No. 634,949. Patented Oct. 17, 1899.

W. LOUDEN.

HAY CARRIER.

(Application filed June 26, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

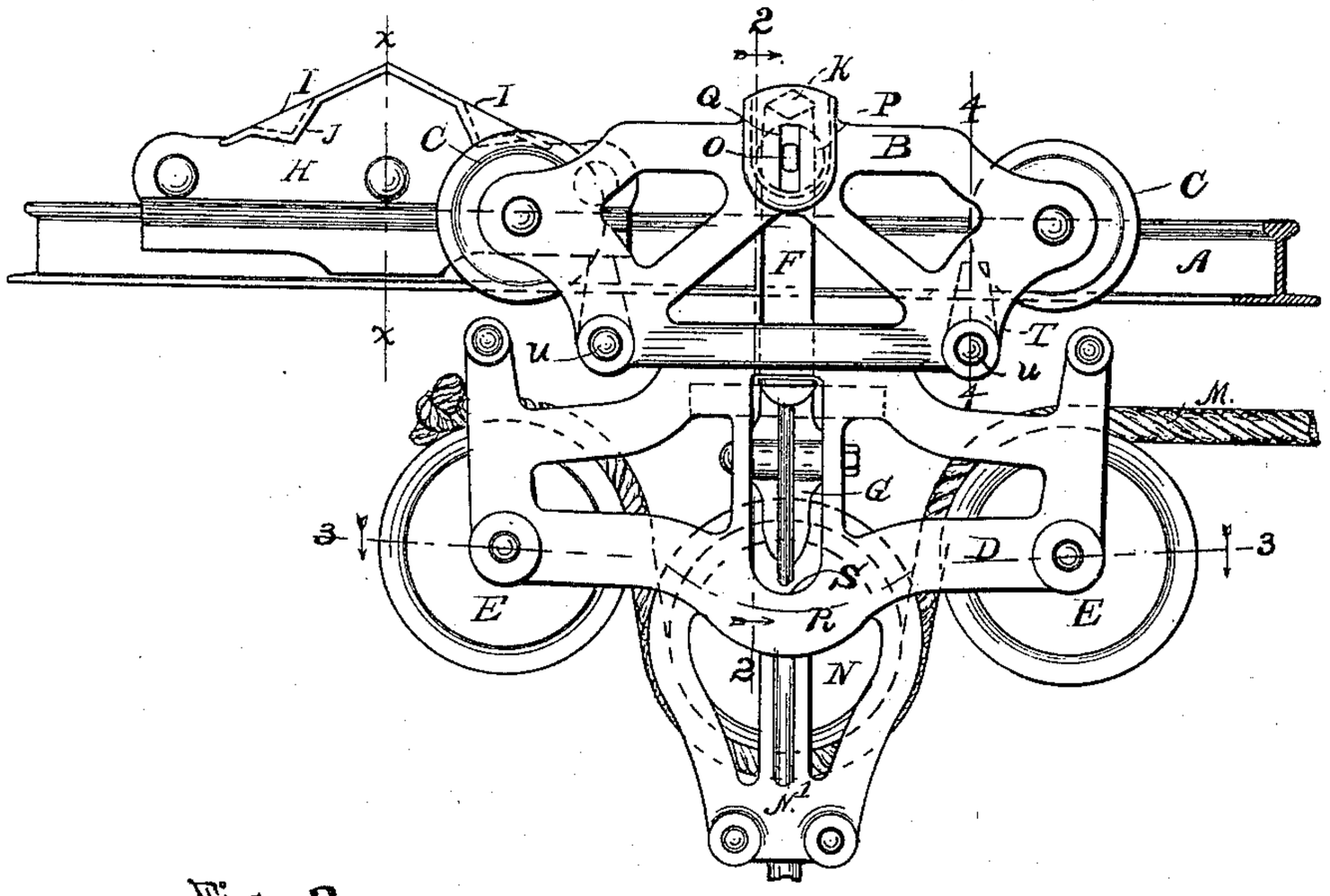


Fig. 2.

