

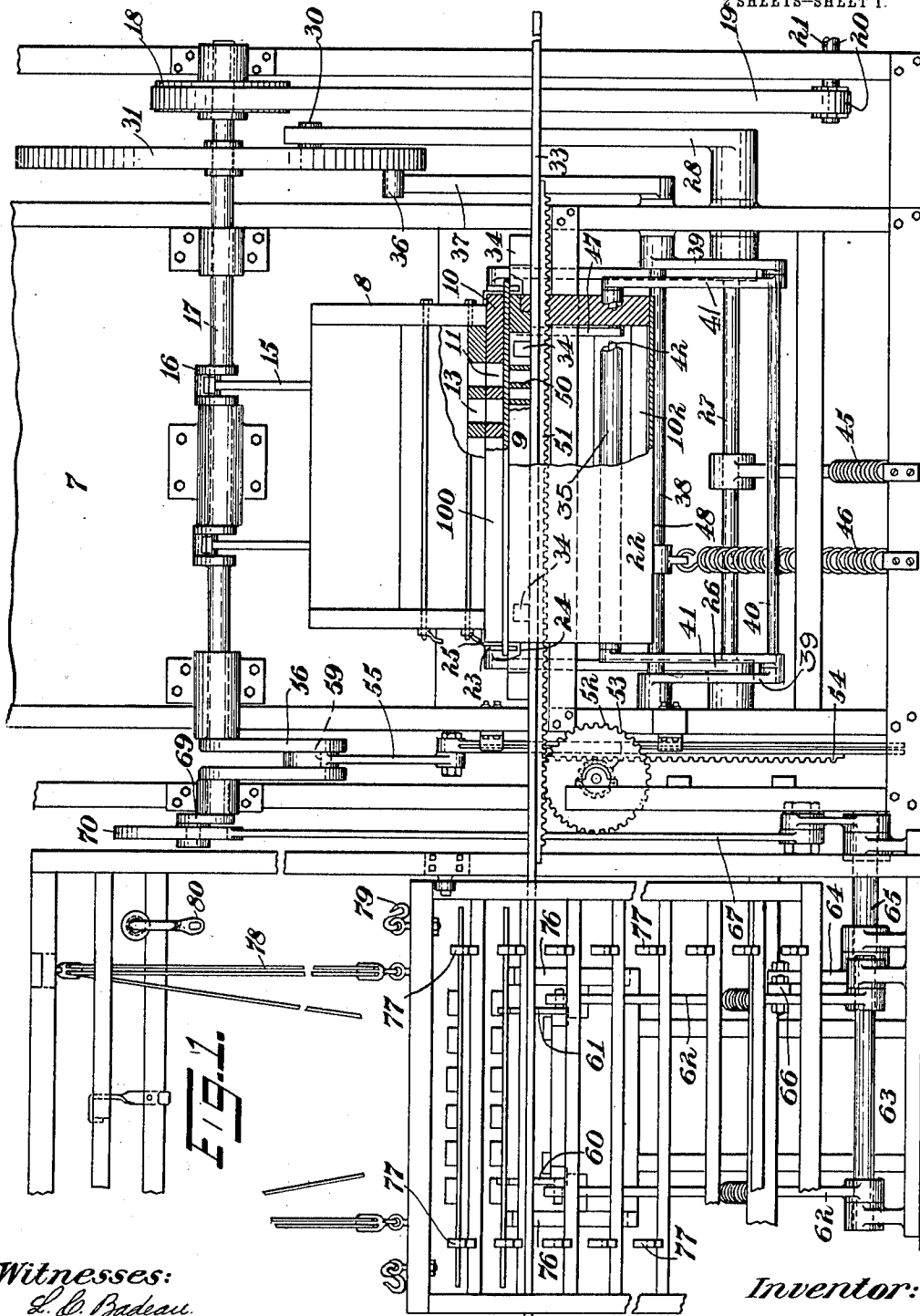
D. STRICKLAND.
BRICKMAKING MACHINERY.

