

J. S. DERBY.
Brick-Machines.

No. 149,380.

Patented April 7, 1874.

Fig: 1.

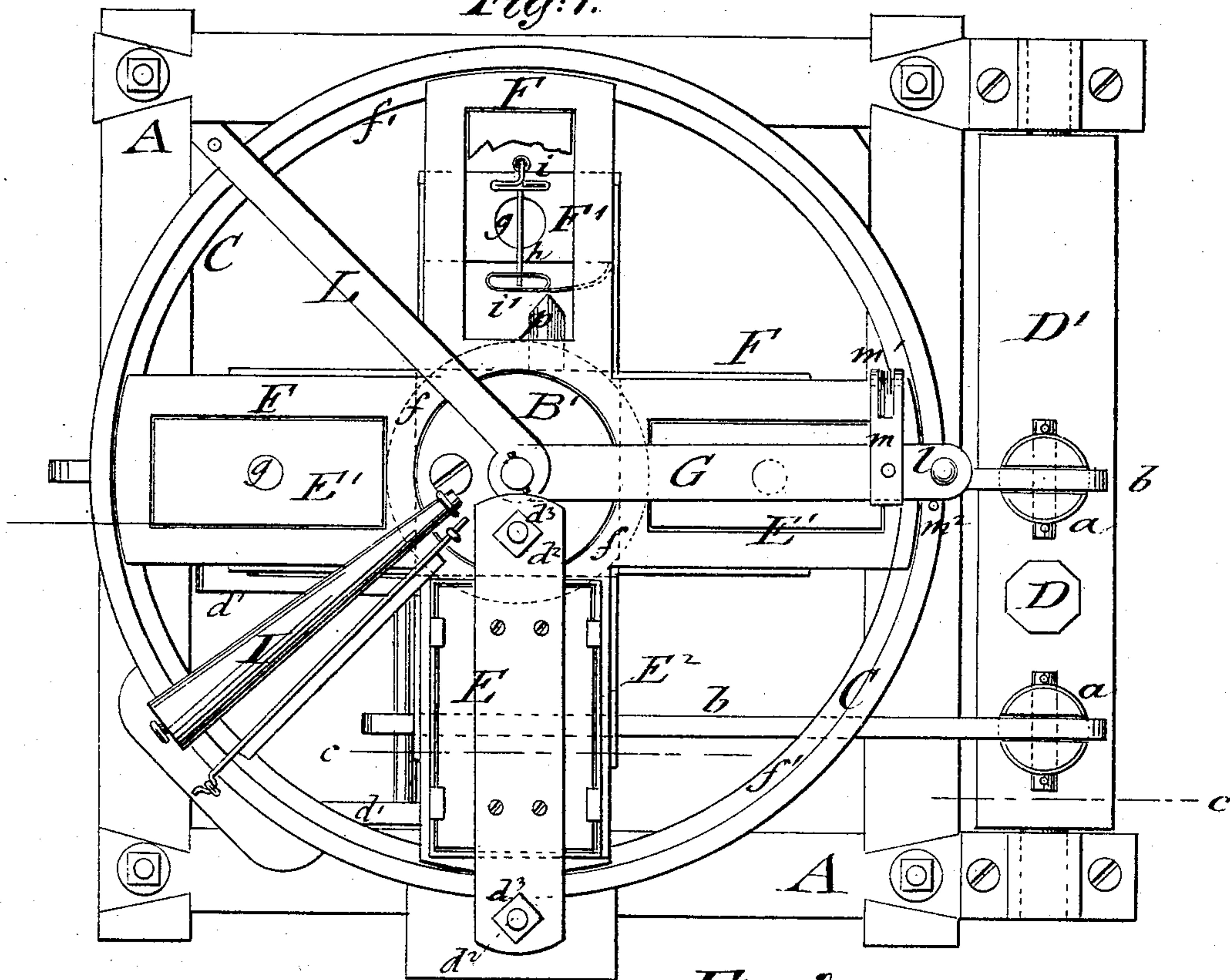


Fig: 2.

