

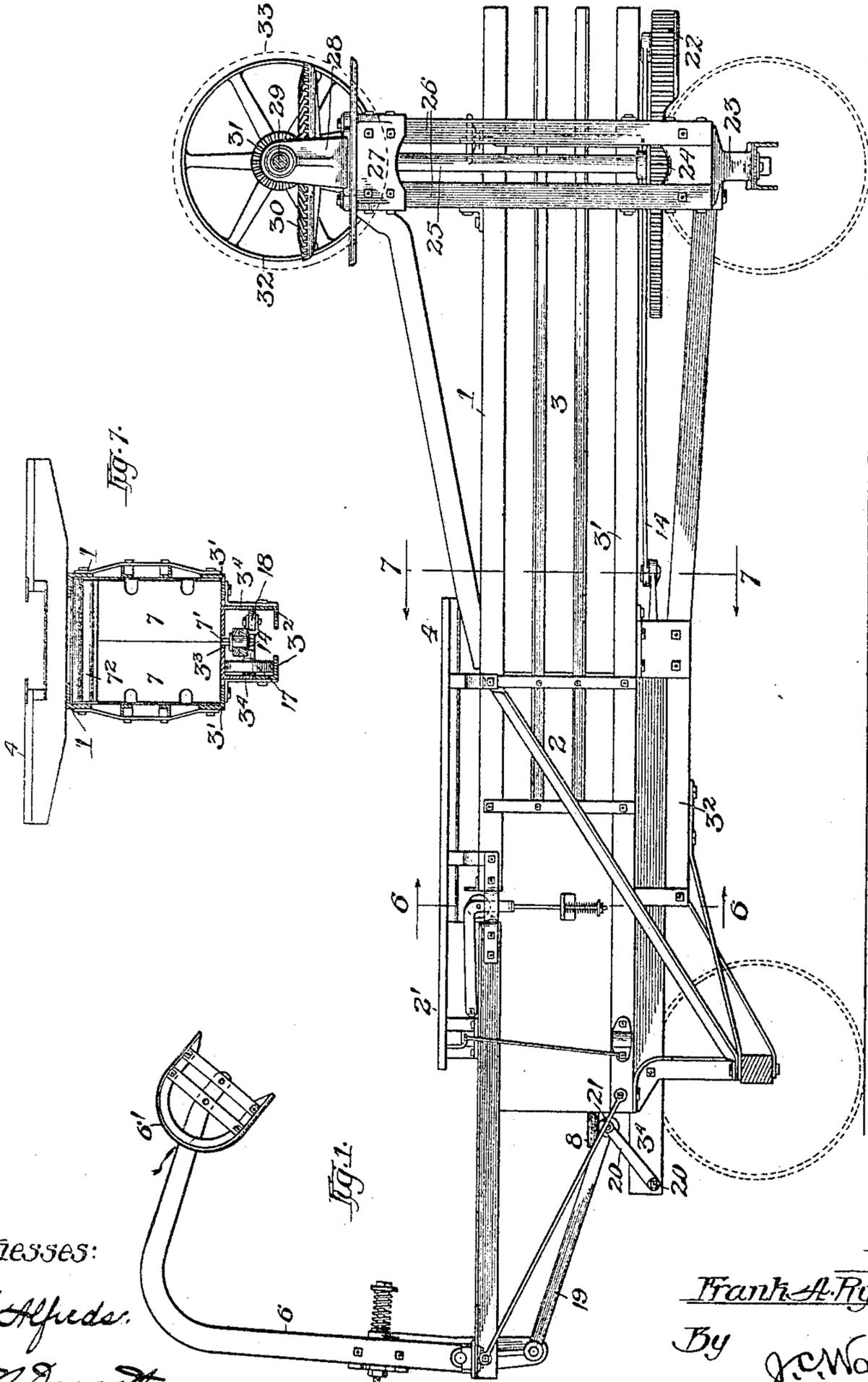
No. 801,814.

PATENTED OCT. 10, 1905.

F. A. RYHER.
BALING PRESS.

APPLICATION FILED JUNE 19, 1905.

