

S. M. Bartlett,

Tile Machine.

N^o 44,152.

Patented Sep. 13, 1864.

Fig: 1.

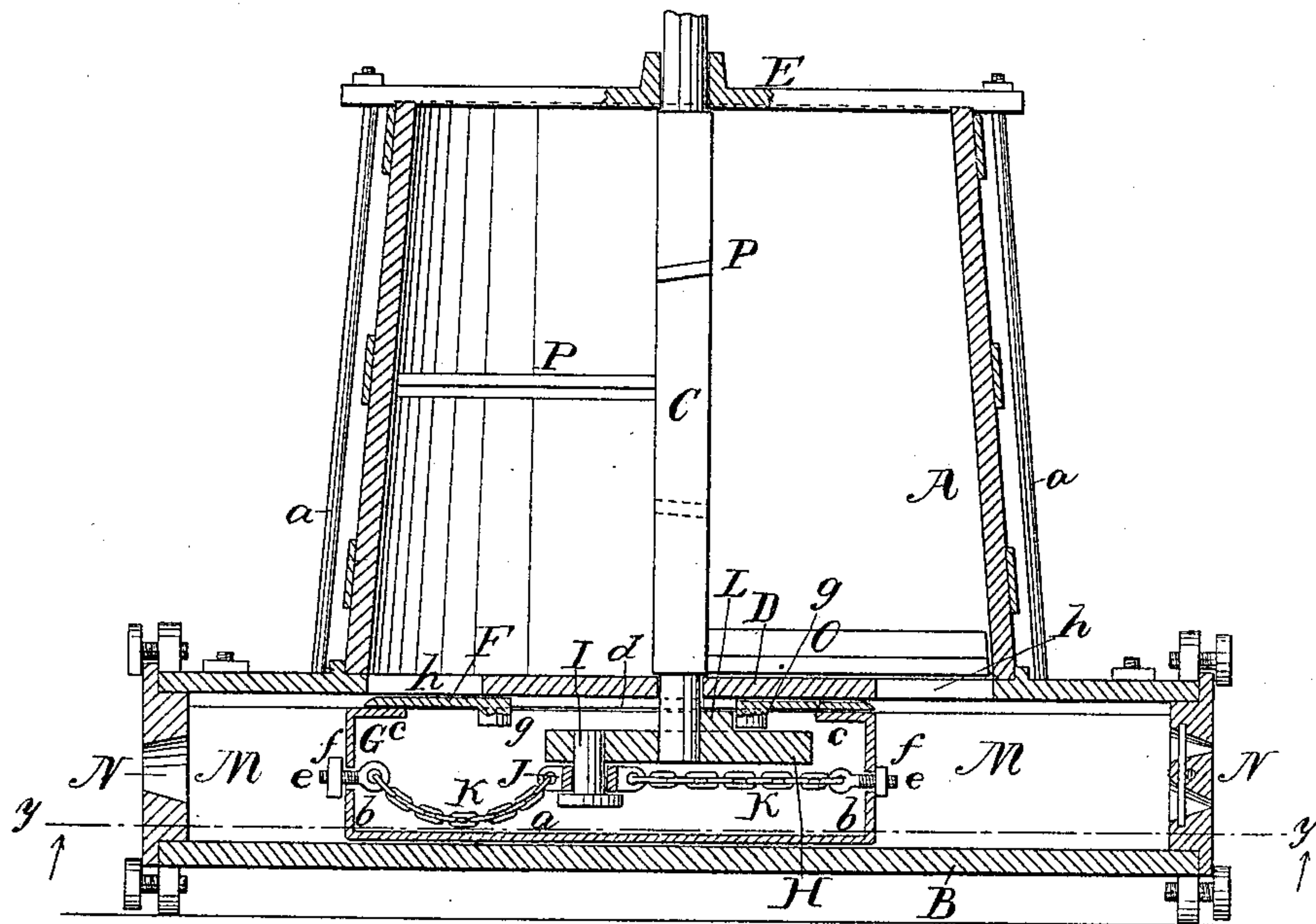
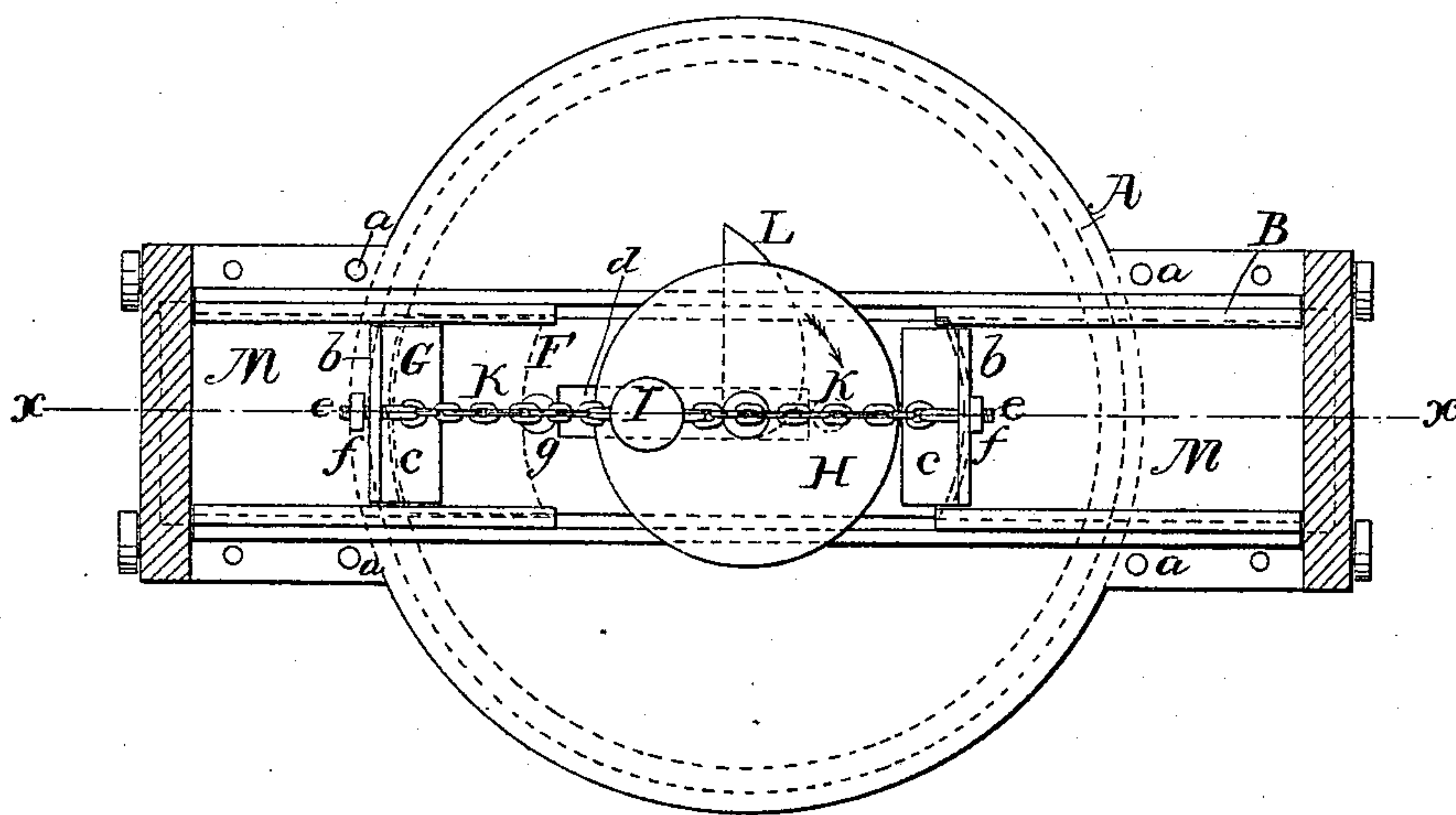


