

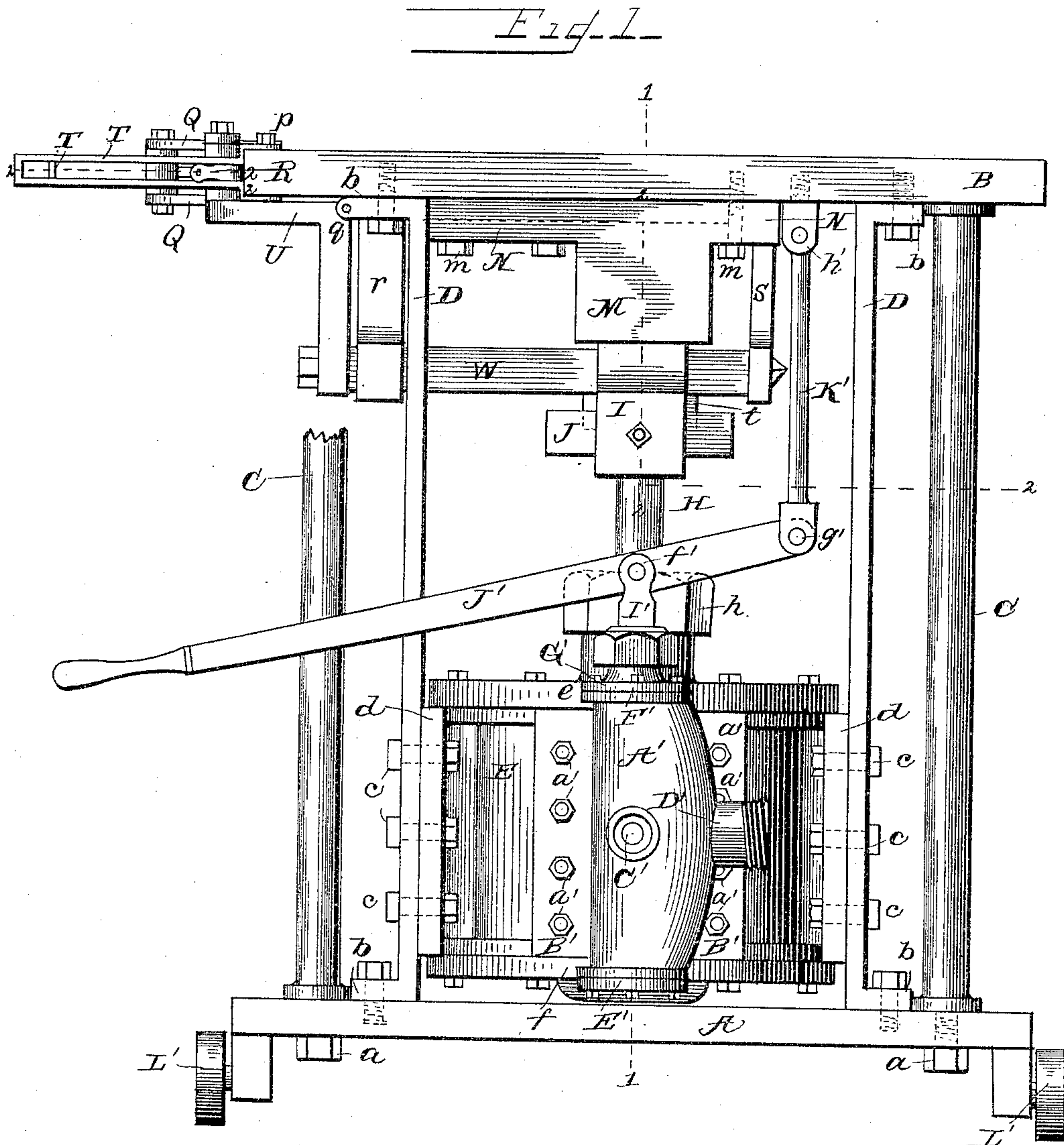
(No Model.)

4 Sheets—Sheet 1.

W. L. HOLMAN.
BRICK PRESSING MACHINE.

No. 436,894.

Patented Sept. 23, 1890.



Witnesses

L. A. Fauberschnitt,

G. A. Brown

Inventor

Inventor
William L. Holman

By his Attorneys

Johnston Reinhold & Dye.

