

No. 616,581.

Patented Dec. 27, 1898.

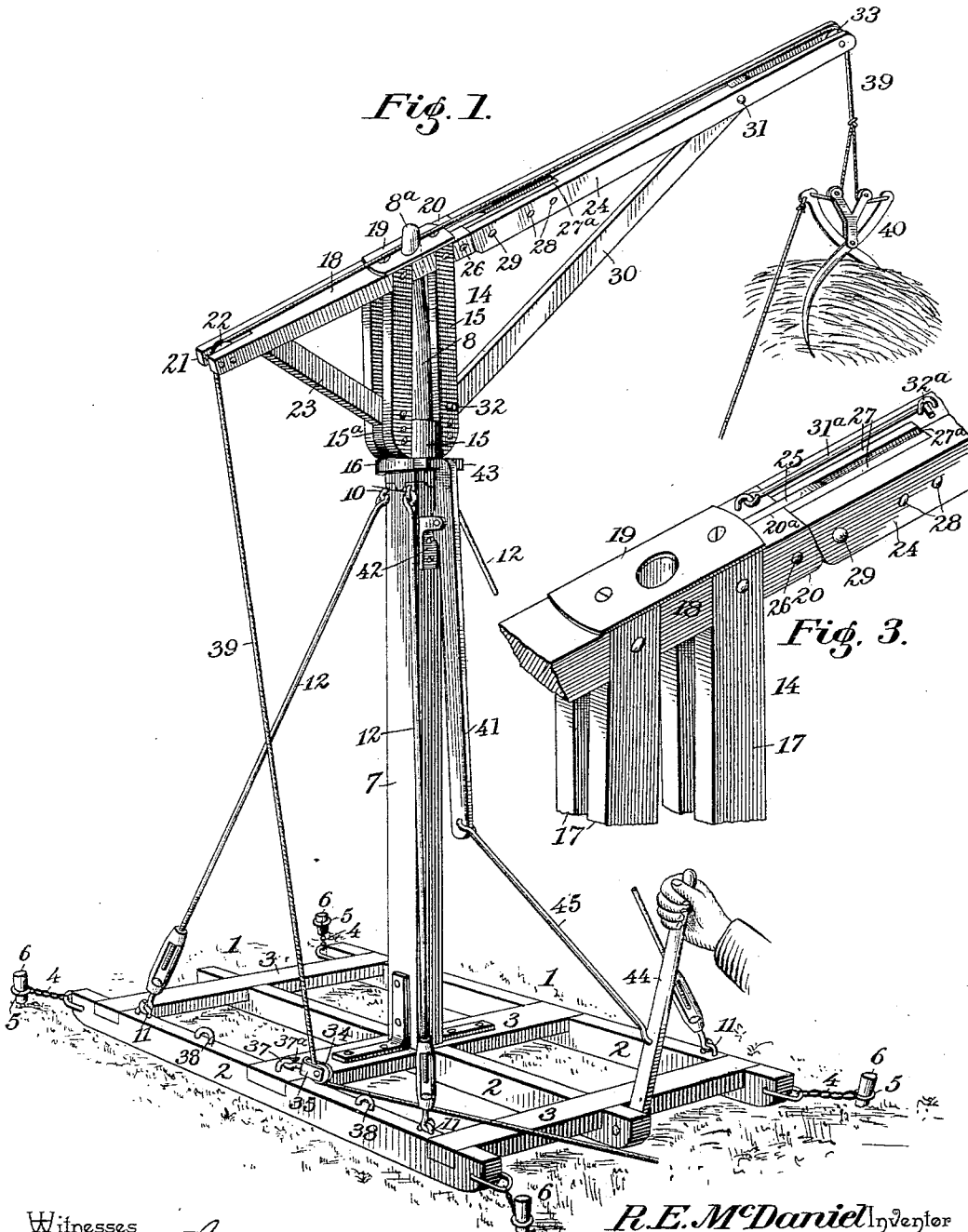
R. E. McDANIEL.  
HAY STACKER.

