J. McL. MITCHELL.

Brick-Machine.

2 Sheets—Sheet 1.

No. 211,765. Patented Jan. 28, 1879.

Fig. 1

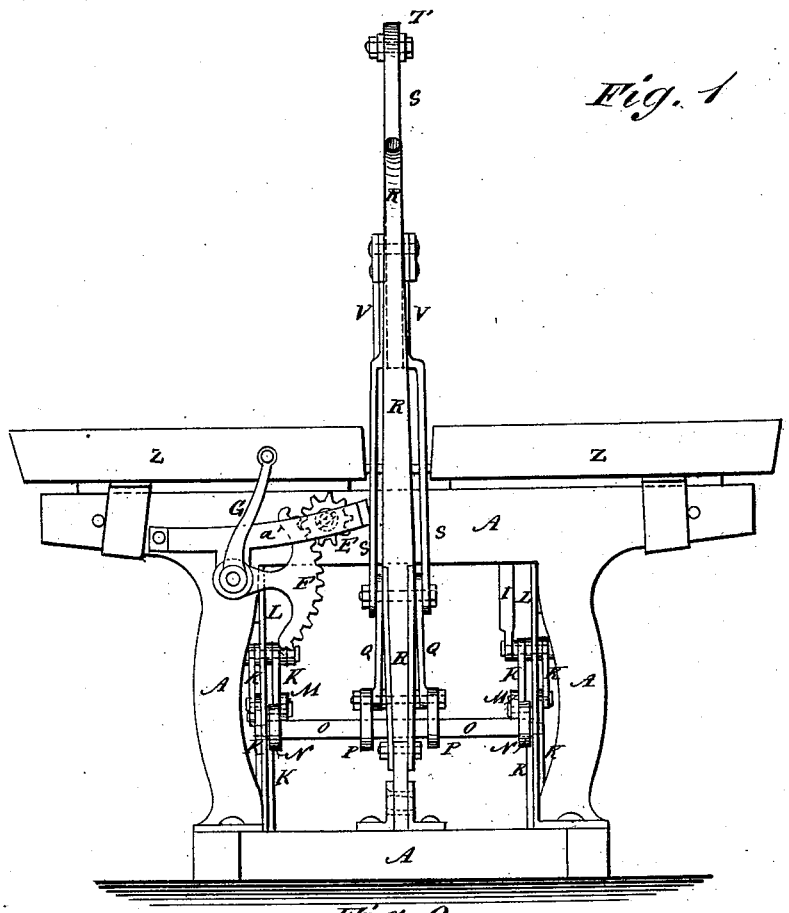
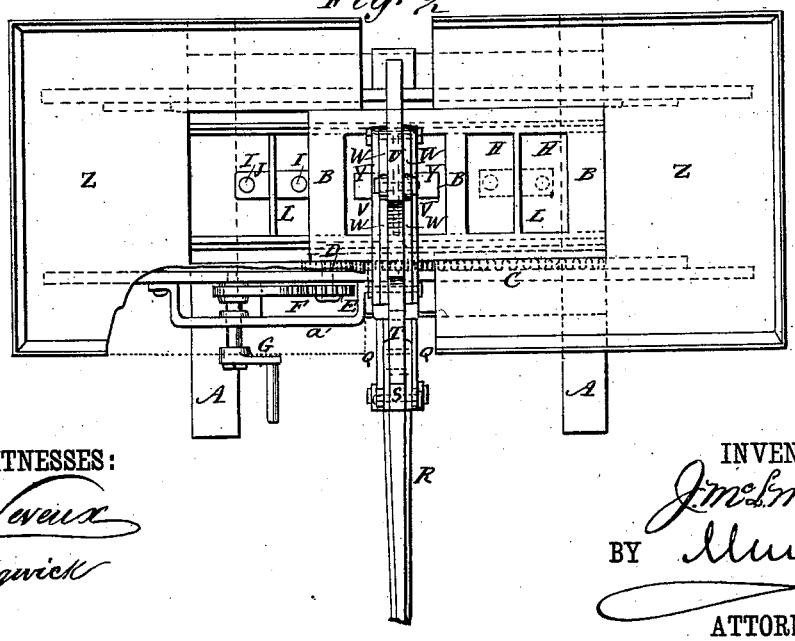


Fig. 2



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2 Sheets—Sheet 2.

