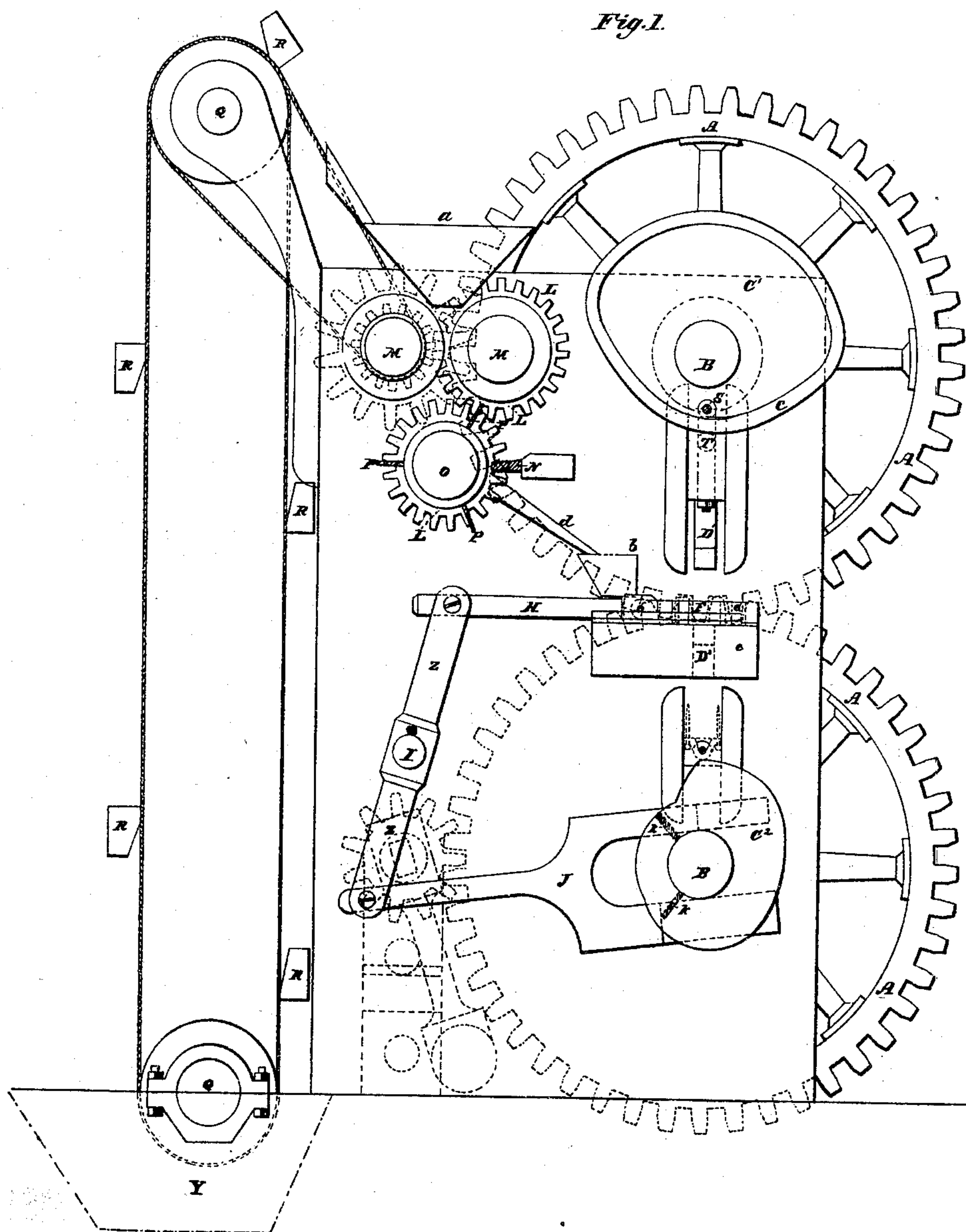


B. H. BROWN.

BRICK MACHINE.

No. 3,770.

Patented Oct. 3, 1844.

