

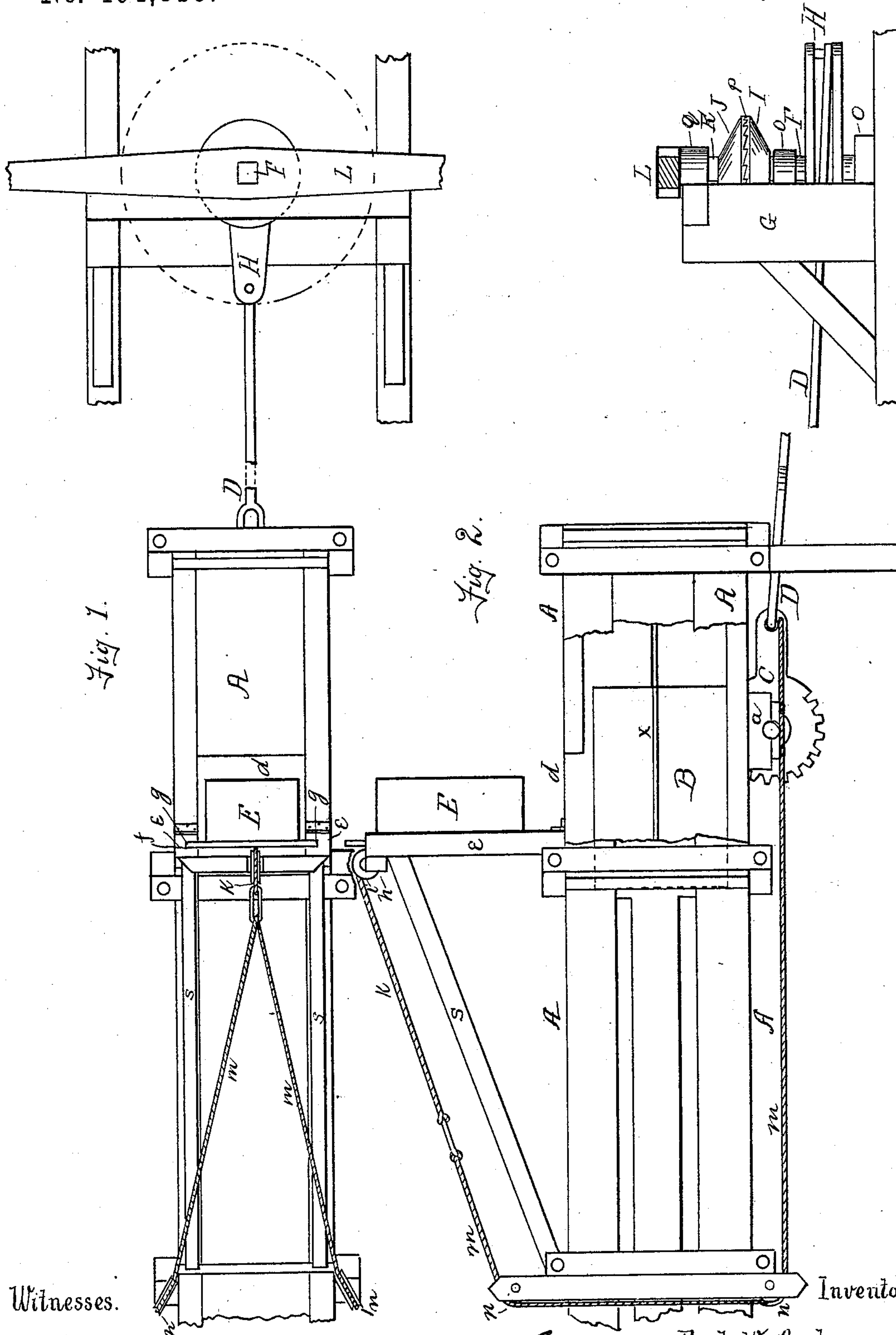
(No Model.)

3 Sheets—Sheet 1.

F. W. ANDERSON.
BALING PRESS.

No. 404,815.

Patented June 11, 1889.



Witnesses.

J. P. Miller
Walter H. Bloom

By

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Attorney.

Fred. W. Anderson.

Inventor

(No Model.)

