

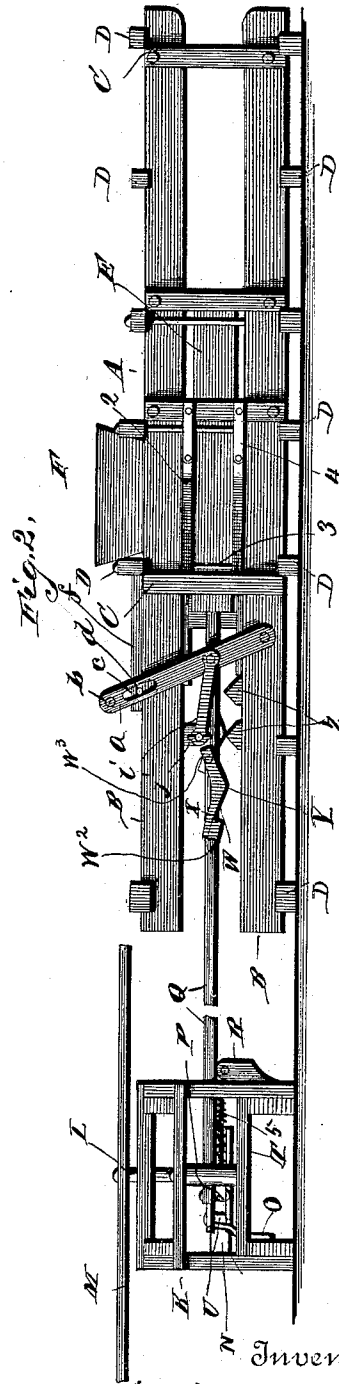
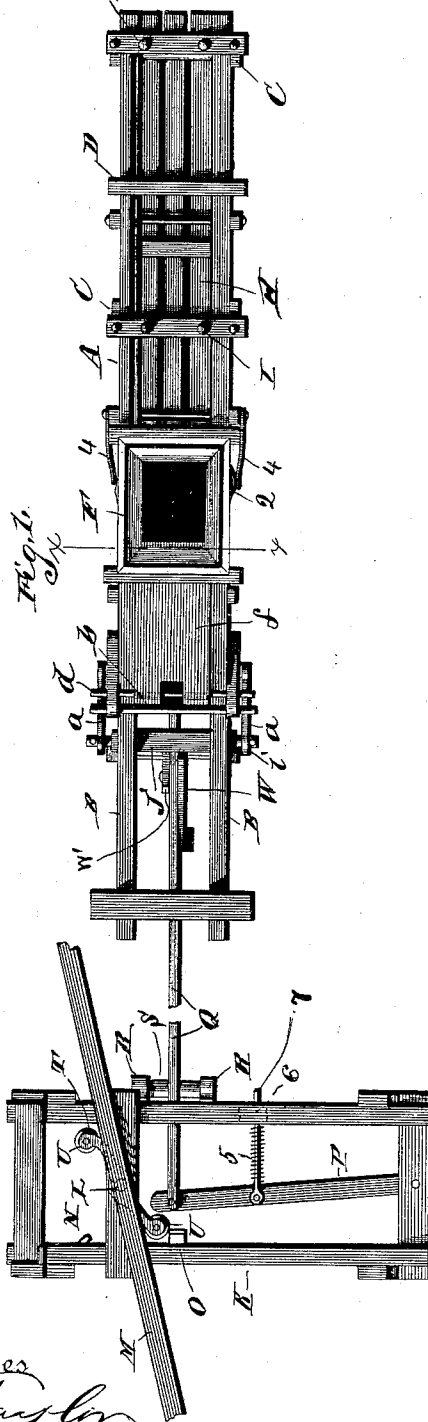
(No Model.)

3 Sheets—Sheet 1.

W. M. DENMAN.
BALING PRESS.

No. 408,089.

Patented July 30, 1889.



