

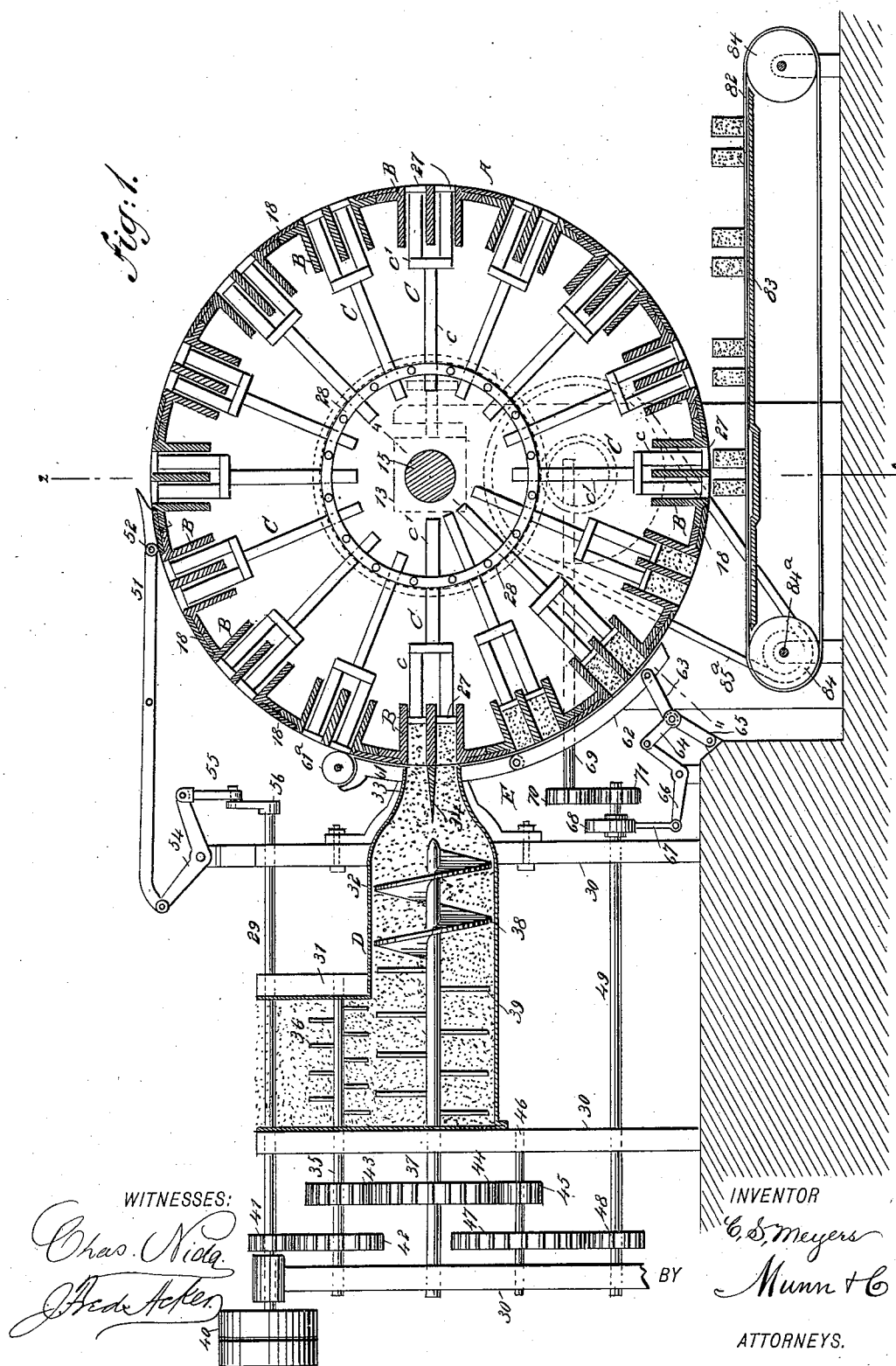
(No Model.)

3 Sheets—Sheet 1.

C. S. MEYERS.
BRICK MACHINE.

No. 565,291.

Patented Aug. 4, 1896.



WITNESSES:

INVENTOR

C. S. Meyers

Munn & Co

ATTORNEYS.

