(No Model.)

2 Sheets—Sheet 1

L. DUMBAULD.

DERRICK.

No. 493,690. Patented Mar. 21, 1893.

Fig. 1.

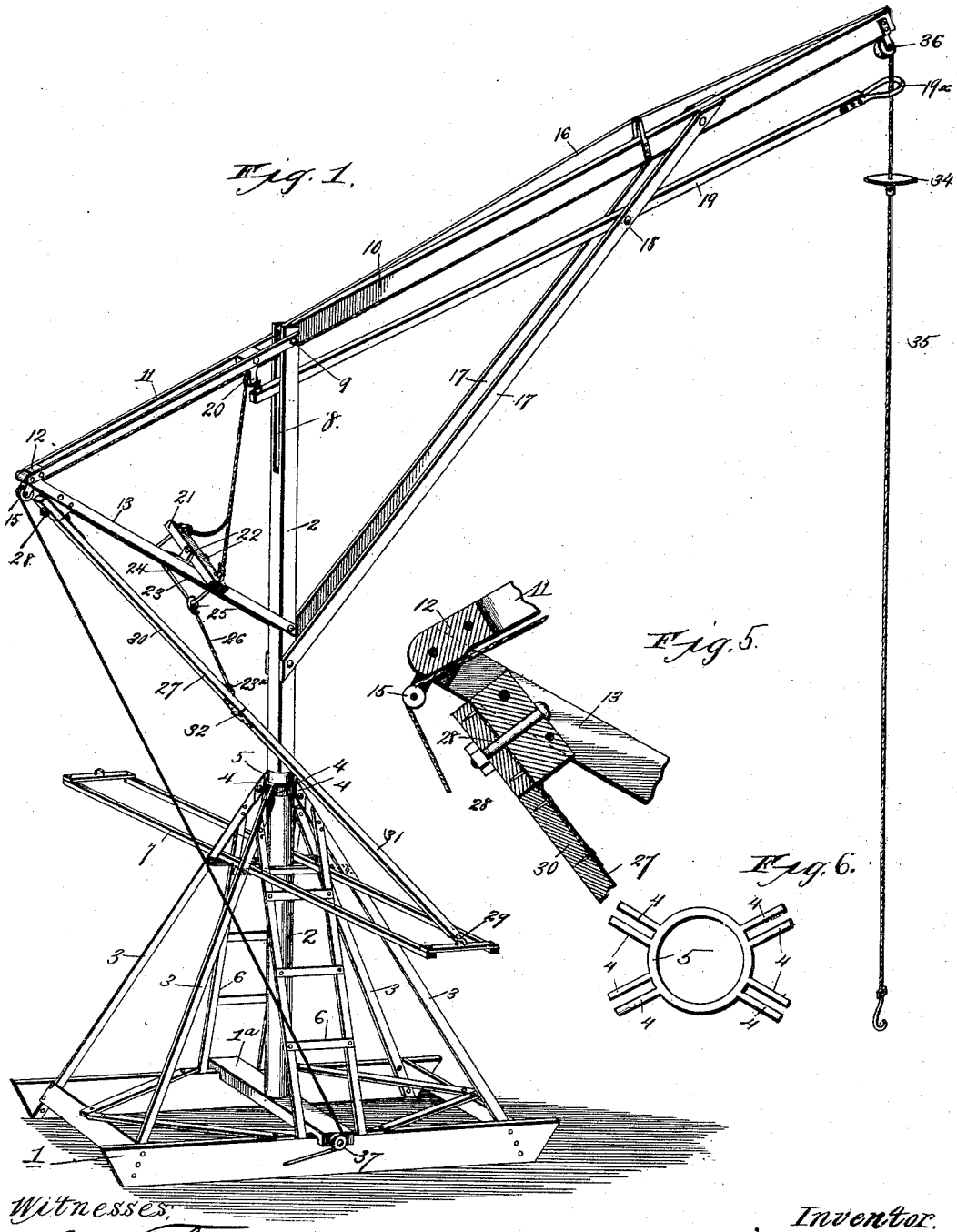

Fig. 5.