4 SHEETS—SHEET 1.



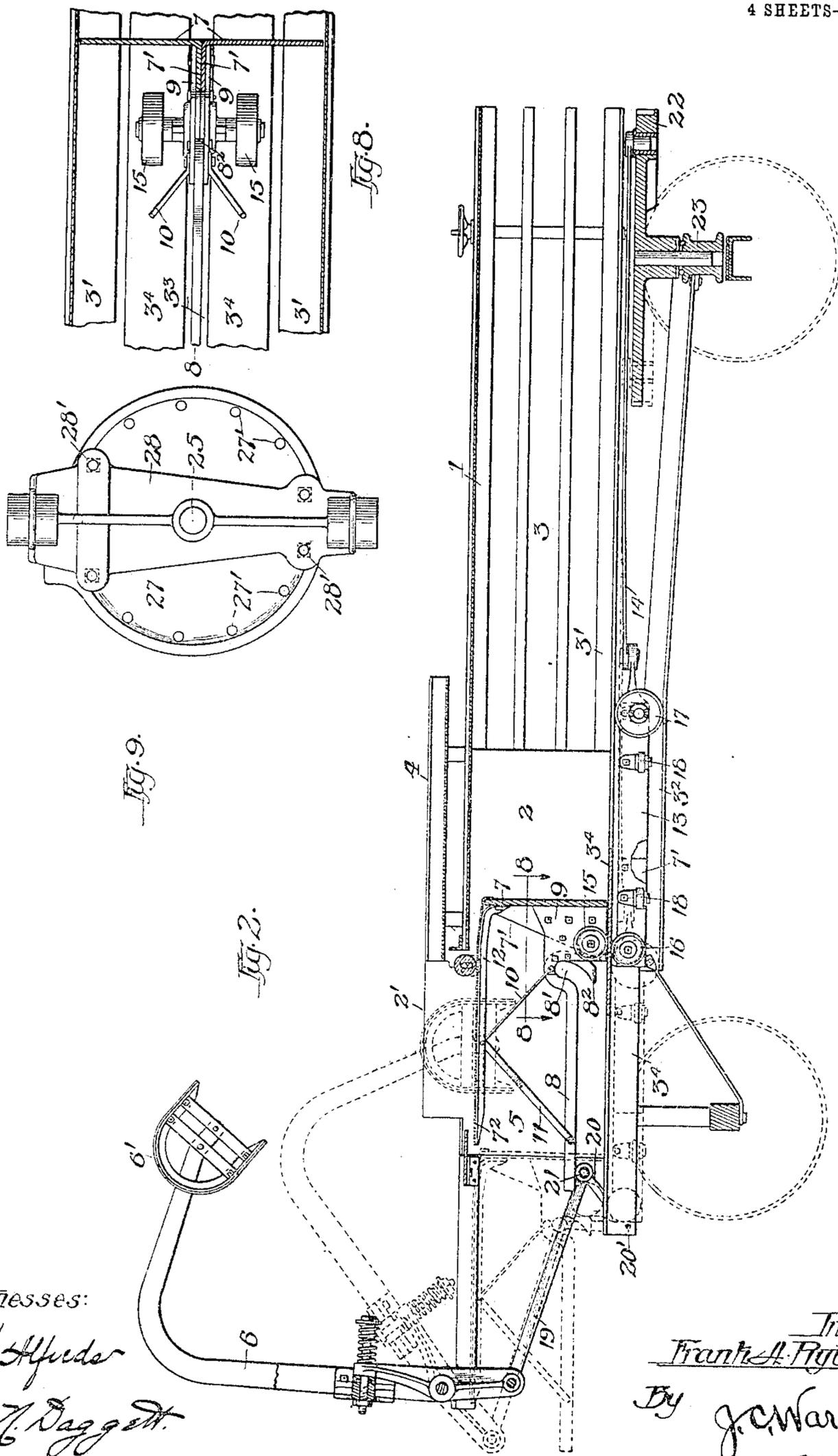
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 4.

