No. 776,577. PATENTED DEC. 6, 1904.

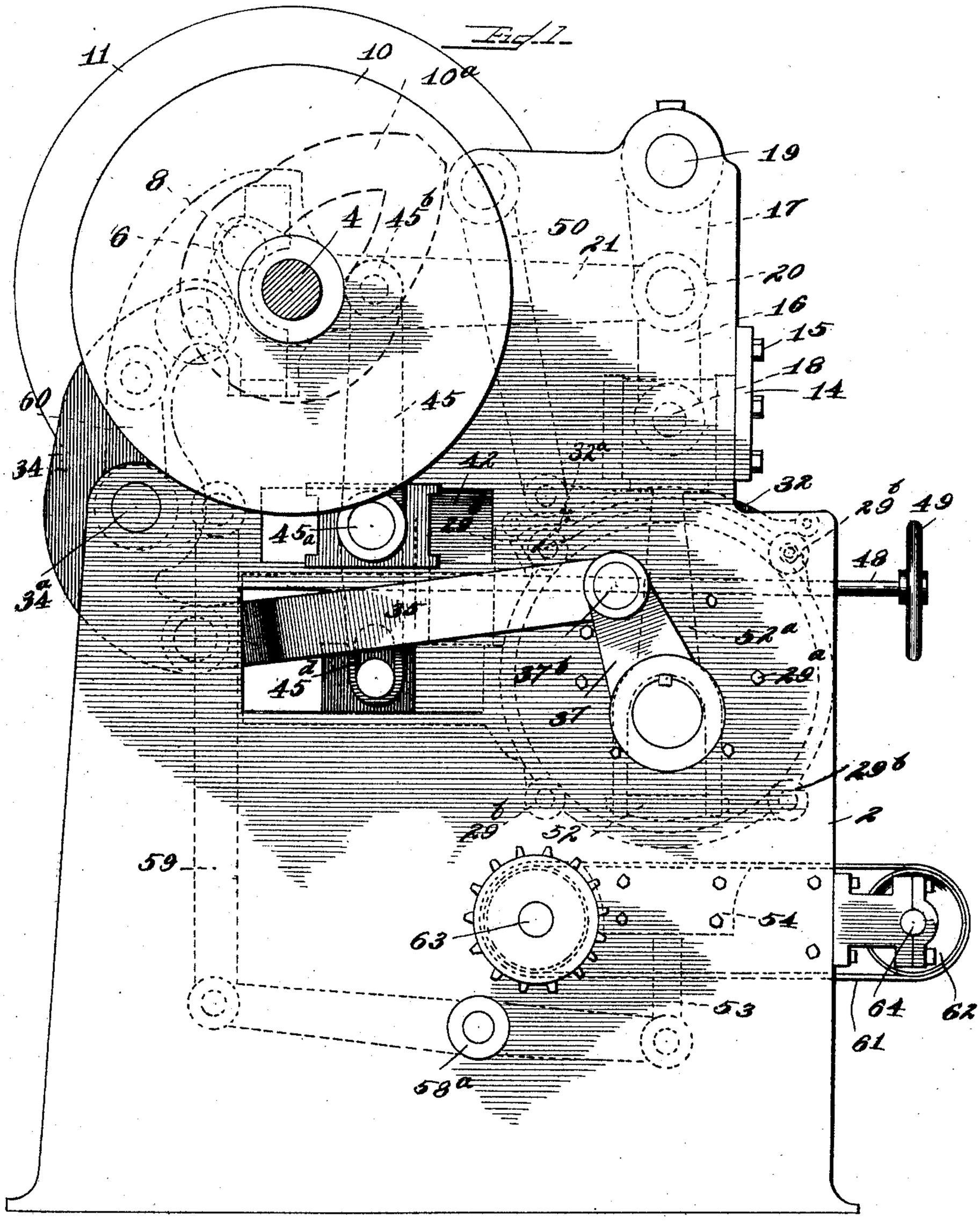
M. J. WELLING.

PRESS.

APPLICATION FILED MAR. 5, 1904.

NO MODEL. 5 SHEETS—SHEET 1.

Fig. 1.



Witnesses—

G. A. Pauberschmidt

George L. Chindahl

Inventor—

Matthew J. Welling

By Luther L. Miller,

Atty.

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 776,577. PATENTED DEC. 6, 1904.

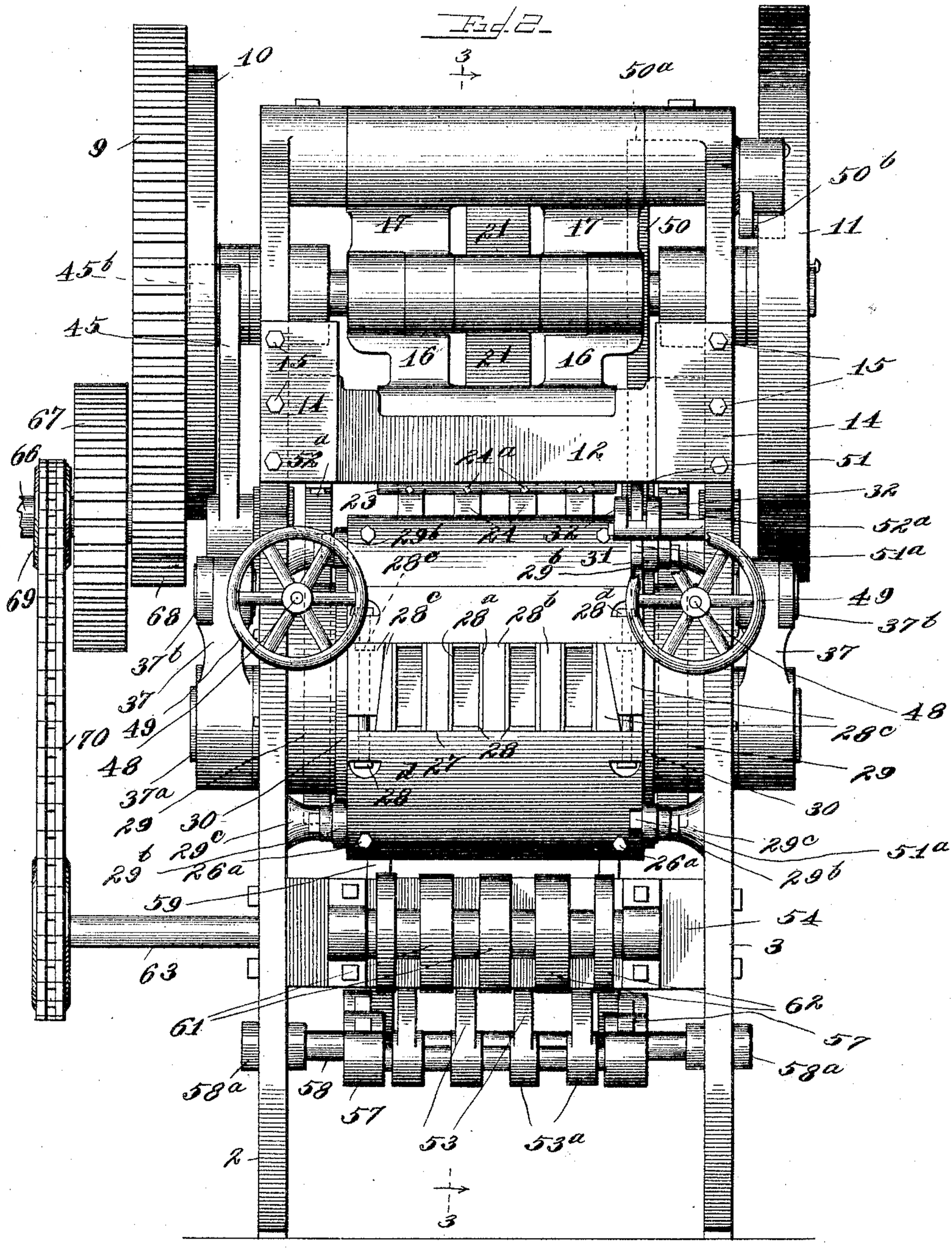
M. J. WELLING.

