

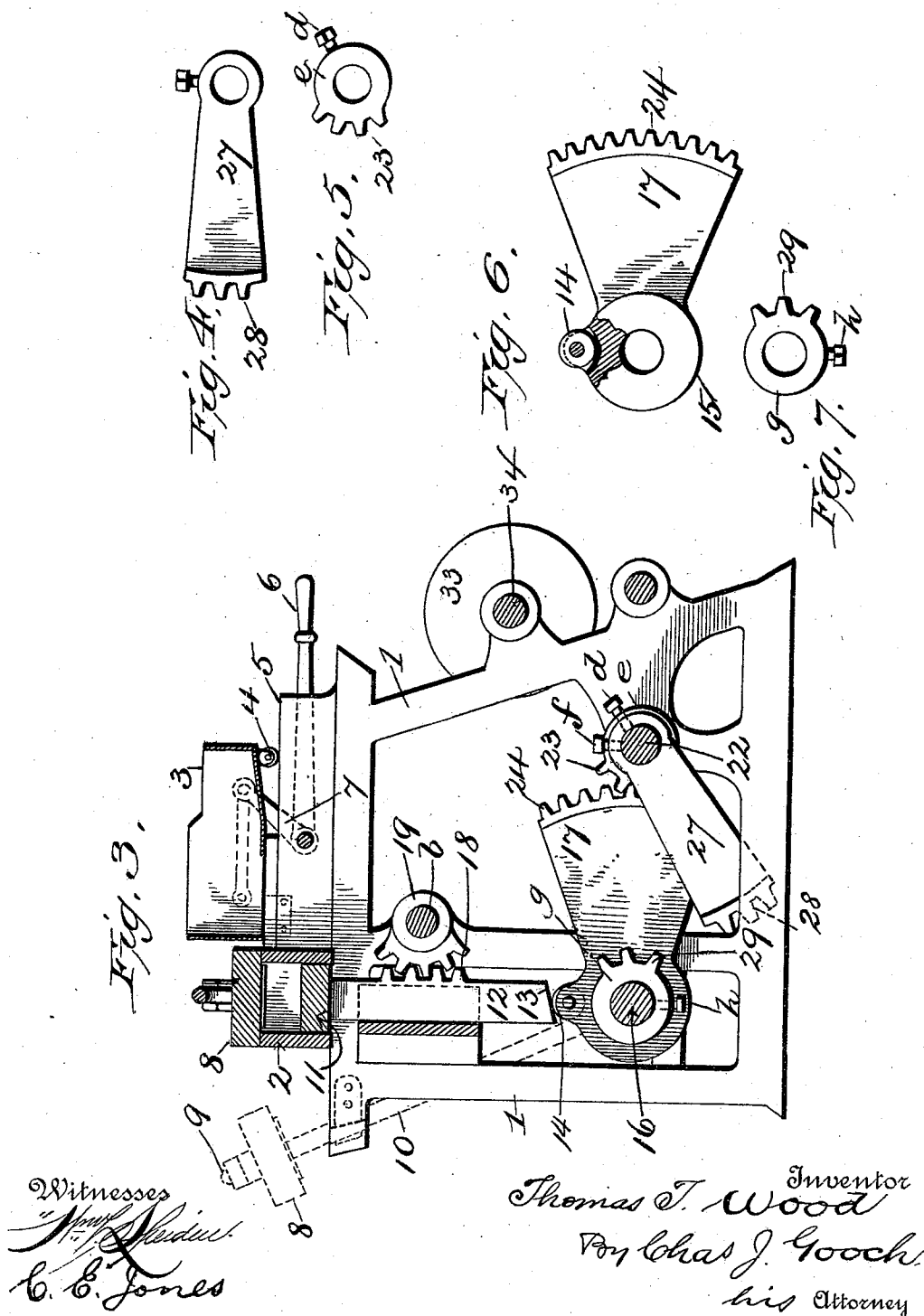
(No Model.)

2 Sheets—Sheet 2.

T. T. WOOD.
BRICK MACHINE.

No. 553,884.

Patented Feb. 4, 1896.



UNITED STATES PATENT OFFICE.

THOMAS T. WOOD, OF ST. JOSEPH, MICHIGAN.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,884, dated February 4, 1896.

Application filed October 5, 1894. Serial No. 524,985. (No model.)

To all whom it may concern:

Be it known that I, THOMAS T. WOOD, a citizen of the United States, residing at St. Joseph, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements, as hereinafter set forth, in brick-machines, the machine being interchangeable at will into either a hand or a power operated machine.

In the accompanying drawings, Figure 1 represents a side elevation of my improved machine. Fig. 2 represents a section taken on the line 2 2 of Fig. 1, viewed in the direction of the arrow in Fig. 1. Fig. 3 represents a section on the line 3 3 of Fig. 2, viewed in the direction of the arrow, the gears employed when the machine is operated by power instead of by hand being omitted in Figs. 2 and 3. Figs. 4, 5, 6, and 7 represent detail views.

