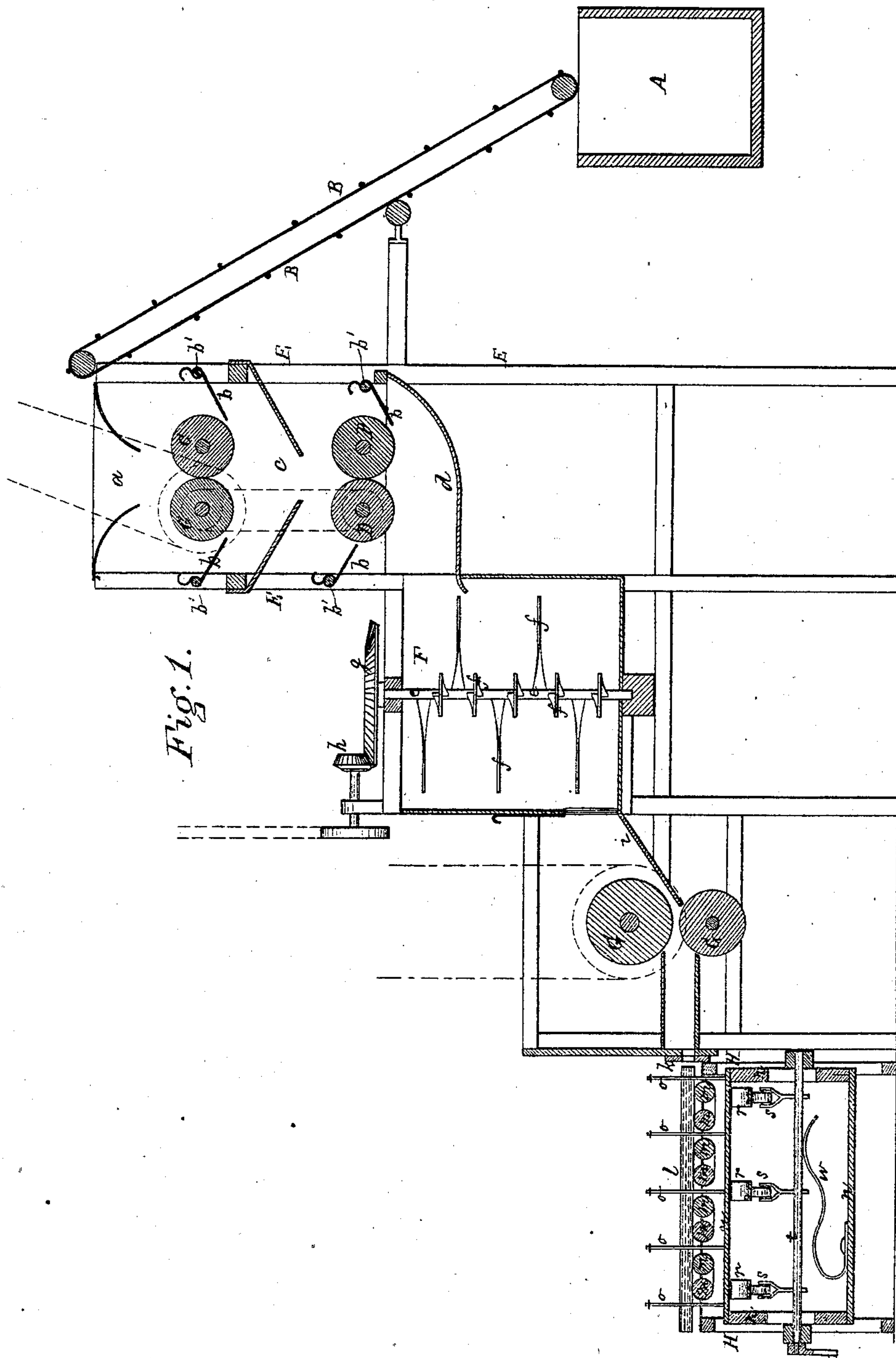


F. BEAUJEU.

Improvement in Brick Machines.

No. 122,214.

Patented Dec. 26, 1871.



WITNESSES.

Chas. B. Nottingham
D. T. Cowl

INVENTOR.