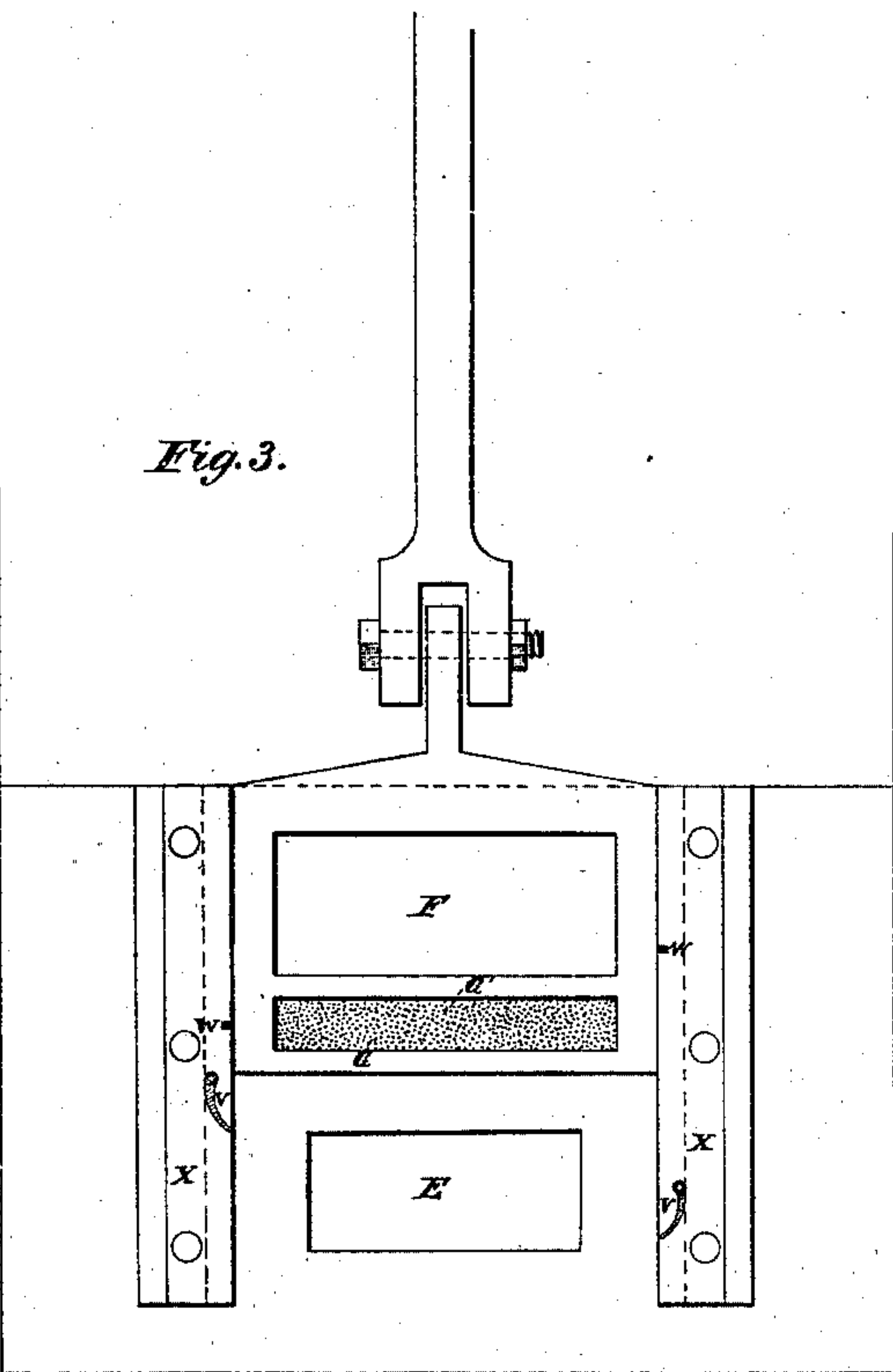


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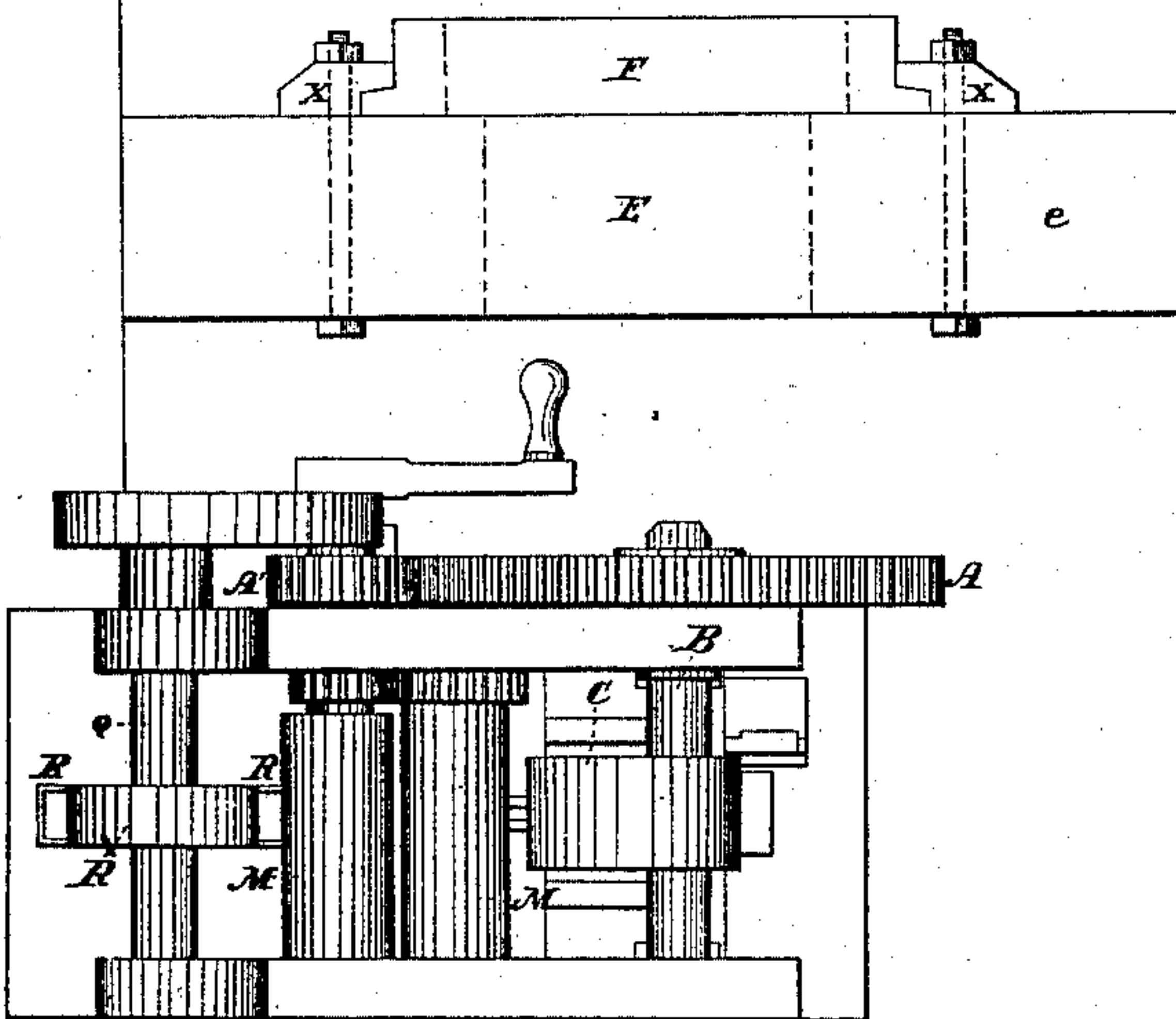
