

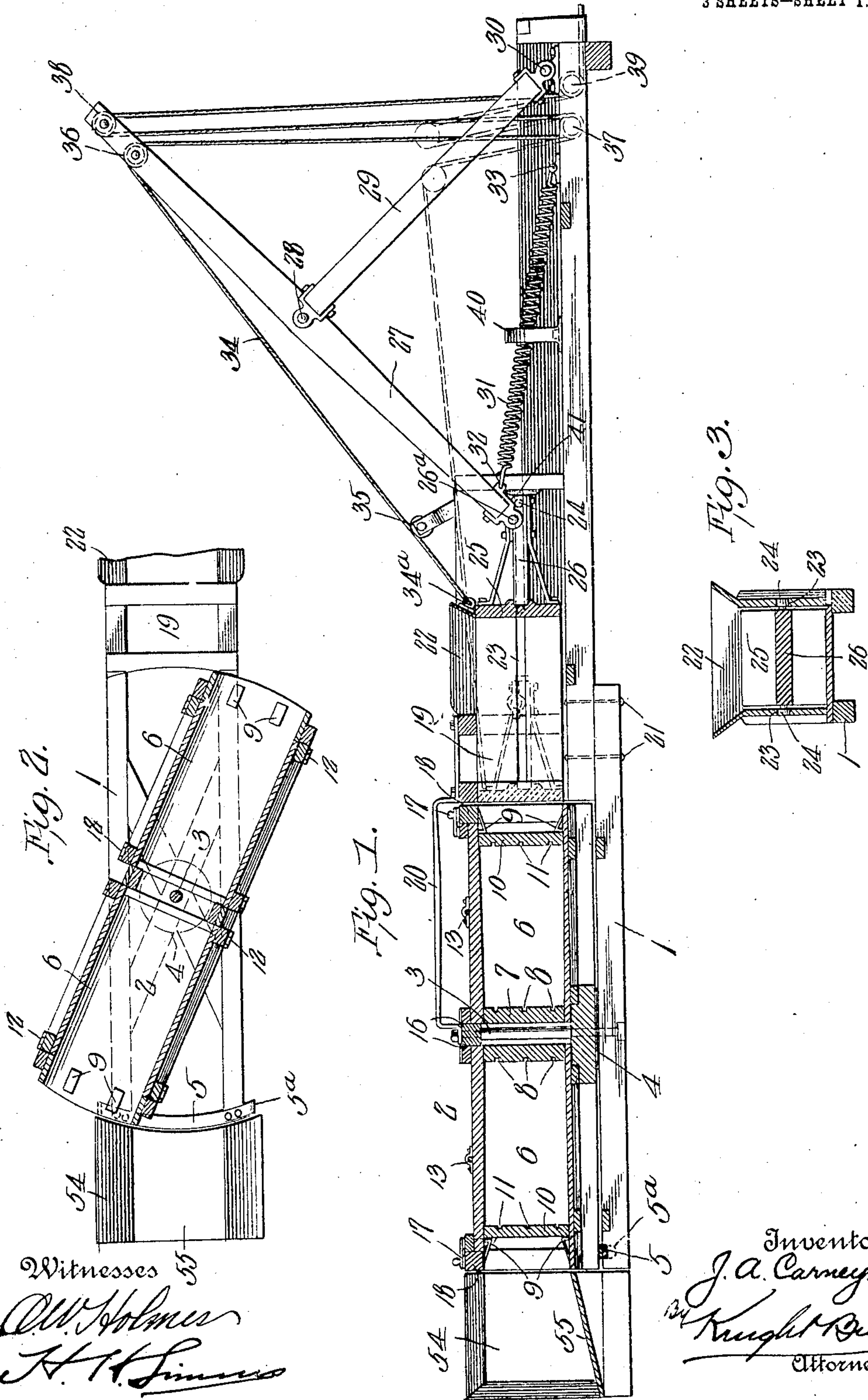
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BALING PRESS.

APPLICATION FILED MAR. 29, 1906.

