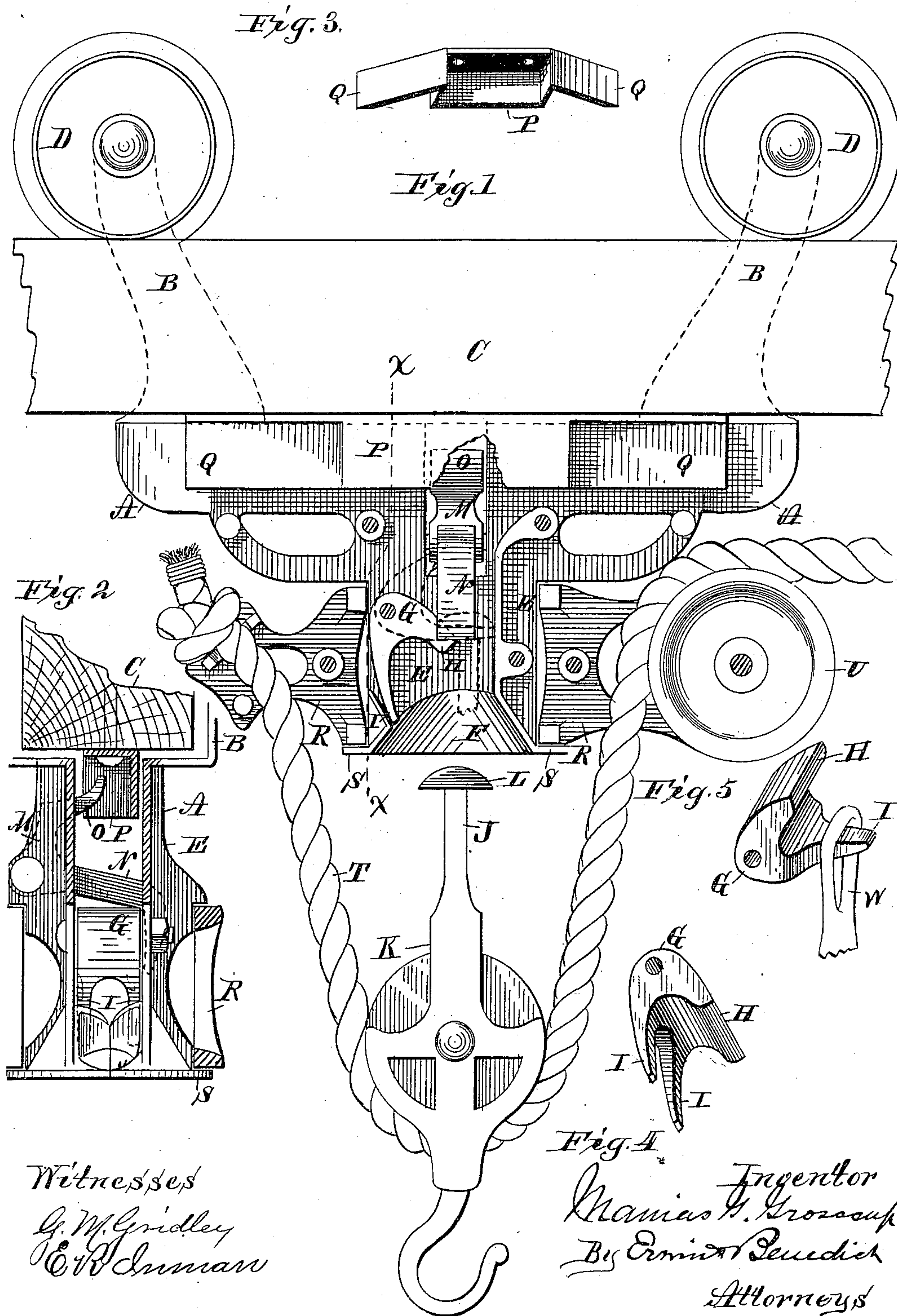


(No Model.)

M. G. GROSSCUP.  
HAY ELEVATOR AND CARRIER.

No. 345,229.

Patented July 6, 1886.





# UNITED STATES PATENT OFFICE.

MANIAS G. GROSSCUP, OF MILWAUKEE, WISCONSIN.

## HAY ELEVATOR AND CARRIER.

SPECIFICATION forming part of Letters Patent No. 345,229, dated July 6, 1886.

Application filed January 21, 1886. Serial No. 189,245. (No model.)

*To all whom it may concern:*

Be it known that I, MANIAS G. GROSSCUP, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Hay Elevators and Carriers; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention, to be hereinafter distinctly claimed, relates to that class of hay elevators and carriers which are reversible, being adapted to run in both directions on the supporting-rail, the device to which the hoisting and moving power is attached being swiveled to the carrier, or the carrier being otherwise reversible, and in which carrier the tackle-grappling mechanism and the carrier-locking devices operate automatically.

The functions and object of my mechanism will be understood from the description of its construction and operation.

In the drawings, Figure 1 is a vertical longitudinal elevation of my entire elevator and carrier, the front side being omitted to show the details of the mechanism more fully. Fig. 2 is a vertical cross-section of the carrier on line *xx* of Fig. 1. Fig. 3 is the stop removed from the rail, to the under side of which it is affixed when in use. Fig. 4 is a perspective of the grapple. Fig. 5 is a modified form of grapple and tackle-head.

The same letters refer to like parts in all the views.

