J. Marshall,

Brick Machine.

No. 64,778. Patented May 14, 1867.

Fig. 3.

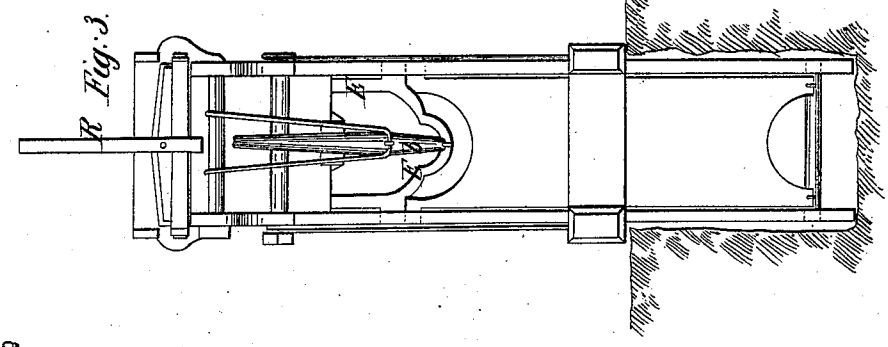

Fig. 2.

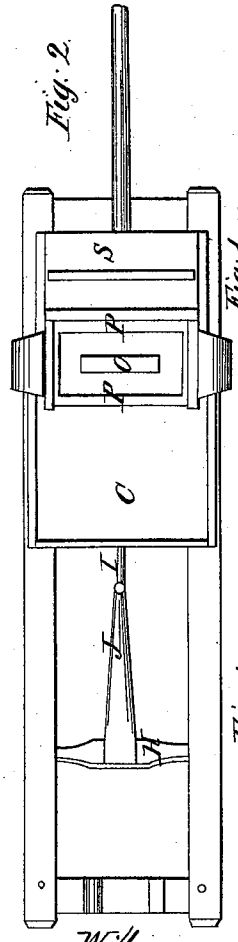

Fig. 1.

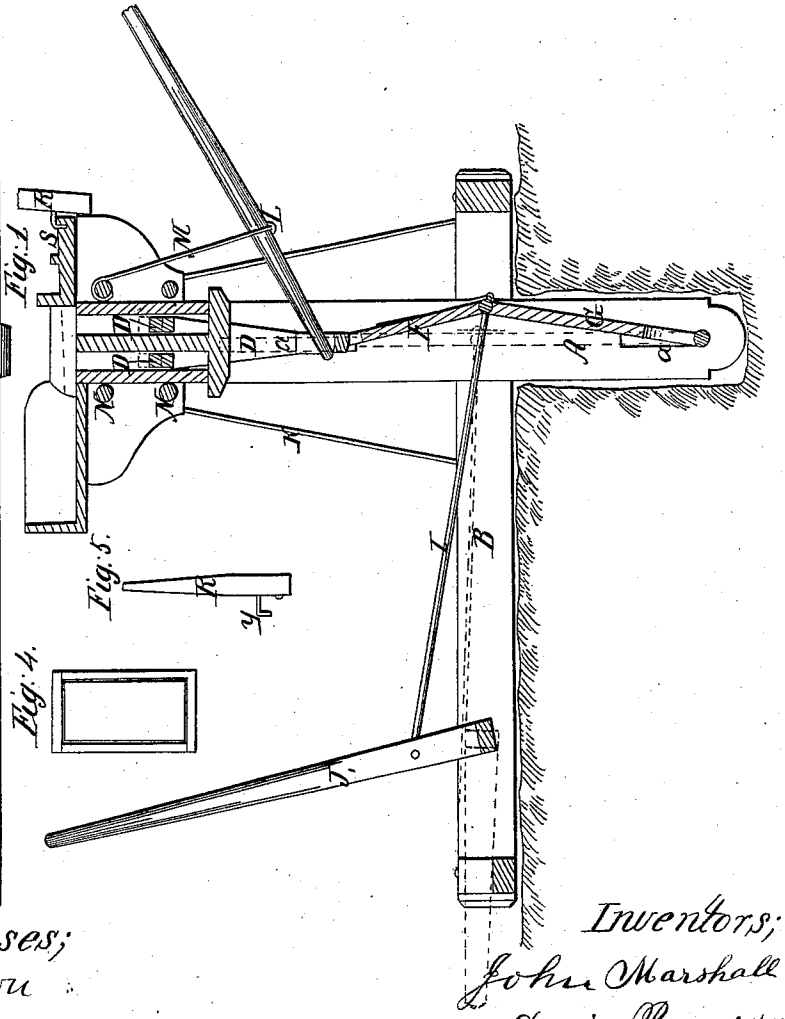

Fig. 5.

Fig. 4.

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JOHN MARSHALL, OF FOND DU LAC, WISCONSIN.

Letters Patent No. 64,778, *dated May* 14, 1867.

