

(No Model.)

J. P. ALSTON.
BRICK PRESS.

No. 450,903.

Patented Apr. 21, 1891.

Fig: 1.

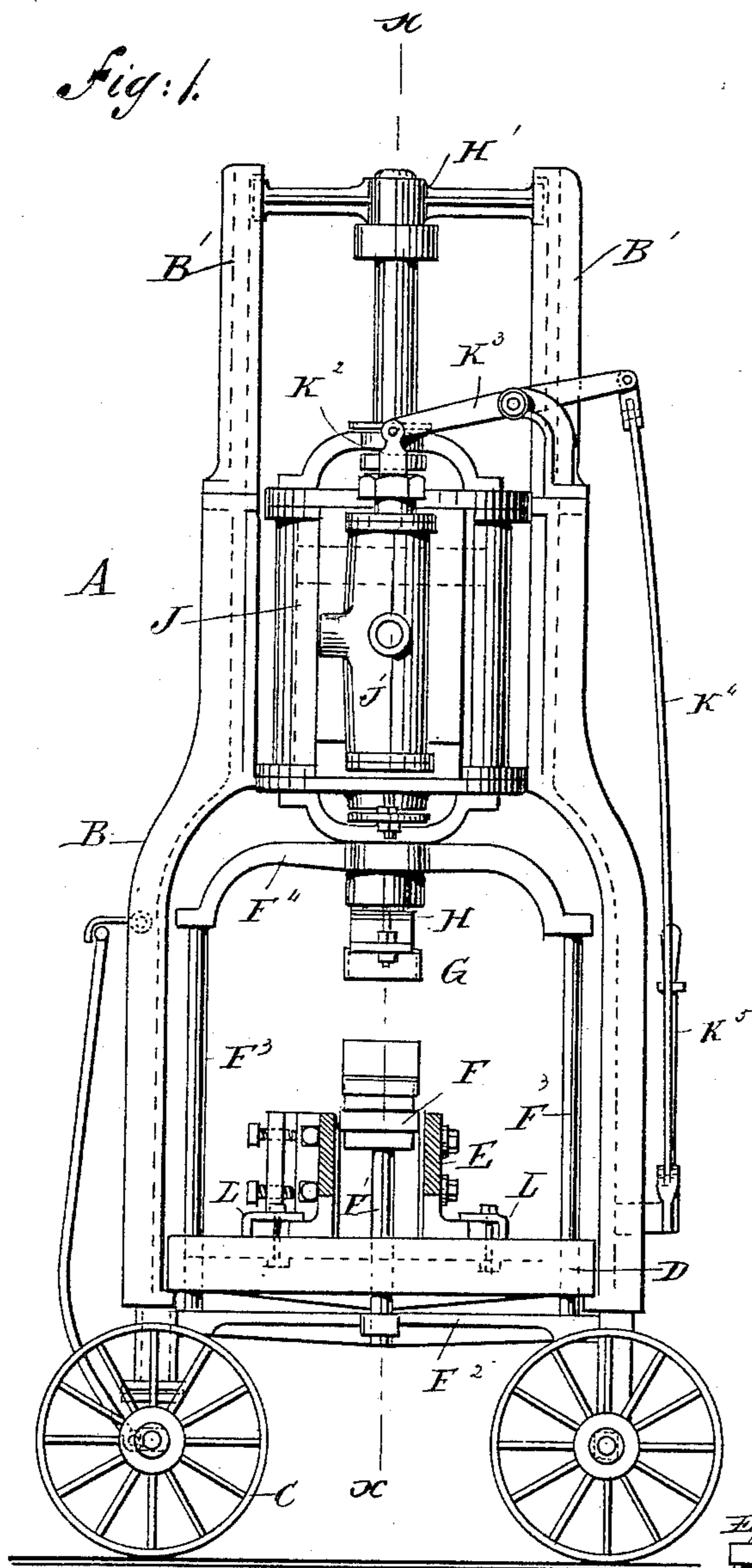


Fig: 2.

