

V. L. NEY.
HAY ELEVATOR.

APPLICATION FILED JULY 5, 1910.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

980,822.

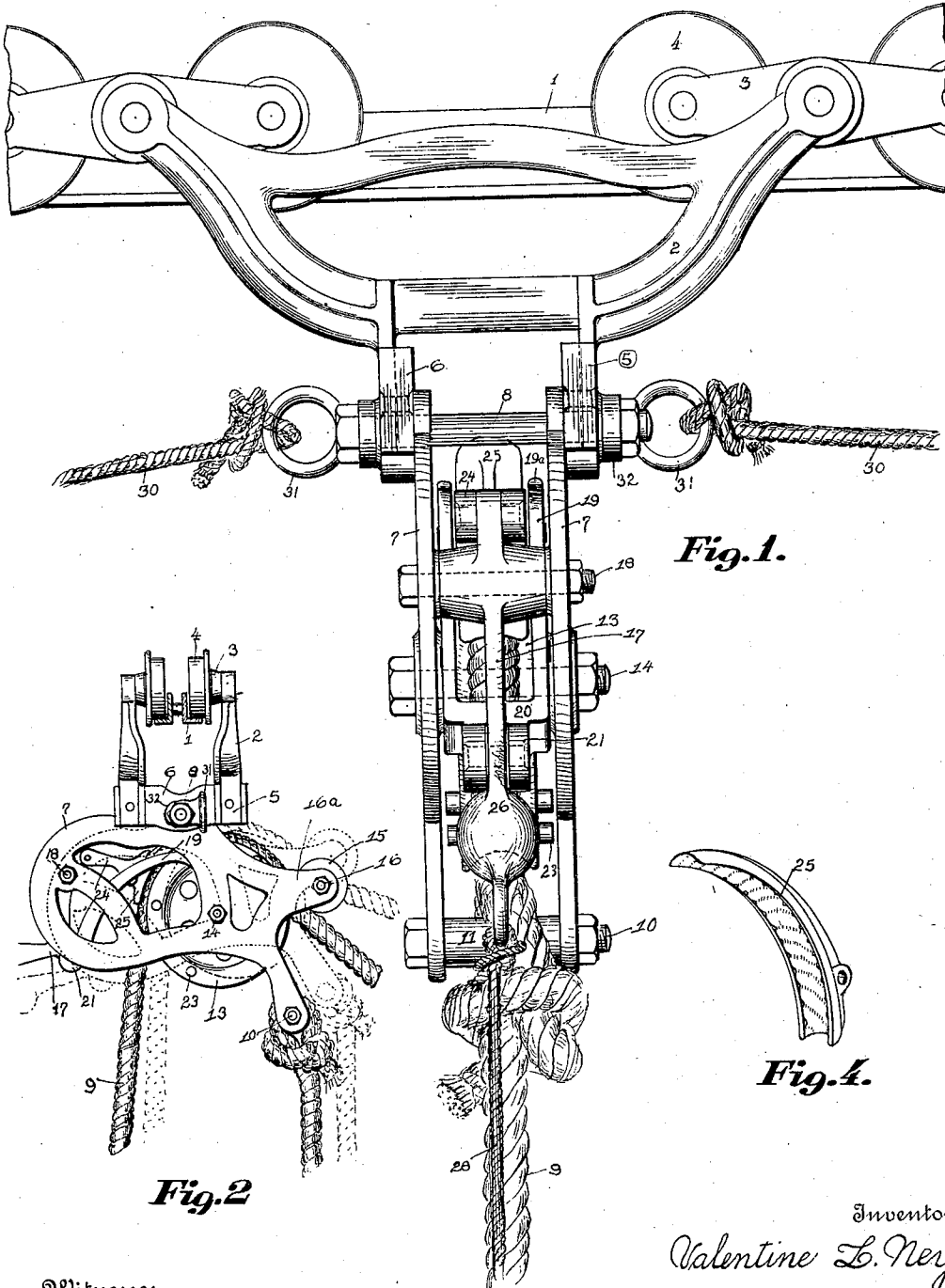


Fig. 2

Fig. 4.

