

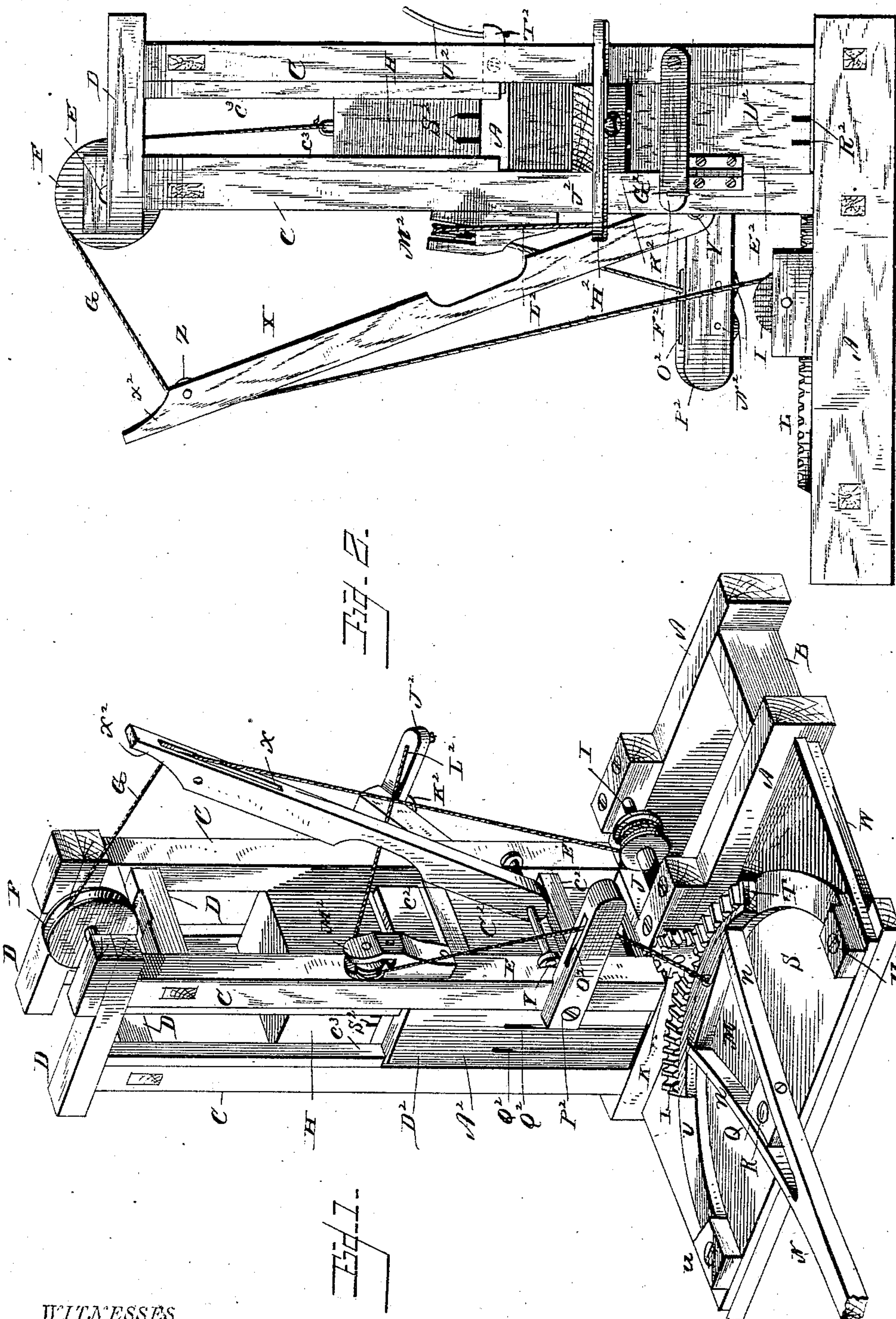
(No Model.)

2 Sheets—Sheet 1.

G. W. DUNN.  
HAY PRESS.

No. 305,163.

Patented Sept. 16, 1884.



WITNESSES

*Wm. L. Speiden.*  
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INVENTOR

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his Attorney.







# UNITED STATES PATENT OFFICE.

GEORGE W. DUNN, OF MORNING VIEW, KENTUCKY.

## HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 305,163, dated September 16, 1884.

Application filed August 1, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. DUNN, a citizen of the United States, residing at Morning View, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Hay-Presses; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of upright baling-presses which are adapted for hay, cotton, hemp, flax, and the like, and which employ a gravity-plunger connected with and elevated by horse-power mechanism.