APPLICATION FILED AUG. 9, 1909. RENEWED OCT. 7, 1911.

1,012,290.

Patented Dec. 19, 1911.

SHEETS-SHEET 1.



Witnesses:

L. B. Bodeau.
H. D. Penney

Inventor:

David Strickland,
By his Attorney, F. H. Richards.

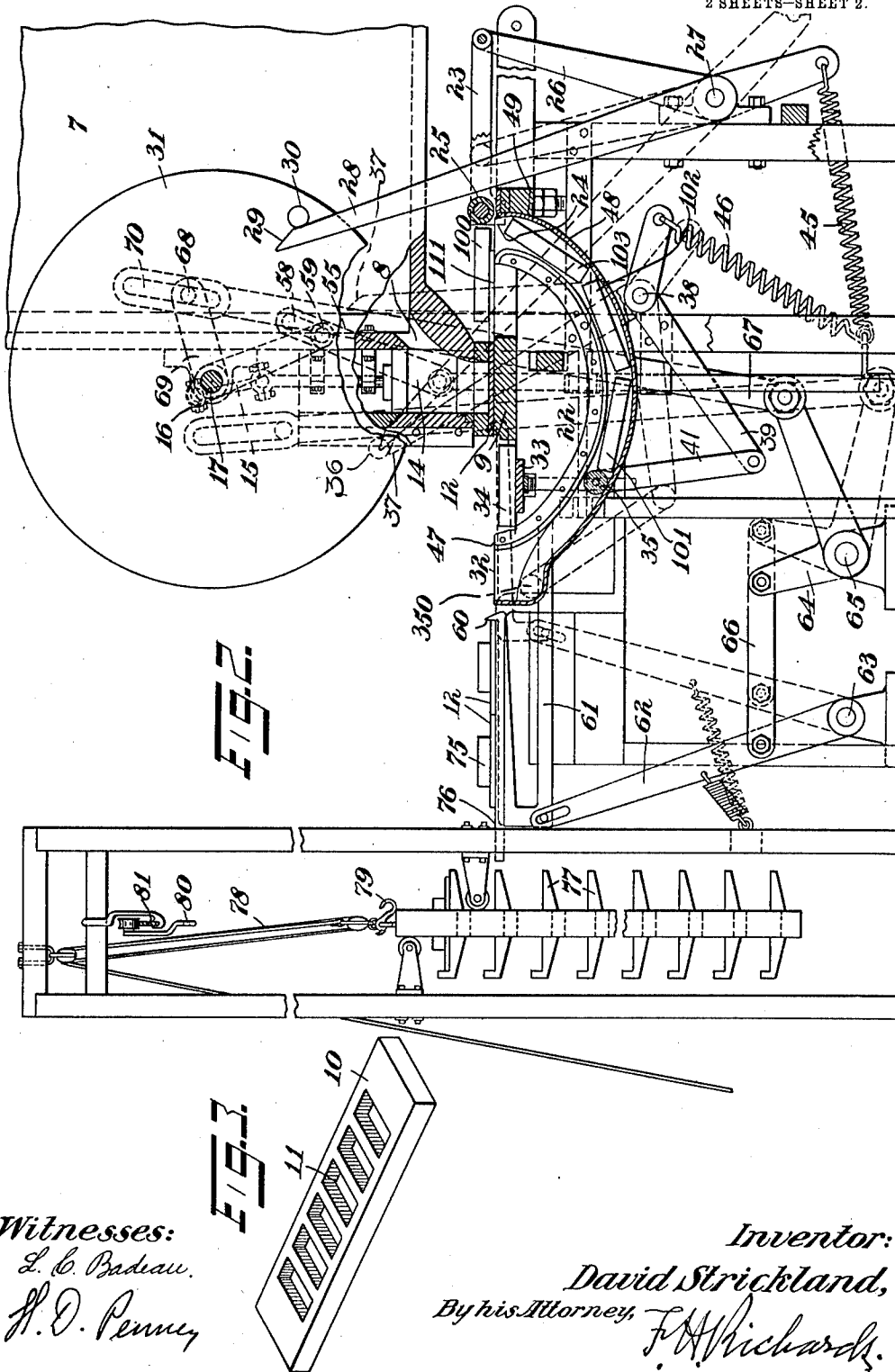
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DAVID STRICKLAND, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN CLAY
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BRICKMAKING MACHINERY.

