

J. Hotchkiss, *Brick Machine.*

N^o 45,563.

Patented Dec. 20, 1864.

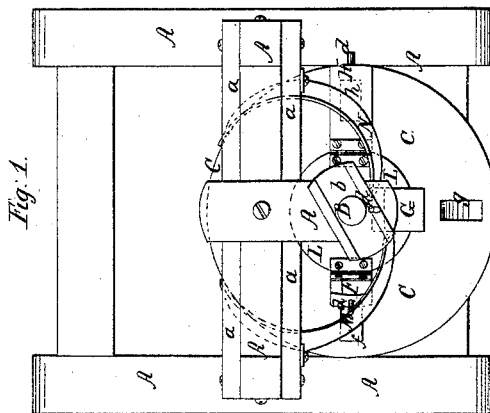
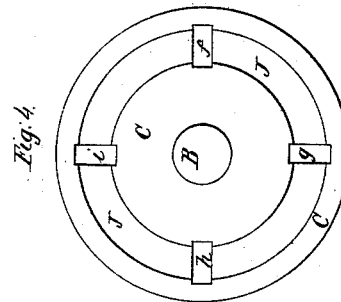
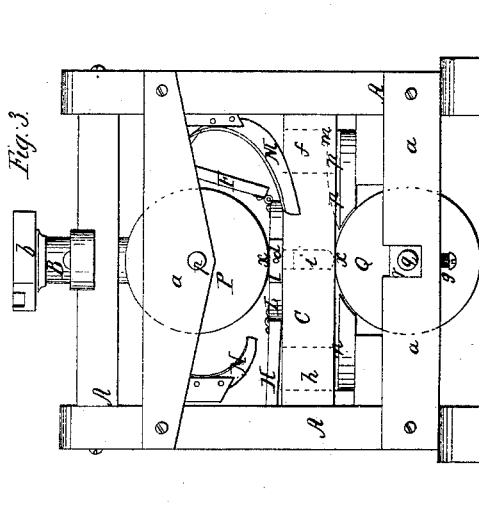
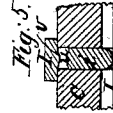
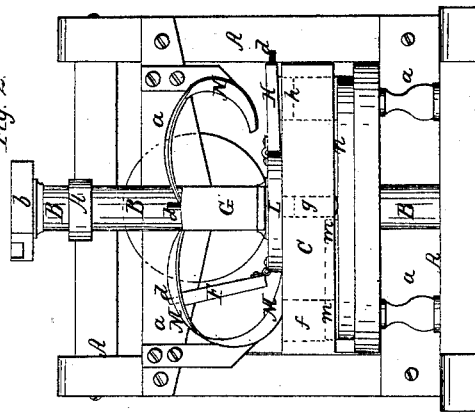


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES HOTCHKISS, OF SPRINGFIELD, OHIO, ASSIGNOR TO HIMSELF AND
EZRA BUSS, OF SAME PLACE.

BRICK-PRESSING MACHINE.

Specification forming part of Letters Patent No. 45,563, dated December 20, 1864.

To all whom it may concern:

Be it known that I, JAMES HOTCHKISS, of Springfield, in the county of Clark and State of Ohio, have invented a new and Improved Brick-Press; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a plan of the press; Fig. 2, a front elevation thereof; Fig. 3, a rear elevation of the same; Fig. 4, a view of the bottom of the mold-wheel; Fig. 5, a section through one of the molds, with its follower and lid.

Like letters designate corresponding parts in all of the figures.

A suitable strong frame, A, with bottom timbers and upright posts, is constructed of suitable dimensions, substantially as shown. In this is mounted a vertical driving shaft or spindle, B, in such a position as to bring the pressing parts between the central upright posts. If a lever or "sweep" is employed to drive the shaft, it is attached by a coupling-box, *b*, on the upper end of the shaft, as represented. On this shaft the mold-wheel C is secured, and turns horizontally. In it, at equal distances from the center, are the molds in which the bricks are pressed, a convenient number, four, being represented in the drawings. These molds extend vertically through the mold-wheel, which is thick enough for the bricks, and to receive the followers *f g h i* below them, by which the pressure is applied underneath, and by which the bricks are lifted out of the molds after pressing. The molds are made of iron or steel, and the whole mold-wheel may be made of iron, if desired.

Over the molds are lids F G H I, by which the top pressure is applied, or, rather, which receive the pressure from below, through the followers, and act as counter-pressure surfaces, since they shut down close upon the top of the mold-wheel, and are held immovably there, while the pressure is applied from below. The lids, instead of sliding over the molds and off again, are hinged to a hub projection, L, of the mold-wheel, or to any suitable part thereof, so as to swing and shut directly or vertically down over the molds, and be raised directly up from them again.