My improved machine is designed for the manufacture of sand or other brick, or bricks made from dry clay, as may be desired. It is primarily intended for operation by hand, yet, as will hereinafter appear, adaptation is provided whereby the operation of pressing or forming the bricks may be controlled by other than hand-power.

1 represents the frame on which the operative parts are suitably supported.

2 represents the mold-box within which the bricks are pressed or formed. This box is open at both top and bottom and is suitably bolted, as at *a*, or otherwise secured in position on the top of the frame.

3 represents the feed-box or hopper within which the clay, sand, or other material from which the bricks are to be made is contained. This box or hopper is arranged to slide on rollers 4 on a ledge 5 to and from the mold-box and across the same, so as to supply the brick-forming material to said mold-box.

6 represents a lever which is connected by suitable arms 7 to the feed-box, whereby said feed-box may, on the raising of said lever 6 from a horizontal to a perpendicular position, be slid along to and over the mold-box, so as to supply the latter with the requisite amount

of brick-forming material. When a sufficient amount of such material has been supplied to said mold-box, the lever 6 is drawn down to a horizontal position, which act draws back the feed-box and cuts off the supply, said feed-box in its rearward movement across the mold-box automatically leveling the top of the brick-forming material in the mold-box in readiness for the pressing operation.

8 represents the upper presser or print block, which may have on its under face any desired design, or said under face may be plain, according to requirement.

9 is a hand-grasp, by means of which the presser or print block 8 and its supporting and actuating rods 10 may be drawn back to a vertical and operative position at the proper time and drawn away from the mold-box when the bricks are to be discharged.

11 represents the lower presser-block, which also operates as the ejector of the bricks. With the under face of this lower presser-block is connected the plunger 12, having at its lower end a bevel or inclined plane 13, which is in contact with a roller 14, journaled in a ring 15, which is loosely mounted on the shaft 16 and has an inwardly-extending segment-gear 17, for a purpose to be presently described.

18 represents a toothed rack formed on or attached to one side of the plunger 12, with which is engaged a segment-gear 19, journaled in suitable bearings on a shaft *b* in the frame and having connection with an operative lever or handle 20, by rocking which said segment-gear 19 is caused to engage the rack 18 on the plunger and thereby either raise said plunger and lower presser-block after the pressing operation to eject the bricks, or else retract said plunger and lower presser-block in readiness for another pressing operation.

21 represents the main operative lever, which normally is vertical. It is either keyed or otherwise secured, as by a screw *c*, to a shaft 22, to which is removably secured by screw *d* a ring *e*, having a series of four teeth 23, which engage with the teeth 24 of the segment 17. As this lever 21 is drawn down, either by hand, or as hereinafter stated, by power, toward a horizontal position, the teeth 23 of the ring *e* on the shaft 22 are caused to engage the teeth 24 on the segment 17 and

rock said segment on its shaft 16, so as to cause the roller 14 to travel up the inclined plane or bevel 18 on the lower end of the plunger and thereby raise said plunger and the thereto-connected lower presser-block, so as to press the brick. This having been accomplished, the lever 21 is then moved additionally so as to turn the shaft 22 and release the teeth 23 thereon from engagement with the toothed segment 17. It will be observed that the segment-gear 17 extends nearly from end to end of the machine. Consequently said gear has a long leverage from the shaft 16, which insures the perfection of the pressing operation.

The ends of the shaft 16 extend eccentrically, as shown at 25, from the main portion. These eccentrically-extending portions 25 engage with the eyed lower ends 26 of the rods 10 of the upper presser-block.

27 represents a segment-gear keyed or clamped, as at *f*, on the shaft 22, and whose three teeth 28 mesh with three teeth 29 of the ring *g*, carried by and secured to the shaft 16 by screw *h* or other suitable means.

When the lever 21 has been operated to raise the plunger and lower presser-block to press the bricks, the additional movement of said lever in the same direction releases the teeth 23 from mesh with the teeth 24, as previously stated, and rocks the segment 27 so as to bring the teeth 28 thereon into operative engagement with the teeth 29 of the ring *g*, carried by the shaft 16, whereupon said shaft is turned so as to bring the eccentrically-extending ends 25 of said shaft into operative engagement with the eyed ends 26 of the rods 10, and consequently rock the rods 10 on their pivots and force said rods and the thereto-attached upper presser-block 8 outward and away from the mold-box, as shown in dotted lines in Fig. 3. The lever 20 is then drawn down so as to bring the teeth of the segment-gear 19 into operative engagement with the rack 18 on the plunger and thereby raise said plunger 12 and lower presser-block 11 to eject the bricks.