Witnesses
Harry O. Rastetter
Sylvia Brown.

Inventor
Valentine L. Ney
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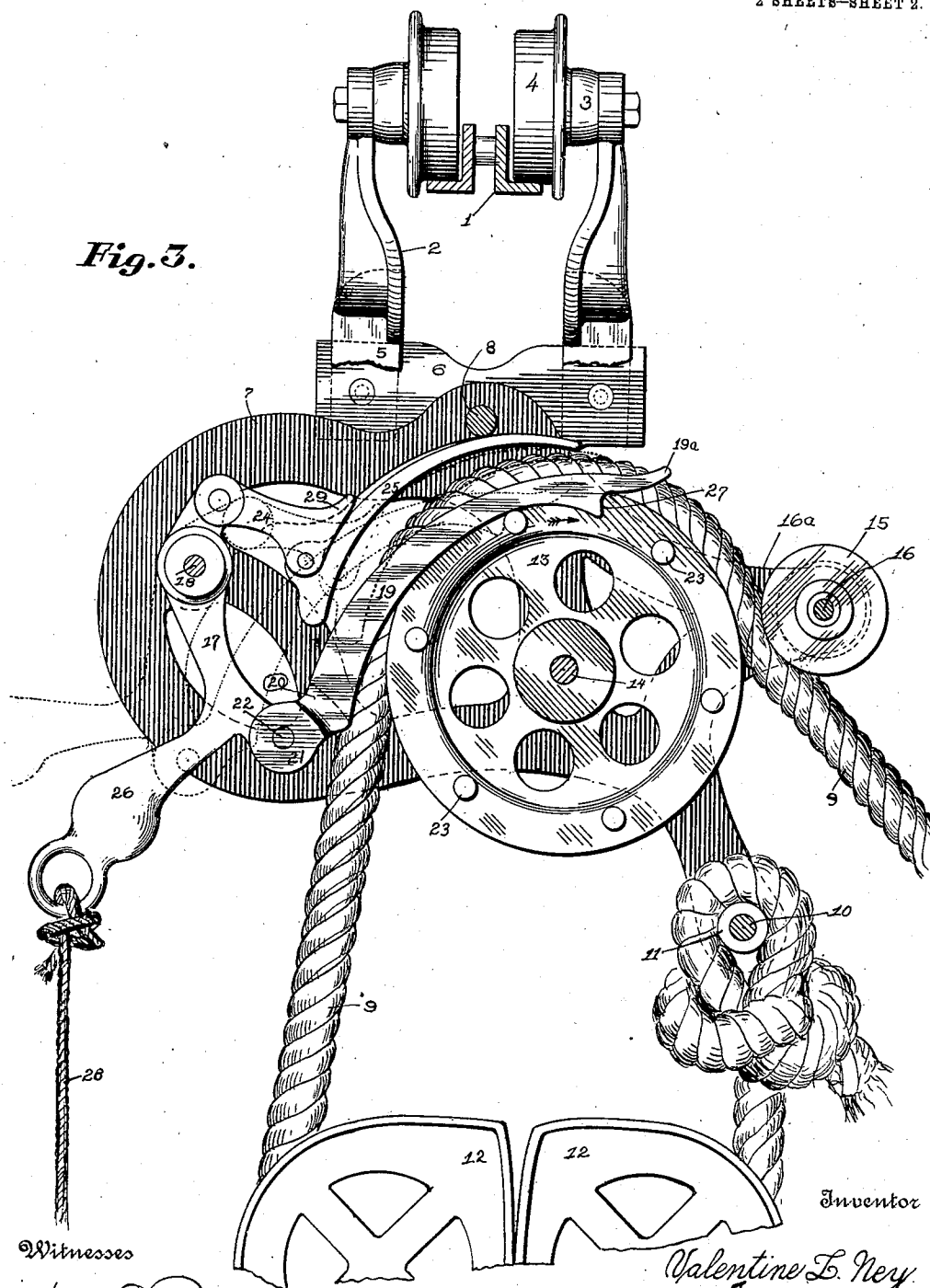
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Fig. 3.



