

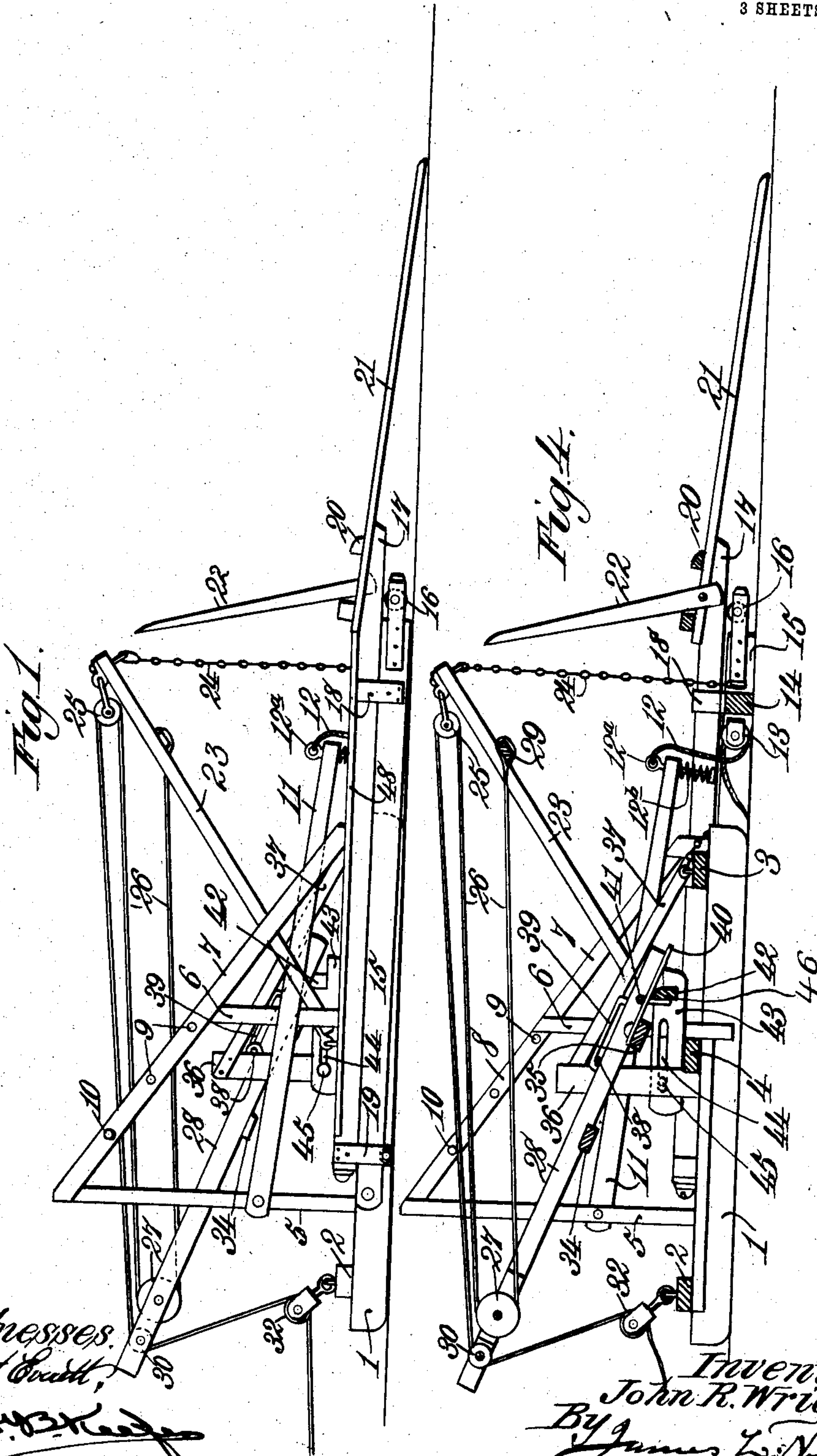
No. 834,180.

PATENTED OCT. 23, 1906.

J. R. WRIGHT.
HAY STACKER.

APPLICATION FILED APR. 2, 1906.