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Fig. 2.

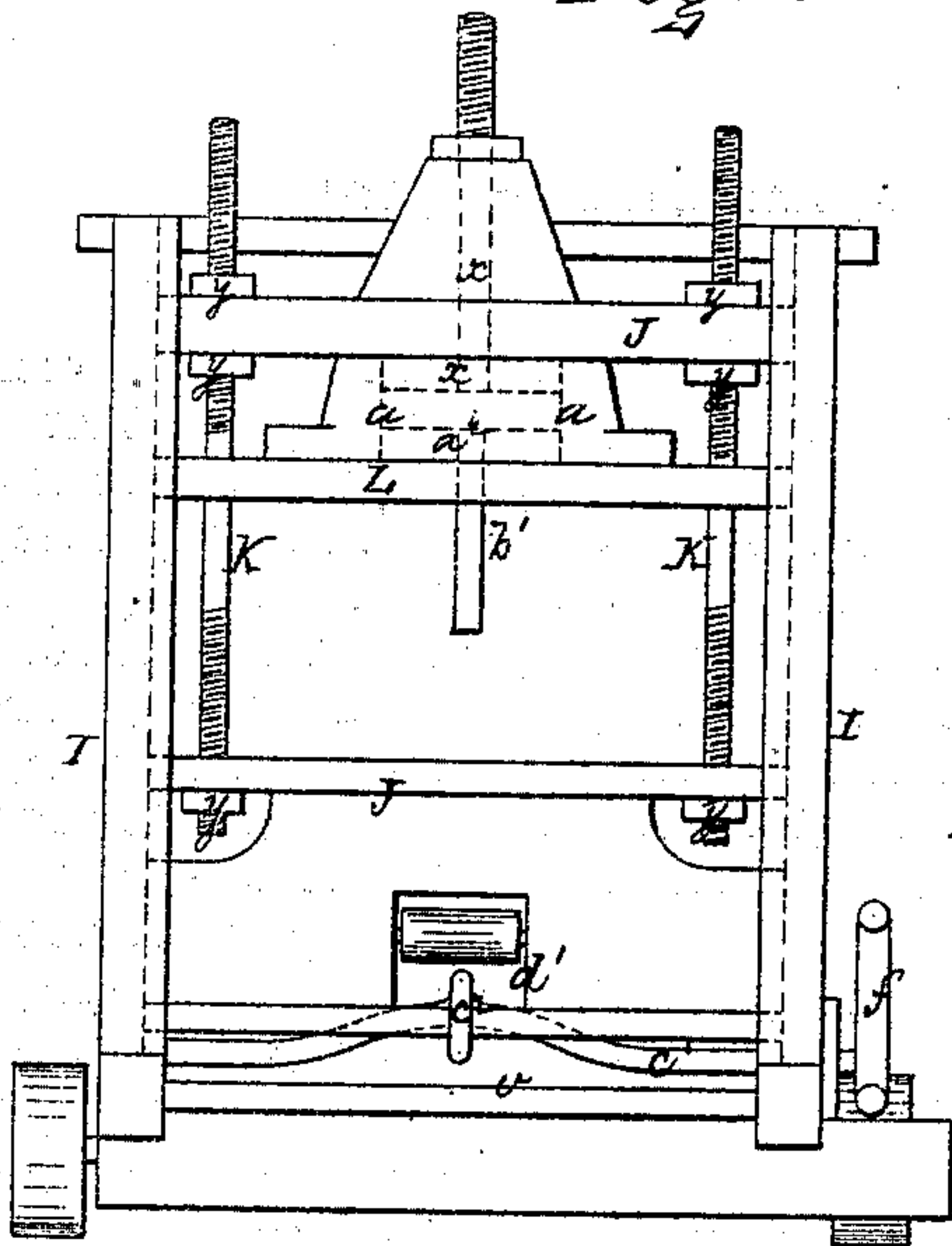


Fig. 3.

