

No. 678,941.

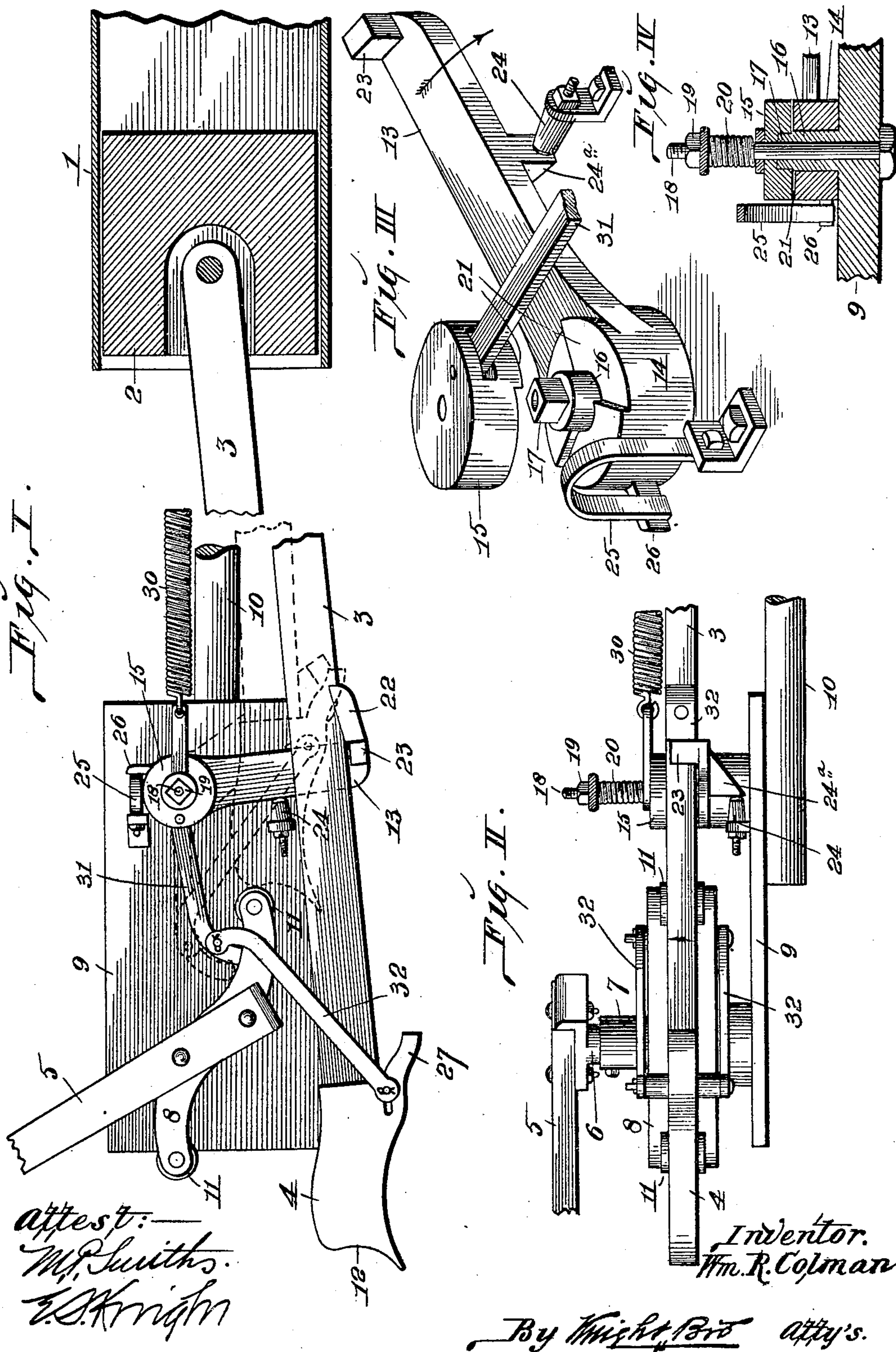
Patented July 23, 1901.