3 Sheets—Sheet 2.

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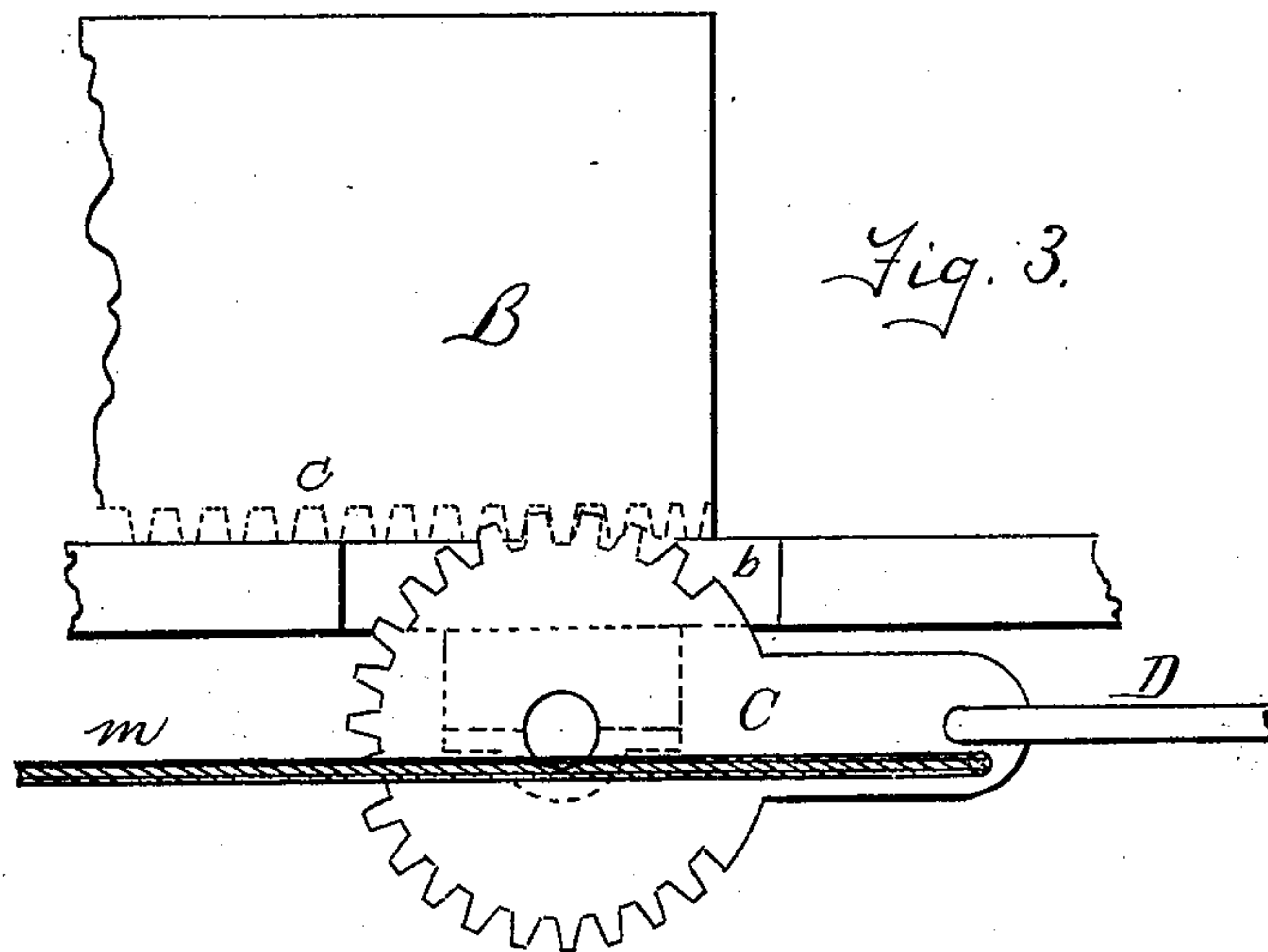
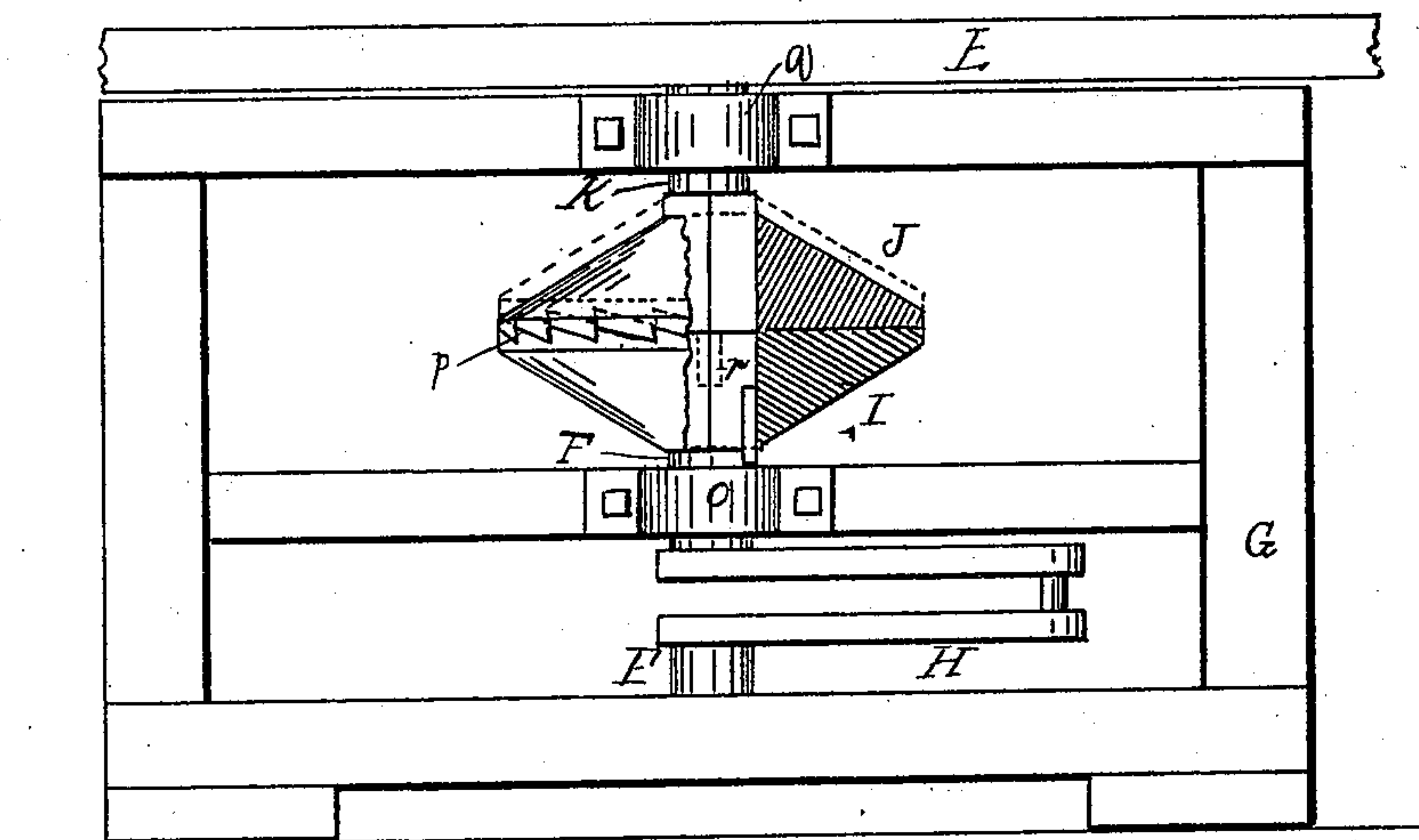