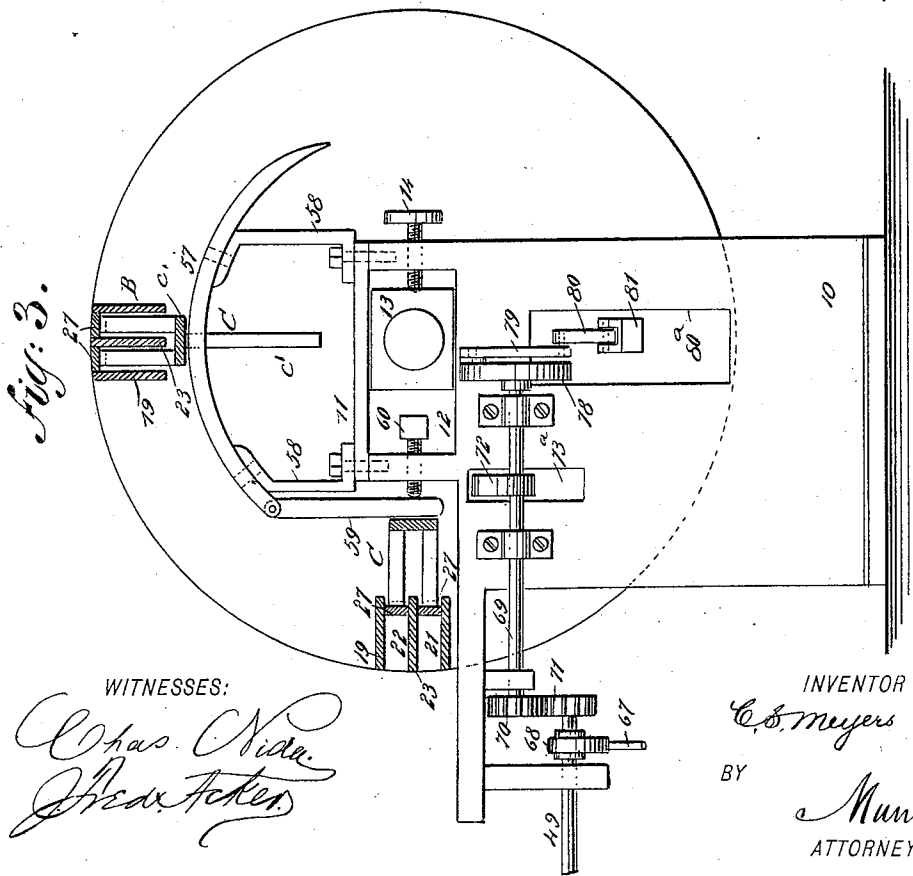
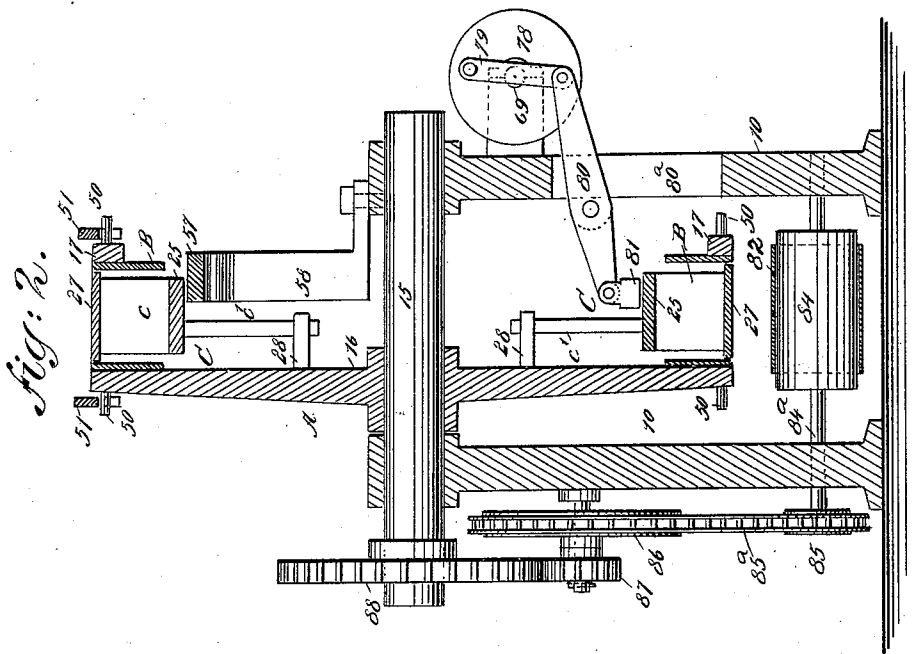
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(No Model.)