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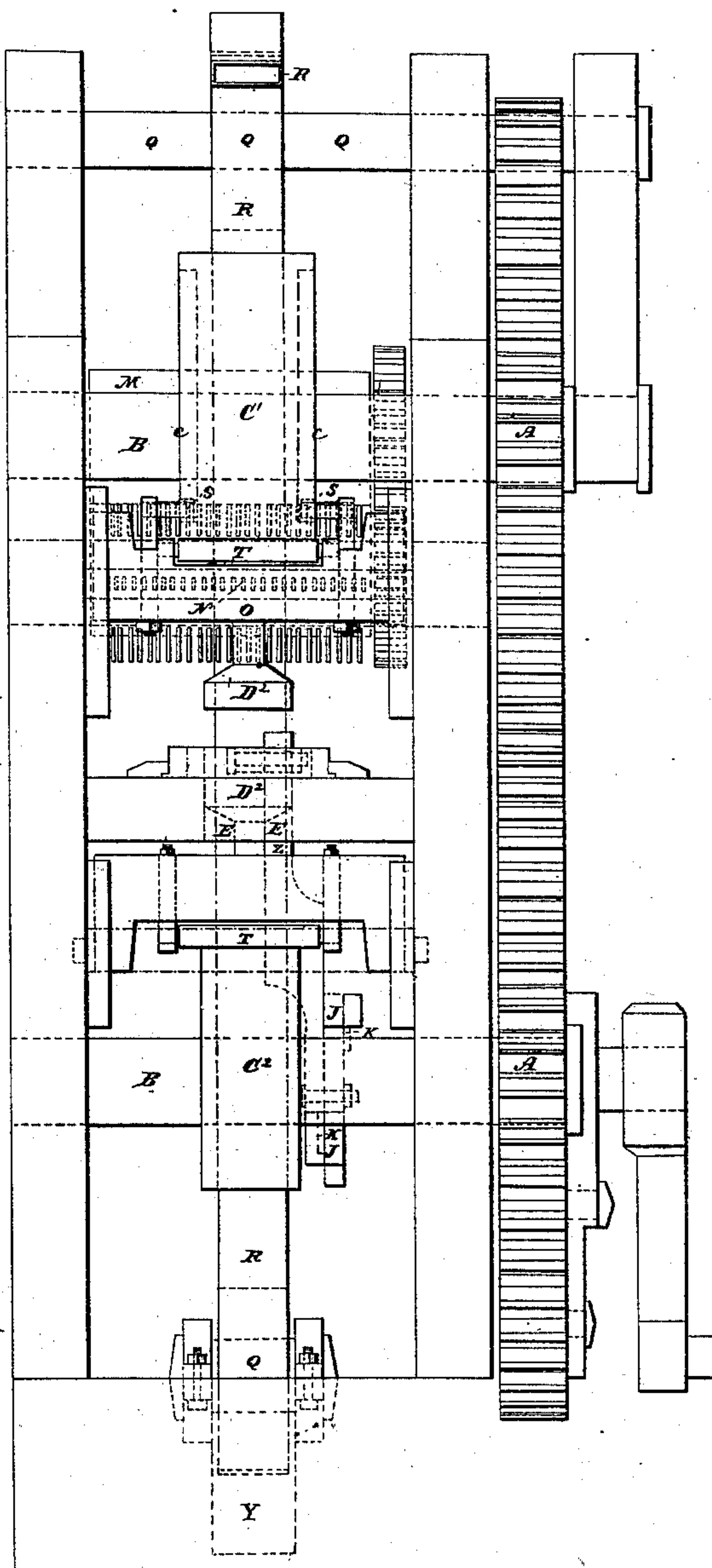
*Fig. 3.*