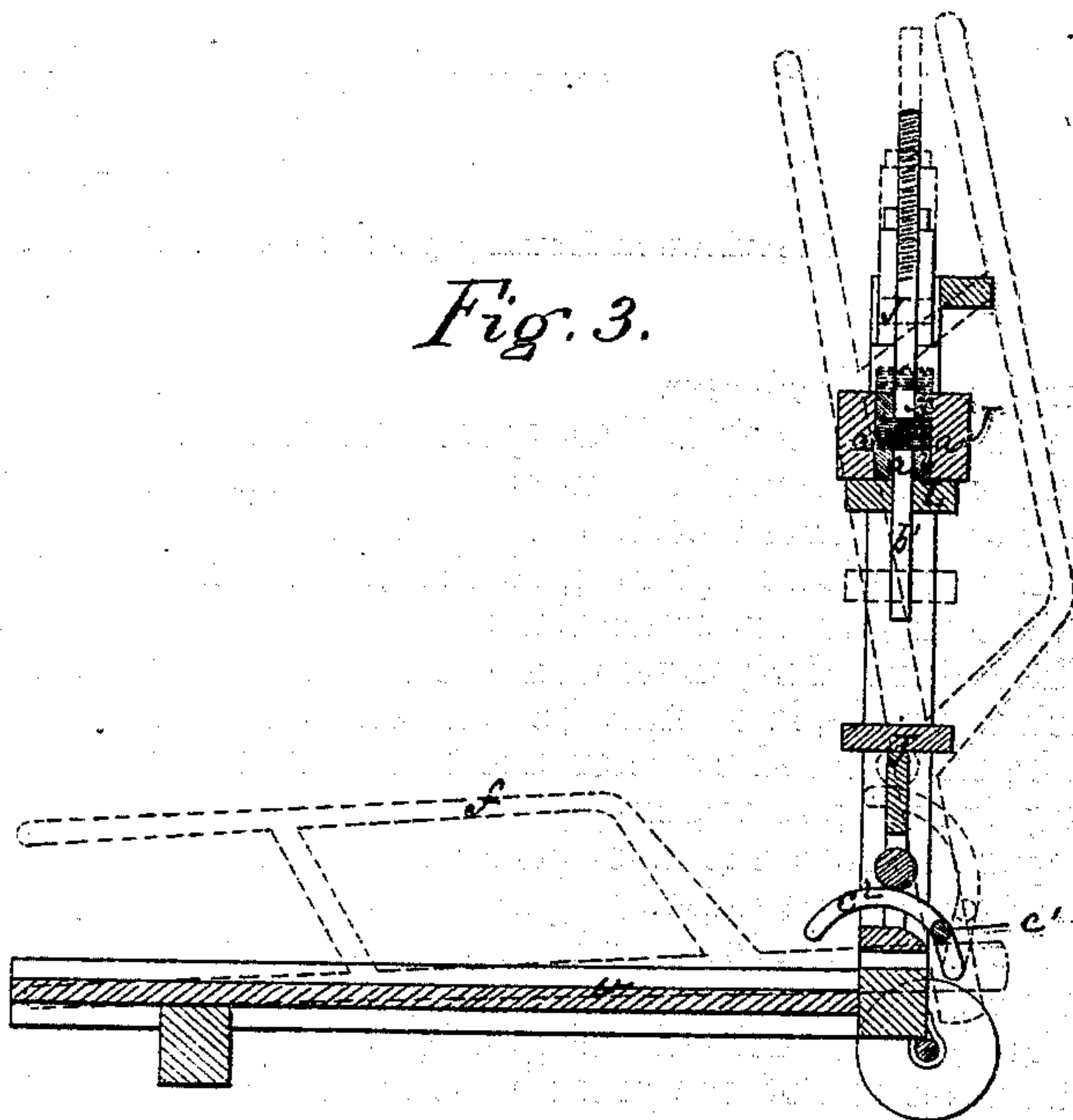


Fig. 5.