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Inventor

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UNITED STATES PATENT OFFICE.

VALENTINE L. NEY, OF CANTON, OHIO, ASSIGNOR TO THE V. L. NEY COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

HAY-ELEVATOR.

980,822.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, VALENTINE L. NEY, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Hay-Elevators, of which the following is a specification.

My invention relates to improvements in hay elevators of the cross draft type for elevating and conveying hay and the like and more particularly intended to be used in conveying hay and other material from a wagon to a hay mow or other place of deposit.

The objects of my invention are, first, to provide a suitable overhead track or way upon which is to travel a carriage or frame; second, to provide means whereby the load can be held suspended at any desired point between the starting point of elevation and the extreme height or limit of elevation; third, to provide means to relieve the track from a direct horizontal lateral pull during the time the load is being elevated from the wagon to the desired point of elevation. I attain these objects and others by the construction and manipulation of the various parts illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of the upper carriage member or frame showing the same mounted upon a track or way and an end view of the lower or suspended member of the carriage or frame. Fig. 2 is a side elevation of the lower carriage or frame member and an end view of the upper carriage or frame member, the track being shown in transverse section. Fig. 3 is an enlarged view similar to Fig. 2 showing parts removed and other parts broken away, the parts being shown in position to release the load. Fig. 4 is a detached perspective view of the rope grip.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the track or way which may be of the usual twin-rail form or of any other desired form, reference being had to the proper mounting of the traveling carriage upon the track or way. It will be understood that this track or way is to be suspended preferably from the rafters of a barn or like structure; but in as much as the track and the

manner of suspending the same forms no specific part of the present invention, the devices commonly employed and used for suspending tracks of this nature are not illustrated. The upper carriage frame 2 is substantially of the form shown in the drawings and as shown it is provided with suitable bars 3, to which bars are journaled the traveling wheels 4, the peripheries of which traveling wheels are formed to fit upon the tread portion or portions of the track or way. The side members of the upper carriage frame 2 are provided with the downward extended plates 5, which are preferably formed integral with the upper carriage or frame. The plates 5 are tied together by means of the short cross bars 6. The lower carriage or frame consists eccentrically of two side plates 7 which side plates are spaced apart a sufficient distance to provide room for locating the various operative parts of the carrier.

The side plate 7, together with the different parts connected to and carried by said side plates are pivotally connected to the upper carriage frame by means of the bolt 8 or its equivalent, which bolt is located below the track or way 1 and substantially parallel with the length of the track and is so located for the purpose of allowing the lower carriage frame to swing or move laterally to a perpendicular line laterally with reference to the track or way so that the lower carriage frame or member can swing laterally with reference to the track or way.

It will be understood that in cross draft carriers the pull upon the elevating rope during the time the load is being elevated is lateral to the track or way, but by providing means whereby the lower carriage member is permitted to swing laterally the direct horizontal lateral pull is removed owing to the fact that when the lateral pull is taking place the lower carriage member is free to come in substantial alinement with the angularity of the elevating rope 9 or in other words the cross draft and the resistance of the load being elevated is equalized to a great extent by reason of the lower carriage member moving from a perpendicular position to an inclined or more specifically to an angle to a perpendicular line. The elevating rope 9 is secured in any convenient and well known manner to the lower carriage frame, said elevating rope being preferably at-

tached to the cross bolt 10 or more specifically to the sleeve 11 located upon said cross bolt 10.

5 The elevating rope 9 extends downward through the elevating heads 12 or their equivalents, which elevating heads or blocks are provided with ordinary pulleys, said elevating rope thence extended upward over and upon the circumferentially grooved pulley 13, which grooved pulley is properly 10 journaled upon the cross bolt 14, which cross bolt is located substantially parallel with the length of the track or way 1, by which arrangement the pulley is located at substantially right angles to said track or way. 15 The elevating rope extends from the pulley to the proper point where power is to be applied, which is usually horse power; that is to say the usual means are provided for hitching a horse or horses to the elevating rope 9. It will be understood that the present invention has no reference to the particular manner of operating the elevating rope.