(Application filed Apr. 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 3.*

Witnesses

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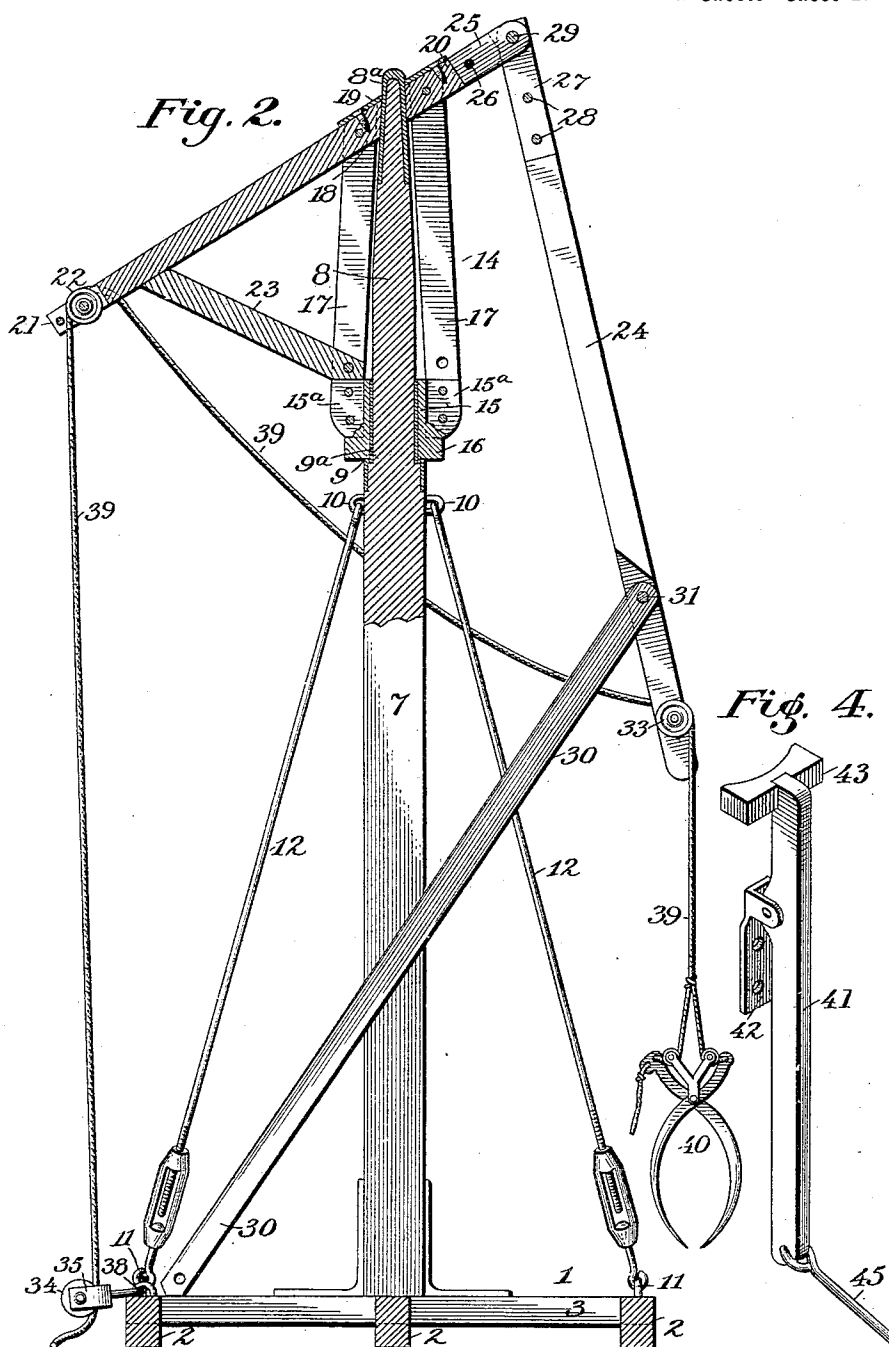
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2 Sheets—Sheet 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

REZIN E. MCDANIEL, OF VINITA, MISSOURI.

## HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 616,581, dated December 27, 1898.

Application filed April 18, 1898. Serial No. 678,039. (No model.)

*To all whom it may concern:*

Be it known that I, REZIN E. MCDANIEL, a citizen of the United States, residing at Vinita, in the county of Schuyler 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 that I have in view is to provide a portable structure in which the overhanging arm or beam and its brace may be folded compactly in relation to the standard and when adjusted for service the parts are held securely locked in position.

A further object of the invention is to provide means by which the revoluble frame that carries the overhanging arm may be held or locked in any desired position by the operator while standing on the ground, and this locking mechanism is constructed to provide powerful leverage on the braking devices, thus requiring minimum effort on the part of the attendant for holding the revoluble frame in place.

A further object of the invention is to provide means by which the strain or draft of the elevating-rope on the skid or base of the stacker may be changed to different positions, thus enabling the overhanging arm to be adjusted so as to discharge its load over the center or at either side of the hay-rick.

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

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a hay-stacker embodying my invention and showing the overhanging arm in its unfolded position for service. Fig. 2 is a vertical sectional elevation through the stacker representing the overhanging arm and its brace in their folded positions. Fig. 3 is a detail view, on an enlarged scale, of a part of the revolving frame with the overhanging arm thereof to show the joint. Fig. 4 is a detail perspective view of the brake mechanism for holding

the revoluble frame and the overhanging arm in their adjusted positions.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

1 designates the base or skid of my improved hay-stacker. This skid carries all of the working parts of the structure, and it consists, preferably, of the runners 2 and the cross-pieces 3, which are united or joined rigidly together to produce a substantial frame for the base or skid.

The stacker is designed to be anchored securely in place on the ground while it is in service, and to this end I provide the chains 4 or their equivalents, said chains having one end thereof suitably attached to the corners of the skid 1 and provided at their free ends with loops or eyes 5 to receive the stakes 6, which are driven through the eyes and into the ground. Erected centrally on this skid or base 1 is a vertical post or column 7, the lower end of which is rigidly fastened to the skid in any suitable way. This post or column is of a suitable length, and at its upper end it is constructed for the application thereto of a revolving frame, which is adapted to carry the foldable overhanging arm and the guide devices for the elevating-rope, which carries the fork or sling. Said upper end of the post or column is reduced to form a cylindrical spindle 8, which is of a diameter less than the width of the post, or, if desired, the spindle may be made separate from the post and be joined rigidly thereto in any manner approved by those skilled in the art. An annular shoulder or ledge 9 is provided between the enlarged post and the cylindrical spindle, and this shoulder is preferably faced with metal, as at 9<sup>a</sup>, to reduce wear to a minimum and provide a proper bearing for the foot-block of the revoluble frame, presently described. The cylindrical spindle 8 may be made of wood or metal; but when it is constructed of wood its upper end is shod with a metallic point 8<sup>a</sup>, which reduces wear to a minimum on the spindle and the head-block of the revolving frame. This vertical column or post 7 is braced on the skid 1 by the employment of a series of stays 12. The upper ends of the stays are suitably connected to

eyebolts 10, which are fastened on the angular part of the column or post 7, below the shoulder or ledge 9 thereon, and the lower ends of said stays are likewise attached to eyebolts 11, which are fastened to the skid 1, at or near the corners thereof. These stays 12 are adjustable and provided with turn-buckles, which may be adjusted to take up any slack that may occur in the stays, and thus keep the latter in a taut condition to securely hold the post or column 7 firmly on the skid 1. To this end I prefer to make each stay 12 in two sections or lengths, the short section of which stay is attached to one eyebolt 11 and provided with a head for engagement loosely with one end of the swivel, while the other section of the stay is attached to an eyebolt 10 and has its lower threaded end adjustably engaged with a threaded opening of the swivel, whereby the swivel may be rotated to take up slack in the stay. The detailed construction of the swivel may be varied, however, without departing from the invention.