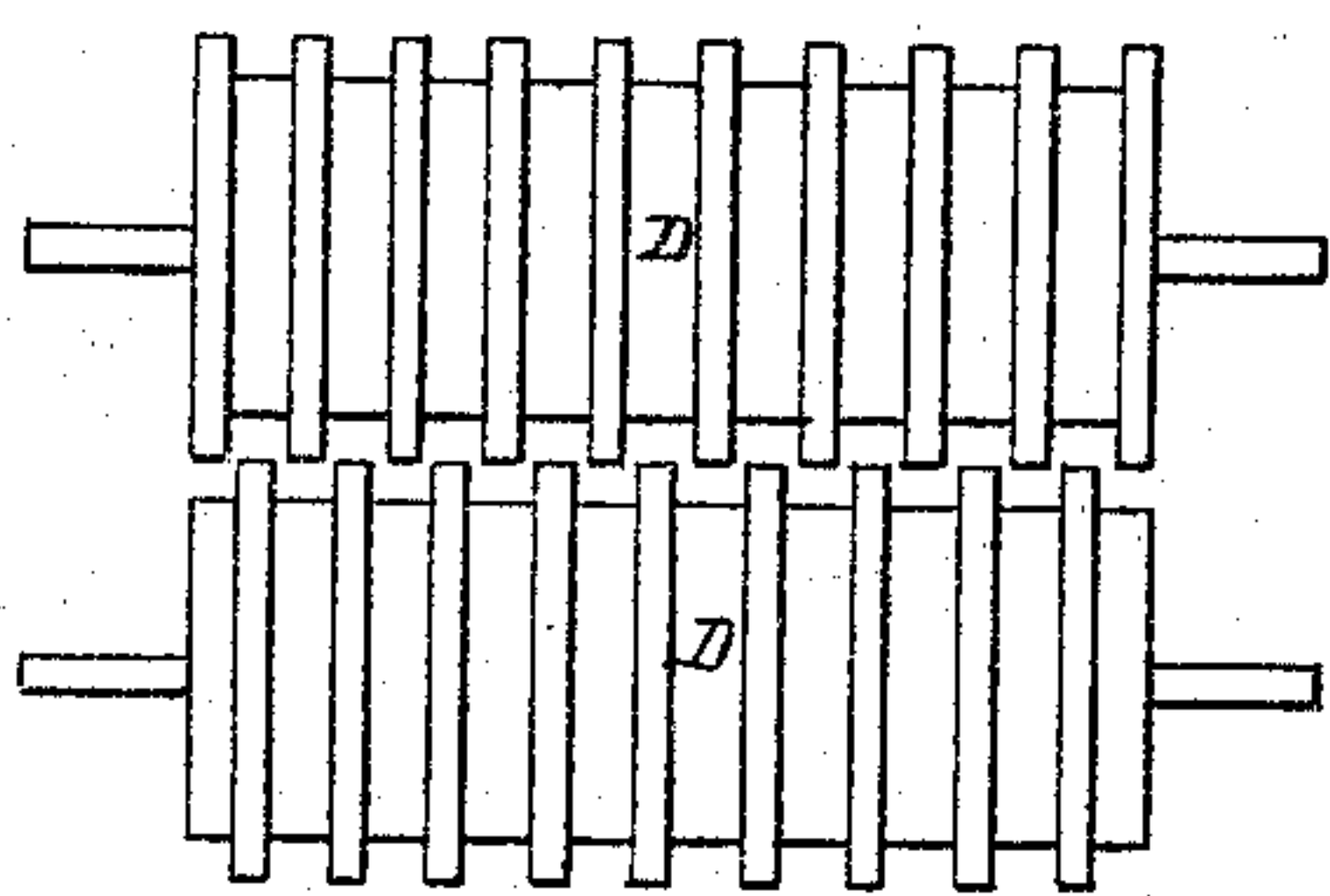
