

# B. Porter.

## Brick Machine.

No. 53,868.

Patented Apr. 10, 1866.

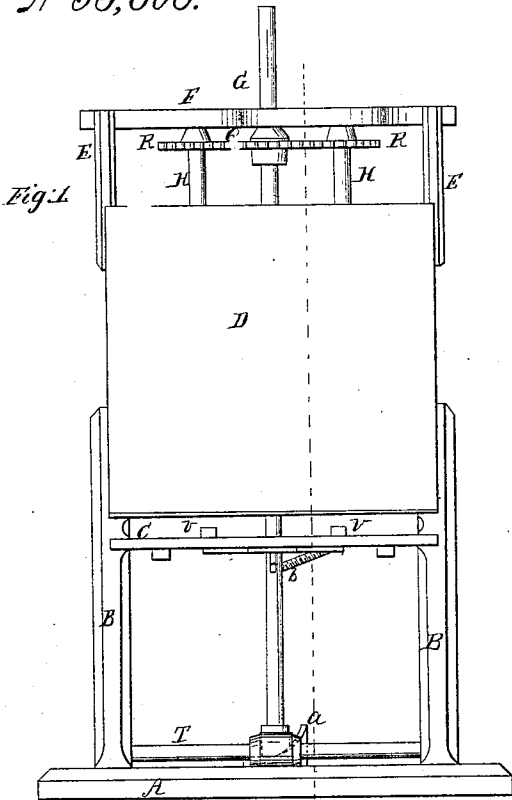


Fig. 1.

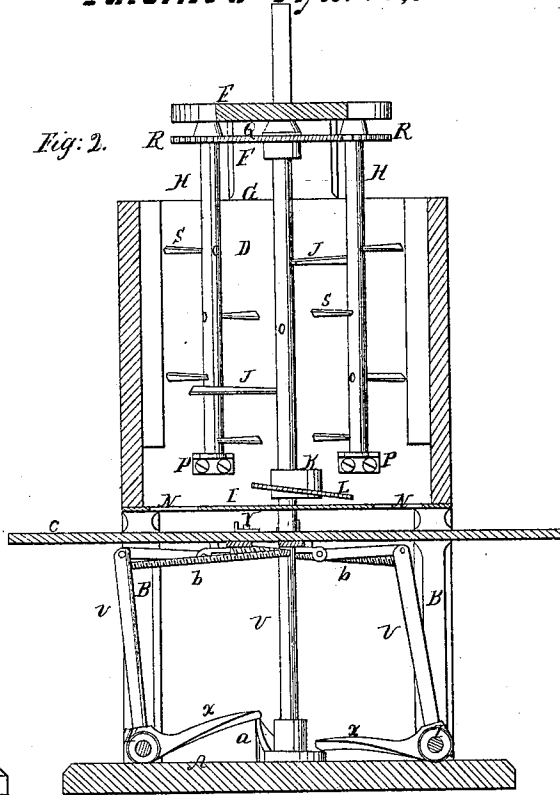


Fig. 2.

Fig. 3.

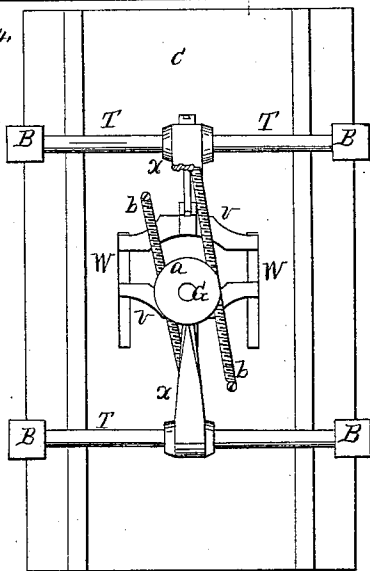
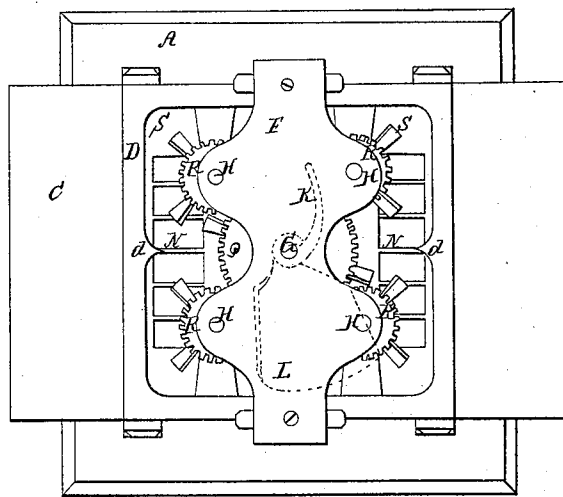


Fig. 4.