The object of my improvements is to provide a simple press of this class which will possess advantages in point of inexpensiveness and durability of construction and convenience and general efficiency in operation.

In the drawings, Figure 1 is a perspective view of my improved press. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a vertical transverse sectional view. Fig. 5 is a detail sectional view.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A A designate the horizontal sills of the press, which are connected and braced by cross-pieces B, and support at one end the upright frame. This frame comprises four uprights, C, which are united and braced at their top ends by cross-pieces D, and at the top of the frame are provided bearings for a horizontal shaft, E, carrying a fixed pulley, F, over which the rope G passes. The inner end of this rope is connected to the plunger H, while its other end is secured to a drum, I, fixed upon a shaft, J, having its bearings upon the sills A A. One end of this shaft carries a pinion, K, adapted to engage with a segmental rack, L, fixed upon the rear end of a horse-power sweep, M, which preferably comprises a main bar, N, carrying a clevis, O, to which is connected a single-tree, P, the rear end of the said bar being bifurcated to form divergent arms *n n*, between which is secured a pivot block or plate, Q, through which the pivot-pin R passes and enters

the sill S of the horse-power frame. To the ends of the arms *n n* is preferably secured a segmental strip or plate, T, arranged under the said arms, and adapted to travel upon a semi-circular guide-plate, U, secured upon the horse-power frame, and terminating in stop-shoulders *u u*, which limit the movement of the sweep. The segmental rack-plate L corresponds to the plate T, and is arranged above the ends of the arms *n n*, as shown, the said arms being thus received between the plates L and T. A horizontal platform, V, is preferably comprised in the horse-power frame, and the said frame is connected to one of the sills A by means of cross-beams W, extending from the same to the sill S of the horse-power.

From the foregoing arrangement it is apparent that as the sweep is operated by the horse, and its segmental rack meshes with the pinion K, the shaft J is revolved to cause the rope G to wind upon the drum and elevate the plunger. Then, when the rack has passed out of engagement with the pinion and to the other side of the same, the plunger is permitted to drop by its own gravity. The horse is then turned and driven in an opposite direction, when the rack again engages the pinion, and causes the latter to turn in an opposite direction and again effect the elevation of the plunger. The segmental rack preferably forms a quadrant, whereby four beats of the plunger are effected by a movement of the sweep equal to one complete circle.

X designates a swinging beam, which is secured at its lower end to a shaft, Y, having bearings upon uprights E E. The top end of the said beam is provided with a slot, *x*, in which is journaled a pulley, Z, over which the rope G passes to the drum, the office of the said beam being to take up the slack of the rope as the plunger falls. The top end of the swinging beam is drawn against the pulley F during the elevation of the plunger, whereby it is adapted to act as a brake upon the said pulley to obviate premature dropping of the plunger, the said end being preferably curved, as shown at *x'*, to adapt it to the periphery of the pulley.

A<sup>2</sup> designates the bale-box, which has an open top, and comprises a bottom, B<sup>2</sup>, seated



upon the sills A A, vertical sides C<sup>2</sup> C<sup>2</sup>, secured to cross-strips c<sup>2</sup>, extending between the uprights C, and a vertical end strip, D<sup>2</sup>, secured also between the uprights C, as shown. The  
 5 bale-box is adapted to receive the plunger, which corresponds to the box, and is preferably rectangular, and moves, when out of the box, within vertical guide-strips c<sup>3</sup>, formed or provided upon the uprights C. One end of  
 10 the bale-box is formed by a hinged door, E<sup>2</sup>, through which doorway the bale may be removed after it is pressed. The said door is secured firmly in position during the operation of the plunger by means of a pivoted cross-  
 15 bar, F<sup>2</sup>, engaging a pin or staple, G<sup>2</sup>, or by any other suitable fastening means.

