

T. RHOADS.

HOISTING AND TRAMMING MACHINES.

No. 183,776.

Patented Oct. 31, 1876.

Fig. 1.

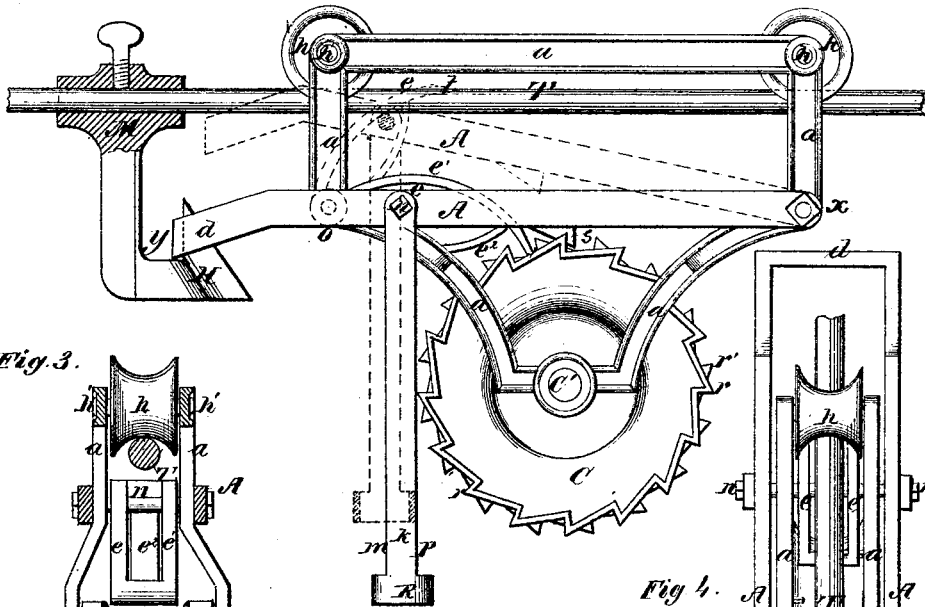


Fig. 3.

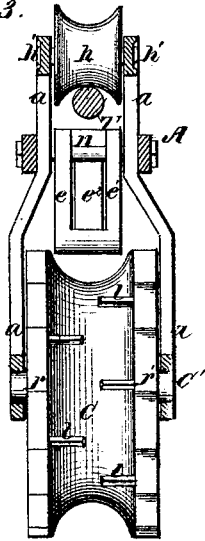


Fig. 4.

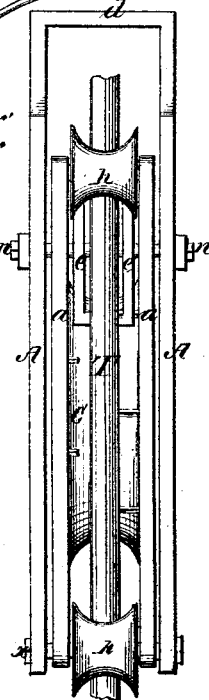


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS RHOADS, OF OTTAWA, ILLINOIS, ASSIGNOR OF ONE-HALF HIS
RIGHT TO EDWIN N. LEWIS, OF SAME PLACE.

IMPROVEMENT IN HOISTING AND TRAMMING MACHINES.

Specification forming part of Letters Patent No. 183,776, dated October 31, 1876; application filed
January 21, 1876.

To all whom it may concern:

Be it known that I, THOMAS RHOADS, of Ottawa, La Salle county, Illinois, have invented an Improved Hoisting and Trimming Machine.

The following is a description of said machine.

The same letters indicate the same parts of the machine throughout the specification.

The shell of the carrier consists of a skeleton frame, one side of which is shown in Fig. 1, where *a a a a* mark the different pieces of which the side is formed. The other side of the frame is precisely similar, and the two sides are placed at a sufficient distance apart to permit the insertion of the rollers *h h* and the ratchet-wheel *C*.