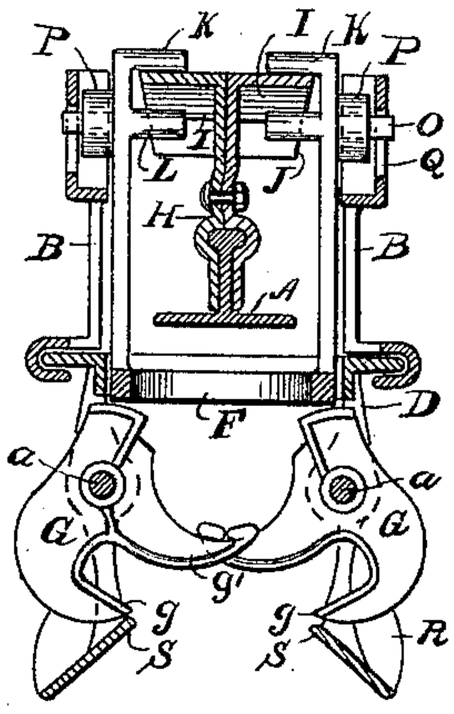
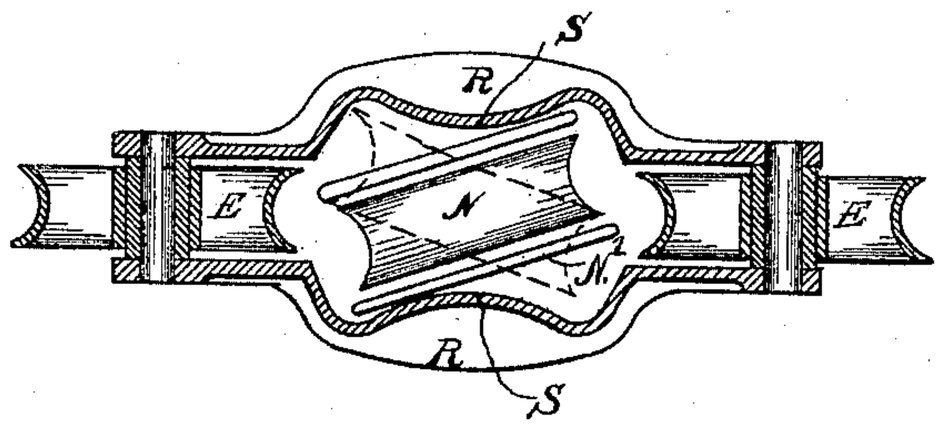


Fig. 3



Witnesses:

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William Louden

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4

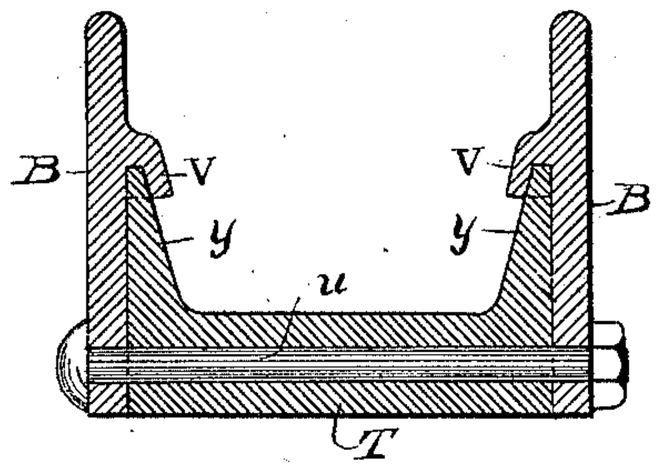


Fig. 5

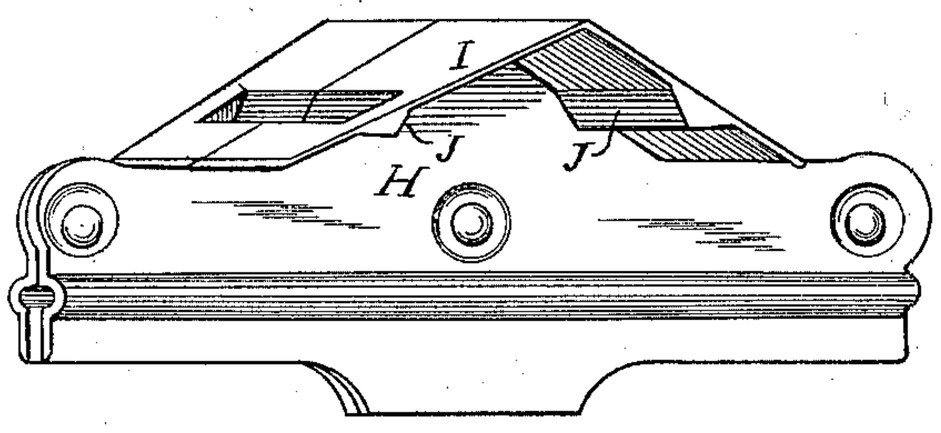


Fig. 6

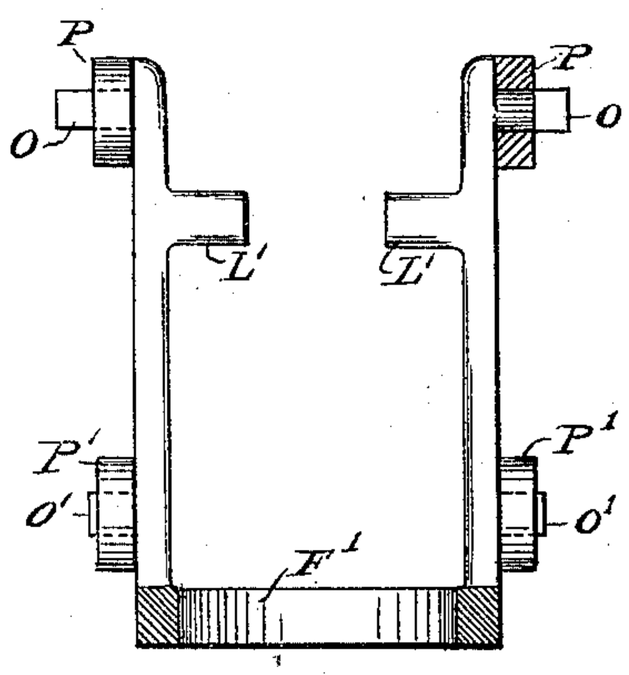
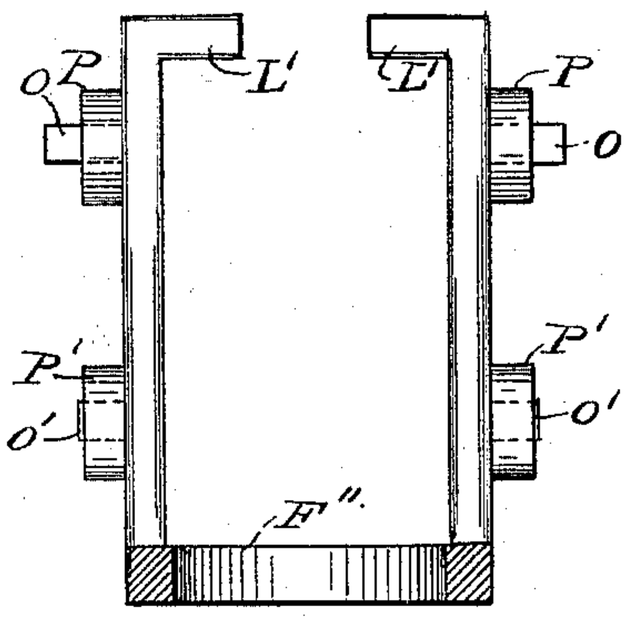


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM LOUDEN, OF FAIRFIELD, IOWA.

HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 634,949, dated October 17, 1899.

Application filed June 26, 1899. Serial No. 721,830. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LOUDEN, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented a new and useful Improvement in Hay-Carriers, of which the following is a specification.

This invention relates to an improvement whereby the various parts of a hay-carrier may be put together and taken apart more readily and are made to operate more easily and perfectly; and it consists of the features herein described, and more particularly defined in the claims.

Figure 1 is a side view of the invention. Fig. 2 is a vertical cross-section on the line 2 2 of Fig. 1, the carrier being drawn along the track-rail until this line coincides with line *x x*, which will operate the lock mechanism and let the elevating-pulley descend out of sight. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1, the hoisting-rope being removed and the top of the elevating-pulley being shown in outline in one position and by dotted lines in another. Fig. 4 is a cross-section on line 4 4 of Fig. 1. Fig. 5 is a perspective of the stop which is secured to the track-rail in Fig. 1. Figs. 6 and 7 are views of modified forms of the locking-dog.

