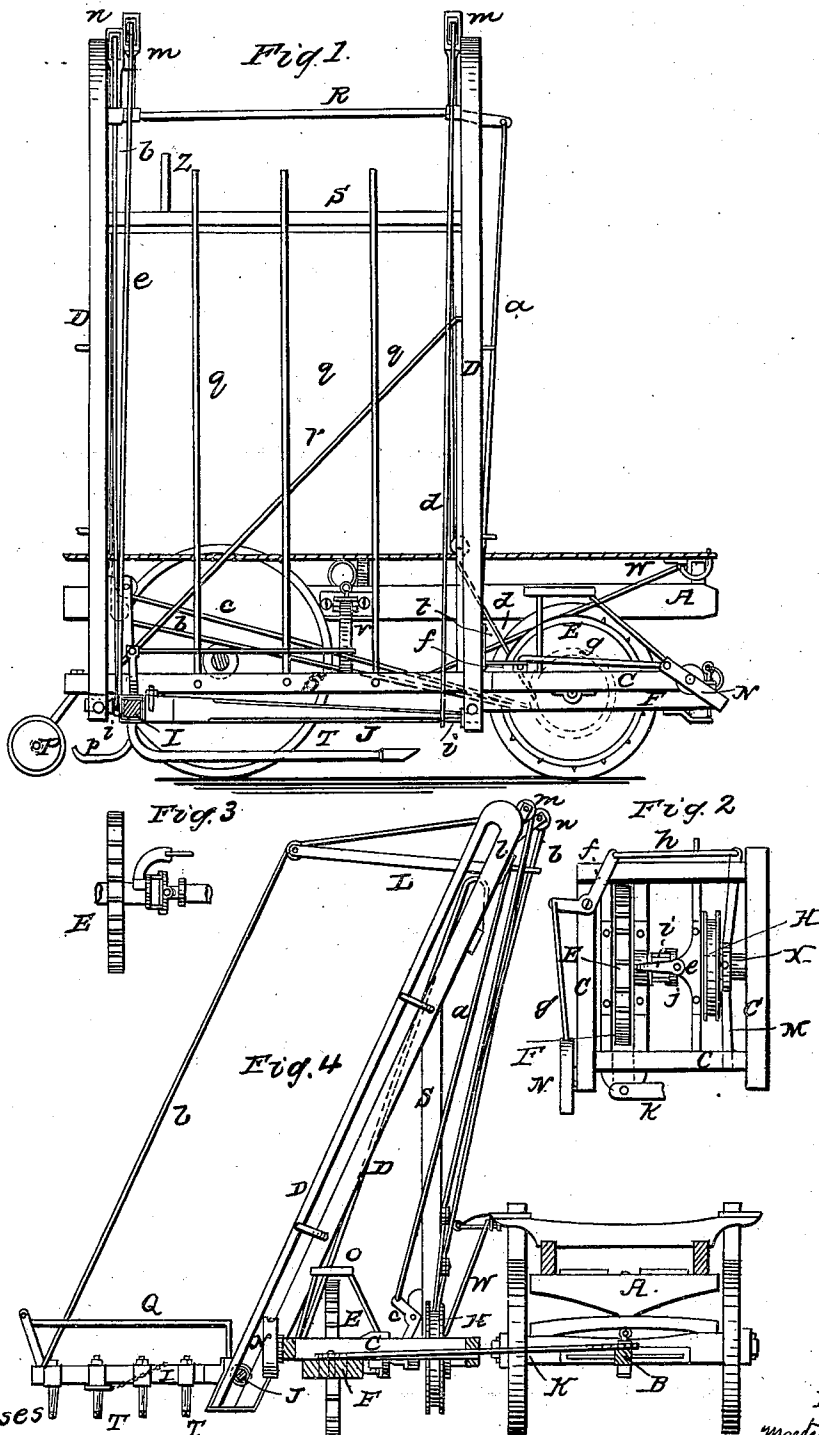


M. A. DILLEY.
Hay Raker and Loader.

No. 77,721.

Patented May 12, 1868.



Witnesses
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UNITED STATES PATENT OFFICE.

