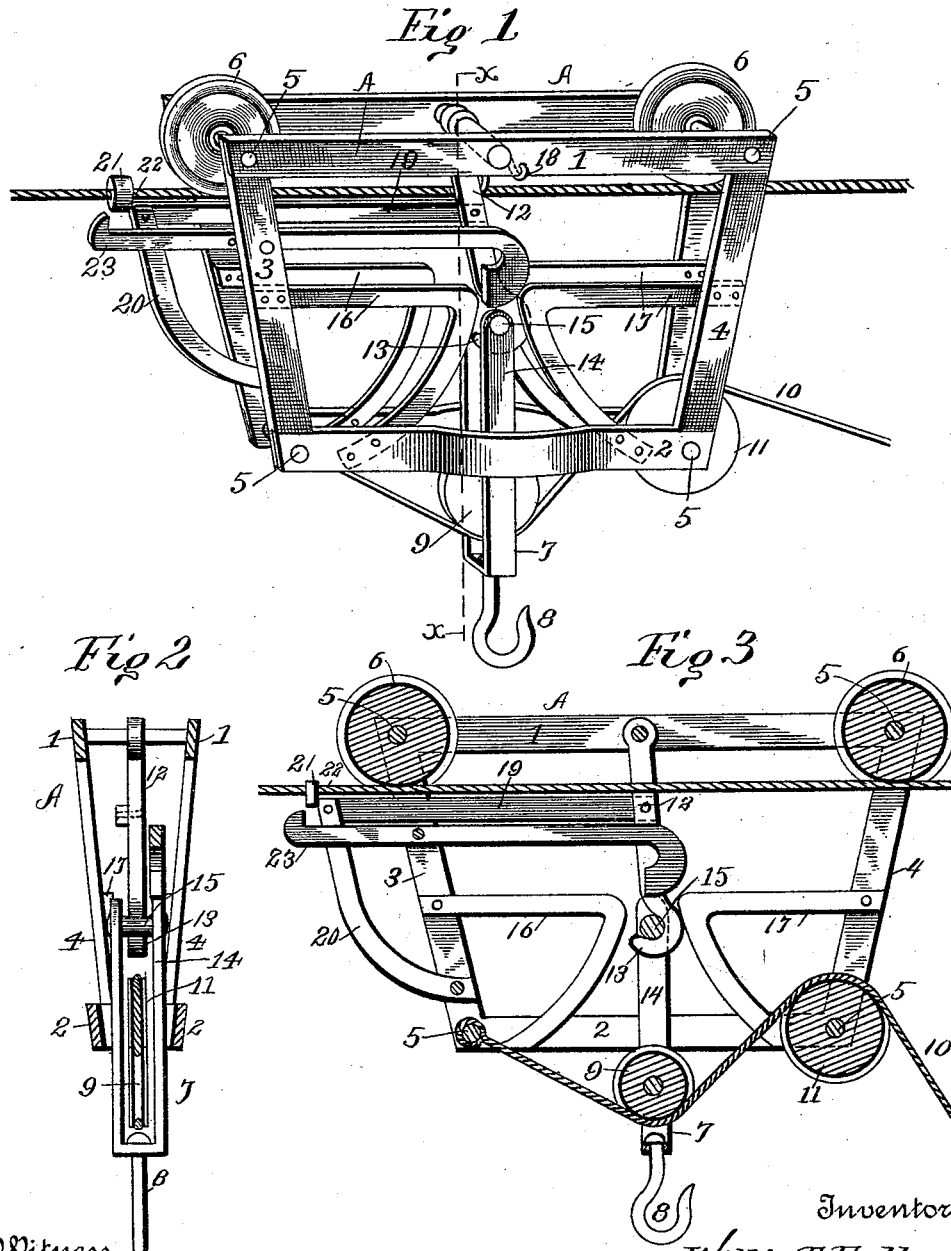


(No Model.)

W. E. FULLMER.
HAY CARRIER.

No. 454,860.

Patented June 30, 1891.



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UNITED STATES PATENT OFFICE.

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HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 454,860, dated June 30, 1891.

