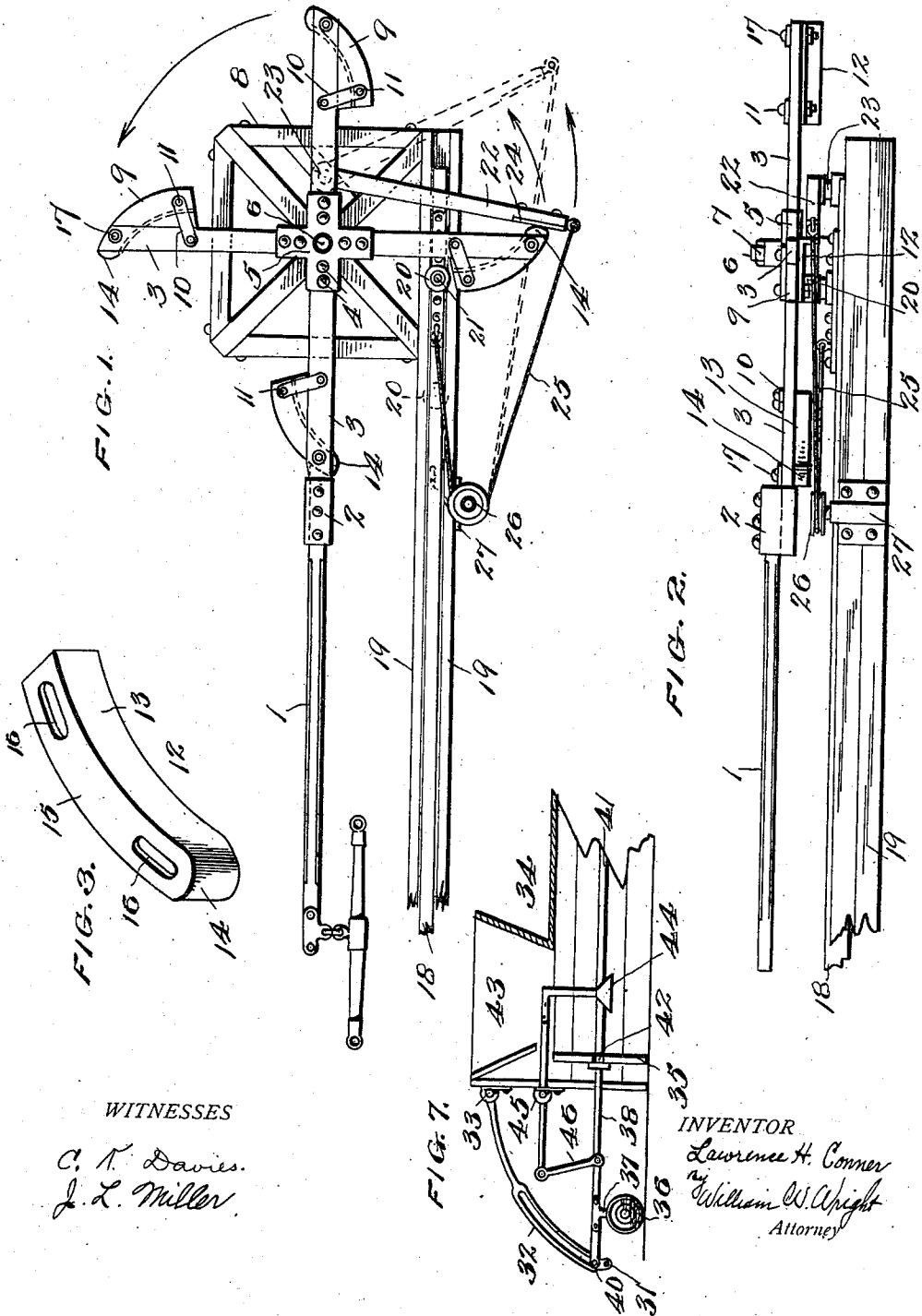


L. H. CONNER.
BALING PRESS.
APPLICATION FILED JAN. 21, 1910.

989,836.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.



WITNESSES

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J. L. Miller.

