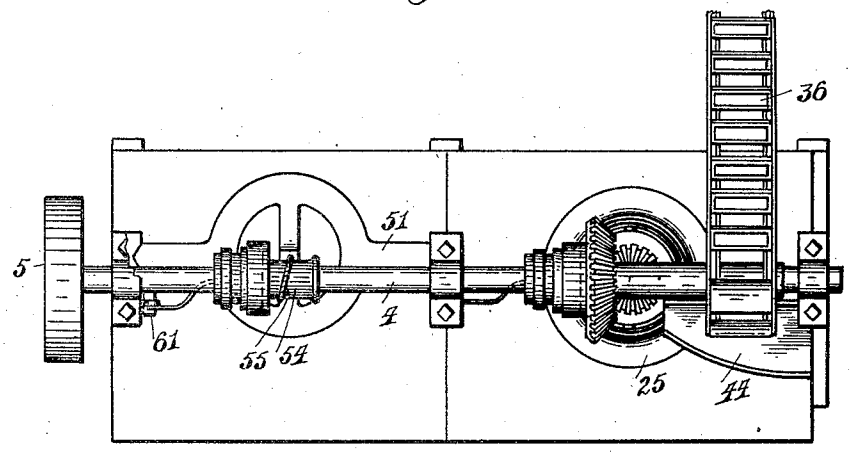


Fig. 4.

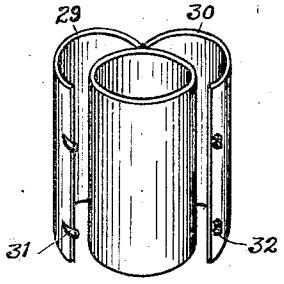
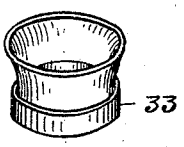


Fig. 5.



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913,229

UNITED STATES PATENT OFFICE.

RANSOM Z. SNELL, OF SOUTH BEND, INDIANA.

MACHINE FOR MAKING CONCRETE TILING.

No. 928,812. Specification of Letters Patent. Patented July 20, 1909.

Application filed July 21, 1908. Serial No. 444,588.

To all whom it may concern:

Be it known that I, RANSOM Z. SNELL, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Machines for Making Concrete Tiling, of which the following is a specification.

This invention relates to machines for making concrete tiling.

One object of the invention is to provide a machine embodying such characteristics that the molds may be filled automatically and the filled mold shifted manually from one position in the machine to another position therein and effectually tamped and subsequently removed from the mold manually.

Another object of the invention resides in the provision of a machine provided with a vertically movable table for the support of the mold and which is gradually lowered incident to the weight of the material fed automatically into the mold until the table reaches a certain point in the machine, when the filled mold may be readily and quickly shifted to a stationary platform for tamping purposes, there being means provided in the machine for effecting an efficient tamping of the same or substantially the same length.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a view partly in elevation and partly in section illustrating my invention. Fig. 2 is a side elevation. Fig. 3 is a top plan view. Fig. 4 is a detail view of a mold disassembled and illustrating a tile formed in accordance with the present invention, and Fig. 5 is a detail view of a hood adapted for position upon the top of the mold for the purpose of holding the latter in its assembled condition.

Referring now more particularly to the accompanying drawings, the reference characters 1, 2 and 3 indicate uprights journaled in the top of which is a shaft 4, designed to be continuously rotated during the operation of the machine, through the instrumentality of a belt or any other suitable means (not shown) adapted to work upon the pulley wheel 5.

Slidably mounted between the uprights 1 and 2 in the guide ways 6 is a vertically movable table 7 which is held normally in its upper position against the action of the cementitious material 8 in the mold 9, through the instrumentality of the telescoping support, indicated by the characters 10 and 11, there being a spring in the sleeve part 10 of said support and bearing against the bottom of the table 7 and the upper end of the part 11 of said support. The table may be drawn downwardly to its lowermost position and rest upon the supports 13 on the standards 1 and 2 by the foot lever 15, whose legs 16 are pivotally mounted upon the standards 1 and 2 and which has connections 17 in the eyes 18 on the bottom of the table 7.

