W. M. CONNER & W. I. ROUSE.

Hay-Conveyor.

No. 163,461. Patented May 18, 1875.

FIG. 1.

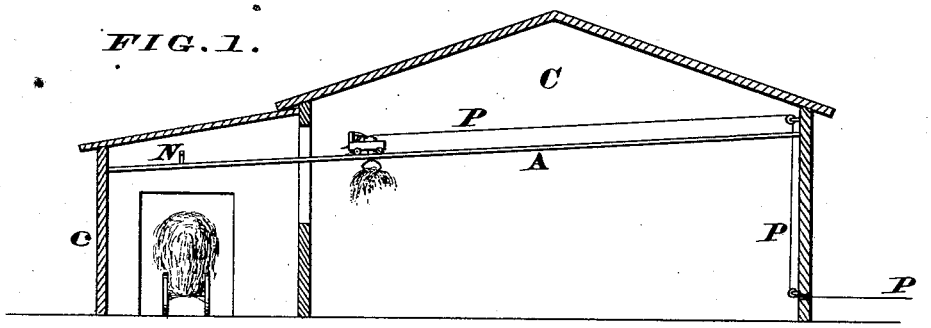


FIG. 2.

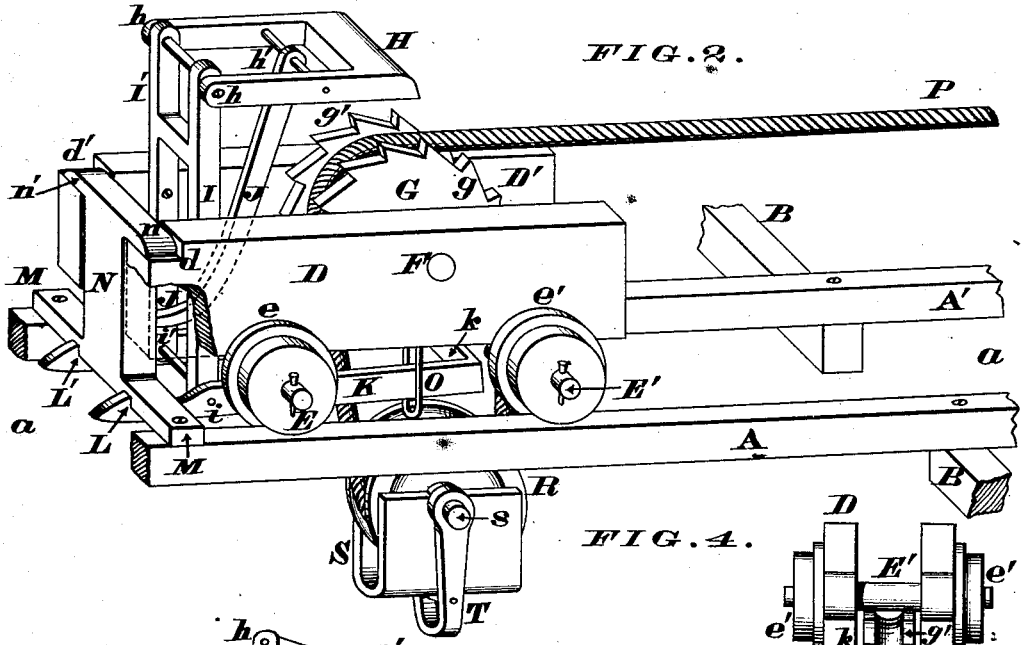


FIG. 3.