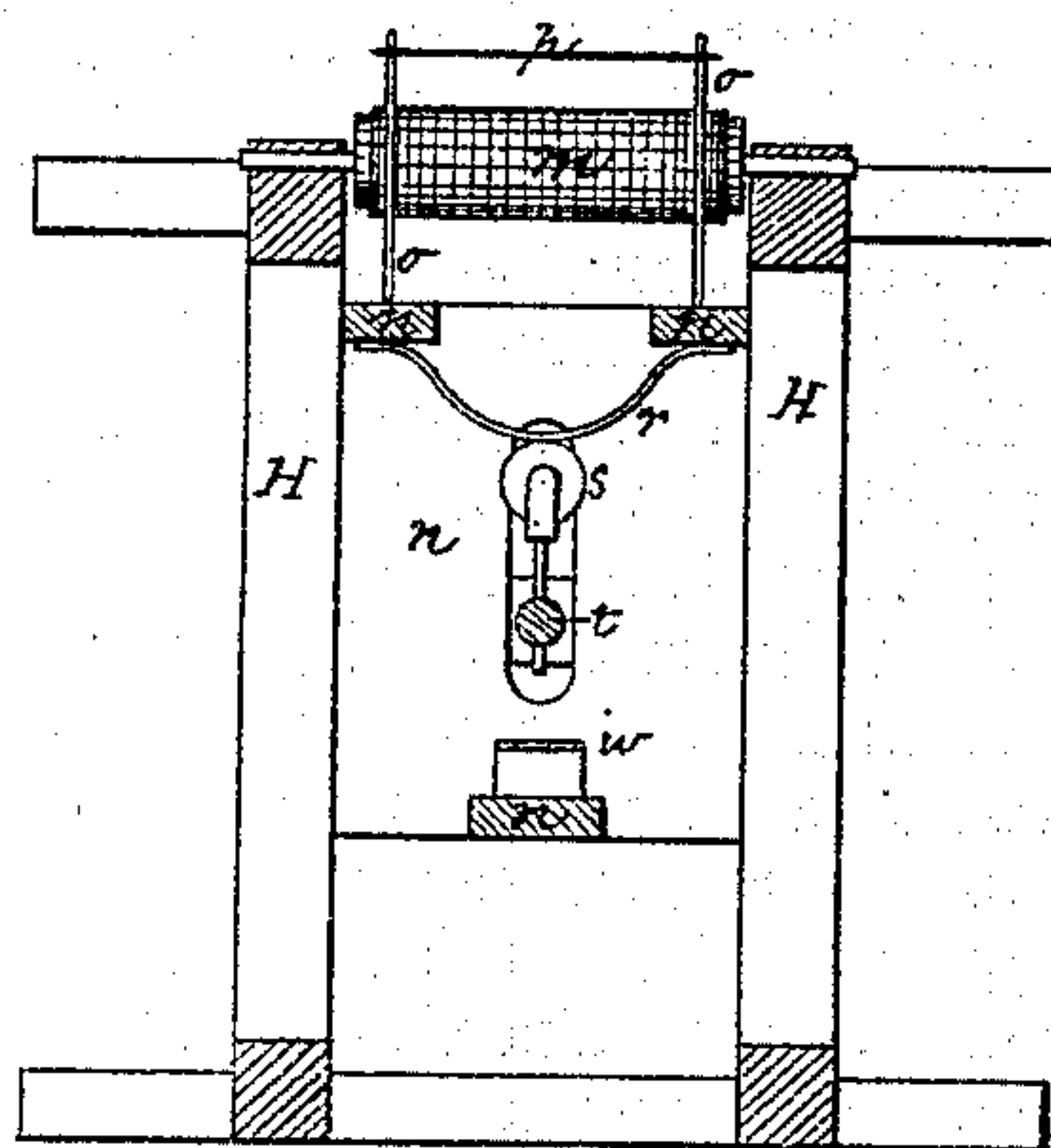


