

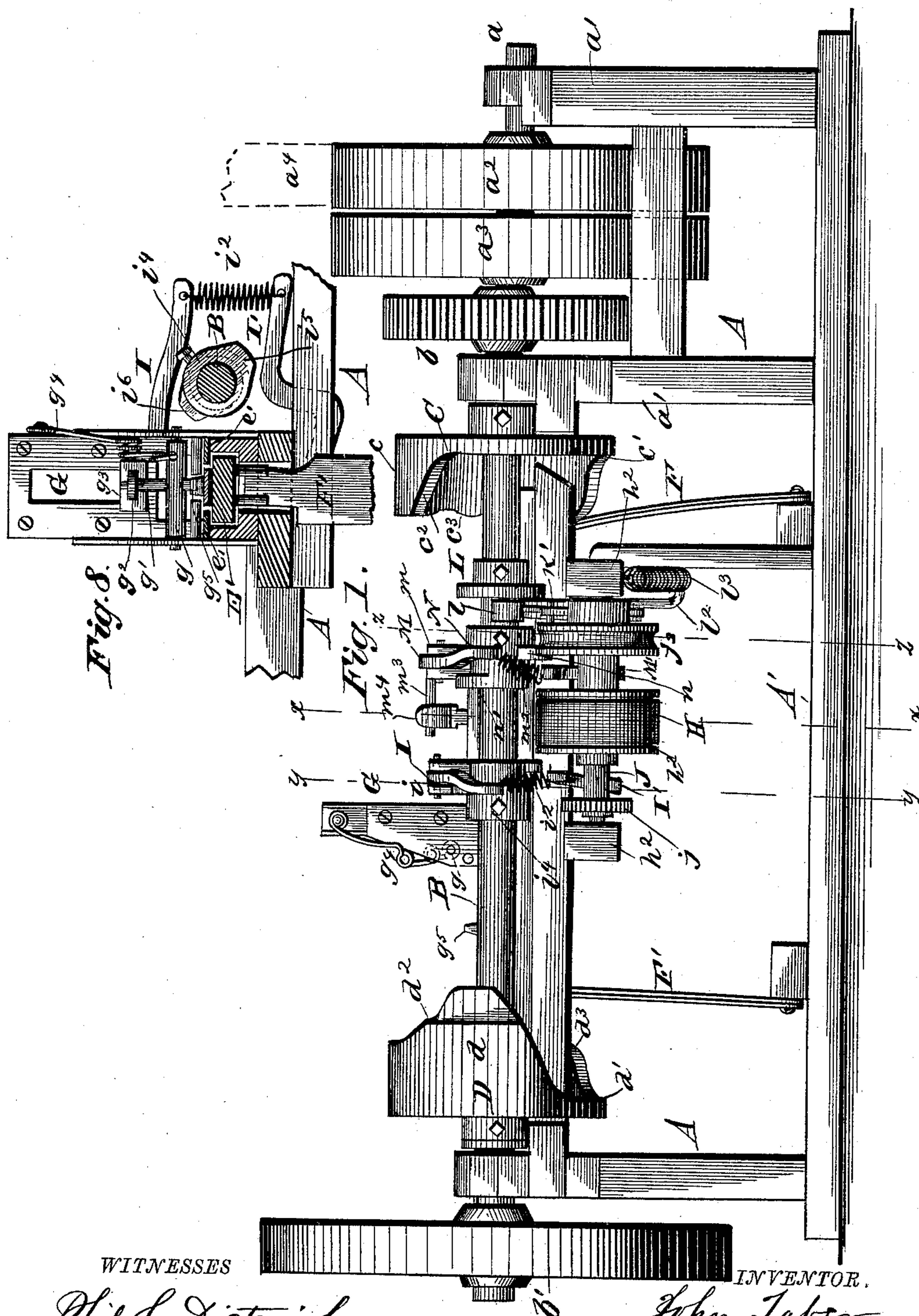
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4 Sheets—Sheet 1.

J. TABER.
TILE OR BRICK PRESSING MACHINE.

No. 396,967.

Patented Jan. 29, 1889.



Phil C. Dietrich
A. E. Nowell.

