

No. 749,662.

PATENTED JAN. 12, 1904.

J. C. DAMRON.
HAY PRESS.

APPLICATION FILED JUNE 25, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

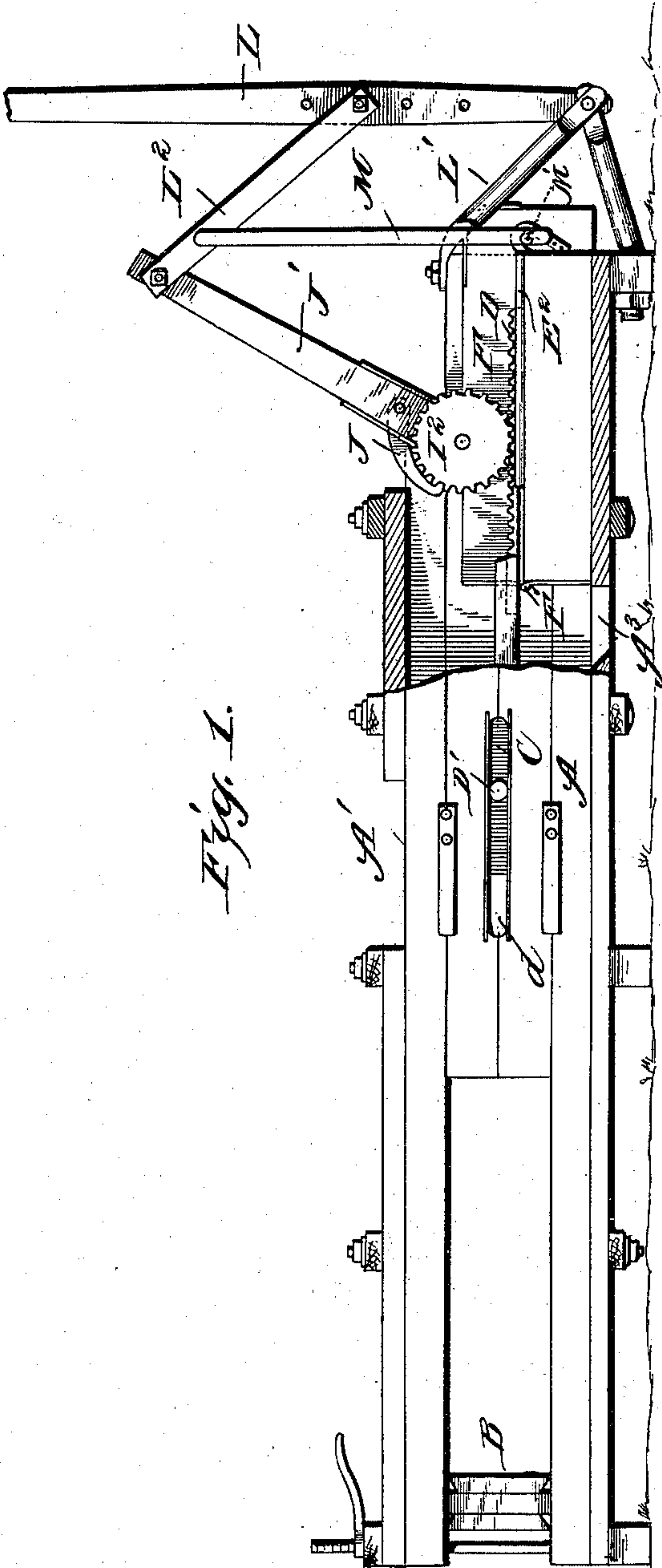


Fig. 1.