PRESS.

APPLICATION FILED MAR. 5, 1904.

NO MODEL. 5 SHEETS—SHEET 2.

Fig. 2.



Witnesses—

G. A. Rauberschmidt

George L. Chindahl

Inventor—

Matthew J. Welling

By Luther L. Miller,

Atty.

No. 776,577. PATENTED DEC. 6, 1904.

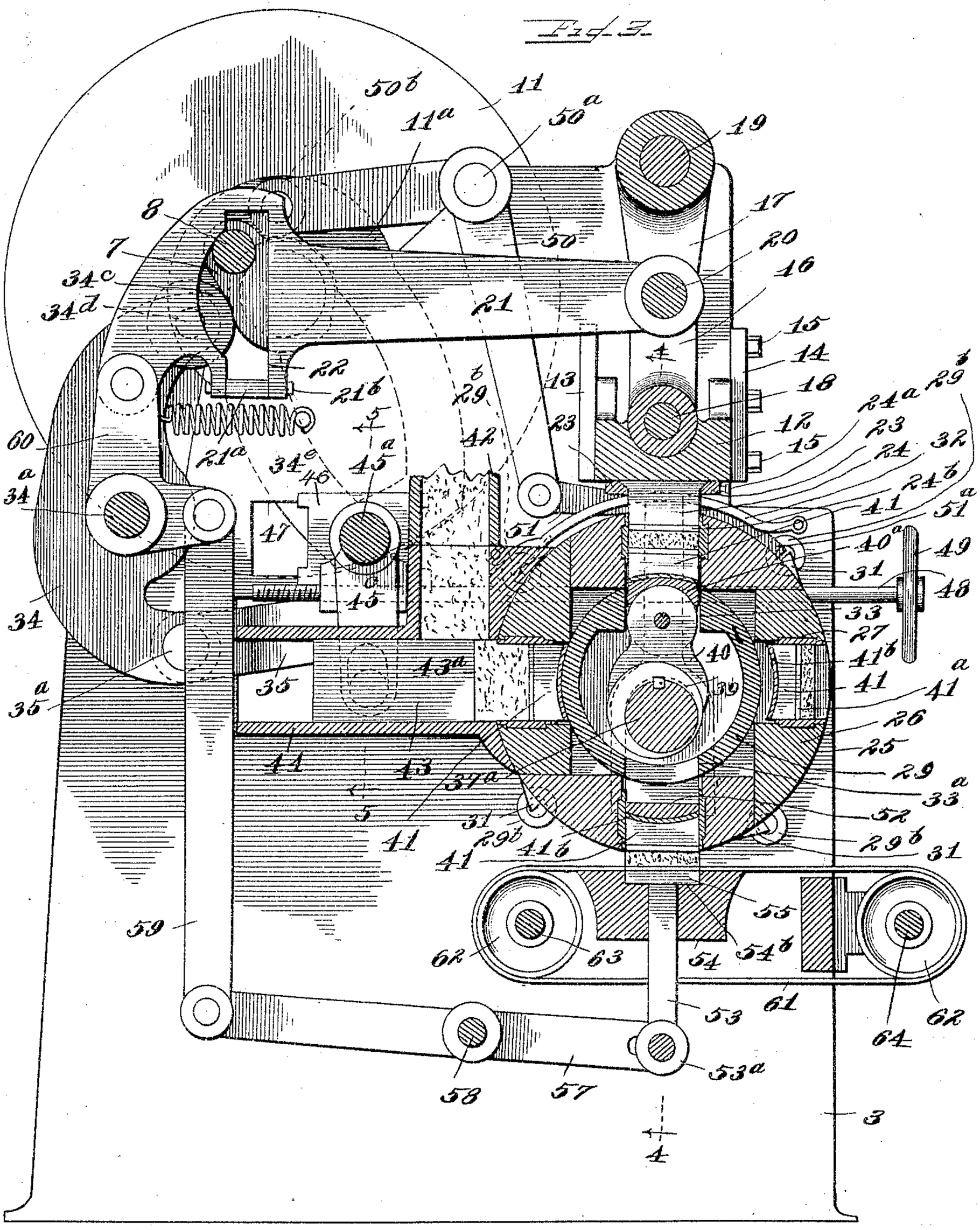
M. J. WELLING.

PRESS.

APPLICATION FILED MAR. 5, 1904.

NO MODEL. 5 SHEETS—SHEET 3.

Fig. 3.



Witnesses.

G. A. Paulsrschmidt

George L. Chindahl

Inventor.

Matthew J. Welling

By Luther L. Miller.

Atty.

PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 776,577. PATENTED DEC. 6, 1904.

M. J. WELLING.

PRESS.

APPLICATION FILED MAR. 5, 1904.

NO MODEL. 5 SHEETS—SHEET 4.