*Fig. 4.*



*Fig. 2.*





# UNITED STATES PATENT OFFICE.

BENJAMIN H. BROWN, OF PHILADELPHIA, PENNSYLVANIA.

## BRICK-PRESS.

Specification of Letters Patent No. 3,770, dated October 3, 1844.

*To all whom it may concern:*

Be it known that I, BENJAMIN H. BROWN, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful machine for making bricks from clay as taken from the bank without the process of tempering, which bricks are set immediately in the kiln from the machine; and I do hereby declare that the following is a clear, full, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side view or longitudinal section; Fig. 2, an end view or transverse section; Fig. 3, an enlarged plan and end view of the filler; Fig. 4, top view.

A A are the driving wheels.

B, B, are the main shafts. C' C<sup>2</sup> are the cams.

D' D<sup>2</sup> are the pistons.

E is the mold. F is the filler.

G is the dust box with a seive bottom.

H is the connecting rod.

I is the rock shaft. J is the cam rod.

K, K, are cams or cogs.

L L L are cog wheels of the pulverizers or cylinders.

M, M, O, are clay rollers and revolving teeth.

N is a stationary row of teeth.

O is a revolving cylinder with teeth P P P.

Q Q Q is the elevator, shaft and pulleys; R R, the elevator, strap and buckets; S, S, hook bolts with rollers, used for raising the upper piston; T T friction rollers on which the cams work; V, V, tap springs for cleaning or shaking the dust box; W, W, pins used for working the tap springs; X X filler guides; *a*, clay hopper; Z Z, lever or arm on rock shaft. And to enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I make the upper cam (C') sufficiently eccentric to cause the piston D' attached to it to descend into the mold E equal to five eighths the thickness of the brick to be molded, then turning on a circle equal to one third the revolution while the lower cam C<sup>2</sup> is ascending the remaining three eighths to make the brick the required thickness in the same third of the revolution; then both cams ascending with equal velocity retaining the pressure on the brick

