

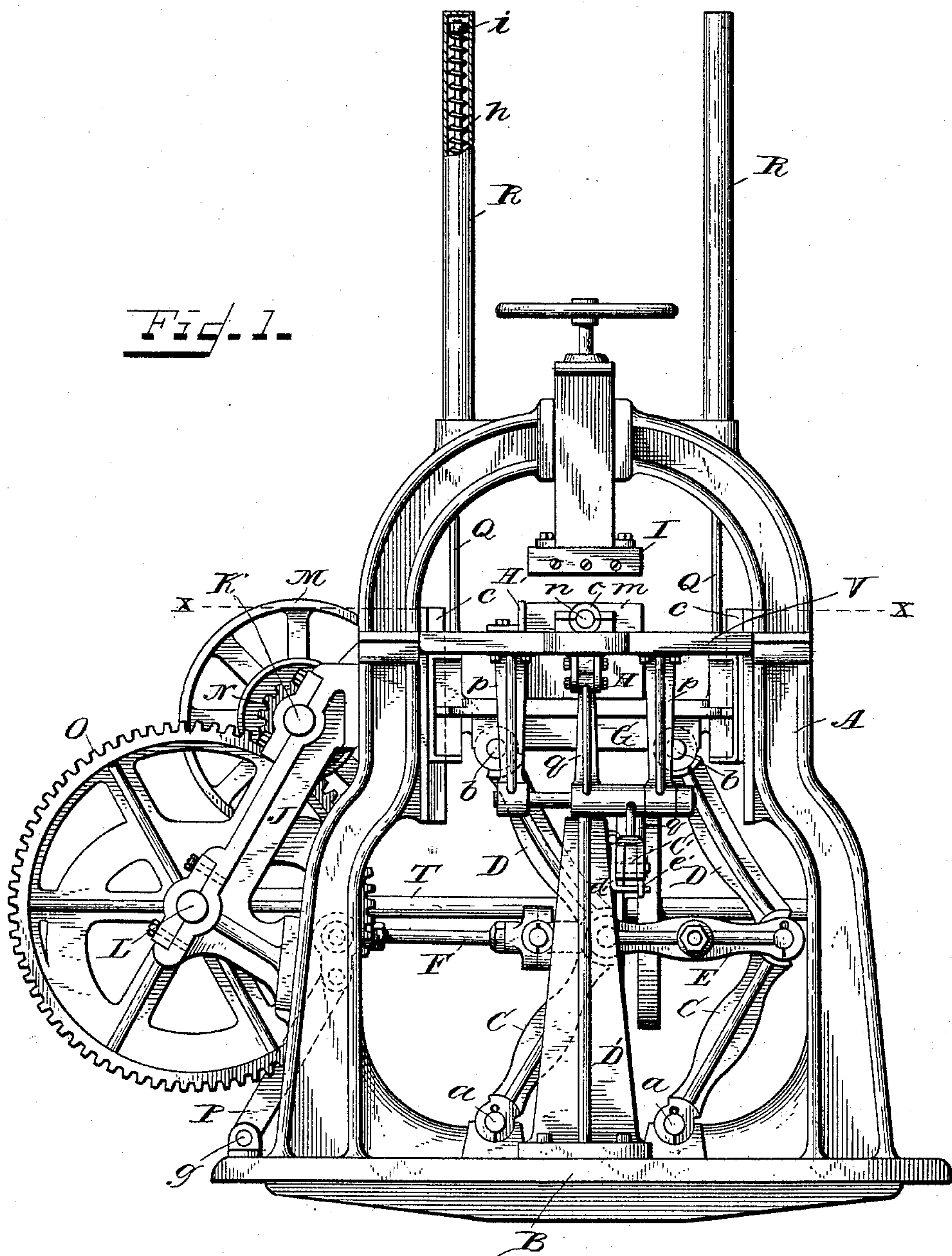
(No Model.)