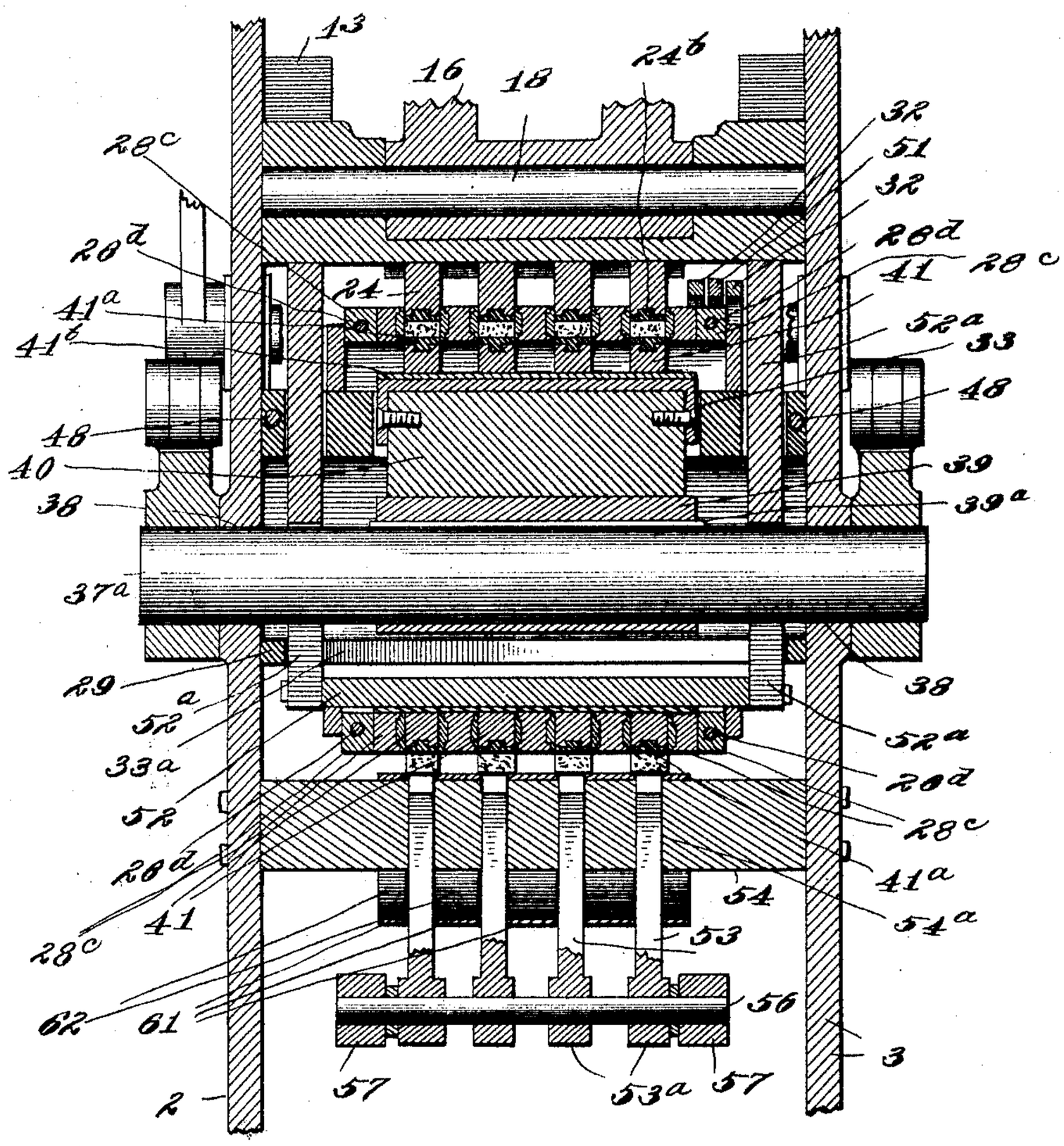


Fig. 4.

Witnesses.

G. A. Pauberschmidt

George L. Chindahl

Inventor.

Matthew J. Welling

By Luther L. Miller.

Atty.

No. 776,577. PATENTED DEC. 6, 1904.

M. J. WELLING.

PRESS.

APPLICATION FILED MAR. 6, 1904.

NO MODEL. 5 SHEETS—SHEET 5.

Fig. 5.

