

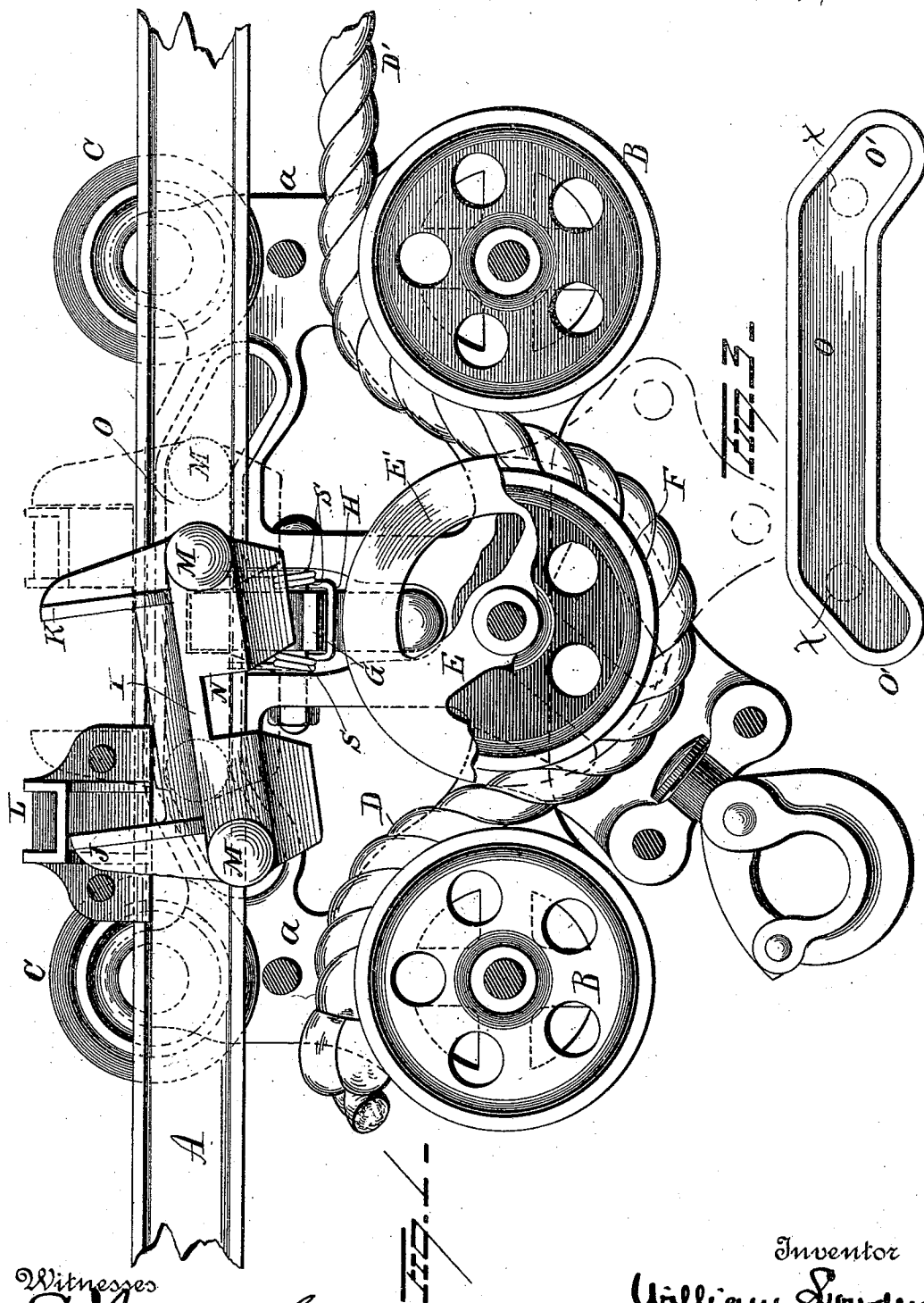
(No Model.)

W. LOUDEN.
HAY CARRIER.

2 Sheets—Sheet 1.

No. 515,296.

Patented Feb. 20, 1894.