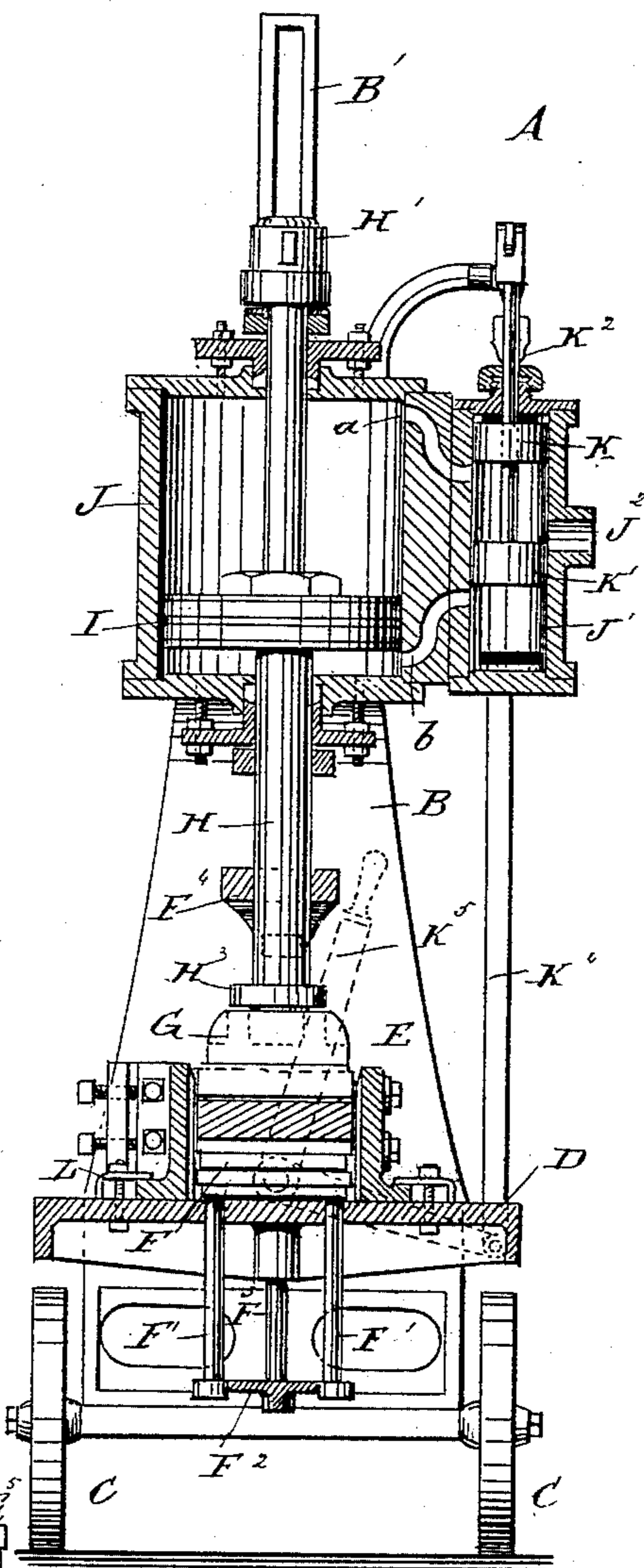


Fig: 3.

WITNESSES:

Chas. Nield
C. Sedgwick

INVENTOR:

J. P. Alston
BY
Munn & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN P. ALSTON, OF RENOVO, PENNSYLVANIA.

BRICK-PRESS.

SPECIFICATION forming part of Letters Patent No. 450,903, dated April 21, 1891.

Application filed May 29, 1890. Serial No. 353,591. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. ALSTON, of Renovo, in the county of Clinton and State of Pennsylvania, have invented a new and Improved Brick-Press, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved brick-press which is simple and durable in construction and very effective in operation, pressing the bricks uniformly, and automatically removing the pressed bricks from the molds without injury to said bricks.

The invention consists in certain parts and details and combinations of the same, as will be described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement with the mold in section. Fig. 2 is a transverse section of the improvement on the line *xx* of Fig. 1, and Fig. 3 is an enlarged plan view of the mold.

The improved brick-press A is provided with a suitably-constructed frame B, mounted on wheels C, so as to make the brick-press portable.

The frame B is provided with a bed-plate D, on which is secured the mold E, preferably of the construction shown in Fig. 3, and hereinafter more fully described.

In the mold E is arranged a bottom plunger F, adapted to be seated on the bed-plate D, and also adapted to follow the top plunger G when receding, said plunger G being fastened on the lower end of the vertically-arranged piston-rod H, carrying a piston I, mounted to travel in a cylinder J, supported in the upper end of the main frame B. The piston-rod H is extended and passes through the upper cylinder-head, carrying on its outer end a cross-head H', fitted to slide in suitable guide-ways B', secured to the upper end of the main frame B. The cross-head H' prevents the piston I and the piston-rod H from turning, thus holding the plunger G always in the proper position in relation to the mold E.

The cylinder J is connected by the usual ports *a* and *b* with the steam-chest J', in which

are fitted to slide the valves K and K', operating over the said ports *a* and *b*, and both secured on the valve-stem K², extending to the outside of the steam-chest J' and pivotally connected at its outer end with a lever K³, fulcrumed on the main frame B. The lever K³ is pivotally connected by a link K⁴ with a bell-crank lever K⁵, pivoted on one side of the main frame B and within convenient reach of the operator, so that the latter can control the movement of the valves K and K'. The steam-chest J' is provided with a steam-inlet pipe J², connected with a suitable source of steam-supply.

The lower plunger F is secured on downwardly-extending rods F' passing through the bed-plate D, and carrying at their lower ends a cross-head F², provided on each end with an upwardly-extending rod F³, mounted to slide in suitable bearings in the bed-plate D. The upper ends of the two rods F³ are connected with each other by a cross-head F⁴, held loosely on the piston-rod H, and adapted to move with the latter when seated on the collar H³, secured to the piston-rod H above the plunger G.

