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J. W. PERTZ.
BRICK MACHINE.

APPLICATION FILED JAN. 21, 1904.

NO MODEL.

4 SHEETS—SHEET 1.

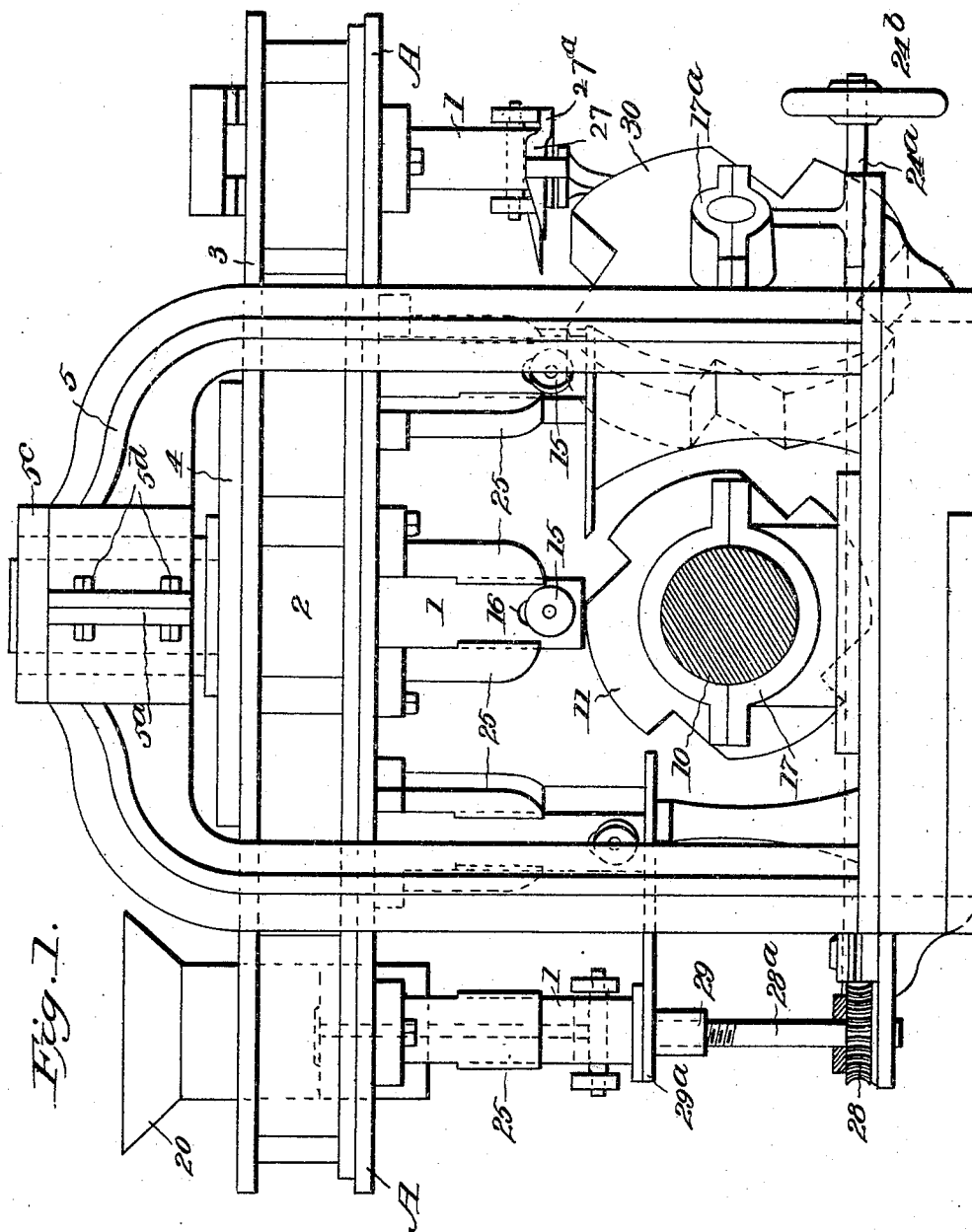


Fig. 1.

WITNESSES:

C. H. Walker

Geo. E. Tew

INVENTOR

John W. Pertz
BY
Milo B. Stevens
Attorney

No. 773,891.

