D. C. JEWETT.

Hay-Loader.

No. 217,110. Patented July 1, 1879.

Fig. 1.

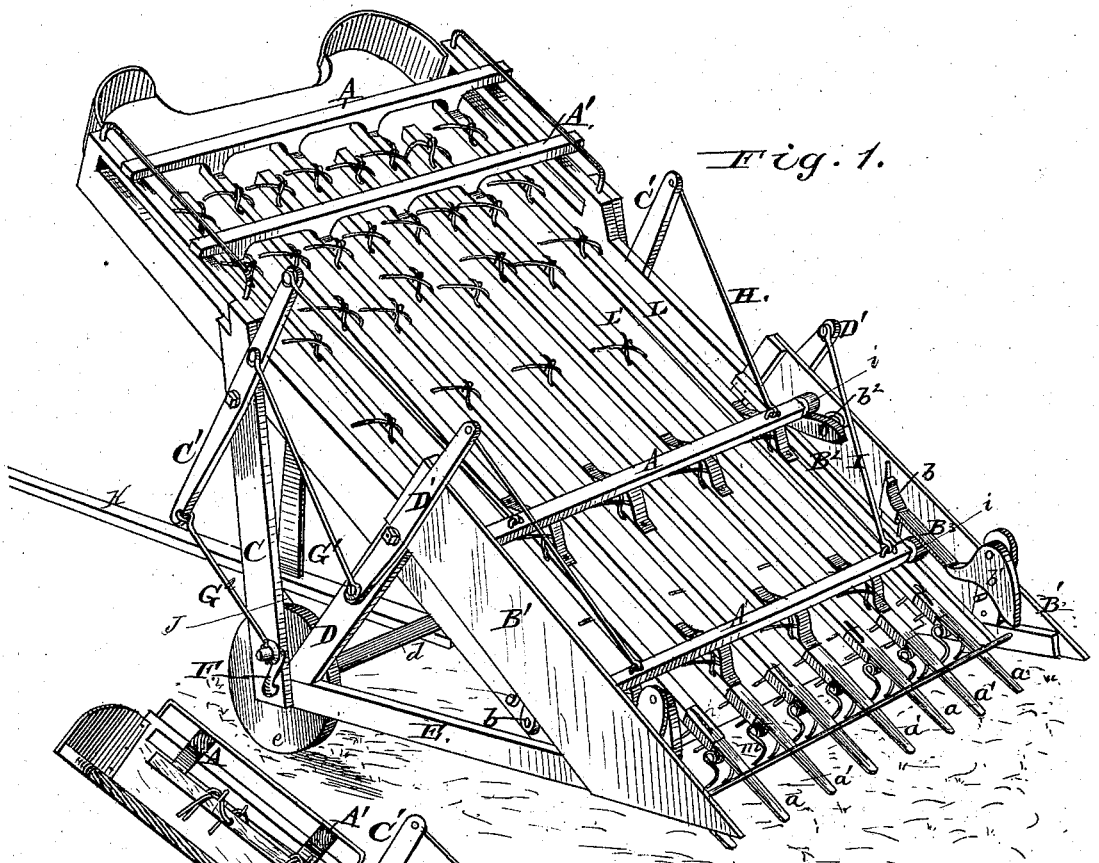

Fig. 2.