Fig. 3 gives a transverse section of said frame, the side pieces being marked *a a a a*. Each side of the frame is cast in one piece, and the two sides are held together by the bolts *h' h'*, which also form the axes of the rollers *h h*, and by the bolt *C'*, which is also the axis of the ratchet-wheel *C*. The said rollers are placed at the two upper corners of the frame, as shown, and are grooved to run on the tram-rod *T*, which may be about three-fourths of an inch in diameter.

The side pieces of the carrier are bent outwardly, as shown in Fig. 3, near the bottom, to admit the wide ratchet-wheel *C*, which revolves on the bolt *C'*. It is grooved to receive a rope or chain. On the edges of the wheel are cut ratchets—those on one edge facing in an opposite direction from those on the other, as indicated in Fig. 1 by *r* and *r'*. The groove may have lugs raised on its surface, *l*, Fig. 3, to prevent the rope or chain from slipping.

A, Fig. 1, is one side bar of the compound latch, (the latch being also indicated by *A* in this specification.) There is another side bar of precisely similar shape on the other side of the frame, and the two are united by the short cross-bar or latch *d*, Fig. 4. (This figure shows both the side bars also of the compound latch, which consists of the two side bars and the cross-bar, as shown.) The compound latch is pivoted to one of the lower corners of the oblong part of the frame by the bolt *X*, (its side bars inclosing said frame,) and extends beyond the other end of the carrier, as shown in

Fig. 1. The side bars of the compound latch are bent downward near the free end, as shown. On one of the side bars of the said compound latch is the pawl *S*, which is rigidly attached to said side bar, and extends inward nearly to the groove in *C*. This pawl is designed to engage with the ratchets on one side or the other of *C*, according as the compound latch is pivoted to one or the other of the lower corners of the oblong portion of the carrier-frame. It so engages when the compound latch is in a horizontal position, and disengages from the ratchet when the said latch is lifted, as shown by the dotted lines in Fig. 1.

One end of the skeleton pawl *l*, Fig. 1, is pivoted between the sides of the carrier by the bolt *o*, Fig. 3. It consists of either two or three pieces, the ends of which are joined, and which are so separated toward the center as to form the oval-shaped figure, a side view of which appears in Fig. 1, showing the opening between the upper and lower pieces, which form the pawl.

In Fig. 3 *e* is the skeleton pawl, formed by the pieces *e' e'* on one side, and the single piece *e''* on the other, with an opening between the two sides, as shown in Fig. 1. The use of two bars to form the upper side of this pawl is preferable, as when lifted, as hereafter shown, against the tram-rod, the rod lies between the two bars.

The free end *t* of the skeleton pawl is so shaped that when it is depressed and comes in contact with the rope passing over *C*, it will hold said rope from slipping back.

The trip *K* is composed of the hollow ring *R*, (which is shown in Fig. 2,) and the two side bars *p p*, which are rigidly attached to opposite sides of the ring, and extend upward to the compound latch *A*. One of these side bars is pivoted to each side bar of said latch by the bolt *n*, shown in Figs. 1 and 3, so that when the trip is pushed upward the compound latch is raised to the position indicated by the dotted lines in Fig. 1.

It will be noticed that the trip *K* is attached to the compound latch between the free end of the latter and the end which is pivoted to the carrier-frame.

The bolt in Figs. 3 and 1, which pivots the side bars of the trip to the latch *A*, passes through the skeleton pawl between the upper

and lower bars of it, so that when the trip is lifted, raising the latch A, as aforesaid, the bolt *n* lifts against the upper bars of the pawl *e*, and causes the free end of the pawl *t* to rise, as shown by the dotted outline of the pawl in Fig. 1, and when the latch A is depressed to a horizontal position, the bolt *n* brings down the end *t* of said pawl near the groove in C.

Fig. 1 shows a sectional view of the hooked collar M, which is fastened upon the tram-rod T, as shown in Fig. 1, and which terminates below the rod in the hook H, which is designed to engage with the cross-bar *d* of the compound latch. The hook H is so constructed that said compound latch will be free from it when lifted into the position indicated by the dotted lines.