On the reduced cylindrical spindle 8 of the fixed column or post is loosely fitted a vertical revoluble frame 14. This frame consists of a metallic foot-block 15, which is flanged, as at 16, the uprights or arms 17, and a head-block 18. The metallic foot-block 15, forming a part of the frame 14, has a central vertical opening which enables the foot-block to fit loosely on the cylindrical spindle 8, and this foot-block is adapted to occupy a compact relation to the bearing shoulder or ledge 9 for the purpose of turning freely thereon. The foot-block is furthermore provided above its circumferential flange 16 with integral radial lugs or flanges 15<sup>a</sup>, and against said lugs or flanges are fitted the uprights or arms 17. These uprights are on opposite sides of the spindle, and they may be arranged singly or in pairs. The arms or uprights are applied laterally against the lugs and the head-block, and the parts are joined or united rigidly together by suitable transverse bolts. The head-block 18 is arranged in an inclined position between the arms or uprights 17, and it is of considerable length, so as to have its opposite ends extend beyond the arms or uprights 17. Said head-block is perforated vertically for the passage therethrough of the metallic point on the upper extremity of the spindle, and it is provided with a metallic plate 19, which is suitably secured to the upper edge or face of said block, and is perforated to receive the metallic point 8<sup>a</sup> of the spindle, thus providing metallic bearings at the upper and lower ends of the revolving frame, adapted to reduce the friction and wear between the spindle 8 and said frame 14. One end of the head-block 18 is extended a short distance beyond the revolving frame, as at 20, while the other end of the head-block is prolonged or extended for a considerable distance to provide the short arm 21. In the free extremity of this short arm 21 is

loosely journaled a guide-sheave 22, and said arm is braced by an inclined strut 23, having its respective ends united rigidly to the arm 21 and to the upright or arm 17 on one side of the revolving frame.

24 designates the long overhanging arm of my stacker, and this arm is adjustably connected to the revolving frame, so that in its normal working position it is inclined in a plane coincident with the head-block 18 and the short arm 21; but said long arm and its brace 30 are connected so as to fold in a downward direction alongside of the post or column and occupy a compact relation thereto for convenient transportation. In the projecting end 20 of the head-block is provided a central kerf or recess 20<sup>a</sup>, which receives a hinge-plate 25, that is secured rigidly by bolts 26 to said projecting end of the head-block. The inner end of the long overhanging arm is likewise provided with a central kerf 27<sup>a</sup> to receive a pair of hinged plates 27, which are rigidly secured by bolts 28 to the arm 24. The hinge-plate 25 projects beyond the end 20 of the head-block, and the pair of hinge-plates 27 are spaced laterally with respect to each other within the kerf of the arm 24 to receive the protruding end of the hinge-plate 25, and these plates 25 27 are pivotally connected together, as at 29, whereby the long arm is adapted to drop down to an inverted position adjacent to the post or column 27. The hinge between the long arm and the revolving frame consists of metallic parts, which obviates wear on the arm and frame when the arm is adjusted, and this hinge is disposed centrally with respect to the arm and the head-block, so that it is concealed from view and protected by the parts. I do not limit myself, however, to the special construction of the hinge-joint, as I am aware that the same may be modified without departing from the invention.

The long arm 24 is held in its raised position to be in alinement with the inclined head-block 18 by means of a brace 30, the outer end of which is pivoted, as at 31, in a kerf or slot provided in the arm 24, while the inner end of said brace is fastened by a bolt, as at 32, to one of the uprights or arms 17 of the revolving frame, said bolt 32 being removably fitted in place to allow of the disengagement of the brace 30 from the frame 14, and thus permit the arm 24 to drop to its folded position, as shown by Fig. 2 of the drawings.