John Taber
by
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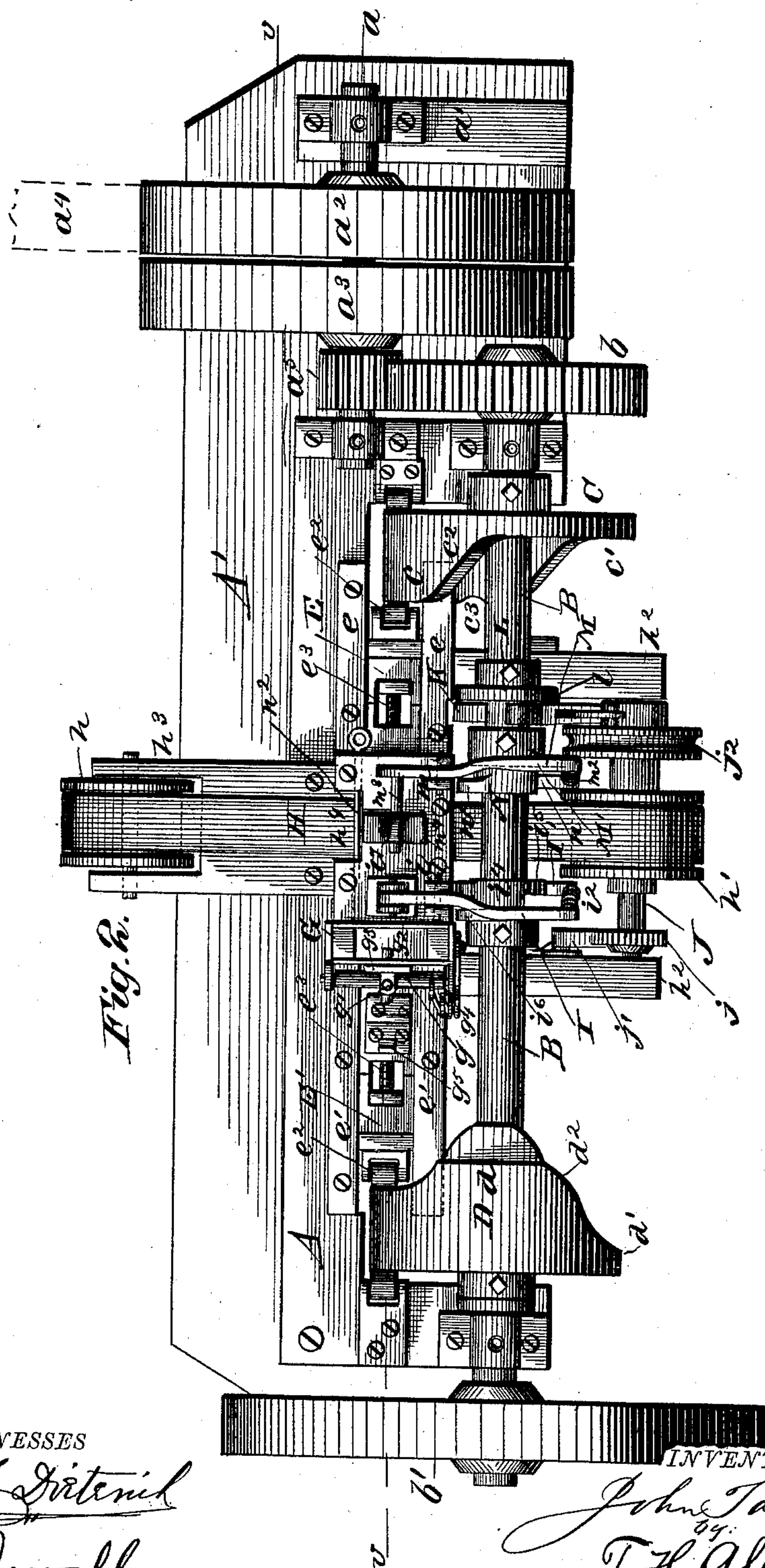