3 SHEETS—SHEET 1.



Witnesses:
Robert Smith,
J. B. Keady

Inventor:
John R. Wright.
By James L. Norris,
Att'y

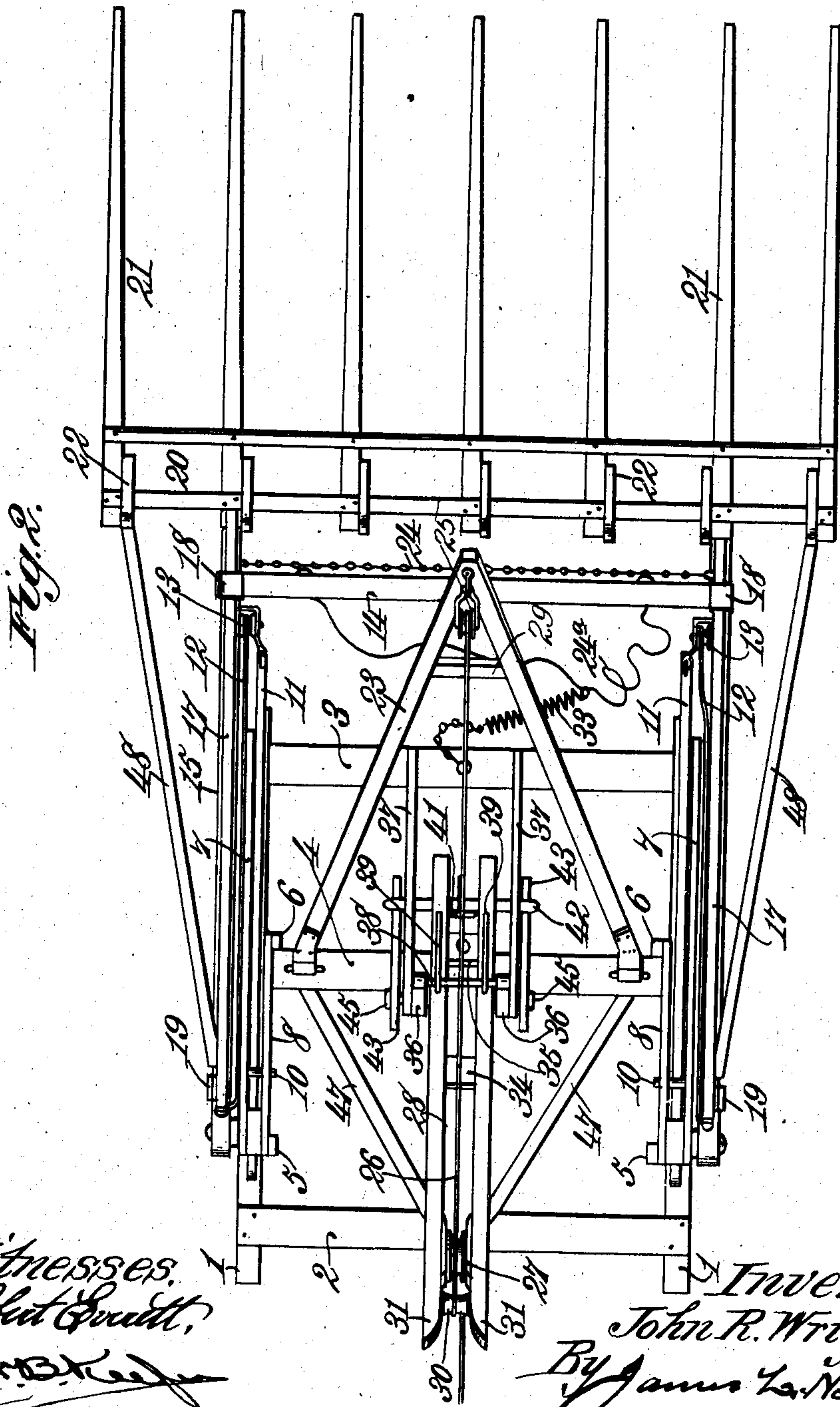
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John R. Wright.
By *James L. Norris,*
Att'y.

