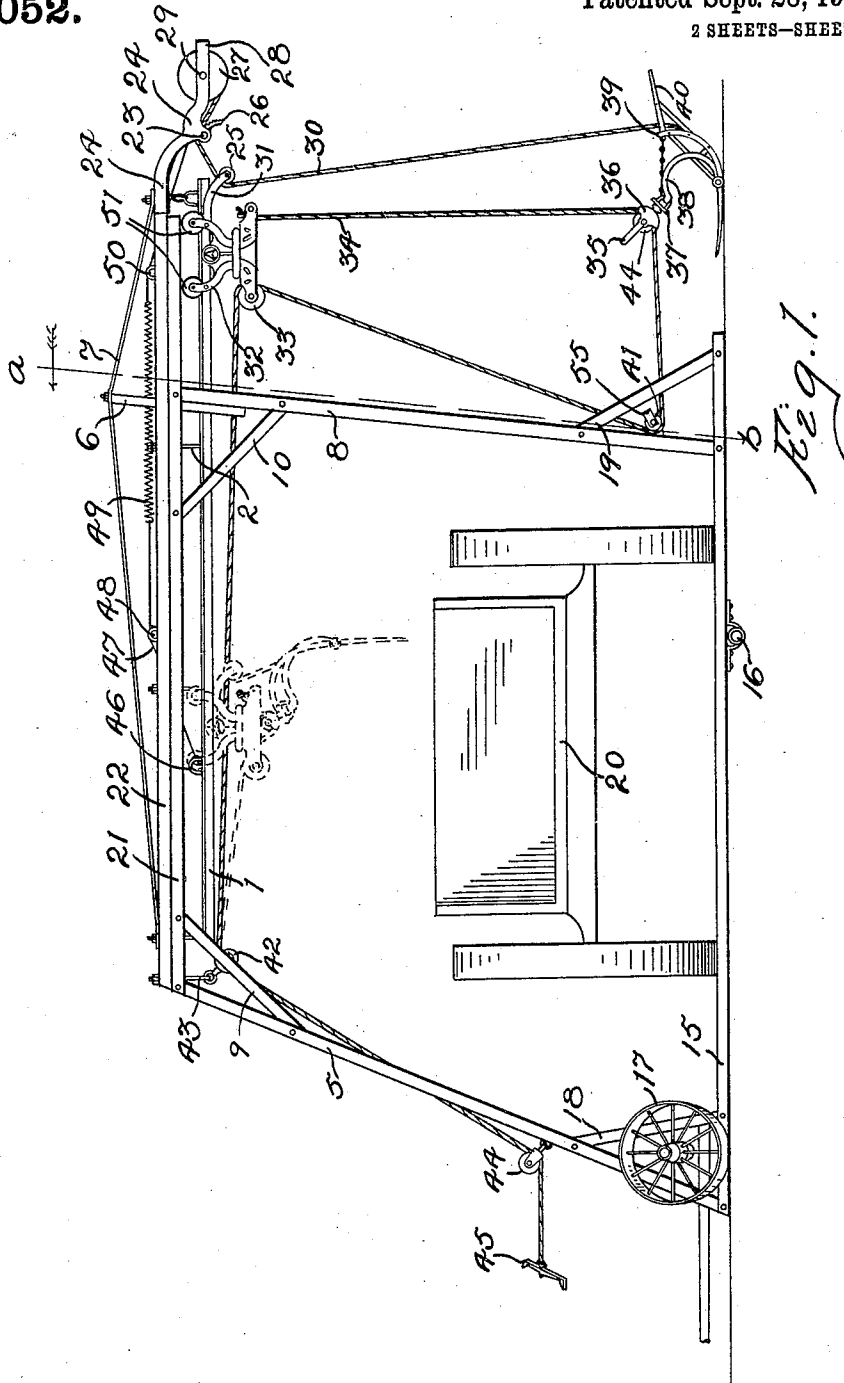


R. PEDERSON.
WAGON LOADING DEVICE.
APPLICATION FILED NOV. 19, 1908.

935,052.

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.



