

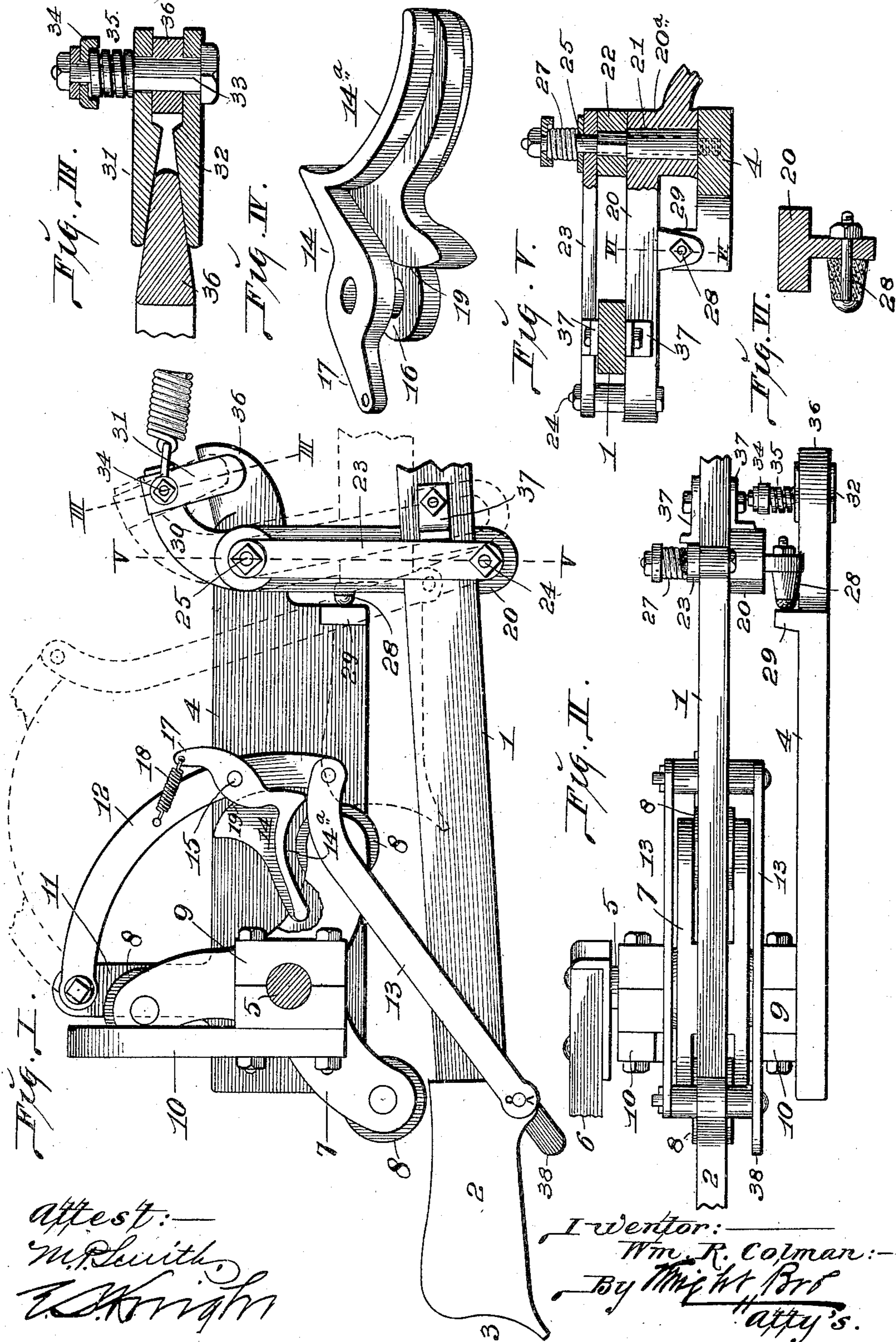
No. 682,240.

Patented Sept. 10, 1901.

W. R. COLMAN.
BALING PRESS.

(Application filed Jan. 18, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 682,240, dated September 10, 1901.

Application filed January 18, 1901. Serial No. 43,681. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. COLMAN, a citizen of the United States, residing at 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 belonging to the power end of a press for baling cotton, hay, straw, excelsior, and the like; and the improvement is particularly well adapted for a three-stroke press—that is to say, a press having three forward movements of the plunger at each revolution of the sweep.