Witnesses
C. Taylor,
R. W. Bishop.

Inventor
William M. Denman,
By *his* Attorneys
C. Snow & Co.

(No Model.)

3 Sheets—Sheet 2.

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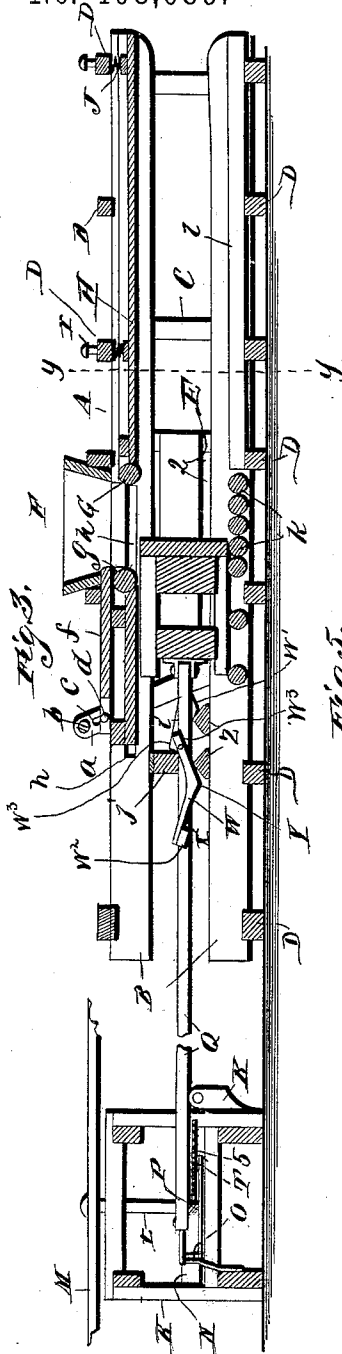


Fig. 7.

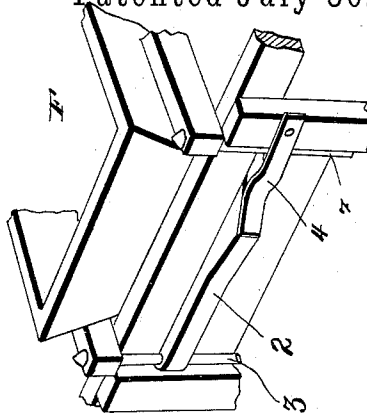


Fig. 5.

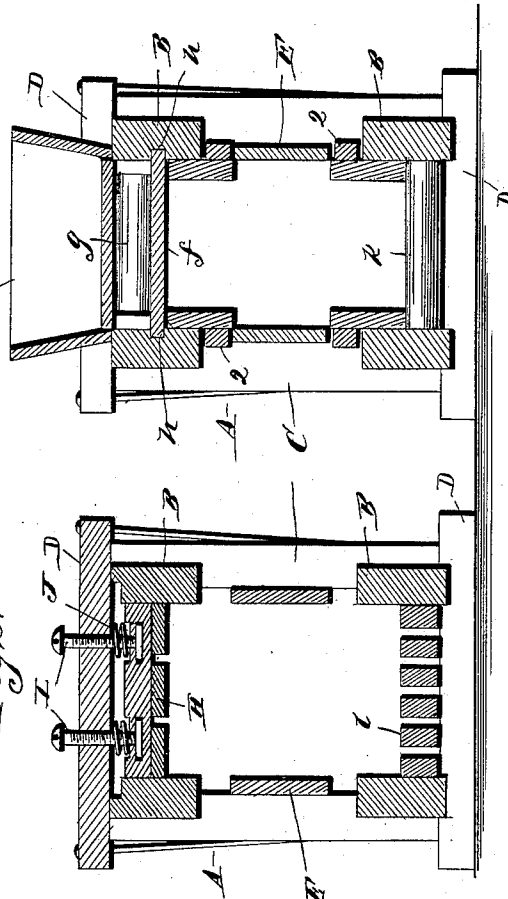
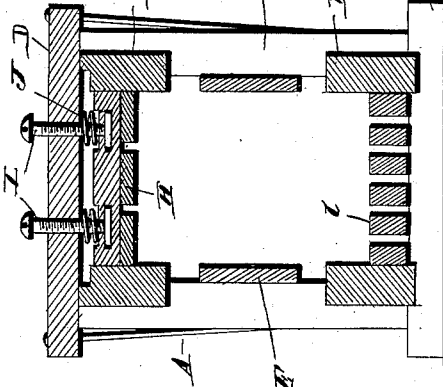