25 For the purpose of assisting in holding the elevating rope 9 in proper relative position with reference to the pulley 13, the pulley 13 is provided, which is properly journaled upon the cross bolt 16, said cross bolt 30 being held by suitable apertures formed in the arms 16^a, which arms are preferably formed integral with the side plates 7. Between the side plates 7 is located the rock bar 17, which rock bar is pivotally mounted 35 upon the cross bolt 18, said cross bolt being properly connected to the side plates 7. To the bottom or lower portion of the rock bar 17 is pivotally connected the rope grip actuating arms or fingers 19, which fingers are 40 spaced from each other and normally located upon opposite sides of the faces of the pulley 13. The arms or fingers 19 are tied together and held in proper relationship with reference to each other by the integral 45 head 20, which head is provided with the ears or flanges 21, said ears or flanges providing means for pivotally connecting the arms or fingers to the rock bar 17 by a suitable cross bolt 22. The side faces of the 50 pulley 13 are provided with a series of pins 23, which pins are located near the periphery of said pulley and are for the double purpose hereinafter described. To the top or upper end of the rock bar 17 is pivotally 55 attached the link 24, to which link is pivotally attached the rope grip 25, said rope grip being curved longitudinally, the curvature corresponding or substantially corresponding with the curvature of the wheel 13 or in 60 other words, said rope grip is substantially concentric with the pulley, so that the entire length of the rope grip can be utilized to clamp the elevating rope as hereinafter described.

65 It will be understood that the contact face

of the rope grip should be concaved as illustrated in Fig. 4 and is so formed for the purpose of better gripping the rope. It will be understood that during the time the load is being elevated, the elevating rope will impart rotary motion to the pulley 13 and during the time rotary motion is imparted to the pulley 13 the pins 23 will come under the fingers 19, said fingers resting upon the pins. 70 It will also be understood that during the time the load is being elevated the top portion of the pulley will move to the right or in the direction indicated by the arrow Fig. 3. For the purpose of automatically holding the rope grip 25 out of frictional contact 80 with the elevating rope during the time a load is being elevated, the weighted arm 26 is provided, which weighted arm has a tendency to rock the rock bar 17 in the direction to move its top or upper end away from 85 the pulley 13 and carry with it the rope grip 25. The outer free end of the rope grip during the time the load is being elevated lies loosely upon the elevating rope but in such a manner that it does not interfere in any 90 way with the movement of the elevating rope during the time a load is being elevated. When a load has been elevated to any desired point and it is desired to hold the load in elevation the pull upon the elevating rope is 95 released, thereby permitting the load to descend by its own weight a short distance, at which time the pulley 13 rotates in the opposite direction from that during the time the load is elevated, or in other words a backward movement is imparted to said pulley. 100 As the pulley 13 moves backward one set or pair of the pins 23 will engage the shoulders 27 formed upon the fingers 19 and as the pulley 13 moves backward, said fingers will 105 be moved in the direction of the movement of the pulley which moves the bottom or lower end of the rock-bar 17 away from the pulley 13 and forces the top or upper end of said rock-bar toward the pulley, which 110 movement forces the rope grip 25 upon the elevating rope 9, thereby gripping the rope between the pulley and the grip rope, which gripping prevents the further descent of the load. 115

It will be understood that the load can be held at any point of elevation between its starting point and the extreme height or upward limit of the load, owing to the fact that by releasing the pull upon the elevating rope 120 9 the elevating rope will be automatically gripped as just above described, regardless of the suspended position of the load. If in the event it is desired to lower a load the rope grip 25 is released by a down pull of the 125 weighted arm 26 by means of the trip rope 28, which trip rope is extended downward to a point of suitable access. It will be understood that during the time the rope grip 25 is being brought into position to grip or 130

clamp the elevating rope, the weighted arm 26 will be elevated at its outer end as illustrated in dotted lines Fig. 3, which elevation takes place by means of the rocking movement imparted to the rock bar 17.