3 SHEETS—SHEET 1.



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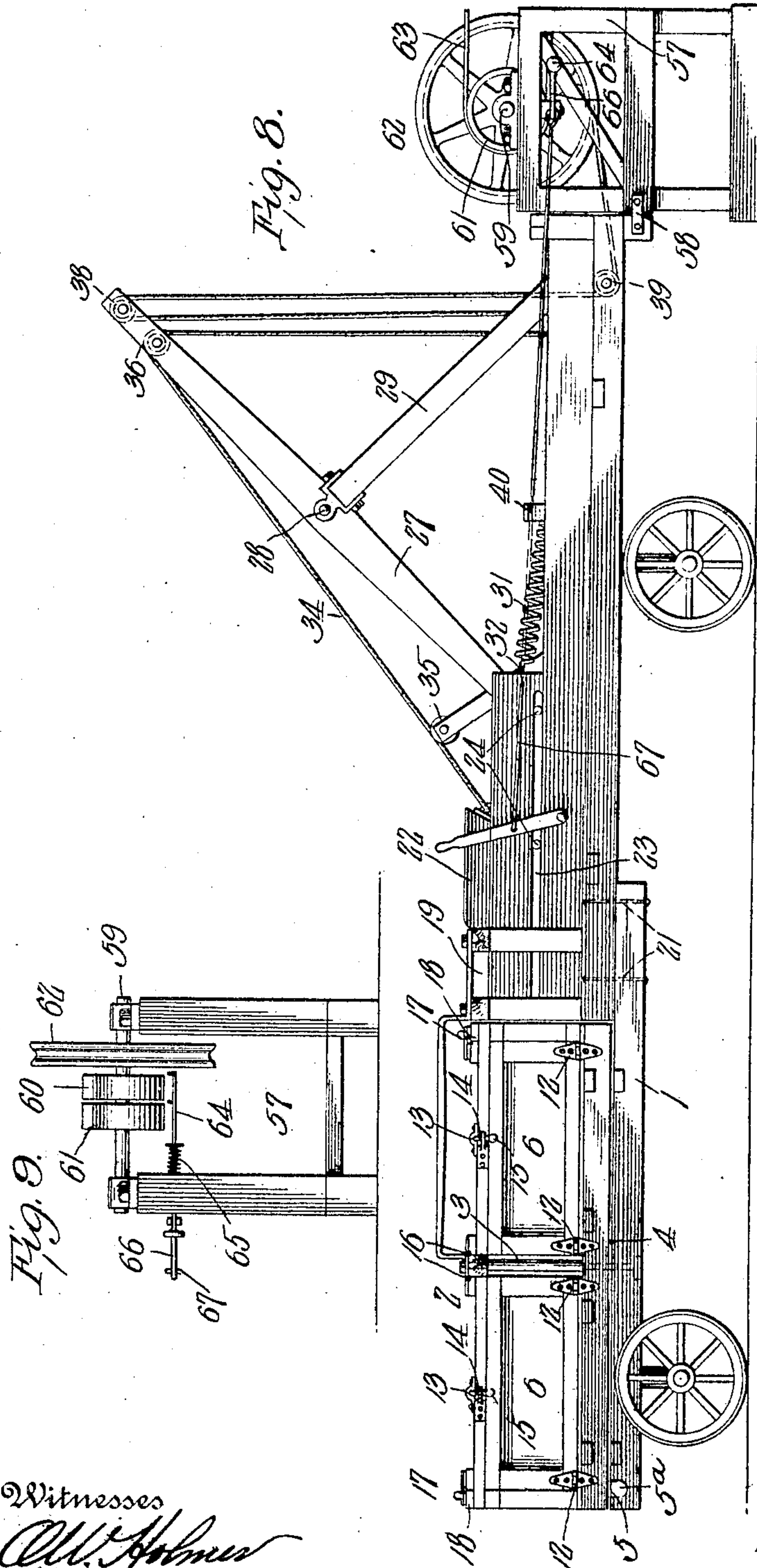
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UNITED STATES PATENT OFFICE.

JAMES A. CARNEY, OF VERNON, TEXAS.

BALING-PRESS.

No. 849,658.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed March 29, 1906. Serial No. 308,805.

To all whom it may concern:

Be it known that I, JAMES A. CARNEY, a citizen of the United States, residing in Vernon, in the county of Wilbarger and State of Texas, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

This invention relates to baling-presses, and more particularly to presses for baling hay.

It has for an object to provide a press by which a maximum number of bales may be formed with a minimum amount of power and a minimum number of workmen.

A further object is to provide a press constructed in such a manner that each bale will require a fewer number of compressions, thereby increasing the life of the press.

A still further object is to provide a power which will give a gradually-increasing compression.

Other objects will appear in the following description and will be more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal vertical section through the press with the power disconnected therefrom. Fig. 2 is a horizontal section through the baling-box. Fig. 3 is a vertical transverse section through the main feeding-hopper. Fig. 4 is a detail view of the springs for causing the initial portion of rebound. Fig. 5 is a top plan view of a press employing the horse-power. Figs. 6 and 7 are detail views of the horse-power in different positions. Fig. 8 is a side elevation of the press mounted on wheels and having an engine attachment secured thereto, and Fig. 9 is an end elevation of the engine attachment.

