

No. 662,667.

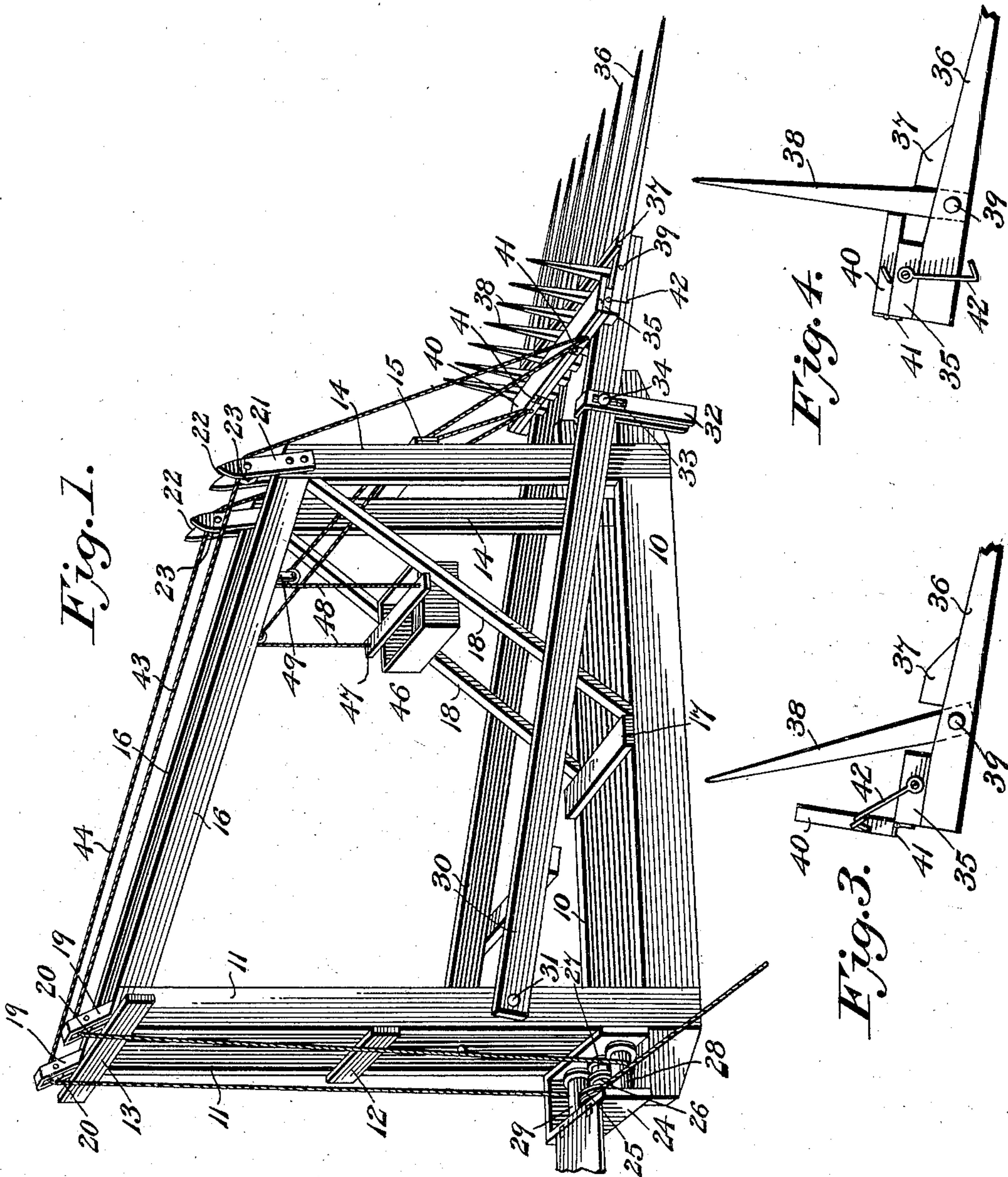
Patented Nov. 27, 1900.

