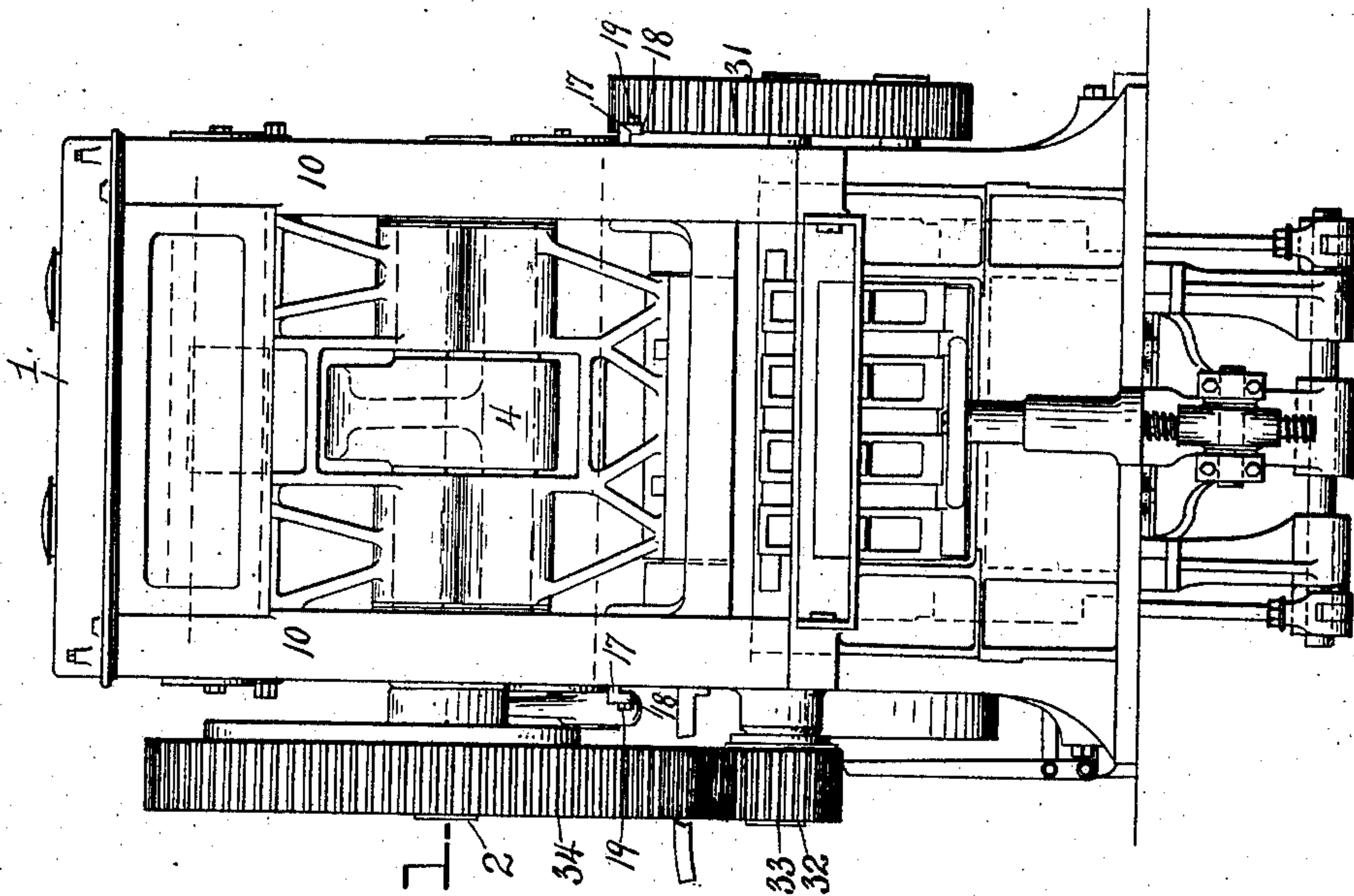
