(No Model.) 2 Sheets—Sheet 1.

D. C. JEWETT.

HAY LOADER.

No. 348,398. Patented Aug. 31, 1886.

FIG. 1.

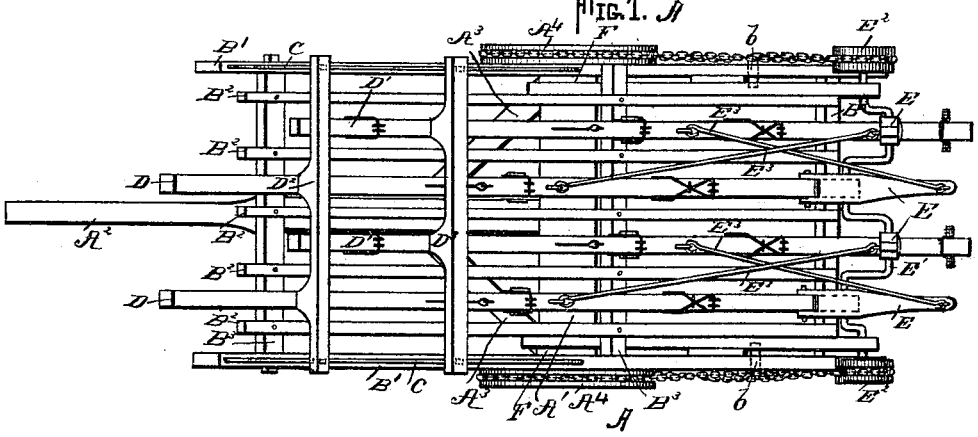
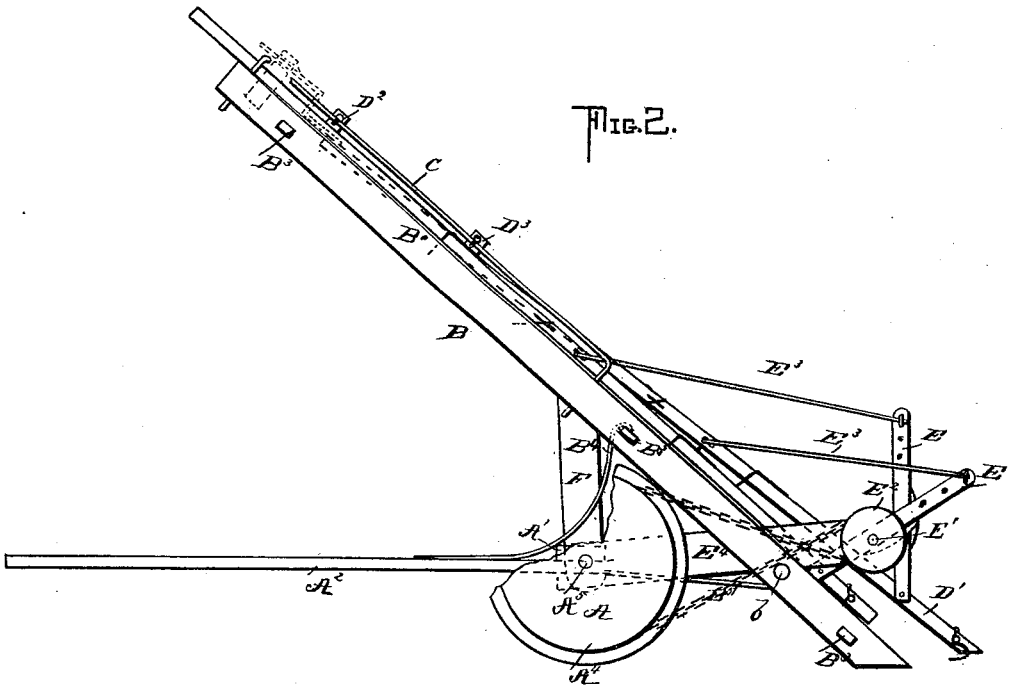


FIG. 2.



WITNESSES.
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(No Model.) 2 Sheets—Sheet 2.

D. C. JEWETT.

HAY LOADER.

No. 348,398. Patented Aug. 31, 1886.

FIG. 3.