4 Sheets—Sheet 1.

C. W. RAYMOND.
BRICK PRESSING MACHINE.

No. 476,928.

Patented June 14, 1892.



Witnesses.

J. Thomson Cross

C. H. Mockbee

Inventor.

Charles W. Raymond
by *Beck & Rector*
his Attorneys.

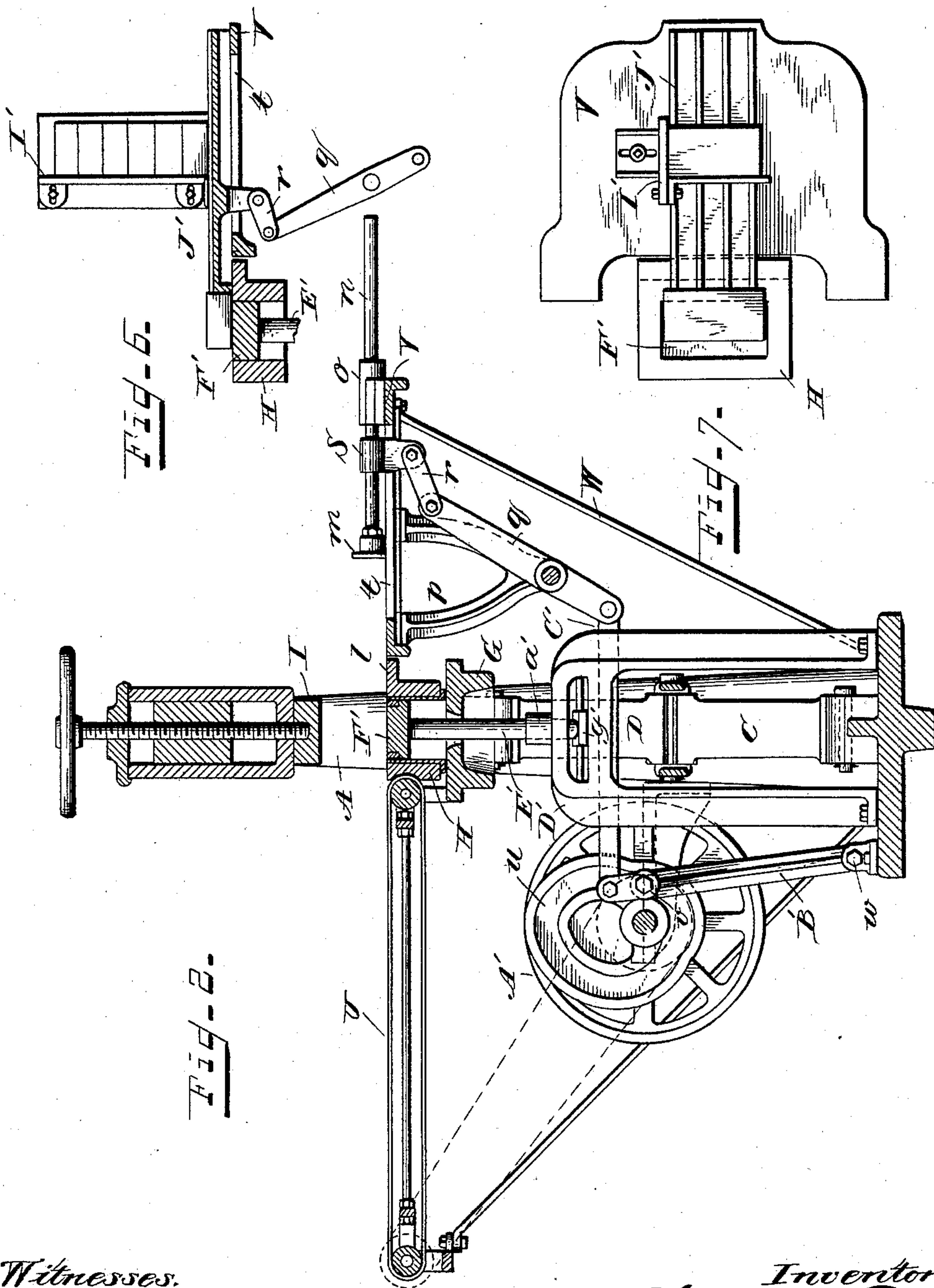