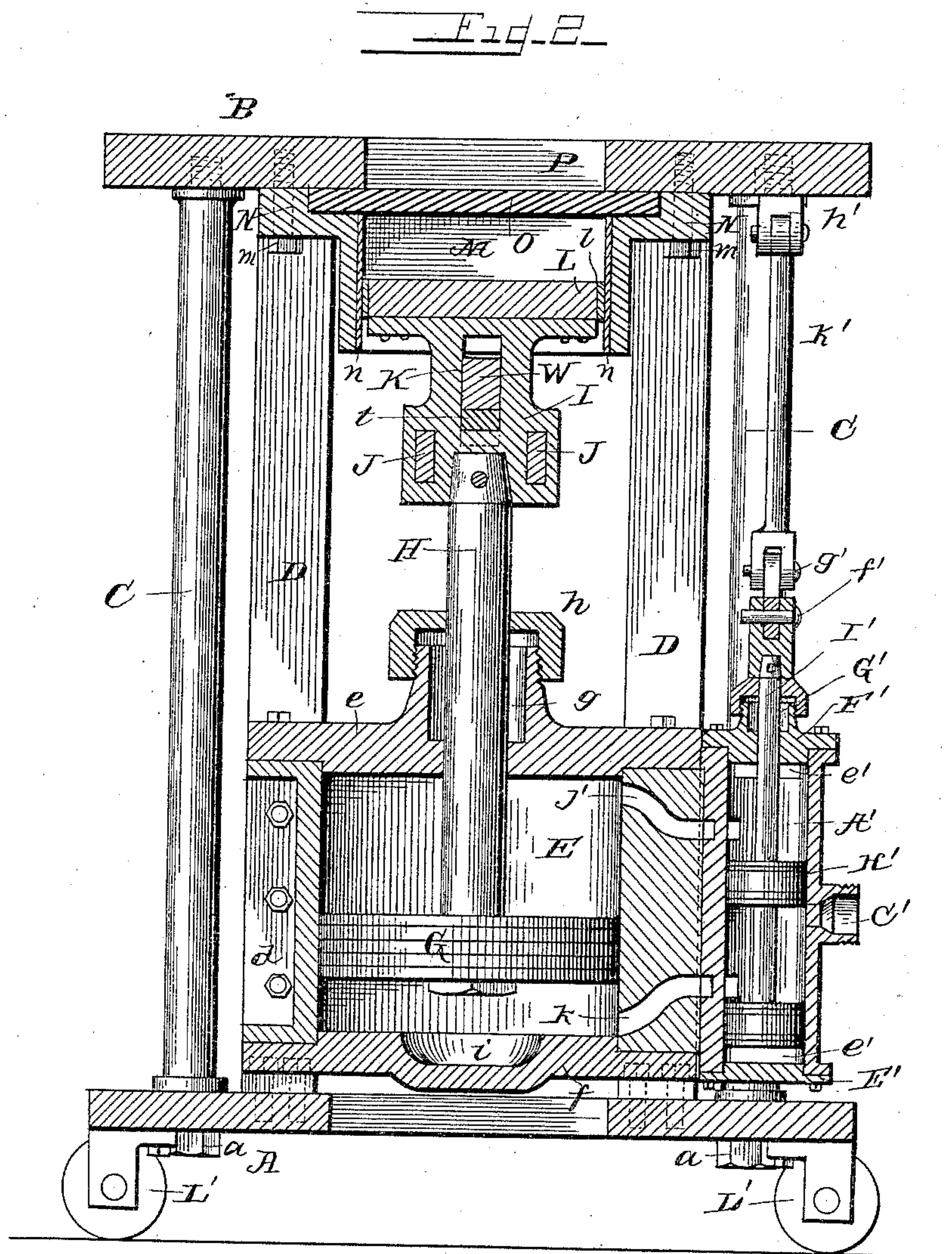
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(No Model.)