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Fig. 3

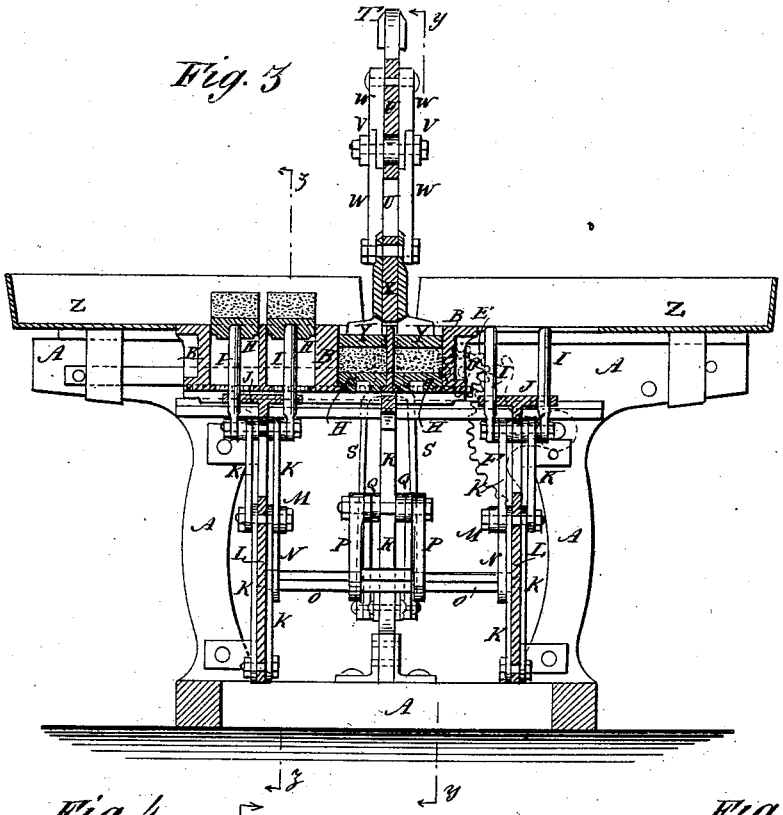


Fig. 4

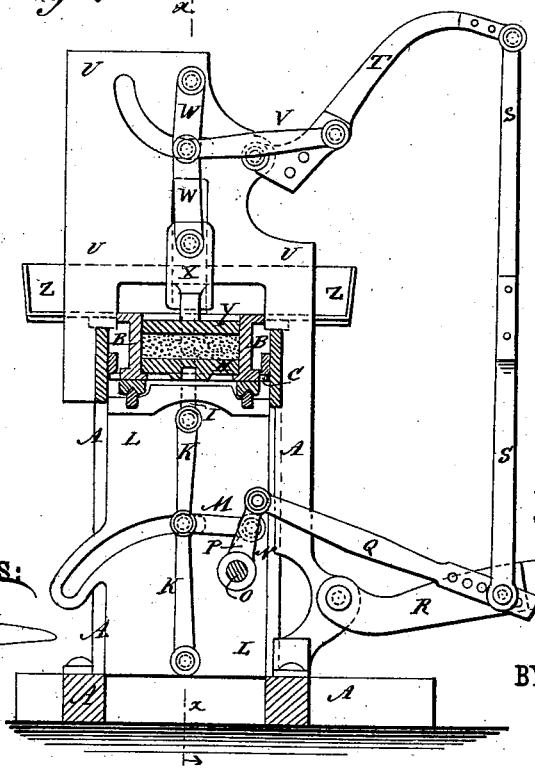
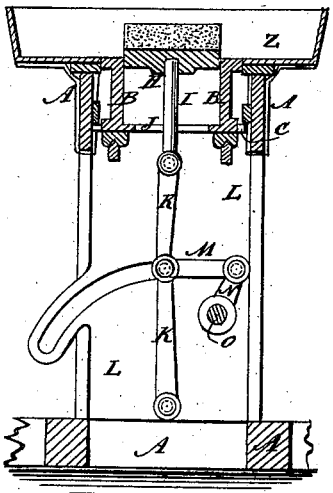


Fig. 5



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JAMES McL. MITCHELL, OF DUNLAP, IOWA.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **211,765**, dated January 28, 1879; application filed November 11, 1878.

To all whom it may concern:

Be it known that I, JAMES McL. MITCHELL, of Dunlap, in the county of Harrison and State of Iowa, have invented a new and useful Improvement in Brick-Machines, of which the following is a specification:

Figure 1, Sheet 1, is a side view of my improved machine. Fig. 2, Sheet 1, is a top view of the same, part of one of the platforms being broken away to show the construction. Fig. 3, Sheet 2, is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 4, and looking in the direction of the arrows. Fig. 4, Sheet 2, is a vertical cross-section of the same, taken through the line *y y*, Fig. 3, and looking in the direction of the arrows. Fig. 5, Sheet 2, is a vertical cross-section of the same, taken through the line *z z*, Fig. 3, and looking in the direction of the arrows.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved brick-machine which shall be so constructed as to form the bricks accurately and rapidly, raising one set of bricks out of the molds at the same time that another set are being pressed, which may also be used for pressing bricks that have already been molded in the usual way, and which shall be simple in construction, easily and conveniently operated, and effective in operation.