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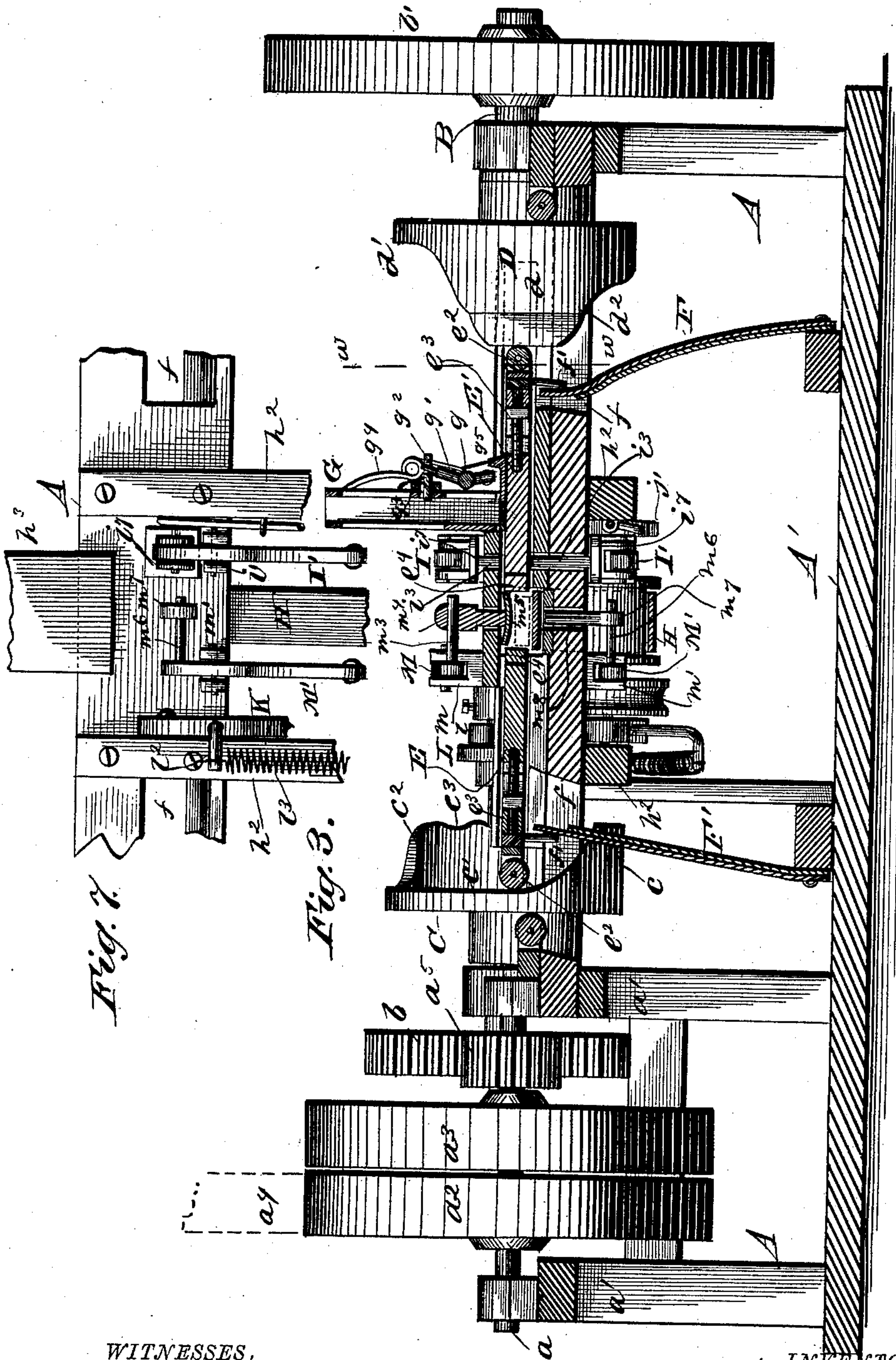