3 Sheets—Sheet 3.

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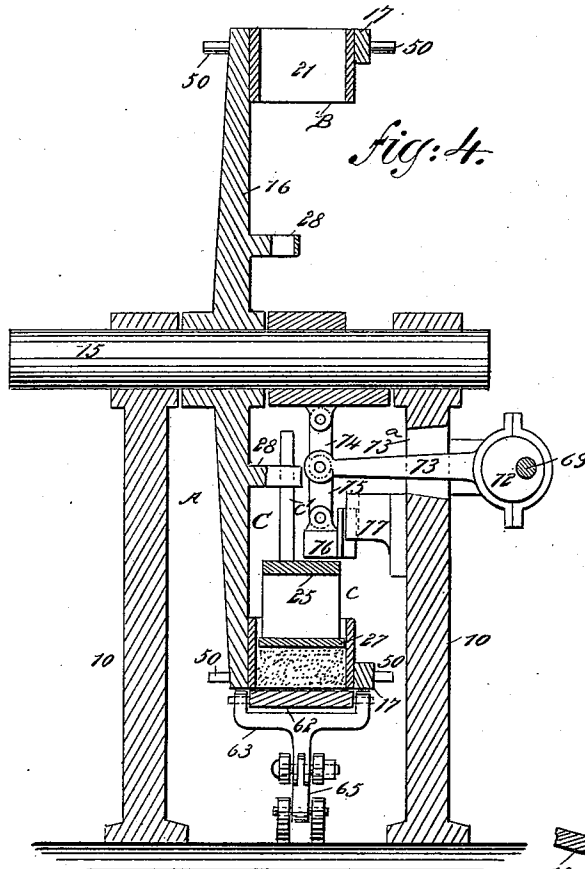


Fig: 4.

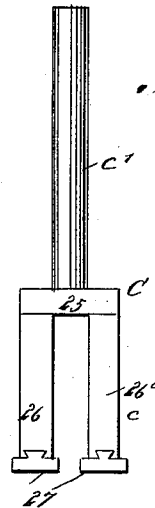


Fig: 5.

Fig: 6.

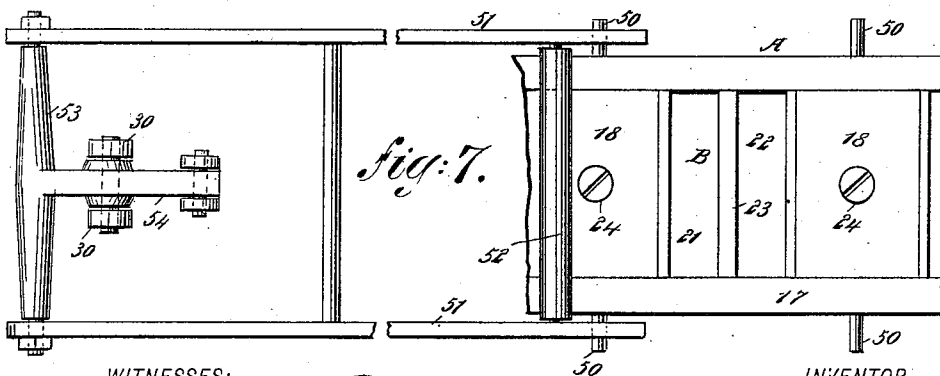
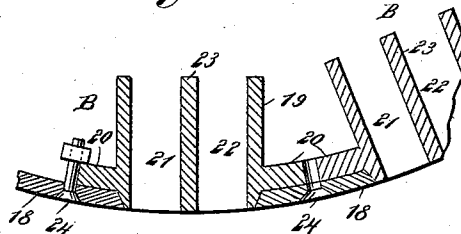


Fig: 7.

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UNITED STATES PATENT OFFICE.