C. C. CLOUSE,  
HAY STACKER.

(Application filed Jan. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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By

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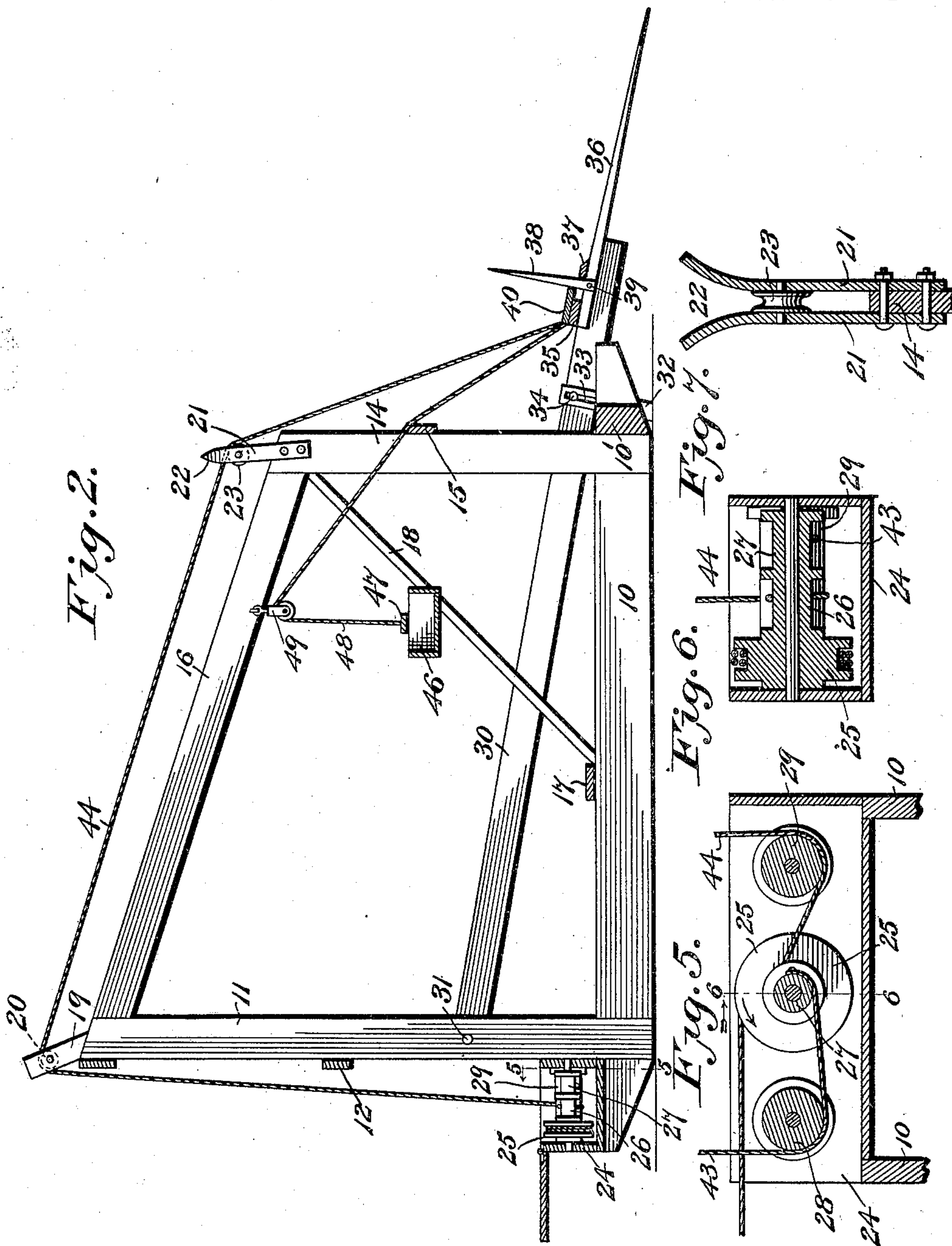
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# UNITED STATES PATENT OFFICE.