until the top of the brick is raised even with the upper surface of the mold when the upper cam C' increases in velocity and causes the upper piston D' to separate from the brick so that by the time the brick is raised to the top of the mold E there is sufficient space for the filler F to come out and back the upper cam retaining the piston up for that purpose which is effected by the hook bolts S in the piston D and the flange C on the eccentric. When the brick is brought to the top of the mold, the point of the lower cam C<sup>2</sup> retains the piston D<sup>2</sup> in that position until the brick is shoved off by the filler F and its surface dusted by the duster G and the clay on it; the piston then descending by its gravity to its place carrying the clay with it, thereby preventing the coarse and fine clay from separating, as in case the piston drops before the clay is on it as in some machines; the fine clay settling at the first side of the mold, the lumps or coarse clay running to the other side, thereby getting an unequal quantity of clay in the two sides, the brick is necessarily imperfect. The dust box G in front of the filler has a fine seive G' for its bottom and being filled with dust, as it passes over the piston outward it dusts the face and prevents the clay from sticking and as it goes back it dusts the top of the clay filled into the mold upon the lower piston and prevents it sticking to the upper piston. I place a spring V V on either side of the filler, that will at the proper times by means of the pins W W jar the filler alternately as it goes out and back for the purpose of passing the dust more freely through the seive. I give motion to the filler by means of the two cams or cogs K K on the lower shaft B operating on a forked rod J attached to one end of a vibrating lever or arm Z Z on a rock shaft I with a connecting rod H connecting the other end of the arm or lever with the filler. The clay pulverizes by passing between the two rollers M M of equal diameter, running at different rates of speed (as 3 to 1) effected by gearing A' L<sup>2</sup> which tends to draw the clay through in thin cakes which fall on the row of stationary teeth N and are cut up by the revolving teeth P, P, P. The clay is deposited at first from the bank into the hopper Y taken up by the elevators R and passed to the rollers M by means of a spout and a coarse clay hopper *a* then passing be-



tween the rollers M M and teeth N and P is conveyed to the fine clay hopper *b* over the filler F by a spout *d*. The filler is made to fit sufficiently close to its bed *e* and the under side of the hopper as will prevent any clay from gathering on either side of the filler to prevent its free action.

The point of the lower cam ( $C^2$ ) is made the section of a semicircle for the purpose of holding the piston  $D^2$  up after the brick, which has just been molded and pressed, is raised to the top of the mold and pushed away by the filler F and until a fresh supply of clay from the filler is deposited on the top of the lower piston in the mold—the piston then descends by its gravity taking the clay thereon with it which operation prevents the particles of clay from separating and leaves it in a proper state for being pressed.

The mold E ordinarily contains about  $4\frac{1}{2}$  inches of loose clay, which is to be compressed to the size of a brick  $2\frac{1}{8}$  inches thick. The upper cam  $C'$ , is 6 inches eccentric which causes the piston  $D'$  to rise  $4\frac{1}{2}$  inches above the mold, (which leaves a sufficient space for the filler to move back and forth) and descends  $1\frac{3}{4}$  inches into the mold which is equal to  $\frac{5}{8}$  of the space to which the clay is to be compressed. The cam C then turns a section of a semicircle equal to  $\frac{1}{3}$  the revolution retaining the piston in its stationary position while the lower cam  $C^2$  is ascending  $\frac{5}{8}$  of an inch into the mold to finish the brick in the same  $\frac{1}{3}$  of a revolution. Then the upper cam recedes with equal velocity with that of the lower cam which will of course retain the pressure on the brick till the upper surface of the brick is even with the top of the mold, when the upper piston increases its velocity and the lower piston decreases its velocity so that when the brick has arrived at the top of the mold the upper piston is out of the way of the operation of the horizontal

sliding filler which then commences its office of pushing the brick toward the offbearer and at the same time dusting the top of the lower piston and depositing the clay thereon being divided at the mold by a partition *p* into two chambers one will be a perforated bottom or sieve G for the dust, and the other F without any bottom for the clay, the bed E forming its bottom while receiving the clay from the hopper.

The rollers M for pressing the clay should be made about 12 inches in diameter and about 30 inches long and placed scant  $\frac{1}{8}$  inch apart which will be equal to the thickness of the sheet of clay rolled out between them and delivered to the pins N to be again broken up into small particles previous to being delivered to the feeding hopper of the filler aforesaid. The teeth both stationary and revolving should be about  $\frac{1}{8}$  inch thick and 2 inches long by one inch wide.

The several parts of the machine may be made of any suitable material and of any convenient size or proportion to suit the views of the constructor.

I do not claim the use of cams for operating the pistons in pressing brick, nor do I claim the manner in which the bricks are received, compressed, and delivered; but

What I do claim as my invention and which I desire to secure by Letters Patent is—

1. The arrangement of the two cams  $C'$   $C^2$  for effecting the pressure and delivery of the bricks in combination with the pistons  $D'$   $D^2$  and movable mold F.

2. I also claim the combination of the rollers M M and pins N, P for pulverizing the clay as above described.

B. H. BROWN. [L. s.]

Witnesses:

ALWIN MILLAR,  
ALBERT SCOTT.