CHARLES STEVENSON MEYERS, OF SHARPSBURG, PENNSYLVANIA, ASSIGNOR
OF TWO-THIRDS TO ALBERT E. JOHNSON AND GEORGE I. CORE, OF SAME
PLACE.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,291, dated August 4, 1896.

Application filed May 18, 1895. Serial No. 549,823. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STEVENSON MEYERS, of Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brick-Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in brick-machines; and the object of the invention is to provide a means for manufacturing brick through the medium of a wheel which may be placed perpendicular or horizontal, and which may also be round or polygonal; and a further object of this invention is to provide a means whereby molds may be conveniently introduced into the said wheel or removed therefrom, and whereby, further, the material will be fed from the source of supply directly to the molds, and whereby, further, after the mold has received its charge of material the said material will be compressed, pressure being exerted thereon both from within and without simultaneously, and whereby, further, the brick or bricks thus formed will be automatically dropped from the mold-wheel and delivered to any desired point.

Another object of the invention is to provide a brick-making machine which will be exceedingly simple, durable, and economic in its construction, and which may be attended by a single individual, the machine operating automatically throughout.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal vertical section through the mold-wheel, showing the plungers in side elevation, the section being likewise taken through the carrying-belt and the hopper from which the material is supplied to the molds. Fig. 2 is a section taken vertically and practically on the line 2 2 of Fig. 1. Fig. 3 is a side elevation of the machine, sundry of the molds being in section. Fig. 4 is a sec-

tion taken substantially on the line 4 4 of Fig. 1. Fig. 5 is a detail view of the plunger adapted to operate in a mold. Fig. 6 is a vertical section through a portion of the periphery of the mold-carrying wheel, illustrating the manner of placing the molds therein; and Fig. 7 is a partial plan view of the mold-carrying wheel, together with a plan view of the mechanism adapted for actuating the wheel.

In carrying out the invention uprights 10 are erected, preferably opposite each other, as shown in Figs. 2 and 4, which uprights may be of any desired size and constitute the side portions of the base or framing of the machine, the said uprights or standards 10 being each provided at the top with an extension 11, having a slot or opening 12 made therein, and boxes 13 are made to slide in the said slots, their movement being controlled in direction of the feed end of the machine by set-screws 14 or their equivalents.

The shaft 15 of a mold-wheel A is journaled in the boxes 13, the wheel being fast on the said shaft. This wheel may be said to consist of a disk-body 16 and a ring 17, removed from the margin of the disk a predetermined distance and adapted to be connected therewith, the connection between the ring and the disk being effected through the medium of plates 18, placed transversely or diametrically, as shown in Fig. 6. Spaces are provided between the tie-plates 18, and each space is adapted to receive a mold B. These molds may be made to make a single brick, or two bricks, as illustrated, or any desired number of bricks may be formed in one mold. When a mold is provided with two compartments, as shown in the drawings, being adapted to shape two bricks, the mold is constructed in one piece, and comprises a hollow body 19, usually square or polygonal, provided with curved flanges 20 at opposite sides, all the flanges corresponding to the curvature of the peripheral portion of the wheel, and the body is divided into two compartments 21 and 22 by means of a central partition 23.

A mold having been placed in the opening between the two tie-plates 18, the outer end of the mold flush with the outer face of the said tie-plates, the flange of the next mold

is made to substantially meet that of the adjoining mold, and the two molds are then held in position by means of a single bolt 24, passed through the tie-plates 18 and between 5 or through the abutting flanges of the molds, the bolts being provided when necessary with suitable nuts, as shown in Fig. 6. Thus it will be observed that the molds may be taken out individually and readily replaced; and it 10 is further obvious that any number of molds may be located in the peripheral surface of the mold-wheel A.

In connection with each mold B a plunger C is employed, and this plunger comprises a 15 head *c* and a shank *c'*, the shank being preferably round in cross-section, although it may be otherwise formed. The head *c* is substantially U-shaped, consisting of a base 25 and two parallel members 26 and 26^a, each carrying at its outer end a follower 27. The followers 27 are of sufficient size and of such shape as to neatly fit into the compartments 21 and 22 of the mold, yet are capable of sliding movement in such compartments, and 25 a guide-ring 28, or the equivalent thereof, is formed upon the inner face of the mold-wheel A, receiving the inner ends of the shank portions of the plungers.