Figure I is a top or plan view illustrating my improvement, the sweep-shaft being shown in section. Fig. II is a detail side view. Fig. III is a vertical section taken on line III III, Fig. I. Fig. IV is a perspective view of the combined lever and cam. Fig. V is a vertical section taken on line V V, Fig. I. Fig. VI is a detail vertical section taken on line VI VI, Fig. I.

1 represents the outer end of the pitman of the press, which is connected to the plunger of the press (not shown) in the usual manner. The end of the pitman is provided with a head 2, having a curved end 3.

4 represents a bed-plate, to which is journaled the shaft 5, that carries the sweep 6.

7 represents the power-head, secured to the shaft 5 and having three arms, so that at each revolution of the sweep three forward movements are imparted to the pitman. Each arm of the head 7 is provided with a friction-roller 8, that contacts with the head of the pitman to move the latter. The shaft 5 is journaled in a vertical box 9, rising from the bed-plate, and which is divided horizontally to admit of the power-head being secured to the shaft 5. The two parts of this box are connected together by a U-shaped frame 10, through which the arms of the power-head pass, a top view of the U-shaped frame being seen in Fig. I and the ends of the frame being shown in Fig. II.

11 represents an extension projecting from the bed-plate 4 and to the outer end of which

is pivotally connected one end of a curved arm 12, the other end of the arm being connected to the pitman 1 by means of links 13.

14 represents a cam-lever pivoted to the arm 12 at 15, the lever being bifurcated, as shown at 16, Fig. IV, to receive the arm. One fork of the lever is extended, as shown at 17. This fork is connected to the arm 12 by means of a coil-spring 18, that acts to hold the lever in the position shown in Fig. I. The lever has a cam portion 19, that is adapted to come to a bearing against the arm 12 as the lever is moved on its pivot 15. The end of the lever that extends toward the shaft 5 from the pivot 15 is formed with a curved bearing-surface 14^a to receive the rollers 8 on the power-head 7. As the power-head is turned the rollers 8, coming in contact with the surface 14^a of the lever 14, swing the lever around on its pivot 15 against the pressure of the spring 18 until the cam 19 comes against the curved surface of the arm 12. When the power-head first comes against the lever, the latter is allowed to yield slightly by the use of the spring 18, thus preventing a jar on the parts, and as the power-head continues to swing the lever on its pivot the arm 12 is being moved from the position shown in full lines, Fig. I, toward the position shown in dotted lines, and when the cam portion of the lever comes against the arm 12 the lever and arm move together, thus drawing the pitman inwardly and forwardly, so that the roller 8 that follows the one that is bearing against the lever will come against the outer end of the pitman, as shown by dotted lines, Fig. I, and forces the pitman forward to exert the final pressure on the plunger. In many, if not all, cases the plunger reaches the material being pressed before the roller 8 engages the end of the pitman, so that any resistance thus offered has to be taken care of by the roller 8 that is moving the arm 12. By providing the cam-lever the point of bearing between the lever and the arm 12 becomes nearer the pivot of the arm as the plunger advances, and thus greater power is exerted where needed, while speed or rapid movement of the plunger is permitted where power is not needed. In other words, by providing for the approach of the point of contact toward the pivot of the arm as the plunger advances

speed yields to force when the latter is needed, and by this arrangement and construction of parts I am enabled to use a power-head having short arms, and consequently produce a
 5 press of great power, as the point of contact between the curved outer end of the pitman and the arms of the power-head is close to the shaft 5.