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# UNITED STATES PATENT OFFICE.

BENJAMIN PORTER, OF JACKSON, MICHIGAN.

## IMPROVEMENT IN MACHINES FOR GRINDING CLAY.

Specification forming part of Letters Patent No. 53,868, dated April 10, 1866.

*To all whom it may concern:*

Be it known that I, BENJAMIN PORTER, of Jackson, Jackson county, State of Michigan, have invented certain new and useful Improvements in Machines for Grinding Clay and Molding Brick; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention and improvements consists in combining with the central grinding-shaft, with arms or knives, one, two, or more auxiliary grind-shafts, with arms or knives working in the same box or pug-mill, for grinding the clay to make brick; and in some pieces on the inside of the grinding-box, to adapt it in some measure to the sweep of the knives which grind the clay, and in the peculiar arrangement of the mechanism to push out the molds when filled.

In the accompanying drawings, Figure 1 is an elevation of a machine for grinding clay and molding brick, with my improvements. Fig. 2 is a sectional elevation on the line *z z* of Fig. 1. Fig. 3 is a plan or top view, and Fig. 4 a view of the bottom of the machine with the base or platform A removed.

In these drawings, A is a base or platform, on which the four posts B B of the machine stand, and in which they may be fastened, to hold it firmly in its proper position. These posts B B support the table C and box D, in which the clay is ground to make the brick. This box D should be made firm and strong, and firmly fastened to the posts B B, to resist the action of the grinding machinery in it.

The standards E E are fastened to the sides of the box D, to support the top bar, F, in which the main shaft G turns, and also the auxiliary shafts H H.

A lever, pulley, or gear may be applied to the upper end of the shaft G to turn it and operate the machine. This shaft G extends down through the bottom I of the box D and table C, and is stepped in the platform A.

That part of the shaft G in the box D is armed with a series of arms or knives, J J, (seen in Fig. 2,) to cut, mix, and knead the clay put into the box.

The bent arm K on the shaft G is to throw or work the clay out from the shaft, and the broad inclined arm L presses the clay down through the holes N N in the bottom I of the box into the brick-molds placed under the box on the table C, to receive the clay and form the brick. The bottom I has two series of openings or holes, N N, near two opposite sides, which holes are made to correspond in form and size with the molds in which the brick are molded.

The upper ends of the auxiliary grinding-shafts H H turn in the top bar, F, and their lower ends turn in the stands P P fastened to the inside of the box D, and they are operated by the gear Q on the main shaft, which drives the gears R R on the shafts H H, as shown in Fig. 3. Each of these auxiliary grinding-shafts H H is provided with a series of arms or knives, S, set inclined, with their edges a little upward, so as to aid in grinding the clay and pressing it down through the holes N N into the molds under them, the table C being placed a proper distance below the bottom I of the box to allow the molds to be shoved in and pushed out when filled.

A series of molds are placed on the table C under the holes N N, and a second series of empty molds are placed on the table, between the molds, under the holes and the main shaft G; and to push the empty molds under the holes and push out those that are full from under the box onto the ends of the table which project beyond the box, so that they may be carried away and emptied, I fit some rock-shafts, T T, to turn in the posts B B, with arms U U extending up under the table C and connected to the traversing slides V V, the ends of which slides project through the slots W W in the table C, to act on the molds and push them out, when the arms X X from the rock-shafts T T are raised by the cam *a*, near the lower end of the shaft G, as shown in Fig. —; and after the apex of the cam *a* passes the arm X the spiral spring *b* draws the slide back from the mold pushed forward, so that an empty mold may be put in between the slide and the mold being filled.

There are some cleats or V-shaped pieces, *d d*, fastened perpendicularly midway of the sides of the box D D, on the inside, to in some measure adapt the form of the box to the

sweep of the knives which grind the clay in the box.

What I claim as my invention and improvement in machines for grinding clay and molding brick is—

1. In combination with the central grinding-shaft G and box D, the auxiliary grinding-shafts H H, substantially as described.

2. The cleats or pieces *d d* on inside of the box, substantially as described, for the purpose set forth.

3. The combination and arrangement of the rock-shafts T T, arms U U, slides V V, arms X X, and cam *a*, to push out the molds when required.

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Witnesses:

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