A represents the track-rail, and B the part of the upper frame of the carrier upon which the track-wheels C are mounted.

D is the lower frame, which is swiveled to the upper frame and carries the rope-wheels E.

F is a locking-dog, which is adapted to slide up and down in the frame B and engage and be engaged by the grappling-hooks G, as will be explained hereinafter.

H is a stop adapted to be clamped to the head of the track-rail A. On its upper edges it is provided with inclined flanges I, and on the lower sides of these flanges are abruptly-inclined shoulders J. The dog F is fitted with upper lugs K, which project horizontally and are adapted to slide up on the inclined flanges I; also, with similarly-projecting lower lugs L, which are adapted to catch against the shoulders J when the dog is held in elevated position, and will thus hold the carrier stationary on the track.

M is the hoisting-rope, which is passed over the rope-wheels E, and N is the elevating-pulley, which is hung in the usual manner in the loop of the hoisting-rope between the rope-wheels E, the attaching-hook of the pulley being broken away in the drawings.

The grappling-hooks G are pivoted at *a* in opposite sides of the frame D and are provided with intermediate fingers *g'*. When the pulley N is drawn up against these fingers, the hooks will be turned so as to bring their lower ends *g* into engagement with the frame N' of the pulley N and the lower end of the dog F will drop between the upper ends of the hooks G and will hold them in that position. At the same time the lower lugs L of the dog F will pass below the shoulders J and will release the carrier from the stop H, and the elevating-pulley N, with its load attached, will be securely held by the grappling-hooks G while the carrier is drawn along the track. The carrier being returned to the stop H, the upper lugs K will slide up the incline I, which will lift the dog F from between the upper ends of the grappling-hooks G and allow them to turn on their pivot *a* and release the pulley N. In order to lighten the stop, the portion of the upper face of the flange I opposite the shoulders J may be cut out, so as to make it a uniform thickness throughout, it only being necessary to leave narrow edges on the upper face of the incline at this place for the lugs K to slide up upon. Abruptly-inclined shoulders similar to J have been used for this purpose before; but when so used they have always been placed above and separate from the incline I, which makes the stop clumsy, especially when affixed to the upper edge of the track-rail, and the retaining-lugs of the locking-dog have to be placed at the extreme upper end of the dog, which makes it weaker and more liable to bind the dog in its up-and-down movement than when the lugs are more centrally placed and adapted to catch on a shoulder on the lower side of the incline I, as arranged in this invention.

The stop is preferably made with double-inclined flanges on its upper edge, having an apex in its center and abruptly-inclined shoulders J on the lower faces of both flanges, so that while the dog is held in elevated position the lower lug L will be between these shoulders and the carrier will be held from

moving in either direction; but it may be made to work only in one direction, if so desired.

In order to reduce the friction in the up-and-down movement of the dog F to the minimum, I form stud pins or axles O on opposite sides of the dog F, and upon these I mount rollers P, and I form grooves or recesses in the frame of the carrier for these rollers to run in. As shown in Figs. 1 and 2, these axles O are set even with the retaining-lugs L, and when arranged in this way there will be little or no friction between the lower end of the dog F and the part of the frame in which it moves; but sometimes in adapting the dog to the frame of the carrier it may not be advantageous to do this and these axles will have to be set above the retaining-lugs L, as in Fig. 6, or below them, as in Fig. 7. In such cases I find it advisable to place additional axles O′ and rollers P′ on the dogs, as shown in these figures, and also provide additional grooves in the frame of the carrier for these additional rollers to run in. In this way the entire strain on the dog is borne by these upper and lower rollers and the friction upon them is reduced to a minimum. The ends of the axles or bosses O are extended out beyond the rollers P and are adapted to move up and down in slots in the frame of the carrier, thus limiting the movement of the dog F and preventing it from getting out of place.