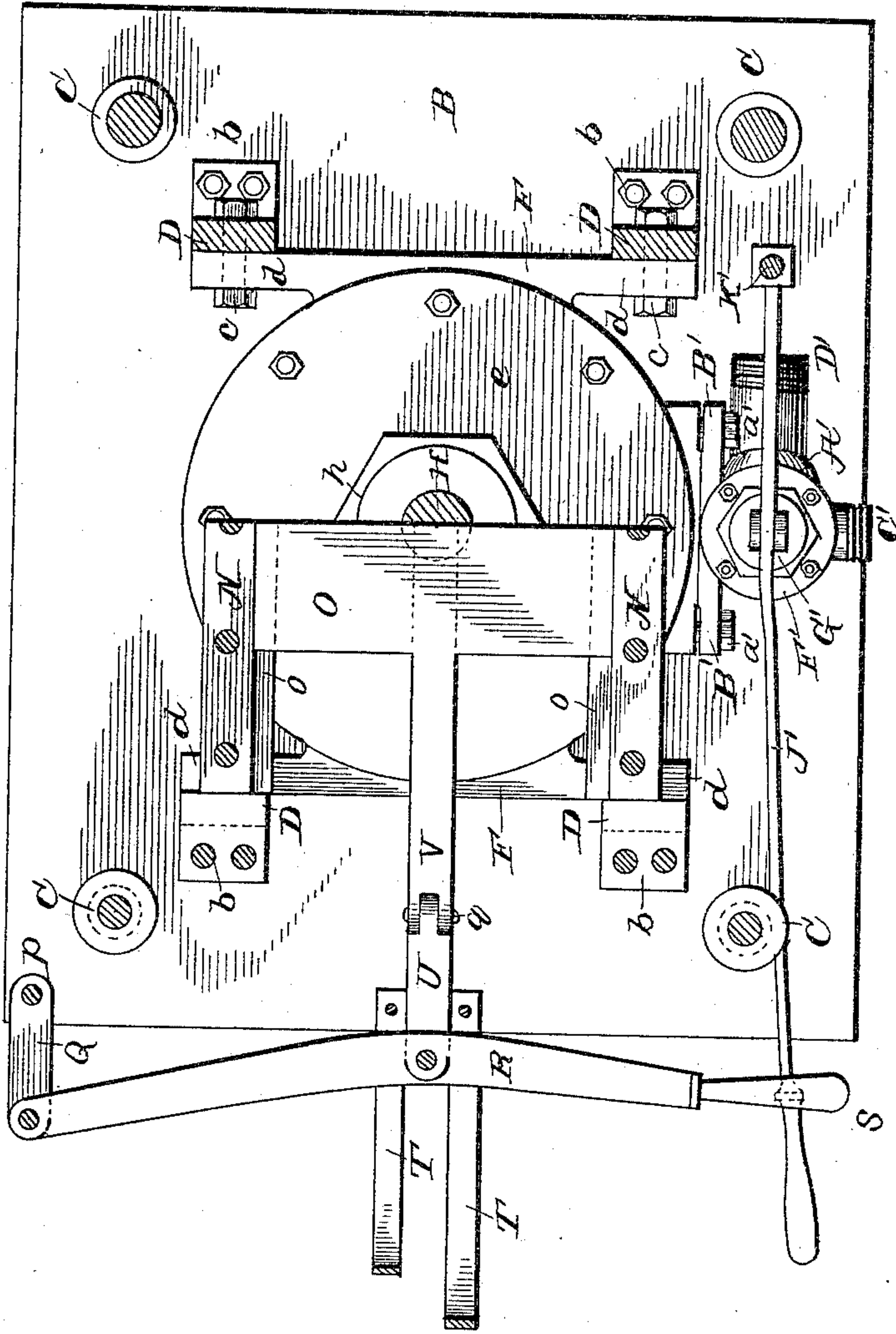
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Fig. 3