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM MARION DENMAN, OF LAMPASAS, TEXAS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 408,089, dated July 30, 1889.

Application filed October 10, 1888. Serial No. 287,715. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MARION DENMAN, a citizen of the United States, residing at Lampasas, in the county of Lampasas and State of Texas, have invented new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention relates to improvements in hay-baling presses; and it consists in certain novel features hereinafter described and claimed.

In the accompanying drawings, which fully illustrate my invention, Figure 1 is a plan view of a hay-press provided with my improvements. Fig. 2 is a side view thereof. Fig. 3 is a vertical longitudinal section of the same. Fig. 4 is a detail sectional view on a larger scale, showing the plunger withdrawn. Fig. 5 is a transverse section on the line *xx* of Fig. 1 on a larger scale. Fig. 6 is a detail perspective view on a larger scale, showing the devices for operating the door of the feed-chamber. Fig. 7 is a detail view of the spring-actuated stops, and Fig. 8 is a transverse section on the line *yy* of Fig. 3.

Referring to the drawings by letter, A designates the main frame of my improved press, composed of the longitudinal beams B, connected by suitable standards C at various points of their length and also by the cross-bars D, which extend across the top and bottom of the frame, as shown. At about the central portion of this frame I secure to the standards C, on the inner sides of the same, the longitudinal boards E, which form the sides of the baling-chamber. On the upper side of the main frame I provide the hopper F, as shown.

H designates a loosely-suspended roof, which extends from the rear side of the hopper to the discharge end of the main frame and is arranged between the upper longitudinal beams B. This roof is composed of a suitable number of boards of proper dimensions, and it is supported by means of set-screws I, which are mounted vertically in the top cross-bars D and have their lower ends swiveled in the said roof. The roof is normally pressed downward by means of coiled springs J, which are arranged around the set-screws and bear between the cross-bars D

and the upper side of the roof. At the front end of the roof I provide a transverse roller G, which serves to even and smooth the top side of the bale.

Adjacent to the front end of the main frame is arranged a supplemental frame K at right angles to the main frame, and having a king-bolt L mounted therein near one end, the sweep M being secured on the upper end of the king-bolt. To the inner end of this supplemental frame I secure the horizontal outwardly-projecting spring N, and to the side of the supplemental frame I secure the upwardly-projecting vertical spring O, as shown. At the outer end of the supplemental frame I pivot a lever P, the inner end of which is pivoted to the outer free end of the pitman Q, which extends therefrom to the plunger and is pivoted to the latter.

R R designate arms projecting from the side of the supplemental frame and having a roller S journaled between their upper ends. The pitman rests upon this roller and moves over the same in operation, as will be readily understood upon reference to the drawings.