Fig. 1.

Fig. 3.

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(No Model.)

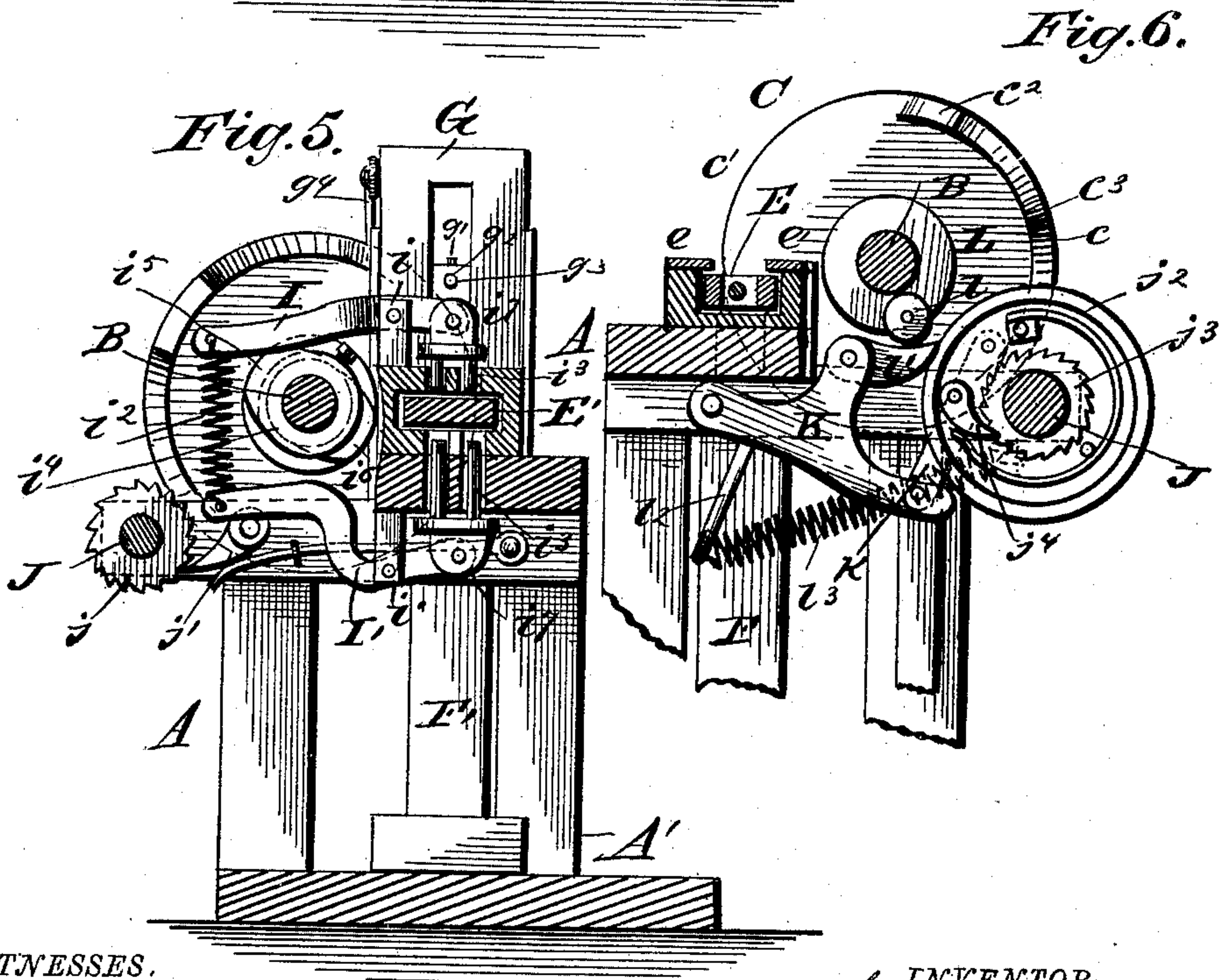
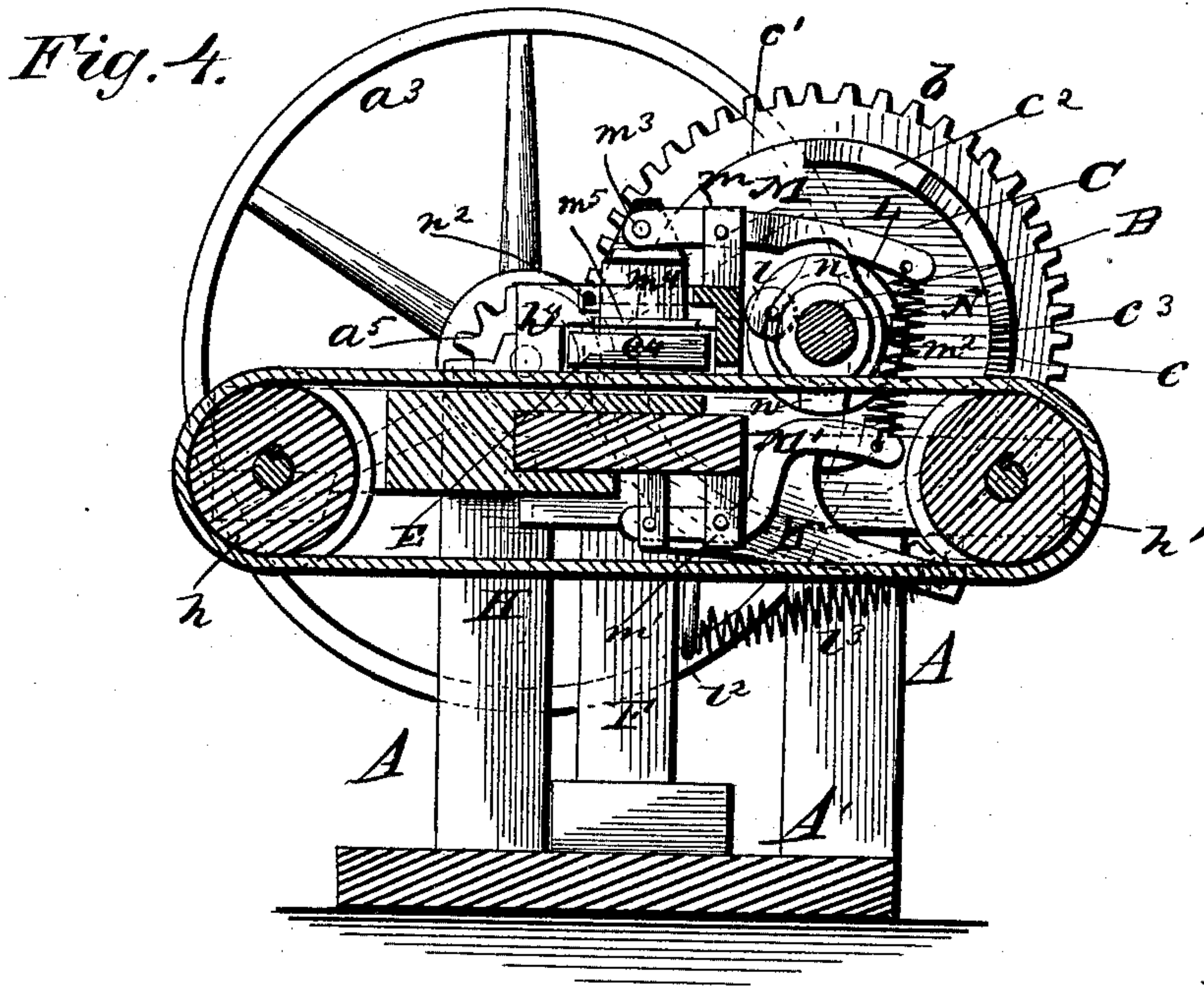
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UNITED STATES PATENT OFFICE.