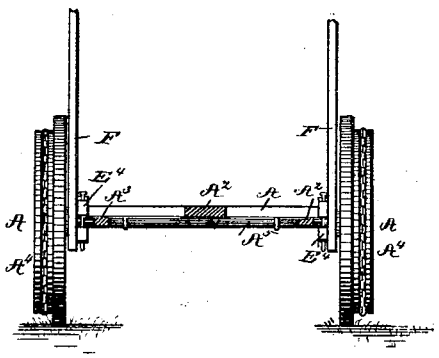


FIG. 4.

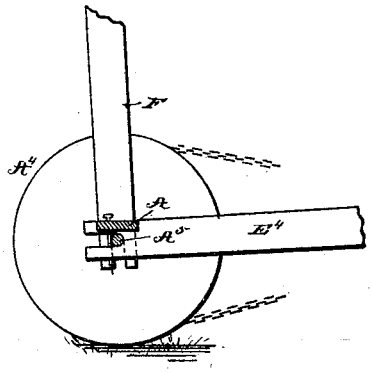
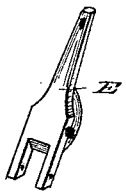


FIG. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

DEWITT C. JEWETT, OF SAND SPRING, IOWA.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 348,398, dated August 31, 1886.

Application filed August 20, 1885. Serial No. 174,905. (No model.)

To all whom it may concern:

Be it known that I, DEWITT C. JEWETT, a citizen of the United States, residing at Sand Spring, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Hay-Loaders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which 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 present invention relates to certain improvements in the construction and operation of hay-loaders in the class for which Letters Patent No. 217,110 were granted me July 1, 1879, and No. 271,470 were granted January 30, 1883.

It consists in certain novel features hereinafter fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a plan, and Fig. 2 a side, view of a hay-loader constructed according to my invention. Fig. 5 is a detail of one of the levers or carriers for supporting and giving motion to the rakes. Figs. 3 and 4 are details showing the framing for carrying the operating mechanism.

The driving-wheels A A are provided on their outer sides with grooved sprocket or band wheels A^4, around which are passed the driving chains or belts. I have shown a revolving axle, A^5, with the wheels keyed thereon; but I do not limit myself to this construction. The axles may be fixed, and the wheels turned on spindles. The tongue A^2 is pivoted on the axle by means of a cross-head, A′, and eyes or staples passed around the said axle, and it is braced by hounds A^3.

An incline, B, is provided, up which the hay is carried by vibrating carriers and rakes, hereinafter described. The incline is composed of side bars, B′, intermediate bars, B^2, and cross-bars B^3. The lower ends of the side bars are sloped or beveled and slide on the ground, and in practical use are provided with shoes. The incline is pivotally supported on the axle by means of the standards B^4, the lower ends of which are provided with seats or bearings, which rest on the said axle just inside the driving-wheels. The incline tilts sufficiently upon its pivotal center to adapt itself to irregularities in the surface of the ground. The lower ends of the side bars are braced by rods B^5, which connect with the lower ends of the standards B^4. The two sets of rakes D D′ work above the incline B and between the parallel bars B^2 of the same. The rakes are held in position at their upper ends by bars D^2 D^3, which slide or roll on friction-rollers along the guide-rods C in the operation of the device. When so desired, the bars D^2 D^3 and guide-rods C may be dispensed with, and the rakes held in position by providing each rake at the upper end with a guide or slide rod held by any suitable means a slight distance above and parallel to the rake, and allowing these guide-rods to slide through slots in a cross-bar, which is held in position above the rakes by being attached at each end by posts that project downward and are secured to the side pieces, as indicated by dotted lines in Fig. 2. They are held at their lower ends by the notched levers E, which are supported upon and operated by the crank-shaft E′. Upon each end of the crank-shaft E′ I secure a pulley, E^2, which is connected by a chain or rope to the grooved pulleys formed integral with the wheels A. The pulleys E^2, grooved pulleys on wheels A, and connecting chains and ropes may be dispensed with by putting the posts B^4 near enough to the rear end of the incline B to allow cogged wheels placed on the wheels A to mesh into cogged pinions secured upon each end of the crank-shaft E′. The levers E are fulcrumed at unequal distances between their ends upon the crank-shaft E′, and their lower or shorter ends are bifurcated and are pivotally secured to the lower ends of the rakes. The upper or longer end of each lever is connected to the rake adjacent to the one secured in its lower notched end by the pitman E^3. The crank-shaft E′ is journaled in supports E^4, the inner ends of which are sleeved upon the axle, having their outer ends resting normally on a cross-bar or stops, *b*, in such a manner as to have a slight vertical play, to admit a large bundle of hay under the rakes.