W. R. COLMAN.
BALING PRESS.

(Application filed Nov. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. V.

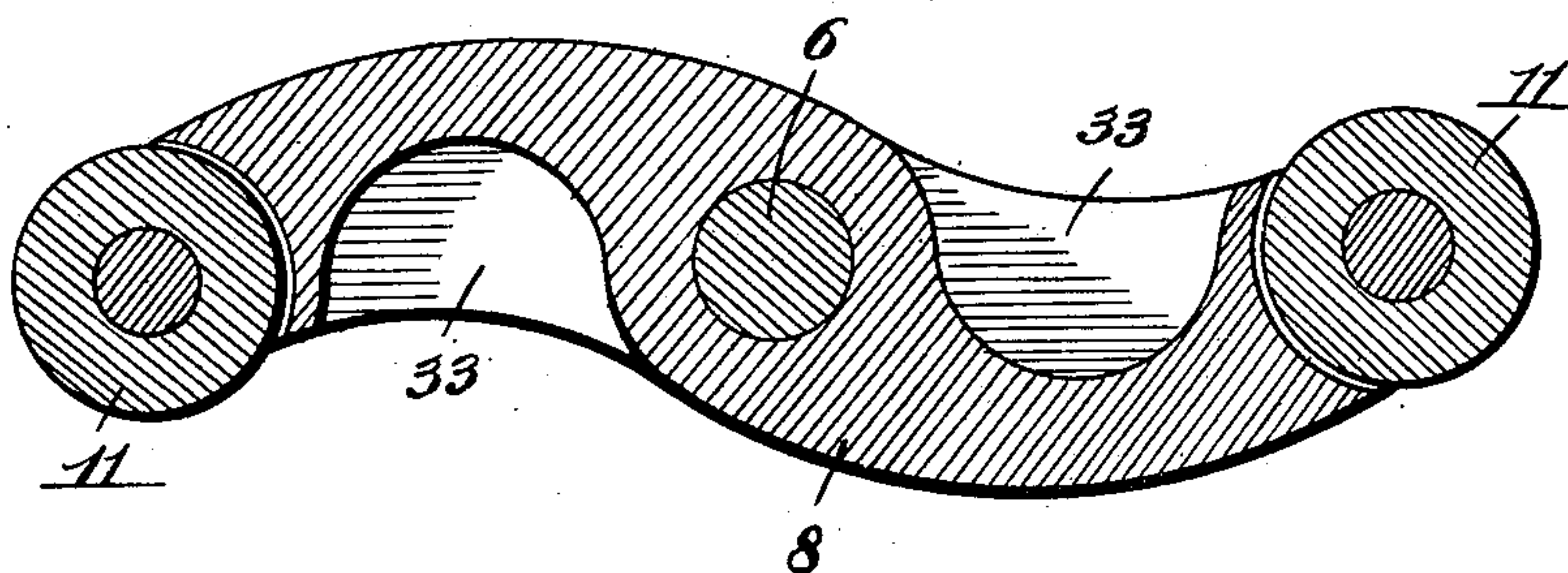
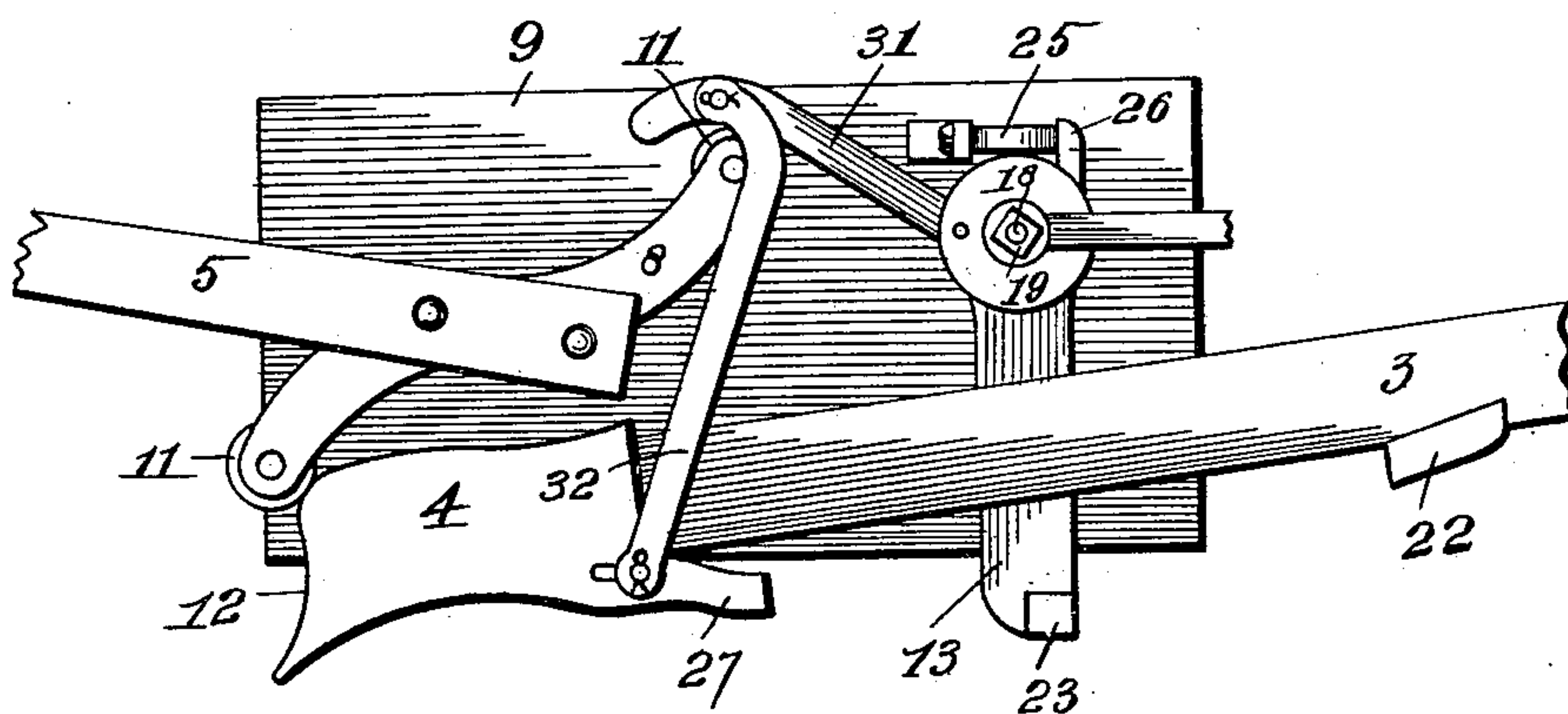