CHRISTOPHER C. CLOUSE, OF ALBANY, MISSOURI, ASSIGNOR OF TWO-THIRDS  
TO J. CLOUSE, JR., AND J. CLOUSE, SR., OF SAME PLACE.

## HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 662,667, dated November 27, 1900.

Application filed January 30, 1900. Serial No. 3,339. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTOPHER C. CLOUSE, a citizen of the United States, residing at Albany, in the county of Gentry and State of Missouri, have invented a new and useful Hay-Stacker, of which the following is a specification.

My invention relates to improvements in hay-stackers; and one object in view is to provide a portable apparatus combining certain elements which prevent the structure from tilting when the load is unevenly distributed on the swinging rake.

A further object is to provide the swinging rake with means adapted to secure the discharge of the load at different periods for the purpose of building the stack or topping it out according to the desire of the attendant.

With these ends in view the invention consists in the novel combinations of elements and in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a perspective view of a hay-stacker embodying my invention. Fig. 2 is a vertical central longitudinal sectional elevation of the same. Figs. 3 and 4 are detail sectional views through the rake-head, illustrating the locking-rail adjusted to two positions for permitting the pivotal rake-teeth to have a free swinging movement and to lock said pivoted teeth in one position, respectively. Fig. 5 is a sectional elevation illustrating the differential and guide pulleys of the draft appliance. Fig. 6 is a detail longitudinal section through the differential pulley in the plane of the dotted line 6 6 of Fig. 5. Fig. 7 is a detail sectional view of one of the forked pulley-posts provided at the rear of the stacker-frame.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

In carrying my invention into practice I employ a stacker-frame of a portable nature and especially constructed to serve as a support for a swinging elevating-rake and all the parts associated with said rake. This frame is provided with a pair of parallel runners 10, which are joined together at their rear ends by a cross-piece 10', and are likewise

connected at their front ends by a box or casing 24, that serves as an inclosure for the pulleys of the draft appliance. Secured firmly to the front ends of the runners are a pair of front uprights 11, the same being connected at points intermediate their length by the cross-bar 12 and also provided at their upper ends with a top cross-bar 13, which serves as a stop for the upward and forward movement of the swinging rake. A pair of short uprights 14 are secured firmly to the runners near the rear ends thereof and a cross-bar 15 connects the rear uprights at points below their upper ends. The rear uprights are shorter than the front uprights, and a pair of uprights 11 14 on each side of the stacker-frame is joined together by a longitudinal bar 16, two of which bars are provided for the respective pairs of uprights at the front and rear ends of the frame. The runners are braced at a point intermediate the length thereof by a cross-bar 17, and inclined braces 18 are arranged between the rear short uprights 14 and the cross-bar 17 to stay and strengthen the short uprights.

19 designates short pulley-posts which are secured in inclined positions to the front uprights 11 or to the longitudinal bars 16, said posts being inclined to overhang the top cross-bar 13. These posts are provided with slots that accommodate the front direction-pulleys 20, the same being loosely journaled on suitable arbors supported in the pulley-posts 19. Another pair of short pulley-posts 21 are secured firmly to the rear uprights 14, each pulley-post having a forked upper end 22. A direction-pulley 23 is arranged within the forked part of each rear pulley-post 21, below the open forked extremity thereof, and this pulley is likewise loosely mounted on an arbor, which is supported in the post 21. These pulleys and the short posts for supporting the same are disposed in pairs on opposite sides of the median line of the stacker for a purpose which will hereinafter appear, and the pulleys 20 23 on the same side of the stacker, but near opposite ends thereof, are arranged in alinement, so as to permit the elevating-cables to pass freely from the head of the swinging rake to the guide-pulleys of the draft appliance.



