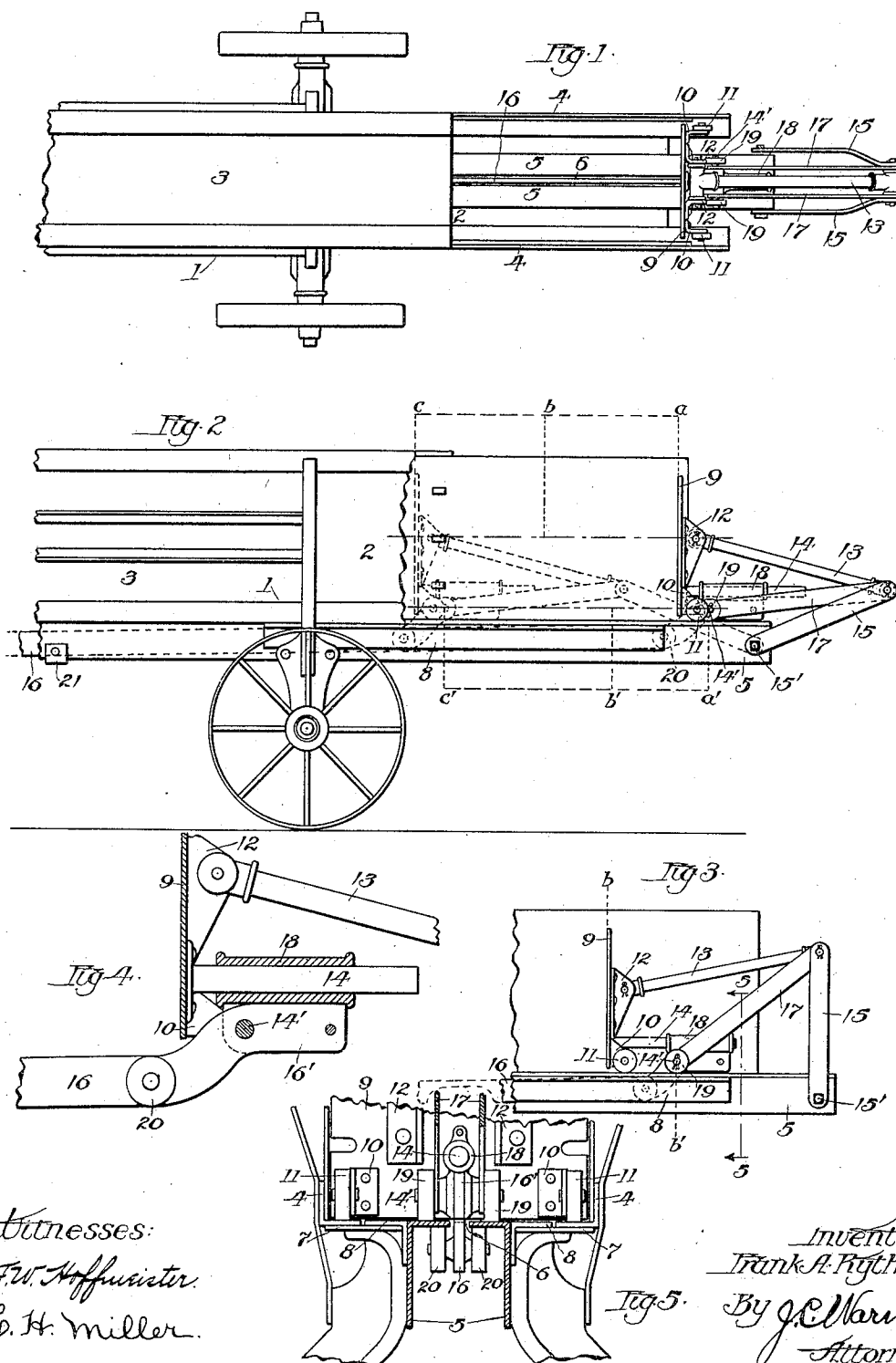


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PATENTED NOV. 20, 1906.

F. A. RYTHER.
BALING PRESS.

APPLICATION FILED MAY 28, 1906.



Witnesses:
F. W. Hoffmeister.
C. H. Miller.

Inventor:
Frank A. Ryther.
By J. C. Warner,
Attorney.

UNITED STATES PATENT OFFICE.

FRANK A. RYTHUR, OF CHICAGO, ILLINOIS, ASSIGNOR TO INTERNATIONAL HARVESTER COMPANY, A CORPORATION OF NEW JERSEY.

BALING-PRESS.

No. 836,653.

Specification of Letters Patent.

Patented Nov. 20, 1906.

Application filed May 28, 1906. Serial No. 318,987.

To all whom it may concern:

Be it known that I, FRANK A. RYTHUR, 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.

The present improvement relates to horse-power presses having reciprocating plungers, and more particularly to the operating connection for such plungers, the object being to lighten and simplify the construction of the plunger by providing a sliding connection between it and the draw-bar, and thus dispense with the guides on the upper side of the plunger. Another advantage gained over the power connections usually employed in presses in which the plunger is pulled is the comparatively rapid movement of the plunger with less power at the beginning of the stroke but less speed with greater power at the end of the stroke.

The improvement is illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of the rear end of a baler embodying my invention. Fig. 2 is a corresponding side elevation of same. Fig. 3 is a side elevation of the plunger and plunger connections. Fig. 4 represents an enlarged detail illustrating the construction of the sliding connection between the plunger and plunger draw-bar, and Fig. 5 represents a transverse section taken on the line 5 5 of Fig. 3.

