

HALL & PIERCE.

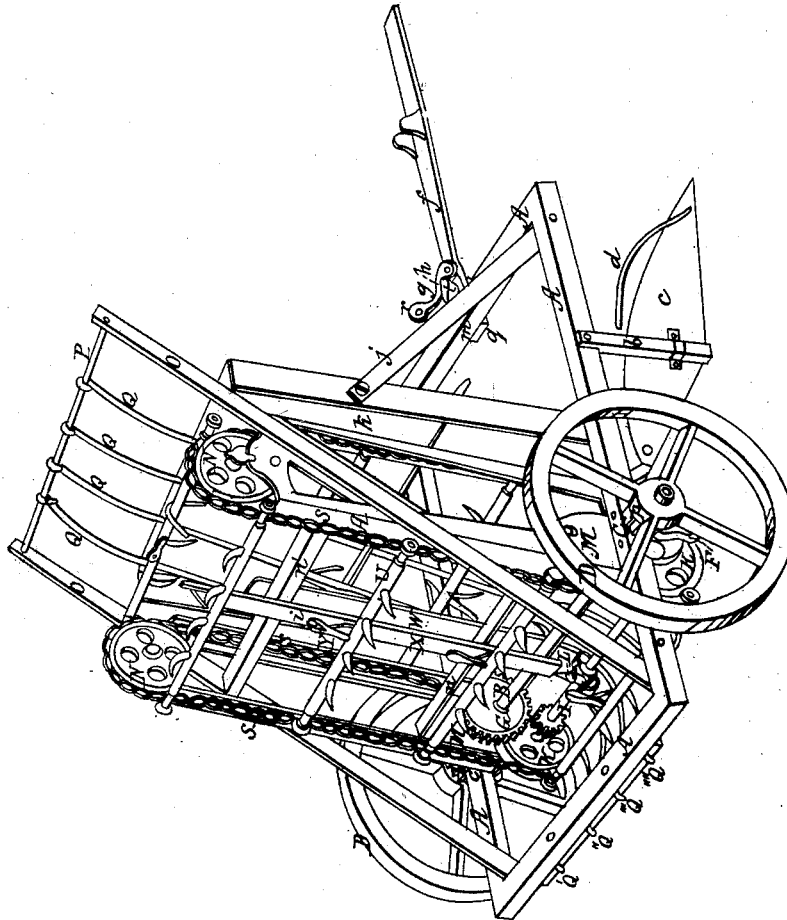
2 Sheets—Sheet 1.

Hay Loader.

No. 45,405.

Patented Dec. 13, 1864.

Fig. 1.



Witnesses.

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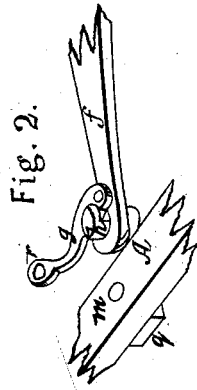


Fig. 6.

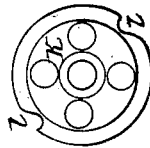
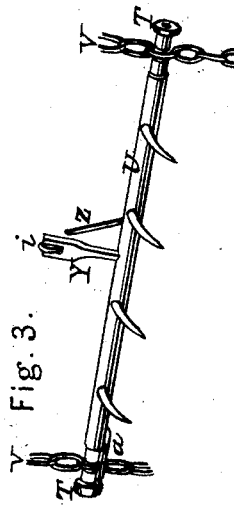
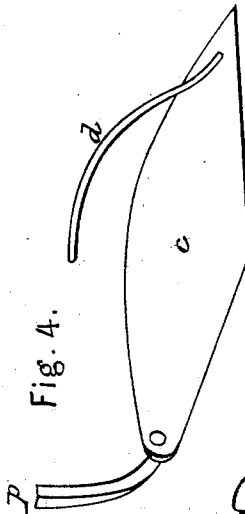


Fig. 5.



Fig. 4.



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# UNITED STATES PATENT OFFICE.

JAMES T. HALL AND ISAAC PIERCE, OF HOLLAND PATENT, NEW YORK.

## IMPROVEMENT IN HAY-LOADING MACHINES.

Specification forming part of Letters Patent No. 45,405, dated December 13, 1864.

### *To all whom it may concern:*

Be it known that we, JAMES T. HALL and ISAAC PIERCE, of Holland Patent, county of Oneida, and State of New York, have invented a new and useful improvement on a machine for loading hay and grain onto a wagon from the field; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the whole machine. Fig. 2 is a sectional view of the method of attaching the machine to the wagon. Fig. 3 is a view of one of the tine-bars and its connections. Fig. 4 is a view of the gathering-board and dividing-rod. Fig. 5 is a sectional view of shaft I, on which is collar J, to which is connected spring-arms *e e*. Fig. 6 is a view of groove-pulleys K K, showing cross-grooves *c c*, which receive tine-bars.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same letters referring to the same parts on each figure.