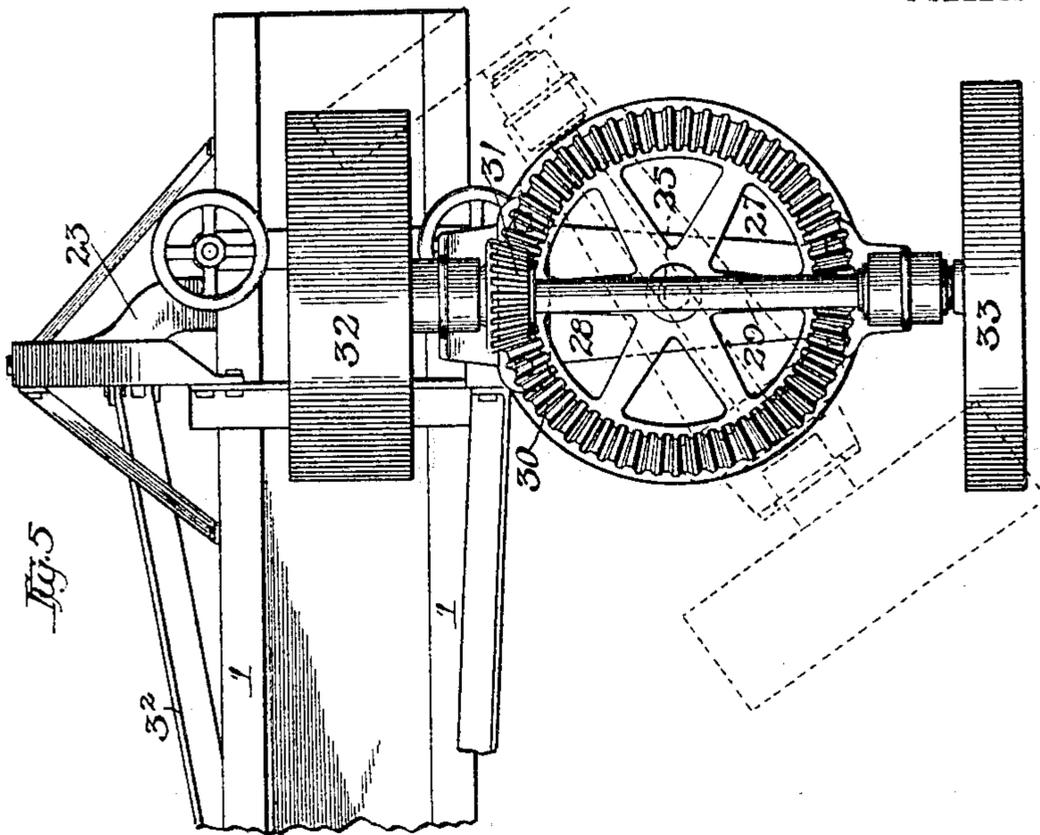


Fig. 5

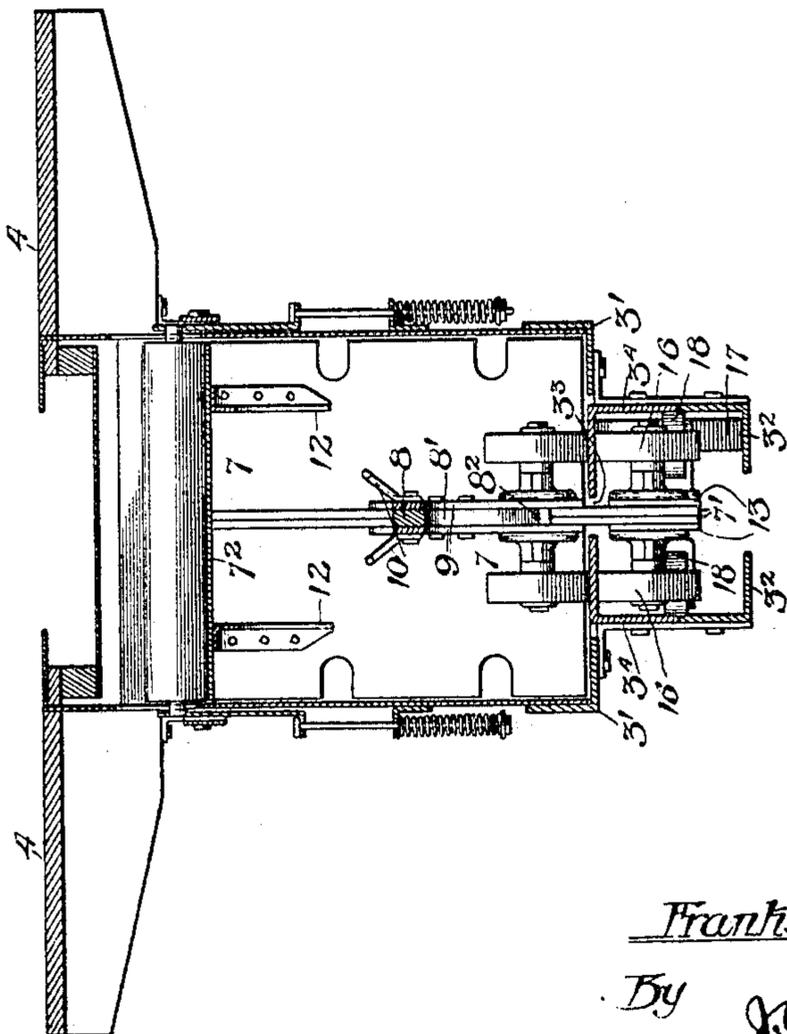


Fig. 6

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BALING-PRESS.

No. 801,814.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed June 19, 1905 Serial No. 265,996.