The open-ended box or casing 24 may be constructed in any suitable way to serve as an inclosure for the several pulleys of the mechanism, which I will designate as a "draft appliance," inasmuch as the same includes a series of pulleys adapted to receive the elevating-cables for the rake and the haulage-cable, which is hitched to a whiffletree. This draft appliance comprises a differential pulley and a pair of guide-pulleys, all journaled in a suitable way within the box or casing, said guide-pulleys being disposed on opposite sides of the differential pulley. The intermediate differential pulley consists of three sections 25 26 27, which are coaxially arranged on a single continuous shaft or arbor, and two of these sections of the pulley, 26 27, are of corresponding diameter, while the other pulley-section 25 is of greater diameter than either of the first-named sections, whereby the rake-elevating cables may be coiled on the corresponding pulley-sections 26 27, while the haulage-cable may be coiled on the larger pulley-section 25. The guide-pulleys 28 29 on opposite sides of the differential pulley are preferably mounted so that the shafts or arbors thereof lie in substantially the same horizontal plane as the shaft or arbor of the differential pulley, although this is not essential.

The rake of my stacker mechanism is carried by a pair of side bars 30, which are disposed on opposite sides of the portable frame, said side bars being pivotally connected, as at 31, to the front uprights 11. The side bars of this swinging rake-frame are also provided with the legs 32, adapted to rest on the ground and to sustain the rake proper in the lowered position, thus relieving the fixed teeth of the rake from weight of the swinging rake and minimizing injury thereto. These legs are fastened adjustably to the pivoted side bars 30 by any suitable means; but as one means for attaining this end I have shown the legs as provided with slots 33, through which are passed the bolts 34, the latter serving to clamp the legs firmly against the side bars 30. The rake-head 35 is shown in the form of the cross-bar which spans the pivoted side bars 30, near their free ends, and is secured firmly thereto. The rake consists of two series of teeth, which are of different lengths and arranged in angular positions to each other. The long rake-teeth 36 are secured firmly to one side of the fixed rake-head 35, and these series of teeth are joined together by the rake-head and by a stop-rail 37, which is fastened firmly to said long teeth. The series of short teeth 38 are pivoted individually to the long teeth, as at 39, said pivotal ends of the short teeth being disposed between the rake-head and the stop-rail, so that in one position of said short pivoted teeth they are adapted to rest against said stop-rail.

One of the important features of my invention resides in a locking-rail 40, which is carried by the rake-head in a position for ad-

justment into and out of engagement with the pivoted teeth. This locking-rail is supported movably in place on the rake-head preferably by means of the hinges 41, which connect the locking-rail to the rake-head, and it is evident that the said locking-rail may be adjusted to lie in a position at right angles to the rake-head for the purpose of moving the rail free from engagement with the series of pivotal rake-teeth, thus permitting the latter to swing idly on their pivots; but this locking-rail is adapted to be turned to a position parallel to the rake-head, so that the free edge of said rail will engage with the series of pivoted teeth for the purpose of forcing the same against the stop-rail 37, whereby the pivoted teeth are confined against movement between the rails 37 40, so as to occupy a right-angular relation to the long fixed rake-teeth. This locking-rail when adjusted free from the pivoted teeth may lie against the elevating-cables, and it is adapted to be held in this position by a suitable fastener 42, the same being shown as a hook loosely connected to the rake-head and adapted to engage with an eye on the locking-rail.