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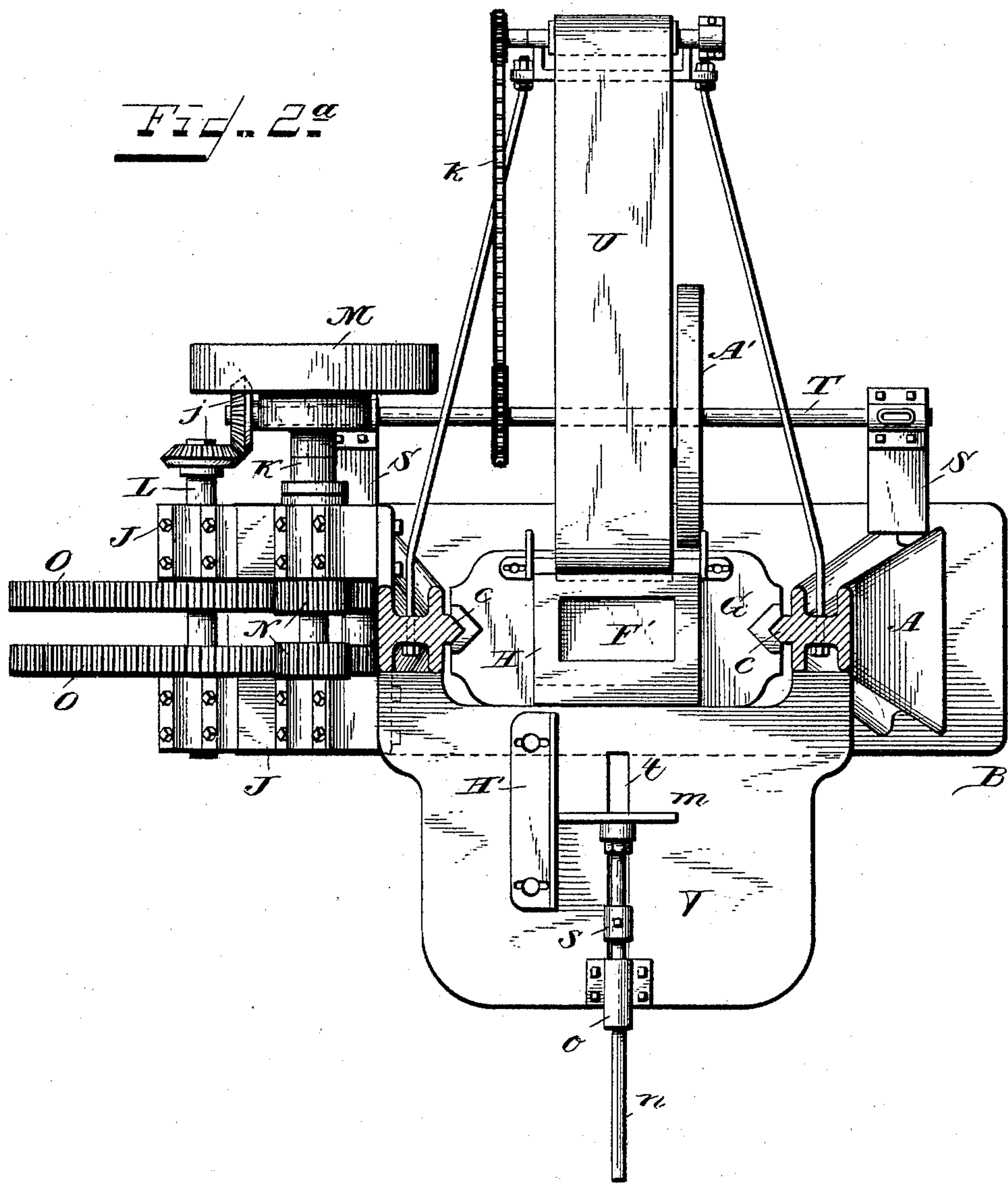
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