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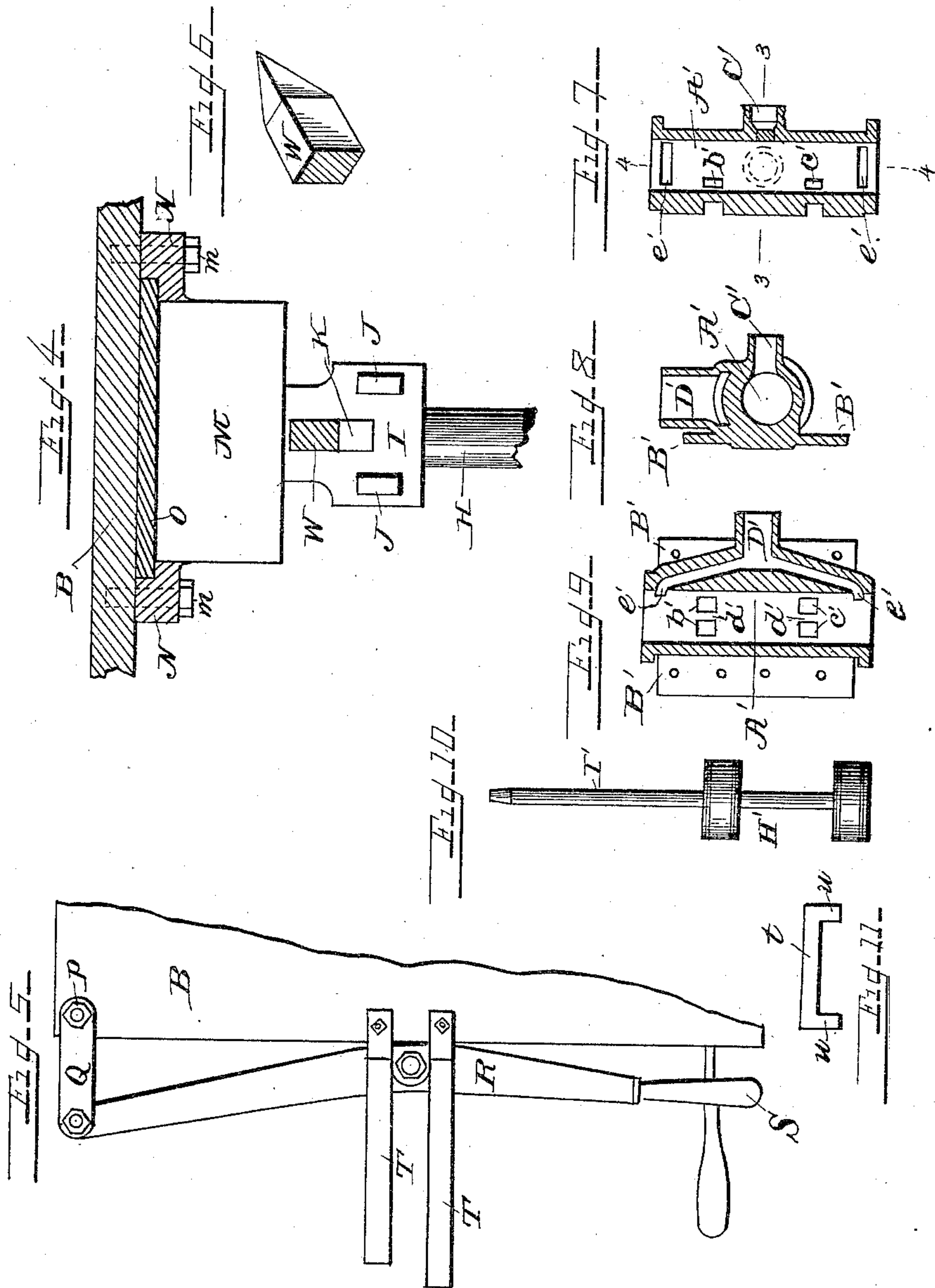
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UNITED STATES PATENT OFFICE.

WILLIAM L. HOLMAN, OF RENOVO, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO THOS. A. ROBERTS AND PATRICK H. SULLIVAN, OF SAME PLACE.

BRICK-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 436,894, dated September 23, 1890.

Application filed March 11, 1890. Serial No. 343,517. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. HOLMAN, a citizen of the United States, residing at Renovo, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Brick-Pressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the art of making press-brick, and has for its object the construction of a cheap, durable, and effective steam-actuated machine, capable of rapidly producing brick of uniform regularity in size and shape, and, owing to their unity of composition, adapted to withstand great strains and changes of temperature to which they may be subjected.

The invention will be hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a side elevation of my invention; Fig. 2, a central vertical section of same on the line 1 1, Fig. 1; Fig. 3, a section on the line 2 2, Fig. 1; Fig. 4, an enlarged view of mold-box and the plunger-head; Fig. 5, a plan view of a lever for sliding the cover of mold-box and stop-bar, limiting the thrust of the plunger; Fig. 6, a perspective of the pointed end of the stop-bar; Fig. 7, a vertical section of a steam-chest, taken through the supply-pipe; Fig. 8, a horizontal section of same on line 3 3, Fig. 7; Fig. 9, a vertical section on line 4 4, Fig. 7; Fig. 10, an enlarged side view of a piston-valve and stem, and Fig. 11 a side view of a gib for limiting the thrust of the machine.