Witnesses
E. J. Houghton
G. J. Downing

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By R. A. Symons
Attorney

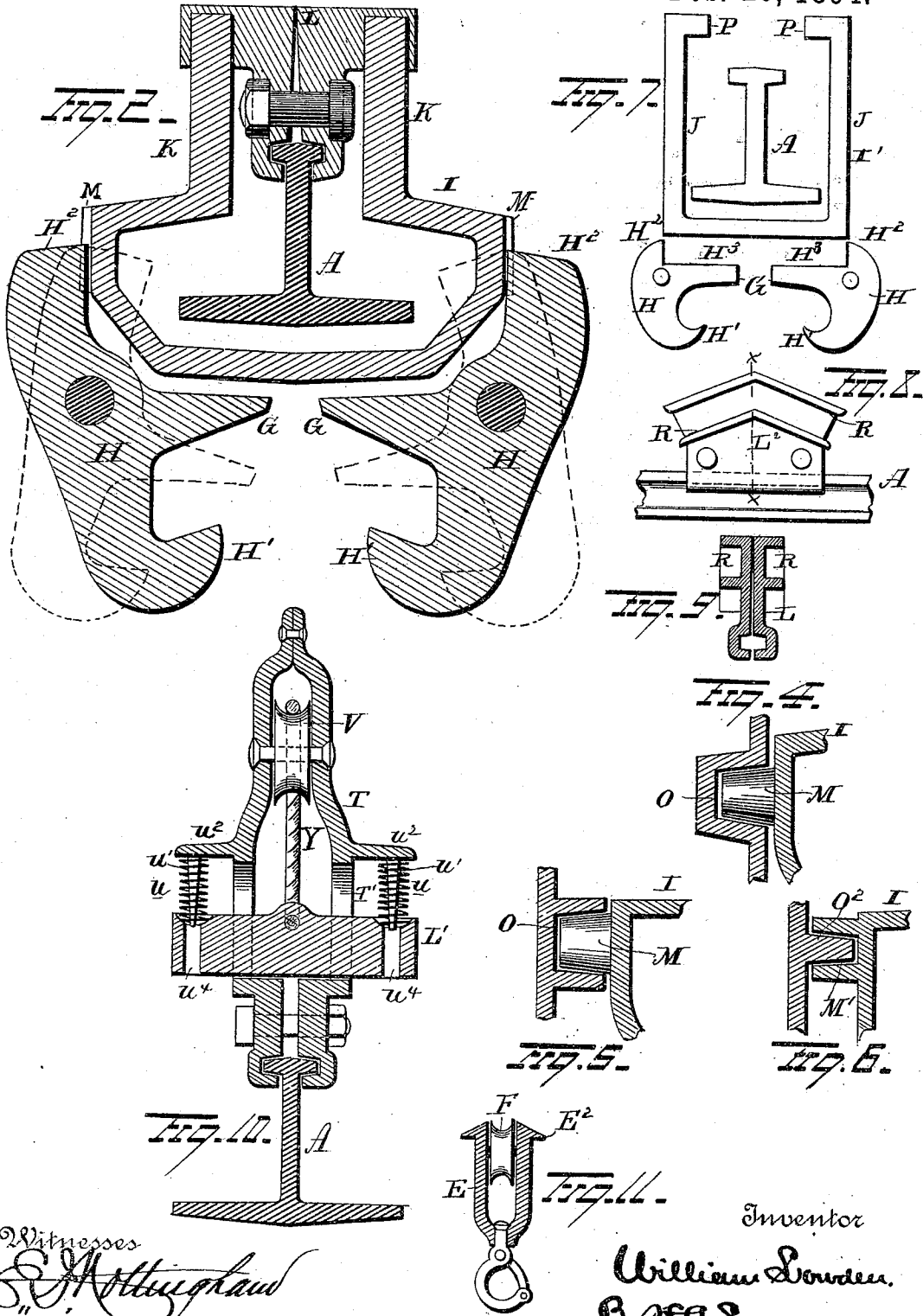
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UNITED STATES PATENT OFFICE.

WILLIAM LOUDEN, OF FAIRFIELD, IOWA, ASSIGNOR TO THE LOUDEN
MACHINERY COMPANY, OF SAME PLACE.

HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 515,296, dated February 20, 1894.

Application filed October 17, 1891. Renewed January 18, 1894. Serial No. 497,330. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LOUDEN, a resident of Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Hay-Carriers; and I 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.

My invention relates to an improvement in hay carriers,—its object being to provide a hay carrier which shall be simple in construction, comprising a small number of parts; one which shall be easy to manipulate and be effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a side view of a carrier with front side removed and part of the block E broken away. Fig. 2 is a cross section of the track A, hooks H, H, casting I and stop L. Fig. 3 is a detail view illustrating the groove O. Figs. 4, 5 and 6 are sectional views of different forms of same. Figs. 7 and 8 are views of modifications of the key I and stop L. Fig. 9 is a vertical section through the construction shown in Fig. 8. Fig. 10 is a sectional view showing adjustable stop L'. Fig. 11 is a view illustrating a modification of the block E.

A represents a T-rail upon which the carrier runs. The carrier is composed principally of two side pieces *a* suitably joined together so as to straddle the track A, and provided with sheaves B, B, and track rollers C, C. A draft rope D is passed over the sheaves B, B, and under the sheave F of block E in the usual manner. The block E is fitted with semicircular portions, as for instance loops E'—(Fig. 1) or semicircular ribs E² as shown in Fig. 11, one on each side of its upper end. Grappling hooks H, H, are pivoted to opposite sides of the carrier frame,—one to each side and opposite each other, and are provided with inwardly extending webs or flanges G, G. Power being applied to the end D' of the draft rope, the block E will be drawn up

until its upper end comes in contact with the flanges G, G, and forces the lower points H', H', in under the loops E' of the block E, and the upper ends H², H², will be spread apart and held in this position by a wedge or key I sliding or dropping in between them, as will be hereinafter explained. The block E will now be securely held by the hooks H, H, and yet will be entirely free to swing back or forth on the points H', H', of the hooks H, H, within the limits of the loops E', to accommodate the line of draft in carrying a load along an inclined track, or in dragging a forkful of hay over the hay in a partially filled mow. By this means all side strain on the block E is obviated, and one end of the carrier cannot be tipped up on the track, as is the case when the connection between the block E and the grappling mechanism is more or less rigid. It will be observed that these lips or loops E', E², are parallel or approximately parallel with the periphery of the sheave F, and concentric with the axis of the sheave so that the frame of the block will be free to swing without affecting the position of the sheave.

The key or wedge I is preferably made hollow so as to straddle the track and with forked ends to project up above the track and engage a stop secured to the upper part of the rail. There are different ways of constructing the key I, but the form preferred is shown in Figs. 1 and 2, in which the key I is adapted to slide horizontally in the frame of the carrier, and is provided with two sets of prongs or forks J and K which engage the laterally projecting ends of stops L secured to the upper part of the rail A.

The casting constituting the wedge or key I is provided with bosses or stud pins M, M, which are adapted to slide in grooves O, formed in both sides of the carrier frame opposite each other. The central part of this groove or guide O is placed horizontally, while the ends O' are depressed so that when the bosses or stud pins on either end of the casting I run into this depressed part of the groove or guide O', this end of the casting I will drop sufficiently to let the prongs or forks above it pass under the stop L. Wedge or

key I is also fitted with a notch N at or near its center into which the upper ends H^2 , H^2 , of the grappling hooks will enter, and hold the casting I in a central position, as indicated by dotted lines in Fig. 1. The stop L being now between the forks J and K the carrier will be held stationary on the track. Power being applied to the draft rope at D', the carrier will be drawn along the track until the fork J comes in contact with the stop L. The ends H^2 , H^2 , being in the notch N, the casting I, will be held from sliding in the groove O until the block E comes in contact with the flanges G, G, and frees the key or wedge I by raising the hooks H, H out of the notch N. Key or wedge I will then be drawn into the position shown in full lines in Fig. 1 and freed from stop L, while it will also be securely wedged in between the upper ends H^2 , H^2 , of the hooks H, H, and their lower ends H' , H' , be held securely under the loops E' of the block E, thus securely holding the block E, with its load, to the carrier while it is traversing the track. The carrier being drawn back by a pull on the draft rope D' (or otherwise) the prong J will pass under the stop L, which will engage the prong K and slide casting I back in the groove O until hooks H, H, drop into the notch N, which will release block E from hooks H, H, and lock the carrier to the track, as already described. In order to make it more certain in its operation and prevent the weight of the free end of the draft rope D' from holding the block E up against the flanges G, G, of the hooks H, H, and prevent their upper ends from dropping into the notch N as it passes by them, I use coiled springs S, S, so applied as to force the upper ends of the hooks H, H, in and the lower ends out.