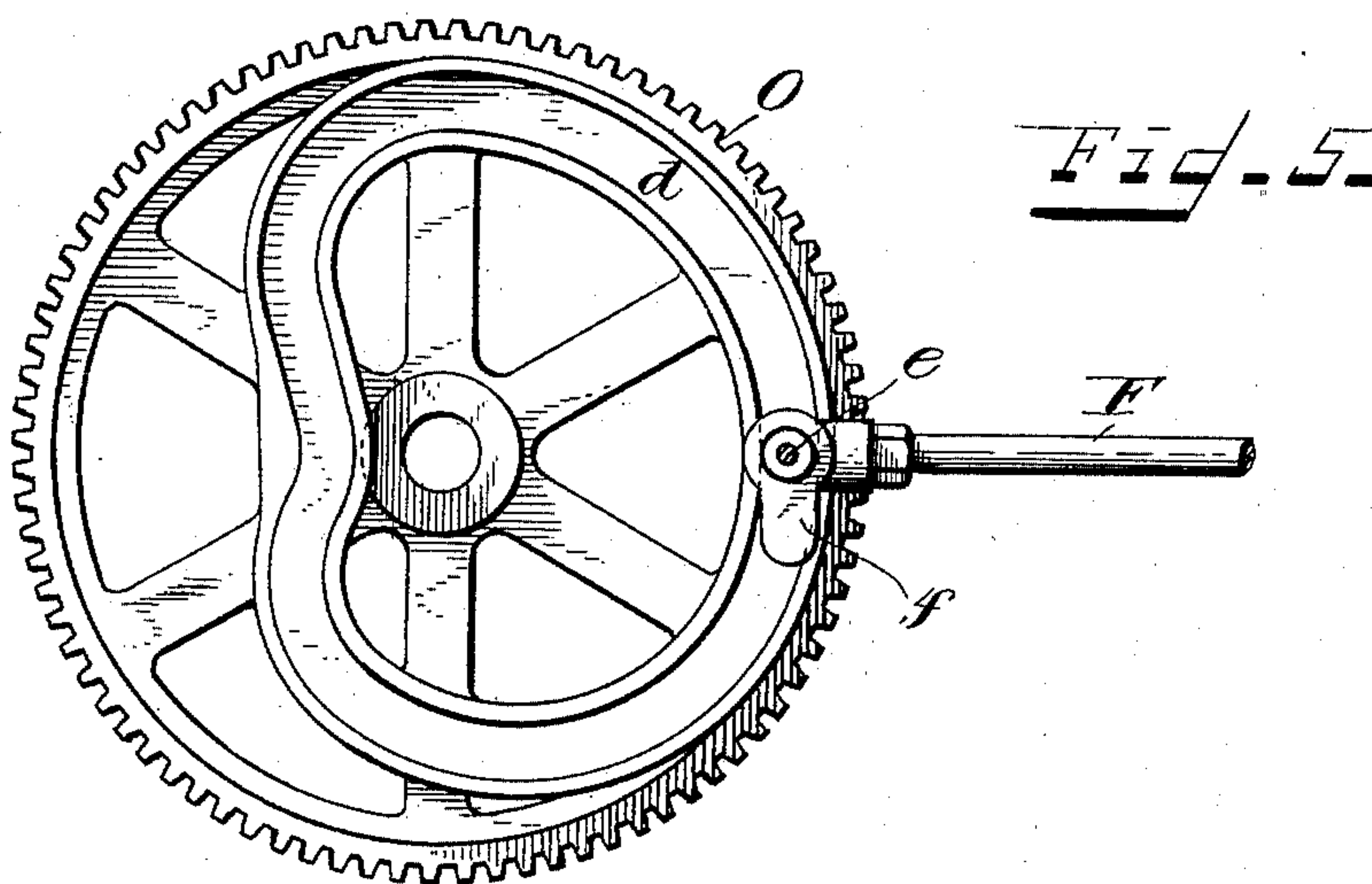
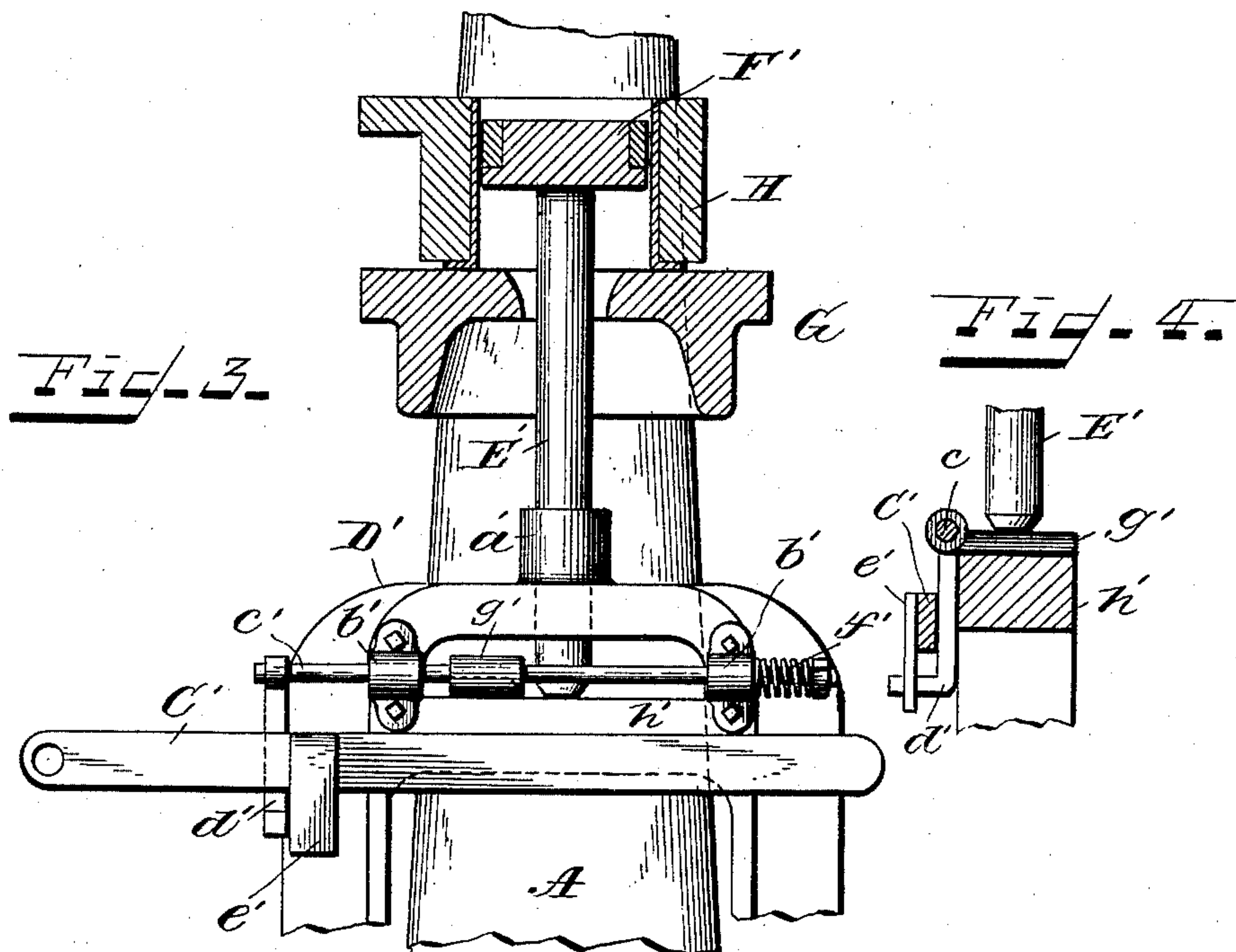
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4 Sheets—Sheet 4.