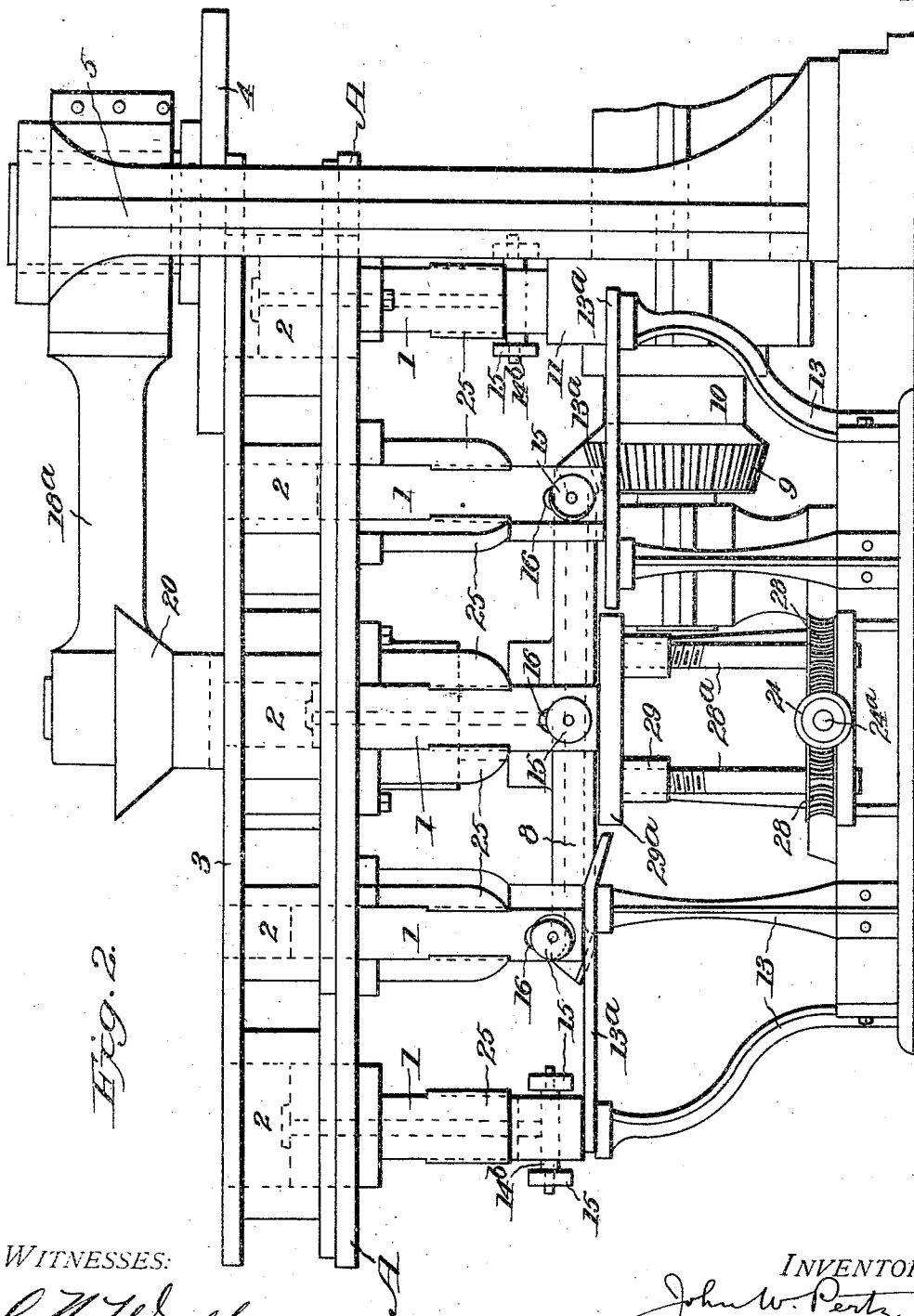
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WITNESSES:

C. N. Walker.
Geo. E. Tew

INVENTOR

John W. Pertz

BY

Milo B. Stevens & Co.
Attorneys

No. 773,891.

