

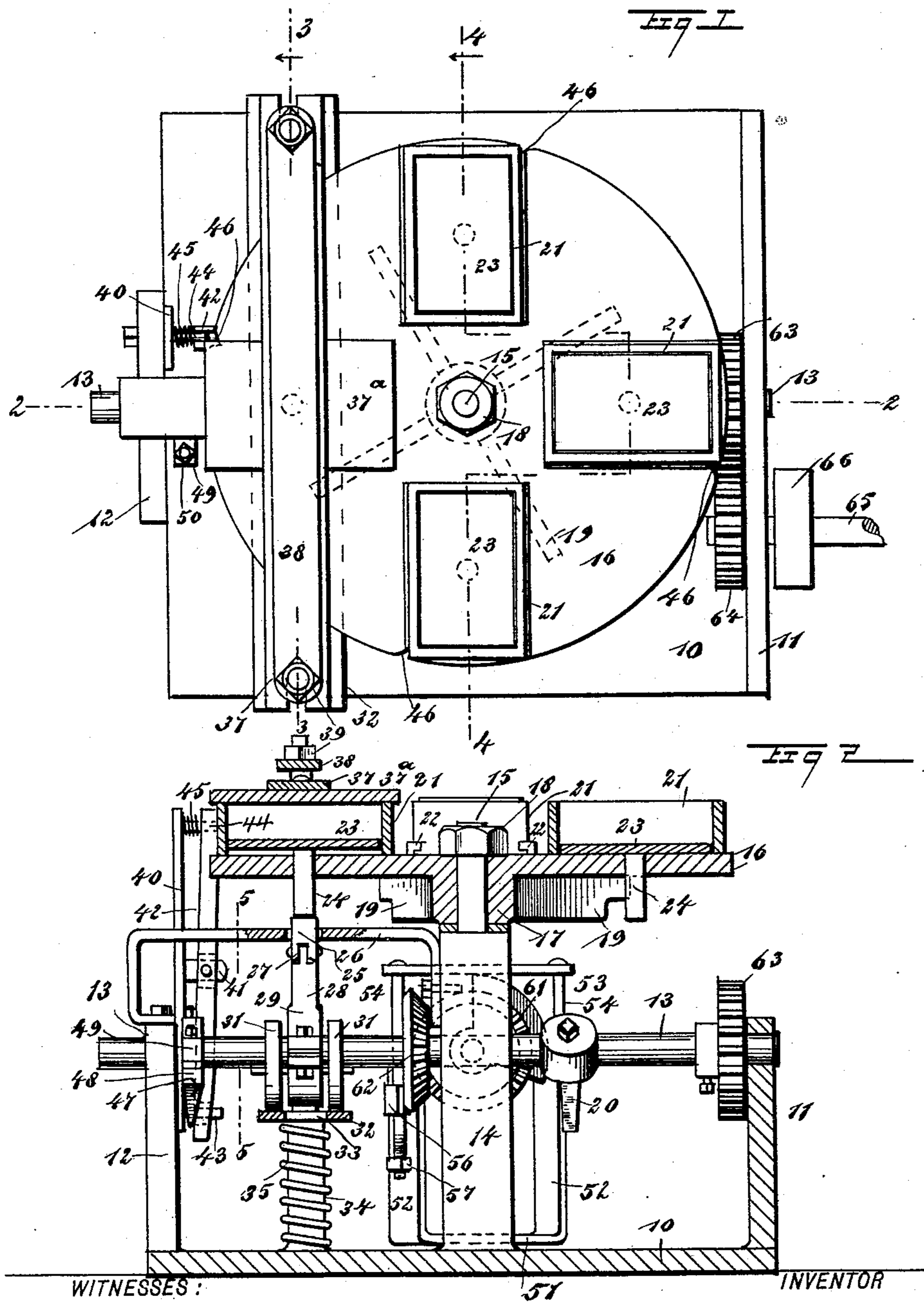
(No Model.)

2 Sheets—Sheet 1.

H. HARLAN.
BRICK MACHINE.

No. 482,248.

Patented Sept. 6, 1892.