Referring more particularly to the drawings, 1 indicates the base-frame, which rotatably supports a baling-box 2 by means of a vertical shaft 3. Positioned between the baling-box 2 and the base-frame 1 is a turn-plate 4, which serves to elevate the baling-box and permit it to turn easily. So as to prevent the movement of the baling-box on the base-frame during baling, the base-frame is provided near its rear end with a raised track 5, the ends 5^a of which are deflected downwardly to permit the baling-box to move with ease onto the track.

The baling-box is divided into two chambers 6 by a double partition 7, located near the center thereof, and provided with horizontal grooves 8 on opposite faces for the

tying-wires. Each baling-chamber tapers from its open end toward this partition and near its open end is provided with spring-dogs 9—one at the top and two at the bottom—said dogs serving to hold the hay during the retreat of the plunger (hereinafter described) and to hold the follower-block 10 fed into the bale-chambers at the rear of the last feed of each bale. The follower-blocks each hold a completed bale during its tying and are provided on one face with horizontal grooves 11 for the passage of the tying-wires.

The side walls of each baling-chamber are hinged at their lower edges at 12 and are held in closed position by a single oscillatory rod 13, mounted on the top and having laterally-turned extensions 14 to engage the side walls and parallel extensions 15, by which the rod may be operated from either side of the press. The top of each baling-chamber is hinged at its inner end at 16, so as to swing upwardly, and is locked in its closed position by a bolt 17, mounted upon a rigid portion 18 at the open end of the baling-chamber.

The shaft 3 extends through the double partition 7, and its upper end is connected to the top wall of a supplemental chamber 19 by means of a brace 20, which is arched to permit the free movement of the baling-box. This supplemental chamber 19 forms part of the plunger-frame, which is bolted at 21 on the base-frame 1 at one end of the baling-box. The interior cross-section of this chamber is coextensive with the interior cross-section of the open end of either baling-chamber, and at the end of this chamber 19 opposite the one at which the baling-box is located a main feeding-hopper is positioned. The supplemental chamber being interposed between the feeding-hopper and the baling-chamber makes it possible to give to the baling-chamber an extra large charge of hay, and it is also advantageous when the material is long and coarse.

The side walls of the chamber 19 and the hopper 22 are slotted at 23 to provide tracks on which work rollers 24, positioned on the sides of a plunger 25. Extending from the plunger is an extension 26, to which is pivoted at 26^a one end of a lever 27, mounted intermediate its ends at 28 on the ends of a pair of swinging links 29, which are pivoted at 30 at their other ends to the plunger-frame. These links and the lever are normally held in a raised position, as shown in Fig. 1, by means of a spiral spring 31, one end

of which is connected at 32 to the lever, while the other end is connected to the plunger-frame at 33. The plunger 25 during this position of the lever and the links is withdrawn.

5 To move the plunger in the direction of compression, a cable 34 is secured at 34^a to the plunger-frame near the feeding-hopper 22 and extends from this point over a pulley 35 on the plunger-frame to a pulley 36
10 on the free end of the lever 27. From this pulley 36 it extends downwardly to a pulley 37 on the plunger-frame, thence upwardly over a pulley 38 on the lever 27, and downwardly to and around pulley 39 to a source of
15 power which will give an intermittent pull thereon. As the plunger is forced forward the spring 31 is placed under tension, and near the end of its movement the links 29 engage with a pair of spring-arms 40, (see Fig.
20 4,) which serve to give an initial return movement to the said arms, the return or rebound being accomplished by the spring 31. To take up the jar or force of the rebound, cushions 41 are placed on the plunger-frame
25 in the path of the plunger extension 26.