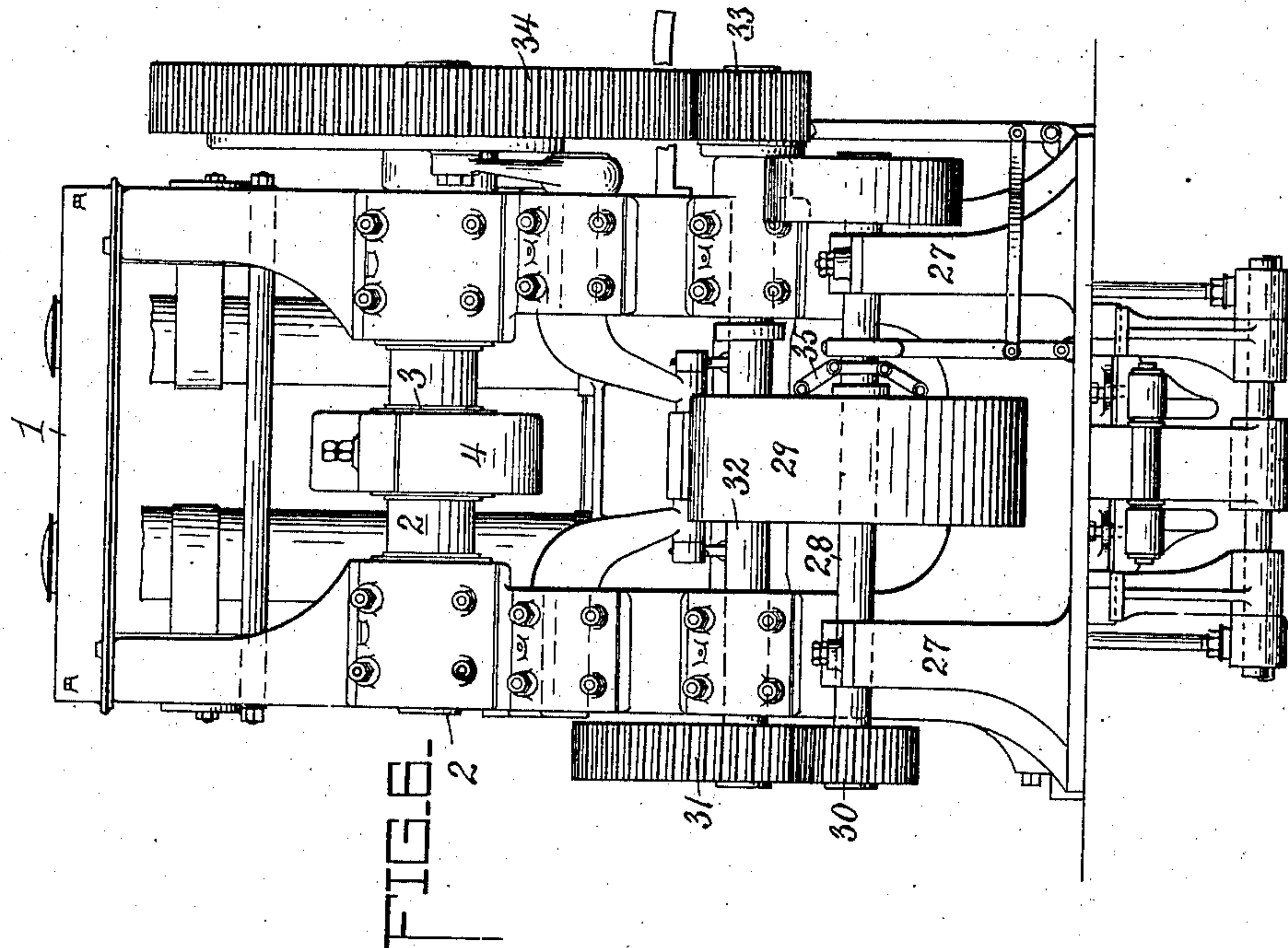