1,012,290.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that I, DAVID STRICKLAND, a citizen of the United States, residing in the borough of the Bronx, in the county of New York, city and State of New York, have invented certain new and useful Improvements in Brickmaking Machinery, of which the following is a specification.

This invention relates to brick making machinery, and has for its object to provide an improved construction whereby brick molds may be passed in sequential timing relative to the movement of the molding press through a sander and onto pallets upon the table and the molds and pallets passed below and from under the molding press and the pallets passed onto and off of a conveyer.

In brick making the molds must be passed into and out of the sand while damp so that the sand will adhere to the mold surfaces. The molds must pass quickly through the sand, otherwise the mass of dry sand in the sander will absorb the moisture from the mold surface and from the layer of sand which such moisture has caused to adhere to the mold and all the sand will then fall off of the mold upon its coming out of the sander.

In my improved construction after the mold has been passed from the press the operator can take the mold off of the molded mud on the pallet, and, while the mold surfaces are still moist from contact with the mud, put such mold into the sander. The sander will have its receiving opening located in such relation to the position of the operator that it will be the most convenient place for him to dispose of the mold after he has raised it off of the molded mud and the pallet. The mold will be placed in such a position at the receiving opening of the sander that it will be engaged and passed through the sander and up onto the table and upon a pallet and then advanced again under the molding press. The sander will be made small in comparison with present constructions and will be so located relative to the press that the mold engaging and forwarding devices will pass the molds through the sander and back to the press quickly. The machine herein illustrated is intended to make an action, that is to press the mud into the mold, about twelve to fourteen times a

minute, and in the present construction five molds will be a sufficient complement for the successful operation of the machine. Thus it will be seen that the time elapsing between raising a mold from the molded mud and its getting back under the mud spout will be about fifteen seconds, so that there will be little opportunity for the mass of sand in the sand box to absorb the surface moisture from the mold, and but little opportunity for the sand to dry out sufficiently to fall off of the mold after it has come out of the sander and before a fresh charge of mud is molded into it.

It will be seen from the foregoing and also from the detailed description which is to follow that the number of molds necessary for the continuous operation of the press is reduced from that which is now customary. The amount of labor necessary for the operation is reduced, and a saving of time is also effected.

In the drawings accompanying and forming a part of this specification Figure 1 is a front view of a practicable embodiment of a form of my invention, certain of the parts being shown in cross section and certain parts broken away. Fig. 2 is a view from the right hand end of Fig. 1 showing certain of the parts, however, broken away and certain of the other parts in longitudinal section; and Fig. 3 is a perspective view of a form of mold which may be conveniently employed in this present machine.

The mud box 7 will be of some suitable construction and suitable mechanism will be provided for forcing the mud out of the box 7 and into the spout 8. The various parts, including the mud box and the table 9, are supported on a suitable framework which it is unnecessary at the present time to refer to by reference characters. In my present improvement the mold 10 will be made out of some suitable material and will be provided with as many mold openings 11 as it may be desirable to press or form bricks at the single operation. This mold differs from those now in use in that it has no bottom. The openings 11 pass through from the top to the bottom of the structure. The mold while under the press will rest upon the pallet 12, preferably made of steel, the mold being preferably made of wood. The spout will be provided with a number of supply openings 13 through which the

usual plunger members will be forced, forcing the mud out of the spout 8 and into the openings 13 and then down into the mold openings 11. The plunger members are
 5 carried by a head 14 to which are attached pitmen 15 which will be carried in some suitable manner by cranks 16 of the crank shaft 17 which is mounted in the present
 10 instance upon the front of the mud box and also finds bearings in the framing members of the machine. In the present illustration a pulley 18 is fast upon the crank shaft and this is driven by means of a belt
 15 pulley 19 and pulley 20 on the shaft 21, which pulley is driven from some suitable source of power, not shown. In the present illustration all the various automatic mechanical operations are controlled in proper sequential timing relative to the action of the
 20 plunger by means of the crank shaft 17.