The frame of the carrier, A, is constructed in two parts riveted together at the lower part, and having four upwardly-projecting arms, B B, in pairs opposite each other straddling the rail C, each arm having pivoted at its upper outer extremity a flanged wheel, D, adapted to run on the supporting-rail C. The frame A terminates downwardly in a central neck, E, having a downwardly-opening outwardly-flaring mouth, F. Within the neck the bent or U-shaped grapple G is pivoted a little at one side of the central vertical opening through the neck, and so located that its arms H and I will separately swing into and across said vertical opening, and is so pivoted at its angle to the

neck E that its arms will by gravity tip downwardly inwardly into the position shown in Fig. 1, the arm I resting on part of the neck E, and the arm H extending into the vertical central opening of the neck E, just above its mouth F. The arm I of the grapple G is bifurcate and adapted to straddle the neck J of the tackle-block K, and to clutch and hold the head L above its bifurcate fingers, and the grapple G is so pivoted as to swing parallel with the length and line of motion of the carrier.

Just above the grapple G a bent or V-shaped latch, M, is pivoted at its angle in one side of the neck E, being so located that its lower arm, N, extends across the vertical central opening in the neck E at right angles to the line of motion of the grapple G and of the carrier. The arm N of the latch M by gravity drops down, and its outer free end rests upon the side of the neck E in a slot therefor, while when the arm N so rests upon the side of the neck E the arm O projects upwardly and inwardly partly across the central vertical opening in the neck E, as shown and indicated in Fig. 2.

The arm N, when resting down on the side of the neck E, is within the arc described by the outer end of the arm H of grapple G, so that when the arm H is below the arm N and the arm H is forced upward it will strike against and raise the arm N sufficiently to pass by it, and then, when released, the arm N will fall, and the arm H, swinging forward, will impinge against and be held by the arm N until the arm N is raised by the arm O being driven against and forced back by impinging against the incline Q.

A stop, P, having a lateral recess or socket and laterally-inclined wings Q Q, or approaches to the recess, is affixed to the under side of the rail C, at a point directly over the place at which the hay is to be elevated. This stop P is so placed on the rail C that when the carrier traveling on the rail comes to it the arm O of latch M will impinge against the incline Q, and as the carrier moves forward the arm O will be forced back from within the central vertical opening in the neck E, raising the arm N at the same time, until the arm O comes opposite the recess in the stop, when



the gravity of the latch M will cause the arm N to drop again, throwing the arm O into the recess of the stop, locking the carrier at that point on the rail.

5 A horizontally-swinging arm, R, is centrally pivoted about the neck E, and is supported and rides upon a flange, S, rigid to the lower end of the neck E. The hoisting-rope T is attached to one end of the arm R, and, passing down  
10 around the pulley of the tackle-block, is carried over the pulley U, pivoted in the outer end of the arm R.

It will be seen that to reverse the direction of the motion and operation of the carrier it is  
15 only necessary to swing the arm R half-way round and carry the free end of the hoisting-rope to the other side and apply the power thereto in such opposite direction to accomplish its reverse operation and movement.

20 The operation of the carrier is as follows: The carrier being located on the rail over the load to be raised, and the arm O of the latch M being within the recess of the stop P, and the tackle K below the carrier, all in the position shown in Fig. 1, then when the power is  
25 applied to the free end of the hoisting-rope to elevate the tackle and its load the head L will enter the mouth F, and, rising against the arm H, will force it up, raising the arm N and releasing the arm O from the stop P, permitting the carrier to travel forward on the rail in the direction drawn by the power applied to the  
30 hoisting-rope, and at the same time that the arm H is raised by the force applied through head L the bifurcate arm I will be turned in astride the neck J and will clutch beneath the head L, and the arm O, by the forward movement of the carrier, having passed away from the stop P, and the arm H being forced up-  
40 ward past and to the side of the arm N, the arm N, being thereby freed, will by gravity drop down in front of the end of arm H, and the rope T being slackened the tackle will be held and retained in the carrier by the bifurcate fingers of arm I, clutched beneath the head  
45 L. On reversing the travel of the carrier and running it back to the stop P, the arm O will impinge against the incline Q and be forced back, raising the arm N and releasing the  
50 grapple G, permitting the tackle to drop out of the clutch of the arm I.

A modified form of grappling device is

shown in Fig. 5, in which the arm I of the grapple G consists of a single finger adapted to hook into the bail W on the tackle, the bail  
55 being used instead of the neck J and head L.

I do not wish to confine my locking and grappling devices to use in a carrier having a swiveled arm, R, for those devices are equally applicable to any carrier of similar construction  
60 though not reversible.

The laterally opening and operating stop P is a valuable improvement over the vertically opening and operating stop heretofore in use, as by wear or shrinkage of the rail it has heretofore frequently occurred that the carrier  
65 was thereby so let down that its latch would pass the stop on the rail and not catch in it; but my improved stop and latch may be so constructed with such an excess of impinging surface as to provide against a large amount of wear or shrinkage.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a traveling hay-carrier, the frame A, 75 in combination with a longitudinally-swinging grapple, G, a latch, M, having two arms at an angle to each other, the latch being pivoted at its angle to the frame of the carrier, and the inclines Q Q on the supporting-rail, against  
80 which the latch M is adapted to impinge, substantially as described.

2. The rail C and the thereto-affixed stop P, provided with lateral inclines and recess, in combination with the frame of a traveling  
85 carrier, the angle-shaped two-armed latch M, pivoted in the frame, and a longitudinally-swinging grapple, G, substantially as described.

3. In a hay-carrier, the supporting-frame A, 90 the thereto-pivoted two-armed latch M, and the longitudinally-swinging grapple G, in combination with the horizontally-swinging arm R, pivoted about the neck of the frame A, and the tackle-block K, provided with  
95 means for being grappled by the arm I of grapple G, substantially as described.

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

MANIAS G. GROSSCUP.

Witnesses:

C. T. BENEDICT,  
E. R. INMAN.