Fig. 6.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

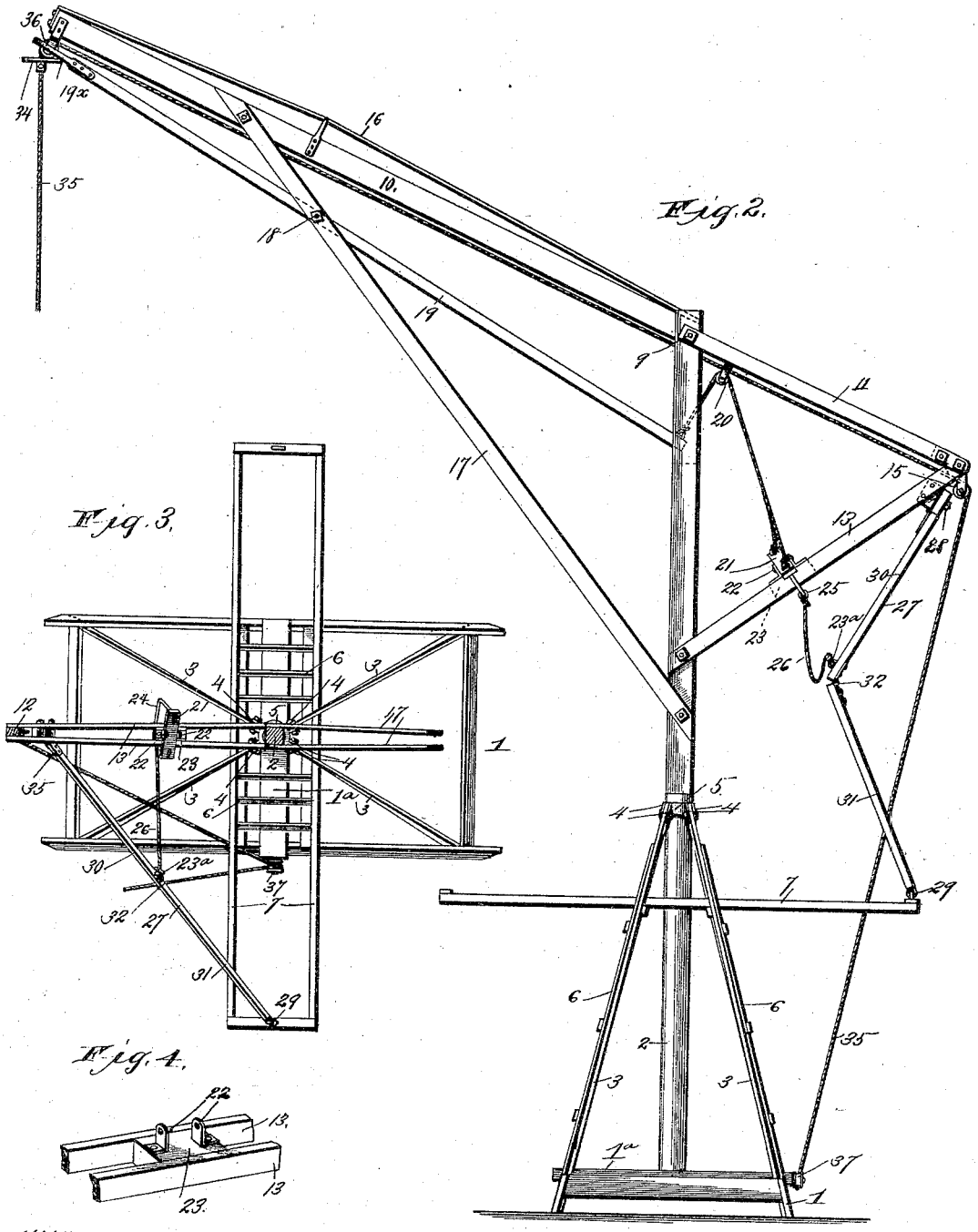

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

LEVI DUMBAULD, OF HARTFORD, KANSAS.

DERRICK.

SPECIFICATION forming part of Letters Patent No. 493,690, dated March 21, 1893.

Application filed September 3, 1892. Serial No. 444,932. (No model.)

To all whom it may concern:

Be it known that I, LEVI DUMBAULD, of Hartford, Lyon county, Kansas, have invented certain new and useful Improvements in Farm-Derricks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in portable farm derricks, for the suspension of a tackle used with a hay-fork, for stacking or loading hay or grain or for any work about a farm for which an elevating and conveying device is employed.