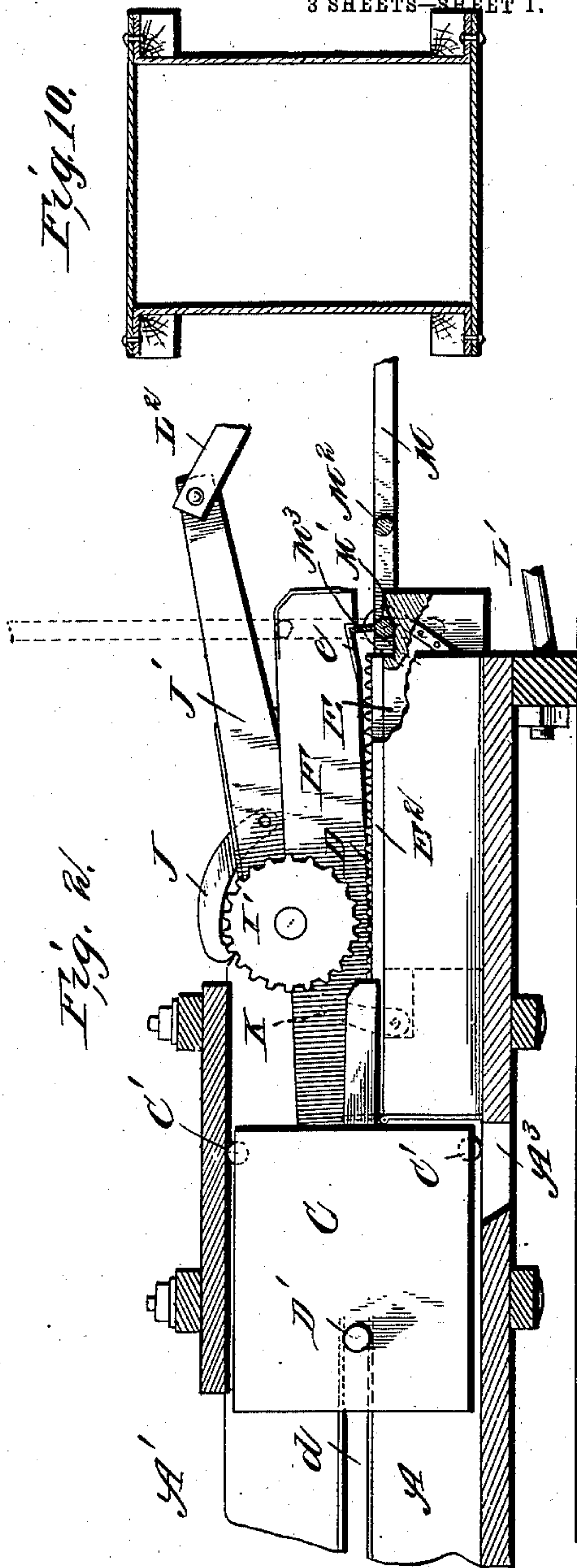


Fig. 10.

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SHEETS—SHEET 2.

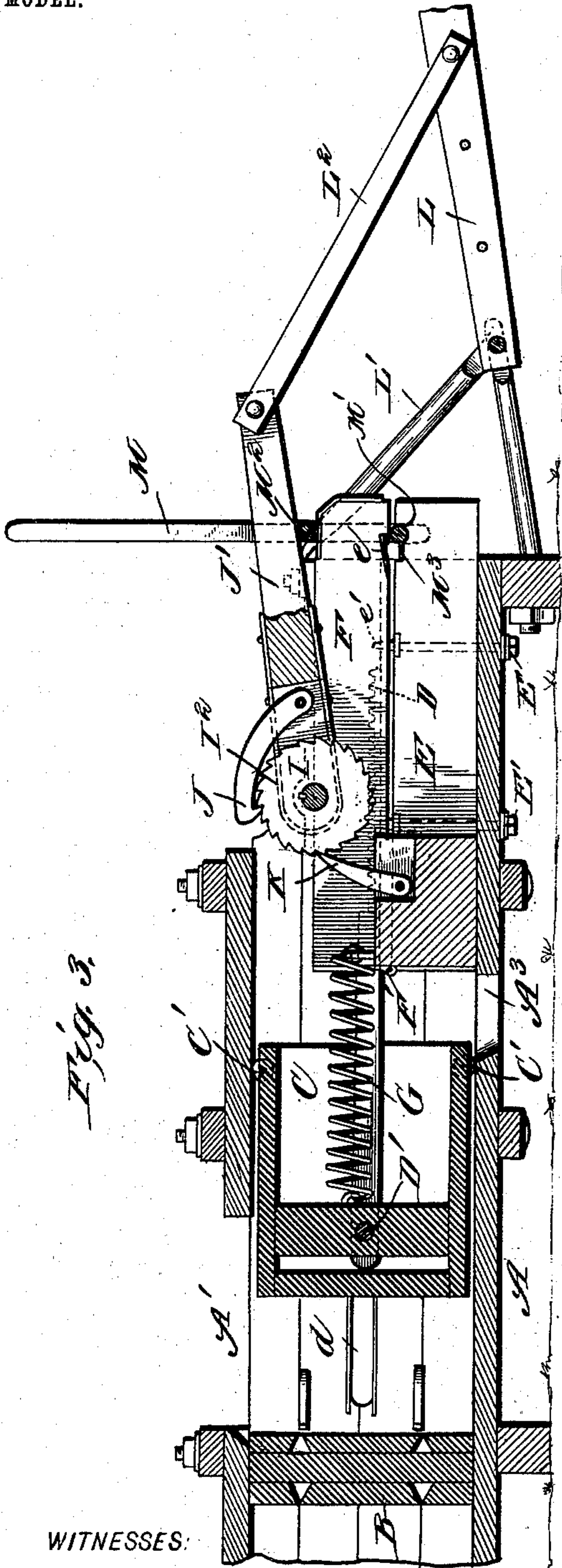


Fig. 3.