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To all whom it may concern:

Be it known that I, WILLIS EMMET FULLMER, a citizen of the United States, residing at Round Grove, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Hay-Carriers; and I do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, 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 relates to improvements in hay-carriers in which the frame which carries the hay-fork is adapted to traverse a track or rope and to automatically release and drop the fork to be loaded and to automatically engage and sustain the fork while in transit and until its return for reloading.

The objects of my improvements are, first, to provide a frame or trolley adapted in the ordinary mode to be drawn to and from the point over the load; second, to afford facilities for holding the carrier stationary above the load while the fork is being loaded with hay and until it shall have been elevated and engaged by the carrier; third, to provide means by which the engagement of the fork in the carrier will cause the carrier to be disengaged from the fixed point aforesaid in position to be drawn to the place of discharging the hay, and, fourth, to provide means to automatically trip the hook which suspends the fork after the latter has been returned to a position to be reloaded. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the mechanism involved in my invention. Fig. 2 is a vertical cross-section in the line *xx* of Fig. 1. Fig. 3 is a vertical longitudinal section.

Similar letters refer to similar parts throughout the several views.

The frame A of the machine is constructed of the two upper horizontal parallel plates 1, the two lower substantially horizontal parallel plates 2, and the two front parallel plates 3 and the two rear parallel plates 4. The lower ends of the plates 3 and 4 are respect-

ively attached at their lower ends to the ends of the plates 2, and rising divergently therefrom attached at their upper ends, respectively, to the end of the plates 1, as shown. One series of plates 1, 2, 3, and 4 constitutes one side of the frame A, and the other series of said four plates constitutes the other side of the said frame. The two sides aforesaid are joined at their corners by transverse bolts 5, there being a slight interval between each of said series of plates for the insertion between said series of the mechanism hereinafter described.

The trolley-wheels 6 have grooved peripheries, and are pivoted upon transverse bolts 5 at the upper corners of the frame A and adapted to traverse either the ordinary track or a suitable-sized cable or wire, and thereby transport the frame A with its adjunctive parts. The lower plates 2 are bent centrally outward somewhat, so as to afford room for the upward projection between them of the hay-fork support 7, which latter is provided at its lower end with hook 8, and thus adapted to receive any of the well-known types of hay-forks. The fork-support 7 is provided with the usual pulley 9, and the draft-rope 10 is attached in the usual way to the front lower corner of the frame A and passed under the pulley 9 and up over a suitable pulley 11, pivoted on the bolt 5 at the inner lower corner of the frame A. From thence the rope 10 descends in the usual way in position for attachment of the team. The arm 12 is pivoted at its upper end between the plates 1, and depending therefrom is provided at its lower end with the hook 13, open toward the front of the machine. The fork-bearer 7 has two upward parallel projections 14 a slight interval apart and joined at their upper ends by a transverse bolt or rivet 15.

A front guide-crook 16 and rear guide-crook 17 are suitably fastened to the frame A and projected above the opening aforesaid between the plates 2 in position to guide the upper end of the fork-support 7 in its upward movement toward the open end of the hook 13.

Each of the crooks 16 and 17 are made out of a strip of metal bent substantially V-shaped with one end secured to the hori-

zontal portion of the frame and the other end secured to the vertical portion. One arm of each of the crooks is preferably curved, so that by arranging the pieces with the curves adjacent to or facing each other upon each side of the frame the opening or passage for the fork-support is very wide at the mouth for the ready entry of the support, while the curved arms will guide it to the hook 13 at the contracted portion, where it will be retained until it is released by suitable mechanism.

The normal position of the arm 12 is with the point of the hook 13 against the rear surface of the guide 16, being held in such position by the coiled spring 18, suitably attached to said arm at its pivotal seat and one of the plates 1.

In Fig. 1 the parts are shown in the position which they occupy when the fork-bearer 7 has been raised into position by the draft upon the rope 10 and just before the carrier starts by the further draft upon said rope into the barn or to the place where the hay is to be deposited. It also represents the position of the parts after the carrier has returned empty for a new load and just before the fork-support 7, bearing the hay-fork, is dropped in the position for the reloading of the fork.