WITNESSES:

H. B. Burr.
J. E. Rolston

BY

G. C. Kennedy.
ATTORNEY

INVENTOR

Rasmus Pederson.

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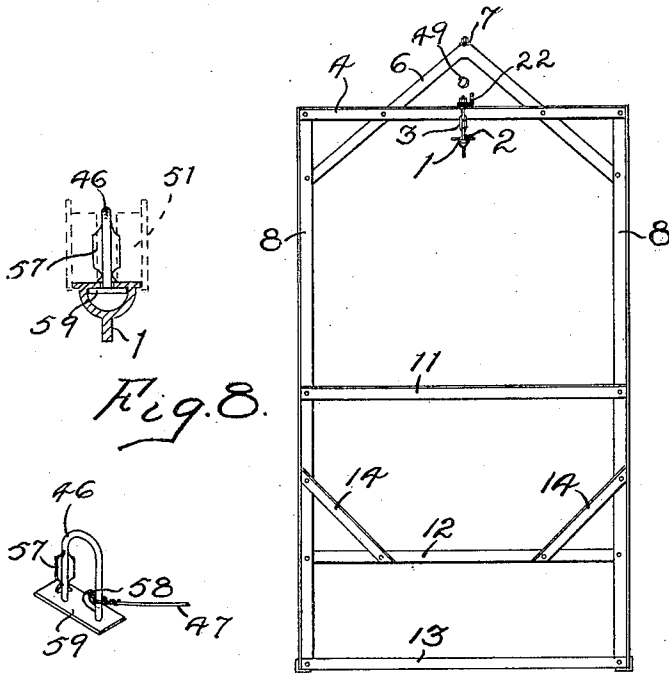


Fig. 2.

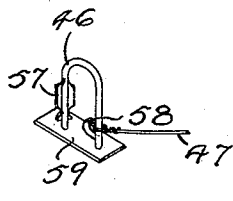


Fig. 3.

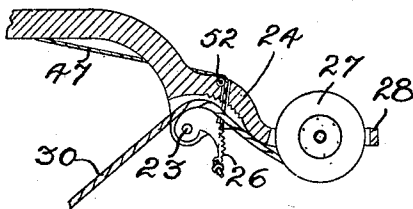


Fig. 4.

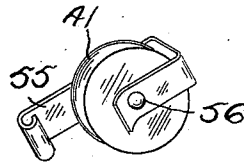


Fig. 5.

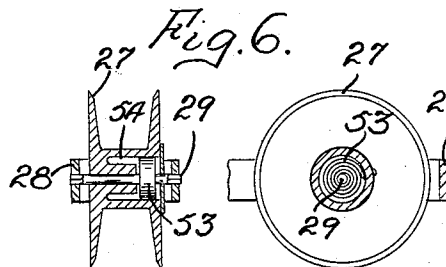


Fig. 6.

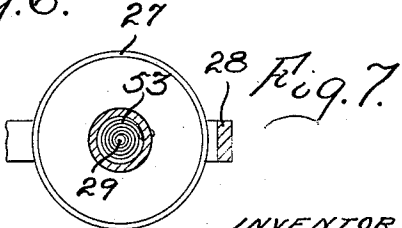


Fig. 7.

WITNESSES:

H. B. Burr.
J. E. Rolston

BY

Rasmus Pederson
G. B. Kennedy
ATTORNEY

UNITED STATES PATENT OFFICE.

RASMUS PEDERSON, OF PARKERSBURG, IOWA.

WAGON-LOADING DEVICE.

935,052.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed November 19, 1908. Serial No. 463,403.

To all whom it may concern:

Be it known that I, RASMUS PEDERSON, a citizen of the United States of America, and a resident of Parkersburg, Butler county, Iowa, have invented certain new and useful Improvements in Wagon-Loading Devices, of which the following is a specification.