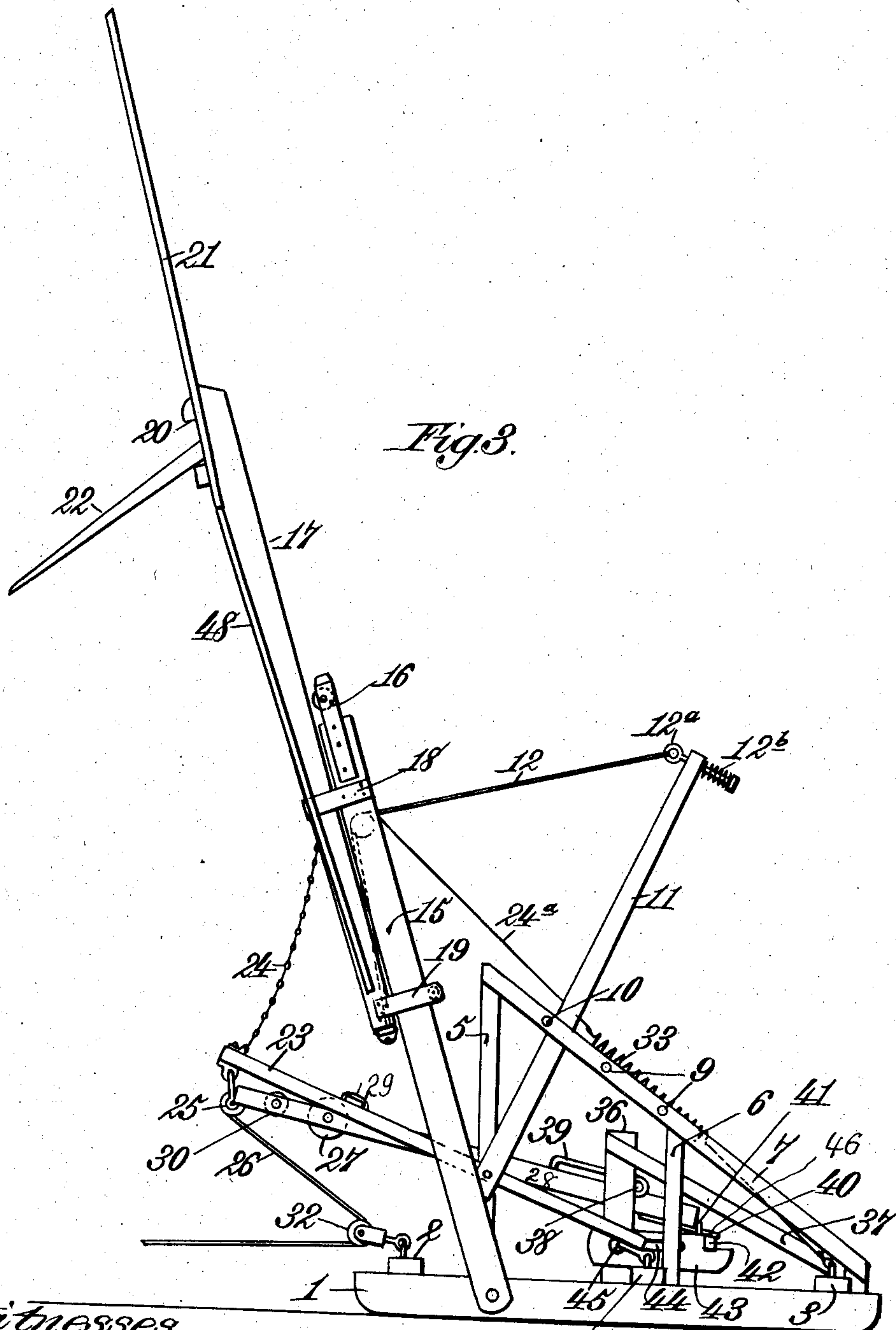
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3 SHEETS—SHEET 3.



Witnesses.
Robert Corbett,
J. B. Keefe

Inventor,
John R. Wright.
By James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

JOHN R. WRIGHT, OF WHEELING, MISSOURI.

HAY-STACKER.

No. 834,180.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed April 2, 1906. Serial No. 309,405.

To all whom it may concern:

Be it known that I, JOHN R. WRIGHT, a citizen of the United States, residing at Wheeling, in the county of Livingston and State of Missouri, have invented new and useful Improvements in Hay-Stackers, of which the following is a specification.

This invention relates to a hay stacker or ricker of that class embodying a fork or elevating means carried by lifting-arms movably attached to a base-support and operative through the medium of draft appliances connected thereto to facilitate the formation of a stack or rick and under certain operations to positively top off the latter. The improved stacker, in addition to the elevatable fork and movable arms connected thereto, includes adjustable means to control the delivery of the load from the fork at varying elevations of the arms, a resilient check device to relieve the fork and arms of injurious jars or jerks, and a controller for regulating the sling or throw of the load from the fork and also operating under certain conditions to shorten the distance the draft-animal will travel.

