

*J. Grant,
Brick Machine.*

N^o 8,093.

Patented May 13, 1851.

Fig 1

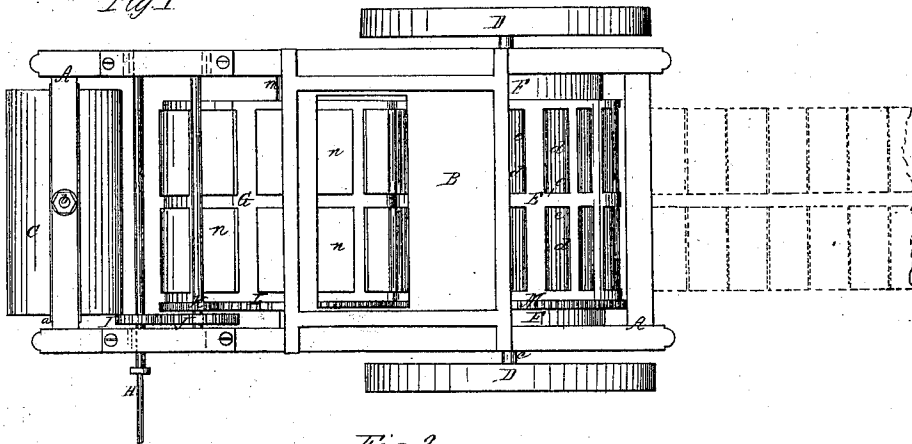


Fig 2

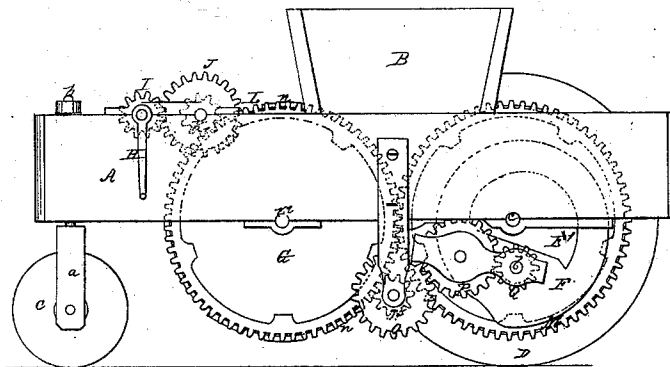


Fig 3

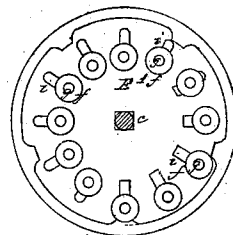


Fig 4

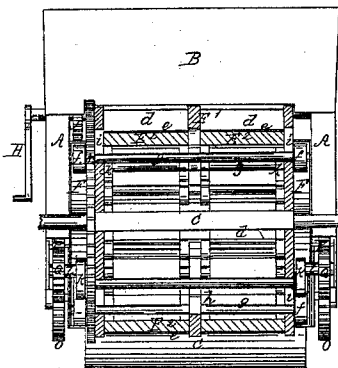


Fig 5

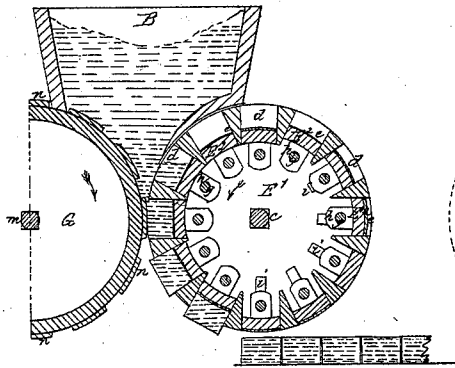
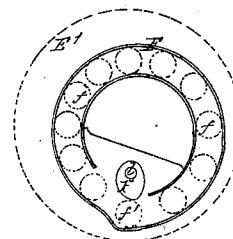


Fig 6



UNITED STATES PATENT OFFICE.

J. GRANT, OF PROVIDENCE, RHODE ISLAND.

BRICK-PRESS.