My invention relates to improvements in wagon loading devices, and the objects of my improvements are these, first, to provide a simple yet strong and transportable supporting frame therefor; second, to furnish means for automatically dumping the movable fork or scoop at a desired location; third, to arrange at one end of the apparatus a convenient and inexpensive spring-controlled device adapted to take up any slack occurring in the scoop-inverting cable, and fourth, to otherwise improve the construction and method of operation of the wagon-loading device for which I have an application on file in the United States Patent Office, Serial Number 439,571, filed June 20, 1908. These objects I have accomplished by the means and mechanism which are hereinafter fully described and claimed, and which are illustrated in the accompanying drawings, in which:

Figure 1 is a left-hand side elevation of my improved wagon loading device. Fig. 2 is a transverse section of my device taken on the line *a-b* in Fig. 1, looking in the direction indicated by the arrow in the latter figure. Fig. 3 is a perspective detail of the fork stop. Fig. 4 is an enlarged longitudinal section of a part of the supports and the bracket which hold the clutch and tension device for the rear or trip-rope of the fork. Fig. 5 is an enlarged perspective of the guide-pulley on the rear of the frame. Fig. 6 is a transverse section of the tension pulley for taking up slack in said trip-rope. Fig. 7 is a longitudinal section of said pulley, showing its coiled spring. Fig. 8 is a transverse section of the Y-rail, showing the method of mounting the fork stop thereon.

Similar numbers refer to similar parts throughout the several views.

The supporting structure of my improved wagon loading device is formed of angle bars preferably for cheapness as well as sufficient strength and ease in assembling its parts with a minimum of labor. The uprights 5 at the front and the uprights 8 at the rear support an overhead open oblong frame composed of transverse end bars 4,

and parallel side bars 21, the latter, however, projecting rearwardly beyond the rear transverse bar for a purpose to be described. The bases of the uprights are connected and supported by transverse bars 13, and longitudinal bars 15. A light flooring may be laid between the bars 15, if desired, and for purposes of transportation brackets are secured to the under sides of the bars 15, provided with spindles 16 to receive wheels 17 rotatably thereon, a pole being affixed to the front of the frame. When the apparatus has been transported to the location where it is to be used, the wheels 17 are unshipped, as shown in Fig. 1. The frame is strengthened by angle braces 14, extending from the rear uprights 8 to their intermediate cross-brace 12, and by angle braces 19 and 10 at top and bottom of said uprights, while said uprights also have another cross-brace 11 above the brace 12. Angle braces 9 and 18 reinforce the upper and lower connections of the front uprights respectively with the upper and lower longitudinal bars 21 and 15.

A central longitudinal angle-bar 22 is supported midway between the side-bars 21 by the transverse bars 4. Links 3 are suspended from bolts secured to said bar 22, at different points along its length, and these links sustain a central longitudinal Y-rail 1 by means of the loops or swivels 2, thus permitting transverse swinging movement to the rail. The rearwardly-projecting ends of the side-bars 21 are connected by another transverse bar (not shown) which supports the rear end of the bar 22. 6 represents a supporting bar, bent angularly upwardly in the middle, with its downwardly obliquely directed members secured to the rear transverse bar 4 and rear uprights 8. This strut 6 supports the medial part of a truss-rod 7, the ends of the latter connecting the ends of the longitudinal bar 22 with its terminal casting 24.

A pulley 44 is connected to the forward part of the frame, as is also a pulley 42 suspended on an eye-bolt 43 depending from the upper part thereof, both pulleys serving to alter the direction of the draft-cable 34. A pulley 41 mounted on a pivot 56 in a block 55, the latter open on one side, has its said block secured to the transverse bar 12 on the rear part of the frame, and receives the draft-cable 34.

The draft-cable 34 has a swingle-tree connected to its forward end, whereby a horse may be hitched thereto, while the rear

end of the cable, after being passed about a pulley 33 in the forward part of the carriage 32, is secured to the rear part of said carriage. The slack of the cable 34 between its rear point of attachment to said carriage and the pulley 33, has a pulley 44 adapted to ride thereon. The pulley 44 is incased in a block 36, the latter having an upwardly-directed hook or loop 35 adapted to be secured removably in engaging-means on said carriage (not shown). A swivel 37 depends from the block 36 to receive the upper middle part of a bail 38 whose ends are pivotally connected to the side-bars of a fork or scoop 39, the latter having handles 40, and said bail and the rear part of the fork or scoop being connected by a chain to limit the forward movement of the bail.