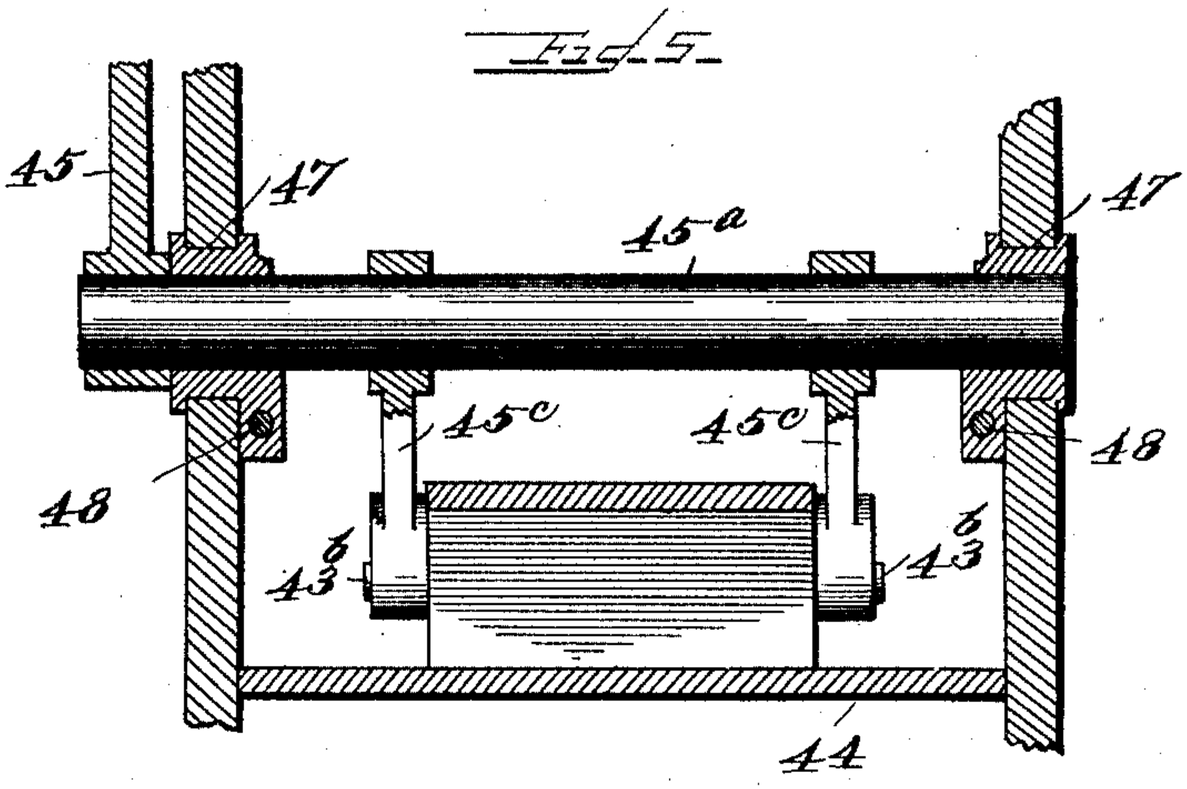
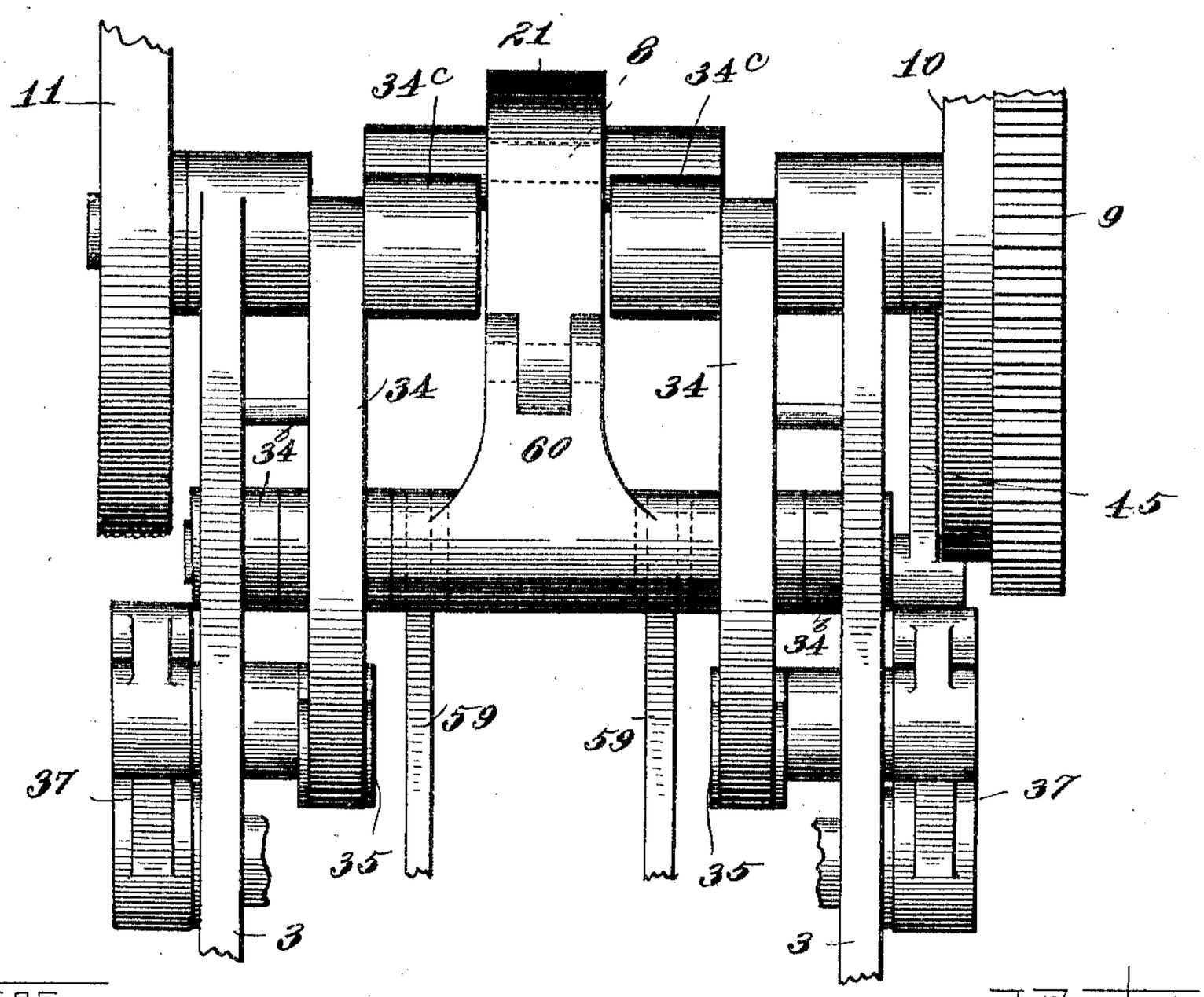


Fig. 6.



Witnesses.

J. A. Pauberschmidt

George L. Chindahl

Inventor.

Matthew J. Welling

By Luther L. Miller

Atty.

No. 776,577. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

MATTHEW J. WELLING, OF CHICAGO, ILLINOIS.

PRESS.

SPECIFICATION forming part of Letters Patent No. 776,577, dated December 6, 1904.

Application filed March 5, 1904. Serial No. 196,699. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW J. WELLING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Presses, of which the following is a specification.

This invention, as stated, relates to presses, and is herein shown and described in its application to a press for forming brick.

The invention refers to a rotatable form-bed for presses.

It further refers to a means for providing molds in such a form-bed.

It also refers to a means for introducing into said molds the material to be compressed.

The invention also relates to a mechanism for intermittently rotating said form-bed.

The invention further relates to a means for exerting a pressure upon the material in the molds from the outside of the form-bed.

A further object of the invention is the production of means for exerting a pressure upon the material in the molds from the inner side of the form-bed.

Another object of the invention is the production of a mechanism for ejecting the formed bricks from the molds.

Another object is the production of a means for receiving said ejected bricks and delivering them to a convenient point outside of the press mechanism.

The invention further refers to means for adjusting the movement of parts of the mechanism and for protecting certain of the parts from undue wear.

It also relates to various improvements in detail hereinafter pointed out.

In the accompanying drawings, Figure 1 is a side elevation of a brick-press embodying the features of my invention, the driving-gears and endless chain belt being removed. Fig. 2 is a front view of said brick-press. Fig. 3 is a vertical section through the press on dotted line 3 3 of Fig. 2. Fig. 4 is a transverse section through the press on dotted line 4 4 of Fig. 3. Fig. 5 is a transverse section through the feeding mechanism on dotted line 5 5 of Fig. 3. Fig. 6 is a fragmental rear view of the upper part of the press.