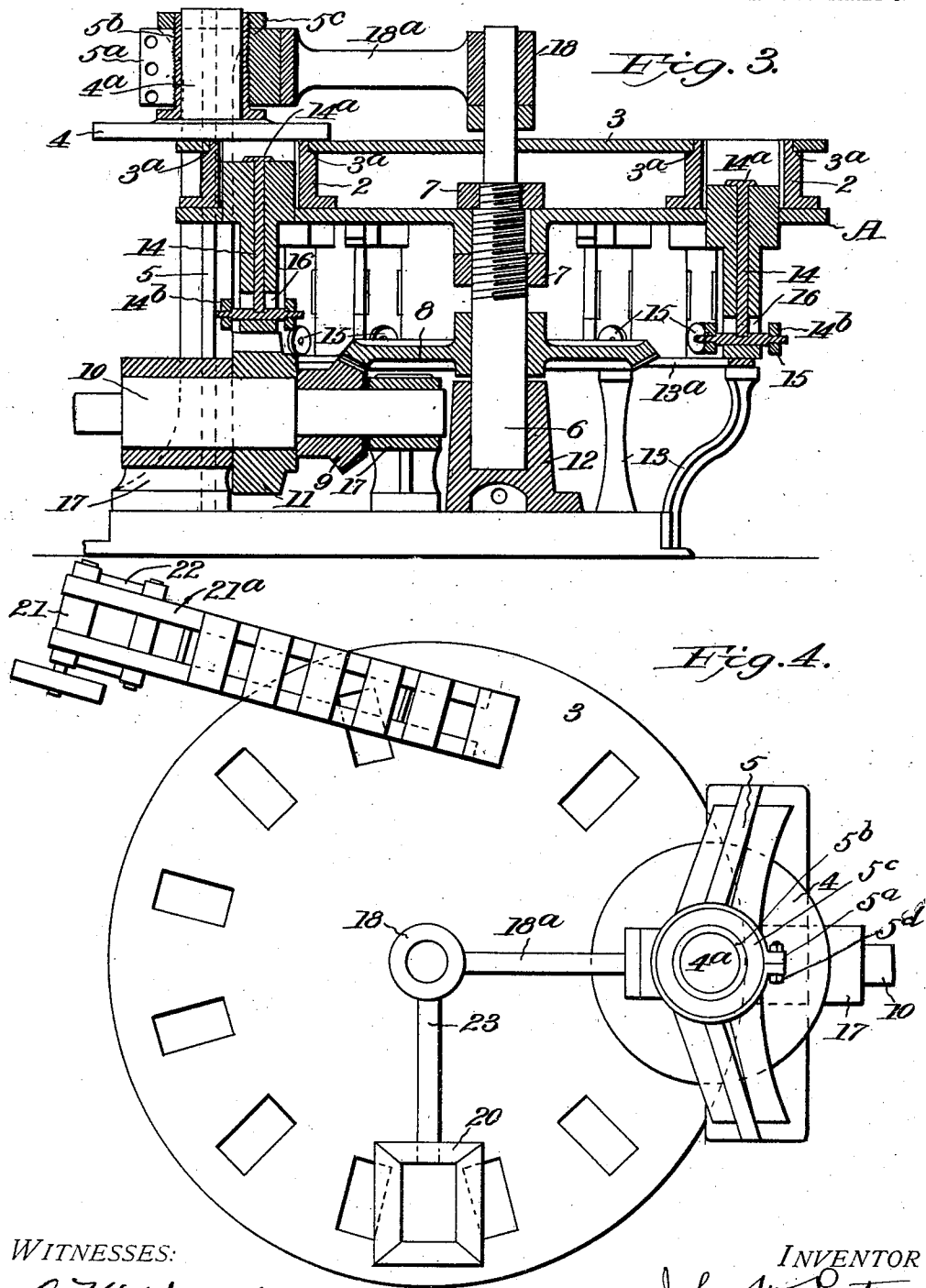
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WITNESSES:

C. H. Walker,
Geo. E. Tew

INVENTOR

John W. Pertz
BY
Milo B. Stevens & Co.
Attorneys

No. 773,891.