Reference being had to the drawings and the letters thereon, A represents the base, and B the top plate, of the machine, both made of heavy cast metal, rectangular in form, and connected near their four corners by wrought-iron columns C. The ends of these columns are reduced, forming shoulders, and the reduced portions are tapped by screw-threads intended to engage corresponding internal

threads in the plates A and B. The lower ends of column C extend through the base-plate A and are further secured by nuts *a*. Adjacent to each of the four columns C are perpendicular braces D, having angular ends *b*, through which they are bolted firmly to plates A and B. Between the braces D, and resting upon base-plate A, is located a steam-cylinder E of ordinary construction, having parallel flanges F F, Fig. 3, diametrically opposite each other and cast integral with the outer circumference of the cylinder for the purpose of securing same to the four braces D. This is effected by bolts *c* passing through ends *d* of the flanges F and braces D.

The cylinder-heads *e f* are bolted on in the usual manner, the former being provided with an annular recess *g* for the reception of packing and a screw-cap *h* for covering the same, and the latter with a depression *i* in its center for the purpose of collecting water of condensation, which may then be drawn off by a small stop-cock (not shown) communicating with said depression. The side of the cylinder is punctured by steam supply and discharge apertures *j k*, while within is located a piston G, properly packed and connected to piston-rod H, extending upward through recess *g*. On the upper end of rod H is secured a plunger-head I, substantially T-shaped, and bearing two bumpers J J, passing through same and secured therein by a bolt. An elongated slot K is also formed in plunger-head I, running in a direction parallel with bumpers J J midway between and slightly above same. Over the plunger-head is a rectangular steel plunger L, having carefully-planed edges, or edges bound by a smooth metallic band Z, said plunger being secured to the plunger-head I by screws or bolts passing up from below and snugly embraced by a bottomless mold-box M, attached to the top plate B, as shown at *m*, Figs. 1, 2, and 4. Mold-box M, provided with a suitable lining *n*, is secured in position under plate B by the bolts *m*, passing through outward-extending flanges N, cast integral with the ends of the box, said flanges each being provided with a groove *o* throughout its length,

forming tracks or ways immediately below plate B, in which a steel mold-cover O is permitted to slide. A rectangular opening P is provided in plate B directly over the mold-box M, with the inner edges of which said opening registers.

Above and below plate B, at the right-hand rear corner thereof, are two lever-fulcrum straps Q, both swiveled on pin *p*, and having fulcrumed between their outer ends a lever of the second class R, provided with an operating-handle S at its opposite end and supported midway between in parallel lever-guides T, projecting from the edge of plate B, to which they are rigidly secured, the guide nearer the handle of the lever being the longer, so that when said lever is quickly and forcibly withdrawn it strikes at an angle both guides simultaneously, thus distributing the strain and reducing wear upon the parts, as shown in Figs. 1, 3, and 5. To the center of lever R, between guides T, is swiveled a downward-extending connecting-knee U, at the angle of which a slide-bar V is secured by a hinge-joint *q*, the other end thereof being rigidly attached to sliding mold-cover O, while at the lower extremity of connecting-knee U is fastened a sliding stop-bar W, which, projecting inward, finds bearings in depending brackets *r s* and passes through elongated slot K of the plunger-head I, the thrust of which is thereby limited. A gib *t*, with depending flanges *w*, is located in the bottom of the slot K for further limiting the movement of the plunger-head. The free end of the bar W is pointed, as shown in Fig. 6, to facilitate an entrance in said brackets and slot.

To the side of steam-cylinder E is firmly secured a steam-chest A' by bolts *a'*, passing through flanges B', forming the base of said chest. In the rear wall of chest A' are steam supply and discharge apertures *b' c'*, Fig. 9, each guarded by a vertical bridge *d'*, serving to prevent the piston-head packing entering said apertures during its passage by them. When the steam-chest A' is adjusted, these apertures *b' c'* register with apertures *j k* in the cylinder E.

C' indicates a screw-threaded nozzle, to which is coupled a pipe leading to a boiler (not shown) for supplying live steam to the engine; D', an exhaust-pipe communicating with opposite ends of chest A' by channels *e'*, as shown in Fig. 9; E' F', steam-chest lids, the latter provided with the usual packing-box G'; H', a balance-valve, and I' a valve-stem extending through the top steam-chest lid F', where it is bifurcated and straddles a valve-lever J', to which it is pivoted, as at *f'*. The short arm of lever J' is coupled in like manner to a connecting-rod K' at *g'*, while the upper end of rod K' is flattened and swiveled between the two members of a depending lug *h'*.