The object of my invention is to provide a strong, light, simple and inexpensive device, which will automatically stop when the load has been lifted the required height, and swing with sufficient momentum, imparted by its upward stoppage, to the required position for delivering the load.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as will be hereinafter specified and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which,—

Figure 1, is a perspective view of a derrick embodying my improvements, and in position for raising the load. Fig. 2, is an end elevation of the same, in position for delivering the load. Fig. 3, is a horizontal sectional view, and showing the lower portion of the derrick in top plan view and in the position shown in Fig. 1. Figs. 4, 5, 6 and 7 are enlarged detail views of several parts hereinafter described.

In the drawings, 1 designates the sled-frame, which forms the base of the derrick, and which is provided with the cross bar 1^a, midway of its length stepped to receive the lower end of a post 2; and a frame-work, consists of the braces 3, which are secured at their lower ends to the side bars of the sled and their upper ends between the ears or lugs 4, of a bearing sleeve 5. Secured at their lower ends to the side bars of the sled and on opposite sides of the post 2 are the ladders 6 which incline upwardly and inwardly and are secured at their upper ends to the brace bars 3. A deck beam or frame 7, also forms a portion of the lower framework, and is supported in any suitable manner upon cross bars connecting the corresponding pairs of braces; and is also connected with other parts of the derrick as will hereinafter appear.

The upper end of the post 2, is slotted or notched at 8 to receive the inner end of a jib 10, which is secured therein by a bolt 9, which also extends through the adjacent ends of the jib extension 11 formed of parallel strips or bars, between the outer ends of which is secured the angle block 12. A bolt passes laterally through the block 12, and also through the outer ends of the obliquely arranged or inclined parallel braces 13, which are secured at their lower ends to the post 2, and which also support a sheave pulley 15, at their upper ends.

A truss-rod 16, is secured at each end to the opposite ends of the jib 10, and serves to brace and strengthen said jib, and the jib is also braced and supported in an upwardly inclined position by the obliquely arranged brace bars 17, which are bolted at their outer ends to the jib, and at their inner or lower ends to the post 2, above its bearing sleeve 5. Near the upper ends of, and between the brace bars 17 is pivoted at 18 a trip-lever 19, extending longitudinally of and below the jib 10, from its outer end, and through the slot 8, of post 2, beyond the inner end of said jib. Between the bars forming the jib extension 11, and a short distance from the post 2, is secured a block, having depending therefrom a sheave pulley 20, over which a cord, secured at one end to the inner end of the trip-lever, passes, and at the other end said cord is secured to the rocking-bar 21, pivoted at 22, between the vertically extending ears of a block 23, secured between the brace bars 13; the said rocking-bar having a depending bail or secondary bar 24, secured to the ends of the rocking-bar 23, and passing beneath the brace bars 13, and serving as a support and guide for a traveling-ring 25, which is connected by a rope or cord 26, to the middle part of a break joint lever 27, the upper end of which is hinged to a block, which block is in turn pivotally connected by a bolt 28, to a block secured between and near the outer ends of the

brace bars 13, and at its lower end is connected by eyes and staples 29, with the outer end of the deck beam or frame 7.

The break-joint lever 27, is formed of the two similar bars 30 and 31, hinged together at 32, the upper bar being connected near the hinge 32, with the rope or cord 26, and through the intermediate parts hereinbefore described with the inner end of the trip-lever 19, the outer end of which has a loop $19^{\times}$ through which the hoisting rope 35, passes, the said hoisting rope having a plate 34, adjustably secured at any desired point thereon, to trip or lift the outer end of the trip-lever 19, when the load has been raised to the required height. The hoisting rope 35, passes up through the loop and over a sheave pulley 36, pendent from the outer end of the jib, and beneath the jib and over the pulley 15, hereinbefore described, to a pulley 37, upon the end of the cross-beam or bar 1^{a} of the sled, and thence in the line or direction of the horse, to the end of which rope the animal is attached.

When the jib is in position, as shown in Fig. 1, to lift the load, the break-joint brace 27 is rigid, and holds the jib securely in place to prevent its movement in either direction, until the plate 34 trips the lever 19, and through it and its connection breaks the hinge joint at 32, and allows the load to swing around the post 2, to the rick or other place where the load is to be delivered. The deck beam 7, can be easily reached by the ladder 6, and will afford access at all times to the tackle and rigging overhead, for repairs, oiling, &c.

