

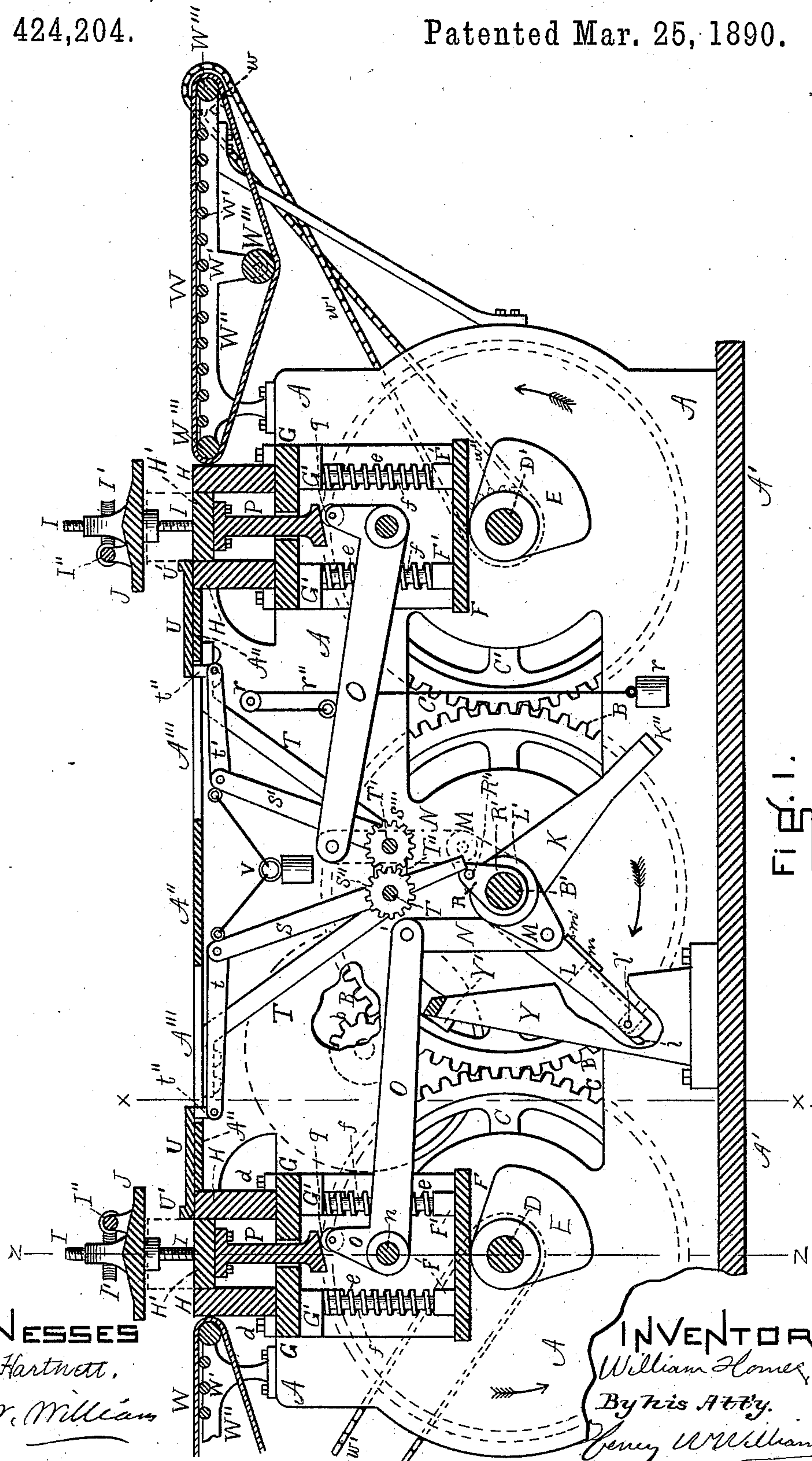
(No Model.)

2 Sheets—Sheet 1.

W. HOMES.  
MACHINE FOR PRESSING BRICK.

No. 424,204.

Patented Mar. 25, 1890.