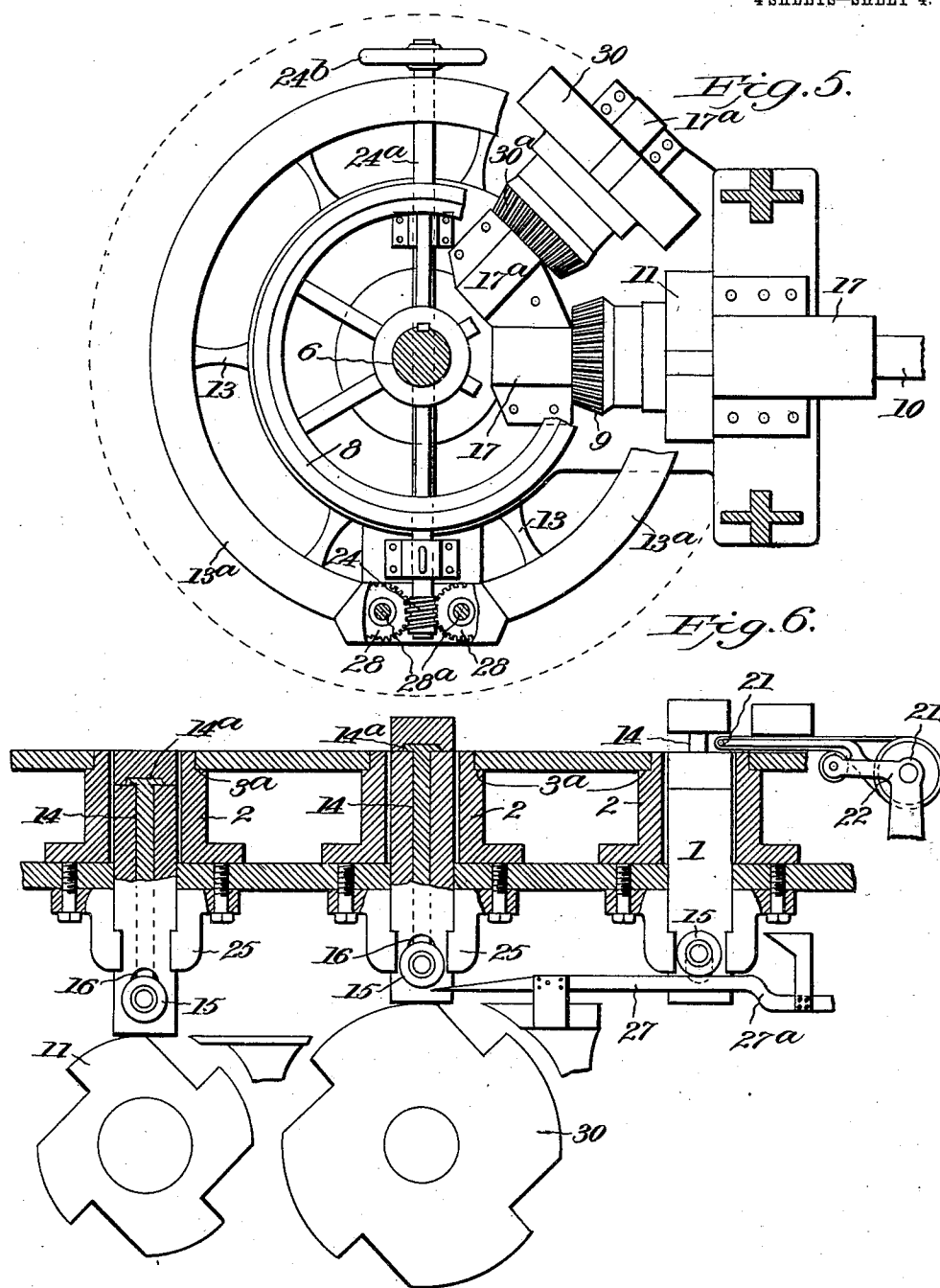
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4 SHEETS—SHEET 4.



WITNESSES:

E. M. Walker.

Geo. E. Jew.

INVENTOR

John W. Pertz

BY

Milo B. Stevens & Co.
Attorneys

UNITED STATES PATENT OFFICE.

JOHN W. PERTZ, OF ELWOOD, INDIANA, ASSIGNOR OF ONE-THIRD TO
NOAH JUSTICE, OF LAFAYETTE, INDIANA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 773,891, dated November 1, 1904.

Application filed January 21, 1904. Serial No. 190,004. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PERTZ, a citizen of the United States, residing at Elwood, in the county of Madison and State of Indiana, have invented new and useful Improvements in Brick-Machines, of which the following is a specification.

This invention relates particularly to brick or block machines in which the bricks are formed and pressed in facial molds made in a continuously-rotating table, the pressure being effected by plungers operated by cams underneath the table.

The object of the invention is to produce, first, an improved pressure mechanism; second, an improved ejector mechanism; third, an improved take-off or conveyer mechanism cooperating with a novel form of plunger which lifts the bricks, so that the conveyer can take them, and, fourth, an improved adjusting mechanism to regulate the pressure and size of the bricks.