For the purpose of preventing the rope grip 25 from moving upon its pivotal point when pressure is brought upon said rope-grip to grip the rope the link 24 is provided with the foot 29, which foot is extended over a portion of the rope-grip 25 and presses upon the outer face of the rope grip when the rock-bar 17 is moved in the direction to clamp the elevating rope 9. For the purpose of moving the carriage back and forth upon the track or way either for the purpose of conveying a load or to bring the carriage directly above the point from which a load is to be elevated the pull ropes 30 are provided which are preferably connected to the rings 31, which rings are preferably connected to the short cross bars 6 by means of the connecting flanges 32. It is immaterial as to the specific manner of connecting the pull ropes 30 to the carriage proper as the only purpose is to so connect the pull ropes that a direct pull can be given to the carriage. It will be understood that the pull ropes 30 are to be extended to any desired point of suitable access.

The pins 23 or their equivalents should be so spaced from each other that one or more of said pins will lie under the arms or fingers 19, so that at no time said fingers will be permitted to fall by gravity into such a position that the pins or their equivalents will not come into proper contact with the shoulders 27 or their equivalents. For the purpose of preventing any of the pins 23 from passing above the upper free end of the fingers 19 the outer ends of said fingers are curved upwardly or provided with the upward curved ends 19^a.

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

1. In a hay elevator of the cross draft type, the combination of a track or way, a carriage adapted to travel upon said track or way consisting of upper and lower frames, said frames pivoted together axially parallel with the length of the track, said lower carriage frame provided with an elevating rope, a pulley located at substantially right angles to the length of the track, said elevating rope extended laterally from the track and from the pulley, means carried by the lower carriage frame for gripping the elevating rope, and means carried by the lower carriage frame for releasing the elevating rope, substantially as and for the purpose specified.

2. In a hay elevator of the class described, a track or way, a carriage adapted to travel thereon, said carriage consisting of upper

and lower frame members, said frame members pivoted together axially with the length of the track, said lower carriage frame provided with a grooved pulley, an elevating rope located in the grooved pulley and secured to the carriage, a rope grip pivotally connected to the lower carriage frame and adapted to grip the elevating rope upon the grooved pulley and means adapted to actuate the rope grip by the backward movement of the grooved pulley, substantially as and for the purpose specified.

3. In a hay elevator of the class described, a track or way, the carriage adapted to travel thereon, said carriage provided with a grooved pulley, an elevating rope located in the groove of the pulley and secured to the carriage, a rock bar pivoted intermediate its ends, shouldered fingers connected to one end of the rock bar and a link pivoted to the opposite end of said rock bar, a rock grip pivotally connected to the aforesaid link and means carried by the grooved pulley adapted to actuate the fingers and means intermediate the fingers and rope grip adapted to actuate said rope grip, substantially as and for the purpose specified.

4. In a hay elevator of the cross draft type, the combination of a carriage consisting of upper and lower frames, said frames hinged together and the lower frame adapted to swing, a grooved pulley carried by the lower carriage frame, an elevating rope located in the groove of the pulley, said elevating rope secured to the carriage, a rock bar pivoted intermediate its ends, fingers pivotally connected to said rock bar, means for actuating the fingers by the backward movement of the grooved pulley and a rope grip adapted to be actuated by the rock bar, substantially as and for the purpose specified.

5. In a hay elevator of the class described, a track or way, a carriage adapted to travel upon the track or way, said carriage consisting of upper and lower frames hinged together axially with the length of the track, said carriage provided with a grooved pulley, an elevating rope located in the groove of the grooved pulley and secured to the carriage, a rock bar pivoted intermediate its ends, said rock bar provided with a weighted arm, a trip rope connected to said weighted arm, a rope grip adapted to be actuated by the rock bar and means for actuating the rock bar by the back movement of the grooved pulley, substantially as and for the purpose specified.