To all whom it may concern:

Be it known that I, FRANK A. RYTHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Baling-Presses, of which the following is a complete specification.

This invention relates to power-balers, and is directed more particularly to improving the detail construction and arrangement of the parts through which the plunger and feed-lever are driven.

The object in view is to produce a light, compact, and efficient baler, one in which the plunger will be pulled instead of pushed by a driving mechanism located on the front instead of the rear end of the baler-frame, thus more evenly distributing the weight and strains throughout the structure.

A further object sought is to provide a construction of driving-gears whereby the source of power may be stationed in any direction from the baler, the advantages of which are obvious.

Referring to the accompanying drawings, Figure 1 represents a side elevation of a baling-press embodying my improvements, and Fig. 2 is a longitudinal section of the same. Figs. 3 and 4 are elevations of the rear and front ends, respectively, of the press. Fig. 5 represents a plan of the front end of the press, showing the driving-gear connection. Fig. 6 represents a transverse vertical section taken through the plunger and adjacent to the rear end of the compression-chamber as indicated by the line 6 6 in Fig. 1, and Fig. 7 is a similar transverse section taken as indicated by the line 7 7 in Fig. 1. Fig. 8 is a fragmentary horizontal plan section through the plunger-head, taken on the plane as indicated by the line 8 8 in Fig. 2; and Fig. 9 represents a plan of the angularly-adjustable bracket in which the driving-shaft is journaled and the circular table on which said bracket is mounted.

In the several figures, 1 designates the frame of the baler, 2 the compression-chamber, and 3 the baling-chamber continuous therewith. The feed-opening in the compression-chamber is designated by 2', the feed-table by 4, the plunger, considered as a single element, by 5, and the feed-lever by 6. The last two elements mentioned will now be described somewhat more minutely. The plunger 5 is comprised of the two laterally-arranged plates 7,

which form the plunger-head, these plates 55 being fastened together by means of the central vertically-extending flanges 7', formed by back-turned portions of said plates. A horizontally-extending roller guide-bar 8 is secured to said flange 7' by means of the side 60 plates 9 with rivets or bolts. The guide-bar 8 is provided with a hook portion 8² on the forward end thereof, which forms the vertically-inclined roller-engaging slot 8', and the upwardly-divergent rods 10 and bars 11, arranged in pairs, brace the forward and rear 65 ends, respectively, of the said guide-bar rigidly to the plunger. The top of the plunger is formed of the plate 7², secured firmly to the head 7 on each side by means of the angle bars 70 12. As will be seen by reference to Fig. 6, the bottom of the baling-chamber 3 is constructed of the two angle-bars 3', and at the bottom corners and intermediate thereof are secured the four channel-forming angle-bars 3² below 75 and 3¹ above, so arranged as to form a box-like structure, with a slot 3³ at its upper side, communicating with said baling-chamber. The flange 7' of the plunger-head 7 projects 80 downwardly through this slot 3³ and extends forwardly some distance in advance of the plunger-head 7. To this lower portion of the flange 7' is rigidly secured the member 13, which extends forwardly, its forward end connecting with the plunger-pitman 14. To the 85 side plate 9 and flange 7' are secured the two pairs of rollers 15 and 16, (see Figs. 2 and 6,) the rollers 15 resting on top of the angle-bars 3¹ and the roller 16 being located within the channel formed by the angle-irons 3² and 3¹ 90 and made to bear against the upper limbs thereof. The roller 17 is secured to the forward end of the member 13 and fits snugly within the said channel, thus holding against vertical movement the forward end of the 95 plunger. Small rollers 18, mounted upon vertical axes on the member 13, counteract the side strains to which the plunger is subjected and reduce the friction of parts.

The feed-lever 6 is mounted to rock in suitable bearings on the rear end of the press and has its free end bent to substantially a right angle, a feeder-head 6' being secured to said free end. 100

To operate the feed-lever, a link 19 is pivotally connected at its upper end to the lower or short end of said lever, the lower end of the said link being detachably connected with the 105

plunger 5 and controlled by means of the arms 20, which pivot at 20'. The link 19 is preferably made double, as shown in Fig. 3, the two parts thereof embracing at their upper ends the feed-lever 6 and at their lower ends a roller 21, the pivotal axis of which is shown as being coincident with the pivotal axis of the arms 20 and the link 19. The roller 21 normally lies beneath the guide-bar 8, which reciprocates with the plunger and holds the feed-lever 6 in the position indicated by full lines in Fig. 2. When the plunger is caused to move rearwardly after compressing a charge, the slot and hook 8' and 8² will engage the roller 21, the slot providing for the movement of the arm 20 and roller 21 about the pivotal center 20' of said arm. The rearward movement of the link 19 will rock the feed-lever 6 to the dotted-line position of Fig. 2, the feeder-head 6' forcing the charge into the compression-chamber 2. The initial forward movement of the plunger 5 will again return the feed-lever to normal upright position.