WITNESSES:

H. Walker
C. Sedgwick

INVENTOR

H. Harlan
BY Munn & Co
ATTORNEYS.

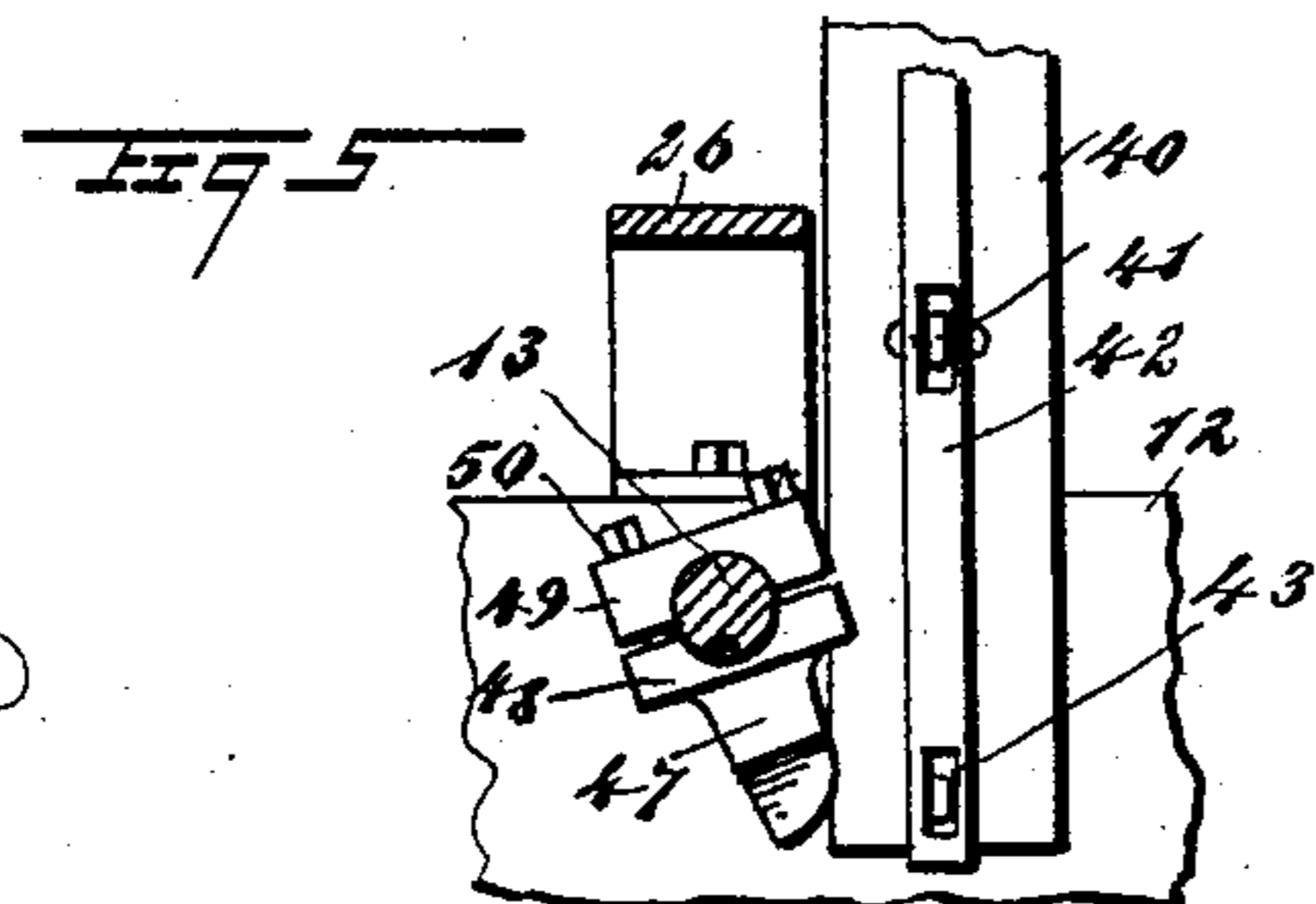
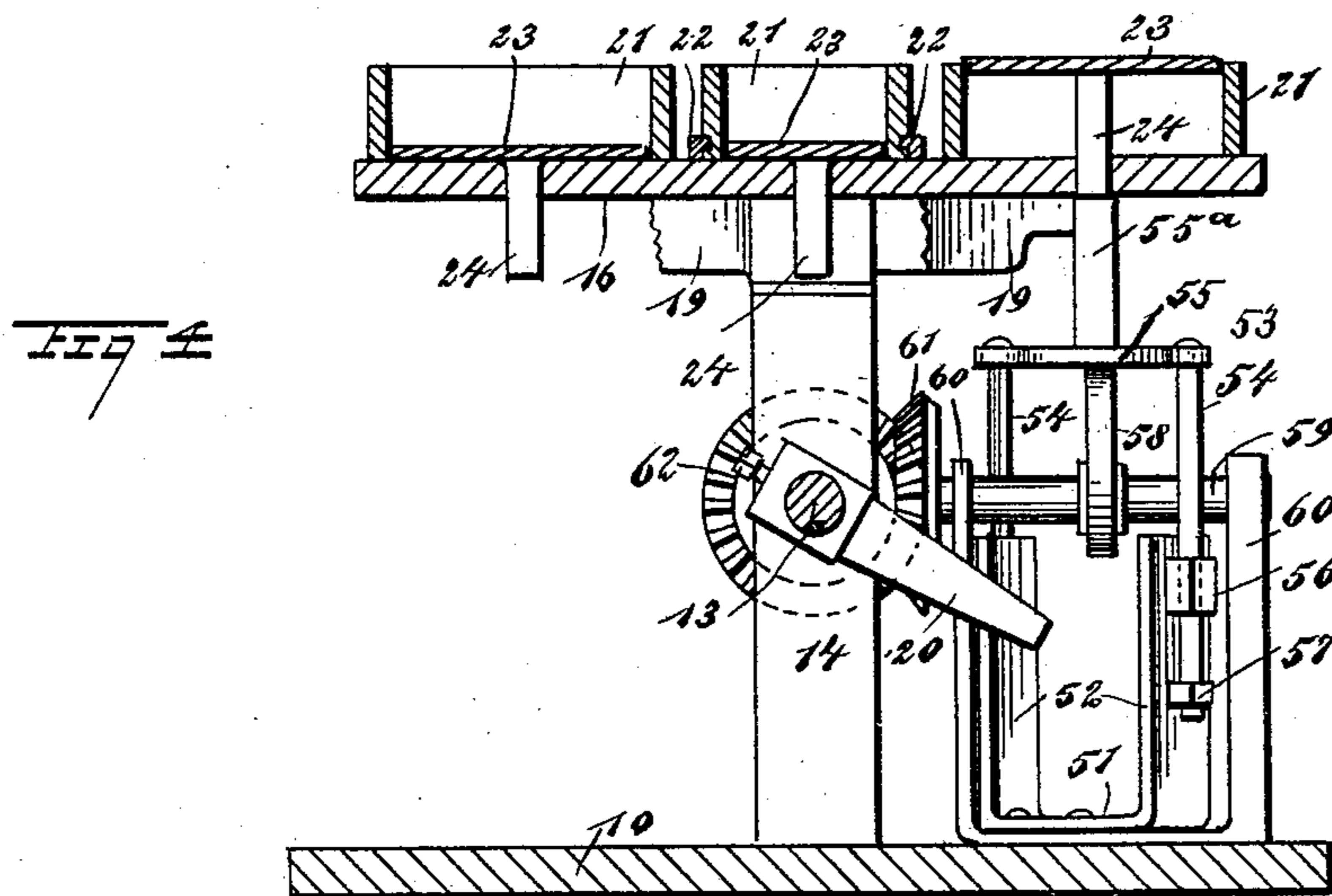
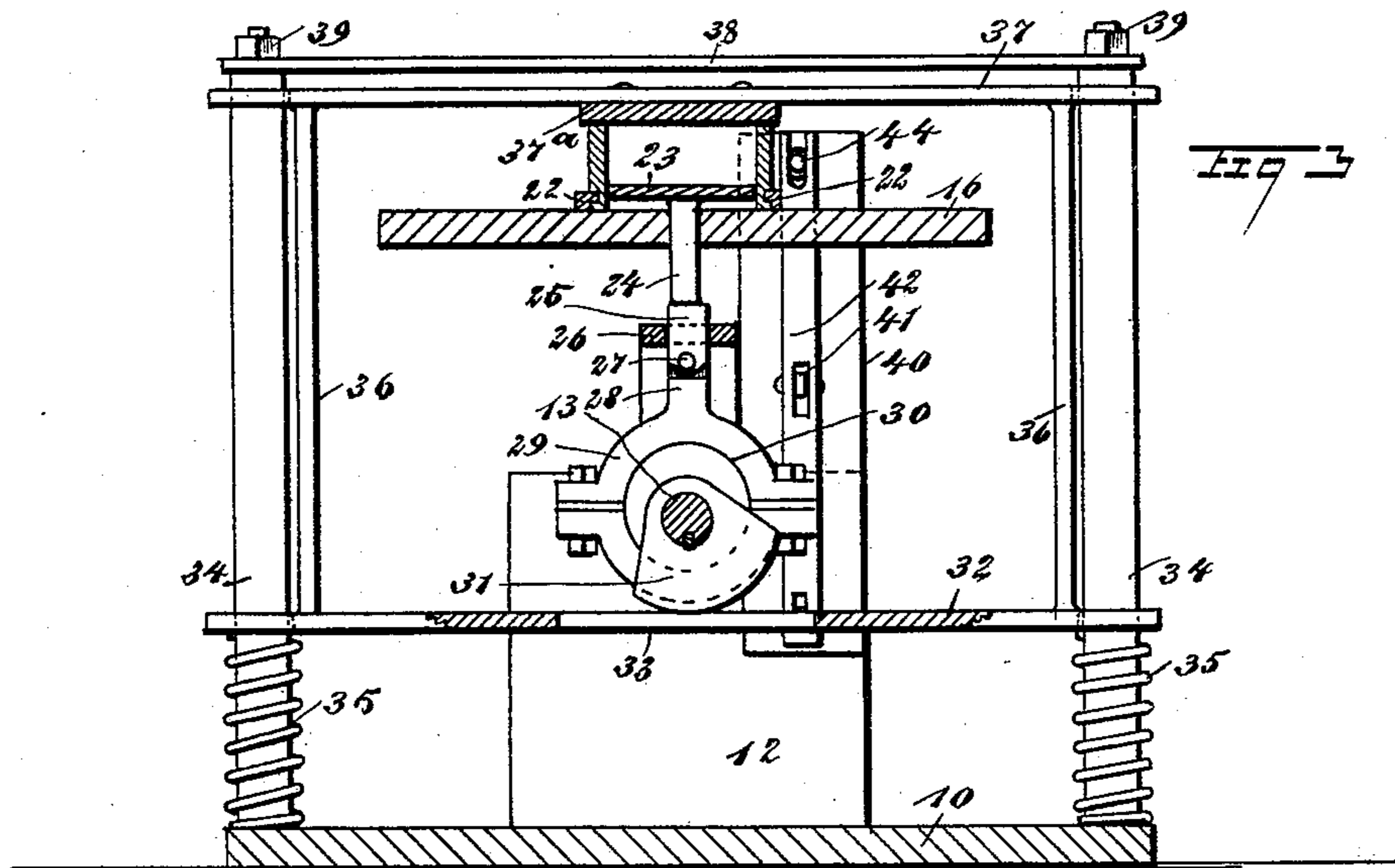
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UNITED STATES PATENT OFFICE.