If desired, I may employ an auxiliary locking means for holding the long adjustable arm 24 in alinement with the head-block and its arm, and this locking means may consist of a rod 31<sup>a</sup>, loosely connected to the extended end 20 of the head-block and provided at its free end with a hook adapted to fit into an eye or staple 32<sup>a</sup>, rigidly fastened to the arm 24 above its pivotal joint 29 with the head-block. The long arm 24 is provided at its free end with a guide-sheave 33, which is in

alinement with the guide-sheave 22 at the lower extremity of the arm 21 on the revoluble frame.

To the skid 1 is connected a block 35, which carries a guide-sheave 34, journaled to rotate idly in said block, which is furthermore provided with a hook 37<sup>a</sup>, adapted to fit into any one of a series of staples or eyes 37 38, fastened to the skid 1. The staple or eye 37 is rigidly attached to the skid in the vertical plane of the post or column 7, while the eyes or staples 38 are arranged on the frame of the skid on opposite sides of the central staple or eye 37. When it is desired to have the stacker discharge the load centrally upon the hay-rick, the elevating rope or cable is passed through the block 35 and the latter is attached to the central eye or staple 37; but to discharge the load at one side or the other of the hay-rick the position of the block 35 on the skid 1 is shifted to one side of the vertical plane of the column 7 by connecting the hook 36 of said block to one or the other of the eyes or staples 38 on opposite sides of the eye 37. The elevating rope or cable is indicated at 39, and it passes through the block 35 and over the guide-sheaves 22 and 33 at the opposite ends of the arms on the revolving frame, and at one end this elevating-rope is provided with an ordinary hay fork or sling 40, which is equipped with a trip-rope (not shown) that leads to a point within convenient reach of the operator.

For the purpose of controlling the swinging or turning movement of the revolving frame and its arms on the spindle 8 I provide a brake mechanism which is adapted to exert considerable pressure against the metallic foot-block of the revolving frame, and this brake mechanism embodies a controlling-lever which is situated on the skid at a point within convenient reach of the operator. This brake mechanism contemplates the employment of a long lever 41, which is pivoted or fulcrumed at a point intermediate of its length in a bracket 42, rigidly secured to the fixed post or column 7 at a point below the shoulder 9 thereof. This lever 41 is fulcrumed in the bracket to provide a short upper arm and a longer lower arm, and the short upper arm carries a brake-shoe 43 with a curved working face adapted to fit firmly against the circumferential flange 16 of the metallic foot-block forming a part of the revoluble frame 14. This flange 16 of the revoluble frame constitutes a brake-disk for use in connection with the shoe of the brake-lever, and to the lower extremity of the long arm of said brake-lever 41 is loosely connected a link or chain 45, which leads to a hand-lever 44, fulcrumed at its lower end on one of the bars of the skid 1.

The operation may be described as follows: The stacker is adjusted at the proper place, and it is fastened in position by the stakes which pass through the anchor-chain. The long arm 24 having been properly adjusted

and the elevating-tackle rigged through the apparatus the strain or draft on the elevating-rope is slackened to allow the fork to descend and take up its load. The operator now moves the hand-lever 44 to apply the brake against the flanged foot-piece of the revoluble frame for the purpose of holding the frame securely in place, after which the team is started to draw the rope or cable 39 and raise the fork, together with its load. The operator may now ease up on the hand-lever to permit the frame and the parts thereon to turn the proper distance on the spindle of the post or column, and the load having arrived at the proper place over the rick the trip-cord is pulled to discharge the load from the fork 40. By connecting the block 35 to the eye or staple 37 the draft on the elevating-rope is adapted to haul the frame and overhanging arm to a position where the load will be discharged centrally upon the rick; but by changing the block 35 to one or the other of the staples or eyes 38 the load may be discharged on either side of the rick. When the apparatus is to be moved from one place to another, the long overhanging arm may be folded in compact relation to the skid and post by removing the bolt 32 and allowing the brace and arm 24 to descend to the position shown by Fig. 2. One of the important features of my improvements resides in the employment of the brake-lever 41, hung on the fixed bracket to provide the long and short arms, and this is advantageous because the lever is capable of exerting considerable force on the foot-block of the revoluble frame to securely hold the latter against turning under the strain or pull on the elevating-rope until the operator is assured that the load has been elevated a proper distance to clear the hay, after which the hand-lever 44 may be slightly released, and thus permit the frame 14 to turn under the draft. The hand-lever 44 and the trip-cord for the elevating-fork are designed to be arranged so that both parts or devices may be controlled by the operator without leaving his station.