In the construction of a brick-press embodying this invention I provide a supporting-frame 1, comprising two side members 2 and 3, secured rigidly together, providing bearings for the moving parts of the mechanism. A cam-shaft 4 is rotatably mounted in bearings 5, formed in the main frame 1, and this cam-shaft is in crank form, having the two crank-arms or wiper-cams 6 and 7 and the crank-pin 8, connecting said crank-arms, and formed integral therewith and with the cam-shaft 4. At one of its ends and outside of the supporting-frame 1 the cam-shaft 4 carries a spur-gear 9 and a cam-disk 10, and at its opposite end it carries a cam-disk 11, which gear and cam-disks are fixed with relation to said shaft. The cam-disks 10 and 11 have on their inner faces the cam-grooves 10^a and 11^a, respectively.

Near the forward side of the supporting-frame 1 a sliding head 12 is adapted to be vertically reciprocated upon the guides 13 and 14. The guides 13 in this instance are formed integral with the side members 2 and 3 of the frame 1, and the guides 14 are secured to said side members by means of machine-bolts 15. The sliding head 12 is vertically reciprocated in its guides 13 and 14 by means of two pairs of toggle-arms 16 and 17, the arms 16 being connected with the shaft 18 of the sliding head 12 and the arms 17 being mounted upon the shaft 19, supported in suitable bearings formed in the forward upper part of the supporting-frame 1. The adjacent ends of the toggle-arms 16 and 17 are connected by means of their common shaft 20, which latter shaft also has a sleeve connection with the forward end of an eccentric-rod 21, the rear end of which rod has an opening 22 therein. One wall of the opening 22 is curved on the arc of a circle concentric with the cam-shaft 4, said opening being adapted to receive the crank-pin 8. A portion 21^a of the eccentric-rod 21 is held in place by a bolt 21^b, providing means for removing the eccentric-rod 21 from the cam-shaft 4. From the construction just outlined it will be seen

that a rotative movement of the cam-shaft 4 will produce a vertical reciprocation of the sliding head 12. At its lower end the sliding head 12 is provided with two transverse undercut ways 23, adapted to receive between them a series of presser-blocks 24, each block being adjustably secured in said ways by means of a set-screw 24^a. The lower face of each of the blocks 24 is covered with a facing 24^b, of steel or other material suitable to withstand the severe abrasion of the material acted upon by the press. The steel facings 24^b are secured to the blocks 24 in any suitable manner, as by a dovetail connection.

A hollow cylindrical form-bed 25, rotatably mounted in the supporting-frame 1, coacts with the sliding head 12. This form-bed comprises the facing-sections 26, secured together in any suitable manner, as by machine-bolts 26^a, passing through the overlapping end of each section into the abutting end of the next adjacent section. It also comprises the core portion 26^b. At various points in its peripheral walls the cylindrical form-bed 25 is provided with the mold-openings 27, in each of which openings is arranged a series of molds 28, made up of the hardened facing-plates 28^a, separated by means of the spacing-blocks 28^b and held securely in position in the form-bed by means of two pairs of wedging-blocks 28^c, acted upon by the tightening-bolts 28^d, passing through openings in one of the wedging-blocks of each of said pairs and having a collar 28^e, adapted to form an engagement between the bolt and its wedging-block. By this arrangement molds of different sizes may be built up in the form-bed 25, and all the molds may be shifted laterally by adjusting the position of the tightening-wedges 28^c.

The cylindrical form-bed 25 is rotatably supported upon a bearing-sleeve 29, extending in a horizontal plane between the side members 2 and 3 of the supporting-frame 1 and secured between said side members by the machine-bolts 29^a. The form-bed is also held in place between said side members by means of the rollers 29^b, rotatably supported upon brackets 29^c, secured to the inner faces of the side members, said rollers bearing upon flanges 30 at opposite ends of said form-bed. At one end of the form-bed at regular intervals upon the periphery thereof are the teeth 31, by means of which the bed is rotated, and adjacent to the teeth 31 is a guide-frame 32, curved to conform to the periphery of said form-bed, secured to the side member 3 and having at its rear end the flat springs 32^a. The bearing-sleeve 29 is provided in its upper portion with an opening 33 and in its lower portion with a similar opening 33^a, the width of which openings is slightly greater than the length of the longest brick to be formed upon the machine and their length substantially equal to that of the form-bed.

The mechanism for producing the outward or secondary pressure in the process of forming the bricks will next be described. Two levers 34 are mounted on a rock-shaft 34^a, supported in suitable bearings 34^b in the main frame 1. At their upper ends each of the levers 34 carries a bearing-roller 34^c, rotatably mounted on a fixed stud 34^d, projecting from the side of said lever. Above the rock-shaft 34^a the levers 34 are each provided with a restoring-spring 34^e, attached at one end to its lever and at the other end to a fixed point on the supporting-frame 1. At their lower ends each of the levers 34 has an arm 35, pivotally connected with its lever by means of the stud 35^a. The arms 35 extend forward from their studs 35^a and are bent to project outwardly through suitable openings 36 in the side members 2 and 3 of the supporting-frame 1, being connected at their forward ends to the crank-pins 37^b of the cranks 37, mounted upon and fixed with relation to the shaft 37^a. The shaft 37^a lies in bearings 38 in the supporting-frame 1 and extends through the tubular bearing-sleeve 29. Within the bearing-sleeve the shaft 37^a carries an eccentric 39, secured to said shaft in any suitable manner, as by means of the key 39^a, and upon the eccentric is mounted a connecting-knuckle 40, the upper end of which lies within the hollow under face of a concave bearing-shoe 40^a, adapted to contact the presser-blocks to be next described.

The molds 28 are fitted each with a presser-block 41, lying in said molds and free to slide therein. Each presser-block 41 is faced with a plate 41^a of steel or other hard material, and the inner side of each block is provided with a bearing-surface 41^b of similar material, said inner surface being formed on a curve concentric with the inner curved surface of the core portion 26^b of the cylindrical form-bed 25.

