(No Model.) 2 Sheets—Sheet 1.

W. A. OVERING & A. B. LIVINGSTON.

HAY LOADER.

No. 344,789. Patented June 29, 1886.

Fig. 1.

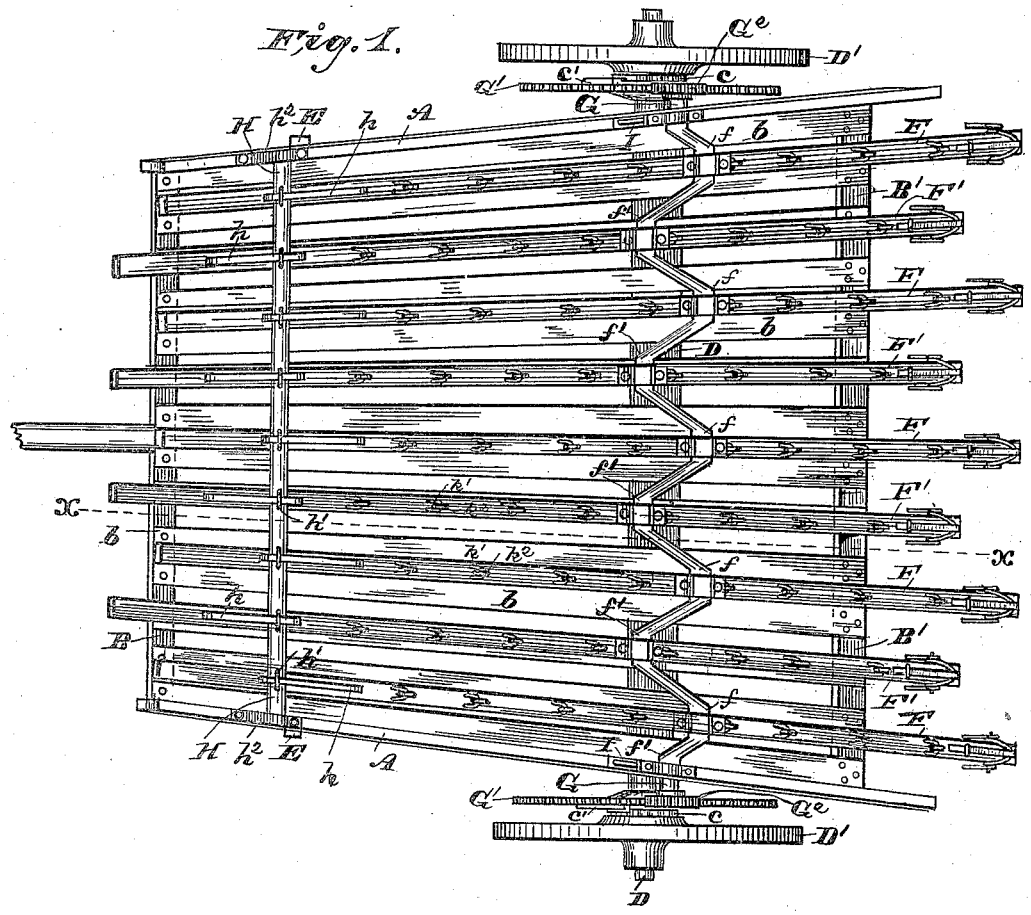
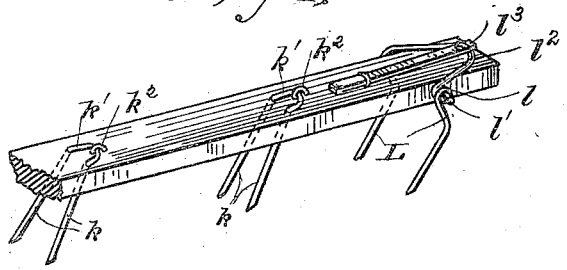


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

W. A. OVERING & A. B. LIVINGSTON.

HAY LOADER.

No. 344,789. Patented June 29, 1886.

Fig. 2.