It will be understood that the hay-fork support 7 is not dropped at the time of the discharge of the hay, but that such discharge is effected by mechanism connected with the fork, while the latter is suspended upon the hook 8, and the only time the fork 7 and its suspended fork descends is when the carrier is over the load and said parts descend to the wagon for the reloading of the fork. The horizontal arm 19 is pivoted at its inner end to the arm 12 a short distance below the pivotal seat of the latter and projects outward between the plates 3 a short distance beyond the frame A, and the outer end of the arm 19 is pivotally connected to the upper end of the descending arm 20, the lower end of which is pivotally seated between the plates 3.

A stationary trip and lock block 21 is attached to the outer end of the track 22 in such relation to the position to be occupied by the wagon that when the frame A is drawn in the usual way by the operator on the load through a rope connection with the frame A to the limit of the outward movement of said frame the junction of the arms 19 and 20 strikes against the block 21, and thereby forces the lower end of the arm 12 backward between the guides 17, which latter push the bolt 15 off from the hook 13 and permits the fork-support 7 and fork to descend to the load of hay. A latch 23 is pivoted at its outer portion between said plates 3 and projects outward in position to have its outer end engage the block 21 from below when the carrier is at the limit of its outward movement, and thereby hold said carrier rigidly during the process of loading and raising the hay-

fork. The center of gravity of the latch 23 is within its pivotal seat, and its inner end projects past the arm 12 and is crooked downwardly, so that its lower extremity at said inner end when engaging the block 21 rests in the space alongside of the hook 13 occupied by the transverse bolt 15 when the latter is at the limit of its upward movement. Therefore as the fork-support 7 is raised its upper end engages and moves upward the inner end of the latch 23 coincidently with being engaged by the hook 13. This movement disengages and holds disengaged the outer end of said latch from the block 21, and further draft upon the rope 10 serves to drag the carrier to and over the locality where the hay is to be discharged. After the discharge of the hay the carrier is drawn, as aforesaid, again outward. The outer end of the arm 19, striking block 21, disengages the fork-support 7 from the hook 13, and thereby permits the inner end of the latch 23 to drop by its own gravity in position to enable the outer end thereof to engage the block 21 and hold the carrier stationary during the process of loading and elevating the fork, when the maximum elevation of the fork-support 7, effected through the rope 10, will, by elevating the inner end of the latch 23, disengage the latter from block 21 and permit the inner transit of the carrier bearing the loaded fork.

The advantages of my invention are its simplicity, strength, durability, and its ease and certainty of action. The parts are all riveted or bolted together to preclude misplacement, and the machine can be used either upon a fixed track in the barn or upon a suitable cable suspended in proper relation to the stack.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a hay-carrier, the combination, with a frame consisting of two series of plates joined at their corners by bolts, each series comprising an upper and a lower horizontal and a front and a rear vertical plate, all riveted together at their ends, the lower horizontal plates each being bent outwardly at its center, of trolley-wheels at the upper corners and a hook suspended in the frame, front and rear guide-crooks secured to the frame, each consisting of a substantially-V-shaped piece of metal, one arm of which is horizontal and secured at its end to the inner side of one of the vertical diverging plates and the other arm is curved and secured to the inner side of one of the lower horizontal plates, the curved portions of the guides being arranged adjacent to the hook, whereby, with the outwardly-curved horizontal plates, a diverging walled opening is formed for the reception of the fork-support, said support being provided with two parallel upward projections adapted to engage with the curved guides and having a transverse bolt at their

upper ends to engage with the hook, and means for releasing the frame and the support, substantially as described.

2. In a hay-carrier, the combination, with
5 a frame, of a hook suspended within the frame, a track for the frame provided with a stop, an arm pivotally secured to the frame at its lower end and having its upper end adapted to engage with the stop, a connection
10 between the arm and the hook, whereby the hook is moved by the movement of the arm, and a tripping-lever pivotally secured to the

side of the frame and adapted to engage with the stop and prevent movement of the frame, and a fork-support adapted to be moved to- 15 ward and from the frame and to engage with the free end of the tripping-lever and release the car, substantially as described.

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

WILLIS E. FULLMER.

Witnesses:

JOHN G. MANAHAN,
ADDA E. WARD.