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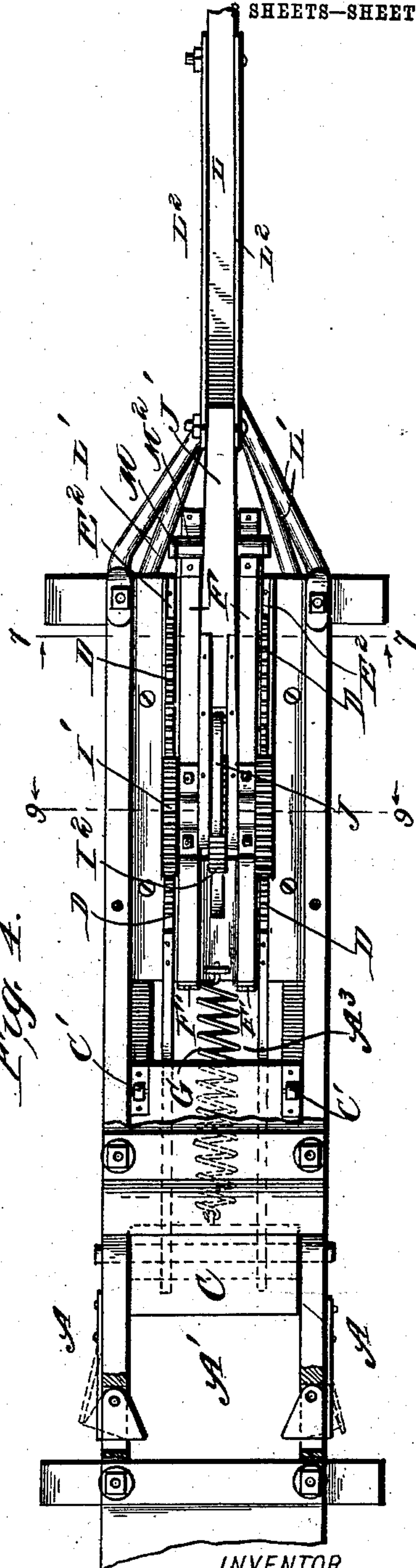


Fig. 4.