WITNESSES

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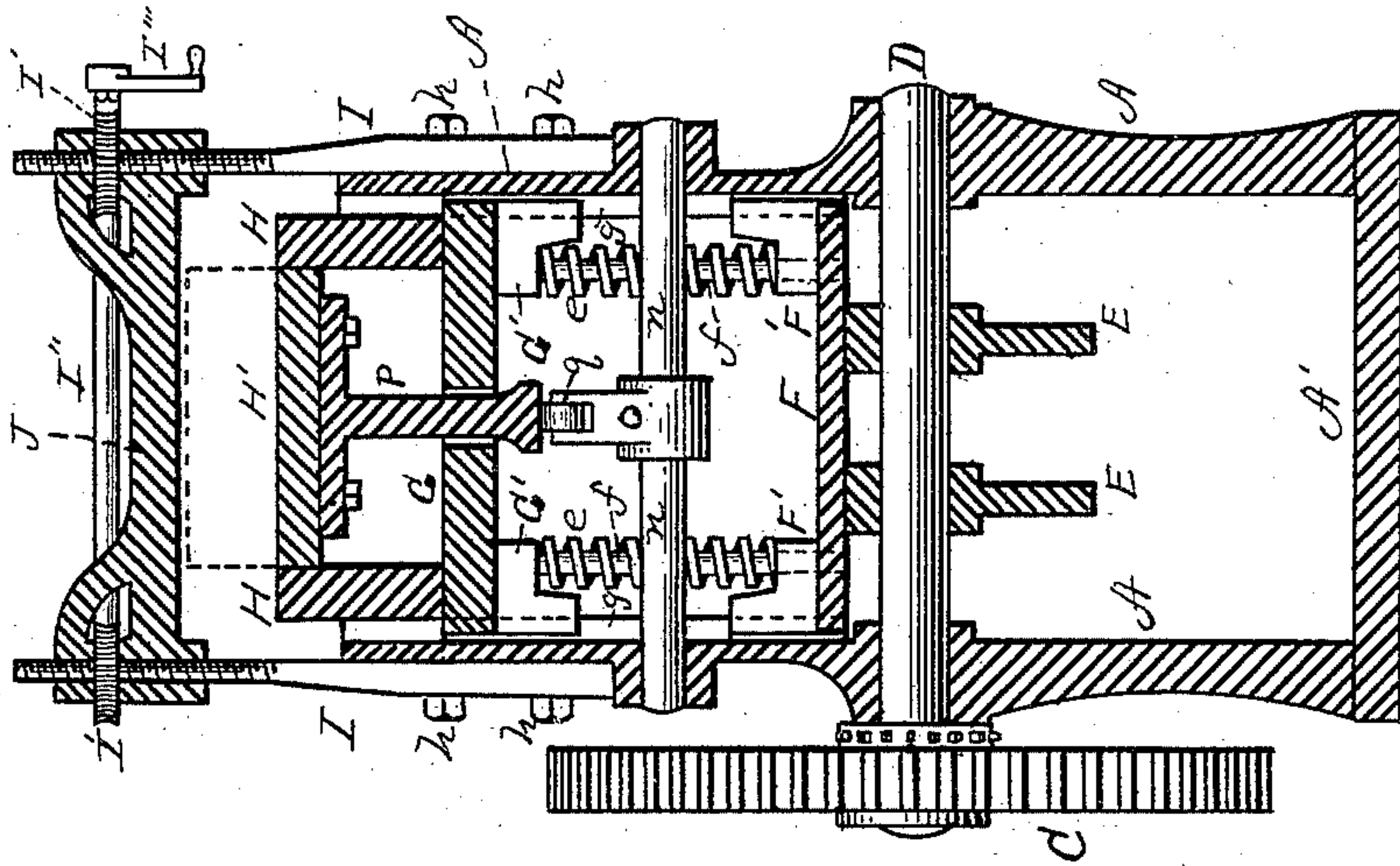


FIG. 3.