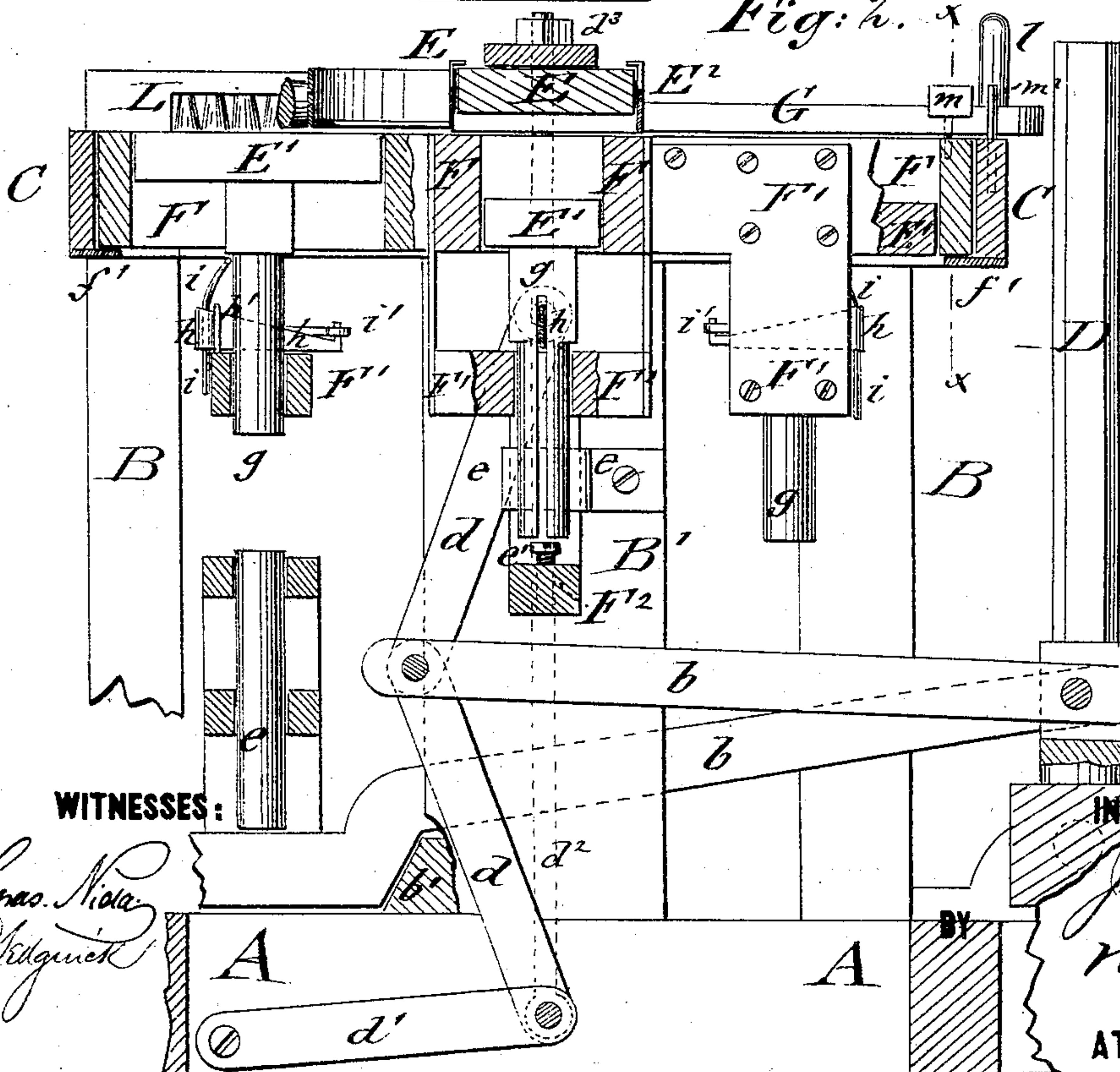
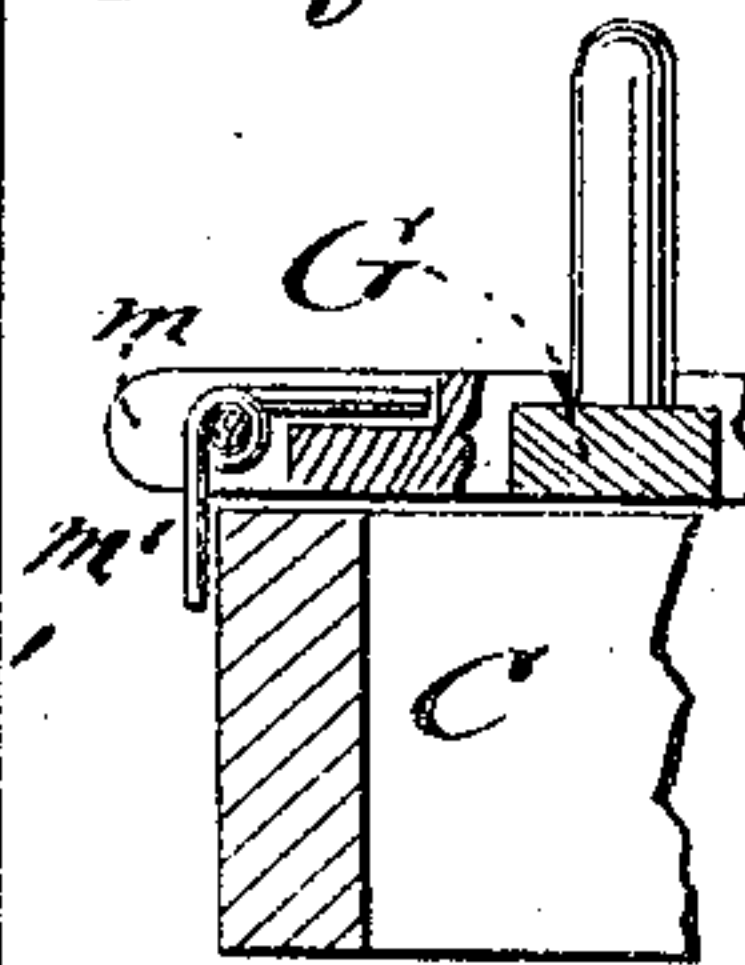