The invention consists in the combination of the push-pins, the toggle-joints, the connecting-bars, the crank-arms, the shaft, and the lever with the movable bottoms of the mold-frame and with the frame-work of the machine, and in the combination of the lever, the connecting-bars, the curved lever, the toggle-joints, the sliding block, and the followers with the mold-frame, the upright plate, and the frame-work of the machine.

A is the frame of the machine, to the inner sides of the top side bars and to the uprights of which are attached cleats, or upon them are formed ribs, to serve as ways for the mold-frame B to slide back and forth upon.

The mold-frame B may be made large enough to form two or four bricks at a time. The drawings represent a machine for forming two bricks at a time.

Upon one side of the lower part of the mold-frame B is formed, or to it is attached, a rack-bar, C, into the teeth of which mesh the teeth of a small gear-wheel, D. The journal of the gear-wheel D works in bearings in a side bar of the frame A, and to its outer end is attached a gear-wheel, E, into the teeth of which mesh the teeth of a segmental gear-wheel, F. The journals of the segmental gear-wheel F work in bearings in the frame A and in a bracket, *a'*, attached to the said frame, and to its outer end is attached a crank, G, by means of which the mold-frame B is moved back and forth, as required.

The molds of the frame B are provided with movable bottoms H, which, when the bricks are being pressed, rest upon shoulders or flanges at the bottom of the said frame B. In the center of the lower sides of the movable bottoms H are formed holes to receive the ends of the rods I, by which they are forced upward to raise the pressed bricks out of the molds.

The movable bottoms H should be provided with spring-catches to take hold of the ends of the rods I, so that the said bottoms may be drawn back to their seats by the downward movement of the said rods I. As the bottoms H reach their seats the spring-catches should be released by stops attached to the frame A, or by other means, so that the said rods may move down so low as not to interfere with the movements of the mold-frame B.

The push-rods I move up and down through guide-holes in bars or plates J, attached to the frame A, and the lower ends of each set are pivoted to the end of the upper bar or bars of a toggle-joint, K. The ends of the lower bars of the toggle-joints K are pivoted to the lower part of the frame A. The upper pivots of the toggle-joints K move up and down through vertical slots in guide-plates L, attached to the frame A to keep the rods I vertical, and their central or joint pivots move through curved slots in the said plates L.

To the central or joint pivots of the toggle-joints K are pivoted the ends of short connecting-bars M, the other ends of which are pivoted to the crank-arms N, rigidly attached to the rock-shaft O. The shaft O is pivoted to the lower part of the frame-work A, and to its middle part are rigidly attached two crank-arms, P, to the ends of which are pivoted the ends of two connecting-bars, Q. The other ends of the connecting-bars Q are pivoted to the oppo-

site sides of the lever R, the lower end of which is pivoted to the lower part of the frame-work A, so that by operating the said lever R the pins I may be moved upward to push the pressed bricks out of the molds, and may be moved downward to allow the mold-frame to be moved back and forth.

To the bolt that pivots the ends of the bars Q to the lever R is pivoted the forked lower end of a connecting-bar, S, the upper end of which is pivoted to the upper end of the curved lever T. The lower end of the lever T is pivoted to a vertical plate, U, attached to the center of the frame A. To the opposite sides of the lever T, a little above its lower end, are pivoted the outer ends of two connecting-bars, V, the inner ends of which are pivoted to the joint-bolt of the toggle-joint W, which bolt moves through a curved slot in the plate U. The ends of the upper bars of the toggle-joints W are pivoted to the upper part of the plate U, and to the ends of the lower bars of the said toggle-joints is pivoted a block, X, which slides in a vertical slot in the lower part of the plate U.

To a cross-head formed upon the lower end of the sliding block X are attached the followers Y, by the descent of which the bricks are pressed, and which are made of such a size as to fit accurately into the molds.

With this construction a downward movement of the lever R forces the followers Y down into the molds to compress one set of bricks, and forces the rods I up to raise the set of bricks previously pressed out of the molds, so that they can be conveniently removed. The upward movement of the lever R raises the followers Y and draws down the pins I, so that the mold-frame B can be shifted.

To the top of the end parts of the frame A are attached platforms or aprons Z, having flanges upon the edges of their sides and outer ends, upon which the mud is placed, and from which it is put into the molds with the hands.

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

1. The combination of the pins I, the toggle-joints K, the connecting-bars M and Q, the crank-arms N and P, the shaft O, and the lever R with the movable bottoms H of the mold-frame B and with the frame-work of the machine, substantially as herein shown and described.

2. The combination of the lever R, the connecting-bars S and V, the curved lever T, the toggle-joints W, the sliding block X, and the followers Y with the mold-frame B, the upright plate U, and the frame-work of the machine, substantially as herein shown and described.

JAMES McL. MITCHELL.

Witnesses:
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J. B. PATTERSON.