Further advantages and improvements of construction will be apparent from the following description and the accompanying drawings.

In the drawings, Figures 1 and 2 are side elevations of the machine. Fig. 3 is a central vertical section. Fig. 4 is a top plan view. Fig. 5 is a plan view showing the bed-plate and the driving and adjusting gear, the table and plunger being removed. Fig. 6 is a sectional view in diagram or projection showing the cam construction and action.

Referring specifically to the drawings, A indicates the circular rotary table in which are formed a circular series of openings to receive the plungers 1. The molds 2 are bolted to the face of this table over the openings, and secured and supported on top of the molds is a cover or upper plate 3 of the table, forming a smooth top having openings corresponding to the molds. To properly support this top, it rests on shoulders 3^a in the molds. A rotary pressure plate or wheel 4 is supported at one side of the table and in close contact with the surface thereof and over the molds by a heavy strong arch or frame 5, which has at the top a bearing to receive the gudgeon

or stem 4^a of the pressure-plate. This plate gets its motion from its friction with the table, so that it turns with the table over the upper surface of the block in the mold. The arch holds the pressure-wheel firmly to the table and sustains the thrust of the plunger.

The main vertical shaft is indicated at 6, set in a stepped bearing 12 at the bottom, and the table is keyed on this shaft between adjustable nuts 7. Under the table the shaft carries a bevel-wheel 8, in gear with a driving-pinion 9 on the drive-shaft 10, which may be driven in any suitable manner. The rotation of the table is thus effected in an obvious manner. The shaft 10 is mounted in bearing-boxes 17.

At 11 the pressure-cam wheel is shown. This is fixed on the shaft 10 and has cam-surfaces in proper number and position to engage under the lower ends of the plungers and lift the same to press the bricks in the molds. The plungers travel otherwise on the track 13^a, supported by standards 13. They slide vertically in guides 25, bolted to the under side of the table.

At 30 the ejecting-cam wheel is indicated. The short shaft of this wheel is supported in suitable bearing-boxes 17^a and carries a bevel-pinion 30^a, in gear with the bevel-wheel 8, heretofore referred to. The ejecting-wheel has appropriate cam-surfaces and is of sufficient size to lift the brick above the surface of the table-top. To lift the brick farther in position to be taken off by a belt-conveyer, to be described hereinafter, the plunger is provided with a rod 14, which works lengthwise in a bore therein and has at the top a head 14^a on the upper end of the plunger. The lower end of the rod has a T, as indicated at 14^b, the branches of which extend laterally through and work in a slot 16 in the lower end of the plunger, and these branches carry rollers 15, which, after the plunger is lifted by the ejecting-cam 30, mount and ride over a cam-track 27, arranged and supported in proper line and position. The result produced is to lift the brick above the top of the plunger, as clearly indicated in Fig. 6. A conveyer to remove the bricks so lifted con-

sists of two belts 21^a, which are spaced apart a sufficient distance to allow the passage therebetween of the rod 14. These belts pass over the rollers 21, journaled on a suitable bracket 22, so that the forward or taking end of the belt extends over the top of the table in line with the line of molds. The belts may be driven in any suitable manner.

The shape of the cam-track 27 is such that the rod 14 is lifted just before the brick reaches the conveyer-belt. This raises the brick above the conveyer-belts, the stem 14 passing between said belts. When the drop 27^a in the cam-track is reached, the rod drops and the brick is deposited on the conveyer-belt. This action is repeated with the successive plungers, and an automatic take-off is thus produced having highly effective action.

A support for an upper bearing 18 for the table-shaft 6 is afforded by bar 18^a, projecting from the top of the arch 5. At 20 a feed-hopper is shown, supported by an arm 23, projecting from the collar or bearing 18.

The feed-adjusting mechanism of the machine is clearly indicated in Figs. 1 and 2 and comprises the shaft 24^a, operated by hand-wheel 24^b and carrying a worm 24, in mesh with gear-wheels 28, which have screw-shafts 28^a, which enter threaded bores in bosses 29 on the under side of the adjusting-plate 29^a, which plate forms a part of the track for the plungers and is located directly under the hopper 20. By means of the worm and gearing the plate may be raised or lowered, which varies accordingly the size of the mold, and consequently the amount of material fed therein from the hopper.