From the above it is seen that the feed-lever is actuated by means of a link, the lower end of which is controlled by a pivotally-mounted arm, said link having a detachable connection with the plunger.

The plunger is driven by the following-described means: A large gear 22 is journaled in suitable bearings on the front truss 23 and beneath the forward end of the baling-chamber, as clearly shown in Fig. 4. A pinion 24 meshes with and drives said gear, and a vertically-arranged shaft 25 is secured to and extends upwardly from said pinion. A frame constructed in part of the angle-bars 26 extends upwardly at one side of the baling-chamber, the upper portion of the frame being formed of the fixed circular table 27. (See Fig. 9.) On top of this table and angularly adjustable relative thereto is the bracket 28, in which is journaled the upper end of the vertical shaft 25 and the horizontal cross-shaft 29, a bevel-gear connection between said shafts being effected by means of the gear 30 on the vertical shaft 25 and the pinion 31 on said cross-shaft. A pulley 32 and fly-wheel 33 are fixed one at each end of the cross-shaft. To make the cross-shaft bracket 28 angularly adjustable on the table 27, a series of threaded apertures 27' are provided in the latter, which are so disposed that they can be made to receive the cap-screws 28' in said bracket when the bracket is turned to various positions. In Fig. 5 the bracket, with the shaft 29 and pulley, are shown in full lines in position to receive power from directly in front of the press, while the dotted lines in the same figure show the bracket turned to a position for receiving power from the side of the press. This feature of the driving mechanism enables the baler to be set to the best advantage in relation to the stack or mow from which

the hay is being baled. The power can be placed in any convenient direction with respect to the baler and the drive-pulley then adjusted to aline through the bracket 27. By having the driving mechanism located on the front end of the machine and beneath the baling-chamber the weight is more evenly distributed over the structure, and a pull-plunger can be employed, thus dispensing with a heavy plunger-beam.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a baling-press, in combination, a compression-chamber, a reciprocating plunger, driving mechanism for said plunger, a rocking feed-lever, a feed-lever-actuating link, the upper end of which pivotally connects with the short end of said lever, a roller journaled on the lower end of said link, and a pivotally-mounted arm for controlling the movement of the lower end of the link and roller thereon, and a rearwardly-extending roller guide-bar in connection with said plunger, said guide-bar being provided at its forward end with a vertically-inclined roller-engaging slot.

2. In a baling-press, in combination, a baling-chamber, a reciprocating plunger, and plunger-driving mechanism comprising a horizontally-disposed gear and pinion mounted beneath the rear end of the baling-chamber, a pitman connecting the said gear and plunger, a vertically-arranged shaft secured to and extending upwardly from said pinion, a cross-shaft mounted in suitable bearings and having a bevel-gear connection with said vertical shaft, and a driving-pulley on said cross-shaft.

3. In a baling-press, in combination, a baling-chamber, a reciprocating plunger, and plunger-driving mechanism comprising a horizontally-disposed gear and pinion mounted beneath the rear end of the baling-chamber, a pitman connecting the said gear and plunger, a vertically-arranged shaft secured to and extending upwardly from said pinion, a cross-shaft mounted in angularly-adjustable bearings and having a bevel-gear connection with said vertical shaft, and a driving-pulley on said cross-shaft.

4. In a baling-press, in combination, a baling-chamber, a reciprocating plunger, and plunger-driving mechanism comprising a longitudinally-disposed gear and pinion mounted beneath the rear end of the baling-chamber, a pitman connecting the said gear and plunger, a vertically-arranged shaft secured to and extending upwardly from said pinion, a cross-shaft having a bevel-gear connection with said vertical shaft, a bracket forming a journal-bearing for said cross-shaft, a horizontal table on which said bracket is mounted and with which it is made adjustable about a center coincident with the center of said vertical shaft, and a driving-pulley on said cross-shaft.

5. In a baling-press, in combination, a com-

pression-chamber, a reciprocating plunger,
driving mechanism for said plunger, a rock-
ing feed-lever, a feed-lever-actuating link
positively operated in both directions by said
5 plunger, the said link having at its upper end
a direct pivotal connection with the short end
of said feed-lever and at its lower end a de-

tachable connection with said plungers, and
means for controlling the lower end of the ac-
tuating-link.

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