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UNITED STATES PATENT OFFICE.

CHARLES W. RAYMOND, OF DAYTON, OHIO.

BRICK-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 476,928, dated June 14, 1892.

Application filed October 1, 1891. Serial No. 407,409. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. RAYMOND, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Brick-Pressing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention is designed as an improvement upon the presses described and claimed in my prior patents, No. 354,226, dated December 14, 1886, and No. 417,837, dated December 24, 1889; and it has for its object the improved construction and mode of operation of presses of this character, whereby their capacity is increased.

The novelty of my invention will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a side elevation of a press embodying my invention. Fig. 2, Sheet 2, is a central sectional end elevation of the same. Fig. 2^a, Sheet 3, is a sectional plan view through the dotted line *x x* of Fig. 1. Fig. 3, Sheet 4, is an enlarged sectional detail in elevation through the compress-box and its carrier, showing the automatic mechanism for partially dropping the movable bottom of the box. Fig. 4, Sheet 4, is a detail of the bottom of the rod and its lifting and releasing plate, looking from the left of Fig. 3. Fig. 5, Sheet 4, is a side elevation of one of the carrier-actuating gears and cams. Fig. 6, Sheet 2, is a sectional elevation of a modification in the brick-feeding mechanism. Fig. 7, Sheet 2, is a plan view of Fig. 6.

The same letters of reference are used to indicate identical parts in all the figures.

As in my prior patents, the main frame is composed of the arch A and base B, Fig. 1, in one strong integral casting. Pivoted, as at *a*, on the upper side of the base are two levers C, to the upper ends of which are pivoted two similar levers D, said levers being connected at their central pivots by a link E, to one end of which is pivoted the inner end of a horizontal pitman F. The upper ends of the levers D are pivoted, as at *b*, to the under side of the horizontal carrier G, provided

at its ends with guideways engaging planed ribs *c* upon the inner sides of the arch A, as shown. Upon the carrier is removably secured the mold or compress box H, open at its top, of the usual or any suitable construction, and in which the bricks are pressed against the usual or any suitable stationary platen I, carried by and vertically adjustable on the arch A.

While in operation the carrier and compress-box are given a constant vertically-reciprocating motion through the medium of the toggle-levers C D, link E, and pitman F by the following means, referring to Figs. 1, 2^a, and 5: In a supplemental frame J, secured to the arch A at one side, are journaled two horizontal shafts K L, the former having fast thereon the driving-pulley M and two small pinions N, meshing with two larger gears O, fast upon the shaft L. Upon the inner side of each of the gears O is formed a cam-groove *d*, Fig. 5, the one being the counterpart of and coincident with the other. In these cam-grooves are confined friction-rollers *e*, journaled upon a transverse pin or studs projecting from the outer end of the pitman F, or, as shown in the present instance, from a head-piece *f* upon the outer end of the pitman. To support the outer end of the pitman and to maintain it in a substantially horizontal position at all times, I employ a link P, Fig. 1, pivoted at its lower end, as at *g*, upon the base B and pivoted at its upper end to a pendant arm of the head-piece *f*. As the gears O are rotated by the pinions N the cam-grooves *d* cause the reciprocation of the pitman F and the raising and lowering of the carrier G and box H, as will be readily understood.