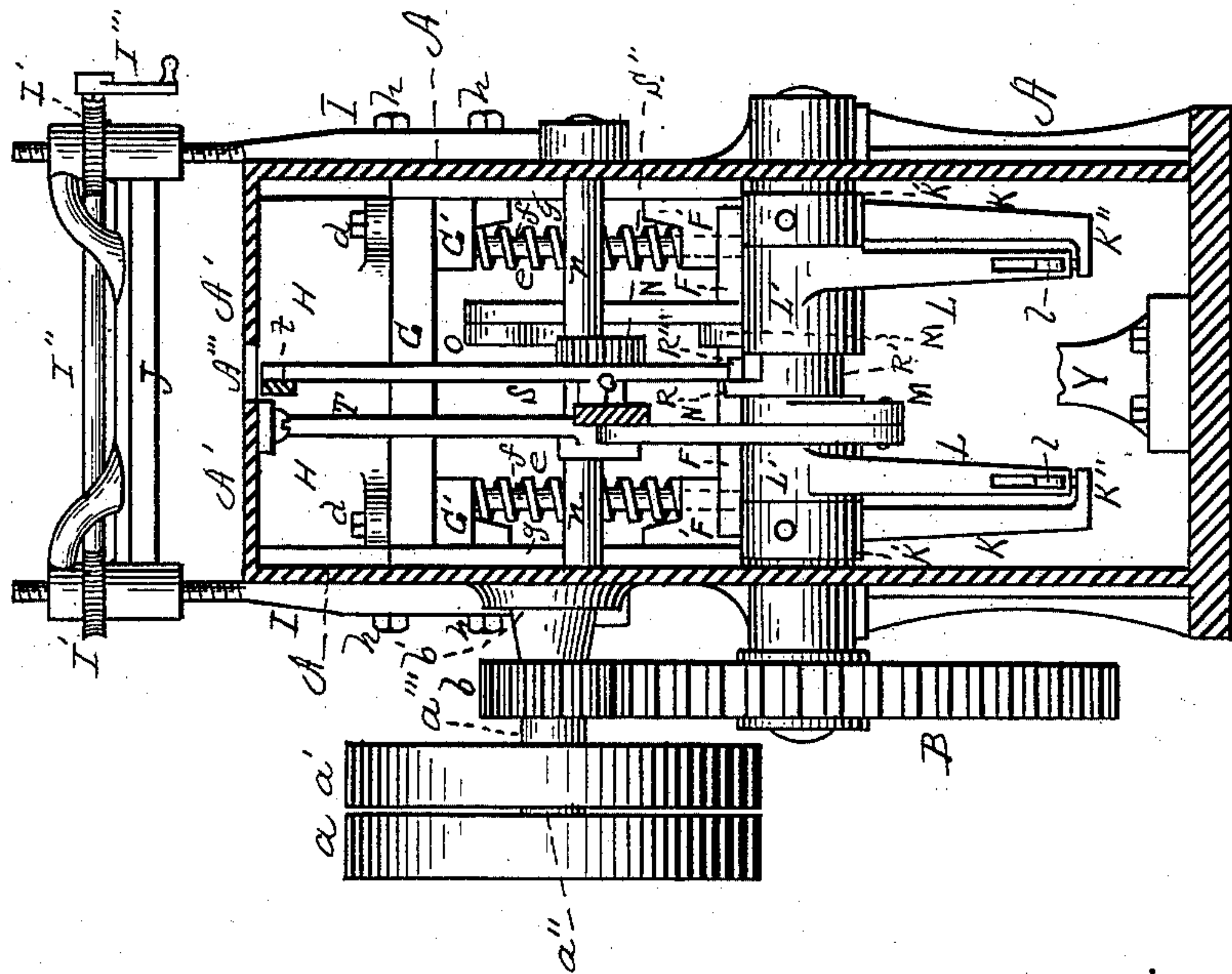


FIG. 2.

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# UNITED STATES PATENT OFFICE.

WILLIAM HOMES, OF MALDEN, MASSACHUSETTS.

## MACHINE FOR PRESSING BRICK.

SPECIFICATION forming part of Letters Patent No. 424,204, dated March 25, 1890.

Application filed December 26, 1889. Serial No. 335,071. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HOMES, of Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Machines for Pressing Brick, of which the following is a specification.

This invention relates to that class of machines in which the roughly-molded brick is taken in a soft or semi-plastic state from the hands of the molder or from the brick-molding machine and pressed (or, as is technically termed, "repressed") into a finished brick ready for driers and the kiln.

The object of this invention is to produce a machine for pressing brick in which the pressure is uniform, and a pressure which has been previously decided on as sufficient and adequate for the work, and in which the said pressure is removed before it has increased beyond a certain point, with the result that not only is a brick of uniform density produced, but the machine is prevented from breaking from extreme and unnecessary strain—a most common fault in the power-presses now in general use.

It is intended in this machine to produce work which will be similar in quality to the work of a hand-press and much greater in quantity of brick turned out in a given time.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a longitudinal vertical section of a machine embodying my invention. Fig. 2 is a cross vertical section on line *x*, Fig. 1. Fig. 3 is a cross vertical section on line *z*, Fig. 1.

A is the frame, preferably of cast-iron, A' being the base thereof.

*a a'* are pulleys loose on the shaft *a''*, supported by the bracket *b'*, bolted to the frame. The pulley *a'* is made integral by means of the collar *a'''* with the gear *b*, also loose on said shaft, which engages the gear-wheel B, fast on the shaft B', Fig. 1, supported in the frame. This wheel B engages the two similar gear-wheels C C', fast on the shafts D D', respectively, supported by the frame. Fast on the shaft D are two cams E, of substantially the shape shown.

