

J. S. THOMAS.
Brick-Machines.

No. 140,742.

Patented July 8, 1873.

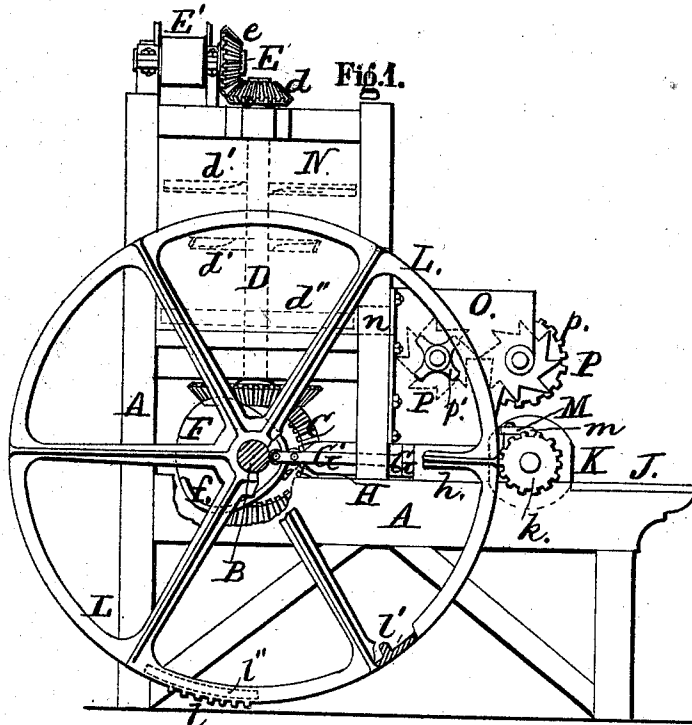


Fig. 2.

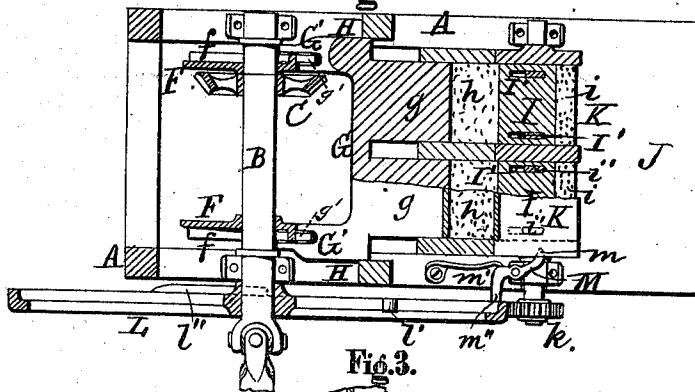
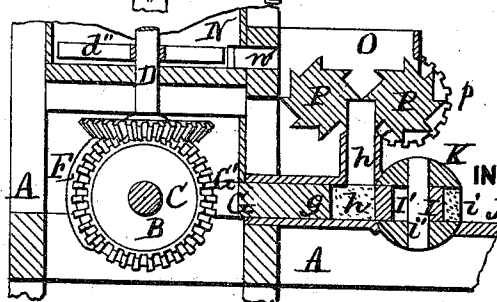


Fig. 3.



ATTEST.

Walter Allen
H. F. Tanner.

INVENTOR.

John S. Thomas
By Knight, Bro.
Atty.

UNITED STATES PATENT OFFICE.

JOHN S. THOMAS, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **140,742**, dated July 8, 1873; application filed May 27, 1873.

To all whom it may concern:

Be it known that I, JOHN S. THOMAS, of St. Louis, St. Louis county, Missouri, have invented a certain Improvement in Brick-Machines, of which the following is a specification:

The first part of my invention consists in a mold-cylinder having diametric mortises the length and breadth of a brick in their transverse section, and containing plungers which move the distance of the thickness of a brick or more in the mortises, so as to alternately present a cavity on the opposite sides of the cylinder to receive the clay, which is pressed therein by a follower, whose entrance and pressure of the clay drives the plunger forward and expels the previously-pressed brick from the other side, the cylinder taking a semi-rotation between the movements of the follower. The second part of my improvement consists in arranging on the balance-wheel a cog-segment, which, at each rotation of the balance-wheel, engages a spur-wheel on the mold-cylinder shaft, and gives the cylinder a semi-rotation to present the other side to the cam-operated plunger, by which the clay is forced into the mold, the clay acting on the interior plunger to force out the brick from the molds on the other side. The third part of my improvement consists in the combination of a single tooth on the inside of the balance-wheel with two forwarding ribbed rollers, by which a proper amount of clay is forced into the box between the cam-plunger and the mold before each forward movement of the plunger, so that the supply of clay shall always be at the proper time and in proper quantity. The fourth part of my improvement consists in the combination of the mold-cylinder having plungers therein and the cam-plunger, arranged as described.

Figure 1 is a side elevation of my improvement with parts removed. Fig. 2 is a horizontal section through the molds, but showing some part of the mold-cylinder in top view to show the spring-catch. Fig. 3 is a longitudinal vertical section.