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TILE OR BRICK PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 396,967, dated January 29, 1889.

Application filed February 20, 1886. Renewed July 5, 1888. Serial No. 279,155. (No model.)

To all whom it may concern:

Be it known that I, JOHN TABER, of Wolfborough, in the county of Carroll and State of New Hampshire, have invented certain new and useful Improvements in Tile or Brick Pressing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a rear elevation of my improved machine for re-pressing bricks. Fig. 2 is a plan view of the same. Fig. 3 is a vertical longitudinal section on the line *vv* of Fig. 2. Fig. 4 is a transverse vertical section on the line *xx*, Fig. 1. Fig. 5 is a similar section taken on the line *yy*, Fig. 1. Fig. 6 is a detail transverse section on the line *zz*, Fig. 1. Fig. 7 is a detail view of a portion of the bottom of the machine. Fig. 8 is a transverse detail section on the line *ww*, Fig. 3.

The invention relates to improvements in machines to press clay or similar plastic material into regular forms.

In operating on clay to mold brick the same may be compressed to form either the ordinary plain pressed brick or the presser-dies may be so shaped as to give the bricks any desired style of ornamentation on their outside surfaces. Terra-cotta pipes or other work may be shaped by the machine, the form of the stamping-dies and the delivering mechanism being shaped for the purpose, the actuating mechanism being in all cases the same.

The invention consists in the construction and novel arrangement of parts hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, A designates the frame of the machine, supported by the base or bed plate A'.

a is a shaft journaled in the uprights *a'* *a'* at one end of the machine, and having the pulley *a*² secured upon it, and also the similar idler-pulley, *a*³, of equal diameter, turning loosely thereon.

*a*⁴ is a belt from any source of power, which passes over the pulley *a*², and thereby rotates the shaft *a*. By shifting the said belt onto

the idler-pulley *a*³ the operation of the machine may be stopped without stopping the action of the engine that actuates the same.