T T designate arms radiating from the king-bolt in opposite directions and having rollers U journaled in their outer ends. On opposite sides of the pitman, near the plunger, are pivotally mounted a pair of dogs W W', which extend in opposite directions. The free ends W² of these dogs are weighted and normally rest upon lateral pins or stops X, projecting from the side of the pitman. These dogs are further provided with the depending enlargements Y on their under sides between their ends, which are adapted to ride over the transverse bars Z, secured to the lower longitudinal beams of the main frame, which are beveled or convex on their upper surfaces, and are thereby adapted to lift the said dogs as they ride over the bars, so that the dogs will be thrown out of engagement with the door-operating devices, as will be hereinafter more fully set forth.

a designates two levers pivoted at their lower ends to the outer sides of the lower longitudinal beams of the main frame and projecting upward, one on each side thereof, to a point above the same, their upper ends being connected by a cross-bar *b*. This cross-bar *b*

serves as a handle, by means of which the door may be operated by hand when so desired. The upper ends of the levers *a* are provided with longitudinal slots *c*, which receive the ends of pins *d*, projecting laterally from the front end of the door *f*. The door *f* is provided at its rear end with a transverse anti-friction roller *g*, by means of which the travel of the door over the hay in the baling-chamber is facilitated. The door slides in longitudinal grooves *h* in the inner sides of the upper longitudinal beams of the main frame and serves as a cut-off for the bottom of the hopper.

The door is composed of two plates suitably connected together, the edges of the lower plate engaging said grooves *h*.

At an intermediate point of the levers *a*, I pivot thereto the rear ends of the links *i*, the front ends of said links being pivoted to the ends of a cross-bar *j*, which extends transversely through the main frame of the press, and is engaged by the pivoted ends *W*³ of the dogs *W* in the operation of the device.

The bottom of the press-box or baling-chamber is composed of a series of transverse rollers *k*, journaled in the longitudinal beams *B* of the main frame and arranged out of contact with each other. The passage of the bale from the press-box is thereby facilitated, and the small stones and other foreign matter will be enabled to pass through the bottom of the press.

l designates a series of longitudinal slats, which form the bottom of the rear end or portion of the frame and over which the bale passes as it is discharged from the press.

In operation the hay is placed in the hopper and rests upon the door *f*. When a sufficient quantity of hay has been placed in the hopper, the plunger is drawn toward the front end of the press, which action will cause the end *W*³ of the rearwardly-extending dog *W*' to impinge against the cross-bar *j* and carry the same toward the front end of the frame-work. The motion thus imparted to said cross-bar will be communicated to the levers *a* through the links *i*, thereby causing the upper ends of said levers to swing toward the front end of the frame, and consequently draw the door *f* from the hopper. The hay in the hopper will then at once fall into the press-box in front of the plunger. The sweep is then carried around so as to rotate the king-bolt and allow the plunger to be drawn to the front limit of its stroke, so as not to interfere with the fall of the hay, and also in order to place the plunger in such a position that upon its return a full stroke will be effected and the hay will be pressed to form a bale. Furthermore, as the pitman is drawn to the front end of the main frame the dog *W*' will be caused to ride over the cross-bars *Z* and thereby lifted, so as to be released from engagement with the cross-bar *j*. The said dog will then pass under the said cross-bar *j*, giving a free movement to the pitman. Upon

the return-stroke of the plunger the pitman will be given a rearward movement, and the dog *W*, which was previously at rest, will engage the cross-bar *j*, and, as the pitman continues its rearward movement, will close the door by imparting to the said cross-bar and the devices connected thereto a movement the reverse of that given to them by the dog *W*', and before described. The closing of the door is accomplished before the plunger completes its stroke, so that choking of the hay in the baling-chamber is prevented. The rearward movement of the pitman forces the plunger against the hay in the press-box, compressing the same to form a bale and forcing it from the press-box. It will thus be seen that at each stroke of the plunger the door of the hopper will be operated to serve as a platform to support the next supply of hay and also to drop the same into the press-box. As each additional bale is formed and discharged from the press-box, the previously-formed bales will be forced toward the rear or discharge end of the frame-work and finally discharged therefrom.

The roof *H* can be readily adjusted so as to exert the proper tension on the bales to retard their progress, so that they may be tied before being discharged, and also to prevent them losing their shape or clogging in the frame-work before being tied. This adjustment is accomplished by turning the set-screws so as to cause the coiled springs to exert a greater or less tension upon the roof, as will be readily understood.