A is the frame of the machine supporting a main shaft, B, to which horse or steam power may be applied. On the shaft B is a bevel-wheel, C, which engages with a similar wheel

on a shaft, D, carrying at the top a bevel-wheel, *d*, engaging with bevel-wheel *e* upon the shaft E of the conveyer E', which may consist of a flat-ribbed or smooth continuous belt, driven by the pulley on shaft E and extending to the clay supply, where the clay is shoveled on the conveyer. The main shaft carries two cams, F, by whose periphery the plunger G is forced forward. These cams have flanges *f*, which engage projections G' of the plunger G, the said projections carrying anti-friction rollers *g'*, on which the flanges act directly to draw back the plunger. The plunger travels between horizontal slides H. On its forward end are followers *g*, whose front face has equal dimensions with the side of a freshly-pressed brick. These followers travel in open-topped boxes *h*, and at each forward movement of the plunger enter molds *i* in the side of the mold-cylinder K carrying a proper amount of clay into the molds and compressing it therein. The mold-cylinder K is mortised through diametrically the full size of the molds *i*, and the mortises (of which two are shown) contain plungers I, which are so much shorter than the mortises in which they slide as to leave (when flush with one side upon the other side) a mold-recess, *i*, to receive the clay. As the clay enters the mold it forces forward the plunger I and ejects the pressed brick from the mold on the other side of the cylinder, the pressed bricks being forced out onto the table J. The plungers have horizontal slots I' traversed by stop-pins *i'* passing diametrically through the cylinder, and which limit the movement of the plungers by impingement against the ends of the slots I'. The mold-cylinder receives motion from a segment-rack, *l*, on the balance-wheel L, the segment-rack engaging a cog-wheel, *k*, on the shaft of the said cylinder. The rack *l* is provided with a sufficient number of teeth to cause the cylinder to take a semi-rotation at each action of the rack, so as to present its other side to the followers *g* for the molds (from which the pressed bricks had been forced) to receive a fresh supply of clay, and to carry the filled molds to a position to deposit their bricks upon the table J, when the plunger I is driven forward by the clay in entering the mold *i* upon the rear side of the cylinder. These semi-

rotations of the cylinder are made certain and the cylinder held in position during the action of the plungers by a spring-catch, M, having a point, *m*, entering the end of the cylinder, being forced in by a spring, *m'*, when the cylinder has attained the proper position to receive the clay in the molds upon one side and to eject the bricks from the other side. The clay is carried by the conveyer E' and dropped into the pug-mill, which consists of a hopper, N, surrounding the shaft D, which carries mixing-knives *d'*, and a forwarder, *d''*, by which the clay is forced out through the mouth *n* and into the hopper O, beneath which are ribbed rollers P, each of which carries a spur-wheel, *p*, said spur-wheels engaging together to give the rollers a simultaneous rotation in opposite directions. One of the shafts of the rollers P carries a spur-wheel, *p'*, which, at each rotation of the balance-wheel L, is engaged by an interior cog, *v'*, of the balance-wheel, and the rollers by it receive a partial rotation. The rollers P and their longitudinal ribs are made of such size and form and their movement is made at such a time that on each backward movement of the followers *g* they force down a sufficient quantity of clay to form the next filling of bricks, (consisting, in the machine shown and described, of two bricks, but the number made at each operation may vary.)

The operation is as follows: The machine being in motion, the clay drops from the conveyer E' into the hopper N, and is mixed by the knives *d'* and expelled from the hopper by the forwarder *d''* into the hopper O, from whence it is carried down at intervals (as wanted) by the rollers P into the boxes *h* between the followers *g* and the molds *i*, and on the forward movement of the followers *g* the clay contained in the boxes *h* is forced into the molds *i*, forcing forward the plungers I

and ejecting the bricks from the opposite molds *i*, which are on the front side of the cylinder. The cylinder K and followers now rest a short time in this position to press the brick and allow the escape of air; but the continued rotation of the cams F brings the flanges *f'* behind the projections G' and draws the followers backward from the molds. Then the lug *l''* on the side of the wheel L comes in contact with the heel *m''* of the catch M and draws out its point *m* from engagement with the cylinder K, and the segment *l* immediately following gives to the cylinder a half rotation by the spur-wheel *k*, carrying the pressed brick into position for ejection.

I claim as my invention—

1. The combination of the cylinder K, plungers I, and followers *g*, the plunger being actuated by the pressure of the incoming clay and controlled by stop-pins *i'*, substantially as and for the purpose set forth.

2. The combination of the cylinder K provided with the plungers I and the segment-rack *l* on the wheel L, arranged and operating substantially as and for the purpose set forth.

3. The combination of the cylinder K, spring-catch M, balance-wheel L, and lug *l''*, all arranged and operating substantially as set forth.

4. The combination of follower *g*, box *h*, rollers P, and balance-wheel L provided with tooth *l'*, all arranged and operating substantially as and for the purpose set forth.

5. The combination of the mold-cylinder K, plunger I, box *h*, plunger G, and cams F, arranged and operating substantially as set forth.

JOHN S. THOMAS.

Witnesses:

SAML. KNIGHT,
ROBERT BURNS.