Fig: 2.



Witnesses;
James P. Hall.
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Per. [Signature]
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UNITED STATES PATENT OFFICE.

SAMUEL M. BARTLETT, OF LA SALLE, MICHIGAN.

IMPROVED TILE-MACHINE.

Specification forming part of Letters Patent No. 44,152, dated September 13, 1864.

To all whom it may concern:

Be it known that I, SAMUEL M. BARTLETT, of La Salle, in the county of Monroe and State of Michigan, have invented a new and Improved Tile-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, looking upward, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved machine for manufacturing tiles; and it consists in an improved means for operating the plunger and cut-offs, as hereinafter fully set forth, whereby several advantages are obtained over the tile machines now in use, as hereinafter specified.

A represents an ordinary clay or pug mill, which is placed on a cast-iron rectangular box, B, and secured thereto by screw rods *a* or any other suitable means.

C is a heavy iron shaft, placed centrally and vertically within the clay or pug mill, its lower end having a bearing in a bed-plate, D, at the bottom of the pug-mill and passing through said plate, the upper bearing of said shaft being in a plate, E, on the top of the pug-mill.

F represents a cut-off, composed of a metal plate which works under the bed-plate D and rests upon the plunger G, the latter being fitted within the box B of hollow or open form, it simply having a bottom, *a*, two vertical ends, *b b*, and a horizontal top piece, *c c*, at each end, there being no sides. The cut off rests upon the top pieces, *c c*, and it has an oblong slot, *d*, made in it to allow the lower end of the shaft C to pass through, said slot admitting of a requisite reciprocating movement of the cut-off. On the lower end of the shaft C there is keyed a circular disk, H, which is within the plunger G, and has a wrist-pin, I, attached to it and at about five inches from its center. On this wrist-pin I there is fitted loosely a collar, J, to which two chains, K K, are attached. The outer ends of these chains are provided with a screw, *e*, and these screws

pass loosely through the ends *b b* of the plunger G, and have nuts *f* on their outer ends, as shown in both figures. On the upper surface of the disk H there is a cam, L, which operates the cut-off F by working against rollers *g g* at the under side of the cut-off.

M M are the packing-boxes, which communicate with the pug-mill A by means of openings *h h*, which the cut-off F alternately opens and closes. At the end of each packing-box there is a die, N, constructed in the usual way.

The shaft C of the pug-mill is provided with the usual pressing-knife, O, at its lower end, and with a suitable number of arms, P, above O.

The operation is as follows: The shaft B is rotated by any convenient power, and the clay in the pug-mill A is forced through the open issue *h* in the bed-plate D and into the packing-box M underneath. The cam L now acts against one of the rollers *g* and moves the cut-off F so as to close the issue *h* which was open, said cut off then forming a part of the top of the packing-box, the other issue *h*, which was closed, being opened simultaneously with the closing of the issue first mentioned. At about a quarter of a turn of the shaft, after the cam starts the cut off, one of the chains K tightens, and the plunger G follows the direction in which the cut-off was moved and passes the charge through the die N. At the instant the charge is expelled from one box M (the shaft C having made half a revolution to effect it) the pressing-knife O passes over the open issue *h* of the packing-box at the opposite end of the plunger and fills it, and the cam and plunger, following the rotation of shaft C, act as before. Two charges are therefore delivered at each revolution of the shaft.

This invention has been practically tested, and it operates well, making two thousand two-inch tiles per hour. It requires less power to operate it than the ordinary machines in use. It is simple in its working parts, and the latter may be made strong and durable to prevent breakage. The distance traveled by the plunger is extremely short—a result due to the cut-off closing the issues and pressing the clay directly underneath the same, and also by using the chain-pitmen. In using a cam the thrust of the latter would be one-half the diameter of the circle the outer end describes; but with the chains I get three quarters the

diameter described by the crank-pin, thereby effecting a saving in power. I also effect a saving in power in consequence of the crank-pin I passing the right-angular position with the plunger before the latter starts, and the motion of the latter gradually decreases until it ceases at the dead-point. Finally, the packing-boxes are allowed free ventilation by means of the loose screw-rods *e* in the ends *b* of the plunger, all suction being relieved in said packing-boxes as the plunger recedes in them.

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

1. The employment or use, in a machine for making tiles, of chains K K or other equivalent flexible pitmen for actuating the plunger G, substantially as set forth.

2. The cam L, in combination with the cut-off F, when arranged in relation with the issues *h h*, substantially as shown and described, to admit of said issues being alternately opened and closed at the proper time, and also to admit of the clay being discharged from the packing-boxes directly under the issues, and thereby limit or shorten the movement of the plunger G, as set forth.

3. Attaching the chains or flexible pitmen K K to the end pieces, *b b*, of the plunger by means of the screw-rods *e e* and nuts *f f*, to admit of the ventilation of the packing-boxes, as specified.

SAMUEL M. BARTLETT.

Witnesses:

W. W. PRENTICE,
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