6. In a hay elevator, the combination of a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames hinged together, the lower hinged frame provided with a rope elevating pulley, said pulley provided with spaced pins, fingers adapted to be actuated by the pins on the rope elevating pulley, a rock

bar pivotally attached intermediate its ends to the lower carriage frame, a link pivotally connected to the rock bar, a rope grip pivoted to the aforesaid link and the fingers actuated by the pins pivotally connected to the rock bar and an elevating rope connected to the lower carriage frame and located in the groove of the rope elevating pulley, substantially as and for the purpose specified.

7. In a hay elevator of the class described, a track or way, a carriage consisting of two frames hinged together, the upper frame provided with traveling wheels, said traveling wheels mounted upon the track or way, the lower frame provided with a grooved pulley, an elevating rope located in the groove of the grooved pulley and secured to the said lower frame, a rock bar pivoted intermediate its ends, a link adapted to be actuated by the rock bar, a rope grip actuated by the link, said rope grip pivotally connected to said grip and said link provided with a pressure foot, said pressure foot adapted for contact with the rope grip and means carried by the grooved pulley adapted to actuate the rope grip during the backward movement of the grooved pulley, substantially as and for the purpose specified.

8. In a hay elevator of the cross draft type, a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames, the upper frame provided with traveling wheels, the lower frame provided with means for elevating a load and means for holding the load in suspension, the upper and lower frames of the carriage hinged together, parallel axially with the length of the track or way and in alinement with the travel of the carriage upon the track or way, substantially as and for the purpose specified.

9. In a hay elevator of the cross draft type, a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames, said lower frame provided with a grooved pulley, an elevating rope located in the groove of the pulley and secured to the lower frame, said upper and lower frames hinged together parallel axially to the length of the track or way and the lower frame adapted to swing in the direction of the pull of the elevating rope, substantially as and for the purpose specified.

10. In a hay elevator of the class described, a track or way, a carriage adapted to travel upon said track or way consisting of upper and lower frames, said frames pivoted together axially parallel with the length of the track, said lower carriage frame provided with an elevating rope, a grooved pulley carried by said lower frame and located

at substantially right angles to the length of the track, said elevating rope located in the groove of the grooved pulley and extended laterally from the track and from the pulley and means carried by the lower carriage frame adapted to grip the elevating rope, substantially as and for the purpose specified.

11. In a hay elevator of the class described, a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames, pivoted together axially parallel with the length of the track, said lower frame provided with a grooved pulley, said grooved pulley provided with pins located upon the side faces thereof, an elevating rope located in the groove of the grooved pulley and secured to the lower frame of the carriage, a rock bar pivoted intermediate its ends, fingers pivotally connected to one end of the rock-bar, said fingers provided with shoulders and the pins adapted for contact with said shoulders, a rope grip adapted to grip the elevating rope and a link pivoted to said rope grip and rock bar respectively, substantially as and for the purpose specified.

12. In a hay elevator, the combination of a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames, said frames pivoted together axially parallel with the length of the track, said lower frame provided with a grooved pulley, an elevating rope located in the groove of the pulley and secured to the lower frame, said lower frame adapted to swing with reference to the upper frame laterally to the length of the track and means for gripping the elevating rope by the weight of a suspended load, substantially as and for the purpose specified.

13. In a hay elevator of the cross draft type, a track or way, a carriage adapted to travel thereon, said carriage consisting of upper and lower frames, said lower frame provided with a grooved pulley, an elevating rope secured to the lower frame and located in the groove of the pulley, said upper and lower frames hinged together parallel axially to the length of the track or way and the lower frame and the parts carried thereby adapted to swing in the direction of the pull of the elevating rope and means for gripping the elevating rope by the backward movement of the grooved pulley, substantially as and for the purpose specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

VALENTINE L. NEY.

Witnesses:

SYLVIA BORON,
F. W. BOND.