The operation of the machine is as follows: The tram-rod T is extended over the bay of the barn or other place where it is desired to deposit the hay or other material to be unloaded. This rod is fastened at the ends only, leaving the remainder unobstructed, and may be fixed with one end a little higher than the other, and at any convenient height. The carrier is placed upon the tram-rod, so that the grooved rollers *h* rest on the rod and run on it. At a point on the rod near the place where the material to be unloaded or transported is situated, the hooked collar M is fastened in the position shown in Fig. 1. A rope or chain of sufficient length is passed upward through the trip-ring R, (Figs. 1 and 2,) between the side bars of the trip and over the ratchet-wheel C in its groove. To the end of this rope, which is below the trip-ring, the hay-fork or other lifting utensil is attached, and above this, at the proper distance, (as hereafter explained,) a knot or other tripping device is placed, this being so large that it cannot pass through the trip-ring when the rope is drawn over the ratchet-wheel to raise the fork or bucket. The carrier is run along on the rod to the collar, and the compound latch is engaged with the hook H, as shown in Fig. 1, and the carrier is thus held in place. The free end of the rope or chain beyond the ratchet-wheel may pass over pulleys, if desired, and the lifting power is attached to it. The carrier being thus held firmly in place the fork is thrust into the hay to be unloaded, (or whatever the substance may be,) and the lifting power applied to the other end of the rope or chain. The load is thereby lifted as the rope runs up between the trip-bars and over the ratchet-wheel, until the knot or other tripping device is drawn up to the trip-ring. As it cannot pass through the ring the upward strain continuing raises the trip, which, in its turn, lifts the compound latch and disengages it from the collar-hook H. As soon as this occurs the same power which lifts the load, draws the carrier (now free) away from the collar. As soon as the carrier begins to travel on the rod, the weight of the load, trip, &c., carries the compound

latch (which has been lifted into the position shown by the dotted lines, Fig. 1) back to its original horizontal position. This, by means of the bolt *n*, depresses the skeleton pawl *e*, so that its free end *t* jams down upon the rope and holds it from slipping back on the ratchet-wheel, and at the same time the pawl *s* on the latch engages with a ratchet on the wheel C, and holds the wheel from turning back. The lifting power is now applied merely to draw the carrier along the tram-rod until the spot is reached where the load is to be dumped. When this has been accomplished the carrier is drawn back along the rod by a light rope or other device, until the compound latch strikes upon and is engaged again with the hooked collar, when the operation is repeated.

When a chain is used, the lugs *e* on the groove of the ratchet-wheel and the short pawl *s*, which hold the wheel, will keep both the chain and wheel in place, and the skeleton pawl may be dispensed with.

If it is desired to run the carrier in the opposite direction, the collar M is moved to or near the other end of the rod, the compound latch and the skeleton pawl are both reversed by changing their fastening-bolts to the opposite end of the carrier. When this is done the short pawl engages with the ratchets on the other side of the ratchets, the reversed ratchets enabling the compound latch to be attached to either end of the carrier. The bolts *h'*, which form the axes of the rollers, may be made with nuts and shoulders, so that they can be removed, and the carrier can be taken off or put on the rod by taking the rollers out.

I claim as my invention—

1. The compound latch A, in combination with the carrier-frame, the short pawl *s*, the ratchet-wheel C, the trip K, and the hooked collar M, substantially as described, and for the purpose specified.

2. The bolt *n*, in combination with the trip K, the compound latch A, and the skeleton pawl *e*, substantially as described, and for the purpose specified.

3. The ratchet-wheel C, with the ratchets on one edge-facing in an opposite direction from those on the other, in combination with the pawl S, the compound latch A, the pawl *e*, the trip K, and the carrier-frame, substantially as described, and for the purpose specified.

4. The carrier-frame, consisting of the two side pieces, in combination with the rollers, the ratchet-wheel, the pawls S and *e*, the compound latch, the trip and the hooked collar, substantially as described, and for the purpose specified.

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Witnesses:

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