The sweep is given a continuous circular motion, and the arms on the king-bolt are carried around thereby. The roller *U*, carried by one arm, acts upon the lever *P* and carries it and the pitman inward, as will be readily understood. Just as one of the rollers leaves the pitman and the lever the opposite roller comes in contact with the spring *N*, thereby preventing sudden variations in the strain put on the draft-animals, so that they will not be subjected to painful and tiring jerks and starts. This spring also serves to retard the motion of the said radial arm, so that the rebound of the plunger will bring the pitman and the lever *P* into proper position to be acted on by the said arm, while the vertical spring *O* receives the rebound of the plunger and prevents breaking of the parts.

In order to prevent retrograde motion of the pressed hay, I provide the stops *2*, which are pivoted upon one of the bolts *3* of the main frame and project into the rear end of the press-box or baling-chamber through the spaces between the beams *B* and *E*, and are held normally projected into the press-box by the springs *4*, secured to the standards *C* and bearing on said stops.

In order to facilitate the rebound of the plunger, it may sometimes be necessary to employ a coiled spring *5*, having one end secured to the lever *P* and its other end bearing against a standard *6* of the supplemental

frame. The spring is maintained in its proper position by a rod 7, having one end pivoted to the lever and its other end playing through an opening in the standard 6. When the plunger is forced inward, the spring is compressed, and upon releasing the pressure on the lever the tension of the spring serves to return the lever, pitman, and plunger to their initial positions.

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

1. The combination of the frame, the plunger, the pitman connected to the plunger, 15 mechanism for operating said pitman, the dogs pivoted on the pitman, the door, and devices connected to the door and operated by said dogs, as set forth.

2. The combination of the frame, the hopper mounted thereon, the door for said hopper, the pitman, mechanism for operating the pitman, the levers pivoted on the side of the frame and connected to the door, the cross-bar and links connected to said levers, and 25 the dogs pivoted on the pitman and adapted to engage said cross-bar, as set forth.

3. The combination of the frame, the cross-bars secured thereto, having inclined upper surfaces, the pitman, the hopper on the frame, 30 the door for the hopper, the levers pivoted on the frame and connected to the door, the cross-bar J, the links connecting said cross-bar to the levers, and the dogs pivoted to the pitman and adapted to engage the cross-bar J and to be disengaged therefrom by the 35 cross-bars having the inclined upper surfaces, as set forth.

4. The combination of the frame, the hopper, the door sliding in grooves in the frame, 40 the levers pivoted on the sides of the frame, extending above the same, and connected to the door, a cross-bar connecting the upper

ends of said levers, the pitman, the dogs pivoted on the pitman, and devices between the dogs and the levers whereby the levers will 45 be operated by the dogs, as set forth.

5. The combination of the frame, the pitman, the hopper, the door, the stops or pins on the pitman, and the weighted dogs pivoted on the pitman and adapted to rest on 50 said stops, and devices between said dogs and the door whereby the door is operated by said dogs, as set forth.

6. The combination of the main frame, the press-box thereon, the supplemental frame 55 arranged adjacent to the front end of the main frame, the plunger working in the press-box, the pitman extending therefrom into the supplemental frame, the lever P, having one end pivoted to the end of the supplemental frame and its other end pivoted to 60 the end of the pitman, the rod pivoted to said lever and extending through the side of the supplemental frame, the spring arranged around said rod between the lever and the 65 side of the supplemental frame, the king-bolt in the supplemental frame, and the arms radiating therefrom and adapted to act on the end of said lever, as set forth.

7. The combination of the supplemental 70 frame, the springs N O secured thereto, the pitman, the lever P, pivoted to the frame and to the pitman, the king-bolt, the arms radiating therefrom, and the rollers at the ends of the said arms, all arranged and operating 75 substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WM. MARION DENMAN.

Witnesses:

W. K. SAUNDERS,
PETER HAMMERSMITH.