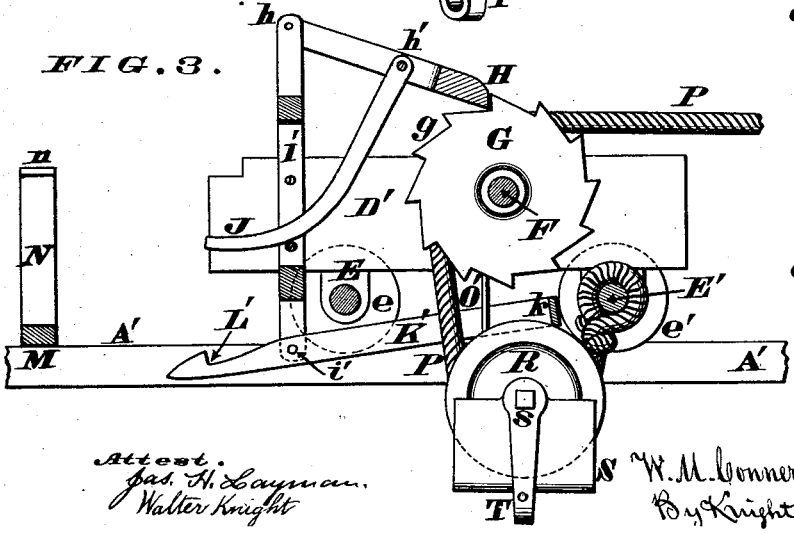
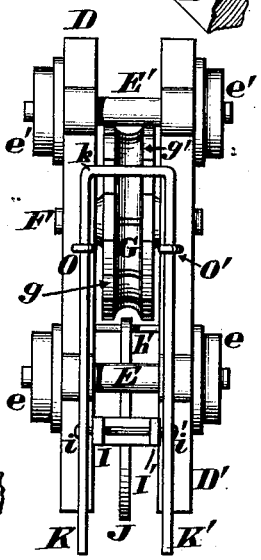


FIG. 4.



Attest.
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UNITED STATES PATENT OFFICE.

WILLIAM M. CONNER AND WILFORD I. ROUSE, OF BURLINGTON, KENTUCKY.

IMPROVEMENT IN HAY-CONVEYERS.

Specification forming part of Letters Patent No. **163,461**, dated May 18, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that we, WILLIAM M. CONNER and WILFORD I. ROUSE, both of Burlington, Boone county, Kentucky, have invented a new and useful Hay-Conveyer, of which the following is a specification:

This invention relates to a carriage adapted to run upon an elevated track, for the purpose of conveying the hay-fork with its load from the wagon or other source of supply to the barn floor or mow, where the hay is to be deposited. This carriage, as soon as it reaches a position directly above the wagon, is automatically arrested by the action of two gravitating latches which engage with a rail fixed transversely of the track, while at the same time a self-acting pawl or detent is liberated from the ratchet-teeth of a pulley, whose shaft is journaled in the carriage, said pulley having passed around it the operating rope, whose bight sustains a sheave carrying any approved form of hay-fork. This rope is then capable of being slackened so as to allow of the descent of the fork for the purpose of charging it with hay, after which the now loaded fork is elevated by drawing upon the rope. When the loaded fork has been elevated sufficiently to strike the retaining latches, said latches are thereby disengaged from the said transverse rail, thus permitting the stress upon the rope to extend itself in drawing the carriage along the track. The moment that the carriage starts to run along the track the pawl drops and engages with the ratchet-sheave, and thus prevents any retrograde rotation of said sheave, while the loaded carriage is being drawn to the spot where the hay is to be dropped, and also on its backward journey.

In the accompanying drawing, Figure 1 is a diagram, showing one method of arranging the apparatus in a barn or hay shed. Fig. 2 is a perspective view, showing the carriage arrested upon the track and the ratchet-sheave at liberty to rotate, so as to permit the descent of the hay-fork. Fig. 3 is a longitudinal section of the carriage, the latches being disengaged, the pawl in action upon the ratchet-sheave, and the carriage represented as being drawn away from the retaining-rail. Fig. 4 is a plan, showing the under side of the carriage, the drag-rope being omitted.

A A′ may represent any customary railway or track supported upon beams B in such a way as to afford an unobstructed space, *a*, for the tackle, or said track may be suspended by rods from the rafters of the building. It is preferred that the track should be slightly acclined to the place of delivery in order that the empty carriage may readily return to the loading end. The frame of said carriage may consist essentially of two side plates or boards, D D′, so united by suitable stretchers as to be parallel to each other, and mounted upon axles E E′, whose flanged wheels *e e e′ e′* are adapted to run upon the track. Fitted transversely within this carriage is the shaft F of a pulley, G, which has one or more ratchet-wheels, *g g′*, with which the free end of a loaded pawl or detent, H, is adapted to engage whenever said pawl is at liberty to swing upon its pivots *h*. These pivots couple said pawl to the upper ends of standards I I′, which are firmly secured to the frame D D′. The said pawl has a pin, *h′*, from which depends a trigger, J, that curves rearwardly, as more clearly shown in Fig. 3. Pivoted to the lower ends of the standards I I′, as at *i i′*, are two latches, K K′, which are joined together at *k*. These latches are notched at L L′, so as to engage with the transverse rail M of the track whenever the carriage reaches the loading position upon said track, as shown in Fig. 2.