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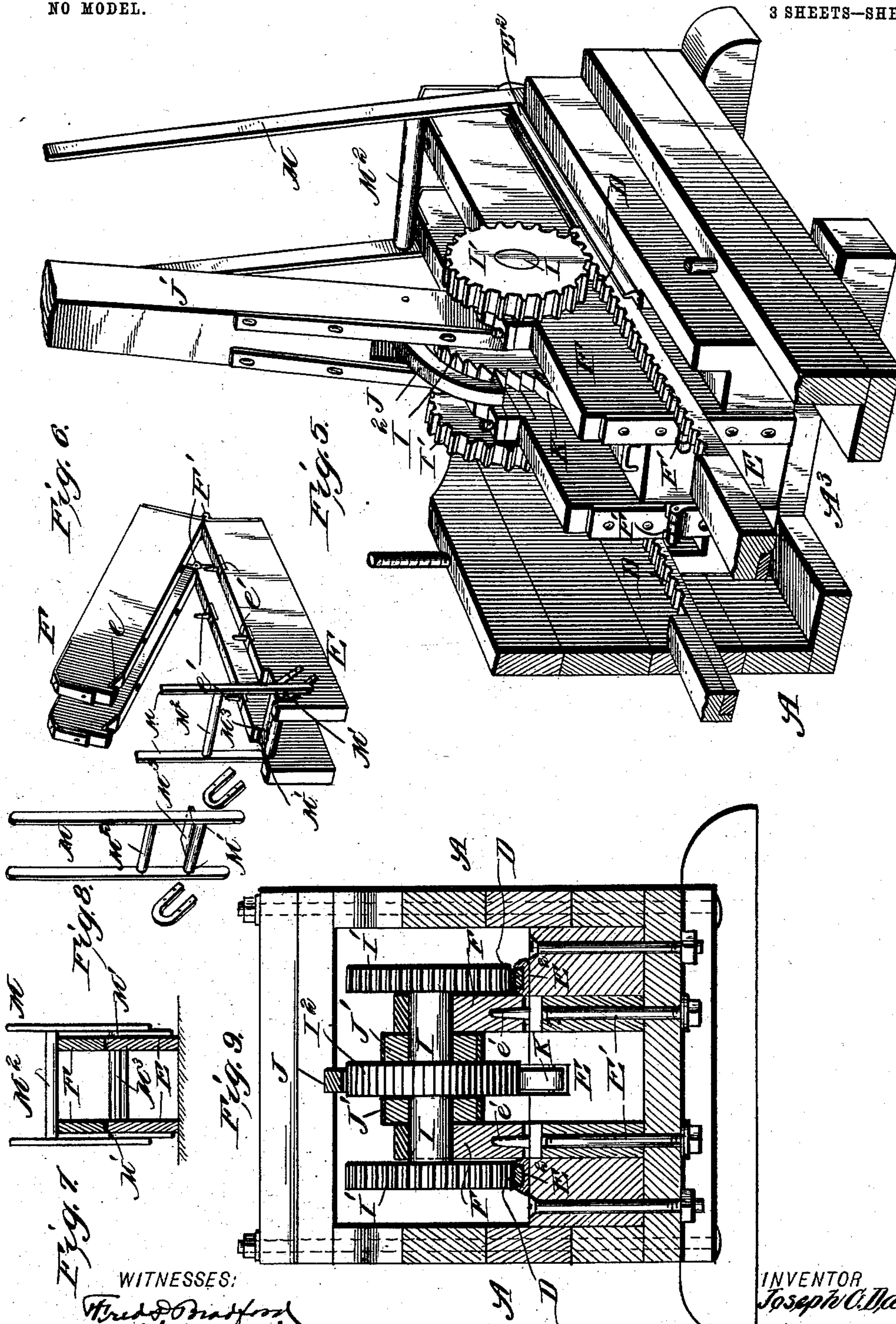
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3 SHEETS—SHEET 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 749,662, dated January 12, 1904.

Application filed June 25, 1903. Serial No. 163,058. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. DAMRON, a citizen of the United States, and a resident of Roanoke, in the county of Roanoke and State of Virginia, have made certain new and useful Improvements in Hay-Presses, of which the following is a specification.

My invention is an improvement in baling-presses especially designed for baling hay, but which may be used for other material when desired; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation, partly in section, of a press embodying my invention. Fig. 2 is a longitudinal section of a portion of the press. Fig. 3 is a longitudinal section of a portion of the press. Fig. 4 is a plan view, partly in section, of a portion of the press. Fig. 5 is a detail perspective view showing the base-frame, the gear-frame, and parts connected therewith. Fig. 6 is a detail perspective view of the base or bed frame and the gear-frame. Fig. 7 is a detail cross-sectional view on about line 7 7 of Fig. 4. Fig. 8 is a detail perspective view of the locking-lever. Fig. 9 is a cross-sectional view on about line 9 9 of Fig. 4. Fig. 10 shows a somewhat different construction bale-box.

In carrying out my invention I employ the bale-box A, together with suitable framing for the press, which bale-box and framing may be in general respects and except as hereinafter described of ordinary construction.

At A' a suitable feed-opening is provided, through which the hay may be introduced, and the head-block B may be suitably secured in the outer end of the bale-box to form the backing in pressing the first bale, each bale thereafter forming the backing for the following bale, as is usual in baling-presses. I also provide in the bottom of the press an opening A³, located at about the end of the rearward travel of the plunger and adapted to permit any hay that may be drawn back with the plunger to escape, and so prevent any clogging of the press at the rear side of the plunger. The plunger C is fitted to the bale-box, has rollers C' to ease its travel back and forth, and has