To regulate the size of the brick and also the degree of pressure, the table may be raised or lowered with respect to the plunger. As heretofore stated, the table A is keyed to the shaft 6; but it has vertical motion thereon, controlled by the adjusting-nuts 7. When the nuts are raised or lowered, the table is raised or lowered accordingly. Necessarily the pressure-plate 4 must have similar vertical adjustment. To effect this, the bearing of the arch 5 for the stem 4^a is split, as indicated at 5^a, and threaded to receive the threaded bushing 5^b. The bushing, and consequently the pressure-plate, may thus be adjusted in the arch, and when set the adjustment is fixed by the jam nut or collar 5^c on the upper end of the bushing and by binding-bolts 5^d, connecting the split sections of the arch.

The general operation of the machine is not substantially different from the well-known continuous rotary mold-block presses. The drive-shaft 10 produces the rotary motion of the table, the clay or other material being fed from the hopper 20 into the molds as they pass thereunder. The plungers travel along their track until they reach the pressure-wheel 11, by the cams of which they are lifted

to compress the blocks against the pressure-plate 4. They are then lifted by the ejecting-wheel 30, and thereafter in a continued rotation of the table the bricks are lifted and deposited on the conveyer-belts by the action of the rod 14, produced by the cam-track 27, after leaving which the plungers drop to the original track for the next operation.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a brick-machine, the combination with the rotary table having molds and plungers therein, of the rotary pressure-wheel supported over the molds.

2. In a brick-machine, the combination with the rotary table having facial molds, and plungers therein, of the rotary pressure-plate faced to the face of the table and extending over the molds.

3. In a brick-machine, the combination with the vertical shaft, and the rotary table thereon having molds and plungers therein, of the arch extending over the table, and a rotary pressure-plate carried by the arch and bearing against the top of the table and over the molds.

4. In a block-pressing machine, the combination with a laterally-movable mold, of a plunger working therein, a block-lifting rod extending through the plunger and movable beyond the face thereof, and means actuated by the movement of the mold to operate the plunger and rod.

5. In a block-pressing machine, the combination with a mold moving laterally, of a plunger working vertically therein, means to lift the block out of the mold and above the face of the plunger, and a conveyer projecting over the line of movement of the mold and constructed to receive the block when so lifted.

6. In a block-pressing machine, the combination with the rotary table, and the molds and plungers therein, of the movable conveyer projecting over the molds, and means to lift the blocks from the molds and deposit them on the conveyer.

7. In a block-pressing machine, the combination with a movable mold, and a plunger working therein, of a rod slidable lengthwise in the plunger and having a head at the top thereof, and means actuated by the movement of the mold to slide the rod and project the head and block out of the mold and above the top of the plunger.

8. In a block-pressing machine, the combination of the rotary table carrying a series of molds and plungers therein, of pressure and ejecting cams acting against the lower end of each plunger, a lifting-rod slidable lengthwise in the plunger, constructed to be projected beyond the same and lift block from the face thereof, and a cam arranged to contact with the rod and lift the same.

9. In a block-pressing machine, the combi

nation with the movable mold, the vertically-movable plunger therein having a lengthwise bore and a slot at the lower end thereof, the rod slidable in the bore and having a head at the top of the plunger and a lateral projection extending through the slot, and a cam arranged in line with the projection and acting to strike the same and lift the rod.

10 The combination of the rotary table having molds therein, the pressure-plate above the same, the plungers working in the molds, the drive-shaft geared to the table and the pressure-cam wheel on the drive-shaft, acting against the lower ends of the plungers.

15 11. In a brick-machine, the combination with the rotary vertically-adjustable table having molds and plungers therein, and means to work the plungers, of the vertically-adjustable pressure-plate supported over the molds.

20 12. In a brick-machine, the combination of

a vertical shaft, a table vertically adjustable thereon and having molds and plungers therein, an arch extending over one side of the table and having a vertically-adjustable bearing over the mold, and a rotary pressure-plate having a gudgeon fitting in said bearing. 25

13. In a brick-machine, the combination of a rotary table having molds and plungers therein, of the spaced conveyer-belts projecting over the line of movement of the molds, and brick-lifting rods in each mold movable up and down between the belts, to lift the bricks above the same and lower them thereon. 30

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 35

JOHN W. PERTZ.

Witnesses:

H. D. BEYERSDORFER,

H. C. AUSTILL.