Connecting the standards 1 and 2 near their upper ends is a cross bar 19 having an upwardly directed sleeve 20, in which latter and through said bar 19 is rotatably mounted a short shaft 21, to which latter is connected in any suitable manner a stem 22 which extends through a conical shaped hood 23 secured by means of suitable brackets 24 within the hopper 25, there being a frame 26 secured to the lower end of said stem 22 beneath said hood 23 and provided with a series of fingers 27 designed, upon rotation of the frame 26, to agitate the material 8 entering the mold 9 between the latter and the core 28 to prevent clogging of the material and to insure an even distribution or filling of the mold 9.

The mold 9 may be of any suitable character, but as shown in the accompanying drawings, especially in Fig. 4, it consists of two semi-cylindrical shaped members 29 and 30 hingedly connected at corresponding longitudinal edges and adapted to have their opposite longitudinal edges coupled together by means of connections 31 and 32 or, if preferred, solely by the ring or funnel 33, which embraces the upper end of the mold, as clearly shown in Fig. 1, and whose upper edge flares outwardly, as shown, to insure the proper feeding of the cementitious material to the mold. It will be noted that the agitator fingers 27 extend only slightly within the upper part of the mold when the latter is in its upper position upon the table 7, so that when the mold 9, has, by its own weight incident to filling, been forced to its lowermost position, the agitator fingers will be out of

the mold so that the latter may be shifted from the table 7 manually to the adjacent stationary platform 34 for tamping purposes, the latter being hereinafter more fully described.

The material is mixed preferably in a bin 35 and is lifted from the latter by means of the buckets 36 on the endless conveyer 37, which latter works over the shaft 38 in the bin and a sleeve 39 loosely mounted upon the continuously rotating shaft 4, there being a friction clutch mechanism 40 upon said shaft 4 adapted to clutch the sleeve 39 to the shaft 4, when desired, through the instrumentality of the handle operated lever 41 pivoted at 42 to the standard 2 and having a link connection 43 with the clutch mechanism. Thus when the clutch mechanism 40 is thrown into operative position with the sleeve 39, the endless conveyer 37 is caused to operate and in its operation lifts the cementitious material upwardly toward the top of the machine where it discharges the same automatically into the chute 44, which latter is secured in any suitable manner, preferably, to the standard 1 and the cross bar 19, as indicated at 45 and 46, and which delivers the material from the conveyer directly to the hopper 25 where it is forced to enter the space between the mold 9 and the core 28, and in its passage to such space is agitated to prevent clogging and insure an even distribution and feeding thereof into said space through the instrumentality of the agitator fingers 27 operated by the rotation of the aforesaid shaft 21, which, latter is rotated through the instrumentality of the beveled gear 47 having mesh with the beveled gear 48 carried by the aforesaid sleeve 39.

As the mold 8 is being filled, the tension of the aforesaid spring 12 beneath the table 7 is gradually overcome incident to the weight of the material in the mold upon the table 7, and by the time that the mold has been filled, the table 7 with the mold thereupon has reached the stops 13, which brings the table 7 into alinement with the aforesaid stationary platform 34 mounted upon one of said stops 13, and another stop 49 on the standard 3. This platform 34 is provided with an opening 50 of greater cross sectional diameter than the core 28, so as to permit of the withdrawal of the core 28, as shown in dotted lines in Fig. 1, after the tamping operation, which latter operation will now be described, it being understood that the core 28 is held in the mold 9 on the stationary platform 34 by virtue of friction, and that it may be readily withdrawn manually because of the fact that it is slightly tapered.

Slidably mounted between the standards 2 and 3 is a tamping device consisting of a head 51 and a cylindrical depending portion 52 which is adapted to fit between the mold 9 and the core 28 and act upon the ring 53 disposed upon the cementitious material 8 after or at the time the mold 9 is being shifted from the movable table 7 to the platform 34 to provide for an evenness of the edge of the tile formed in the mold, as will be understood.