HOWARD HARLAN, OF RENOV, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND GEORGE R. MCCREA, OF SAME PLACE.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,248, dated September 6, 1892.

Application filed March 5, 1892. Serial No. 423,852. (No model.)

To all whom it may concern:

Be it known that I, HOWARD HARLAN, of Renovo, in the county of Clinton and State of Pennsylvania, have invented a new and Improved Brick-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in brick-machines; and the object of my invention is to produce a cheap, simple, and durable machine which may be easily operated and by means of which clay may be rapidly and firmly pressed into the form of bricks and automatically ejected from the brick-molds.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the machine embodying my invention. Fig. 2 is a vertical section on the line 2 2 in Fig. 1. Fig. 3 is a vertical section on the line 3 3 in Fig. 1. Fig. 4 is a cross-section on the line 4 4 in Fig. 1; and Fig. 5 is a broken detail section on the line 5 5 in Fig. 2, showing in detail the mechanism for releasing the table-locking dog.

The machine is provided with a substantial base 10, on opposite sides of which are produced vertical supports 11 and 12, in which the driving-shaft 13 is journaled. The driving-shaft extends through a central vertical post 14, which is reduced at its upper end, as shown at 15, and a table 16 is held to revolve on this reduced portion, the table having a thickened hub 17, which forms its bearing, and the table is held in place by a nut 18, which is screwed to the upper end of the reduced portion 15 of the post 14. The table has on its under side and near the center radially extending and depending flanges 19, which extend into the path of an arm 20, which is fixed to the driving-shaft, and the arm by striking the flanges successively revolves the table, turning it a fourth of a revolution at each stroke. There are four flanges on the table to enable it to be turned one-fourth of a revolution, the flanges corresponding with

the number of molds on the table; but if a greater or less number than four molds are used the number of flanges will be correspondingly increased or diminished.

On the top of the table and near the edge are brick-molds 21, these being arranged circumferentially, as shown in Fig. 1, and placed, preferably, at right angles to each other, and the molds have longitudinal grooves in their outer sides and near the bottom, which are adapted to receive the lugs 22 on the table-top, as best shown in Figs. 2 and 3, the lugs serving to fasten the molds, and this construction enables them to be easily attached to or removed from the table. Each mold is the size of a brick, and in each mold is a vertically-movable plunger 23, having a depending stem 24, which projects downward through the table. The purpose of these stems is to enable the plungers to be operated and the bricks compressed and ejected. Beneath one side of the table 16 and near one end of the driving-shaft 13 is a vertically-movable post 25, which is held to slide in a guide-bar 26, extending from the support 12 to the post 14, as shown in Fig. 2, and this slide-post is hinged, as shown at 27, to a vertical arm 28 on the eccentric-strap 29, which eccentric-strap is of the usual kind and is fastened upon an eccentric 30 on the driving-shaft 13. It will thus be seen that when the eccentric is revolved and the arm 28 moved upward the slide-post 25 will be also moved, and this slide-post is arranged so that it will register with the stem 24 of the ejecting-plunger 23, which happens to be above it, and consequently the plunger will be raised by the slide-post; but the movement of the slide-post is limited, so that it will only move the plunger a little, the movement being sufficient to compress a brick, as described below.

On each side of the eccentric 30 and keyed to the driving-shaft 13 is a segmental cam 31, the cams being arranged to act in unison and to strike the upper side of a plate 32, which extends transversely beneath the driving-shaft 13, the plate being slotted in the middle, as shown at 33, to provide for the movement of the eccentric-strap 29. The plate 32 is held to slide on guide-posts 34, erected on opposite sides of the base 10, and the plate

is normally pressed upward by springs 35, which are coiled around the guide-posts beneath the plate. Near the ends of the plate are rods 36, which extend upward parallel with the posts 34 and which connect with a top plate 37, this being arranged parallel with the plate 32 and having its ends slotted, so that it may slide on the posts 34. The plates 32 and 37 and the connecting-rods 36 thus form a vertically-movable frame. The top plate 37 extends centrally across the mold 21, which happens to be above the eccentric 30, and secured to the under side of the plate is a cover-mold 37^a, which registers with the several molds 21 as they are brought beneath it, and which is adapted to force the clay in the mold downward, so that it will be squeezed between the cover-mold 37^a and the plunger 23. The upward movement of the top plate 37 and the frame of which it forms a part is limited by a cross-bar 38, which is secured to the top of the posts 34 by means of the nut 39. The cams 31 are timed in relation to the eccentric and eccentric-strap, so that they will press downward on the plate 32 at the same time the slide-post 25 is pushed upward against the stem 24 of the plunger 23, and consequently the cover-plate 37^a and plunger 23 will have a coinstantaneous movement toward each other, and the clay which is in the mold 21 will thus be firmly compressed. It is necessary to provide means for stopping the table 16, so that the molds 21 will successively stop beneath the cover-mold 37^a, and to this end the following mechanism is employed: An upright 40 is erected on the support 12, and pivoted to an inwardly-extending lug 41 on the upright is a dog 42, the lower end of which is slotted and held to slide on a guide-pin 43, secured to the upright, and the upper end of the dog is also slotted and held to slide on a guide-pin 44. The upper end of the dog is normally pressed outward by a spiral spring 45, coiled around the pin 44 between the dog and the upright 40, and the upper end of the dog is thus pressed against the edge of the table, so as to successively engage the notches 46 in the edge of the table, these notches being produced adjacent to one side of the molds 21 and the dog and notches when they come into engagement will stop a mold, so that it will be directly beneath the cover-mold 37^a. To release the dog and permit the inward movement of the table, a wedge-shaped cam 47 is used, this cam being secured to the driving-shaft 13 by means of the clamping-pieces 48 and 49, the piece 48 being formed integral with the cam, and the clamping-pieces are held to the driving-shaft by bolts 50. When the driving-shaft is turned, the cam 47 is forced between the lower end of the dog 42 and the upright 40, and the lower end of the dog is thus pushed inward and the upper end outward, so as to release the table.