Above the door E<sup>2</sup> is provided a feed-door, H<sup>2</sup>, which is hinged or pivoted at its lower end upon a cross bar, I<sup>2</sup>, and is provided at its top  
 20 with a cross-bar, J<sup>2</sup>, adapted to limit its inward movement. This feed-door is adapted to swing downwardly and outwardly by its own gravity, and to facilitate this movement it may be provided with a weight, K<sup>2</sup>, at its  
 25 top. The door is automatically closed by means of a cord, L<sup>2</sup>, secured to the cross-bar J<sup>2</sup>, passing over a pulley, M<sup>2</sup>, upon one of the uprights C, and from thence passing down between two pulleys, N<sup>2</sup> N<sup>2</sup>, journaled in a slot,  
 30 O<sup>2</sup>, in a beam or bracket, P<sup>2</sup>, extending from one of the cross-pieces C, the lower end of the cord being connected to the rear end of the sweep. By this arrangement, as the rack upon the sweep meshes with the pinion and the  
 35 plunger is elevated, the feed-door automatically opens until the plunger has passed above it and the rack has performed about half of its full movement, when, during the continued movement of the rack, the sweep draws upon  
 40 the cord, and thereby effects the closing of the feed-door before the rack passes from under the pinion and the plunger falls.

Q<sup>2</sup> designates slots or kerfs in the end strip, D<sup>2</sup>, through which cords or bands may be passed  
 45 to secure the bale. Corresponding slots, R<sup>2</sup>, are formed in the bottom of the door E<sup>2</sup>, and grooves are provided also in the bottom of the plunger, as shown at S<sup>2</sup>.

T<sup>2</sup> designates a block pivoted upon one of the uprights C, and provided with an operating arm or handle, U<sup>2</sup>, by which it may be set  
 50 over the top edge of one of the vertical sides of the bale-box and serve to support the plunger while the bale is being removed, or at any other desired time. When the plunger is again  
 55 elevated, this block is adapted to drop down by its own gravity from position for engagement with the plunger.

I claim as my invention and desire to secure  
 60 by Letters Patent—

1. The combination of an upright frame embodying a bale-box at its bottom, a pulley at the top of the frame, a plunger, a shaft carrying the pinion and a drum, the rope connected with a plunger and secured to the

drum, and the sweep carrying a segmental rack adapted to mesh with the pinion, substantially as set forth.

2. The combination of an upright frame embodying a press-box at its bottom, a pulley  
 70 at the top of the frame, the shaft carrying a pinion and a drum, the plunger, the rope connecting the plunger and the drum, the sweep carrying the segmental rack, and the swinging beam hinged to the upright frame and  
 75 carrying a pulley engaged by the rope carrying the plunger, substantially as set forth.

3. The combination of an upright frame comprising the press-box, the pulley at the top of the frame, the horizontal shaft carrying a pinion and a drum, the plunger, the rope for elevating the same, the semicircular guide-plate terminating in stop-shoulders, and the sweep moving over said plate, and provided with a rack-quadrant adapted to mesh  
 85 with the pinion, substantially as and for the purpose set forth.

4. The combination, in a press embodying a gravity-plunger and means for elevating the same, with the elevating-cord, of a swinging beam engaged by the same and adapted to take up the slack, substantially as and for the purpose set forth.

5. The combination, in a press of the class described, of an upright frame, a pulley at the top thereof, the plunger, the elevating-rope, means for winding this rope, and the swinging beam hinged to the frame and carrying a pulley engaged by the rope, the upper end of the beam being adapted to engage  
 95 the periphery of the main pulley, substantially as and for the purpose set forth.

6. The combination, with the rotary shaft of the press mechanism, of the horse-power devices comprising the semicircular guide-  
 105 plate terminating in end shoulders, the sweep embodying the divergent arms and the intermediate pivot block or plate, the segmental plate secured to the under side of said arms, and the segmental rack secured above the  
 110 arms, substantially as and for the purpose set forth.

7. The combination, in an upright plunger-press, of the frame embodying the press-box, the gravity feed-door, the plunger, the drum-  
 115 shaft carrying the pinion, the elevating-rope connected with the plunger, the sweep carrying a segmental rack engaging the pinion, and the cord extending from the gravity feed-door to the sweep, substantially as and for the purpose set forth.

8. The combination of the upright frame embodying the press-box, the gravity feed-door having the cross-bar, the plunger mechanism embodying the elevating-rope and the  
 125 drum-shaft carrying the pinion, the sweep carrying the segmental rack engaging the pinion, the beam or bracket projecting from the upright frame and carrying the two pulleys, and the cord passing between these pul-  
 130



leys and connected to the sweep and to the gravity feed-door, substantially as and for the purpose set forth.

9. The combination, in an upright plunger-  
5 press, of a gravity feed-door, the plunger-operating mechanism, and means, substantially as described, connecting the feed-door with the plunger-operating mechanism, whereby it

is operated by the same simultaneously with the movement of the plunger, as set forth. 10

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. DUNN.

Witnesses:

JOHN F. MANN,

T. M. GRANT.