No. 850,435.

PATENTED APR. 16, 1907.

O. KUTCHE.
BRICK MACHINE.
APPLICATION FILED JUNE 8, 1906.

3 SHEETS—SHEET 1.



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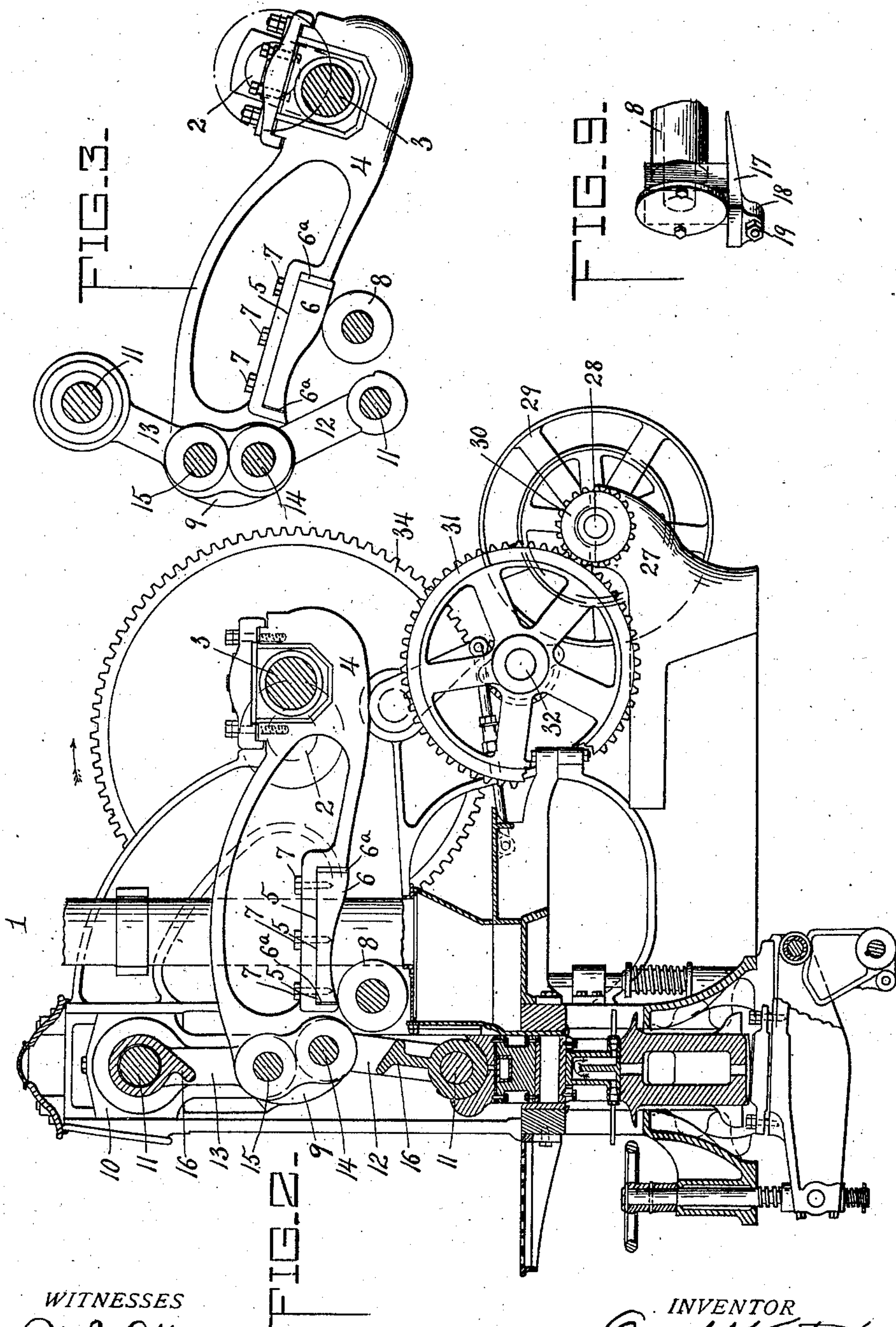
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3 SHEETS—SHEET 2.