Fig. VI.



attest:—
M. Smith
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By Wm. R. Colman
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UNITED STATES PATENT OFFICE.

WILLIAM R. COLMAN, OF QUINCY, ILLINOIS, ASSIGNOR OF ONE-HALF TO
FREDERICK C. ANDREWS, OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 678,941, dated July 23, 1901.

Application filed November 28, 1900. Serial No. 37,972. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. COLMAN, a citizen of the United States, residing in Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Baling-Presses, 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 relates to certain improvements in presses that may be used for baling hay, straw, cotton, excelsior, and the like; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a detail view illustrative of my invention and being part in plan and part in horizontal section. Fig. II is a detail side view. Fig. III is an enlarged perspective view of the brake mechanism and retracting-spring. Fig. IV is a vertical section of the same. Fig. V is a horizontal section of the cross-head or lever-arm. Fig. VI is a top or plan view of the power mechanism, showing the parts in a different position from that shown in Fig. I.

Referring to the drawings, 1 represents part of the baling-chamber of a press, and 2 the plunger or traverser.

3 represents the pitman, the outer end of which carries a rigid head 4.

5 represents a sweep mounted on and rigidly secured to the upper end of a shaft 6, that passes through a hub 7 of a cross-head or lever-arm 8, that is rigidly secured to and turns with the shaft. The shaft is suitably journaled in a bed-plate 9, that is supported by a reach 10, that connects it to the baling-chamber of the press. The outer ends of the cross-head 8 are provided with friction-rollers 11, (see Fig. V,) and in the operation of the press, as will hereinafter appear, these friction-rollers come against the outer end 12 of the head 4 of the pitman to force the plunger forward in the act of pressing the material.

13 designates a carrier-arm, upon which the pitman 3 rests and slides with frictional contact. As shown in Fig. III, the carrier-arm projects horizontally from the lower

washer 14 of a brake, 15 representing the upper washer of the brake. The washer 14 fits loosely on a round stud 16, projecting upwardly from the bed-plate 9, and the lower side of the washer 15 has a non-circular recess to receive a non-circular upper end 17 of the stud 16. The lower washer is thus free to turn on the stud, while the upper washer is held from rotation. The two washers are held to the bed-plate by a bolt 18, (see Fig. IV,) and between the washer 15 and a nut 19 on the bolt is a coil-spring 20. The adjacent faces of the washers 14 and 15 are provided with one or more inclines 21, as seen in Fig. III, so that when the carrier-arm is moved in the direction of the arrow the turning of the washer 14 against the washer 15 will cause the spring 20 to act as a brake to retard the movement of the washer 14, and this braking effect acts to retard the rebound movement of the plunger by a projection 22 on the pitman coming against a projection 23 on the outer end of the carrier-arm before the plunger reaches the limit of its backward movement. To avoid a severe shock to the press on the rebound of the plunger, the bed-plate is provided with a spring-bumper 24, a rubber bumper being shown against which a projection 24^a on the carrier-arm contacts, as shown in Figs. II and III, the projection coming against the bumper as the carrier-arm reaches the extreme limit of its backward throw.

It is important to provide means to start the backward movement of the plunger in case there should be any tendency of the plunger to stick after the pressure is released, and to do this in a cheap and effective manner I secure a U-shaped spring 25 to the bed-plate 9, as shown in Figs. I and III. The free end of this spring is adapted to be engaged by a lug 26 on the washer 14 when the outer end of the carrier-arm is moved forward. To cause this forward movement of the carrier-arm, the head 12 of the pitman is provided with a projection 27, that comes against the back of the lug or ear 23 on the carrier-arm shortly before the plunger reaches the limit of its forward movement, and when the carrier-arm is thus moved it compresses the spring 25, so that when the

force is removed from the outer end of the pitman the spring 25 acts to throw the carrier-arm rearwardly, and the carrier-arm being in frictional contact with the pitman acts in turn to effect a backward movement of the plunger when the cross-head 8 leaves the head of the pitman. As the plunger recedes the projection 22 on the pitman comes against the projection 23 on the carrier-arm, (the carrier-arm at this time being some distance forward of the bumper 24 and being thus held by the spring 20, acting in opposition to the friction of the pitman on the carrier-arm,) and as the carrier-arm is moved by the projection 22 coming against the projection 23 the inclines 21 on the adjacent faces of the disks or washers 14 and 15 cause the washer 15 to be elevated against the pressure of the spring 20, and the spring thus acts as a brake to retard the rearward movement of the carrier-arm and the pitman that rests therein.

30 represents a spring connected by one end to the bolt 18 and at the other end to the pitman at a suitable point and which acts to pull the plunger backwardly.