Specification of Letters Patent No. 8,093, dated May 13, 1851.

To all whom it may concern:

Be it known that I, JOSEPH GRANT, in the city and county of Providence and State of Rhode Island, have invented new and useful

5 Improvements in a Machine for Making Bricks, which I denominate the Rotary and Locomotive Brick-Machine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

15 Figure 1, is a plan. Fig. 2, is a side elevation with one of the propelling wheels removed. Fig. 3, is an end view of the mold cylinder. Fig. 4, is a transverse vertical section of the machine, seen from the back, showing the mold cylinder in longitudinal section. Fig. 5, is a transverse sectional elevation of the mold and pressing cylinders in part, with hopper attached; appearing as in operation. Fig. 6, is a view in detail of a grooved channel and cam used in working the followers.

25 The same letters of reference denote similar parts throughout the several figures.

The nature of my invention consists in the use of two cylinders set horizontally in a suitable framing and revolving in opposite 30 directions, being driven by gearing, which also propels the machine forward as the brick is being made. One of these cylinders is fitted with molds, working in which are followers, forming the bottom of the molds, and operated by rollers moving in fixed 35 grooved channels and by cams producing the drop motion. The second or pressing cylinder is provided with plates working and fitting into the molds of the other cylinder, pressing the clay, which is fed from a hopper above and between the two cylinders; the clay being drawn into the several molds by its own weight and the revolving motion of the cylinders, and the bricks deposited on 40 the ground, or surface prepared for them, in regular layers or line as the machine moves forward. A roller in front clears or prepares the ground or surface on which the bricks are to lay.

50 The followers in the molds are covered with cloth or similar material to prevent the clay or soft bricks from adhering to them, the machine being worked by hand or other power.

55 To enable others skilled in the art to make

and use my invention, I will proceed to describe its construction and operation.

A, A, is the frame of the machine; B, the hopper through which the clay is fed; C, a leveling roller, serving to carry the machine, 60 and to clear or prepare the yard for deposit of the bricks. It works in a strap *a*, having a swivel spindle *b*, to admit of the machine being moved about in any direction.

D, D, are traveling or propelling wheels 65 fitted on the mold cylinder shaft *c*, and turning with it.

E' is the mold cylinder keyed fast to the shaft *c*. It is made of iron or other suitable material and has on its circumference or 70 surface spaces *d, d, d*, forming the molds, the number of molds is not limited to two rows as shown in the drawing but will be dependent upon the length of the cylinders as well as the diameter, each mold or space 75 *d, d, d*, being only of the length of the brick so that the machine may, if required, be constructed to form three or more layers.

E², E², E², are followers or plungers working inward forming the bottom of the 80 molds. They are covered on their top with fine cloth *e, e, e*, and are of length and breadth so as to fit loose in the molds *d, d, d*, in which they move, motion being given to them by the rollers *f, f, f*, which turn on 85 spindles *g, g, g*, running through the cylinder E', lengthwise, passing through slots *i, i, i*, at both ends. The spindles *g, g, g*, are connected to the followers E², E², E², by pieces *h, h, h*, attached to them, through 90 which the spindles *g, g, g*, pass; the rollers *f, f, f*, as the cylinder E' is caused to revolve, moving in fixed grooved channels F, F, secured to the framing A, A; the interior of one of which is seen in Fig. 6, being 95 positioned with relation to the cylinder E', in the manner of an eccentric, one at either end, but differing from an eccentric in their being made of a scroll or irregular curve formation; the rollers *f, f, f*, traveling in 100 the grooved channels F, F, cause the followers E², E², E², to move in the molds *d, d, d*, the followers at their bottom stroke leaving a space in the mold equal to or rather exceeding the thickness of a brick and 105 when forced out working nearly to the outer edge of the mold.

k, k, Figs. 4 and 6, are cams attached to shafts *l, l*, and so positioned and set as to form as many revolutions for one revolution 110

of the cylinder E', as there are molds in a single row, causing the cams *k, k*, one at either end, to strike the rollers *f, f, f*, two together, that is one at either end, and so on for all the rollers successively. As they assume the position of *f'*, Fig. 6, causing the formed bricks to be shaken from their molds when arriving at a perpendicular position. The bottom of the mold cylinder E' is situated rather more than the thickness of a brick from the ground or yard surface.