20 represents a carrier-arm upon which the
 10 pitman rests and slides as the press is being operated. This carrier-arm is mounted on the bed-plate 4 by means of a stud 21, that receives the head 20^a of the carrier-arm, as seen in Fig. V, a washer 22 being located over
 15 the head of the carrier-arm and above which is a plate 23, the outer end of which is connected to the outer end of the carrier-arm by means of a bolt 24. The pitman fits between the carrier-arm and plate 23 and is held from
 20 moving or springing upwardly by the plate. The plate and carrier-arm are held to the bed-plate by means of a bolt 25, passing through the stud 21. Surrounding the bolt between
 25 washers 25 is a spring 27, which serves to hold the plate 23 yieldingly against the washer 22, so as to provide for any irregularity in the thickness of the pitman by allowing the plate 23 to rise and fall slightly. The under
 30 side of the carrier-arm is provided with a spring-bumper 28, which as the carrier-arm reaches the limit of its backward movement comes against a shoulder 29 on the bed-plate and serves as a cushion in stopping the rearward movement of the arm. The pitman
 35 rides in frictional contact with the carrier-arm, and to provide a brake to gradually stop the rearward movement of the pitman under the rebound of the plunger of the press, I provide the carrier-arm with a downwardly
 40 and forwardly curved end 30, to which is secured a jaw consisting of a pair of plates 31 and 32, as seen in Fig. III, the plates being connected to the end 30 of the carrier-arm by means of a bolt 33. Surrounding the bolt
 45 between one of the plates and a washer 34 on the bolt is a coil-spring 35. The bed-plate has a tapered extension 36 to receive the jaw carried by the extension of the carrier-arm. As the pitman recedes, moving with it the car-
 50 rier-arm, the jaw comes against the extension 36 of the bed-plate and the spring 35, yielding to the opening of the jaw by coming against the extension 36, acts as a cushion to retard the backward movement of the pitman. The
 55 pitman is provided with shoulders 37, that come against the carrier-arm as the pitman is about to reach the limit of its rearward movement to thus move the jaw into engagement with the extension 36 of the bed-plate. On
 60 the forward movement of the pitman the jaw is moved out of engagement with the extension 36 of the bed-plate by the frictional contact of the pitman with the carrier-arm; but if this friction should not be sufficient to
 65 move the carrier-arm a positive movement of the arm is effected by an extension 38 on one of the links 13 coming against the outer end

of the carrier-arm just before the pitman reaches the limit of its forward movement, thus assuring the movement of the carrier-arm from the position shown in full lines, Fig. I, to the position shown in dotted lines. The arm 20 acts to carry the weight of the outer end of the pitman and to relieve all strain upon the pivot-points of the arm 12
 70 and the links 13. 75

I claim as my invention—

1. In a baling-press, the combination of a pitman, a power-head, a bed-plate, an arm pivoted to the bed-plate, links connecting the
 80 arm to the pitman, and a lever pivoted to the arm and yieldingly connected thereto and which is adapted to be engaged by the power-head; said lever having a cam portion adapted to engage the arm as the lever is moved on its
 85 pivot, said arm yielding as power is exerted on said lever, substantially as described.

2. In a baling-press, the combination of a pitman, a power-head, a bed-plate, an arm pivoted to the bed-plate, links connecting the
 90 arm to the pitman, and a lever pivoted to the arm; said lever having an extension on one side of its pivot that is spring-connected to the arm and having on the other side of its
 95 pivot a surface adapted to receive the arms of the power-head, and said lever having a cam portion adapted to engage said arm as the lever is moved on its pivot, said arm yielding
 100 as power is exerted on said lever, substantially as set forth.

3. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to the bed-plate, a power-head, a pivoted arm adapted to be engaged by the power-head,
 105 and links connecting said arm to the pitman, one of said links having an extension adapted to engage the carrier-arm, and a brake on the carrier-arm to stop rearward movement of
 110 pitman, substantially as described.

4. In a baling-press, the combination of a
 110 pitman, a bed-plate having a tapered extension, a carrier-arm pivoted to the bed-plate, and a jaw carried by the arm and which is adapted to engage a tapered extension on the
 115 bed-plate, substantially as set forth.

5. In a baling-press, the combination of a pitman, a bed-plate having a tapered extension, a carrier-arm pivoted to the bed-plate and provided with an extension, and a spring-controlled jaw secured to the extension of the
 120 carrier-arm and which is adapted to engage a tapered extension on the bed-plate; substantially as described.

6. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to the bed-plate, a plate 23 connected to the car-
 125 rier-arm, and shoulders 37 carried by the pitman and adapted to engage the carrier-arm upon the rearward movement of the pitman, and a brake on the carrier-arm to engage
 130 the bed-plate to stop the rearward movement of the pitman, substantially as set forth.

7. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to

the bed-plate and having an extension 30, a jaw secured to the carrier-arm and a tapered projection on the bed-plate with which said jaw engages; said jaw consisting of a pair of
5 plates connected to the extension of the carrier-arm by means of a bolt provided with a spring, said spring yielding to the opening of the jaws and acting as a cushion, substantially as set forth.

W. R. COLMAN.

In presence of—

ALBERT B. WEISENBURGER,
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