A driving-shaft 29 is journaled in suitable 30 supports 30, located, preferably, in front of the mold-wheel, and upon sundry of the supports 30 the hopper D, adapted to receive the mud and supply the same to the molds, is fastened in any approved manner. This hopper comprises, preferably, two members 31 and 32, one being horizontal and the other vertical, and preferably the horizontal member is round in cross-section and is of greater length than the vertical member. It is reduced at its outer or delivery end to form a 40 nozzle 33, the nozzle being of such size and shape that it will just register with both openings of a mold, and the nozzle is furthermore provided with a partition 34, which will register with the partition in the mold to be filled. 45 A line-shaft 35 is journaled in the said supports 30 and is passed through the upper or receiving section 31 of the hopper D, and that portion of the shaft within the hopper is fitted with knives 36, or their equivalents, adapted to pulverize the material and force the same downward into the horizontal section of the hopper. A second line-shaft 37 is journaled 50 in the said supports 30 and extends a predetermined distance within the horizontal member of the hopper, being provided with a wide thread 38 of coarse pitch at its inner end, and back of this thread, within said hopper, the shaft is fitted with a number of knives 39, or 60 their equivalents, the thread 38 being practically an auger.

The drive-shaft is provided with any suitable driving-pulley 40, and a pinion 41 on the drive-shaft 29 is made to mesh with the gear 42 on the line-shaft 35, which in its turn is provided with a pinion 43, meshing with a gear 44 on the second line-shaft 37, and the

gear 44 meshes with a pinion 45 on an idler-shaft 46, which carries a gear 47, meshing with a pinion 48 on a driven shaft 49, as shown 70 best in Fig. 1.

The wheel is provided at its periphery with pins 50 at each side, the pins being arranged at predetermined distances apart, usually one adjacent to each mold. These pins are en- 75 gaged by the head portions of shifting-arms 51, which shifting-arms are connected at their head portions with a roller 52, traveling on the periphery of the mold-wheel, and the arms at their rear ends are pivotally connect- 80 ed with a T-head 53, formed upon an angle or elbow lever 54, (shown in Figs. 1 and 7,) the lever being fulcrumed upon any convenient support, and the said lever is operated through the medium of a pitman connection 85 55, with a crank-disk 56, mounted upon the inner end of the drive-shaft 29. Thus at stated intervals the shifting-arms will engage with the pins 50 on the wheel, rotating the said wheel a predetermined distance, or suffi- 90 ciently to carry an empty mold to the nozzle of the hopper and the filled mold to a lower position.

In order that the plungers may be held flush with the outer faces of the molds when the 95 molds are at the upper portion of the wheel, and, furthermore, in order to exclude the air from the molds at this time, or before filling, a guide-track 57 is secured upon brackets 58 or their equivalents, located on the extensions 100 11 of the standards 10, as illustrated in Fig. 3, upon which the base of the body portions of the plungers ride during their passage from side to side, and an arm 59 is pendent from the forward end of the guide-track 57, being 105 adjusted outward or forward through the medium of an adjusting-screw 60, and when the mold is opposite the hopper and is receiving its supply of material the length of the bricks to be made will be regulated by the adjust- 110 ment of the pendant 59, since it will be engaged by the bottom or base of the body of the plunger when the latter is at its full rearward stroke.

At the front portion of the wheel a plate E 115 is supported, the said plate being made to conform to the curvature of the wheel, and it comprises an upper fixed section 61, extending above the nozzle end of the hopper and some distance below it, and a compressing 120 pivoted lower section 62. This latter section is adapted as a compressing agent for the material located in the filled mold and is operated from the shaft 49, as shown in Figs. 1 and 4. The fixed section 61 of the plate E is 125 curved in order to hold a roller 61^a, and the said roller is brought in contact with the periphery of the mold-wheel for the purpose of oiling the followers 27 of the mold-plungers. Said roller also acts to press the followers in 130 flush with the periphery of the mold-wheel in case any of said followers should project, so that said followers will not engage the upper edge of plate E and damage the machine. The

compressing-plate 62 is operated by connecting with the free end of the plate a link 63, the said link being pivoted to a second link 65, which is in its turn pivotally connected with a fixed support. A third link 64 is pivotally connected with the two links 65 and 63, forming a toggle, and the link 64 is in its turn pivotally connected with an elbow-lever 66, and said lever is attached to a pitman 67, connected with an eccentric 68 on the shaft 49.