The baling-chamber disposed away from the plunger is first filled with hay by hand, and for this purpose I provide a supplemental feeding-hopper 54, which is preferably
30 separate from the rest of the press and is constructed with open ends and an open top and with an inclined bottom 55, which is supported in such a manner that its highest point is approximately in horizontal aline-
35 ment with the bottom of the baling-chamber. After this baling-chamber has been filled the baling-box 2 is rotated to present said baling-chamber to the action of the plunger 25, but before the plunger is moved forward the
40 feed-hopper 22 and the supplemental chamber 19 are filled with hay. This hay, together with the hay placed therein through the supplemental hopper 54, will in some instances be sufficient to make a complete bale;
45 but one or two or at greatest three feeds into the supplemental chamber 19 and the hopper 22 will be sufficient to complete any bale. During these feeds the compressed hay is held in the baling-chamber by dogs 9,
50 and with the final feed of every bale the follower-block 10 is placed in front of the plunger, and when this block passes the dogs 9 the compression has been completed. While this bale is being compressed the other bal-
55 ing-chamber is filled by hand through the supplemental hopper 54, and when the bale is completed the baling-box is again rotated to place the other baling-chamber in position for a compression. The sides of the baling-
60 chamber holding the completed bale are then lowered, and the bale is tied, after which the top is opened and the follower-block 10 drops out. The bale may then be easily removed.

65 In the embodiment of my invention shown

in Figs. 5 to 7 I employ a horse-power of novel construction for producing the intermittent pull on the cable 34. This comprises a frame 42, having extending from one side thereof a segmental track 42^a, on which a reciprocating
70 bar 43 moves. This bar has a swinging connection with the frame by means of links 44 and 45, the connection of the link 45 with the bar being in the form of a pin 46, which works in a slot 47, and thereby permits the link to
75 slide thereon. A roller 48 is adjustable on the bar by means of a slotted plate 49, and this roller is intermittently engaged by a cam 50, journaled at 51 on the frame 42, said cam having a pole or tongue 52 extending
80 therefrom and to which a swingletree 53 is secured. The end of the cable 34 is secured to the end of the bar 43, but is first passed along a pulley 56, which serves to aline the cable 34 with the pulley 39.
85

The operation of the horse-power is as follows: When the plunger 25 is retracted, the bar 43 lies parallel with the frame 42, the links 44 and 45 being also parallel with one
90 another and the link 45 lying in the forward part of the slot 47. Upon the movement of the cam 50 against roller 48 the bar moves forward and also laterally away from the fulcrum 51, and thus gradually increases the force pulling on the cable 34. To prevent
95 that end of the bar 43 that is connected to the rope moving again toward the frame 42, due to the links becoming completely extended and then swinging to the other side, the rear link slides in the slot 47, as will be seen in Fig. 7.
100 When the roller 48 reaches the end of the cam 50, the bar 43 rebounds under the action of spring 31, the horse continuing its travel until the cam again engages the roller. If it is desired that the rebound take place sooner
105 or later, the roller 48 is adjusted on bar 43.

In another embodiment of my invention (shown in Figs. 8 and 9) I secure the intermittent pulling by a mechanism driven by any
110 suitable motor, such as a gas-engine. A frame 57 of the same width as the press is detachably secured by plates 58 to the forward end of the press. The frame carries a shaft 59, on which are mounted a drive-pulley 60, a loose pulley 61, and a driven grooved
115 wheel 62, which is connected to the pull-cable 34. A belt 63, leading from an engine, (not shown,) is controlled by a belt-shifter 64, which is normally pressed by a spring
120 65 in a direction to hold the belt on drive-pulley 60. To move the belt to the loose pulley 61, a bell-crank 66 is pivoted at its center to the frame and is connected at one end to the belt-shifter 64. The other
125 end of the bell-crank has a controlling-rope 67 connected to it, said controlling-rope leading to a hand-lever mounted adjacent the feed-hopper 22. In this embodiment the press is mounted on wheels, but is otherwise the same as that shown in Fig. 1.
130

A press made in accordance with my invention will produce bales of uniform dimensions and weight and without the usual swelled ends. The press is inexpensive, and therefore
 5 is within the reach of the small farmer. The feeding and wiring requires a fewer number of men, and it is easily handled and moved. Friction is reduced to a minimum, thereby securing durability and requiring less power
 10 to operate the press.

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

1. In a baling-press, the combination with
 15 a rotatable baling-box having a plurality of baling-chambers, of a pair of feeding-hoppers for the baling-chambers, and a plunger working through one of said hoppers.

2. In a baling-press, the combination of a
 20 pair of feeding-hoppers, a pair of baling-chambers each movable to either one of the hoppers and a plunger forcing the material from one of the hoppers in one chamber while the other chamber is receiving material from
 25 the other hopper.

3. In a baling-press, a base-frame, a baling-plunger, a baling-box having a plurality of baling-chambers and rotatable about a vertical axis on the base-frame, and a raised
 30 track on the base-frame engaging the baling-box when one of the chambers of said box is located in alinement with the plunger.