The followers *f g h i* are raised and lowered in the molds for admitting the unpressed

bricks, and expelling the pressed bricks by stationary cams *m n p*, which compose a circular track, underneath the mold-wheel, for the followers to rest and slide upon. At the front, opposite to where the pressure is applied to the bricks, there is a sudden descent from the raised portion *m*, Fig. 2, to the lower portion *n*, which allows the followers in succession to descend sufficiently to admit the unpressed bricks into the molds beneath the lids. The followers run on this low portion (the unpressed bricks being put into the molds while passing over it) till they reach the point where the pressure is applied. After pressing, the followers ascend an inclined portion, *p*, Fig. 3 onto the raised portion *m*, which lifts them up flush with the top of the mold-wheel and causes them to entirely expel the pressed bricks. The followers then run on the raised portion *m* (the bricks being removed in the mean time) till the revolution of the mold-wheel is completed.

The lids F G H I are raised and lowered for allowing the bricks to be put into and taken from the molds by means of two curved cams or guide plates, M N, which are secured to the frame in a suitable position over the mold-wheels, substantially as shown in the drawings. Pius *d d*, or their equivalents, project from the outer or movable ends of the lids to bear against these cams and operate the lids. The cam-guide M is situated in such a position and is of such a form as to raise or swing the lids up, while passing through that half of the revolution of the mold-wheel, after the pressure is applied to the bricks, as seen at the lid F in the drawings. It brings the lids up into an upright position, so that they will remain there till turned down by the positive action of the cam N, as seen at the lid G in the drawings. After the followers descend upon the lower track, *n*, and the unpressed bricks are placed in the successive molds, the cam-guide N is so arranged as to bring the lids down upon the mold-wheel again before reaching the point of pressure, as seen at lid H in the drawings.

The pressure is applied by means of two wheels, P and Q, placed vertically, one above the mold-wheel and the other below it. Their axes turn in strong cross-timbers *a a* of the frame. They are so situated that the

molds pass at the point of pressure in the direction of their plane of motion, as seen at the lid I, Fig. 3, and so that the upper wheel, P, shall be tangent to the lids, and hold them firmly down upon the mold-wheel at the moment when the final pressure is given, while the followers pass from the lower cam-track, *n*, upon the periphery of the lower wheel, Q, and are raised thereby to the summit thereof just at the moment when the final pressure is to be made, all substantially as indicated at the points *x x*, Fig. 3. After the pressure, the followers pass upon the inclined portion *p* of the cam-track, and are raised thereby upon the highest portion, *m*, as above set forth.

The shaft *q* of the lower pressure-wheel, Q, turns in bearing-blocks *r r*, which slide up and down in the cross timbers *a a*, that support them. These blocks are adjustable by means of set-screws *s s*, Fig. 3, so as to vary the pressure and thickness of the bricks at pleasure. There is an annular groove, J, Fig. 4, to allow the pressure-wheel Q to ascend above the lower surface of the mold-wheel, if necessary.

With this method of pressing bricks the pressure is produced, while the mold-wheel has a continuous and uniform motion, being applied so as not to retard it or interfere therewith at all, and there is comparatively little friction produced by the pressing, which is by a rolling action. The bricks are put in and taken out during other parts of the revolution of the wheel, thereby making the press uniformly perpetual in its operations.

The operation of the lids F G H I by being hinged and swinging up and down is the most simple and easy of any in use, and produces better work, as they do not affect the surface of the bricks at all. It also permits me to produce any surface on the bricks besides a plane surface, which the sliding arrangement of the lids does not allow on the upper surface of the bricks. Besides plane bricks I make bricks concave on both the un-

der and upper surfaces, and this arrangement enables me to do it by simply having the mold projections on the upper surface of the follower, as at *u*, and on the under surface of the lid, as at *v* in Fig. 5.

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

1. Imparting the pressure to the bricks by means of two stationary pressure-wheels, P Q, between which the mold-wheel passes continuously, substantially in the manner herein specified.

2. Such an arrangement of the pressure-wheels P Q that the upper wheel shall simply hold the lids closely and firmly down upon the mold-wheel, while the active pressure is produced by the lower wheel lifting the followers, substantially as herein set forth.

3. Regulating the pressure and the thickness of the bricks by adjusting the bearing-blocks *r r* of the lower pressure-wheel, Q, as herein described.

4. Hinging the lids F G H I to the mold-wheel, so that they shall swing and shut directly down over the molds, and be raised directly up therefrom, substantially as and for the purpose herein specified.

5. The arrangement of the cam-guides M N, in combination with the lids F G H I, substantially as and for the purpose herein specified.

6. The construction and arrangement of the cam-tracks *m n p*, in combination with the followers, substantially as herein set forth.

7. The combination of the vertically closing and opening lids F G H I with the forms for imprinting on the lower surfaces thereof, for the purpose herein specified.

The above specification of my improved brick-pressing machine signed by me this 7th day of May, 1864.

JAMES HOTCHKISS.

Witnesses:

REUBEN MILLER,
E. P. H. CAPRON.