The carriage 32 has oppositely-located tram-wheels 51 pivoted to its upper part, the said wheels being adapted to ride upon the upper surfaces of the respective parallel trackways of the Y-rail 1, as indicated by the dotted lines in Fig. 8. 31 is an arm projecting rearwardly from the carriage 32, and has at its end a small pulley 25 to carry the trip-rope 30. The forward end of the trip-rope is secured to the back part of the fork or scoop 39 at a proper location to act upon the latter in dumping to invert it to substantially a vertical position, as shown by the dotted lines in Fig. 1. The rear end of the trip-rope is secured to a drum 27, the latter being pivotally mounted on a removable cross-shaft 29 extending across a horizontal rectangular rack 28 integral with the bracket-casting 24. The bracket 24 is contoured as shown in Fig. 4, and its forward end is secured to the rear end of the central angle-bar 22. The core of the drum 27 is hollowed out to provide a central space 54 capable of receiving a spiral spring 53, one end of which is secured to the shaft 29 while its other end is secured to the drum by a rivet or other suitable means. By this means the slack of the trip-rope is taken up, the tension of said spring operating to rotate the drum when the pull or forward draft is taken off said rope.

The under part of the bracket-casting 24 anterior to the rack 28 is hollowed out to provide two spaced-apart depending parts having registering openings to receive the ends of a pintle 23 on which a clutch-member 26 is mounted. This clutch-member is projected backward and downward in claw-shape; and has its rearward edge serrated, its serrations adapted to engage like serrations on the inner face of said casting immediately above, when the clutch-member is thrown upwardly. The trip-rope 30 rides over the edge of the clutch-member 26, and is clutched and firmly held between said member and the serrations on said casing when the clutch is thrust upwardly.

I have devised a stop for the carriage 32, whereby it may be caused to be limited in its forward movement to a location where the fork 39 may be tripped to dump its load into the box of a wagon 20 thereunder. This stop consists of a loop or staple 46 whose ends are affixed to a horizontal rectangular plate 59, the latter seated between the parallel rail-members of the Y-rail 1, to slide therebetween. The forward stem of said loop or staple is provided with lateral projections 57 which lie in the path of movement of the tram-wheels 51 of said carriage so as to contact therewith and stop the carriage from moving past them. A flexible wire 47 of sufficient strength, being in two parts connected by a tension spring 49, is placed with its forward end secured to said staple 46 at an eyelet 58 on its rear stem, while the rear portion of said wire is carried over a small pulley 50, thence over another pulley 52, and then downward through an orifice in the casting 24, its end being secured to the end of the clutch-member 26.

The operation of my improved wagon loading device is thus described. The carrying-wheels 17 being unshipped, and a horse or other means for producing a forward draft hitched or connected with the forward end of the cable 34, and the fork or scoop 39 being drawn back to the material to be loaded, the device is ready for operation. Forward draft being now applied to the cable 34, the carriage 32 being detachably connected with the end of the rail 1 by securing-means (not shown), the fork or scoop is guided by the operator by means of its handles 40 to take up a load of the material, then is drawn forward. The cable 34 being cast off from the pulley 41, the cable's slack is taken up by the forward draft which carries up the pulley 44 with the depending fork or scoop. When the hook 35 on the block 36 contacts with and is caught by the securing means on said carriage (not shown), the means on said carriage which secure it to the rail 1 are simultaneously released, permitting the draft of the cable to move the carriage forward, to the point where its tram-wheels 51 encounter the projections 57 on the stop 46. The spring 49 resiliently cushions the shock of contact, and protects the parts from fracture. In the meantime the drum 27, under the influence of its spring 53, has taken up the slack of the trip-rope 30. When the stop 46 has been contacted by the carriage and pushed forward a short distance thereby, the tension thus produced upon the clutch-member 26 draws it upwardly so as to catch and hold the trip-rope 30 between it and the serrations on the casting 24. Since the forward end of said trip-rope is secured to the back part of the fork or scoop 39 below its center of gravity, the seizing of said rope by said

clutch-member causes the forward movement of the carriage to trip the fork or scoop to a vertical position and deliver its load to the receptacle placed thereunder at 20.