F is a vertically-sliding table resting on said cams and provided with the guides F',

said guides being each vertically perforated to allow two of the four rods *f f* to play therein, such perforations extending also through the plate F. The upper ends of these rods are rigidly secured in the guides G', attached to the table G, said guides and table being similar to the guides and table F' F. Both said tables and guides move vertically in the ways *g g*, formed on the inside of the frame.

Surrounding the rods *f* are springs *e*, of sufficient strength to support the table G and the box thereupon.

H H are the sides of the brick-box, made preferably of cast-iron and lined with steel, of the ordinary shape, and bolted onto the table G, as shown at *d*.

H' is a vertically (slightly) movable metallic table, which forms, when the brick is being pressed, the bottom of the brick-box.

I I are vertical rods or supports bolted to the frame, as shown at *h*, threaded at their upper ends, and extending through smooth vertical perforations in the horizontal metallic plate J, which acts as a cover to the brick-box when the brick is being pressed. This plate is constructed to allow the gear-wheels I' to run on the threaded rods I, said gear-wheels, together with the shaft I'', (operated by the crank I'''), constituting a worm-gear by means of which the height of the plate or cover J may be adjusted, so as to accommodate bricks of different thicknesses.

The office of the mechanism thus far described is to form the brick-box by raising the sides H until the bottom and top H' J are in their proper positions, so that a brick (shown in broken lines in Figs. 1 and 3) may be pressed in the position below described. It will be seen by reference to the drawings that the mechanism above described at the opposite ends of the machine is exactly similar, and hence the duplicate parts are designated by similar reference-letters.

K K are two arms or levers rigidly secured to the shaft B' by means of their hubs K' K', and bent at right angles at K'' K''. Loose on the same shaft are two hubs L' L', from which extend the bifurcated arms or levers L L, each provided at its free end with a latch *l*, pivoted at *l'* in the bifurcation, and each furthermore provided with a spring *m*, se-



cured at  $m'$  to said lever and with its free end bearing against the inner end of said latch, the shape of which is shown in broken lines in Fig. 1. Rigid with the same hub  $L'$  are two similar cranks  $M M$ , to the outer ends of which are pivotally secured the connecting-rods  $N N$ , whose outer ends are pivotally secured to the bent or bell-crank levers  $O O$ , fast on the shafts  $n n$ , supported in bearings in the frame. The short arms of the levers  $O O$  are provided with rolls  $q q$ , on which rest the standards or posts  $P P$ , whose tops are bolted to the plates  $H'$ . Additional motion is given to these standards by beveling their lower ends, as shown in Fig. 1. A weight, as  $r$ , is suspended from a pulley  $r'$  by means of a chain whose end is secured to the right-hand lever  $O$ , said pulley being secured to the frame, the object being to counteract the weight of the levers  $O O$ , connecting-rods, &c. This completes the pressing mechanism. Next in order is the feeding mechanism.

Fast on the shaft  $B'$  by means of the hub  $R'$  is the crank  $R$ , provided at its free end with the pin  $R''$ , the object of which is to trip the short arm of the lever  $S$ , which is integral with the gear-wheel  $S''$ , fast on the shaft  $T$ , which has its bearings in a frame or bracket  $T''$ , bolted to the table  $A''$ , supported by the frame  $A$ . The long arm of the lever  $S$  is pivoted at its upper end to the connecting-rod  $t$ , whose outer end is pivotally secured to the small bracket  $t''$ , integral with the horizontally-reciprocating arm or pusher  $U$ , built up at its end  $U'$  and sliding on the table  $A''$ , which is slotted at  $A'''$  to accommodate the bracket  $t''$ .

$S'''$  is a gear-wheel exactly similar to and engaged by the gear-wheel  $S''$ , fast on the shaft  $T'$ , supported by the bracket  $T'$ , said gear-wheel  $S'''$  being integral with the lever  $S'$ , whose upper end is pivotally secured to the connecting-rod  $t'$ , which carries an arm or pusher  $U$  exactly similar to that above described. A weight  $V$  is suspended between the levers  $S S'$  from cords secured to said levers, whereby they are brought together after the short arm of the lever  $S$  has tripped over the pin  $R''$ .