In operation, the jib is swung into the required position shown in Fig. 1, by pulling downward on the hoisting rope and the load is grappled. The horse is then started, and the load is raised until the adjustable stop-plate strikes the outer end of the tripping lever, the inner end of which moves down, and draws the depressed end of the rocking-bar upwardly by the rope connected therewith, and through the rope connected with the middle portion of the break-joint brace, the said joint is broken by a quick movement, and while the strain is still upon the hoisting rope, which having been held thereon at an angle to the line or draft, the outer end of the jib and its load are swung cross-wise of its normal position, so that the pulley upon the inner end of the jib, is approximately over the lower pulley of the sled; and the load is deposited by pulling the latch cord in the usual way. The swing thus given to the load may be increased by giving a quick pull upon the hoisting rope when the stop plate strikes the tripping lever at the end of its movement, and the load is released upon its outward swing to toss it to any desired place upon the end of the stack. The outer end of the jib may be pulled half-way round, when the break-joint brace is relaxed to receive the load from the opposite end of the sled, in which case the rocking-bar is tilted in the other direction by the traveling-ring, and cord connected to the break-joint brace; and the jib can be worked equally as well in an opposite direction to unload at the opposite end of the stack. By disconnecting the lower end of the break-joint brace from the end of the deck beam, to which it is attached as shown in the drawings; the jib may be swung completely around, if desired, and the end of the said brace, may be attached to the opposite end of the deck beam or frame, to unload or deliver to a rick or wagon upon the side of the derrick opposite to that first described.

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

1. In a derrick, the combination of a supporting frame, a revoluble post stepped therein, a slot in said post, and a jib secured therein, and a jib extension also secured to the post, with a tripping lever located beneath the jib, and a break-joint brace connecting the jib extension and a fixed part of the frame-work, and a rocking-bar and ropes or cords connecting the break-joint brace and the tripping lever, substantially as set forth.

2. A derrick, comprising a suitable supporting frame-work a revoluble post stepped in said frame-work, and having a slotted upper end, a jib secured in said slotted end, and a jib extension also secured to the upper end of the said revoluble post, brace bars connecting the jib and the post, a trip-lever pivoted between the said brace bars and extending through the slotted upper end of the post, a break-joint brace connecting the frame-work and the jib extension, and a rocking-bar located beneath the inner end of the trip-lever, and cords or ropes connecting the inner end of the trip-lever and the rocking bar and the middle portion of the break-joint brace and the rocking bar, substantially as set forth.

3. In a derrick, a supporting frame-work, having a fixed deck-frame at its upper end, a revoluble post stepped in said frame-work, and having a slotted or notched upper end, a jib extending forwardly and upwardly from said post and secured in the slotted upper end, brace bars connecting the jib and the post, and a jib extension also secured to the upper end of the post, and brace bars connecting the jib extension and the post, and a block carried by the brace bars connecting the jib extension and the post, and a break-joint brace pivoted to operate laterally, at its upper end to the said block, and an eye bolt and staple connecting the lower end of the break-joint brace and the deck-frame, and a lever pivotally supported beneath the jib, and a rocking-bar pivotally supported upon the brace bars connecting the jib extension and the post, and cords or ropes connecting the rocking-bar and the trip-lever and connecting the rocking-lever and the break-joint brace, substantially as set forth.

4. In a derrick, a framework comprising a sled, a deck frame supported at the upper end of the frame-work, a revoluble post stepped in

said framework, a jib secured to the upper end of said post, and a jib extension also secured to the upper end of said post, and a break-joint brace, composed of two similar parts hinged together to operate vertically, and having the upper part thereof hinged to a block, to operate vertically, and having said block pivoted to operate laterally to the block at the outer ends of the braces connecting the jib extension and the post, and having an eye-bolt and staple connecting the lower end of the two part brace with the deck-frame, substantially as set forth.

5. A derrick, comprising a supporting frame work, a revoluble post mounted thereon, a jib extending forwardly from the post and braced, and a jib extension extending rearwardly from said post also braced, pulleys carried at the outer ends of the jib and the jib extension extending rearwardly from the post, and a trip lever pivoted between the jib brace bars, and having a loop at its forward end and connected through medium of rocking arm, and cords or ropes to the break joint brace at its inner end and a sheave or pulley carried at the side of the sled or frame work, and the hoisting rope guided through the loop of the end of trip lever and over the pulleys carried by the jib and by the rearwardly extending jib extension and under the sheave or pulley secured to side of sled, having the adjustable trip plate, to engage the loop of the trip lever and raise the same and through the mechanism described break the joint brace and partially revolve the post and load, substantially as described.

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

LEVI DUMBAULD.

Witnesses:
M. R. REMLEY,
E. M. FITZPATRICK.