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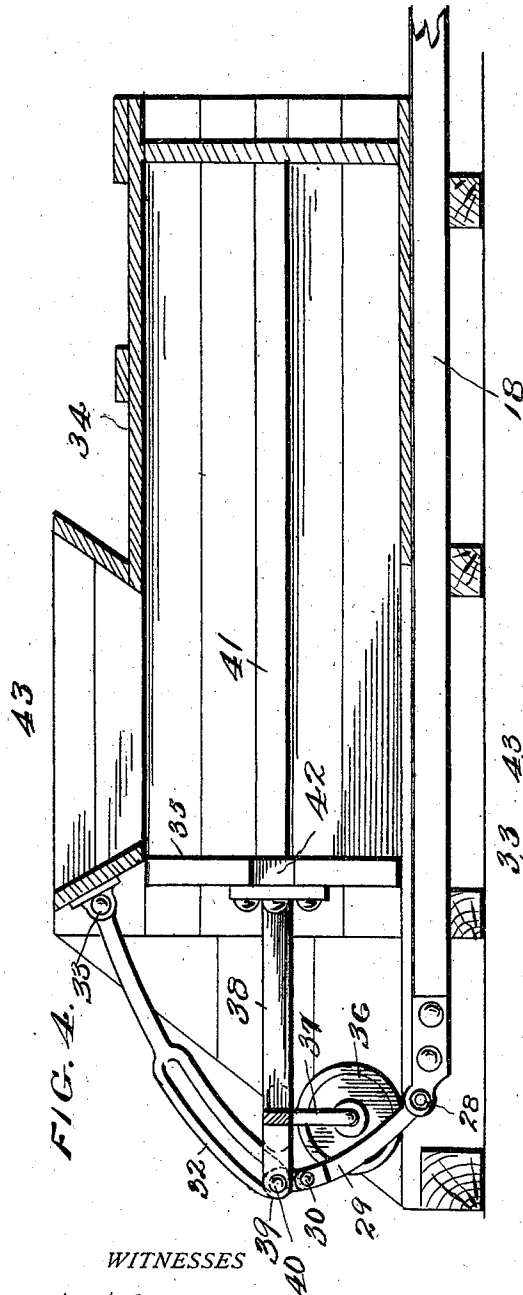
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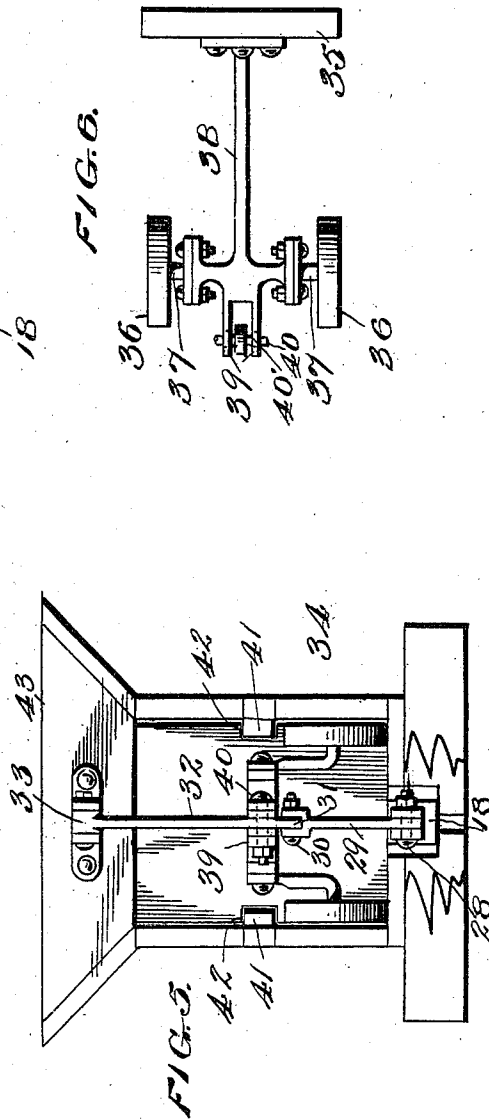
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UNITED STATES PATENT OFFICE.

LAWRENCE H. CONNER, OF HEADRICK, OKLAHOMA.

BALING-PRESS.

989,836.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed January 21, 1910. Serial No. 539,337.

To all whom it may concern:

Be it known that I, LAWRENCE H. CONNER, a citizen of the United States, residing at Headrick, in the county of Jackson and State of Oklahoma, have invented new and useful Improvements in Baling-Presses, of which the following is a specification.

My present invention relates to improvements in baling presses, and contemplates certain novelties of structure in the mechanism of the press, and also in the plunger actuating mechanism.