Referring to the drawings, 1 designates the frame of the baler, 2 the compression-chamber in the rear end thereof, and 3 the baling-chamber. The bottom of the frame is formed of the corner angle-bars 4, the centrally-arranged inverted opposing angle-bars 5, which are slightly separated above, so as to form, in effect, an inverted channel with a slot 6 in its bottom, and the plates 7 and angle-bars 8, which support and bind together the above-mentioned bars 4 and 5, as clearly illustrated in Fig. 5. The plunger-head consists of a single flat plate 9, having secured to its lower corners the lugs 10, on which are journaled the rollers 11. At the center of the plate 9 is fixed the pair of ears 12, between which pivotally connects the end of the plunger-bar 13, and near the bottom of said plunger-plate, directly beneath the bar 13, is secured the rearwardly-projecting stem

14. The plunger-bar 13, jointed to the arms 15, which are pivoted to the rear end of the frame 1 at 15', constitutes a toggle connection between the said plunger-head and baler-frame. A plunger draw-bar 16, which extends forwardly beneath the baler-frame, connects with the toggle-joint formed by the bar 13 and the arms 15 by means of the links 17. The rear end of the draw-bar 16 is bent upwardly, as shown, and to the upturned end 16' thereof is secured a guide-block 18, which is provided with a longitudinal base adapted to receive the stem 14 on the plunger-head. The rear pin 14', which forms one of the fastenings between the upturned end 16' of the draw-bar and the guide-block 18, is preferably made to constitute the pivotal axis of the rollers 19, as well as the pivotal axis between the forward end of the draw-bar 16 and the links 17. The rollers 19 move along the top of the angle-bars 5, and in connection with the rollers 11 on the plunger-head support against downward pressure both the said head and the forward end of the draw-bar 16. The rollers 20, which are journaled near the forward end of the draw-bar, bear against the under side of the angle-bars 5, as shown in Fig. 5, and prevent upward movement of the plunger and bar. The forward end of the bar 16 is shown supported upon the cross-tie 21, but may have other rollers at its forward end, if desired.

In operation the draw-bar 16, links 17, and the toggle connection formed by the bar 13 and arms 15 operate in the usual manner, while the guide-block 18 acts as a sliding support for the plunger-head. In moving from the rearward position or from the full-line position of Fig. 2 to the position indicated in Fig. 3 the plunger-head 9 accomplishes half of its stroke, or a distance equal to the line $a b$, while the draw-bar 16 and guide-block thereon move over a distance equal to the line $a' b'$, or much less than half the stroke. As the plunger-head moves over the last half of the stroke, or the distance $b c$, the draw-bar moves over the greater part of the stroke, or a distance indicated by the line $b' c'$. In the first half of the forward stroke as the plunger-head advances more rapidly than the draw-bar the stem 14 will slide forward in the guide-block 18 from the position shown in Fig. 2 to that shown in Fig. 3, while in the latter period of its stroke as the plunger re-

cedes relative to the draw-bar the stem 14 will slide rearwardly in the guide-block 18 to the position indicated by dotted lines in Fig. 2.

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

1. In a baling-press, in combination, a press-frame, a compression-chamber, a reciprocating plunger-head operating therein, a toggle connection interposed between the plunger-head and press-frame, a draw-bar located beneath the press-frame and having a sliding connection with said plunger, and a link connecting the end of said draw-bar with the said toggle connection.

2. In a baling-press, in combination, a press-frame, a compression-chamber having a longitudinally-extending slot in the bottom thereof, a reciprocating plunger-head, a toggle connection interposed between the plunger-head and press-frame, a draw-bar having a sliding connection with said plunger-head and with its rear end curved upwardly to engage the slot in the bottom of said compression-chamber, guides beneath said press-frame for receiving said draw-bar, and a link connecting the upturned end of said draw-bar with the said toggle connection.

3. In a baling-press, in combination, a press-frame, a compression-chamber having a longitudinally-extending slot in the bottom thereof, a reciprocating plunger-head operating in the compression-chamber, a toggle connection interposed between the plunger-head and press-frame, a draw-bar located beneath the press-frame, and suitable guides for same, a plunger guide-block secured rigidly to the rear end of the draw-bar and having a sliding connection with said plunger-head, and a link connecting the rear end of said draw-bar with the toggle connection.

4. In a baling-press, in combination, a press-frame, a compression-chamber, a reciprocating plunger-head operating therein, a

toggle connection interposed between the plunger-head and press-frame, a draw-bar located beneath the press-frame and extending forwardly therefrom, suitable guides beneath said frame for the draw-bar, and a link connecting the end of said draw-bar with the said toggle connection.

5. In a baling-press, in combination, a press-frame, a compression-chamber, a reciprocating plunger-head operating therein, a toggle connection interposed between the plunger-head and press-frame, a draw-bar located beneath the press-frame, and extending forwardly therefrom, said bar having a sliding connection with and serving as a guide for said plunger-head, suitable guides beneath said frame for the draw-bar, and a link connecting the end of said draw-bar with the said toggle connection.

6. In a baling-press, in combination, a press-frame, a compression-chamber having a longitudinally-extending slot in the bottom thereof, a reciprocating plunger-head operating in the compression-chamber, a rearwardly-extending stem rigidly secured thereto, a toggle connection interposed between the plunger-head and press-frame, a draw-bar located beneath the press-frame and having its rear end bent upwardly to engage the slot in the bottom of said compression-chamber, suitable guides for said draw-bar, a plunger guide-block secured rigidly to the upturned end of the draw-bar and having an aperture therein adapted to engage the said stem on the plunger-head and form a sliding connection between the draw-bar and plunger-head, and a link connecting the rear end of said draw-bar with the toggle connection.

FRANK A. RYTHUR.

Witnesses:

OSCAR A. ANDERSON,
STEPHEN I. SCHULTZ.