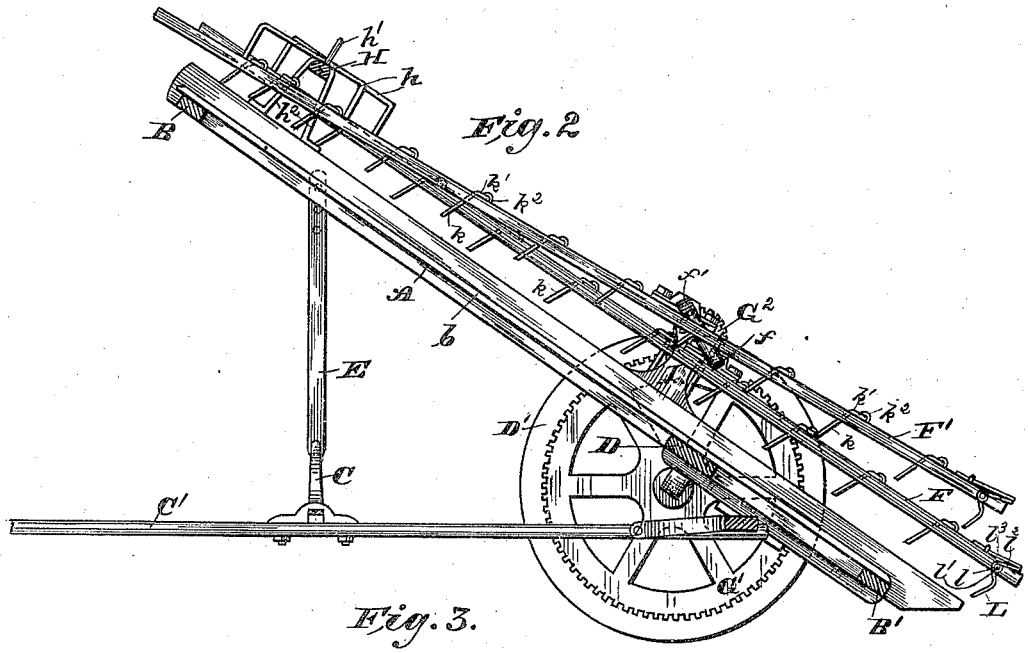
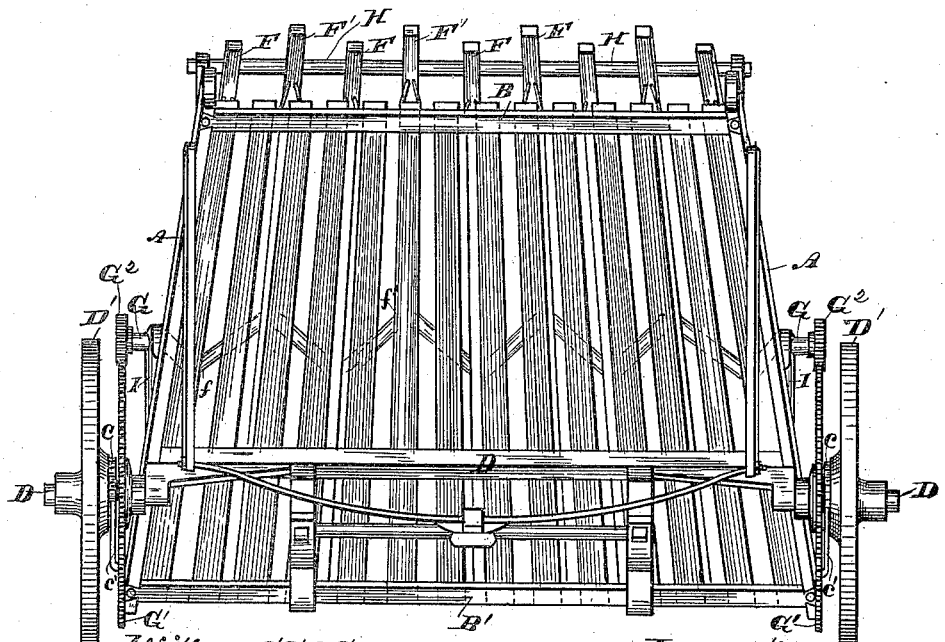


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM A. OVERING AND ALEXANDER B. LIVINGSTON, OF SAND SPRING, IOWA.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 344,789, dated June 29, 1886.

Application filed September 10, 1885. Serial No. 176,729. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. OVERING and ALEXANDER B. LIVINGSTON, citizens 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 we do hereby 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.

Our invention relates to the class of hay-loaders having vibrating rakes which operate alternately in series to take the hay from the ground and carry it up over an inclined platform to discharge it into the wagon, to the rear of which the loader is attached.

The invention consists of certain details of construction and combination of parts, which will be fully described in the ensuing specification, and specifically pointed out in the claims at the close thereof.

In order that our invention may be clearly understood, we have illustrated it in the annexed drawings, and will proceed to describe the best form thereof at present known to us.

Figure 1 represents a plan view of our improved hay-loader. Fig. 2 represents a vertical section of the same on the line $x x$ of Fig. 1. Fig. 3 represents a front elevation thereof. Fig. 4 represents a perspective view of the lower end of one of the rake-bars, showing the spring pick-up tooth and two of the elevator-teeth.