In operation the rope M will sometimes get twisted, so that the pulley N will come up to the carrier more or less twisted, as indicated in Fig. 3, and to assist the pulley in straightening as it enters the carrier-frame I contract the central sides R of the carrier-frame downwardly and extend them inwardly, so as to form a guide for the frame N′ of the pulley N, while the side portions of the frame adjacent to the edges of the pulley-frame N are expanded outwardly, so as to make room for the pulley to enter while in a partially-twisted condition, as shown in Fig. 3. By this construction the pulley N will more readily enter the frame of the carrier and will more readily operate the lock mechanism of the carrier should the pulley become twisted or drawn to the side.

The upper frame of the carrier is composed of two side pieces B and two end pieces T, joining them together. The side pieces B are fitted with recesses or pockets V and the end pieces T with points *y*, adapted to enter these pockets. The lower ends of all the pieces have perforations for bolts *u*, and when the ends *y* are inserted in the pockets V and the bolts *u* are drawn up tight these pieces B and T will be held securely together and being fitted with a circular groove on their lower edges and the frames D with a circular lip to fit and turn in said groove in the usual way the upper and lower frames will be securely swiveled together.

When it is desired to take the pieces B and T apart, all that is necessary is to take out the bolts *u*, when the ends *y* can be readily withdrawn from the pockets V. The lower end of the dog F is preferably made circular, so that it will engage and operate the dogs G no matter in what way the swivel may be turned.

Having thus described my invention, what I claim is—

1. The combination of a track, a carrier adapted to run thereon, a stop secured to said track, an inclined flange on said stop and an abruptly-inclined shoulder on the under side of said flange, a dog adapted to move up and down in the frame of the carrier and be held in elevated position therein, an upper lug on said dog adapted to slide up on said inclined flange, and a lower lug adapted to catch against said shoulder, substantially as set forth.

2. The combination of a track, a carrier adapted to run thereon, a stop secured to said track, doubly-inclined flanges on said stop and abruptly-inclined shoulders on the lower sides of each of said flanges, a dog adapted to move up and down in the frame of the carrier and be held in elevated position therein, upper lugs on said dog adapted to slide up said inclined flanges and lower lugs adapted to catch against said shoulders, substantially as described.

3. In hay-carriers, and in combination with a vertically-movable dog having upper and lower lugs, a stop having inclined flanges on its upper edge, and abruptly-inclined shoulders on the lower sides of said flanges the upper faces of said flanges being cut away opposite said shoulders, substantially as shown and described.

4. In hay-carriers, a dog having a vertical movement in recesses in the frame of the carrier, said dog having lugs thereon for the engagement of a track-stop, bosses or axles on the outer sides of said dog, and rollers mounted on said bosses and adapted to run in said recesses to relieve the dog of friction therein, substantially as described.

5. In hay-carriers, a dog having vertical movement in recesses in the frame of the carrier, said dog having lugs thereon for the engagement of a track-stop, bosses or axles on the outer sides of said dog and rollers mounted on said bosses and adapted to run in said recesses to relieve the dog of friction therein, said bosses being extended out beyond said rollers, and adapted to move in slots in the frame of the carrier, substantially as set forth.

6. In hay-carriers a dog having vertical movement in recesses in the frame of the carrier, said dog having lugs thereon for the engagement of a track-stop, upper and lower bosses on the outer sides of said dog and rollers mounted on said bosses and adapted to run in recesses in the frame of the carrier, substantially as and for the purpose set forth.

7. A hay-carrier having a frame with an open mouth for the admission of an elevat-

ing-pulley, the central portions of said frame on each side of said mouth being contracted to fit the pulley and the ends of the mouth being expanded to accommodate the lateral movement of the edges of the pulley-frame, substantially as described.

8. A hay-carrier having a frame with an open mouth for the admission of an elevating-pulley, the central portions of said frame being extended downwardly and contracted inwardly so as to form a guide for the pulley, substantially as shown and described.

9. A hay-carrier having a frame with an open mouth for the admission of an elevating-pulley, rope-wheels mounted at each end of said mouth and the sides of the frame between said pulleys being extended downwardly to form guides for the pulley, substantially as described.

10. In hay-carriers an upper swivel-frame composed of two side pieces and two end pieces joining the side pieces together, the side pieces being fitted with pockets and the end pieces with points to enter said pockets, and bolts holding the lower ends of said pieces together, substantially as described.

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

WILLIAM LOUDEN.

Witnesses:
JAY TONEY,
ANNA C. HOCH.