The mold E is preferably of the construction shown in Fig. 3, and is composed of four arms E', each having lugs E² and E³, formed at its ends and projecting in opposite directions. The lug E² of one arm is fastened by a bolt E⁴ to the next adjacent arm, the several arms being placed at right angles to each other, so as to form an angular frame. In each lug E³ screws a screw E⁵, adapted to abut against the lug E² of the adjacent arm E'. The bolt E⁴ of one arm E' is adapted to slide in a longitudinally-extending groove formed in the adjacent arm E', to which the former is bolted. Thus the several arms are held adjustable one on the other, so as to form a central opening, according to the desired shape or size of the brick to be made. It is understood that when this central opening of the mold is changed the plungers F and G are likewise changed to fit the said central opening. Each of the arms E' is also provided with an outwardly-extending flange E⁶, adapted to be engaged by a clamp L, connected with the base-plate D, so as to fasten the mold to the latter.

The operation is as follows: When the pis-

ton I is in about a central position, the plunger F rests in the bottom of the mold E on top of the bed-plate D, while the other plunger G is withdrawn from the mold. The latter is now filled with the material to be pressed into a brick, and then the operator manipulates the bell-crank lever K⁵, so as to place the valves K and K' in the position shown in Fig. 2, whereby the steam entering the inlet-pipe I² passes through the steam-chest J' to the port a, and from the latter to the upper end of the cylinder J. The pressure of the steam is thus exerted on top of the piston I, which is thereby forced downward, forcing the piston G to enter the mold E and press the material into the proper shape against the sides of the mold and the top of the plunger F. As soon as the material has been pressed into the desired form and with the desired pressure the operator changes the position of the lever K⁵, so as to connect the inlet-pipe J² with the port b and to disconnect the port a from the inlet-pipe. The port a then connects with an outlet-opening in the steam-chest J'. Steam can now enter the cylinder J by the port b, so that the steam exerts the pressure against the underside of the piston I and raises the latter, the piston-rod H, and the plunger G, which latter is thus moved out of the mold E. After having traveled a suitable distance out of the mold the collar H³ on the piston-rod strikes the cross-head F⁴, which, on the further upward movement of the piston I, is raised, thereby raising the lower plunger F, which, in moving upward in the mold B, carries along the pressed brick until the latter is completely raised out of the mold, as is plainly shown in Fig. 1, the piston I then being in an uppermost position. The brick can then be conveniently moved from the lower plunger F. Thus it will be seen that the brick is pressed in the mold by a moving plunger, which on receding actuates the bottom plunger, serving to raise the pressed brick out of the mold for convenient removal. It will further be seen that by thus removing the pressed brick from the mold with an equal and steady pressure the brick is not in the least injured. By mounting the frame B on wheels the brick press is made portable and can be conveniently moved about to any desired place, according to the location of the material and the supply of the motive agent.

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

1. The combination, with the frame, the vertical steam-cylinder in the upper end thereof, the piston working therein and provided at the lower end of its rod H with a plunger,

and a collar or projection H³ above the plunger, of a mold supported below the plunger, a cross-head provided with a plunger normally lying in the bottom of the mold, vertical rods extending from said lower cross-head, and an upper cross-head connecting the said rods and having a central aperture, through which the piston-rod H freely passes above its collar or projection H³ to permit the upper plunger to be raised from the mold prior to the raising of the lower plunger to expel the brick, the plunger and its cross-heads returning by gravity to their normal positions, substantially as set forth.

2. In a brick-machine, a mold having parallel side bars and parallel end bars resting at their opposite ends against the inner faces of the respective side bars and resting at their respective inner faces against opposite ends of the side bars, and adjusting screws or bolts for adjusting the side bars toward each other and the end bars toward each other, substantially as set forth.

3. In a brick-machine, the mold E, consisting in the four bars or arms E', each having lugs E² E³ at its ends projecting in opposite directions, bolts E⁴, adjustably connecting the lug E² of one bar or arm to the inner side of the abutting bar, and an adjusting-screw E⁵ in the lug E³ of each arm and resting at its inner end against the outer side of the adjacent lug E², the several bars E' being longitudinally slotted where the bolts E⁴ pass through them, substantially as set forth.

4. A brick-mold E, consisting in four longitudinally-slotted bars E', each having oppositely-projecting end lugs E² E³ and a base-lug E⁶, bolts E⁴, passing through the lugs E² and slots, and bolts E⁵, passing through lugs E³ against the outer sides of lugs E², substantially as set forth.

5. A portable brick-machine comprising the upright frame B, having supporting-wheels C, a bed D, a steam-cylinder above the bed, a piston working in the cylinder and provided with a rod having a plunger and a collar on its lower end, a mold under the plunger, a second plunger above the bed in the mold, a lower cross-head F² for operating the lower plunger, the rods F³, the upper cross-head F⁴, operated by said collar, the regulating-valves for the steam-cylinder, the hand-lever K⁵, mounted on the frame in reach of the operator, and connections between said lever and the valve-stem, substantially as set forth.

JOHN P. ALSTON.

Witnesses:

JAMES H. FERGUSON,
HARRY E. WEEKS.