I am aware that springs have been applied to the grappling hooks of a hay carrier, but always for the purpose of making the hook take hold of the block E. I use mine in the opposite way, and simply for the purpose of overbalancing the weight of the free end of the rope (D') and preventing it from holding the hooks H, H, out of the notch N, in which case the carrier would run by the stop L. Any form of spring may be used for the purpose.

The groove or guide O may be constructed in different ways: first, by letting it into the sides of the carrier frame as shown in Fig. 4; second, by forming it entirely on the inside of the carrier frame by means of two parallel flanges, as shown in Fig. 5, or, third, by using a single flange O² as a guide or way and making the boss M forked to fit over it as shown by M' in Fig. 6.

It is evident that the carrier, by changing the attachment of the motive power from one end of the draft rope to the other, will work in either direction from the stop L. But if desired it can be converted into a one way carrier by simply placing a bolt or stops X at

either end of the horizontal part of the groove or guide O, so that the casting I could not pass it. However it would not work if a stop X were placed at both ends of the groove O at the same time.

While I consider the form of the key I shown in Figs. 1 and 2 the most preferable form, still I am aware that other forms can be used to advantage. That shown in Fig. 7 can be used without departing from the fundamental features of my invention. Like the other, the key I' is made hollow to straddle the track with the forked end extending up to engage a stop secured to the upper edge of the track, but it is adapted to slide up and down perpendicularly in the frame of the carrier. The stop L² is provided with inclined flanges R, R, (Fig. 8) which engage the inwardly projecting points P, P, and lift the wedge I' out of the corners H^3 , H^3 , and allow the hooks to swing and release the block E, the hooks H, H, holding the points P, P, of the wedge I' up in the central part of the inclined flanges R, R. The block E coming in contact with the flanges G, G, turns the hooks H, H, so the wedge I' can drop down in the corners H^3 , H^3 , thus locking the block E fast and freeing the carrier from the stop L. The fundamental feature in both these constructions is the forked (or hollow) key I (or I') arranged to straddle the track, with its forked ends projecting up to engage a stop secured to the upper edge of the rail A, so that the lower edge of the rail may be left entirely smooth and clear of all obstructions. By this means the lower part of the carrier can be drawn up closer to the rail, and a very light but strong and compact carrier can be constructed.

The stop L is made in two pieces and is bolted or otherwise clamped to the upper edge of the central part of the rail A. By this means it can be easily and quickly applied to or removed from any part of the rail and no drilling or any other previous preparation of the rail will be required.

When the carrier is to work from a single stop on the track the stop can be made rigid, as shown in Figs. 1 and 2, but when it has to elevate at a number of points on the track it is better that the stops necessary for the several points be made so they can be drawn or pushed up out of the way, so that the forks of the wedge or key can pass entirely by them when necessary. In order to accomplish this I form the stop as shown in Fig. 10, in which the piece L' forming the stop is placed in a slot T' of a frame T, which is clamped to the rail A, the piece L' being held in its place by means of coiled springs u , u . The coiled springs u encircle fingers u' , which depend from arms u^2 projecting laterally from the frame T, said fingers being adapted to enter perforations u^4 in the stop L'. When the stop L' is approached by the highest forks of the casting I from the outside, it will slide up

the incline of said fork and over it, to pass it; and, the frame T may be fitted with a sheave V over which a cord Y attached to the stop L' is passed, so that the stop L' may be raised out of the way by pulling on the cord Y.

Although I have shown and described in this application a stop located on the upper edge of a track rail, in connection with a carrier, and a dog adapted to engage the stop and be operated thereby, I make no claim in this application to this construction broadly as the same forms the subject-matter of application, Serial No. 450,359, filed October 29, 1892.