Fig. 4.



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3 Sheets—Sheet 3.

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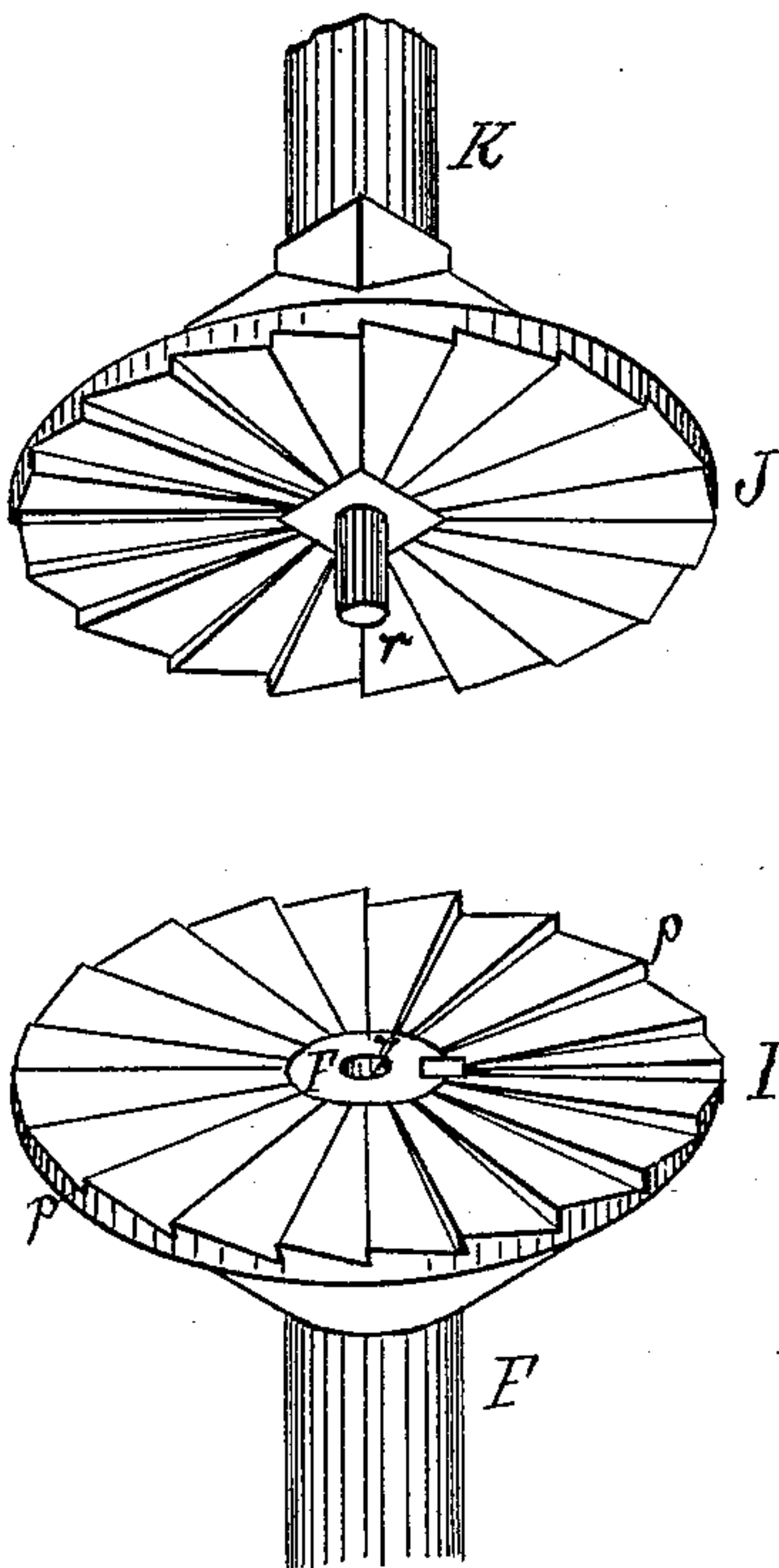


Fig. 5.

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Eugene Newman
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UNITED STATES PATENT OFFICE.

FRED W. ANDERSON, OF MAPLE PLAIN, MINNESOTA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 404,815, dated June 11, 1889.

Application filed May 19, 1888. Serial No. 274,441. (No model.)

To all whom it may concern:

Be it known that I, FRED W. ANDERSON, a citizen of the United States, residing at Maple Plain, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Baling-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to baling-presses of the class commonly used for baling hay and the like; and it consists of a horizontally-movable follower and vertically-movable condenser, so connected that the forward movement of the follower raises the condenser, and upon the completion of the stroke the condenser falls and effects the return of the follower. The follower is operated to cause its forward stroke by means of pitman-connection with the crank-shaft of a horse-power, which is connected with the sweep-shaft by clutch mechanism. The clutch members are so constructed that the sweep-shaft carries with it the crank-shaft through one-half a revolution, and until the follower has completed its forward stroke, when the weight of the condenser acts to effect the return of the follower, release the clutch, and complete the revolution of the crank-shaft independently of the sweep-shaft. The crank-shaft makes two revolutions to one of the sweep, and the duplication of the stroke of the follower is effected while the sweep moves constantly in the same direction.