Material for the production of green bricks is fed in suitable quantities to the molds in the form-bed from a sand-box 42 by means of a feed-slide 43. The lower end of the sand-box is open save as the same is closed by said slide. The forward end of the feed-slide 43 is provided with pockets 43^a, and said slide is mounted upon a plate 44, extending across the frame 1. At its opposite ends the feed-slide 43 is provided with two alined trunnions 43^b. The feed-slide is adapted to have a reciprocating motion beneath the sand-box 42 and at each forward movement transfers a certain quantity of sand from the sand-box to each of the molds 28 of that series in the cylindrical form-bed in coincidence with said feed-slide. Reciprocatory motion is imparted to said feed-slide 43 by means of an oscillatory arm 45, fixed with relation to a shaft 45^a, rotatably mounted in the bearing-blocks 46. The upper end of the oscillatory arm 45 is provided with a pivoted roller 45^b, adapted to lie within the cam-groove 10^a of the cam-

disk 10. Within the supporting-frame 1 the shaft 45^a has rigidly fixed to it two arms 45^c, the lower end of each of which arms has an elongated opening 45^d intended to receive one of the trunnions 43^b, extending from opposite ends of the feed-slide 43. To alter the quantity of sand fed by the feed-slide to the molds 28 at each forward reciprocation of said slide, the position of the bearing-blocks 46 is made adjustable within their bearing-openings 47 in the side members 2 and 3 of the supporting-frame 1, and this adjustment is made by means of the screw-threaded shafts 48, suitably mounted in the supporting-frame 1 and lying within screw-threaded openings in the bearing-blocks 46. The forward ends of the screw-threaded shafts 48 are provided with hand-wheels 49, fixed to said shafts, by means of which hand-wheels the shafts are turned and the bearing-blocks 46 moved forward or back.

At each cycle of movement of the presser mechanism the cylindrical form-bed is rotated through one quarter-revolution. To secure this rotation, a bell-crank lever 50 is pivotally mounted on the stud 50^a, projecting from the side member 3 of the supporting-frame, and one arm of this bell-crank lever carries a pivoted roller 50^b, adapted to lie within the cam-groove 11^a of the cam-disk 11, while the other arm of said bell-crank lever has a pawl 51 pivotally connected with said arm of the bell-crank lever. The forward end of the pawl 51 lies within the guide-frame 32, and the point 51^a of said pawl is offset to project underneath said guide and extend into a position to engage the teeth 31 of the form-bed 25. At the rear end of its movement the pawl 51 rises above the tooth 31, but upon passing said tooth is thrown downward at the rear thereof by means of the springs 32^a.

The mechanism for removing the formed bricks from the machine will next be described. An ejector-bar 52 is secured between the bifurcated lower ends of two arms 52^a, which arms are attached at their upper ends to the sliding head 12. The lower surface of said ejector-bar is curved to conform to the inner sides of the presser-blocks 41, with which blocks said bar is adapted to contact. When the sliding head 12 is in its uppermost position, the ejector-bar lies within the opening 33^a of the tubular bearing-sleeve 29; but upon the downward movement of said sliding head said ejector-bar is brought into contact with the presser-block in the lower series of molds 28, depressing said presser-block and ejecting the formed brick from the molds. The same movement of the cam-shaft 4 that caused the downward movement of the sliding head 12 also raised a series of platens to receive the ejected bricks from the lowermost molds of the form-bed. This mechanism comprises a series of platen-rods 53, slidably mounted in vertical openings 54^a in the receiving-table 54 and having at their upper ends the receiving-platens 55 just alluded to. The table 54 is provided in its upper surface with pockets 54^b for receiving said platens. These platens are of a width slightly less than that of the formed bricks. At their lower ends the platen-rods have integral sleeves 53^a and are connected by means of a shaft 56 passing through said sleeves and supported at its opposite ends by means of a lever 57, pivotally mounted intermediate its ends upon a shaft 58, lying within the bearings 58^a in the supporting-frame 1. The opposite end of each of said levers 57 is pivotally connected with a connecting-rod 59, the upper end of which connecting-rod is pivotally joined to one arm of a bell-crank lever 60, rotatably mounted upon the rock-shaft 34^a, the upwardly-extending arm of which bell-crank lever is pivotally connected with the rear end of the eccentric-rod 21.

A series of carrier-belts 61 extends across the receiving-table 54, one of said belts lying at each side of the receiving-platens 55. The carrier-belts 61 are supported upon a series of pulleys 62, fixed on shafts 63 and 64, rotatably mounted in suitable bearings in the supporting-frame 1. The shaft 63 projects outwardly from the side member 2 of said frame and carries at its outer end a sprocket-wheel 65.

A power-shaft 66 carries a gear-wheel 67 fixed thereon, to which gear-wheel power may be imparted from any suitable source. The power-shaft 66 is provided with a pinion 68, meshing with the teeth of the spur-gear 9, it also carrying a sprocket-wheel 69, alined with the sprocket-wheel 65 and connected with said last-mentioned sprocket-wheel by means of an endless chain belt 70.

In operation the power-gear 67 is connected with suitable driving means and a quantity of brick-making material placed in the sand-box 42. Every revolution of the cam-shaft 4 reciprocates the feed-slide 43 and transfers a charge of material from the sand-box to each of the molds 28 of the series placed by the rotation of the form-bed into proximity with said feed-slide. After said molds are filled a further rotation of the main shaft 4 turns the form-bed through a quarter-revolution and places the molds in coincidence with the presser-blocks 24 of the sliding head 12. When the form-bed is in this position, the crank-pin 8 is rotated into a position to move the eccentric-rod 21 rearwardly, placing the toggle-arms 16 and 17 in line with each other and depressing the sliding head 12. This movement of the sliding head forces the presser-blocks 24 into the molds then at their upper position and places the initial pressure upon the material within said molds. After the toggle-arms 16 and 17 have been brought