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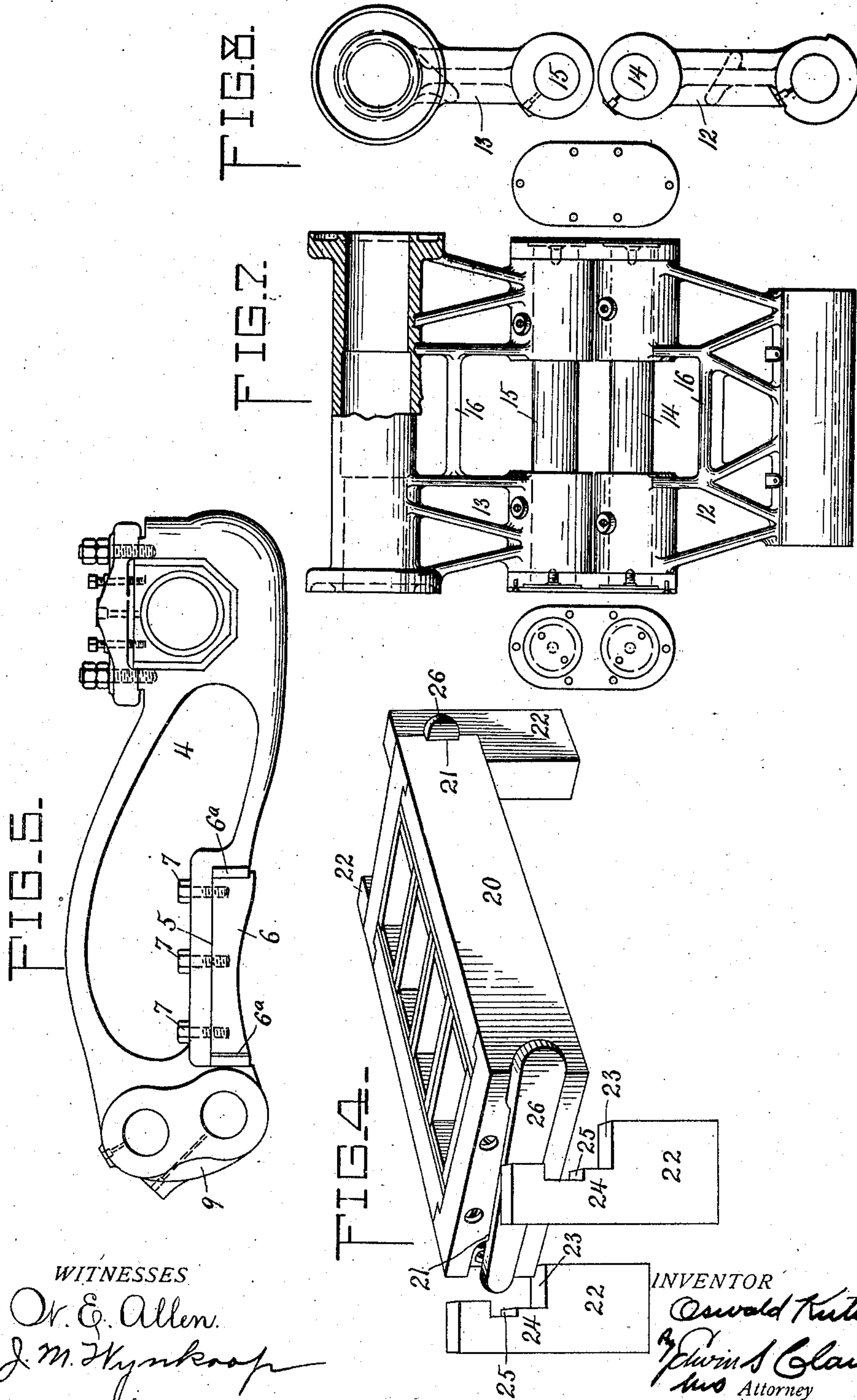
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

OSWALD KUTSCHE, OF YORK, PENNSYLVANIA, ASSIGNOR TO GUSTAVE A. WOLTMAN, OF YORK, PENNSYLVANIA.

BRICK-MACHINE.

No. 850,435.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed June 8, 1906. Serial No. 320,780.

To all whom it may concern:

Be it known that I, OSWALD KUTSCHE, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

My invention relates generally to machines for making bricks, tiles, &c., but more particularly to that class of machines in which the clay is pressed between two oppositely-moving plungers having the necessary movements to form the brick. It is desirable in machines of this character to have and it is the object of my invention to provide positive and simple means for producing the proper movement of the plunger to effect the desired compression of the clay, which compression is accomplished during one complete revolution of the machine. The parts should be so timed that the "dwell" is increased—that is to say, the period of compression is proportionately increased so as to insure perfect compression and effective expelling of the air from the clay.

A further object of my invention is to provide a simple and effective means for adjusting or alining the shaft to compensate for wear in the mold and adjacent parts; and a still further object of my invention is to provide a secure lock for the mold; and with these and minor objects in view my invention consists of the parts and combination of parts, as will be more fully hereinafter pointed out and claimed.