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANÇOIS BEAUJEU, OF PARISH OF ORLEANS, LOUISIANA.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 122,214, dated December 26, 1871.

To whom it may concern:

Be it known that I, FRANÇOIS BEAUJEU, residing in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Brick-Making Machinery, of which the following is a specification:

The nature of my invention and the manner in which the same is or may be carried into effect will be understood by reference to the accompanying drawing, in which—

Figure 1 represents a longitudinal vertical section of a machine embodying my invention. Fig. 2 is a front elevation; and Fig. 3 is a longitudinal vertical central section of the press in which the bricks are molded. Fig. 4 is a transverse vertical section of the press in which the bricks are molded. Fig. 4 is a transverse vertical section of the table which receives the clay from the drawing-plate. Fig. 5 is an elevation of the set of fluted or corrugated working-valves hereinafter referred to.

I take, in the first instance, the clay for the brick from a pit, A. This pit is the same as others now in use, and it is intended to be filled in the day time with earth, which should be sufficiently sprinkled or moistened to be used the next day. The earth is conveyed from the pit to the upper part of the machine by means of an endless apron, consisting, in this instance, of a canvas belt, B, of suitable width, provided with cross-pieces or bars to keep the canvas stretched and to retain the earth upon the belt. The apron passes around two rollers, the lower one near the edge of the pit, and the upper one (which is driven by power from some suitable source) so located as to cause the earth carried up by the apron to be dropped into the hopper on top of the machine. This hopper is represented at *a*, and the earth drops from it upon and between the first set of working-rolls C, one of which is provided with a pulley rotated by power derived from a suitable source. The other roll is driven by frictional contact with the first or by being geared to the same; and both of them can be arranged so as to yield slightly to the mass of earth passing between them, and to be set at different intervals apart. Each roll is provided with a scraper, *b*, consisting, in this instance, of a metallic plate secured upon a shaft, *b'*, which can turn in order to adjust the scraper in proper position. A spring

may be employed to keep the scraper pressed against the roll or the scraper may be otherwise made and arranged so as to be adjustable to the different positions which the roll may occupy. This first set of rolls is composed of cylinders having plain, smooth surfaces. The earth drops from between these rolls into a hopper, *c*, whence it passes to a second and lower set of rolls, D, whose general arrangement is similar to that of the first set of rolls, C. They are also provided with scrapers *b*. Instead, however, of having plain surfaces, these rolls are provided with annular flutes or corrugations in planes at right angles with their axes, as shown clearly in Fig. 5, which is a front elevation of the rolls. They are driven by means of a belt passing from a pulley on one of them to the pulley of the upper set of rolls, so that both sets revolve in unison. The rolls are supported in a suitable case or frame, E, at the bottom of which is a hopper or incline, *d*. The earth being crushed and worked first by the plain rolls, and then more thoroughly by the fluted or corrugated rolls, is conducted by the incline *d* into the malaxating or kneading apparatus, consisting of the cylinder F, inclosing the vertical shaft *e*, supported in bearings in said cylinder and provided with radial metallic arms *f*, which serve to cut up and thoroughly work and knead the clay, and at the same time are so shaped and curved, somewhat after the fashion of propeller-blades, as to force the earth gradually to pass from the top to the bottom of cylinder. The shaft *e* at its top is provided with a beveled gear, *g*, which is driven by a beveled pinion, *h*, actuated from the prime mover. The earth, as it reaches the bottom of the kneading-cylinder, is, by the action of the kneading-blades or arms, forced out through a wired or grated aperture in the side of said cylinder, whence it passes down an incline or hopper, *i*, to rolls G, which feed it through a narrow passage to the drawing-plate or aperture K, from which it emerges in the form of a slab or strip of proper thickness and width; and in that form is immediately received upon a table, H, where it is cut up into proper lengths as it is fed along. The grating in the discharge-aperture of the kneading-cylinder is for the purpose of thoroughly separating from the earth grass and other injurious substances. Several drawing-plates are provided,