Fig: 3.



WITNESSES:

Chas. N. Aldrich
W. H. Aldrich

INVENTOR:

J. S. Derby
BY
M. M. L.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN S. DERBY, OF LEAVENWORTH, KANSAS.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **149,380**, dated April 7, 1874; application filed February 21, 1874.

To all whom it may concern:

Be it known that I, JOHN S. DERBY, of Leavenworth, in the county of Leavenworth and State of Kansas, have invented a new and Improved Brick-Press, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved brick-press, with parts cut off to show other portions below. Fig. 2 is a sectional side elevation taken on the line *c c*, Fig. 1; and Fig. 3, a detail vertical transverse section; on line *x x*, Fig. 2, of movable arm with pivoted catch, to take hold of the molds.

Similar letters of reference indicate corresponding parts.

The object of my invention is to produce a cheap, handy, and very effective machine for pressing "stock or press bricks," which is mainly intended for the use of brick-makers of limited means, as they are thereby enabled to turn out a superior quality of press bricks with great rapidity and economy, without the investment of large sums for complicated steam-presses.

My invention consists of a rotary brick-press with radial molds, which turn in a mold ring or band supported on a suitable frame, and are rotated by a radial arm with pivoted catch. The bricks are molded in the ordinary manner and placed into the molds, and undergo successively the operations of pressing by means of an upper and lower press-board, worked by suitable hand-lever power, of cutting off to size, and of smoothing the upper surface. The lower press-board of each mold is then carried up by means of its sliding piston and spring-stop, in connection with the hand-lever, so that the bricks may be removed, and the board, by passing under stiff brushes, be cleaned, with the top of the mold, from sand and other impurities. The contact of the spring-stop with a projecting pin releases the lower press-board, and carries it back into position for receiving a new brick. A shield or casing of the upper press-board retains the clay therein, while suitable adjusting devices regulate the size to which the bricks have to be pressed.

In the drawing, A represents the support-frame of my machine for pressing stock or

press bricks. It is composed of strong base-pieces and upright standards or posts B, on which the mold ring or band C is firmly placed. The lever-power for pressing the bricks into the requisite size is obtained by a hand-lever, D, which is rigidly set into a pivoted cross-piece, D', of the base-frame. To arms *a* of cross-piece D' are pivoted two lever-rods, *b*, of which one is connected to a set of toggle-levers, *d d*, while the other rod *b* is curved at the end and passed over an inclined plane, *b'*, for raising vertical pillar *e* at the opposite side of frame A. The lower ends of toggle-levers *d* are pivoted to lever-rods *d'*, and to the upright bolts *d''*, which bolts pass up, through the central and side posts of frame A, to the top piece of upper press-board E, the same being firmly but adjustably attached to the threaded ends of the bolts by top and bottom screws *d'''*. The upper ends of toggle-levers *d d* are pivoted to a vertical frame, F², which is guided in side staples *e* of the central and side posts, and provided with an adjustable screw or pin, *e'*, in the center of its lateral bottom piece, for the purpose of carrying the lower board E¹ in upward direction. The molds F, for pressing the common bricks into the required size, are arranged radially from the center post B', turning around the circular top piece of the same on a supporting-disk, *f*. The outer ends of molds F slide along a base-flange, *f'*, of mold-ring C. The molds and their connecting center piece may be made of wood, iron, or other suitable material, four molds being, preferably, arranged in a press. To each mold F is attached a downward-extending guide-frame, F¹, in whose perforated bottom piece the piston *g* of the lower press-board E¹ slides in up-and-downward direction. Each mold is provided with a lower press-board, E¹, there being, however, only one top press-board, which acts in succession on the bricks in the molds, as they are exposed to its action by the rotation of the mold-frame. The piston *g* of the lower press-board is constructed with a square upper part, the lower part being round, with a central slot, *g'*, extending to such length as required by the position of the board in the mold. Piston *g* moves by its slot along a sliding plate, *h*, which is placed across the bottom piece of frame F¹, and guided in a