Other incidental advantageous features will be hereinafter referred to, and the preferred construction of the improved stacker or ricker is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of a stacker embodying the features of the invention and showing the fork lowered. Fig. 2 is a top plan view of the same. Fig. 3 is a view similar to Fig. 1, showing the fork and its operating-arms elevated. Fig. 4 is a longitudinal vertical section through a part of the stacker.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The improved stacker is portable and may be positioned at any point in a field or other place for the purpose of forming a stack or rick, and the base thereof comprises two runners 1 1, connected by terminal cross-bars 2 and 3 disposed thereon, and by an intermediate supporting-beam 4. Rising from the runners 1 are uprights 5 and 6, each upright 6 being of materially less vertical extent than its companion upright 5, the said uprights having secured on their upper ends parallel guide-bars 7 and 8, having an intervening space between them and the bar 7 in each instance projected downwardly and connected to the front extremity of the adjacent runner

1. The bar 8 terminates adjacent to the upper terminal of the upright 6, and the two bars 7 and 8 have a plurality of openings 9 therein to removably receive a pin 10, which is applicable to either one of the sets of openings to regulate the operation of the fork, as will be more fully hereinafter set forth. At a suitable elevation a draw-bar 11 is terminally fulcrumed on the outer side of each upright 5 and is movable between the guide-bars 7 and 8, the opposite extremity of the said draw-bar being free and having a cord, cable, or analogous device 12 secured thereto and passed under or around a sheave 13, projecting toward the draw-bar and held in a manner which will be presently set forth. The free ends of the draw-bars 11 have eyebolts 12^a movably mounted therein, with springs 12^b interposed between the headed ends thereof and the bars, and to the eyes of said bolts the cords, cables, or analogous devices 12 are attached. Each fork-arm comprises a bar 15, fulcrumed at one end to the outer side of the adjacent runner 1 and having a cross-brace 14 secured thereto, so as to render the two bars 15 of the opposite fork-arms unitary in their action and also reinforce and strengthen the same, the bars 15 at the inner sides of their free extremities carrying the sheaves 13. The ends of the bars 15 opposite those attached to the runners 1 carry antifrictional rollers 16, and disposed on the bars 15 are slide-bars 17, passing through slide-clips 18, fixed to the bars 15, and the bars 17 have clips 19 loosely embracing the said bars 15. The slide-bars 17 are terminally secured to the fork or rake-head 20, comprising the usual long teeth 21 and shorter angular teeth 22, the latter being movable and normally disposed when engaged by the load at a proper angle for discharge purposes. The fork-arms comprising the bars 15 and 17 are automatically elongated in accordance with the position of the pins 10 in the guide-bars 7 and 8, through the medium of the draw-bars 11, and the cord, cable, or analogous device 12 after passing around the sheaves 13 is secured to the ends of the slide-bars 17 opposite to the ends of said bars, which are attached to the fork or rake-head. The slide-bars 17 in their movement over the bars 15 contact with the antifrictional rollers 16, with obvious advantages in the operation of said bars.

Movably secured to the supporting cross-beam 4 is a triangular lifting-frame 23, hav-

ing a chain or analogous device 24 attached to the apex thereof, parts of said chain diverging from the apex of the frame and terminally secured to the bars 15 of the fork-arms. The apex of the frame 23 on the side opposite that to which the chain or analogous device 24 is attached also carries a grooved sheave 25, which is engaged by a rope, cable, or analogous device 26, and is passed over a sheave 27, held in the free extremity of an upwardly-projecting member 28 of a controller, and from the said sheave 27 the rope or cable 26 is returned and terminally attached to a cross-brace 29, secured to the lifting-frame 23 adjacent to the apex or at a suitable distance below the location of the sheave 25. From the sheave 25 the rope or cable 26 is directed rearwardly and passed over a roller 30 in the free end of the upwardly-projecting member 28, the latter being composed of opposite side bars 31, having the inner portions of their ends adjacent to the roller 30 beveled to form guides or leading surfaces for the rope or cable 26. From the roller 30 the rope or cable 26 is continued downwardly to the rear cross-bar 2 and is passed through a sheave 32, movably held at the center of the upper side of said cross bar or brace 2. The rope or cable 26 is the draft device to which a draft-animal is attached, and from the sheave 32 it may be directed outwardly at either side of the stacker for operation by the draft-animal attached thereto.