In the drawings, Figure 1 is a front elevation of a brick-press embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail view of the toggle and lever. Fig. 4 is a perspective view of the mold-box and associated parts, one key being removed. Fig. 5 is a detail view of the lever. Fig. 6 is a rear view of the machine. Fig. 7 is a front elevation of the toggle-links detached, but arranged in their relative position. Fig. 8 is a side elevation of the links. Fig. 9 is a detail perspective view of an adjustable bearing for the shaft carrying the plunger.

1 represents a brick-machine of the approved type having a train of gear and cog-wheels connected to and operating the shaft 2, having a suitable crank 3, on which in a suitable manner the lever 4 is journaled in an adjustable bearing, as more clearly shown in

Fig. 3. This lever 4 is provided with a cut-away portion 5, in which a hard-metal block 6 is secured by means of bolts 7, the lower face of the block 6 being cam-like and adapted to bear upon an antifriction-roller 8, suitably journaled in the frame of the machine. This block 6 is adjustable by means of the adjustable keys 6^a.

It will be noticed that the lever is of skeleton form and that it has an enlarged outer end 9, in which are two bearings, one being slightly in advance of the other, as more clearly shown in Fig. 5, wherein it will be seen that they are eccentric to the shaft 2 and to each other, the object of which will be more fully hereinafter set forth.

10 are the side bars of the machine of any approved type, to which the mold is connected, as is usual in this type of machine, there being a rod 11 connecting said bars at top and at an intermediate point.

12 and 13 are each double toggle-links journaled on the rods 11, the other ends of said links being journaled on shafts 14 and 15, which in turn are secured in the openings formed in the head of the lever 4, whereby said links form a toggle having a double eccentric bearing on the outer end of the lever 4. Each link has an eccentric or cam-like enlargement on its inner end.

The shaft or rod 11, carrying the plunger, frequently becomes worn, whereby the mold does not come up even with the delivery-table, thus resulting in the bottom of the bricks being scraped, which makes the brick thinner than the "standard." To obviate this, I provide compensating means comprising an adjustable member 17, which has a depending perforated lug or lugs 18, through which a screw is passed, there being a nut 19 on the end of said screw, whereby the member may be adjusted to compensate for any wear of the shaft or rod 11 by raising the journal-box.

It has heretofore been found difficult to secure the mold-box satisfactorily in machines of this type; but by my invention this can now be satisfactorily accomplished. My mold-box comprises a mold-section 20, in each end of which I form a wedge-shaped groove 21. The standards 22 for the mold-section 20 have a shoulder 23, on which the section 20 rests. 24 is a standard projection above and to one side of the shoulder in

which is formed a wedge-shaped groove 25, corresponding in size and pitch to the groove in the end of the section 20. There are four of the supports—one at each corner of the section 20—and when these parts are assembled the wedge key 26 is driven in between the ends of the section 20 and the standards 24 of the supports, the supports and end sections when assembled forming a wedge-shaped groove adapted to receive the key 26. Thus it will be seen that I provide a simple, cheap, but effective means for locking the mold-section in the machine.

In order to manufacture good dry-pressed brick, it is necessary that the clay in the molds shall be subject to great pressure and also that the pressure shall be applied slowly enough and maintained long enough to thoroughly expel the air and effect a permanent compression of the clay. It is also necessary to employ a machine which will act with considerable rapidity, or otherwise the cost of the brick will be too great for practical purposes. These desirable features in a brick-machine are attained by my invention, as will be seen from the following description of its operation. The molds having been properly filled by any suitable means, the shaft carrying the crank 3 is revolved. At this step in the operation the highest point of the cam-face of the block 6 is resting on the roller 8, whereby the double toggle is extended outward to the limit of its throw. The cam-block moving with the lever provides a shifting fulcrum for said lever. The crank moving in the direction of the arrow changes the fulcrum of the lever on the roller 8, thereby pulling on the shaft 14 in advance of the shaft 15, whereby the link 12 is moved, which results in a beginning of the downward movement of the plunger. As the crank 2 continues to revolve the link 3 is drawn in until the links are straightened out with reference to each other, and when in the position shown in Fig. 2 the fulcrum of the lever 4 is almost under the bearing of the toggle, and by reason of this the crank continues to revolve for a greater portion of its revolution without materially changing the relative position of the links forming the toggle, thus maintaining the clay under a maximum pressure and materially increasing the dwell of the plunger on the clay, whereby the clay is pressed and the air expelled therefrom, very effectively resulting in a superior brick. The crank continuing to revolve again pushes the lever 4 forward and moves the link 13 forward; but this does not relieve the pressure exerted by the link 12, as it merely rocks on its bearings, thereby maintaining the dwell upon the clay until the fulcrum of the lever is changed by the high points on the cam-block 6, whereupon the lever 4 is lifted and the link quickly moved to the position shown in Fig. 3. Thus it will be seen that I