side staple, h' , of the same. A T-shaped piece, i , is attached to the outer end of sliding plate h , and a band-spring, i' , to the inner end, so that when the lower press-board is raised by the lever action and pillar e flush with the top of the mold, the T-piece i is forced under the square part of the piston, and supports thereby the lower press-board in position until the band-spring is engaged by a suitable pin or catch, which pushes the sliding plate back, releases thereby the piston, and causes the press-board to drop. The molds are rotated by a radial arm, G , which is pivoted to the top of central post B' , sliding with its outer end on the upper edge of ring C . A handle, l , at the outer end of arm G , serves to carry the same back over the top of the molds, while the pivoted catch-pin m^1 at the end of shorter arm m takes hold of the mold, and rotates the whole frame till arm G is arrested by stop-pin m^2 of ring C , and the molds brought thereby into the exact positions required for the various operations. The adjustable top press-board E is also arranged with a sliding casing, E^2 , which prevents the escape of the clay, and causes thereby a more compact pressure of the brick. A cutter-knife, H , for taking off the surplus clay and producing the exact size of the brick, and a smoothing spring-roller, I , are attached radially near the upper press-board, while stiff brushes L , for cleaning the lower press-board from the sand adhering thereto, are arranged in radial direction, at suitable distance from the press-board E . An arm or pin, p , extends from center post B' diametrically opposite from the upper press-board, for detaching the lower press-board from its supporting spring-stop after it has passed the cleaning-brushes.

For operating my rotary brick-press, the bricks are first molded in the ordinary way, laid out in the yard, and, when sufficiently dry for handling, run through the press. The bricks are placed into the mold on the right of the lever, the movable arm with the catch-pin carried over the same, and then drawn toward the operator. A second brick is then put into the next mold and carried forward in the same manner, the stop-pin regulating exactly the extent of motion. The first brick is now under the upper press-board; the lever is swung downward with the left hand, causing the simultaneous motion of the upper and lower press-boards, both being accurately adjusted to produce bricks of the required thickness. The lever is then carried up again and the molds moved forward, which carries the first brick along the knife for cutting off the surplus clay, and then under the spring-roller for smoothing the rough cutting-surface. By the same motion of the molds the piston of the lower press-board is brought in contact with the upright pillar of the lever-rod, so that on

the downward motion of the lever the lower press-board is raised with the brick and held in this position by the spring stop-catch. The pressed brick is then removed and stored away. The raised press-board passes with the next movement of the molds under the brushes for cleaning it, together with the top surface of the mold, from adhering sand or clay. The spring of the piston-stop comes also in contact with the projecting arm and releases the piston, dropping the press-board into position for the reception of a new brick. Every quarter rotation of the molds and motion of the lever feeds a new brick to the press-boards and raises and lowers the lower press-board of two other molds, while attending also to the cutting off and smoothing of the brick and cleaning of the press-boards.

A greatly-increased and rapid production of pressed bricks is thereby possible by my machine, while, by the exact adjustment and powerful pressure, a uniform size and extra finish of the same are obtained.

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

1. The rotary press-brick machine consisting of supporting-frame A , with center and side posts B' B , flanged molding C , rotating mold-frame F F^1 , with movable lower press-boards E^1 , and stationary press-board E , as shown and described.

2. The upper adjustable press-board E and vertical sliding frame F^2 , having adjustable screw-pin e' , in combination with toggle-levers d d and lower press-board E^2 , for pressing the bricks into the exact size required, as set forth.

3. The lower press-board E^1 , having guide-frame F^1 and slotted piston g , in combination with sliding spring-plate h and stop i , for regulating position of press-board in mold, as specified.

4. The combination of curved lever-rod b and vertical sliding pillar e with piston g , for carrying the lower press-board into the upper position for removing the brick, as set forth.

5. The sliding spring-plate h i' and stop i of piston g , in combination with projecting arm or pin p of center post, for releasing the stop-piece i and dropping the press-board into its former position, substantially as specified.

6. The movable arm G , having shorter arm m , with pivoted catch m^1 for taking hold of the mold, combined with stop-pin m^2 , of ring C , for defining extent of motion of mold, as described.

7. The upper press-board E , provided with sliding casing E^2 , and combined with mold F , for retaining the surplus clay, as described.

JOHN S. DERBY.

Witnesses:

CHRIST. SOHREY,
URBAN W. BAMBER.