Projecting vertically from the rail M is a post, N, having two laterally-projecting arms or branches, *n n′*, which engage over the notched extremities *d d′* of the carriage, the instant that the latches K K′ become interlocked with the rail or bar M. O O′ are guides which confine the latches K K′ to a vertical path, said guides being secured to the sides of the carriage. P is the operating rope, of which one extremity is made fast to the axle E, or other part of the carriage, and is thence carried over the ratchet-pulley G *g g′*, as seen in Fig. 3. The bight of this rope sustains a sheave, R, journaled upon a removable pin or bolt, *s*, of the housing S. Depending from this pivot is a link, eye, or shackle, T, from which any convenient form of hay-fork can be suspended.

The operation of our apparatus is as follows: The loaded hay-wagon being driven directly

under the receiving end of the track, the carriage is allowed to descend the track until the notches *d d'*, being brought under the projections *n n'*, the free end of trigger J strikes against the post N, thereby disengaging the pawl H from the ratchets *g g'*, and allowing the pulley G to rotate upon its shaft. As soon as the carriage is thus arrested, the continued slackening of the rope P causes the sheave R, with its attachments, to descend far enough to allow a person upon the hay-wagon to charge the fork in the usual manner. Immediately upon the descent of the sheave R, the latches K K' are relieved of the stress that was previously imposed upon them, and they at once turn upon their pivots, thereby bringing their notched extremities L L' in contact with the transverse rail M, so as to lock the carriage securely in position, and to prevent it running up the track while the load is being elevated. The carriage being securely locked in position, the stress of the rope acts at first only to elevate the sheave R with its depending load, and this ascent continues until the ascending sheave comes in contact with the cross-bar *k* of the latches K K', and as soon as the bar is thus struck the latches become disengaged from the rail M, leaving the carriage free to be drawn up the track, which, in turn, operates to relieve the trigger J from contact with the post N, so as to allow the pawl H to drop, and to thereby become engaged with the ratchets *g g'*, so as to prevent any retrograde rotation of the pulley G, as previously described, and to maintain the sheave R in its elevated position, until its return to the starting-point over the wagon. The loaded fork having reached a point directly over that on which it is desired to deposit the hay, the latter is released from the fork in the usual way, and the carriage is permitted to return for another forkful.

It is evident that the devices H J for arresting the rotation of the pulley G may be used independently of the carriage-locking appliances K K' L L', and said carriage may be detained until the sheave R is elevated by suitable mechanism under control of the person who loads the fork. One of the ratchets may be omitted from the pulley G without impairing its efficiency.

Instead of the sheave R, the housing S, or any of its appendages, may be arranged to unlock the latches K K'.

The removable pivot *s* enables any approved form of hay-fork to be suspended from the sheave R. The roller G may have transverse ribs in its peripheral groove, as seen in Fig. 4. The track A A' may be level, and the carriage be drawn back to its loading-point by means of a rope or otherwise.

We claim as our invention—

1. In combination with the carriage D D' E *e e* E' *e' e'* and track A A' N, the ratchet-pulley G *g*, pivoted pawl H *h*, trigger J, drag-rope P, and sheave R *s*, as and for the purpose specified.

2. The latches K L K' L', pivoted at *i i'* to the carriage, and provided with a cross-bar, *k*, which prevents contact of said latches with the pulley G, whenever the former are disengaged from the transverse rail M of the track, as herein described.

In testimony of which invention we hereunto set our hands.

WILLIAM M. CONNER.
WILFORD I. ROUSE.

Attest:

GEO. H. KNIGHT,
JOHN C. HEALY.