We make frame A of wood or other suitable material, to which is attached shaft B at C. On the ends of shaft B are attached driving-wheels D and D, which support the machine. On shaft B, between wheels D and D and frame A, are ratchets E, which are made fast to shaft B, and connect with wheels D by dog F, by which means the machine in moving forward revolves shaft B. On shaft B is gear-wheel G, which meshes into pinion H on shaft I, the ends of which are supported at the lower ends of uprights M M.

Near the ends of shaft I are pulleys K K, over which pass endless chains V V and tine-bars U, Fig. 3.

At the top of uprights M M are attached groove-pulleys M N, Fig. 1, for the purpose of supporting endless chains V V.

On uprights M M are flanges S S S and S, which form track for rollers T T to pass up and down.

To uprights M M are attached cross-bars *n* and *n'*, supporting bars W and X, which form

track for rollers *i i*, &c., in arm Y to pass up and down.

To rear end of frame A are attached braces O and O, and secured to uprights M M at the cross-bar *n'*, which continue up to rod P, and forms its support.

To endless chains V V are attached any suitable number of tine-bars, U, as seen in Fig. 3.

On the ends of tine-bars U are attached rollers T T.

Near one end of tine-bar U is attached rod *a*, Fig. 3, which prevents tine-bar U from revolving farther than required.

In the center of tine-bar U is arm Y, in the end of which is roller *i*, said arms and roller keeping tine-bar U in proper position.

Near the arm Y on tine-bar U is rod Z.

To rod P is attached clearing-rods Q Q Q Q, which pass down in front of tine-bars and under the bottom of same, and attached to frame A at Q' Q'' Q''' Q'''.

The apron *k* stands in front of tine-bars U, the sides of which pass down and connect with frame A. *j* is a brace for supporting apron *k*.

*c* is a gathering-board, which is attached to uprights M by support *p*, and held in position by leg *b*, which is attached to frame A.

On forward end of gathering-board *c* is attached dividing-rod *d*.

On front end of frame A is attached block *g*, Fig. 2, at front end of which is standard *h*, on which sets bar *f*, being held there by lever *g*, bar *f* being permanently attached to the wagon, and is liberated from the machine by pulling a cord to be attached to lever *g* at *r*, said rope passing under the wagon and up the front end of said wagon.

The operation is as follows: The bar *f*, being attached to the reach of the wagon and passing back to the machine, as shown, draws the machine behind the wagon. On being put in motion the groove-pulleys K K cause the endless chains V V to pass down on the back side and up on front side of pulleys K K and N N, rod *a* holding the tine-bars U U, &c., in position one way, and arm Y, with roller *i*, passing down track X, keeps it in position the other way. When roller *i* gets to bottom of track X it strikes onto the end of spring-arm *e*, which is adjusted by screw L, keeping tine-

bar in proper position (while passing under) and delivering roller *i* onto track W, which track keeps it in position while passing up. When roller *i* reaches top of track W the roller passes off the end of said track, allowing the tines to drop, and thereby delivering the hay which has been taken from the ground. While tine-bar U is passing over pulleys N N rod Z strikes against a side elevation of track X, placing tine-bars U in same position as when started. Spring-arms *e e* allow tines in tine-bar U to spring back while passing over any obstruction, and immediately brings them into proper position after passing over the same. Clearing-rods Q Q Q Q prevent the hay from remaining on tines or tine-bars while passing back over top of the machine, apron *k* keeping the hay from the load while passing up to the proper height for delivery onto the load. The gathering-board *c* and dividing-rod *d* gather in the hay from front of driving-wheel D for machine to elevate. The person on the load, when loaded, pulling on the cord, as before described, detaches the machine from the load, thus saving the trouble of getting off the

load, the whole being arranged and operated substantially as shown and described.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The spring-arms *ee* on collar J, constructed and applied in the manner and for the purposes as shown and described.

2. The combination, with tine-bar U, of the rod *a*, arm Y, and rod Z, substantially as shown and described.

3. In combination with the tracks W X S S S S, the rollers *ii* and T T, as shown and described.

4. The combination of the standard *h*, lever *g*, and bar *f*, or their equivalents, substantially as shown and described.

5. The gathering-boards *c c* and dividing-rods *d d*, in combination with the frame A and the elevating apparatus herein described, substantially as and for the purposes set forth.

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