31 represents an arm connected to the washer 15 at one end and the other end of which is curved inwardly, as shown in the drawings. The curved end of the arm is connected by links 32 to the head 4 of the pitman, there preferably being a slot-and-pin connection between the links and the head 4, so that when the plunger is receiving the last part of its forward movement the pin will slide in the slot and avoid danger of breaking the parts. As the cross-head 8 is turned by the sweep the rollers 11 come against the arm 31, and by moving the arm from the position shown in Fig. I to the position shown in Fig. VI acts to draw the pitman forwardly, thus effecting the first part of the advance movement of the plunger. This movement of the arm 31 also draws the outer end of the pitman inwardly, so that the next roller 11 will engage the outer curved end of the head 4 of the pitman, and the parts are so formed and disposed that one of the rollers 11 does not leave the curved end of the arm 31 until the other roller 11 is well seated against the end of the head 4. This is illustrated in Fig. VI, where one of the rollers 11 has still to travel the distance of the inward curve on the arm 31, while the other roller 11 is moving from the advance corner of the head 4 to a central position against the head. The position assumed by the pitman and the arm 31 and links 32, when the plunger is forward and just before the cross-head leaves the outer end of the pitman, is indicated by dotted lines in Fig. I. To prevent the curved end of the arm 31 from contacting with the cross-head when a roller 11 first comes against the arm, I form recesses 33 in the cross-head, as shown in Fig. V.

In the operation of the press one of the rollers 11 comes against the arm 31 and draws

the pitman 3 inwardly and forwardly to bring the head of the pitman in front of the next roller 11. As this latter roller engages the head of the pitman it forces the same forward, giving the final pressure to the plunger. Shortly before the pitman reaches the limit of its forward movement the projection 27 comes against the projection 23 on the carrier-arm and moves the latter forwardly, thus storing up pressure in the spring 25, that acts to start the pitman and plunger in their rearward movement when the roller 11 leaves the end of the pitman. In the rebound of the plunger and pitman the projection 22 engages the projection 23 on the carrier-arm and moves the arm back to its normal position, the spring 20 acting as a cushion to check the backward movement of the carrier-arm and the pitman.

I claim as my invention—

1. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, a lug projecting from said arm, the spring 25 acting on the carrier-arm through said lug, a brake for retarding the backward movement of the carrier-arm, and a spring-bumper against which the carrier-arm contacts in its rearward movement.

2. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, a lug projecting from said arm, the spring 25 acting on said arm through said lug, and a brake for retarding the backward movement of the carrier-arm, consisting of an upper non-rotatable and a lower rotatable washer having inclined adjacent faces, and a spring surmounting said washers.

3. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, the lug projecting from said arm, a spring 25 acting on the carrier-arm through said lug, and a brake for retarding the backward movement of the carrier-arm, consisting of an upper and lower washer having inclined adjacent faces, and a spring surmounting the washers, said washers fitting over a stud having a non-circular upper end that fits in a non-circular opening in the upper washer.

4. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, a stationary spring 25 and a projection that is moved by the car-

rier-arm and which is adapted to engage said spring, substantially as and for the purpose set forth.

5 In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, a U-shaped stationary spring and a projection moved by the carrier-arm and which is adapted to engage said spring, substantially as and for the purpose set forth.

6. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm having a projection and upon which the pitman rests, a projection on the pitman adapted to engage the projection on the carrier-arm during the advance movement of the pitman, and a spring 25 adapted to be compressed by the forward movement of the carrier-arm, substantially as and for the purpose set forth.

7. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a pivoted arm having an inwardly-curved end and which is adapted to be engaged by said means, and a link forming a connection between said pivoted arm and said pitman, the inwardly-

curved end of said arm insuring an inward and forward pull of the pitman, a sufficient distance to seat the power-head against the pitman substantially as set forth.

8. In a baling-press, the combination of a plunger, a pitman connected to the plunger, a cross-head for imparting forward movement to the pitman and plunger, a pivoted arm having an inwardly-curved end and which is adapted to be engaged by said cross-head, and a link forming a connection between said pitman and the inwardly-curved end of said arm insuring an inward and forward pull of the pitman, a sufficient distance to seat the power-head against the pitman, substantially as set forth.

9. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a cross-head, an arm having an inwardly-curved end and which is adapted to be engaged by said cross-head, recesses 33 formed in the cross-head, a washer to which the arm is pivoted and a link connected to said arm and having a slot-and-pin connection with said pitman, substantially as and for the purpose set forth.

WILLIAM R. COLMAN.

In presence of—

A. B. WEISENBURGER,
FRANK GARVIN.