The elevating ropes or cables for the swinging rake of my improved stacker are indicated at 43 44, the same being secured firmly to the rake-head at points on opposite sides of the middle thereof. These cables are carried from the rake-head through the forked ends of the pulley-post 21, so as to rest on the direction-pulleys 23. From thence the cables are carried through slots in the pulley-posts 19 over the direction-pulleys 20. The cables are then led in a downward direction beneath the guide-pulleys 28 29, and finally the cables are wound around the members 26 27 of the differential pulley. The haulage-cable 45 is passed around the member 25 of the differential pulley, and this cable may be provided with a suitable hitching device, to which a whiffletree may be connected. I have also provided the stacker with means which gives the initial impulse to the loaded rake to assist in starting the elevation thereof, and this means is also arranged to give a like movement to the rake when it is elevated for the purpose of starting said rake in its downward course for returning the same to a loading position. The means consists, essentially, of a weight box 46, provided with a cross-bar 47, the ropes 48, and the sheaves 49. Said sheaves are connected loosely in any suitable way to the longitudinal bars of the portable frame at points between the front and rear uprights. The cross-bar 47 is secured firmly to the open upper end of the weight-box in a manner to permit the weight material of any suitable nature to be placed in or removed from the box 46. The ropes 48 are reeved through the sheaves 49, each rope being fastened at one end to the cross-bar 47 and at its other end to the head 35 of the rake.

The operation is as follows: The swinging rake being lowered to the position shown by



Fig. 1 the load is deposited on the teeth 36 to rest against the teeth 39 and the team is started so as to pull on the rope 45 and uncoil the same from the member 25 of the differential pulley. This operation causes the cables 43 44 to be coiled on the other members of the differential pulley, and said cables thereby pull on the rake-head for the purpose of swinging the rake on its axes of motion 31, whereby the rake and the load are raised to positions over the stacker. The upward movement of the rake is arrested by the pivoted bars 30 impinging the end portions of the top cross-rail 13, and at this period the rake is in its dumping position for discharging the load upon the stack. The locking-rail 40 is ordinarily adjusted free from the pivotal teeth of the rake-head, so as to permit the load to be discharged about the time the bars 30 engage with the cross-rail 13; but when the stack is nearing completion and it is desired to top out the same the rail 40 is moved into engagement with the pivotal teeth so as to lock the same at right angles to the fixed teeth, whereby the load is kept on the rake until the latter fully assumes its raised position. It is to be observed that the rake when lowered draws upon the cables 48 to lift the weight-box, and when the rake is started this box assists in giving the initial movement to the loaded rake. When the load is discharged from the rake, the weight-box pulls on the cables to give the initial movement to the empty rake. The arrangement of the cables and the supports therefor on opposite sides of the median line of the stacker prevents the rake from tilting to one side when the load is unevenly distributed thereon. The haulage-cable of my stacker is coiled on a large member of the differential pulley, while the rake-elevating cables are coiled on small members of the same pulley.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire

to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a hay-stacker, a rake-head provided with a series of fixed teeth, a series of pivoted teeth, a locking-rail movable into and out of engagement with one side of the pivoted teeth, and a stop-rail carried by the first-named series of teeth and disposed in the path of the pivoted teeth for engagement with the opposite side thereof, substantially as described.

2. A hay-stacker comprising a substantially rectangular frame and connected uprights at its corners, a pair of side bars pivotally mounted on said uprights at one end of the frame and a rake carried by the free ends of the side bars beyond the other uprights and constituting with the side bars a rake-frame, guide-pulleys located at the upper ends of the several uprights, a draft appliance located at the bottom of one end of the frame, cables operatively connected with the draft appliance, passed over the guide-pulleys and connected to the movable rake-frame, an open-ended casing inclosing the draft appliance, and a hauling-cable connected to the draft appliance and passing through the open end of the casing in a direction transverse to the plane of the stacker.

3. In a hay-stacker, the combination with a frame, of a pivoted rake-frame, and adjustable means carried by the rake-frame for determining the plane of its depressed position.

4. In a hay-stacker, the combination with a stacker-frame, and a swinging rake-frame, of adjustable legs carried by the rake-frame adjacent to its free extremity.

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

CHRISTOPHER C. CLOUSE.

Witnesses:

W. F. DALBEY,  
C. E. ERNST.