*a*⁵ is a pinion on the shaft *a*, arranged to mesh with and rotate a gear-wheel, *b*, on the cam-shaft B, which has bearings in the main frame of the machine.

b' is a fly-wheel on the end of the shaft B outside of the bearing of the same at the end opposite that on which the gear-wheel *b* is attached.

C is a cam-disk secured upon the cam-shaft B, having its boss adjacent to and to the inner side of the bearing of the cam-shaft nearest the actuating-pulley, and D is a cam-disk having its boss on the inner side of the other bearing of the cam-shaft.

The cam-disk C has a flange, *c*, which stands inward in relation to the machine from the edge of its periphery, and has its edge curved to actuate a plunger, E, hereinafter described. The cam-disk D has its diameter equal to that of the cam-disk C, and has an inward-standing flange, *d*, on its periphery. The flange *c* on the cam-disk C stands inward from a little more than one-half of the periphery thereof. The remainder of the periphery *c'* has its edge flush with the inside surface of the disk. The flange *d* of the cam-disk D stands inward from the edge of the said disk and extends a little more than three-fourths around the periphery thereof, the part *d'* being flush with the inner surface of the disk.

*d*² is an inclined portion of the edge of the flange *d*, which extends inward in relation to the machine, and *c*² is a corresponding portion of the edge of the flange *c* parallel to the part *d*² of the flange *d*. The cut-away part of the flange *c'* is about twice the length of the cut-away part *d'* of the flange *d*.

The cam-disks may have their flanges of any desired shape suitable to act together, the cam-disk C operating the slide or plunger E, and the disk D operating the slide or plunger E' in a similar manner.

*c*³ and *d*³ are corresponding and opposite notches on the edges of the flanges *c* and *d*, respectively. These notches, when the machine is in operation, allow the plungers operated by the cam-flanges to spring outward,

and the projections between the notches then drive the plungers up against the blank with a certain degree of concussion, so as to keep the clay from sticking to the plungers.

5 The slide or plunger E moves in longitudinal ways e , formed upon the main frame of the machine, and the slide or plunger E' moves in similar ways, e' , situated toward the other end of the machine.

10 Each plunger E E' has a friction-roller, e^2 , journaled in its outer end to engage against the edge of the corresponding cam-wheel, C or D.

Each plunger E or E' is of rectangular shape, and may be made in two parts, so as to be extensible.

e^3 e^3 are longitudinal screws in the plungers, by means of which the said parts may be extended. The inner or meeting end of each plunger has removably secured to it a die, e^4 , the dies on both plungers corresponding. These dies are made in sets that can be readily and quickly attached to the plungers and changed when necessary.

25 F F' are plate-springs, having their lower ends secured to the base-plate of the frame and their upper ends passing through the slots f f in the upper portion of the frame and bearing against the pins f' f' on the plungers E E'. These springs return the plungers outward after they have been forced inward by the cam-disks.

G is the feeding box or frame, which rises vertically above the meeting-point of the plungers when forming a brick or other article.

In brick-making machines the feeding-frame is of general rectangular shape, and the blank is fed down edgewise into it.

40 g is an oscillating shaft journaled in extensions from the sides of the feeding-frame.

g' is a vertical rod passing through the center of said shaft, and having attached to its upper end a horizontal pin, g^2 , which passes through an opening in a block, g^3 , secured to the outer surface of the feeding-frame, and enters the latter.

45 g^4 is a spring, having one end secured to the side of the feeding-frame and the other to the oscillating shaft, so as to turn the latter and drive the pin g^2 inward.

50 g^5 is a lug on the upper surface of the plunger E', arranged to strike against the lower end of the rod g' and move the pin g^2 outward, so as to allow the brick-blank to fall in the feeding-frame.

H is a belt running at right angles between the plungers upon the pulleys h h' , which have their shafts journaled in extensions h^2 h^3 of the main frame.

60 h^4 is the discharge-opening of the machine, through which the belt H passes to carry out the formed bricks.