have produced a machine in which a maximum dwell is accomplished and at the same time a machine that is quick enough for all practical purposes.

It will be seen that the bearings on the lever 4 of the toggle-links are eccentric to each other and that the ends of the links are eccentric to the shafts 14 and 15, whereby when the links are in the position shown in Fig. 2 the ends of the links do not touch; but when the links are in their innermost position, as shown in dotted lines, their ends do touch or contact. It is while in this position that the maximum pressure is exerted.

To further regulate the dwell in the machine to a nicety, I mount the beam 4 in an adjustable journal-box on the crank 2. By raising the box I increase or lengthen the dwell without diminishing the output of the machine.

In machines of this character it has heretofore been the practice to position the drive-pulley and transmission-gear to one side of the machine on a separate casting. It is one of the objects of my invention to place the drive-pulley in the rear of the machine and directly behind the feeding-slide, and to accomplish this I cast integrally with the frame of the machine two rearwardly-extending standards or horns 27, having in their upper ends suitable bearings, in which the shaft 28 is journaled, on which the drive-pulley 29 is suitably keyed. 30 is a pinion keyed to one end of the shaft 28, which meshes with a suitable gear 31 on a shaft 32, journaled in suitable bearings on the frame of the machine. 33 is a pinion keyed to the other end of shaft 32, which meshes with the gear-wheel 34 for operating the machine. A suitable clutch 35 is mounted on the shaft 28 to control the machine, which is operated by any suitable lever.

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

1. In a brick-press, the combination with a power-shaft, of a lever journaled thereon, a changing fulcrum for said lever and toggle-links eccentrically journaled on the outer end of said lever.

2. In a brick-press, a crank-lever journaled on said crank, a changing fulcrum for and in constant engagement with said lever, and two toggle-links eccentrically journaled on the outer end of said lever.

3. In a brick-press, the combination with the pitman-lever having two journal-bearings in its outer end positioned eccentrically to each other, journals carried thereby, and toggle-links with eccentric heads mounted on said journals.

4. In a brick-press, the combination with a pitman-lever, of toggle-links separately mounted on the outer end of said lever eccentrically to each other and provided with ec-

centric heads adapted to contact during a part of the movement of the toggle and a continuously-rotating crank-shaft operating the pitman-lever.

5 5. In a brick-press, the combination with a mold and plungers working therein, of side bars carrying the lower plunger, a toggle-link pivotally secured at one end to the upper ends of the side bars, a pitman-lever to which
10 the other end of said link is pivotally secured, a toggle-link pivotally secured at its upper end to the pitman-lever, and carrying the upper plunger, said links having eccentric heads adapted to contact during a portion of
15 the movement of the toggle.

6. In a brick-press, the combination with the pitman-lever, of two shafts mounted in the outer end and extending from each side thereof; of a double toggle-link journaled on
20 each shaft with their ends abutting.

7. In a brick-press, a double toggle-link, the inner ends of which each have an eccentric enlargement.

8. In a brick-press, a double toggle-link terminating in a cam-face on the inner end. 25

9. In a brick-press, the combination with the pitman-lever, of two double toggle-links pivoted at their inner ends to the sides of said lever, one above the other.

10. In a brick-press, the combination with 30 the pitman-lever, of two double toggle-links independently pivoted at their inner ends to the sides of said lever, and cam-faces on the inner end of said links.

In testimony whereof I affix my signature 35 in presence of two witnesses.

OSWALD KUTSCHE.

Witnesses:

ALFRED M. KELL,
ALICE L. KEECH.