One of the characteristics of the invention is the application of a draw or pull which is applied to the plunger bar which is in turn transmitted to a push against the plunger in the press, and a special object of the invention is to provide means for continuously reciprocating the plunger bar or pitman which may be operated by horse power exerted upon a rotating mechanism, the rotating and reciprocating mechanism being connected by suitable levers and rope transmission. By means of the levers and rope transmission employed, a very efficient and reliable actuating mechanism for the plunger bar or pitman is produced. In the press, the actuating mechanism for the plunger, which is operated through the medium of the pitman or plunger bar, comprises a comparatively small number of elements, which renders the operation simple, and the construction inexpensive.

The invention consists in certain novel features of construction in the actuating mechanism and also in the baling mechanism, as will be fully set forth in the accompanying description of parts and more fully pointed out in the appended claims.

In the accompanying drawings I have illustrated one example of the physical embodiment of my invention, constructed according to the best mode I have so far devised for the practical application of the principles thereof.

Referring to the drawings in which like reference characters designate similar elements throughout the several figures, Figure 1 is a plan view of the actuating and operating mechanism for the plunger bar or pitman. Fig. 2 is an edge view of Fig. 1 as seen from the front. Fig. 3 is a perspective view of a cam element employed in the actuating device. Fig. 4 is a longitudinal vertical section of the baling press showing the plunger and actuating mechanism. Fig. 5 is

an end view of Fig. 4 as seen from the left. Fig. 6 is a top plan view of the plunger and connections. Fig. 7 illustrates a modification of the invention.

In order that my invention may be thoroughly understood I will first describe the actuating mechanism and its operation.

As before stated the press is preferably operated by horse power, but it will be understood that other power may be employed if desired. Horse power is applied to the draft beam 1, which beam is secured by strap 2 and bolts to one of a series of lever arms 3. As exemplified in the drawings, four of these lever arms are employed, but it will of course be understood that a greater or less number may be utilized if desired.

The inner ends of the lever arms 3 are firmly held by bolts 4 in the radial boxes of a casting 5, which casting is provided with a central opening through which the bolt or pivot 6 extends, and is revoluble about the bolt as a pivotal center. A securing nut 7 may be employed to hold the parts in place. The rotary spider, comprising the before mentioned lever arms and its pivotal bolt are supported on a rectangular base 8, a suitable altitude from the ground, to accommodate the draft horse.

At the outer end of each lever arm 3, a block 9 is secured, a metallic strap 10 and bolts 11, being shown as attaching means in addition to nails or bolts which may extend through each element. Beneath the block 9 and extended to the front edge of the lever arm, is attached the metallic cam plate 12. This cam plate is formed with a curved flange 13, and a convex curved extension 14 at the end, the upper face 15 being provided with slots 16, through which pass one of the bolts 11 and a second bolt 17 at the outer end of the lever arm. Each of the lever arms is provided with one of the metallic cam plates or castings, the arrangement being such that the downwardly extending flange 13 is to the front, or in the direction of rotation of the spider, and the convex curved end 14 projects slightly beyond the forward edge of the lever arm, for a purpose to be described. The slots 16, permit the adjustment of these cam plates on the lever arms, within limits, to accommodate different circumstances.

The reciprocating plunger bar or pitman 18 is guided in its movement and held to its work, in the box or casing 19, and on its

upper surface supports an anti-friction roller 20, which is journaled on the pintle 21, and rotatable thereon. The roller 20 is intended to cooperate with the cam plates on the outer ends of the lever arms, and for this purpose, when in normal position, is located in the path of movement of said cam plates to receive impact therefrom and to be impelled thereby, thus moving the plunger rod or pitman.

In dotted lines Fig. 1 the roller is indicated in the position it would occupy when the pitman is retracted, the full lines showing the roller as having just escaped from a cam plate, and the retraction mechanism about to be actuated. As the lever arms are rotated, a cam plate contacts with the roller arm and plate, causes the roller to ride along the flange 13 from its outer end toward and over the edge of the inner end thereof, thus pulling or drawing the roller, and the pitman or plunger bar to which it is attached, in a straight line, thus inaugurating and effecting the operative movement of the plunger as will be described.

The retraction of the pitman, or its reverse movement, is accomplished through the medium of the actuating lever 22 which is pivoted at 23 in a suitable base. At the free end of this lever is located a friction plate 24, securely fastened to the lever and located in the path of movement of the convex curved end of the cam plates 12.

Fig. 1 shows the two elements 14 and 24 in contact, and the actuating lever about to receive impact from the movement of the lever arm as it rotates. Due to the fact that the center of the lever arms and the center of the actuating arm, are separated a predetermined distance, it will be readily understood that travel of the lever arm in the direction of its arrow will cause the lever arm to push the actuating arm, through the contact between the cam plate and friction plate, the actuating lever swinging in a path indicated by its arrow, to the position indicated by dotted lines. At this extreme position (dotted) of the actuating lever, the contact between the parts is terminated and the actuating lever is free to be reversed, the lever arm continuing in its path of travel.