connected with it the rack-bars D, of which I preferably employ two, as shown. In connecting the rack-bars D with the plunger I prefer to effect it by means of the cross-rod D', to which the ends of the bars D are connected, such cross-rod D' extending through the plunger from side to side and projecting beyond the opposite sides thereof and entering guide-slots d' in the opposite sides of the bale-box. By this means I guide the plunger back and forth and prevent the same from lifting and so binding within the bale-box in the operation of the invention. The rack-bars D extend rearwardly from the plunger and slide back and forth in guides E², supported in what for convenience of reference I term the "bed-frame" E, the latter being preferably bolted or otherwise secured rigidly to the frame of the press and affording a guide-support for the rack-bars D and a means to facilitate the hinging of the front end of the gear-frame F, which will be presently described. Manifestly in the broad features of my invention I do not desire to be limited to the specific construction of the bed-frame; but the construction shown is preferred, as it affords an elevated guide-support for the rack-bars D of the plunger and also facilitates the hinge connection of the gear-frame, as before suggested. In securing the bed-frame E, I prefer to provide bolts E', extended upwardly from the base of the press-frame through the bed-frame and projecting at their ends above the bed-frame to form dowel devices between the bed-frame and the hinged gear-frame, by which to steady the gear-frame when lowered to position for use and to prevent any lateral or longitudinal displacement of the said bed-frame when in such position, the projections e' at the upper end of the bolts E' entering sockets in the under side of the gear-frame, as will be understood from the drawings.

The gear-frame F is hinged at its front end F', so it may be lifted at its rear end to move its gear-wheels out of engagement with the rack-bars D of the plunger, so the plunger may be retracted by the spring G in the operation of the press. This gear-frame has bearings for the shaft I, on which are secured the

gear-wheels I', meshing with the rack-bars D, and the ratchet-wheel I² for engagement by the operating-pawl J and the detent-pawl K. The operating-pawl J is carried by the pawl-lever J' and engages with the ratchet-wheel I² and operates the same in the proper direction to cause the wheels I', meshing with the rack-bars D, to force the plunger into the bale-box and press the bale. The detent-pawl K is suitably pivoted, preferably to the bed-frame, and engages the ratchet-wheel and operates as a detent to prevent the reverse movement of the shaft I as the pawl-lever J' is returning from its operative stroke. This pawl-lever J' may be made sufficiently long to be grasped by the hand and be worked directly by the operator where excessive force may not be desired or necessary; but I prefer in practice to provide the handle-lever L, which is pivoted at its lower end to bracket L', connected with the press, and is connected by links L² with the pawl-lever, so the latter may be operated by the handle-lever, whereby I am enabled to secure the double leverage, and consequently great power, in the operation of the press. When the devices have been operated to force the plunger to the extreme of its stroke and the bale has been pressed, it is desired to quickly return the plunger. For this purpose the gear-frame may be adjusted away from the bed-frame to move its gear-wheels I' out of mesh with the rack-bars D, so the spring G can quickly retract the plunger. I provide means for such purpose, and I also provide means for locking the gear-frame in position, with its wheels I' meshing with the rack-bars D, and for convenience I combine the locking devices and the releasing devices, so the gear-frame can be quickly unlocked and then shifted to adjust its gears out of mesh with the rack-bars. In the construction shown this is accomplished by means of the locking and shifting lever M, which is pivoted at its lower end at M', has a cross-bar M², which may be adjusted above the swinging end of the gear-frame to lock the said frame in position for use, and said lever M is also provided with a crank-arm or projection M³, which engages the swinging end of the gear-frame G after the cross-bar M² has been swung off of said hinged end and lifts the hinged end of the gear-frame to such extent as to move the gear-wheels I' out of mesh with the rack-bars D, so the latter can slide rearwardly in the readjustment of the plunger by the returning-spring G. To facilitate the sliding of the rack-bars D in both directions, I prefer to mount them in guides E² in the form of grooved plates secured on the bed-frame E, as shown in the drawings.

While in Figs. 1 and 2 of the drawings I have shown the bale-box as constructed of wood in the usual manner, it is manifest where desired this bale-box may be made of sheet metal, as illustrated in Fig. 10.

In the operation of my invention it will be understood that when the plunger has been advanced to the end of its stroke, which it has nearly reached in Fig. 1, the gear-frame will be locked on the bed-frame by the lever M. If now it be desired to release the gear devices, so the plunger may be retracted by the spring G, the lever M will be moved from the position shown in Fig. 1 to that shown in Fig. 2, which will release the cross-bar M² from engagement with the gear-frame and will cause the crank-arm or projection M³, engaging in the notches e, to lift the gear-frame to the position shown in said Fig. 2, so the gear-wheels I' will be lifted out of mesh with the rack-bars D and the spring G will quickly return the plunger. Hay may now be supplied through the opening A', the lever M be moved from the position shown in Fig. 2 to that shown in Fig. 1, permitting the gear-wheels I' to drop by gravity into mesh with the rack-bars D and the cross-bar M² being adjusted to bear upon the gear-frame and lock the same in position until the plunger has again been advanced to the end of its stroke and it is desired to return the same for a new operation.