The movement of the fork or rake-head is resiliently checked to prevent injury thereto by sudden jars or jerks through the medium of a spring 33, secured to the center of the cross-bar 3, and also having divergent cables, chains, or analogous devices 24^a attached thereto and secured to the front edge of the cross-brace 14. This resilient check will offer easing means for the draft-animal, as well as prevent injury to the moving parts of the stacker. This resilient check has a further tendency to return the fork or rake-head and the arms connected thereto to normal lowered position; but it will be understood that the full lowering movement of the fork or rake-head and the parts directly cooperating therewith will only ensue when the draft-cable 26 has been slackened sufficiently to permit such operation.

The controller for regulating the fling or throw of the load from the fork or rake-head acts directly on the lifting-frame 32 and includes the upwardly-projecting member 28, which is engaged by the draft-cable 26. As before stated, the upwardly-projecting member 28 includes in its organization the side bars 31, connected by a cross-brace 34 and a cross support or connector 35 adjacent to the lower ends and on the under sides thereof. The upwardly-projecting member 28 is movable between posts 36, secured to and rising

from the supporting-beam 4 and reinforced as to fixed position by braces 37, secured thereto and to the cross-bar 3. Extending transversely from one post 36 to the other is a limiting-rod 38, which also passes through elongated staple-guides 39, secured to the upper edges of the side bars 31. Projecting rearwardly and downwardly from the cross support or connector 35 is a guide-rod or pin 40, which is movable through an upwardly-projecting loop 41, rising from the center of a cross member 42, held by longitudinal sliding members 43, having longitudinal slots 44, through which project headed studs 45, secured in the outer sides of the posts 36 close to the upper surface of the cross-beam 4. The cross member 41 and adjusting members 42 form parts of an adjusting-frame, and by shifting the said frame longitudinally over the support 4 the upwardly-projecting member of the controller may be varied as to its angle and elevated or depressed to modify the throw or sling of the load from the fork or rake-head when the lifting-frame 23 contacts with the said upwardly-projecting member. This adjusting-frame, comprising the members 43, is longitudinally movable on the intermediate supporting-beam 4, the movement or adjustment of this frame being effected prior to the operation of the stacker and modifying the angle and movement of the projecting member 28. This adjustment of the frame comprising the members 43 is carried on manually and is permitted by reason of the slots 44 of the members 43 engaging the headed studs 45, which project outwardly from the posts 36. The projecting member 28 swings or is movably held by the rod 38, and as the angle of movement of said member 28 is controlled solely by the adjustment of the members 43 there is no necessity of utilizing means for positively holding the members 43 against movement, in view of the fact that said members 43 have considerable length and engage the supporting-beam 4 at their lower edges, and if the members 43 have a slight tilting movement it will not in the least interfere with the operation sought and obtained by the adjustment of the same members.

When the pulling tension is exerted on the draft-cable 26 the lifting-frame 23 is gradually elevated and thrown over without affecting the controller just described, and during this movement of the lifting-frame the fork or rake-head and arms are correspondingly elevated through the draw-bars 11, the vertical movement or position of the arms being regulated by the position of the pins 10 in the guide-bars 7 and 8. When the lifting-frame rides over and close to the upwardly projecting member 28 of the controller, the pulling tension on the cable 26 will affect the said upwardly-projecting member and draw the same slightly upward in close engagement