The sander is shown as comprising a receptacle or sand box 22 which is located below the press and below the table 9. This sand box is relatively shallow and short as
 25 compared with such devices as are now employed and is in such relative proportion to the molds that at times three and at times four of the molds will be in the sand box and at the same times two or one of the
 30 molds will be on the table, so that the working complement in the present or illustrated structure will consist of five molds. The operator will stand at the front of the machine and the pallet boy will stand at his
 35 left hand side and place the pallets upon the table at about the position illustrated by the pallet 111 in Fig. 2. After the mold, as for instance the mold 100, has been brought up onto this pallet 111 which is
 40 upon the table, the pallet and mold will be pushed forward under the mud spout. The forwarding of the mold is accomplished by means of a reciprocatory member 23, at each end of the machine which has an en-
 45 gaging face 24 for engaging the pallet and mold and advancing these. The member 23 is supported by means of an antifriction roller 25 and is reciprocated by means of a rock arm 26 which is fast to a rock shaft 27,
 50 which rock shaft is rocked or oscillated by means of a rock arm 28. The arm 28 has a beveled end 29 and is in the path of movement of a pin 30 carried by the large flywheel 31, fast upon the crank shaft 17. The
 55 construction and action of the parts are such that this will give a long throw to the arms 26 where these are articulated to the reciprocatory members 23 and will advance the pallet and mold, 111 and 100, under the
 60 spout and the mud press. The same movement will also advance the mold and pallet which have received the charge of molded mud onto a conveyer which is located between the portion of the table which is be-
 65 low the mud spout and the receiving open-

ing 32 of the sander. Such conveyer in the present instance comprises a body portion 33 which carries a pair of standards 34, the upper surface of which is slightly below the upper face of the table 9 and onto
 70 which the pallet and the mold will be advanced. These elevated members 34 are provided so that any mud or stones which may fall upon the conveyer will not interfere with the proper reception of the pallet with
 75 its load. The pushing forward of the molds and pallets will, of course, take place at a time when the plunger is elevated. After the mold and pallet have been advanced upon the conveyer 33 the operator will raise
 80 the mold off of the molded mud which is on the pallet and place the mold, which will then be damp upon its surface from contact with the pressed mud, into the receiving opening 32 of the sander. At this period
 85 the forwarder or pusher 35 for the molds will be in its dotted line position, 350, in Fig. 2 and the table forwarder 23 will be in its full line position and there will be no mold at the position 100; but there will be
 90 the pallet at the position 111, and molds will be at the positions indicated by 101, 102 and 103. The rotation of the flywheel 31 will bring the pin 36 into engagement with the arm 37 which is fast upon the rock
 95 shaft 38 and which rock shaft carries a pair of arms 39 to which are clamped by means of a cross bar 40 a pair of links 41 which are connected to the forwarder or pusher 35 which is in the form of a sleeve mounted
 100 upon a shaft 42 which is carried by the links 41. Both the rock shafts 27 and 38 will be given a relatively slow forward movement by means of their respective actuating pins; but a quick return movement
 105 by the extension springs 45 and 46 respectively, which will become effective as soon as the pins run off of the engaging faces of the rock arms. After the mold has been placed in the position between the dotted
 110 line position 350 of the pusher 35 and the mold position 101 the actuating mechanism will draw the pusher down to its full line position in Fig. 2 and advance all the molds one mold distance through the sand box
 115 and bring a mold into the position 100.