IMPROVED BRICK MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN MARSHALL, of Fond du Lac, in the county of Fond du Lac, and State of Wisconsin, have invented a new and useful improvement in Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In brick-presses, especially those used for gravel brick, or building-blocks of large size, which require a tremendous pressure, where the elbow-lever, joint, or knuckle-lever is employed, three very great practical difficulties are met with, as follows: first, the difficulty of the side strain and friction of the plunger or follower when the elbow-levers begin the pressure, and the want of sufficient power just as the elbow-levers are becoming straight or finishing the stroke, and thus completing the pressure; second, the difficulty of opening the mould after such tremendous pressure, which strains and binds the mould cover, especially when the latter slides into place in grooves; third, the difficulty of removing the brick or building-block from the mould after the latter has been uncovered, on account of the great friction between the brick or block and the sides of the mould.

The chief object of my invention is to overcome these difficulties, and my machine has been fully tested, and found to work with remarkable success and ease. In the accompanying drawings—

Figure 1 represents a vertical central section of my improved brick-press.

Figure 2 is a top view of the same.

Figure 3 is an end view of the machine.

Figure 4 is a detached view of the mould and solid piston.

Figure 5 is a detached view of the lever to start the mould cover.

Figure 6 is a view of the wedge-shape cover from the working machine.

My invention consists, first, in a new arrangement and combination of lever and long connecting-rod with joint or elbow-levers for easily giving an almost unlimited pressure, and avoiding an excess of side pressure and friction of the plunger or follower; second, in the use of a wedge-shaped cover and a peculiar lever for overcoming the friction of the cover under great strain; and, third, in the use of a self-adjusting fulcrum and lever for removing the brick or block from the mould.

In the construction of my improved press a suitable wooden bed-frame, B, may be placed upon the ground or other support. This bed-frame may be five or six feet long. Upon this bed-frame is supported (by lugs or other means) a very strong iron press-frame, A, which is provided with slots *a* for holding and guiding the elbow-levers F G and the cross-bar E of the follower. The upper part of this press-frame A supports the mould P and the hopper C. The mould may have one or more cores O, (varied in form and position if desired,) but in practice I find it better to omit the core altogether, and make the brick solid by means of the mould and follower or piston-head shown in fig. 4. The mould may be cast in one piece, but it is much better to make the same of four plates, well planed and finished, and then fastened together by bolts N outside of the side plates. The follower or plunger D is provided with a piston-head well fitted to the mould, and also to the mould or moulds if the latter are used. In case the piston-head wears so as not to fit the mould, the latter may be reduced in size by shortening the plates above described, so that the piston-head will again fit as when new.

In order to obtain a powerful pressure I employ a long lever, J, with a shaft or fulcrum, H, in connection with a very long connecting-rod, I, for operating the joint or elbow-levers F G. These parts are shown in black lines in their position before the stroke for pressing, and their motion is indicated by red lines. It will be observed that the connecting-rod tends to lift when its stroke commences, and at the termination of the stroke this rod and the lever J stand on the same straight line, and at right angles to the levers F G, which also stand in a straight line, thus giving the press an almost unlimited power just as its stroke is completed. The cover S of the mould is made a little wedge-shaped, and slides into two corresponding grooves. When pushed home, the cover tightly fits these grooves, and then, under the powerful strain of the press, is locked in position with extreme rigidity and force, so that it would be nearly impossible to start the cover from its place if it were not wedge-shaped. In connection with this wedge shape of the cover (after various experiments) I have invented a peculiar lever, R, fig. 5, by means of which an extraordinary purchase is obtained. By a sudden stroke or jar upon the long end of this lever R the cover may be started from the place in which it is bound

nd then, being loose, it may be easily removed by hand. In order to lift the brick from the mould, in which t is held with great force on account of the tremendous pressure and friction, I have arranged a long lever, *b* upon an adjustable or swinging fulcrum or clevis, L. By this arrangement the entire lever *b* is rendered adjustble, and thus prevented from binding as the follower D rises. The brace-rods K and other features of construction require no further description. The size of the mould may be varied to suit the size of the brick lesired, or for pressing different articles to which the press is well adapted. The thickness of the brick may be varied in the same machine by simply raising or lowering the bearing under the levers F G.

The general features of my press may be somewhat varied without departing from my invention. I do not broadly claim the separate devices above described, but limit my invention to the particular combinations and improvements set forth as different from other presses made prior to my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In combination with the mould, I claim the wedge-shaped cover, working in corresponding wedge-shaped grooves, in order to bind the cover home to the mould during the pressing, and then to facilitate the removal of the cover, substantially as set forth.

2. In combination with the lever *b* and the follower, I claim the swinging fulcrum L, for preventing the side strain and consequent binding of the follower, substantially as described.

3. The follower D working in the mould, in combination with the sliding cover S, and operated by the knuckle-joint lever F G, substantially as shown and described.

4. The lever R, provided with the hook F for releasing the cover S, substantially as set forth.

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Witnesses:

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