with the lifting-frame, and in accordance with the angle of adjustment the lifting-frame will be checked in its overthrow movement, and the pulling tension of the draft-cable will then be transmitted through the said lifting-frame directly to the arms comprising the bars 15 and 17 of the fork or rake-head and cause the load to be delivered from the latter on to the stack or rick or at a point of deposit in rear of the stack or rick. The upwardly-projecting member 28, as before indicated, has a slight sliding movement to compensate for the pulling tension exerted through the draft-cable when the lifting-frame 23 rides in close relation to said member, and the pin or rod 40 slides in the guide 41 and over an inclined surface 46, formed at the center of the front edge of the cross member 42 of the adjusting-frame to give the said pin sufficient clearness and avoid obstruction of movement of the upwardly-projecting member 28. Under certain conditions also the adjusting-frame may be tilted on the headed studs 45—that is, movement of the parts of the controller being permitted to avoid breakage thereof, and at the same time derive the advantages accruing from the use of the upwardly-projecting member 28. In starting the formation of a stack or rick the pins 10 will be entirely withdrawn from the guides 7 and 8 or the cable disconnected from the arms 11, and the arms of the fork or rake-head will be permitted to remain inactive as to extension through the operation of the draw-bars 11, for the reason that there is no obstruction to the movement of the said draw-bars. The pins 10 as the stack or rick gradually increases in elevation will be moved from the uppermost openings in the guide-bars 7 and 8 toward the lowermost openings, and through the use of said pins the bars 17 will be moved longitudinally on the bars 15 to give the fork or rake-head the necessary elevation. The lower the pins 10 are located in the guides 7 and 8 the greater will be the movement of the bars 17, and when the said pins are lowered the sling or throw from the fork or rake-head will be slightly upward, particularly when the rick is built up to a considerable elevation.

The several parts of the stacker or ricker will be braced to strengthen the same, and it will be seen that the supporting-bar 14 is provided with horizontal braces 47 running therefrom to the cross-bar 2. The bars 17 also have outwardly-projecting inclined braces 48 attached thereto and to the fork or rake-head. Other bracing devices will also be applied at points where they may be found necessary.

A further advantage of the improved stacker is that it will deliver the hay in the center of the stack, because the stacker is set to elevate the hay to a considerable height and at such angle as to result in the delivery

over on the stack. By adjusting the controller the distance that the rake-head or fork passes over the stack may be regulated at will.

The improved stacker or ricker is of comparatively light structure and may be readily transported from one place to another and will be found exceptionally useful in expediting and practically forming a stack or rick.

Having thus described the invention, what is claimed is—

1. In a stacker or ricker, the combination of a base-support, a fork or rake-head having side arms connected thereto, a movable lifting-frame attached to the said arms, an adjustable controller including an upwardly-projecting member for cooperation with the said lifting-frame, and a draft-cable terminally secured to the lifting-frame movably passing over a part of the latter, and also movably engaging the said upwardly-projecting member.

2. In a stacker or ricker, the combination of a base-support, a fork or rake-head having arms movably connected to the base-support, a movable lifting-frame attached to the said arms, a controller adjustable to change its angular position and cooperating with the lifting-frame, and a draft-cable engaging the lifting-frame and a portion of the controller.

3. In a stacker or ricker, the combination of a base-support, a rake-head having arms movably attached to said support, and including extensible devices, apertured guides at opposite sides of the base-support, draw-bars movable in the said guides, cables connecting the free extremities of the draw-bars and to the extensible portions of the arms, a lifting-frame attached to the arms, pins adjustable in the guides, and a draft-cable engaging the lifting-frame.

4. In a stacker or ricker, the combination of a base-support, a rake-head having arms movably attached to the base-support, a lifting-frame movably disposed on the base-support and connected to the arms, a controller to cooperate with the lifting-frame having an upwardly-projecting slidable member, means for adjusting the said member to change the angle thereof, and a draft-cable attached to and engaging the lifting-frame and also engaging the said member.

5. In a stacker or ricker, the combination of a base-support, a rake-head having arms movably attached to said base-support, a lifting-frame movable on the base-support and attached to the arms, a resilient check means secured to the base-support and a portion of the arms, an adjustable controller to cooperate with the lifting-frame, and a draft-cable engaging the lifting-frame, a portion of the controller, and a part of the base-support.

6. In a stacker or ricker, the combination of a base-support, a rake-head having arms movably attached to the base-support, a lift-

ing-frame connected to the arms, a controller
comprising a longitudinally-adjustable frame,
upright posts engaged by the said arms, a
cross-rod secured to the posts, a guide-loop
5 projecting upwardly from the adjusting-
frame, a slidable member disposed between
the posts and having loops through which
the cross-rod extends and a pin movable in
the said guide-loop, and a draft-cable engag-
10 ing the lifting-frame, the slidable member of

the controller, and a portion of the base-sup-
port.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JNO. R. WRIGHT.

Witnesses:

J. L. CASTLE,

G. T. SMITH.