A shaft 69 is held to turn in bearings at one side of the wheel-supporting frame, and this shaft is driven by securing upon its forward end a gear 70, meshing with a gear 71 on the line-shaft 49. At the same time that the compressing-plate 62 exerts inward pressure on the material in the mold under treatment the material receives outward pressure through the medium of its plunger C. As shown in Fig. 4, this is accomplished by securing an eccentric 72 on the shaft 69 and connecting a pitman 73 with the said eccentric, the pitman being passed through an opening 73^a in the frame-standard 10. The pitman at its inner end is pivoted to two links 74 and 75, one of which is pivoted to a fixed portion of the frame, and the other link is pivotally connected with a head-block 76, held to slide in guides 77, the head-block being adapted to exert pressure upon the base of the plunger beneath it. It will be observed that the pitman and the links 74 and 75 also constitute a toggle.

When the mold which has been subjected to the compressing-plate is brought to the bottom of the wheel, its plunger is operated in a manner to force the bricks out from the mold. The mechanism whereby this is accomplished is shown in Fig. 2, and consists of a crank-disk 78, which is secured to the driven shaft 69, a link 79, pivoted to the said crank-disk, an arm 80, fulcrumed to the support of the frame and extending through an opening 80^a in the frame, and a head-block 81, carried by the inner end of the said arm and adapted to force the head portion of the plunger outward. When the bricks are forced from the mold, they are received upon an endless carrying-belt 82, which may conduct them to the kiln, or to any desired locality. The belt passes over a table 83, and at the ends of this table rollers 84 are journaled, and the trunnion 84^a of one of the rollers is provided with a gear 85 upon its outer end, connected by a belt 85^a with a gear 86, mounted to turn upon an idler-shaft carried by the frame, and the gear 86 is revolved by means of a pinion 87, connected with it, the pinion being rotated by a large gear 88, secured to the carrying-shaft 15 of the mold-wheel A, as shown also in Fig. 2.

The operation of the machine is as follows: When a mold is brought opposite the hopper D, the mold-wheel remains still until the mold

is filled with material, which material presses the plunger backward to the position shown in Fig. 1. At that time a mold that had been previously filled will have its contents compressed by external action on its plunger, and through the medium of the compressing-plate 62, and also at the same time the mold at the bottom of the wheel will have its contents forced outward by the mechanism just described. As soon as the mold being filled has received its quota of material the shifting-arm 51 will act to rotate the wheel A the distance of the space between two molds, bringing an empty mold in the position to be filled, a second mold in the position to be compressed, and a third mold in position to be discharged, it being understood that when the shifting-arm 51 is in action the compressing-plate 62 is removed from engagement with the periphery of the wheel, and the mechanism for forcing out the bricks from the molds will have been withdrawn from the plunger with which it was in engagement. It is therefore evident that the machine is automatic throughout, and that it may be readily cared for and manipulated by a single attendant.

I desire it to be understood that I do not confine myself to the specific construction and arrangement of the several parts herein described, as such changes or modifications may be made as in practice will fall fairly within the scope of my invention.

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

1. The combination with a rotary part carrying brick-molds and plungers movable in said molds and adapted to exert an interior pressure on the molds, of the plate conforming to the curvature of the rotary part and comprising a fixed portion and a pivoted lower section for exerting external pressure on the material in the mold, connections between a rotary shaft and said pivoted section for imparting motion to the section and the oiling device supported by the fixed portion of said plate, substantially as specified.

2. A brick-machine comprising a mold-carrying wheel, plungers movable in said molds, a feeder, an external pressure-plate for material in a mold and coacting with the plunger in said mold which has an outward movement against the inner side of the material, the rotary shaft, an eccentric thereon, a pitman extended from the eccentric, a sliding head-block engaging loosely on the plunger, and the connections between the head-block and pitman whereby said block is caused to exert an outward pressure on the plunger, substantially as specified.

CHARLES STEVENSON MEYERS.

Witnesses:

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J. H. SWINDELL.