The same letters of reference indicate identical parts in all the figures.

The inclined platform of the loader is converging, and is composed of two side bars, A A, connected at their upper front end by a cross-bar, B, and at their lower or rear end by a cross-bar, B′. The bottom of the platform is constructed of slats $b b b$, laid lengthwise and secured at their ends to the cross-bars B B′. The platform is supported at about one third of its length from the rear end by the axle ends D D, on which the drive-wheels D′ D′ turn, and at or near its front end upon a semi-elliptical spring, C, by means of connecting-links E E, which are pivoted at their lower ends to the ends of the spring C, and at their upper ends to the side bars, A A, of the platform. This semi-elliptical spring C is secured at its center to the tongue C′ of the loader, and serves to ease the jolting motion of the loader when in operation. The tongue is pivoted under the inclined platform in rear of the axle ends.

The hay is elevated over the inclined platform by vibrating rakes arranged to operate in two series or ranks, which are alternately advanced. The series of rakes F are connected to and operated by a line of cranks, f, of crank-shaft, G, and the series of rakes F′ are connected to and operated by a diametrically-opposite line of cranks, f', on said crank-shaft. Near their upper ends the rakes F F′ are suspended from a cross-bar or rod, H, by means of staples $h h h$, which are secured at their ends to the rake-bars, and are wide enough to allow of the backward and forward motion of the rakes. The elevation of the cross-bar H and the height of the staples h are such that on the return-stroke of the rakes their upper ends can rise sufficiently to clear the teeth from the advancing hay. The upper ends of the rakes are kept in proper lateral position by the elongated guides $h' h'$, which are secured to the top of bar H, straddling the staples h. The bar H is supported above the platform by means of standards $h^2 h^2$, secured to the side bars, A A. The rakes converge to conform to the converging shape of the inclined platform. They are connected by sufficiently loose joints to the cranks to admit of their slightly oblique movements.

Upon the axle D are loosely mounted two spur-wheels, G′ G′, to which motion is transmitted through the medium of ratchet-wheels c, fixed on the drive-wheels D′, and spring-pawls c' on spur-wheels G′, when the loader is propelled forward; but when the loader is moved backward the pawls slip over the ratchet-wheels, so that no motion is imparted to the spur-wheels G′ G′. Spur-wheels G′ G′ mesh with and drive pinions $G^2 G^2$, secured to the ends of the crank-shaft G. The crank-shaft is journaled in bearings in standards I I, secured to the side bars, A A, of the loader.

The teeth k of the rakes are two-pronged, consisting of a single piece of wire bent to the form best shown in Fig. 4. Their diverging

prongs are driven through, so as to be fast in the rake-bars, up to the elbow-bend k', which is secured to the rake-bar by staple k^2. The lower end of each rake-bar is provided with a yielding two-pronged pick-up tooth, L, which picks the hay up from the ground. This pick-up tooth is formed of a single piece of wire, and straddles the rake-bar. Each prong has an eye, l, formed by a turn in the wire, through which a pivot-pin, l', is driven into the side of the rake-bar, to suspend the tooth therefrom. Above the eyes l there is an elbow-bend, l^2, which is pressed down on the top of the rake-bar by a spring, l^3. This spring permits the pick-up tooth to yield in passing over uneven ground or obstructions.

We are aware of United States Patent No. 198,410. Our pick-up tooth is clearly distinguishable from that described in said patent by the following features: It will be observed that the elbow-bend l^2 of our pick-up tooth is turned back with respect to the prongs and that the spring l^3 is fastened forward of the elbow-band, so that when the prongs of the pick-up tooth are forced back the elbow-bend turns up and moves farther and farther under the spring, and cannot escape therefrom, but has all the latitude of motion required.

We claim as our invention--

1. The combination, substantially as before set forth, of the rakes, the crank-shaft for driving them, the high and horizontally elongated staples for suspending them near their upper ends from a fixed cross-bar, and the vertically-elongated guides, which permit the staples of the rakes to move freely up and down.

2. A rake-bar constructed with a two-pronged elevator-tooth, the prongs of which pass through and are fast in the bar up to an elbow-bend in the wire of the tooth, which bend is fastened down on the bar by a staple, substantially as before set forth.

3. A rake-bar constructed with a pivoted two-pronged pick-up tooth which straddles the bar and has a turned-back elbow-bend, which is held down on the bar by a spring fastened forward of said elbow-bend, substantially as before set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM A. OVERING.
ALEXANDER B. LIVINGSTON.

Witnesses:
J. W. DOXSEE,
E. N. HOWARD.