so that one can be changed for the other to produce a strip or slab of any desired dimensions. By putting one or more horizontal wires lengthwise in the aperture in said plate, and at proper distances apart, one, two, or three whole bricks can be made at pleasure; or the form and structure of the drawing-aperture and plate can be changed so as to produce tubes having a diameter as great as four inches. In order to cut the strip up into proper lengths for the mold or press I make use of the following arrangement: The clay strip l passes over the smooth top of the table or over a series of horizontal rolls, m , arranged with an endless belt around each pair of rolls in order to facilitate the movement of the strip. Below these rolls or the top of the table is a vertically-sliding frame, n , which is capable of moving up and down in the ways formed in the ends of the table-frame. To the top and on each side of this sliding frame are fastened uprights o , in pairs opposite each other and at suitable intervals apart, and reaching up through and above the top of the table in the intervals between the pairs of rolls. Extending between the tops of each pair of uprights is a wire or cutting-blade, p , sufficiently raised above the table to permit the clay strip or slab to pass along under them, unless they should be lowered, as hereinafter described. On the under side of the upper part of the sliding frame are rounded projections r , which are acted on by cams or arms s attached to or formed on a shaft, t , supported in suitable bearings in the lower part of the table and between the upper and lower parts of the sliding frame. A spring, w , on the lower part of sliding frame, presses up against shaft t or some other portion of the unyielding portion of the table, and thus tends to draw the sliding frame down. On the other hand, when the shaft t is partly turned, (and it need only make a quarter revolution back and forth) cams s , acting on the projections r , serve to raise the frame, and thus, if the shaft be rocked back and forth by its crank, a reciprocating up-and-down movement will be imparted to the cutting-wires by the alternate action of the spring and cams. The wires, as the slab or strip of earth passes along the table, are raised above it by the cams, and when a strip of sufficient length is upon the table the shaft is rotated so as to remove the cams from the projections r , and then the spring, being free to act, draws the cutting-wires down to or below the level of the top of the table, and they, in their descent, cut through the strip and divide it up into pieces of the requisite dimensions. From the cutting-table the earth thus divided is carried to the molding-press, shown in Figs. 2 and 3. This is a portable press, mounted on wheels, and is constructed as follows: The part v is the platform upon which the workman stands when pressing the bricks. Upon the platform are erected uprights I , between which is arranged a vertically-sliding frame, J , the upper portion of which, carrying the piston x of the press, is connected with the lower portion by means of screw-rods K , provided with nuts y , by

means of which the upper part of said frame may be adjusted up or down at a greater or less distance from the lower part, for the purpose of pressing bricks of different thicknesses. The piston x may also, if desired, be made adjustable in the same way independently of the frame. The rods pass loosely through an intermediate stationary cross-beam, L , fastened to the uprights and carrying the mold a^1 , provided with a loose bottom, a^2 , capable of sliding up and down, and provided with a pin, b' , which passes through the beam L , and, when the bottom is in its lowest position, projects some distance below said beam. The up-and-down movements of the sliding piston-frame are caused by means of a shaft, c^1 , provided with a curved arm or eccentric, c^2 , extending through an opening, d' , in the frame, and actuated by means of the handle or lever f' .

The operation of the press is as follows: The lever is raised so as to lift the sliding frame and elevate the piston sufficiently to allow one of the pieces of clay cut on the table H to be placed on the bottom of the mold. The lever is then depressed and carries with it the piston, which is thus caused to descend and compress the clay in the mold. The lever is then thrown up, elevating the piston, and at the same time the lower part of the sliding frame strikes against the pin b' , which lifts the bottom of the mold level with the top, thus raising the molded brick, placing it in position to be readily removed, and allowing the mold to be again filled with one of the previously-cut pieces.

The mold should be greased with tar-oil, or should be coated with soap-suds or other liquid or substance which will prevent the brick from adhering to the mold.

The cutting-wires on the table H can be changed and placed at various distances apart, so as to cut any length of bricks.

The system herein described of making bricks is simple, cheap, and effective. The manufacture is quickly and readily carried on, and but two workmen are required for each machine, one to throw the earth upon the endless belt, the other to cut the bricks.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for making bricks, the combination of the plain and fluted working-rolls, the kneading-cylinder, and the hoppers for conducting the earth from the one to the other of these devices, substantially as herein shown and described.

2. The combination, with the kneading-cylinder, of the working-rolls, feed-hoppers, and endless feed-apron, under the arrangement and for operation substantially as herein shown and described.

3. The kneading-cylinder, in combination with the cutting-table and the feed or drawing-rolls and draw-plate intermediate between said cylinder and table, substantially as herein shown and set forth.

4. The cutting-table, constructed and arranged to operate in the manner herein shown and described.

5. The combination of the feed-apron, working-rolls, feed-hoppers, kneading-cylinder, drawing rolls, draw-plate, and cutting-table, organized and arranged for joint operation, substantially as herein shown and described.

6. The molding-press, consisting of the parts herein specified, constructed, and arranged to operate in the manner shown and set forth.

F. BEAUJEU.

Witnesses:

F. MARTIN,
JAMES WOOD.

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