To effect a slidable or reciprocating movement of the tamping device, there is loosely mounted upon the continuously operating shaft 4 a sleeve 54, to which latter is connected a cable 55 adapted to connect with the head 51 of the tamping device, as indicated at 56. To provide for a winding of the cable 55 upon the sleeve 54 to elevate the tamping device, there is provided suitable clutch mechanism 57 which is thrown into and out of engagement with the sleeve 54 and shaft 4 by means of a hand operated lever 58 pivoted at 59 and having a link connection 60 with the clutch. As shown in Fig. 1, the clutch 57 is in operative position to lift the tamping device, and the operator may provide for a raising and lowering of the tamping device by movement of the hand operated lever 58 upon its pivot 59. If, however, the operator should fail to move the lever 58 prior to the time the tamping device reaches the upper limit of movement, the arm 61 on the head 51 would engage the upper curved portion 58′ of the lever 58 and automatically throw the clutch 57 out of operative relation with the shaft 4, and the sleeve 54, and effect a dropping of the tamping device automatically.

To obviate unnecessary jar and to limit the downward movement of the tamping device, there is provided the stops 62 and 63 on the standards 2 and 3 and these stops 62 and 63 are preferably provided with rubber or other suitable cushions 64 and 65, as clearly shown in Fig. 1. Thus by properly manipulating the lever 58, the clutch 57 may be controlled so as to vary the degree of fall of the tamping device, so as to further reduce unnecessary jar occasioned by the tamping device engaging the stop brackets 62 and 63.

Of course, in order to insure a proper spacing of the core and mold, there is provided in the bottom of the space between said two elements a ring 66, and in order to hold the tamping device in elevated position during the shifting of the mold from the movable table 7 to the stationary platform 34, there is provided in one end of the head 51 of the tamping device a series of notches 67 adapted to receive the inwardly directed end 68 of a lever 69 pivoted at 70 in the bracket 71. This lever 69 may be readily and quickly thrown into and out of coöperative engagement with the tamping device, as is obvious.

What is claimed is:—

1. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for hold-

ing the table normally at its upper position, a hopper mounted above said table, a mold disposed upon the table beneath the hopper and movable with the table, a friction clutch on said shaft including a sleeve, a storage bin, an endless conveyer working over said sleeve and entering said bin to lift the material from the bin and carry it to the top of the machine, a chute disposed at the upper end of the machine to receive the material from said conveyer and deliver it to the hopper, to move the hopper and its table downwardly against the action of the means which holds the table normally in its upper position, a manually operable means arranged whereby said table may be drawn to its lowermost position independently of the weight of the material in the mold, a stationary platform to receive the mold after it has been filled and the table moved to its lowermost position, and a tamping device operating above the stationary platform to effect a tamping of the material in the mold.

2. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally in its upper position, a hopper mounted above said table, a mold disposed upon the table beneath the hopper, a friction clutch on said shaft including a sleeve, a storage bin, an endless conveyer working over said sleeve and entering said bin to lift the material from the bin and carry it to the top of the machine, a chute disposed at the upper end of the machine to receive the material from said conveyer and deliver it to the hopper, to move the latter and its table downwardly against the action of the means which holds the table normally in its upper position, a stationary platform to receive the mold after it has been filled and the table moved to its lowermost position, and a tamping device operating above the stationary platform to effect a tamping of the material in the mold.

3. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted above said table, a mold disposed on the table beneath the hopper and movable with the table, means for conveying cementitious material to the hopper to fill the mold and to move the same and its table downwardly against the action of the means which holds the table normally in its upper position, manually operating means to lower the table independently of the filling thereof with cementitious material, and a platform to receive the mold after said table has been lowered.

4. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a bin, a hopper disposed above the mold, a chute leading to the hopper, means for conveying the material from the bin to said chute, means for agitating the material as it passes from the hopper to the mold, a platform to receive the mold after said table has been lowered, and a tamping device arranged above said platform to tamp the material in the mold.