4. In a baling-press, a base-frame, a baling-plunger, a baling-box having a plurality of
 35 baling-chambers and rotatable about a vertical axis on the base-frame, and a raised track on the base-frame engaging the baling-box when one of the chambers of said box is located in alinement with the plunger, said
 40 track having downwardly-turned ends.

5. A baling-press, a baling-box rotatable about a vertical axis and having a plurality of baling-chambers, the side walls of each of which are adapted to swing downwardly, and
 45 the top wall of each of which is adapted to swing upwardly.

6. The combination of a baling-chamber with side walls constructed to open, a top wall constructed to open after the side walls,
 50 dogs carried by the top and the bottom walls, and a follower-block held by the dogs until the top wall is opened.

7. A baling-press provided with a baling-chamber having hinged side walls, and an oscillatory rod secured to the top of the press
 55 and having lateral portions to engage the side walls, and extensions from the lateral portions parallel with the rod to operate the rod.

8. In a baling-box, the combination with
 60 the plunger, and the plunger-frame, of a lever pivoted at one end to the plunger, a pair of links pivoted to the plunger-frame, and to the lever intermediate its ends, a cable for operating the lever in one direction, a coil-
 65 spring secured to the lever adjacent the plun-

ger and to the plunger-frame and a pair of spring-arms on the plunger-frame to be compressed by the links when the plunger is near its inner position.

9. In a baling-box, the combination with
 70 the plunger and the plunger-frame, of a lever pivoted at one end to the plunger, a pair of links pivoted to the plunger-frame and to the lever intermediate its ends, a cable for operating the lever in one direction, a coil-spring
 75 secured to the lever adjacent the plunger and to the plunger-frame, a pair of spring-arms on the plunger-frame to be compressed by the links when the plunger is near its inner position, and a cushion in the path of the
 80 plunger to cushion the rebound.

10. In a baling-box, the combination with the plunger and the plunger-frame, of a lever pivoted at one end to the plunger, a pair of links pivoted to the plunger-frame and to the
 85 lever intermediate its ends, a cable for operating the lever in one direction, a coil-spring secured to the lever adjacent the plunger and to the plunger-frame, a pair of spring-arms on the plunger-frame to be compressed by the
 90 links when the plunger is near its inner position, tracks on the plunger-frame, and rollers carried by the plunger and traveling on the tracks.

11. The combination with the frame, of a
 95 bar, a pair of links connecting the frame and the bar at different points, and a rotary cam mounted on the frame, and adapted to move the bar in one direction.

12. The combination with the frame, of a
 100 bar, a pair of links connecting the frame and the bar at different points, and a rotary cam mounted on the frame and a roller adjustably mounted on the bar and adapted to be engaged by the cam.
 105

13. The combination with the frame, of a bar, a pair of links connecting the frame and the bar, one of said links having a sliding connection with the bar, and a cam adapted to move the bar in one direction.
 110

14. The combination with the plunger and the frame, of a bar, connection between the frame and the bar for causing the bar to move longitudinally and also away from the frame, means for moving said bar and a cable
 115 connecting the bar and the plunger.

15. The combination with the plunger and the frame, of a rotary cam mounted on the frame, a bar having connection with the frame for causing the cam to move the bar
 120 longitudinally and also away from the axis of the cam and a cable connecting the bar and the plunger.

16. The combination with the frame, of a bar, a pair of links connecting the bar and the
 125 frame at different points, and means for moving the bar.

17. The combination with the frame, of a bar, a pair of links connecting the bar and the frame, one of said links having a sliding con-
 130

nection with the bar, and means for moving the bar.

18. The combination with the frame, of a bar, a pair of links connecting the frame and the bar, one of said links having a sliding connection with the bar, a cam adapted to move the bar in one direction, and a roller adjustably mounted on the bar to be engaged by the cam.

19. The combination with the frame, of a bar, a pair of links connecting the frame and the bar at different points, means for moving the bar, and a track on which the bar travels.

20. The combination with the frame, of a bar, a pair of links connecting the frame and the bar, one of the links having a pin-and-

slot connection with the bar, and means for moving the bar.

21. In a baling-press, the combination with the plunger, and the plunger-operating mechanism, of a bar, a frame, links connecting the bar and the frame, a cable connecting the bar and the plunger-operating mechanism, and a roller over which said cable travels to maintain the cable in alinement with the plunger-operating mechanism.

The foregoing specification signed at St. Jo, Texas, this 19th day of March, 1906.

JAMES A. CARNEY.

In presence of—

S. M. LAUDERDALE,
D. W. WILEY.