65 I I' are levers pivoted upon brackets or supports i i' , situated, respectively, above and below the plungers. The outer or rear ends of the said levers are connected by the coil-

spring i^2 , and their inner ends have secured to them blocks i' , provided with pins or points i^3 made upon them, which pins pass through proper openings in the main frame above and below the plungers and make dowel-holes in the upper and lower surfaces of the brick just after the latter has passed out of the feeding-frame. 70

i^4 is a collar on the cam-axle B, provided with opposite cam-lugs i^5 i^6 , which act, respectively, on the levers I I', so as to simultaneously force the pins i^3 i^3 inward upon the brick. 75

J is the shaft of the pulley h' , journaled in proper extensions of the main frame, and carrying on one side of the said pulley a ratchet-wheel, j , controlled by the spring-pawl j' , pivoted on one of the extensions of the main frame in which the shaft J is journaled. 80

j^2 is a disk turning loosely on the shaft J and having one side hollowed out.

j^3 is a ratchet-wheel on the shaft J within the hollow of the disk, and engaging with a spring-controlled pawl, j^4 , secured to the disk. 85

K is a T-shaped lever having the ends of one of its horizontal arms pivoted upon the main frame and a link-bar, k , pivoted at one end between the arms of the bifurcated end of its other horizontal arm. The other end of the link-bar k is pivoted upon a wrist-pin, k' , on the side of the disk j^2 . 90

L is a collar secured upon the shaft B, and having upon it a wrist-pin upon which turns the friction-roller l . As the shaft B turns, the roller l at the proper moment engages against the top of the upstanding arm of the T-shaped lever K, which is properly rounded, and against a bar, l' , which stands out from said end. This action, by means of the T-shaped lever and the link-bar k , rotates the disk j^2 , and by means of the ratchet-wheel j^3 and pawl j^4 rotates also the shaft J, so that the belt H is moved forward and the brick carried out of the opening h^4 . The ratchet-wheel j and pawl j' prevent the belt from moving in the opposite direction, and the disk j^2 turns back on the shaft J to its former position when the arm of the T-shaped lever and the friction-roller l become disengaged. 100

l^2 is an arm depending from the pivoted arm of the lever K, and l^3 is a coiled spring connecting the end of said arm with the main frame. The action of the spring l^3 is to elevate the lever K after it has been depressed by the friction-roller l , and consequently to return the disk j^2 to its first position. 105

M M' are similar levers pivoted upon supports or brackets m m' , respectively, above and below the plungers. The rear ends of the said levers are connected by the coil-spring m^2 , which tends to draw the said ends together. 110

The front end of the lever M has a bar, m^3 , standing laterally from it and carrying on its end a block, m^4 . The lower portion of the said 115

block is made narrow and passes through a transverse slot in the portion of the main frame immediately above the discharge-opening h^4 , m^5 is a plate on the lower end of this narrow portion and adapted to impinge upon the upper surface of a brick just before the same is moved out of the machine by the belt H.

The lever M' has on its front end a bar, m^6 , similar to the bar m^3 , and carrying at its end a vertical bar, m^7 , which passes up through an opening, m^8 , in the floor of the portion of the main frame in which the discharge-opening is situated and presses against the under surface of the belt H when the plate m^5 is pressing against the upper surface of the brick.

N is a collar on the cam-shaft B, provided with the opposite cam-lugs n n' , which respectively act against the levers M M' , so as to raise their rear ends and cause the plate m^5 and bar m^7 to grasp the brick upon the belt H.

n^2 is a bar that is inserted in the main frame in front of the block m^4 and prevents the latter from swinging on the bar m^3 .

The formed blanks are inserted one by one into the feeding frame or box G, the lower edge of each resting in turn on the pin g^2 . As the cam-disks rotate when the widest part of the flange c of the disk C impinges upon the friction-roller e^2 of the plunger E' , the lug g^5 on the said plunger strikes against the lower end of the rod g' and draws the pin g^2 out, so that the brick above said pin can fall upon the plunger E' . The said plunger then moves outward, and the brick is turned over and sidewise by the outward motion of the plunger. The plungers then both move inward and take hold of the brick, and the doweling-pins i^3 are moved to impress its upper and lower surfaces by the levers I I' and cam-lugs i^5 i^6 . The plungers then move together in such manner as to bring the brick opposite the discharge-opening h^4 , and at the same time the lug g^5 draws the pin g^2 outward and allows another brick to descend. When the brick is opposite the discharge-opening h^4 , the block m^4 and bar m^7 move inward upon it, as described, and hold it till the belt H is ready to move it out of the discharge-opening. The said block and bar then release the brick, and the belt moves it out of the discharge-opening, actuated by the mechanism in the manner described.