into a vertical position the crank-pin 8 continues to move through the concentric opening 22 in said eccentric-rod, and immediately after said eccentric-rod comes to rest the wiper-cams 6 and 7 are brought by the rotation of the shaft 4 into engagement with the bearing-rollers 34[c] at the upper ends of the arms 34, rocking said arms upon their rock-shaft 34[a] against the tension of the restoring-springs 34[e] and through the arms 35 and the cranks 37 oscillating the shaft 37[a]. This oscillation of the shaft 37[a] moves its eccentric 39 with relation to the knuckle 40, raising said knuckle, and with it the presser-blocks 41, imparting the secondary pressure to the bricks within the uppermost molds of the form-bed. The knuckle 40 and presser-blocks 41 are depressed by the oscillation of the shaft 37[a] in a contrary direction, which restoring movement is caused by the restoring-springs 34[e], extending between each of the levers 34 and the supporting-frame 1. The ejector-bar 52 was moved downward by the downward movement of the sliding head 12, the same movement raising the receiving-platens 55 to receive the discharged bricks and upon the forward movement of the eccentric-rod 21 to lower said bricks upon the carrier-belts 61, which belts are constantly though slowly moved by the rotation of the pulleys 62 in a direction to deliver said bricks at the forward end of the machine. After the formed bricks have been ejected from the lowermost molds of the form-bed and the presser-blocks 24 have been withdrawn from the uppermost molds the cam-disk 11 is rotated by the continued rotation of the cam-shaft 4 into such position that the roller 50[b] of the bell-crank lever 50 is thrown upward, oscillating said bell-crank lever upon its pivot 50[a] and drawing the pawl 51 rearwardly in the guide-frame 32 into engagement with the next rearward tooth 31 upon the periphery of the form-bed. The continued rotation of said cam-disk moves the pawl 51 forward, rotating the form-bed one-fourth of a revolution and bringing a new series of molds into coincidence with the presser-blocks 24 and the lowermost series, from which the formed bricks were just discharged, into coincidence with the feeding mechanism. The feed-slide 43, as hereinbefore explained, is actuated by the cam-disk 10, in the cam-groove 10[a] of which the roller 45[b] of the arm 45 lies. The oscillation of the arm 45, due to the form of the cam-groove 10[a], reciprocates the feed-slide and forces the charge of material that has descended by gravity into the pockets of said feed-slide forwardly into the molds of the form-bed. By changing the pivotal bearing-point of the shaft 46[a] for the arm 45 the extent of movement of the feed-slide with relation to the sand-box is regulated. The position of this shaft is adjusted by means of the screw-threaded shafts 48, which may be turned by grasping their hand-wheels 49.

The term "sand" in the foregoing description is intended to cover any material adapted to be compressed in the operation of the mechanism. The form-bed, while illustrated in cylindrical outline, clearly might be multilateral without changing its mode of operation. It is further obvious that the embodiment herein shown of this invention might otherwise be changed or modified without departing from the spirit and scope thereof, wherefore I desire to have it understood that I do not limit myself to that form of construction herein shown and described.

I claim as my invention—

1. In a press, in combination, a reciprocatory head; a rotatory form-bed; and means for imparting a secondary pressure to the sand, said head serving as an abutment for said secondary compression means.

2. In a press, in combination, a reciprocatory head; a rotatory cylindrical form-bed having molds within its periphery; and a cam within the form-bed for imparting an outward secondary pressure to the sand within said molds.

3. In a press, in combination, a rotatory cylindrical form-bed having molds within its periphery; a reciprocatory head movable radially of said form-bed; and a cam within the form-bed for imparting a radially-outward, secondary pressure to the sand within said molds, said head serving as an abutment during such secondary compression.

4. In a press, in combination, a reciprocatory head; a rotatory form-bed; sand-feeding mechanism; and a cam within the form-bed for imparting an outward secondary pressure to the sand against said reciprocatory head.

5. In a press, in combination, a reciprocatory head; a rotatory form-bed; sand-feeding mechanism; a cam within the form-bed for imparting an outward secondary pressure to the sand against said reciprocatory head; and an ejector mechanism.

6. In a press, in combination, a reciprocatory head having presser-blocks therein; a rotatory form-bed having molds in its peripheral wall, which molds are adapted to coincide with said presser-blocks; a sand-feeding mechanism; means within each of said molds for imparting an outward secondary pressure to the sand; a cam within the form-bed for actuating the compression means within the molds; and an ejector mechanism.

7. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; means for introducing sand into said molds; means for exerting a primary pressure upon the sand within said molds; means within the molds for imparting a secondary pressure to

the sand within said molds; and a cam within said form-bed for actuating said secondary compression means.

8. In a press, in combination, a form-bed; a reciprocatory head; toggle-arms for moving said head; a rotatable shaft provided with a crank-pin; and a rod having a slot therein in which said crank-pin is adapted to lie, said slot being curved on the arc of a circle concentric with the rotative axis of said shaft, which rod is connected with said toggle-arms.

9. In a press, in combination, a form-bed provided with molds; means for introducing sand into said molds; a reciprocatory head; toggle-arms for moving said head; a rotatable shaft provided with a crank-pin; and a rod having a slot therein in which said crank-pin is adapted to lie, said slot being curved on the arc of a circle concentric with the rotative axis of said shaft, which rod is connected with said toggle-arms.

10. In a press, in combination, a form-bed provided with molds; means for introducing sand into said molds; a reciprocatory head; toggle-arms for operating said head; a rotatable shaft provided with a crank-pin; a rod having a slot therein in which said crank-pin is adapted to lie, said slot being curved on the arc of a circle concentric with the rotative axis of said shaft, which rod is connected with said toggle-arms; and an ejector mechanism.

11. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; means for introducing sand into said molds; a reciprocatory head; toggle-arms for moving said head; a rotatable shaft provided with a crank-pin; a rod having a slot therein in which said crank-pin is adapted to lie, said slot being curved on the arc of a circle concentric with the rotative axis of said shaft, which rod is connected with said toggle-arms; an ejector mechanism for the formed bricks; and a platen for receiving said bricks.

12. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; means for introducing sand into said molds; a reciprocatory head for compressing the sand; means for moving said head; an oscillatory shaft within said rotatory form-bed; means for oscillating said shaft; and an eccentric on said shaft arranged to exert pressure upon the sand within the mold in the direction toward said reciprocatory head after said head has completed its compressing movement.

13. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; a reciprocatory head adapted to enter said molds upon one side; a presser-block within the form-bed; and separate means successively operating for moving said reciprocatory head and said presser-block, said head serving as an abutment during the compressing movement of said presser-block.

14. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; means for intermittently rotating said form-bed; a reciprocatory head adapted to enter the molds in said form-bed; a presser-block in each of said molds for imparting a secondary pressure to the sand; and separate means for operating the reciprocatory head and moving the presser-blocks, said head serving as an abutment during the compressing movement of said blocks.

15. In a press, in combination, a rotatory form-bed having molds at regular intervals in its peripheral wall; means for introducing sand into said molds; a reciprocatory head adapted to enter said molds; a presser-block for each of said molds for imparting a secondary pressure to the sand; and separate means for intermittently rotating said form-bed, for operating said reciprocatory head, and for moving said presser-blocks, said head serving as an abutment during the compressing movement of said blocks.

16. In a press, in combination, a rotatory form-bed having molds at intervals in its peripheral wall; a reciprocatory head adapted to enter said molds; a presser-block for each of said molds for imparting a secondary pressure to the sand; means for operating said reciprocatory head; means for intermittently rotating said form-bed; and an eccentric for moving said presser-blocks, said head serving as an abutment during the compressing movement of said blocks.