G, is the pressing cylinder revolving in the opposite direction to the cylinder E'; it is keyed on the shaft *m, n, n*, are pressing plates fitted on the circumference or surface of the cylinder G, corresponding to the spaces or molds *d, d, d*, in the cylinder E', into which they fit or press the clay, they are made thicker at the edge first entering the mold, than the finishing or after edge as shown more particularly in Fig. 5.

H, is a handle for giving motion to the machine (but the arrangement may be such that steam or other power may be applied.)

I, is a pinion turned by handle H. It operates a wheel J, on the shaft of which is a pinion N, working into a wheel L, fitted fast to the side of the cylinder G. The wheel L, is in gear with a corresponding wheel M, attached to the cylinder E', the wheel L also drives a pinion N, on the shaft of which are wheels O, O, one at either end, working into similar wheels P, P, that drive pinions Q, Q, (fitted on the cam shafts *l, l*, which they operate.) The relative proportions of these several wheels and pinions are such as not only to obtain additional power but to operate the drop motion formed by the cams *k, k*, at a proper time, that is to strike the rollers when they assume the position of *f'*. Fig. 6, so as to release the brick, and likewise to operate the propelling or traveling wheels which are of a suitable relative diameter, so that the machine will move at a speed proportioned to the discharge of brick causing the bricks made, to be deposited regularly side by side in layers.

The operation is as follows: Clay being put into the hopper B, the handle H, is made to turn and by wheels and pinions I, J, K, L, M, and the cylinders E', G, are made to revolve in opposite directions as shown by arrows Fig. 5, drawing in the clay, partly forced by its own weight, into the molds *d, d, d*. The pressing plates *n, n, n*, entering the molds at their thick edge first, press, and together with the molds, form the brick. The plates *n, n, n*, leaving

the molds at their thin edge, obviate the tendency which the soft brick has of being pressed thinner at the side or edge receiving the last or latest impression. While the cylinders E', G, are performing this operation the machine through means of the propelling wheels D, D, is moving forward and the several followers or plungers E², E², E², are being worked by means of the rollers *f, f, f*, traveling in the fixed grooved channels F, F, which cause the followers or plungers E², E², E², to draw in for receiving the clay, and when the brick is made to be forced out, and so drive out the brick, which is further released from the mold by the action of the cams *k, k*, driven by the gearing N, O, O, P, P, Q, Q, the cams *k, k*, striking the rollers *f, f, f*, when arriving in the position of *f'*, Fig. 6, and dropping or shaking the brick from the followers which being covered with fine cloth or other similar material are not so liable to retain or cause the soft brick to adhere. The bricks are laid in the yard side by side and in perfect layers in the manner shown in Fig. 5, and in red lines Fig. 1, the number of layers being dependent upon the size of the machine or length of the cylinders E', G, which, may have one two three or more rows of molds and pressing plates.

This machine therefore not only makes bricks rapidly but of an equal thickness, sound and perfect, and by being locomotive can be moved about in any direction as convenience suggests, laying on the yard in regular order the bricks as made.

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

1. The form of the pressing plates *n, n, n*, thicker at one edge than the other, as shown, and for the purpose described.

2. The motion of the followers or plungers E², E², E², by rollers moving in fixed grooved channels F, F, and acted upon by revolving cams *k, k*, producing a drop movement and operating as herein shown and explained.

3. Propelling the machine forward by means of wheels D, D, keyed on the mold cylinder shaft for the purpose of depositing the bricks as made in regular layers for drying.

In testimony whereof I have hereunto signed my name before two subscribing witnesses this 21st day of November 1850.

JOS. GRANT.

Witnesses:

A. J. HODGES,
A. B. CROSSMAN.