The operation is as follows: The machine being in the position shown in the drawings—*i. e.*, with the pushers each in the position of having just pushed a brick onto the plates or bottoms  $H'$  of the box—and motion being imparted to the shaft  $B'$ , the crank-pin  $R''$  passes under the lever  $S$  and the weight  $V$  pulls the levers  $S$  and  $S'$  toward each other, withdrawing the pushers  $U$  by means of the connecting-rods  $t t'$ . Next the gear-wheel  $B$  imparts motion in the same direction to the gear-wheel  $C C'$ , and hence the shafts  $D D'$ , thus rotating the cams  $E$  and raising the plates  $F$  and by means of the springs  $f$  the sides  $H$  of the boxes until they come in contact with the plates  $J$ . These springs (which are light and properly adjusted) hold the upper edges of the sides  $H$  of the boxes with a

slight pressure against the top-plates  $J$ , and the lower ends of the rods  $f$  project through the lower plates  $F$ . As soon as the boxes are closed the bent ends  $K''$  of the levers  $K$  engage the latches  $l$  and swing up the levers  $L$ , and hence the cranks  $M$ , (which are on the same hubs  $L'$  as said levers  $L$ ), causing by means of the connecting-rods  $N$  and levers  $O$  the posts  $P$  to rise and lift the bottom plates  $H'$  and press the bricks contained in the boxes. As soon as the cams have passed and the boxes have dropped the crank-pin  $R''$  engages the short arm of the lever  $S$ , and by the aid of the gear  $S'' S'''$  the levers  $S S'$ , through the connecting-rods  $t t'$ , again move the pushers  $U$  outward and push another brick onto each of the bottom plates  $H'$ , the pressed bricks being pushed by the incoming bricks off said tables onto endless belts  $W$ , moving on rolls  $W'$ , supported in frames  $W''$  and running on rollers  $W'''$ , to one of each set of which a sprocket-wheel  $w$  is fixed, said sprocket-wheels being connected by chains  $w'$  with similar wheels  $w''$  on the shafts  $D D'$ . When the pressure on the bricks has become sufficient to overcome the power of the springs  $m$ , the latches  $l'$  yield and allow the arms  $K$  to continue on their course without further actuating the arms  $L$ , thus relieving the bricks from further pressure.

Of course the springs can be made as strong as desired and the exact pressure needed provided. In case by any accident the attendant (one being deemed sufficient to feed the machine) should omit to place a brick in position to be pushed upon a table  $H'$ , it will readily be seen that there would be no pressure to overcome the spring  $m$  and actuate the latch  $l$ ; hence, in order to prevent breakage of the machine, it is necessary that some means should be provided whereby to actuate the latch in such an emergency. This is accomplished by means of a standard  $Y$ , supported by the bottom  $A'$  of the frame and provided with wings  $Y'$ , so that if either latch should swing up far enough to reach that point it would strike one of the wings and be actuated thereby instead of by the pressure of the brick (through the intermediate mechanism) against the spring  $m$ .

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

1. In a machine for pressing brick, the cams  $E$  on the shaft  $D$ , vertically-moving tables  $F G$ , and intermediate springs  $f$ , sides  $H$  of the brick-box supported by and moving with said table  $G$ , and plate or cover  $J$ , combined with the bottom plate  $H'$  and means for pressing the same upward toward said plate or cover, substantially as set forth.

2. In a machine for pressing brick, the bottom plate  $H'$ , supported by the post  $P$ , a system of levers between said post and the driving-shaft  $B'$ , whereby said bottom plate is raised for pressing the brick, a lever, as  $L$ , loose on the shaft and provided with a spring—



latch, as *l m*, and a lever *K*, fast on the shaft and provided with means for engaging said lever *L* by means of said latch, whereby said lever *L* imparts motion to the said system of  
5 levers until the pressure against the brick becomes great enough to overcome the spring which holds the latch, substantially as described.

3. In a machine for pressing brick, the  
10 combination of the lever *L*, loose on the shaft *B'* and provided with the spring-latch *l m*, the lever *K*, fast on said shaft and engaging said lever *L* by means of the latch, mechanism intermediate with the lever *L* and the  
15 bottom plate of the brick-box, whereby said bottom plate is raised for pressing the brick,

and the standard *Y*, provided with the wings *Y'*, for tripping the latch when it reaches that point, substantially as set forth.

4. In a machine for pressing brick, the com- 20  
bination of the shaft *B'*, supported by the frame and provided with the crank *R*, having the pin *R''*, the levers *S S'*, rigid with the gear-wheels *S'' S'''*, supported by the frame, connecting-rods *t t'*, weight *V*, pushers *U*, and 25  
table *A*, slotted at *A'''*, substantially as set forth.

WILLIAM HOMES.

Witnesses:

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