5. In a machine of the character described, a frame, a vertically movable table mounted in the frame, a mold upon the table, a hopper above the mold, means for conveying the material to the upper end of the frame, means for receiving the material from the conveying means and delivering it to said hopper for discharge into the mold, means to agitate the material as it passes from the hopper to the mold, a conical shaped hood in the mold to deflect the material to the space between the mold and its core, a platform mounted in the frame to receive the mold after the latter has been filled, and a tamping device mounted above said platform to tamp the material in the mold.

6. In a machine of the character described, a frame, a vertically movable table mounted in the frame, a mold mounted upon the table, a hopper disposed upon the frame above said mold, a mixing bin, a conveyer constructed and arranged to carry the material from said bin to the upper end of the frame, a chute arranged to receive the material from said conveying means and deliver it to the hopper for discharge into the mold, a hood in the hopper to deflect the material passing through the hopper into the space between the mold and its core, and means constructed and arranged to agitate the material as it passes from the hopper into the mold.

7. In a machine of the character described, a frame, a continuously rotating shaft in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold to fill the latter and move it and its supporting table downwardly against the action of the aforesaid holding means, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, and an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold.

8. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold to fill the latter and gradually force it and the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a platform mounted in the frame, to receive the mold after the latter has been filled, and a tamping device operable above the platform and the mold thereupon to tamp the material in the mold.

9. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it into the mold to fill the latter and move it and the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a stationary platform mounted upon the frame to receive the mold after the latter has been filled, a vertically movable tamping device to tamp the material in the mold on said platform, and means whereby the tamping device may be alternately raised and lowered.

10. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold to fill the latter and move it and the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a stationary platform mounted upon the frame to receive the mold after the latter has been filled, a vertically movable tamping device to tamp the material in the mold on said platform, means whereby the tamping device may be alternately raised and lowered, and means carried by the tamping device, whereby the latter may be lowered automatically upon failure to manually lower.

11. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold to fill the latter and move it together with the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve, and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a stationary platform mounted in the frame to receive the mold after the latter has been filled, a vertically movable tamping device operable to tamp the material in the mold, and means for holding the tamping device in its upper position during the shifting of the mold from said table to said platform.

12. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper

position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold, to fill the latter and force it together with the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a stationary platform mounted in the frame to receive the mold after the latter has been filled, a vertically movable tamping device operable to tamp the material in the mold, means for holding the tamping device in its upper position during the shifting of the mold from said table to said platform, and means operable manually to effect an alternate raising and lowering of the tamping device.

13. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted in the frame above the mold, a bin for the material, a clutch mechanism including a sleeve mounted upon said continuously rotating shaft, a conveyer operating over said sleeve and entering the bin, means whereby the clutch mechanism may be thrown into operation to set the conveyer into operation to lift the material from the bin to the upper end of the machine, a chute to receive the material from the conveyer and discharge it into the hopper to deliver it to the mold to fill the latter and force it together with the vertically movable table downwardly, a vertically disposed shaft, a gear mechanism between the aforesaid sleeve and the vertically disposed shaft to rotate the latter, an agitating device carried by the vertically disposed shaft to agitate the material as it passes from the hopper to said mold, a stationary platform mounted in the frame to receive the mold after the latter has been filled, a vertically movable tamping device operable to tamp the material in the mold, means for holding the tamping device in its upper position, during the shifting of the mold from said table to said platform, means operable manually to effect an alternate raising and lowering of the tamping device, and means carried by the tamping device to engage the last mentioned manually operating means to effect an automatic dropping of the tamping device upon failure to operate said last mentioned manually operating means.

14. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted above said table, a mold disposed on the table beneath the hopper and movable with the table, means for conveying cementitious material to the hopper to fill the mold and to move the same and its table downwardly against the action of the means which holds the table normally in its upper position, manually operating means to lower the table independently of the filling thereof with cementitious material, a platform to receive the mold after said table has been lowered, and a tamping device arranged above said platform to tamp the material in the mold.