I am aware that changes in the form and proportion of parts and in the details of construction may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of the invention, and I therefore reserve the right to make such modifications as clearly fall within the scope of the invention.

Having thus described the invention, what I claim is—

1. In a portable hay-stacker, the combination with a non-rotatable mast, of a revoluble head fitted loosely on the mast to rotate freely in a horizontal plane thereon, an overhanging arm pivoted to said revoluble head independently of the connection of the head to the mast and foldable in a vertical plane, and a brace detachably connected to the revoluble head and pivoted to the arm to be foldable therewith, substantially as described.

2. In a hay-stacker, the combination with a fixed column or post having a spindle and a revoluble frame fitted to said spindle, of a foldable overhanging arm united to the revoluble frame by a centrally-disposed hinge-joint, and a brace between said overhanging arm and a part of the revoluble frame, whereby the arm may be folded downwardly and inwardly, substantially as described.
3. A hay-stacker comprising a post or column having a bearing-shoulder and a spindle, which is fitted to said shoulder and having an inclined head-block joined to the foot-block by intermediate arms or uprights, an overhanging arm united to the head-block of said frame, and an elevating-rope guided by suitable sheaves on the frame and overhanging arm, substantially as described.
4. In a hay-stacker, a revoluble frame consisting of an inclined head-block, a metallic foot-block provided with lateral flanges or lugs, the uprights or arms rigidly joined to the head-block and the flanges of the foot-block, and a diagonal strut united to the head-block and said arms or uprights, in combination with a post provided with a spindle and a bearing-ledge to which the head and foot blocks are loosely fitted, an overhanging arm joined to the head-block, and a brace attached at one end to said overhanging arm and detachably connected at its other end to an upright or arm on the opposite side of the revolving frame to the attachment of the strut thereto, substantially as described.
5. In a hay-stacker, the combination with a spindle, of a revoluble frame having a head-block, an overhanging arm, the hinge-plates rigidly fastened in central relation to the head-block and to the overhanging arm and pivotally joined together, and a brace attached to the overhanging arm and to the revoluble frame, substantially as described.
6. In a hay-stacker, the combination with a non-rotatable spindle, of a revoluble frame having a head-block, an overhanging arm hinged to said head-block, a locking-rod which spans the hinged joint between the head-block and the arm and is detachably connected to the latter, and a brace attached to the arm and to the revoluble frame, substantially as described.
7. In a hay-stacker, the combination with a post and a revoluble frame fitted thereto, of a brake-lever fulcrumed on the post and having its short upper arm provided with a brake-shoe adapted to bear against a part of said revoluble frame, a hand-lever, and an intermediate connection between said hand-lever and the brake-lever, substantially as described.
8. In a hay-stacker, the combination with a post, of a revoluble frame loosely fitted thereto and having a metallic foot-block provided with a circumferential brake-flange, a bracket fixed to the post below said foot-block, a brake-lever hung in said bracket and having a short upper arm provided with a brake-shoe, a skid on which the post is fixed, a hand-lever fulcrumed to the skid, and an intermediate connection between the hand-lever and the long arm of the brake-lever, substantially as described.
- In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.
- REZIN E. McDANIEL.
- Witnesses:  
J. W. PAYTON,  
DAVID KELSO.