To keep the lower end of the incline normally on the ground I provide a spring, F,

one end of which is firmly secured to the tongue A^2, and bend the same up, as shown, hooking its end so as to catch on one of the cross-bars B^3, as shown. It will be seen that this spring will exert a pressure downward sufficient to keep the lower end of the incline upon the ground except when it strikes some unusual obstruction.

The operation of the device will be readily understood. The loader is drawn along behind an ordinary farm-wagon, to which it is connected by properly securing the tongue A^2. As the loader is drawn along, the wheels A will revolve, as will be understood, and their motion will be communicated to the pulleys or pinions E^2 by the connecting-chain, rope, or cog-wheel. The crank-shaft E' will thereby be caused to revolve, and the rakes D D' will be operated. The rakes will be given an elliptical motion at their lower ends by reason of their connection with the cross-shaft. The upper ends of the rakes will simply reciprocate, as they are held by the bars or guide-rods D^3, which can have no motion except to slide or roll along the guide-rods C. By reason of the difference in length between the upper and lower arms of the lever E, the upper arms being the longer, the tendency of two adjacent cranks is at all times to move the levers attached to them bodily in opposite directions, the one forward and the other rearward. Considering each lever by itself, its movement is resisted by the inertia of the two rake-bars to which it is connected. The resistances of the two bars are equal, but that of the one connected to the upper arm of the lever has greater effect, because of the longer arm through which it operates; hence the lever, operated upon by unequal forces, rocks upon its pivot, and it tends more strongly to move with itself the bar which is connected to its lower end. The same bar is connected with the upper end of the adjacent lever, which tends to move it in the opposite direction, but with less force. By this construction, having the rakes and levers arranged in pairs and the upper ends of the levers connected with the adjacent rakes, each controls and renders positive the movement of the other, and an increased throw of the rakes is obtained, as their points of attachment with the levers have a greater movement or traverse than the cranks. As the rakes move up the incline, their lower ends descend to the incline, the rake-teeth catching in the hay, which is carried thereby upward and onto the wagon.

In practical use I employ a pawl and a ratchet-wheel, as shown in my previous patents, to prevent backward rotation of the drive-wheels, but have not thought it necessary to show such device in the present case.

I have shown several forms of spring rake-teeth which I use on the rakes; but as the forms shown can all be seen in my previous patents I need not particularly describe them here.

By the method shown and described of supporting the lower ends of the rakes one of them will be up when the other will be down, and they will continuously draw the hay up the incline.

I can change the stroke of the rakes by adjusting the ends of the pitmen up or down on the extension of the lever E, or by moving the other ends of the pitmen and attaching the same at different points on the rakes, or by both these adjustments conjointly. By either or both of these adjustments the rake is brought nearer to or carried farther from its supporting-crank, thereby lessening or increasing the distance between the planes passing parallel through the points of connection of the pitmen with the rakes and the cranks, as will be readily appreciated.

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

1. In a hay-loader, the combination, with the vibratory rakes and the crank-shaft, of a series of levers each journaled on the cranks of the shaft at unequal distances from the ends and connected at their lower ends with the rakes, and the pitmen or connecting-rods adjustably connecting the longer or upper ends of the levers with the adjacent rakes, substantially as set forth, and for the purposes described.

2. The herein-described means of supporting the lower ends of the rakes, consisting of a crank-shaft journaled in supports having a pivotal center upon the driving-wheel axle, and levers supported upon the crank-shaft and having their lower ends provided with notches, in combination with the rakes pivotally secured within said notches, and pitmen connecting the uppers ends of the levers with the rake adjacent the one secured to the lower end of the lever, substantially as set forth.

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

DEWITT C. JEWETT.

Witnesses:

P. S. SHERMAN,

C. C. JEWETT.