As above described, the machine, it will be seen, can be operated entirely by hand in a very easy, ready, and expeditious manner. The mechanism is simple and of few parts and the necessary movements are few in number. The reciprocation of the lever 6 reciprocates the feed-box to and from the mold-box and supplies and cuts off the brick-forming material. The upper presser-block is then drawn to position. The lever 21 is then drawn down to bring the teeth 23 into engagement with and rock the segment 17, which causes the roller 14 to raise the plunger and lower presser-block. Then an additional pull on said lever 21 actuates the segment 27, which turns the shaft 16 so as to bring the eccentrically-extending ends 25 of the shaft 16 into engagement with the upper portions of the eyed lower ends 26 of the rods 10, and thereby raise said rods and also raise the

thereto-connected upper presser-block above the mold-box. The operator then grasps the hand-grasp 9 and draws the rods 10 and upper presser-block forwardly away from the mold-box, as indicated in dotted lines in Fig. 3. By the mechanism and operation described, the upper presser-block being raised before being drawn from the mold-box, the injury to the design on or to the top of the bricks, resultant when the upper block slides across the same, is prevented. Then the lever 20 is thrown down, which act, by means of the segment 19 and rack 18, raises the plunger 12 and lower presser-block 11 to eject the bricks. The reverse of these movements, of course, prepares the machine for another pressing operation.

The machine can be very readily operated mainly by mechanical power instead of by hand-power by simply connecting the main operative lever 21 by means of a link or strap 30 with a gear 31 journaled in the frame, which gear meshes with a pinion 32 on the shaft 34 of a pulley or gear 33 having band or other connection with a suitable source of power. When mechanical power is not available or, being available, it is not desired to use it, said strap 30 can be readily disconnected from the lever 21. The gear 31, it will be noticed, has a blank space in its periphery equal to the space of about three teeth. When in the rotation of the gears the pinion 32 reaches this point, the operation of the mechanism automatically ceases sufficiently long to enable the ejected bricks to be removed and the mold-box again filled.

Having thus described my invention, what I claim is—

1. A brick-machine, consisting of a frame, a front and a rear power-shaft, each located in the same plane and journaled in the frame, the front shaft having eccentric ends, a main operative lever connected with the rear shaft, segmental-toothed gearing connecting said rear shaft and the front shaft, a ring mounted on said latter shaft, a roller carried by said ring, a mold-box, a lower presser-block, a pitman connected with said lower presser-block and having an inclined lower end to engage with said roller, a toothed rack, segment and lever connected with and adapted to reciprocate said pitman, a vertically reciprocating and rocking upper presser-block, rods connecting said upper presser-block and the eccentric ends of the front shaft, a reciprocating feed-box, gearing journaled in said frame and having connection with a suitable source of power, and a strap removably connecting said power-gearing and the main operative lever, substantially as and for the purpose set forth.

2. In a brick-machine, a frame, a mold-box, a shaft having eccentric extensions at its respective ends, an upper presser-block, rods connected with said block and depending therefrom and having eyed rocking connection at their lower ends with the eccentric

cally-extending ends of said shaft whereby as said shaft rocks said rods and upper presser-block are alternately raised and lowered and may be rocked to and from the mold-box, a shaft, an operative lever mounted thereon and connecting, oppositely-positioned segmental and toothed ring gearing mounted on said shafts, substantially as and for the purpose set forth.

3. In a brick-machine, the combination with the mold-box of a lower presser-block, a pitman connected therewith and having a lower beveled end, a front shaft, a ring carried thereby, a roller journaled on said ring and adapted to engage the beveled lower end of said pitman, a rear shaft, parallel with the front shaft, a lever connected with said rear shaft, ring-gears mounted on said shafts and oppositely-extending segmental gears also mounted on said rear shaft and on the roller-carrying ring on the front shaft, and engaging the ring-gears, and a brick-discharge consisting of a rack carried by said pitman, a toothed segment having bearing in the frame and engaged with said rack and a lever for actuating said segment, substantially as and for the purpose set forth.

4. In a brick-machine, the combination with the mold-box of an upper presser-block, depending rods connected therewith and having eyed lower ends, a lower presser-block, a pitman connected therewith and having a beveled lower end, a pair of parallel front and rear shafts, the front shaft having eccentric end extensions on which the eyed lower ends of said rods have rocking bearing and by means of which, as said shaft rocks, said

rods are vertically reciprocated, a ring carried by said front shaft, a roller journaled in said ring to engage the beveled end of the pitman, gearing connecting said shafts and consisting of a ring-gear carried by the front shaft, and a forwardly-extending segmental gear carried by the rear shaft and engaging with the ring-gear on the front shaft, gearing connecting the rear shaft and the roller-carrying ring and consisting of a ring-gear carried by the rear shaft and a segmental gear mounted on the roller-carrying ring on the front shaft, and a lever adapted to actuate said rear shaft, substantially as and for the purpose set forth.

5. A brick-machine, consisting of a frame, a pair of parallel shafts journaled therein, the front shaft having eccentrically-extending ends, intermeshing gears mounted on said shafts and on a ring carried by the forward shaft, and having teeth varying in number, a roller journaled in said ring, a mold-box, a lower presser-block, a pitman depending therefrom and having a beveled lower end to contact with said roller, an upper presser-block, rods depending therefrom and having eyed lower ends engaging with and having rocking bearing on the eccentrically-extending ends of the forward of said shafts, substantially as and for the purpose set forth.

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

THOMAS T. WOOD.

Witnesses:

E. A. PAUL,
CHAS. J. GOOCH.