It will be noted that there is a track 47 for guiding the molds through the bottom of the sand box, and that the track or path for the molds between such track or guide
 120 47 and the bottom of the sand box 48 is curved, such curvature increasing to about the region 49 so that the mold will be turned forwardly and onto the table and upon the pallet which is resting thereon. The ad-
 125 vantage of the bottomless molds which are employed herein will now be made apparent because the operator will raise the molds off of the molded mud upon the pallet and by moving the farther or back edge of the
 130

mold through an angular distance of about ninety degrees upwardly and toward himself he will then drop the mold into the receiving opening 32 and the mold will pass
 5 through the sander and out of the delivery opening which is at the rear of the press and of the mud spout, and the mold will drop over upon the table with the proper side uppermost. Any superfluous sand which
 10 has been brought out of the sand box will pass back into the sand box through the grating 50 with which the table is provided at the back end. If the molds had bottoms, as is generally the construction of molds at
 15 the present time, the sand would not find such ready access to all such portions of the surface of the mold and would not as readily cleave therefrom and the mold would have to be turned about. In the present
 20 practice the mold is taken off the pallet bottom side up, by using my bottomless molds they are taken off without having been inverted. In the present practice of using a mold having a permanent bottom, after the
 25 mold is pushed out from under the mud spout a pallet is laid upon the top of the mold and then the molder turns the mold and the pallet over and raises the mold from the mud and the pallet. It will thus be seen
 30 that less manipulation upon the part of the operator is required and that he has to do less lifting, consequently larger molds can be used in this press than are feasible with those heretofore employed. Also there will
 35 be a saving of time, as in the prevailing practice molds have to be sent from the press to the sanding machine and then be brought back again to the press, thus requiring a larger number of molds than would
 40 be necessary with my present improvement, and also the employment of more men. It will be seen that the sand box, which is located below the mud-press, has its receiving opening at a short distance in front of the
 45 press and its discharge opening at a short distance rearwardly of such press. This requires a box of small dimensions compared with the present practice.

During the time that the operator or
 50 molder is placing the mold into the sand box the pallet with its load of molded mud will be advanced by means of the carrier 33 which carrier is shown as having upon its lower face a rack bar 51 which is in engage-
 55 ment with a pinion 52 which is fast with a pinion 53, which pinion 53 is in mesh with a vertical reciprocatory rack bar 54, such rack bar being connected by means of a pitman 55 with a long crank 56 upon the crank
 60 shaft 17. The crank pin 57 of such crank runs in an elongated slot 58 in the end of the pitman 55 so that there will be a certain amount of dwell between the excursions of the reciprocation of the rack bar 54 and
 65 consequently of the imparted reciprocations

of the carrier 33. After the carrier advances to its left hand position in Fig. 1 the pallet will automatically be removed from its supports 34 by means of a pair of hooked
 70 fingers 60 which are mounted upon the carrier 61, such carrier being reciprocated in proper timing relative to the molding plunger by means of a pair of rock arms 62 supported upon a shaft 63 and rocked by
 75 means of a rocker 64 which is supported by a shaft 65 and connected by means of a link 66 to one of the rock arms 62, and is connected by means of a link 67 to crank pin 68 carried by a crank 69 upon the shaft 17. The eye 70 of the link
 80 67 which embraces the wrist pin 68 is elongated to provide for a suitable dwell between the excursions of reciprocation of the member 61. The pallets carrying their
 85 molded mud 75 will be drawn over upon a table 76 from which they will be removed and put upon the shelves 77, which shelves may, by means of suitable elevating devices 78, be raised and the hooks 79 engaged in
 90 the trucks 80 which run upon the tracks 81, which tracks will be connected with the drying room.

From the foregoing it will be seen that while the molding press is forcing the mud
 95 through the mud spout and into the mold openings the conveyer 33 is carrying a loaded pallet into the position where the fingers 60 will slide under the pallet and engage this, the fingers will then draw the
 100 pallet off of the conveyer and upon the table 76, after which the carrier will be returned to its initial position. By the time the carrier has returned the plungers will have raised from their work, and the mold at the
 105 position 100 and the pallet at the position 111 will be advanced by the pushers or forwarders 23 which will bring this mold and pallet under the mud spout and push the filled mold and its pallet out onto the conveyer. The forwarders 23 will then by the
 110 release of the actuating arm 28 from the pin 30 and the action of the spring 45 fly back to its original position, and the pin 36 will become active during the active or downward movement of the molding plunger
 115 and draw the sand box forwarder 35 from its dotted line position 350 to its full line position in Fig. 2, which will advance all the molds one mold distance through the sander and bring a freshly sanded mold
 120 onto the pallet which is upon the table at the position 111. The forwarder 35 will then fly back to its initial position 350 by virtue of the action of its spring 45, when its actuating arm 37 is released from the
 125 pin 36.