15. In a machine of the character described, a frame, a table yieldably mounted in the frame for disposition normally at its upper position, a mold upon the table, a hopper mounted upon the frame above the mold, means for agitating the material as it passes from the hopper to the mold, said agitating means including fingers, means for conveying the material to the hopper, a stationary platform mounted in the frame to receive the mold as the latter has been filled, a movable tamping device operable to tamp the material in the mold, means for holding the tamping device normally in its upper position, means operable manually to effect an alternate raising and lowering of the tamping device, and means carried by the tamping device to engage the last mentioned manually operating means to effect an automatic dropping of the tamping device upon failure to operate said last mentioned manually operating means.

16. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted upon said table, a mold disposed upon the table beneath the hopper and movable with the table, a friction clutch on said shaft including a sleeve, an endless conveyer working over said sleeve to lift the cementitious material to the top of the machine to deliver it to the hopper and subsequently to the mold and in delivering it to the mold move the latter and its table downwardly against the action of the means which holds the table normally in its upper position, manually operable means arranged whereby said table may be drawn to its lowermost position independently of the weight of the material in the mold, a platform to receive the mold after it has been

filled, and a tamping device operating above the stationary platform to effect a tamping of the material in the mold.

17. In a machine of the character described, a frame, a continuously rotating shaft mounted in the frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted upon said table, a mold disposed upon the table beneath the hopper and movable with the table, a friction clutch on said shaft including a sleeve, an endless conveyer working over said sleeve to lift the cementitious material to the top of the machine to deliver it to the hopper and subsequently to the mold and in delivering it to the mold move the latter and its table downwardly against the action of the means which holds the table normally in its upper position, a platform to receive the mold after it has been filled, and a tamping device operating above the stationary platform to effect a tamping of the material in the mold.

18. In a machine of the character described, a frame, a table mounted for vertical movement in the frame, a mold upon the table, means for conveying the material to the mold, a platform in the frame to receive the mold after the latter has been filled, a vertically movable tamping device operable to tamp the material in the mold, means for holding the tamping device in its upper position during the shifting of the mold from said table to said platform, means operable manually to effect an alternate raising and lowering of the tamping device, and means carried by the tamping devices to engage the last mentioned manually operated means to effect an automatic dropping of the tamping device upon failure to operate said manually operating means.

19. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper disposed above the mold, means for conveying the material to the hopper for discharge into the mold to fill the latter and move it and its table downwardly against the action of the means which holds the table normally in its upper position, the mold having a core spaced therefrom, a hood in the mold to deflect the material into the space between the mold and its core, means rotating around the hood to agitate the material as it passes from the hopper through the mold, a platform to receive the mold after the table has been lowered, and a tamping device arranged above said platform to tamp the material in the mold.

20. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted above said table, a mold including a spaced core and disposed upon the table beneath the hopper and movable with the table, means for conveying the material to the hopper for discharge into the mold, a deflecting device in the hopper to cause the material to fall into the space between the mold and its core, an agitating device arranged to agitate the material as it passes from the hopper to the mold, said table and its mold moving downwardly against the action of the means which holds the table normally in its upper position as the material enters the mold, and means for tamping the material in the mold when the latter has been filled.

21. In a machine of the character described, a frame, a vertically movable table mounted in the frame, means for holding the table normally at its upper position, a hopper mounted above said table, a mold including a spaced core and disposed upon the table beneath the hopper and movable with the table, means for conveying the material to the hopper for discharge into the mold, a rotatable deflecting device in the hopper to cause the material to fall into the space between the mold and its core, a rotatable agitating device arranged to agitate the material as it passes from the hopper to the mold, said table and its mold moving downwardly against the action of the means which holds the table normally in its upper position as the material enters the mold, and means for tamping the material in the mold when the latter has been filled.

In testimony whereof I affix my signature, in presence of two witnesses.

RANSOM Z. SNELL.

Witnesses:
GEORGE OLTSCH,
G. M. COLE.