To prevent jar on the downstroke of the carrier G, I provide the rods Q, Fig. 1, which are secured to the carrier at their lower ends and extend up into tubes R upon the arch A. Springs *h* surround the rods Q within the tubes and are put under tension and act as buffers upon the downstroke by means of collars or nuts *i* upon the upper ends of the rods engaging the springs, as shown by the broken-away portion of one of the tubes in Fig. 1.

Journaled in brackets S, Fig. 2^a, secured to the arch A, is a horizontal shaft T in the same plane with but at right angles to the shaft L, by which it is driven by means of the inter-

meshing bevel-gears *j*, as in my prior patent of 1889. Driven by this shaft *T* through the medium of the drive-chain *k* is an endless apron *U*, whose inner end is carried upon and
 5 vibrates with the carrier *G*, just as shown in my last-mentioned patent or in any other suitable manner for carrying off the bricks after they have been pressed in the box *H*.

Rigidly secured to the arch *A*, opposite the
 10 apron *U*, is a horizontal feeding-table *V*, Figs. 1, 2, and 2^a. This table is supported at its outer edge by legs *W*, extending to the base *B*, and it is so located as to have its upper surface exactly flush with the top edge of
 15 the compress-box *H* when the latter is at its lowermost limit of stroke, as seen in Fig. 2, the compress-box having a flange on that side at its upper edge, as shown at *l*. In my last-mentioned patent the feeding-table was
 20 secured to and vibrated by the carrier, thereby imposing the weight of the feeding-table and its associated parts upon the driving-power of the machine. The present construction avoids this objection, as the feeding-table
 25 is stationary and carried by the frame of the machine.

The feeding-pusher is a plate *m*, Figs. 2 and 2^a, set vertically upon the table *V* and supported upon the inner end of a rod *n*,
 30 whose outer end passes through a guide-box *o* upon the rear edge of the table. Pivoted between pendent hangers *p* upon the under side of the table *V* is a lever *q*, whose upper end is connected by a pivoted link *r* to a
 35 pendent lug upon a collar *s*, adjustably clamped upon the rod *n*. The lug extends down through the slot *t* in the table *V*. Fast upon the shaft *T* is a wheel or disk *A'*, Figs. 2 and 2^a, having formed upon one side a cam-
 40 groove *u*, in which is confined a friction-roller *v* upon a lever *B'*, pivoted, as at *w*, upon the base *B*. A link or pitman *C'* pivotally connects the upper end of the lever *B'* and the lower end of the lever *q*, so that the rotation
 45 of the disk *A'* causes the reciprocation of the rod *n* and pusher *m* upon the table *V*, as will be readily understood.

Transversely of the arch *A* and beneath the same and the carrier *G* is a supplemental
 50 arch *D'*, secured to the base *B*, Figs. 1, 2, and 3. Guided through a perforated lug *a'* in the top of the arch *D'* is the rod or leg *E'*, extending up through an opening in the carrier *G* and carrying the movable bottom *F'*, suit-
 55 ably constructed and snugly fitting within the compress-box *H*, as in my prior patents. During the upward stroke of the carrier and compress-box the bottom *F'* forms the bottom of the compress-box and is carried up during
 60 the act of pressing the brick; but during the downstroke of the compress-box the leg *E'* is arrested, as presently explained, and the bottom *E'* expels the pressed brick from the compress-box, as in my former patents.

65 Supported and guided in boxes *b'*, Fig. 3, upon and near the top of the arch *D'*, is a horizontal rod *c'*, having secured upon its end