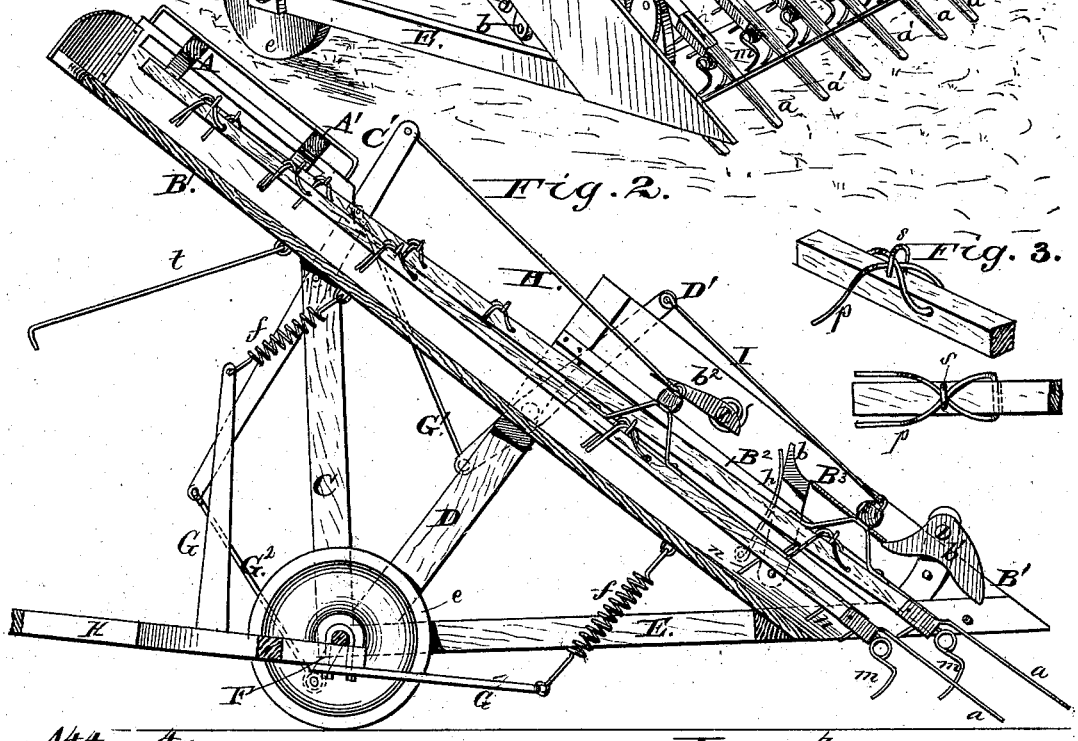

Fig. 3.

Attest:

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DEWITT C. JEWETT, OF SAND SPRING, IOWA.

IMPROVEMENT IN HAY-LOADERS.

Specification forming part of Letters Patent No. **217,110**, dated July 1, 1879; application filed November 9, 1878.

To all whom it may concern:

Be it known that I, DEWITT C. JEWETT, of Sand Spring, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Hay-Loaders; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of hay rakes and loaders which are intended to be connected to an ordinary wagon and drawn over the field to gather the hay and load the same on the wagon; and the nature of the invention consists in the construction and arrangement of two separate sets of rakes operating over an incline, each rake having rigid and yielding rake-teeth, and the incline supported upon springs.

The invention further consists in the construction of the mechanism for operating the rakes, and in the combination of parts, as will be hereinafter more fully set forth, and pointed out in the claims.

In the annexed drawings, to which reference is made, and which fully illustrate the invention, Figure 1 is a perspective view of the improved hay rake and loader. Fig. 2 is a longitudinal vertical section of the same; and Fig. 3 shows the construction of the yielding rake-teeth.

B represents the incline over which the rakes work. This incline is at each side provided with a frame-work, C D E, rigidly attached thereto, and substantially of the form shown, or of any other suitable form that will answer the purpose. Through the lower portions of these frames is passed the axle *d*, which has its bearings in suitable boxes attached to said frames. The axle *d* is provided near each end with a wheel, *e*, rigidly secured thereon, and upon which the machine is supported.

On the axle *d*, inside of the wheels *e*, are hung the hounds J J, with the tongue or draw-bar K secured to them for connection with the wagon. The tongue K is provided with two arms, G G, one extending vertically upward and the other rearward, and these arms are, by springs *f f*, connected with the under side of the incline B, for supporting the same in proper position while moving over the field, and at the same time allow it to yield and accommodate itself to any unevenness in the ground. This is of great importance, as otherwise the lower rake-teeth would sometimes not take hold of the hay, and at other times they would be forced into the ground and broken or otherwise injured. These difficulties are entirely overcome by the application of the springs between the incline and the device that forms the connection with the wagon.

Each end of the axle *d* is formed or provided with a crank, F, which is, by a pitman, G^2, connected with the lower end of a lever, C′, pivoted to the part C of the frame. This lever is, at a suitable point above its fulcrum, provided with a rod, G^1, which connects it with the lower end of another lever, D′, pivoted to the part D of the frame.

It will thus be seen that when the machine is in motion these levers C′ and D′ obtain an oscillating movement on their fulcrums, and in opposite directions.

Over the incline B work two sets or series of rakes, L and L′, said rakes being arranged alternately, as shown, and connected, respectively, by means of cross-bars A and A′, so as to form two separate and independent rake-frames. The two levers C′ C′ are, by rods H H, connected with the rake-frame A L, and the two levers D′ D′ are, by similar rods I I, connected with the rake-frame A′ L′. The upper cross-bars of the two rake-frames work at their ends in guides K K, parallel to the incline, so as to retain the upper ends of the various rakes in the same position, or the same distance from the incline.