The reverse actuating lever 22 is connected to the pitman by a rope 25, which passes over the pulley 26, which has a fixed support, as by bracket 27, on the box 19. Thus, after the cam plate has drawn the pitman to the right in Fig. 1, (through its contact with the roller 20) and the roller has escaped from the plate, the plate at its front end strikes the friction plate on the reverse actuating lever and imparts a swinging movement to said lever, which draws on the rope 25, to pull the pitman to the left

in Fig. 1. When it is remembered that the spider comprising the lever arms is continuously rotating, it will be understood that a steady and uniform reciprocating movement is imparted to the pitman to perform its function. As before intimated the number of lever arms may be varied, if desired, thus increasing or diminishing the rapidity of the reciprocation of the pitman.

Referring particularly to Figs. 4, 5 and 6, the transmission of the reciprocating movement of the pitman to the plunger will be clearly understood. At its extreme end, the pitman 18 has pivoted thereto, as at 28, a connecting link 29. The other end of this link is pivoted at 30 to an extension 31 of a slotted actuating link 32, which link is pivoted at 33 to a fixed portion of the press 34. The plunger 35 is supported at the rear by a pair of wheels 36 journaled in brackets 37, which are supported from the frame 38 to which frame the plunger is bolted. The rear end of the frame is forked and formed with perforated ears 39. A bolt 40 is passed through these ears and also through the slot of the actuating link 32 and an anti-friction roller 40' is journaled on the bolt to engage the walls of the slotted link. At its forward end the plunger is supported and guided by means of the oppositely disposed ribs 41 in cooperation with the grooves or recesses 42 disposed at each side of the plunger 35.

The movement of the plunger will be readily understood. As the material is fed through the hopper 43, it is packed by the forward working stroke of the plunger, and this working stroke is effected by movement of the rotary lever arms as described. In its forward stroke, the pitman moves to the right in Fig. 4, which pulls on link 29, swinging the actuating link 32 on its pivot 33, and causing the roller 40' to ride through the slot of the lever or link 32. The plunger is thus pushed forward to compact the material, and the reverse movement of the pitman swings link 32 on its pivot, and through the slotted connection withdraws the plunger from the press. The presence of the traction wheels 38 and the guiding ribs and grooves mentioned, lend steadiness and stability to the movement of the plunger.

Fig. 7 illustrates the application of a feeding device used in connection with my apparatus to produce a complete machine. The tamping head 44 is pivoted at 45 to a fixed part of the press, and is connected by pivoted link 46 to the plunger frame 38. As the plunger reciprocates, the tamp 44 is caused to rise and fall, and in its descent, effectively tamps the material as it is fed through the hopper 43.

From the above description taken in connection with the accompanying drawings, it is thought the construction and some of the advantages of my improved baling press

will be evident, and it is clear that I have produced an apparatus of this class which will perform the functions of an efficient and reliable baling press for the purpose set forth as the object of the invention.

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

1. The combination in a baling press, of a plurality of lever arms each provided with a cam device, with a pitman having an abutment adapted to successively engage said devices to impart a working stroke to said pitman, a link pivoted to the pitman, a pivoted slotted link having its free end pivoted to the first link, and a plunger actuated by said slotted link.

2. The combination with a plurality of rotary lever arms each having a flanged metallic cam plate thereon, a pitman and an anti-friction roller thereon adapted for successive contact with said devices to impart a working stroke to the pitman, a plunger, a link pivoted to the pitman and pivotally connected to a slotted link having a fixed pivotal support, and a pivotal connection between the plunger and the slotted link.

3. The combination with a reciprocable

pitman of a plunger, a link having a fixed pivotal support and slotted connection with the plunger, and a second link pivotally connected to said pitman and the first mentioned link.

4. The combination with a reciprocable pitman of a plunger provided with a frame and supporting wheels, a link having a fixed pivotal support and slotted connection with said frame, and a second link connecting said pitman and first mentioned link.

5. The combination with a reciprocating pitman, of a plunger provided with a frame and supporting wheels, a link having a fixed pivotal support and slotted connection with said frame, a second link connecting said pitman and first mentioned link; a link pivoted to said frame and a pivoted arm connected to said link and provided with a tamping head.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAWRENCE H. CONNER.

Witnesses:

J. H. BILLINGS,
C. L. GREEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."