next to the lever *q* a pendent toe-piece *d'*, with which at the proper time a pendent lug *e'*
 upon the pitman *C'* engages to slide the rod
 70 *c'* in one direction and to put a coiled spring *f'* upon its opposite end under tension. The spring *f'* surrounds the rod and is confined between the box *b'* and a nut upon the adja-
 cent end of the rod. Fast upon the rod *c'*,
 75 between the boxes *b'*, is a plate *g'*, Fig. 4, resting upon a cross-piece *h'* of the arch *D'*, and having its edge adjacent to the legs *E'* beveled, the lower end of the leg being also beveled. The cam-groove *u* is so laid out and
 80 the parts for operating the pusher are so adjusted that as the carrier and compress-box descend to the position shown in Fig. 2 the plate *g'* is directly under the leg *E'*, while the
 85 pusher *m* begins its inward or feeding stroke. The bottom *F'* has ejected the already-pressed brick, and is, with the top of the compress-box, flush with the top of the table *V*. At
 this point the rollers *e* of the pitman *F* are in the dwell of the cam-groove *d*, and remain so
 90 until the pusher *m* has brought the unpressed brick into contact with the pressed brick and has forced the latter far enough onto the apron *U* or any other transporting mechanism
 95 for the latter to complete its removal. Just as or slightly before the unpressed brick entirely registers with the mouth of the compress-box the pitman *C'* draws the plate *g'*
 from under the leg *E'* and permits it and the
 100 bottom *F'* to drop to the position shown in Fig. 3, thereby forming a slight cavity in the top of the compress-box, into which the unpressed brick falls and is arrested. The purpose of the partial dropping of the bottom *F'*
 105 is to prevent the overshooting of the unpressed brick under the momentum of the pusher and to insure its properly registering with the mouth of the compress-box. As the pusher *m* recedes the lug *e'* releases the toe
 110 *d'* and the spring *f'* draws back the rod *c'*, so that the plate *g'* passes under the leg *E'*, as in Fig. 2. Just as the leg *E'* is dropped, as above described, the rollers *e* leave the dwell of the cam-grooves *d*, and the carrier *G* and
 115 the box *H* begin to ascend to press the brick just deposited.

H', Figs. 1 and 2^a, is simply a guide-gage for the unpressed brick, made adjustable upon the table *V*.

The modification represented in Figs. 6 and
 120 7 consists in providing a rectangular upright support *I'*, secured upon the table *V* and serving to hold a column of unpressed bricks. The pusher in this instance is a slide *J'*, passing under the support *I'* and as wide as and
 125 as thick as the brick. Its upper side is ribbed so that there is but slight frictional contact between it and the brick resting upon it. At the extreme backward throw it passes from under the column of bricks, which then drops
 130 upon the table. Upon the forward movement of the slide it engages with the lowermost brick and carries it forward from under the others, which again rest upon the slide,

and deposits it in the mouth of the compress-box, as before described.

While I have shown the parts so adjusted as to only partially drop the bottom F' just as the unpressed brick registers with the mouth of the compress-box, it will of course be understood that my invention in this particular is not to be limited to the degree of dropping the bottom, as the parts may be so adjusted as to drop the bottom entirely until it rests upon the fixed support.

Having thus fully described my invention, I claim—

1. In a brick-pressing machine, the combination, with the carrier having vertical reciprocating motion and a compress-box carried thereon and provided with a movable bottom for expelling a pressed brick, of a stationary feeding-table arranged to be flush with the top of the compress-box at its lowest limit of stroke and a feeding-pusher upon said table and actuated automatically by the press, substantially as described.

2. In a brick-pressing machine, the combi-

nation, with the carrier having vertical reciprocating motion and a compress-box carried thereon and provided with a movable bottom having a pendent leg, of an automatic feeding-pusher, a releasing-block for the leg, and connecting mechanism so adjusted that when the feeding-pusher carries an unpressed brick over the mouth of the compress-box the block is withdrawn and the leg and bottom permitted to drop, substantially as described.

3. In a brick-pressing machine, the combination, with the leg E' and pusher-pitman C', having the lug e', of the rod c', carrying the toe d' and plate g', and the retracting-spring f', substantially as and for the purpose specified.

4. In a brick-pressing machine, the combination, with the carrier G, of the rods Q, arch A, tubes R, and springs h, substantially in the manner and for the purpose specified.

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Witnesses:

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LOUIS D. POOCK.