Having described my invention, I claim—

1. The combination of the cam-shaft, the disks secured thereon and provided with cam-flanges, substantially as described, the feeding-frame, the plungers moving in ways on the main frame and actuated by the cam-flanges, the blank-delivering mechanism attached to the feeding-frame, constructed substantially as described and operated by a pin or lug on one of said plungers, the springs to retract the plungers, and mechanism, substantially as described, to rotate the cam-shaft.

2. The combination of the rotating cam-shaft, the disks secured thereon and provided with the cam-flanges, shaped as described, the feeding-frame, the plungers moving in ways on the main frame and actuated by the cam-flanges, the blank-delivering mechanism attached to the feeding-frame, constructed substantially as described and actuated by a pin or lug on one of said plungers, the springs to retract the plungers, the belt running through the discharge-opening and carried by the end pulleys, and mechanism, substantially as described, whereby the belt is moved at proper intervals of time.

3. The combination of the rotating cam-shaft, the disks thereon provided with the cam-flanges shaped as described, the feeding-frame, the plungers moving in ways on the main frame and actuated by the cam-flanges, the springs to retract the plungers, the belt moving through the discharge-opening, the block m^4 and bar m^7 , connected, respectively, with the pivoted levers M M' , the spring m^2 , connecting the rear ends of said levers, the collar N, secured to the cam-shaft and provided with the cam-lugs n' n , and mechanism, substantially as described, whereby the belt is moved at proper intervals of time.

4. The combination of the rotating cam-shaft, the disks thereon provided with cam-flanges shaped substantially as described, the feeding-frame, the plungers moving in ways on the main frame and actuated by the cam-flanges, the springs to retract the plungers, the belt moving through the discharge-opening, the blocks i^7 , provided with the pins i^5 , the levers I I' , the spring i^2 , connecting the rear ends of said levers, the collar i^4 on the cam-shaft, provided with the cam-lugs i^5 i^6 , and mechanism, substantially as described, whereby the belt is moved at proper intervals of time.

5. The combination of the rotating cam-shaft, the disk thereon provided with cam-flanges shaped substantially as described, the plungers actuated by said cam-flanges, the feeding-frame, the oscillating shaft g , the rod g' , passing therethrough, the pin g^2 , entering the feeding-frame to support a brick therein, and the lug g^5 on the plunger E' , adapted to strike against the rod g' when the plunger moves inward and draw the pin g^2 outward, substantially as specified.

6. The combination, with the rotating cam-shaft, the cam-disk, the plungers actuated thereby, and the belt H, passing over the pulleys h h' , of the shaft J, ratchet j , controlled by the spring-pawl j' , the disk j^2 , turning loosely on said shaft, the ratchet-wheel j^3 , controlled by the spring-pawl j^4 , the pivoted T-shaped lever K, link-bar k , the spring l^3 , the collar L, secured to the cam-shaft, and the roller l' , attached to said collar and acting on the lever K, all constructed substantially as and for the purpose specified.

7. The combination of the rotating cam-shaft, the disks secured thereon and provided with cam-flanges shaped substantially as

specified, the feeding-frame, the blank-delivering mechanism attached thereto, constructed substantially as described, and actuated by a pin or lug on one of the plungers, 5 and the plungers actuated by the cam-flanges and having their ends adapted to have secured to them removable and interchangeable dies, substantially as specified.

8. The combination of the shaft a , carrying 10 the pulleys a^2 a^3 and the pinion a^5 , the cam-shaft B, having upon it the cam-disks C and D, shaped substantially as specified, and the gear-wheel b , meshing with the pinion a^5 , the plungers moving in ways on the main frame 15 and actuated by the cam-disks, the belt moving at regular intervals of time through the discharge-opening of the machine, the blank-delivering mechanism, constructed substantially as described, attached to the feeding- 20 frame and actuated by a pin or lug on the

plunger E', and mechanism, substantially as described, to actuate said belt.

9. The combination of the reciprocating plungers, the feeding-frame, the automatic blank-delivering mechanism attached thereto, 25 the belt moving at regular intervals of time through the discharge-opening, the rotating cam-shaft, the cam-disk C, provided with the flange c , having the inclined portion c^2 and notches c^3 , and the cam-disk D, provided with 30 the flange d , having the inclined portion d^2 and notches d^3 , substantially as specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN TABER.

Witnesses:

FREDERICK W. PRINDALL,
JAS. A. MCKIBBIN.