Beneath the base-plate A at its four corners are bolted four caster-wheels L'.

The construction of the machine being substantially as described, its operation is as follows: A green brick having been taken from the dry-floor sufficiently hard to permit of handling is placed in the mold-box M, resting upon the surface of plunger L, which serves as the bottom of the mold. Lever R is now thrust in, operating upon the mold-cover O, through the medium of connecting-knee U and bar V, to slide the cover between mold-box M and the edges of opening P, thereby incasing the green brick preparatory to pressing. Simultaneously with this movement of the mold-cover the sliding stop-bar W, secured to the lower end of connecting-knee U, is thrust through slot K in the plunger-head for limiting the upward stroke of the plunger. Steam is now admitted through supply-pipe C', and, passing through apertures *c'* and *k*, exerts its force beneath piston G, driving it up, and through the agency of piston-rod H elevating the plunger L within mold-box M until the bottom of slot K or gib *t*, located therein, comes in contact with the lower edge of stop-bar W, as shown in Fig. 2, when the green brick in mold-box M will have been firmly pressed to the desired size and density. By an outward movement of lever R mold-cover O is now withdrawn, and stop-bar W, by the same operation, treated in like manner. This allows the plunger to continue its upward movement until the pressed and finished brick is elevated through the opening P, flush with the surface of table or top plate B, at which point the ascent is checked by the bumpers J J in the plunger-head striking the lower edges of the mold-box M. The finished brick is then removed and a green one substituted and operated upon in the same manner, having first been lowered into the mold-box by reversing the engine through the agency of lever J', as follows: The lever J' is raised by the operator lifting the valve-stem I', and with it the valve H' in steam-chest A', a sufficient distance to allow the used steam to escape from below the piston G through ports *k c'*, and thence to exhaust through the lower channel *e'*, while by this same movement of the valve H' live steam is admitted from between the two members thereof above the piston G through the upper ports *b'* and *j*, thus lowering the entire pressing mechanism into a position to receive the stop-bar W, which is inserted in the manner already described, the mold-cover O slid over mold-box M, and the whole operation repeated.

It is obvious that gibs, such as *t*, of different thickness, may be located in the slot K, thus varying the degree of thrust allowed the plunger and in the same proportion the amount of pressure to which the brick is subjected. It is also obvious that one or more molds may be employed and operated simultaneously, or plunger-heads of different configurations or angles may be used without departing from the spirit of my invention; and while I specify steel or cast or wrought iron, as

the case may be, in the construction of the machine, I do so merely as a matter of preference and do not limit myself to its use.

Having thus fully described my invention, what I claim is—

1. In a portable brick-pressing machine, a table provided with an opening, a mold-box secured beneath said opening and provided with ways in its upper edges, a mold-cover sliding in the ways between said table and box, and a lever for sliding said cover, in combination with a reciprocating plunger, substantially as described.

2. In a brick-pressing machine, a table, a mold-box, a cover for said box between the table and the box, a lever for sliding the cover, and a combined lever guide and support, in combination with a reciprocating plunger, substantially as described.

3. In a brick-pressing machine, a table, a mold-box, a cover for the box, a lever for sliding said cover, and guides of unequal length for directing and limiting the movement of the lever, in combination with a reciprocating plunger, substantially as described.

4. In a brick-pressing machine, a table, a mold-box, and a sliding mold-cover between said table and mold-box, in combination with a reciprocating plunger provided with a projecting bumper for limiting the thrust thereof,

constructed to engage with the lower edges of the box, substantially as described.

5. In a brick-pressing machine, the combination of a reciprocating plunger-head provided with projecting bumpers and an aperture to receive a stop-bar for limiting the thrust, a mold-box, a sliding mold-cover, and a stop-bar for engaging the aperture in the plunger-head, as and for the purpose set forth.

6. In a brick-pressing machine, the combination of an engine, a plunger-head reciprocated thereby, a mold-box, a mold-cover, a stop-bar for engaging an aperture in the plunger-head, a lever for sliding said cover and stop-bar, and lever-guides of unequal length, as and for the purpose set forth.

7. In a brick-pressing machine, an engine, in combination with a plunger-head reciprocated thereby, a mold-box, a mold-cover, a pointed stop-bar for engaging an aperture through the plunger-head, a lever for sliding said cover and stop-bar, and lever-guides, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM L. HOLMAN.

Witnesses:

ALEX. S. STEWART,
WM. E. DYRE.