The following mechanism is employed for ejecting the bricks after they are pressed in the manner described: On one side of the

base 10 is a U-shaped support 51, the vertical arms 52 of which carry a sliding frame 53, which frame comprises the vertical side bars 54 and the connecting top plate 55. The side rods 54 are held to move in keepers 56 on the vertical arms 52, and the upward movement of the frame is limited by nuts 57, secured to the lower end of the side bars. The top plate 55 has a post 55^a thereon, which is adapted to register with the stem 24 of one of the mold-plungers 23, and consequently when the frame 53 is pushed upward the post 55^a will be raised and the plunger 23 will be lifted to the top of the mold 21, as shown clearly in Fig. 4. The movement of the frame 53 is effected by a segmental cam 58, which is secured on the counter-shaft 59, this being journaled in uprights 60 and extending at right angles to the driving-shaft 13, the two shafts being connected by the bevel gear-wheels 61 and 62, so that the movement of the driving-shaft will be transmitted to the counter-shaft. The ejecting mechanism is placed one-fourth way around the machine from the compressing mechanism, so that after a brick has been pressed it will be ejected at the next movement of the table. The shaft 13 and the parts connected thereby are driven by any suitable power or connections, the shaft, as shown in the drawings, having a gear-wheel 63 at one end, which meshes with a gear-wheel 64 on a shaft 65, and the latter is driven by a pulley 66, but may be turned by a crank, if desired.

The operation of the machine is as follows: The clay is placed in the molds 21, the plungers 23 being at the lower parts of the mold, and when a mold comes beneath the cover-mold 37^a the clay therein will be compressed in the manner described, and after it is compressed the arm 20 on the driving-shaft will strike a flange 19 and turn the table a quarter-way round, thus bringing another mold 21 beneath the cover-mold 37^a and carrying the first mold around above the ejecting-frame 53, and the continued movement of the shaft will raise the cam 58 and frame 53, thus lifting the plunger 23 in the manner described and raising the pressed brick from its mold.

From the foregoing description it will be seen that the machine may be easily operated and that the clay will be firmly compressed and easily ejected.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the turn-table having a series of molds provided with plungers, the stems of which extend down through the table, projections on the under side of the table, a latch for locking the table, and a cover under which the molds are successively brought, of a transverse shaft beneath the table, provided with an arm to strike said projections and move the table intermittently, an eccentric also on said shaft to actuate the plungers as they are brought over it, a cam also on said shaft to release the latch, and a

vertical slide to act on the mold-plungers and cause them to discharge the molded article, and a counter-shaft from which said slide is actuated and geared to the main shaft, substantially as set forth.

5 2. The combination, with the turn-table, its molds, and bottom plungers, of a transverse shaft having an eccentric 30 and a vertical plunger-operating slide 25, actuated there-
10 from, a cam 31, parallel with the eccentric, posts 34 34, extending above the table, springs 35 on the lower ends thereof, the vertical frame sliding on the said posts and resting on the springs, the top cross-bar 37 of the
15 frame crossing the table and provided with a mold-cover 37^a and the lower cross-bar 32

being acted on by the cam 31, and an arm on the drive-shaft for rotating the table, substantially as set forth.

3. The combination, with the revoluble ta- 20
bles carrying brick-molds and having compressing and ejecting mechanism for the molds, of flanges produced on the under side of the table, a revolving driving-shaft ex-
tending horizontally beneath the table, and 25
an arm secured to the shaft and adapted to engage the flanges, substantially as described.

HOWARD HARLAN.

Witnesses:

T. M. MURRAY,
JAS. R. SHUSTER.