MATIN A. DILLEY, OF MENDON, WISCONSIN.

IMPROVEMENT IN HAY RAKERS AND LOADERS.

Specification forming part of Letters Patent No. **77,721**, dated May 12, 1888.

To all whom it may concern:

Be it known that I, MATIN A. DILLEY, of Mendon, in the county of St. Joseph, and in the State of Michigan, have invented new and useful Improvements in Hay-Loaders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

In the annexed drawings, making a part of this specification, A represents the body of a wagon for hauling hay, and B represents the tongue or pole of said wagon. The wagon-body A may be made in any of the usual or ordinary forms, and is supported upon suitable running-gear.

C represents a rectangular frame, made of suitable dimensions, in which is adjusted the winding-drum H, which is loosely fastened to a suitable shaft therefor.

Beneath the frame C is adjusted another small frame, F, in which works the driving-wheel E. The end of the shaft to which the driving-wheel E is secured is attached to the end of the winding-drum shaft by a universal joint, as seen at *j*, so that while the drum-shaft always remains steadily in its relative position with the frame C the driving-wheel shaft may turn therewith in an oblique position. The frame C is supported upon the frame F, and the frame F by means of the driving-wheel E. The winding-drum H is loosely adjusted upon its shaft, but is provided with a clutch, as seen at *x*, which is operated and thrown in or out of gear by means of the lever M.

A lateral guide-bar, K, is secured to the front end of the frame F, and extends across and is pivoted to the pole B, for the purpose of changing the direction of the drive-wheel E and thereby the whole loading device at the same time the wagon A is turned, and thereby relieve both wagon and loading-machine as well as team from the great strain they must otherwise undergo.

N represents a treadle pivoted to the front end of the frame C, and has a rod, *g*, hooked or secured thereto. The rod *g* extends to and is hooked in an elbow-lever, *f*, which is also secured to the frame C. Another rod, *h*, is hooked into the other end of the elbow-lever *f*, and extends across and is pivoted to the lever M, which operates the clutch *x*.

A seat, O, is secured upon suitable legs or

risers which are attached to the frame C, and is situated directly over the drive-wheel E.

It is obvious that the driver, when on the seat O, may operate the treadle N, and thereby throw the clutch *x* in gear or detach the same, as may be required.

The rectangular frame C is attached to or forms a part of the frame S, which, together with the oblique slotted way D D, compose a derrick-frame, as is fully shown in the drawings, for elevating hay, as will be hereinafter more fully described. The rear end of the frame S, composing a part of the derrick-frame and supporting the same, is itself supported upon and works on a caster-wheel, P, which facilitates the turning the machine, and, together with the oscillating drive-wheel E, turns the said machine as readily as the wagon A can be changed in direction and without the usual strain, as will be readily seen. The derrick is adjusted to or with the wagon-body A by means of a lateral bent brace, V, and the diagonal or angular stay-brace W. The slotted ways D D are framed into or secured to the frame S at a suitable distance apart, and are situated in nearly a vertical position, inclining slightly toward the wagon.

I represents a wooden fork-head, made substantially in the form shown, having a metallic plate or strip extending along its under side to prevent the wear of the same. This head I is securely framed into or fastened to a horizontal movable bar, J. Tines T, made in the form shown in the drawings, are secured to the head I by passing upward through the same and through metallic clasps and there held by screw-nuts. The metallic clasps are for the purpose of strengthening the head I to prevent its splitting. A kind of shoe is made on or at the points or ends of the tines T, so as to prevent the whole length thereof resting on the ground, and thereby wearing them so as to weaken them.

Under the head I, for the purpose of rests and to keep the rear end of the fork slightly elevated, I secure bent or curved shoes or runners *p p*; and on top of said head I secure a stay-bar, Q, which has also a tine extending forward above and parallel with the tines T for the purpose of holding the hay or straw from hanging and dragging over from the tines and head of the fork.

R represents a hoisting-shaft secured and

working in the top of the slotted ways D D. The hoisting-shaft R is bent, forming a kind of crank which prevents the shaft and its arms from turning over too far by catching against a rest or post, Z, in the upper cross-bar of the derrick-frame, and to turn down out of the way of the hay when tilted. The shaft R is provided with or has rigidly secured to it vertical arms *m m* and *n* and horizontal arm L. In the ends of all of said arms are adjusted pulleys.