The object of the invention is in general to furnish a press of simple construction, with parts not liable to get out of order, and which shall at the same time accomplish its purpose in the most efficient manner; and the especial object is to so construct the horse-power and the connections between the same and the follower and other operative parts of the press that the movement of the horse may be continuous in one direction, and the duplication of the stroke of the follower and

condenser shall be accomplished without any jerking movement of the sweep or any sudden release of the same, as is the case in powers heretofore used for this purpose.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the press and power; Fig. 2, a side view of the same partially in section; Fig. 3, a detail view of the follower and the segment-gear lever for operating the follower and condenser; Fig. 4, a detail view of the horse-power, and Fig. 5 a detail view of the clutch mechanism of the horse-power.

Like letters designate corresponding parts in all of the figures.

The frame-work and press-box of the press may be of any ordinary or desired construction, preferably mounted upon trucks for convenience in transportation, and need not be here described. The horse-power is located at one end of the frame-work, and in the end of the press-box A toward the horse-power is the follower B, loosely fitting the interior of the box, and adapted to slide horizontally therein by means of flanges *x x* upon the sides of the same, fitting in corresponding grooves in the sides of the box.

Pivotaly mounted upon bearings *a a* upon the under side of the press-box is a lever C, having a segment-gear formed at one end concentrically with the pivot upon which it turns, the teeth of the gear extending through a longitudinal slot *b* formed in the bottom of the box. A rack *c*, having teeth corresponding to the teeth of the segment, is formed or mounted within a longitudinal groove in the under side of the follower in position to be engaged by the teeth of the segment, and thus moved forward and backward in the box by the oscillation of the lever. The end of the lever opposite the segment is preferably of a length about twice that of the radius of the segment in order to give the proper leverage.

To the lower extending end of the lever is attached a pitman-rod D, connecting with the horse-power, the end of the pitman-rod being forked, so as to allow it to receive the lower edge of the segment when the lever-arm extends in a horizontal direction opposite to that

of the pitman, thus allowing the segment-lever to turn through approximately one hundred and eighty degrees.

Upon the upper part of the box over the path of the plunger, as operated by the segment-lever, is the feed-aperture *d*, and from the outer end of this aperture are vertically erected two uprights *e e* upon opposite sides of the box, having grooves or guides formed thereon, in which the condenser E slides. The condenser consists of a heavy block of metal, upon the opposite sides of which are formed or secured suitable flanges *g g*, adapted to work in the grooves *f f*.

Upon the top of the uprights *e e* is secured a cross-bar *h*, and upon this cross-bar is mounted a pulley or sheave *i*, over which passes a cord *k*, attached to the condenser E. After passing over the sheave *i*, the cord is attached to a link, and to the opposite end of this link are secured two cords *m m*, which pass over pulleys *n n*, located upon the upper and lower corners of the box near its farther end and thence under the box to the end of the segment-gear lever C, to which they are attached. By this connection it will be seen that the movement of the pitman-rod D, which carries forward the end of the segment-gear lever C, moving the follower B inwardly by means of the teeth of the segment engaging with the rack *c* upon the under side of the follower, at the same time raises the condenser E in the uprights *e e*, by which it is supported. If, then, when the condenser has reached its highest point the force exerted by the pitman is removed and the pitman left free, the condenser, being of considerable weight, will fall upon the contents of the press-box, compressing the same, and at the same time, by means of the cords *k* and *m m*, will draw back the segment-lever and consequently the follower to their former position.

The horse-power used for the purpose of operating the follower and condenser consists of an upright shaft F, mounted in suitable bearings *o o* upon a frame-work G, upon the lower end of which shaft is a double crank H, to which is connected the pitman D for operating the follower. Upon the upper extremity of the upright shaft F, which shaft and the crank H may be conveniently cast in one piece, is mounted a clutch member I, having upwardly-projecting teeth *p p*, with slightly undercut faces and gradually-inclined backs, and above this is another clutch member, of similar form, J, having teeth upon its lower face adapted to mesh with the teeth upon the upper face of the clutch member I when the former is rotated from right to left. The clutch member J is mounted upon a short upright shaft K, its upper end turning in a bearing *q* at the top of the frame and its lower end having a step-bearing *r* (shown in Fig. 5 and indicated by dotted lines in Fig. 4) in the top of the shaft F. The upper extremity of the shaft K, above its bearing in the frame-

work, is squared, and to the squared extremity is attached the sweep or pole L. The clutch member I is permanently secured to its shaft; but the clutch member J is movable in a vertical direction upon its shaft, the latter at that point being square or of other angular form and the clutch member having a correspondingly-shaped aperture through its center. The body of the clutch member J is of sufficient weight to retain a position resting upon the face of the clutch member I.