The two sets of rakes are moved alternately in opposite directions up and down, while the lower ends of the rakes are at the same time farther out from and closer into the incline. This is accomplished by the following means: The lower cross-bar of each set of rakes is, at each end, provided with a friction-roller, *i*, to move upon a track, B^2, which is parallel with the incline. Above this track is a switch, so arranged that at the upward movement of the

rakes the rollers *i* will pass under the same, but at the downward movement the rollers will pass up such switches, and thus raise the rakes from the incline, allowing the lower teeth of the rakes to pass over the hay on the ground, and, as the rakes drop down after passing the switches, said teeth take hold of the hay and at once move upward again.

The switch may consist simply of a pivoted pawl or dog, b^2, actuated by a spring; but preferably it consists of an auxiliary track, B^3, elevated above and parallel with the track B^2. At the lower end of the track B^3 is a pivoted latch, b^1, held by its own gravity against the end of the track. At the upper end of the track B^3 is a lever, *b*, pivoted at its lower end, and held by a spring, *h*, against the end of the track. The upper end of the lever *b* is made concave, as shown. The operation of this switch is as follows: During the upward movement of the rakes the rollers *i* move on the track B^2, and as the roller strikes the lever *b* it forces the same backward until the roller is caught in the concave end of the lever. The upward movement of the rakes then ceases, and the springs *h*, forcing the levers *b* forward against the tracks B^3, raise the rakes to said tracks just as the downward movement of the rakes commences. As the rollers *i* reach the lower ends of the tracks B^3 they pass onto the latches b^1, which at once allows the rakes to fall till the rollers are on the tracks B^2, the latches at once swinging back and closing the gap.

The lower end of each rake is provided with a projecting spring-finger, *a*, to rest upon the ground and aid in preventing any injury to the lower rake-teeth. This spring-finger is formed with a socket at its inner end to fit over the end of the rake. In the end of the rake under the finger is a double rake-tooth, *m*, made of a single piece of wire twisted to form a coil for each tooth, and the center of the wire fastened in the rake-bar.

The lower portion of each rake is provided with a series of rigid teeth, *n*, as this portion of each rake changes its plane of motion, as above described, and hence needs no yielding teeth; but the remaining portion of each rake must have its teeth yielding, so as to pass over the hay on the incline during the downward movement of the rake, but take hold of and carry up the hay during the upward movement. To this end double rake-teeth *p* are provided, each formed of a single piece of wire passed horizontally through the rake, then passed upward and forward over the rake, crossed and passed through a staple, *s*, and the ends turned downward and forward at the sides of the rake and projecting below the same a suitable distance.

It will readily be seen that these teeth will yield and pass over the hay when moving down, and when moving up they will take hold of and carry up the hay.

In going to and from the field the lower ends of the rakes are raised free from contact with the ground by pulling down the upper end of the incline B, and fastening the same by means of a hook, *t*, or in any other suitable manner. The platform B is narrowed at the forward end, as shown, so that the hay will fall to the center of the wagon in loading.

Having thus fully described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a hay rake and loader, the bed or incline over which the rakes work, pivoted to an axle and supported on both sides thereof upon springs, whereby the incline will accommodate itself to the unevenness of the ground, substantially as herein set forth.

2. The combination of two separate alternately-reciprocating sets of rakes, a mechanism for operating the same, and a set of switches for each set of rakes, whereby the lower ends of the rakes will be caused to move in different planes during the upward and downward movement, substantially as herein set forth.

3. The combination of the axle *d*, with crank F at each end, pitmen G^2, levers C′ D′, connecting-rods G^1 H I, and the two rake-frames A L and A′ L′, substantially as and for the purposes herein set forth.

4. In combination with a rake-frame, the track B^2, the elevated track B^3, latch b^1, and concave-ended lever *b*, with spring *h*, substantially as and for the purposes herein set forth.

5. The spring-fingers *a*, secured upon the ends of the rakes, for the purposes herein set forth.

6. The double teeth *p*, passed through the rake-bar, crossed over the same through a staple, *s*, and then bent downward at the sides of the bar, substantially as herein set forth.

7. In a hay rake and loader, the rakes provided at one end with rigid teeth and at the other end with yielding teeth, for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

DEWITT C. JEWETT.

Witnesses:

H. SANDHAUS,

H. W. GILL.