17. In a press, in combination, a rotatory form-bed having molds at regular intervals in its peripheral wall; means for introducing sand into said molds; a reciprocatory head adapted to enter said molds; a presser-block in each of said molds for imparting a secondary pressure to the sand; means for operating said reciprocatory head; means for intermittently rotating said form-bed; and a rock-shaft and eccentric for moving said presser-blocks, said head serving as an abutment during the compressing movement of said blocks.

18. In a press, in combination, a form-bed having molds therein; a head adapted to enter said molds; toggle-arms for moving said head; a shaft having a crank-pin; a rod pivotally connected with said toggle-arms, which rod has a cam-opening therein adapted to receive said crank-pin; and means for rotating said shaft.

19. In a press, in combination, a form-bed having molds therein; presser-blocks for said molds; a head adapted to enter said molds; toggle-arms for moving said head; a cam-shaft and eccentric-rod for operating said toggle-arms; a rock-shaft and eccentric for moving said presser-blocks; a crank-arm, a connecting-rod and a lever for oscillating said shaft; and a wiper-cam on the cam-shaft for moving said lever.

20. In a press, in combination, a form-bed

having molds therein; presser-blocks for said molds; a head adapted to enter said molds; toggle-arms for moving said head; means comprising a cam-shaft for operating said toggle-arms; a feed-slide for said molds; a cam on said cam-shaft for operating said feed-slide; and means for moving said presser-blocks.

21. In a press, in combination, a rotatory form-bed having molds therein; presser-blocks for said molds; a head adapted to enter said molds; toggle-arms for moving said head; means comprising a cam-shaft for operating said toggle-arms; a feed-slide for said molds; a cam on said cam-shaft for operating said feed-slide; a cam on said cam-shaft for intermittently rotating said form-bed; and means for moving said presser-blocks.

22. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; a presser-block within each of said molds; a head adapted to enter said molds; means for moving said head; means for moving said presser-blocks in the direction of said head; and a member adapted to move said presser-blocks to eject the formed brick, which member is movable with said head.

23. In a press, in combination, a form-bed having a mold therein; a presser-block within said mold; a head adapted to enter said mold; and separate means successively operating for moving said head and said presser-block to compress the material in said mold, said head serving as an abutment during the compressing movement of said block.

24. In a press, in combination, a rotatory form-bed having molds in its peripheral wall; means for intermittently rotating said form-bed; a presser-block within each of said molds; a head adapted to enter said molds; and separate means successively operating for moving said head and said presser-blocks to compress the material in said molds, said head serving as an abutment during the compressing movement of said blocks.

25. In a press, in combination, a rotatory form-bed having molds at regular intervals in its peripheral wall; means for introducing sand into said molds; a presser-block in each of said molds; a reciprocatory head adapted to enter said molds; toggle-arms for moving said reciprocatory head; a cam-shaft and eccentric-rod for operating said toggle-arms; a rock-shaft and eccentric for moving said presser-blocks; a crank-arm, a connecting-rod and a lever for oscillating said shaft; and a wiper-cam on the cam-shaft for moving said lever.

26. In a press, in combination, a rotatory form-bed having mold-openings at regular intervals in its peripheral wall; molds for said mold-openings; a presser-block in each of said molds; a reciprocatory head adapted to enter said molds; toggle-levers for moving said head; a cam-shaft and eccentric-rod for operating said toggle-levers; a cam on said cam-shaft for intermittently rotating said form-bed; a feed-slide for said molds; a cam on said cam-shaft for operating said feed-slide; a rock-shaft and eccentric in said form-bed; a knuckle extending between said eccentric and said presser-blocks; a wiper-cam on the cam shaft for oscillating said rock-shaft; and an ejector secured to said reciprocatory head.

27. In a press, in combination, a rotatory form-bed having molds at intervals in its peripheral wall; means for intermittently rotating said form-bed; a reciprocatory head adapted to enter said molds; means for moving said head; presser-blocks for said molds; a rock-shaft and eccentric for moving said presser-blocks; an ejector mechanism operated by said reciprocatory head; a receiving-platen; means for reciprocating said platen; and carrier-belts.

28. In a press, in combination, a rotatory form-bed having molds at regular intervals in its peripheral wall; means for intermittently rotating said form-bed; a feed-slide for said molds; a reciprocatory head adapted to enter said molds; presser-blocks for said molds; a rock-shaft and eccentric for moving said presser-blocks; an ejector-bar fixed with relation to said reciprocatory head and adapted to lie in contact with the presser-blocks at the lower portion of said form-bed; a receiving-platen; means for reciprocating said platen; and a series of carrier-belts.

29. In a press, in combination, a rotatory form-bed having mold-openings at regular intervals in its peripheral wall; molds for said mold-openings; presser-blocks for said molds; a tubular bearing-bracket for said form-bed; a rock-shaft, an eccentric and a knuckle for moving said presser-blocks; an ejector-bar adapted to enter the mold-openings at the lower portion of the form-bed and engage the presser-blocks in the lower molds thereof; a reciprocatory head adapted to enter the molds at the upper portion of said form-bed, said head having a connection with said ejector-bar; a feed-slide for supplying sand to said molds; a receiving-platen; and means for reciprocating said receiving-platen.

30. In a press, in combination, a mold; a presser-block in said mold; means for moving said presser-block to compress the material in said mold; a reciprocatory head adapted to enter said mold and to serve as an abutment during the compressing movement of said presser-block; and means for reciprocating said head, said presser-block serving as an abutment for said head.

31. In a press, in combination, a supporting-frame; a form-bed rotatably supported in said frame, said form-bed having molds in its periphery; a sleeve fixed to said frame and extending within said form-bed, said sleeve having an opening therein adapted to register

with one of the molds in said form-bed; a reciprocatory head adapted to enter said molds; and means adapted to be projected through the opening in said sleeve into one of said molds for exerting pressure upon the sand within said mold.

32. In a press, in combination, a supporting-frame; a form-bed rotatably supported in said frame, said form-bed having molds in its periphery; a sleeve fixed to said frame and extending within said form-bed, said sleeve having an opening therein adapted to register with one of the molds in said form-bed; a reciprocatory head adapted to enter said molds; a presser-block in one of said molds; and means adapted to be projected through the opening in said sleeve into one of said molds for moving said presser-block.

MATTHEW J. WELLING.

Witnesses:
L. L. MILLER,
GEORGE L. CHINDAHL.