Pivoted to one of the ways D, near its upper end, is a small lever, *l*, which is operated by the arm *m* on the shaft R. A rod, *a*, is attached to one end of said lever *l*, and to an elbow-lever, *t*, which is pivoted to the frame S, and having its opposite or other end pivoted to the rod *h*, which operates the lever M. By depressing the inner end of the lever *l* by means of the arm *m* the elbow-lever *t* and rod *h* are operated, and thereby the lever M, and thus the clutch *x* is detached or uncoupled.

Secured to the winding-drum H are cords or bands *b*, *c*, and *d*, which extend back horizontally and work over suitable pulleys which are fastened to the derrick-frame. The cord *d* extends back over a pulley on the front end of the derrick-frame, and thence over the pulley in the arm *m*, and thence down and fastened to the movable horizontal bar J. The cord *c* extends back over its pulley on the rear end of the derrick-frame, and thence up and over the pulley in the arm *m* and down to the other end of the movable bar J. The other cord, *b*, passes back, as above described, and over the pulley in the arms *n* and L, and thence down and secured to the outer end of the fork-head I. The movable bar J is adjusted with its ends in the slots of the ways D D, and has friction-rollers *i i* adjusted thereon. Said rollers *i i* are provided with flanges, as is shown in the drawings, for the purpose of guiding the said bar J and keeping it in the slots in the ways D D.

Suitable guide ways or rods, *q q*, are secured vertically to the cross bars or beams of the frame S for the purpose of keeping the hay or straw from resting or rubbing against the load on the wagon. The bottom of the front way, D, is adjusted a little lower than the other, so that the bar J and fork will lie slightly inclined forward, as will be seen by reference to the drawings.

It will readily be seen that by starting or moving the wagon forward the derrick-frame will also move forward, and the operator, by means of the treadle N, may bring the clutch in gear, when the winding-drum H will wind up the cords *b*, *c*, and *d*, and they in turn will raise or elevate the fork until it reaches the

top of the ways D D, at which time the shaft R turns, and thereby the fork turns and delivers or throws the hay thereon to the wagon, and at the same time the arm *m* operates the lever *l*, and the clutch *x* is thereby detached, and the drum H being loosely adjusted on its shaft, the weight of the fork causes it to slide quickly to the ground, when the same operation may be repeated. The fork may be left to slide on the ground and gather hay as long as desired before bringing the clutch *x* into gear. The frame F is secured or adjusted to the frame *c*, forming a part of the derrick-frame, by means of a hinged box, *e e*, one part secured to the frame *c* and the other to one side of the frame F, as is fully shown. The part of the hinge which is secured to the frame F forms a box for the shaft of the drive-wheel E to work in.

The cord *b*, which is attached to the outside of the fork-head, is made a very little shorter than the others, or short enough so that when said fork is elevated the outside thereof will start first, and the front end of the bar J, being a little lower than its rear end, starts next, thereby relieving the machine of any sudden jerk by starting the whole load at once.

I further secure a chain, G, to the rear end of the bar J, as shown, and wind the same around the fork-head I, and secure the other end of said chain to it, so as to strengthen the said fork-head and prevent its being twisted and broken off by the load while being elevated.

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

1. The hinged box *e e* and universal joint *j*, in combination with the frame F, guide-bar K, and winding-drum H, the several parts being constructed and arranged substantially as and for the purpose herein specified.

2. The arrangement of the lever *l*, rod *a*, elbow-lever *t*, and rod *h* with the arm *m* and lever M for the purpose of automatically detaching clutch *j*, as herein fully described, and for the purpose specified.

3. The shaft R, provided with arms L, *m*, *m*, and *n*, in combination with the cords *b*, *c*, and *d* and winding-drum H, the several parts being constructed and arranged for the purpose of elevating the hay-fork described, substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of March, 1868.

MATIN A. DILLEY.

Witnesses:

E. G. NEWHALL,
S. VALENTINE.