The operation of this part of the mechanism is as follows: The horse, being attached to the end of the sweep, is driven around from right to left. When the clutch member J is thus revolved, its teeth intermesh with those of the clutch member I, thereby causing it and the crank H upon the same shaft F to move in the same direction. The arm of the segment-lever C is drawn forward by the pitman-rod D, moving the follower B in the opposite direction and raising the condenser. When the crank H has completed one-half of a revolution and has passed the center, the weight of the condenser E, acting upon the segment-gear lever and pitman-rod through its connections therewith, turns the crank quickly through a half-revolution until it reaches its dead-center toward the press. The clutch member I slides freely out of engagement with the member J, the latter being slightly raised upon its shaft by the inclined backs of the teeth, so that no movement is communicated to the shaft K or to the sweep L, attached thereto. The crank being carried by the pitman-rod instantly through a half-revolution without moving the sweep, the onward movement of the horse continues its revolution. The operative parts of the press thus perform their required functions twice at each single revolution of the sweep, thereby greatly increasing the efficiency of the press and allowing the horse to travel continuously in the same direction.

The uprights *e e* upon the press-box, between which the condenser E slides, are preferably hinged at their lower ends to the frame-work, and supported by means of movable props or braces *s s*. The tension of the cords connecting the condenser with the segment-gear lever serve to hold the uprights firmly against the supports. This portion of the frame may thus be easily knocked down and folded, allowing the frame upon which the horse-power is mounted to be placed upon the top of the press-box for convenience in transportation.

I claim as my invention—

1. The combination, with a horizontally-movable follower and a vertically-movable gravity-actuated condenser, of a segment-gear lever operating upon a corresponding rack upon the follower, means for operating said lever in one direction, and a cable or cables attached to said condenser passing over pulley-sheaves and connected with said lever,

substantially as described, whereby the weight of the condenser operates the segment-gear lever in the other direction.

2. In a baling-press, a horizontally-movable follower, a gravity-actuated vertically-movable condenser, a longitudinally-extending rack upon said follower, a segment-gear lever adapted to mesh with said rack, a pitman connected with suitable power for oscillating said segment-gear lever in one direction, and a cord passing over sheaves *i* and *n* and connecting said segment-gear lever and condenser, whereby the drawing back of the segment-lever to move forward the follower raises the condenser, and the falling of the condenser draws back the follower, substantially as specified.

3. The combination, with the horizontally-movable follower and segment-gear lever for actuating the same, and a condenser connected with said segment-lever by cords and sheaves in such a manner that the weight of the condenser operates to cause the return movement of the follower, of a horse-power consisting of an upright crank-shaft, a pitman-rod connecting said crank and segment-gear lever, a sweep-shaft mounted above and in the axis of the crank-shaft, clutch members upon the sweep-shaft and crank-shaft, respectively, adapted to engage with each other when power is applied to the sweep-shaft and to become disengaged when power is applied to the crank-shaft, substantially as specified, whereby one-half a revolution of the crank-shaft from the inner to the outer dead-center is caused by the power applied by means of the sweep and the balance of the revolution by the downward movement of the condenser through its connection with the segment-lever and pitman independently of the movement of the sweep.

4. The clutch member I, mounted upon the crank-shaft, the gravity clutch member J, mounted and vertically movable upon the sweep-shaft and adapted to interlock with the clutch member I, when resistance is offered to the revolution thereof, and to ride over the same when clutch member I is caused to move independently in the same direction, in combination with the horizontally-movable follower, a segment-gear lever for operating the same, a pitman-rod connecting said lever and crank upon the crank-shaft, and means for drawing back said lever when the follower has finished its forward stroke, substantially as and for the purpose herein specified.

5. The combination, with a horizontally-movable follower, a segment-gear lever for actuating said follower, and a gravity-actuated condenser connected with said segment-gear lever in such a manner that the movement of the lever to move forward the follower raises the condenser, and the falling of the condenser draws back the follower, of a horse-power consisting of a vertically-mounted crank-shaft, a sweep-shaft mounted above the crank-shaft in the same axis, a pitman-rod connecting the crank upon the crank-shaft and the segment-gear lever, and clutch mechanism adapted to couple said shafts until the follower has completed its forward stroke and then to be released, substantially as and for the purpose herein specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRED W. ANDERSON.

Witnesses:

F. W. LANE,
WALTER HOLCOMB.