Having described my invention I claim:

1. In a brick machine, the combination with a mud press, of a sand receptacle located below the press and having its receiv- 130

ing opening in front of and its discharge opening at the rear of the press.

2. The combination with a brick molding press embodying a pressing plunger, and a table for supporting a mold under the plunger, of a sand box located under the table.

3. The combination with a brick molding press embodying a pressing plunger, and a table for supporting the mold under the plunger, of a sand box located under the table, and a guide for directing the sanded mold out of the box and onto the table.

4. The combination with a brick molding press embodying a pressing plunger, driving mechanism from the plunger and a table for supporting the mold under the plunger, of a sand box located under the table, a guide for directing the molds through the box and onto the table, and means actuated by the said driving mechanism for advancing the molds through the box.

5. The combination with a brick molding press embodying a pressing plunger, driving mechanism from the plunger and a table for supporting the mold under the plunger, of a sand box located under the table, a guide for directing the sanded mold out of the box and onto the table, and means actuated by the said driving mechanism for advancing the said mold across the table.

6. In a brick machine, the combination with a mud press, of a sand box located below the press, and having its receiving opening in front of and its discharge opening at the rear of the press, and a track extending from a position in front of the press to a position in the rear of the press and passing through the sandbox.

7. The combination with a brick molding press embodying a pressing plunger, driving mechanism for the plunger, and a table for supporting a mold under the plunger, of a sand box located under the table, and means actuated by the plunger mechanism for passing the mold through the sand box.

8. The combination with a brick molding press embodying a pressing plunger, driving mechanism for the plunger, and a table for supporting a mold under the plunger, of a sand box located under the table, means actuated by the plunger mechanism for passing the mold through the sand box, and a guide for directing the sanded mold out of the box and onto the table.

9. The combination with a brick molding press embodying a pressing plunger, driving mechanism for the plunger, and a table for

supporting a mold under the plunger, of a sand box located under the table, means actuated by the plunger mechanism for passing the mold through the sand box, a guide for directing the sanded mold out of the box and onto the table, and means actuated by the said driving mechanism for advancing the said mold across the table.

10. In a brick machine, the combination with a mud press, of a sand receptacle located below the press and having its receiving opening in front of and its discharge opening at the rear of the press; and guides for guiding the molds from the front to the rear of the press through and out of the sand box and into a position under the press, and mold advancing means for causing the molds to traverse said guides.

11. The combination with a brick molding press embodying a pressing plunger, driving mechanism for the plunger and a table for supporting a mold under the plunger, of a sand box located under the table and having a receiving opening located at the front and a delivery opening located at the rear thereof, and a guideway extending from the said receiving opening to the said delivery opening and adjacent the delivery opening portion, the guide being of curved formation for turning the mold forwardly onto the table.

12. The combination with a brick molding press embodying a molding plunger, a crank shaft for actuating the plunger, a table located below the plunger for supporting the molds therefor, a sand box located under the table and having a receiving opening disposed at the front and a delivery opening disposed at the rear thereof, and a guideway extending from the said receiving opening to the said delivery opening and adjacent the delivery opening portion being constructed for turning the mold forwardly and onto the table, a plunger for advancing a mold from the rear of the table to the front thereof and past the press, a conveyer transversely of the said plunger movement, and mechanism connected with the crank shaft for actuating the same, a plunger for advancing the molds through the guideways of the sand box and means connected with the crank shaft for actuating the same.

Signed at Nos. 9-15 Murray street, New York, N. Y., this fifth day of August, 1909.

DAVID STRICKLAND.

Witnesses:

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