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

1. The combination with a track, and a stop stationed at the upper edge of the latter, of a carrier, grappling device pivoted to the carrier, key having sliding connection therewith, said key straddling the track and adapted to engage the stop, substantially as set forth.

2. The combination with a track, and a stop secured thereto, of a carrier, grappling hooks pivoted thereto, and a key having rocking and limited horizontal sliding connection with the carrier said key straddling the track and adapted to engage the stop, substantially as set forth.

3. The combination with a track having a stop thereon, of a carrier having grappling hooks pivoted thereto, a key having sliding connection with the carrier and constructed to straddle the track, said key adapted to engage the stop, and a block having semi-circular portions constructed for engagement with the grappling hooks.

4. In a hay carrier, the combination with grappling hooks constructed and adapted to engage a block, of a horizontal sliding key adapted to lock and unlock the hooks, and a stop on the track to operate the key, substantially as set forth.

5. In a hay carrier, the combination with grappling hooks, of a sliding wedge or key having notches in its sides adapted to receive said grappling hooks, substantially as set forth.

6. In a hay carrier, the combination with a rail, and a stop carried by the rail, of grappling hooks, and a wedge or key having notched sides adapted to operate said grappling hooks and be operated by the stop on the rail, substantially as set forth.

7. In a hay carrier, the combination with a frame having grooves thereon, of grappling hooks and a rocking wedge or key adapted to have a horizontal sliding movement in said grooves, and operate the grappling hooks, said wedge or key straddling the rail on which the carrier is mounted, substantially as set forth.

8. In a hay carrier, the combination with a frame having grooves therein, the ends of said grooves being made at an angle to each

other, of a wedge or key, arms on said wedge or key, said wedge or key having projections to operate in said grooves, substantially as set forth.

9. The combination with a rail and a hay carrier, of a frame secured to said rail, a stop carried by said rail, and springs inserted between the stop and frame, substantially as set forth.

10. The combination with a rail, and hay carrier, of a frame made in two parts and secured to said rail, a stop carried by said frame, a pulley carried by said frame, and a rope or cord secured to the stop and passed over the pulley, substantially as set forth.

11. The combination with a rail, and a hay carrier, of a frame, clamped to the rail, a stop passing loosely through an elongated opening in said frame, fingers depending from the arms and adapted to enter perforations in the stop, and springs encircling said fingers, substantially as set forth.

12. In a hay carrier, the combination of grappling hooks to engage a block, a sliding key to operate the hooks, and springs applied to the hooks to force them into engagement with the key and to discharge the block, substantially as set forth.

13. The combination with a carrier and grappling hooks connected therewith, of a block having semi-circular portions formed approximately parallel with the periphery of the sheave engaging the hooks and having sliding connection therewith, substantially as set forth.

14. The combination with a carrier, and grappling hooks connected therewith, of a block having a sheave therein and semi-circular portions on the block frame made to conform approximately to the periphery of the sheave, so that the block in swinging will turn substantially on the same pivot as the sheave, said semi-circular portions adapted to be engaged by the grappling hooks.

15. The combination with a carrier frame constructed to permit the free swing of the block held therein, of a block having a sheave therein, semi-circular portions apparently parallel with the periphery of the sheave, and grappling hooks pivoted to the carrier and adapted to engage the semi-circular portions, substantially as set forth.

16. The combination with a carrier frame, and a pair of grappling hooks pivoted on each side of the carrier frame at right angles to it, of a key sliding longitudinally between the hooks, substantially as set forth.

17. The combination with a track, of a sliding wedge or key and grappling hooks, said wedge or key provided with notches for the hooks to enter in order to release a block supported thereon, substantially as set forth.

18. The combination with a carrier frame having grooves therein, of grappling hooks, and a rocking wedge or key adapted to have a horizontal sliding movement in said grooves

and operate the grappling hooks, substantially as set forth.

19. The combination with a carrier, of a key having sliding connection with the carrier, and a removable stop adapted to be inserted in the carrier to limit the sliding of the key, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM LOUDEN.

Witnesses:

R. B. LOUDEN,
W. H. PENCE.