5 This vertical position of the fork causes the contents to be cleanly dumped therefrom without lodging or catching. When dumped, the fork and carriage may be drawn back to the rear part of the rail 1, where a contact-
10 piece (not shown) causes the block 36 to disengage from said carriage, when the fork descends under the influence of gravity, the draft-cable is caught again over the rear pulley 41, and the fork drawn back to be re-
15 loaded.

The pulley 41, by reason of its pivotal connection with the supporting structure, may move to either side, and therefore the fork or scoop may be used within a considerable
20 radius of action in an excavation, a building or basement, or elsewhere out of line with the apparatus.

The connection of the wire 47 to the clutch-member may be varied to adjust the
25 position of the stop 46 along the rail 1.

The whole apparatus as shown, is light, transportable, and of inexpensive construction.

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

1. In a wagon loading device, in combination, uprights, a rail supported thereby, a carriage movable along said rail, said carriage being provided with a pulley, a draft-cable secured to said carriage and passed about its said pulley, another pulley suspended on the slack of said cable between the
35 attachments of the latter to the carriage and first-named pulley, a fork or scoop suspended from the second-mentioned pulley, a trip-rope secured to the lower surface of said fork or scoop at a point forward of the center of gravity of the latter, the other end of
40 said trip-rope being secured to a rotary drum to wind thereon, a rotary drum for said trip-rope, and yieldable means for causing said drum to rotate to wind said trip-rope thereon to take up any slack of the
45 latter.

2. In a wagon loading device, in combination, uprights, cross-connections between said uprights, transportable supporting means for said uprights, a rail supported by
50 said cross-connections, a carriage adapted to move along said rail, a draft-cable having one end secured to said carriage and its other end passed slidably therethrough, a fork or scoop movably supported on the slack portion of said cable which lies between the

cable's attachments to said carriage, a trip-rope secured to the lower surface of said fork or scoop at a point anterior to the center of gravity of the latter, coacting fixed and movable clutch-members, said trip-rope
65 being passed therebetween, a stop slidably mounted on said rail and adapted to be interposed in the path of movement of said carriage, and connecting-means between said stop and the framework of the device. 70

3. In a wagon loading device, in combination, separated uprights, a rail, means for suspending and supporting said rail from said uprights, a carriage adapted to move
75 along said rail, a draft-cable having one end secured to said carriage and its other end passed slidably therethrough, a fork or scoop movably supported on the slack portion of said cable which lies between the cable's at-
80 tachments to said carriage, a trip-rope secured to the lower surface of said fork or scoop at a point anterior to the center of gravity of the latter, coacting fixed and movable clutch-members, said trip-rope being passed therebetween, a stop movably
85 mounted on said rail and adapted to be interposed in the path of movement of said carriage, and yieldable resilient connecting-means between said stop and the movable member of said clutch. 90

4. In a wagon loading device, in combination, separated uprights, a rail, means for suspending and supporting said rail from said uprights, a carriage adapted to move
95 along said rail, a draft-cable having one end secured to said carriage and its other end passed slidably therethrough, a fork or scoop movably supported on the slack portion of said cable which lies between the cable's attachments to said carriage, a trip-
100 rope secured to the lower surface of said fork or scoop at a point anterior to the center of gravity of the latter, coacting clutch-members, said trip-rope being passed therebetween, a stop movably mounted on said
105 rail and adapted to be interposed in the path of movement of said carriage, yieldable resilient connecting-means between said stop and one of the members of said clutch, and a spring-actuated winding-drum adapted
110 to be connected to the rear end of said trip-rope and yieldably wind up thereon the slack of the latter.

Signed at Waterloo, Iowa, this 31st day of Oct. 1908.

RASMUS PEDERSON.

Witnesses:

G. C. KENNEDY,
O. D. YOUNG.