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

1. The improvement in presses herein described, comprising the bale-box, the framing, the plunger, the rack-bars connected with the plunger, the bed-frame having guides for said rack-bars, the gear-frame hinged at one end to the bed-frame, whereby its other end may be lifted, the shaft journaled to the gear-frame, the gear-wheels on said shaft, and meshed with the rack-bars of the plunger, the ratchet-wheel on said shaft, the detent-pawl engaging said ratchet-wheel, the pawl-lever having an operating-pawl engaging the ratchet-wheel, the handle-lever, connections between the handle-lever and the pawl-lever, and the locking and shifting lever provided with means for locking the gear-frame with its gear-wheels in mesh with the rack-bars of the plunger, and with means for lifting the gear-frame to move its gear-wheels out of mesh with said rack-bars, and the spring for readjusting the plunger.

2. In a press substantially as described, the combination of the plunger, the rack devices connected therewith, the bed-frame having guides for the rack devices, the gear-frame hinged to the bed-frame and having gear devices meshing with the rack devices of the plunger, means for operating the gear devices, and means for shifting the gear-frame whereby to set its gear devices out of mesh with the rack devices of the plunger.

3. The combination in a press of the plunger, the rack devices connected therewith, gear devices to mesh with the rack devices of the plunger, and the frame supporting said gear

devices and movable whereby it may be moved to set its gear devices into and out of mesh with the rack devices of the plunger.

4. The combination in a press, of the plunger, the rack devices of the plunger, the bed-frame having guides for said rack devices, the gear-frame hinged to the bed-frame, dowel devices between the bed-frame and the gear-frame, and the gear devices in the gear-frame meshing with the rack devices of the plunger.

5. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and means for locking the gear-frame with its gear devices in mesh with the rack devices.

6. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and the lever having a cross-bar movable to position to lock the gear-frame with its gear devices in mesh with the rack devices of the plunger.

7. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices for giving the pressing stroke to the plunger, the gear-frame supporting said gear devices and movable whereby to set the gear device, in and out of mesh with the rack devices, and devices for shifting the movable gear-frame whereby to set its gear devices out of mesh with the rack devices of the plunger.

8. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and a lever having a crank projection or portion to engage with the gear-frame and shift the same whereby to set its gear devices out of mesh with the rack devices of the plunger.

9. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the

rack devices, and the lever having a cross-bar to engage with and lock the gear-frame with its gear devices in mesh with the rack devices of the plunger in one position of said lever, and having a crank projection or portion to engage with the gear-frame and shift the same to set its gear devices out of mesh with the rack devices of the bed-frame after the cross-bar has been moved out of engagement with the gear-frame.

10. The combination in a press, of the plunger, the rack devices connected with the plunger, the gear devices meshing with said rack devices for giving the pressing stroke to the plunger, and means for moving one of said devices relatively to the other, whereby they may be thrown out of mesh when it is desired to retract the plunger, substantially as set forth.

11. The combination in a press, of the framing, the bed-frame, the bolts securing the bed-frame to the framing and projecting above the bed-frame to form dowel devices between the same and the gear-frame, the gear-frame, the hinges connecting the gear-frame with the bed-frame, the plunger, the rack-bars connected with the plunger, guides on the bed-frame for said rack-bars, the gear-wheels on the gear-frame and meshing with the rack-bars, a locking and shifting lever for said gear-frame, and the pawl-lever and ratchet-wheel.

12. In a press, the combination of the baling-box and framing having guide-slots for the cross-rod of the plunger, the plunger, the rack-bars, within the baling-box and extending into the plunger, the cross-rod extending through the plunger and securing the rack-bars thereto, said cross-rod projecting at its ends into the guides of the bale-box, gear devices operating upon the rack-bars, and means whereby the gear devices and rack-bars may be moved relatively whereby they may be thrown out of mesh when it is desired to retract the plunger.

13. The combination in a press, of the plunger, rack devices connected with the plunger, gear devices meshing with the rack devices of the plunger for giving the pressing stroke to the plunger, means for operating the gear devices, and means for shifting one of said devices relatively to the other, whereby they may be set into and out of mesh.

14. The combination in a press, of the plunger, rack devices connected with the plunger, gear devices meshing with the rack devices, means for locking said devices in position to mesh with each other, and means for shifting said devices relatively whereby to set them out of mesh, substantially as set forth.

JOSEPH C. DAMRON.

Witnesses:

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PERRY B. TURPIN.