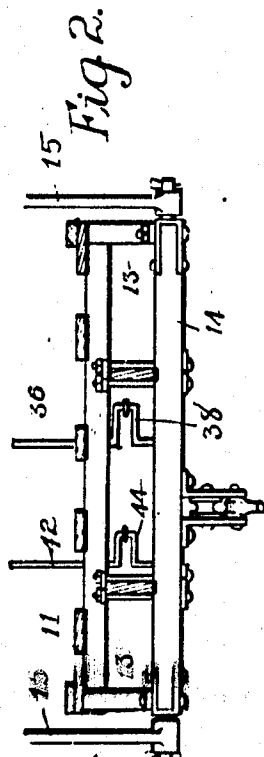


1,012,734.

R. G. SMITH.  
WAGON LOADER.  
APPLICATION FILED JAN. 16, 1911

Patented Dec. 26, 1911.

3 SHEETS-SHEET 1



Witnesses  
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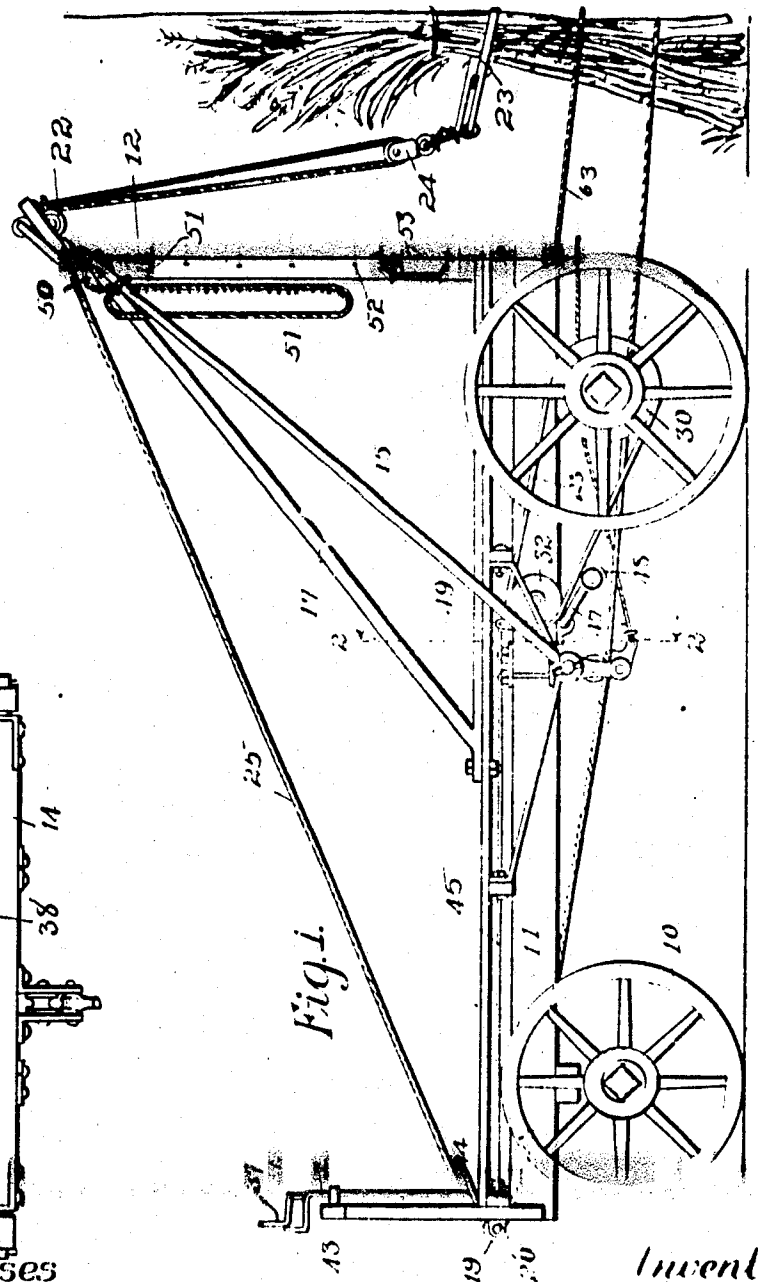


Fig. 1.

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3 SHEETS-SHEET 2

Fig. 4.

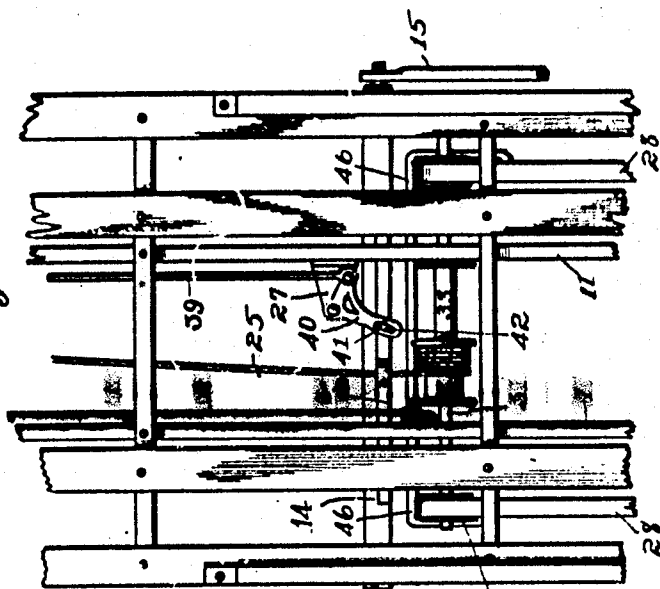
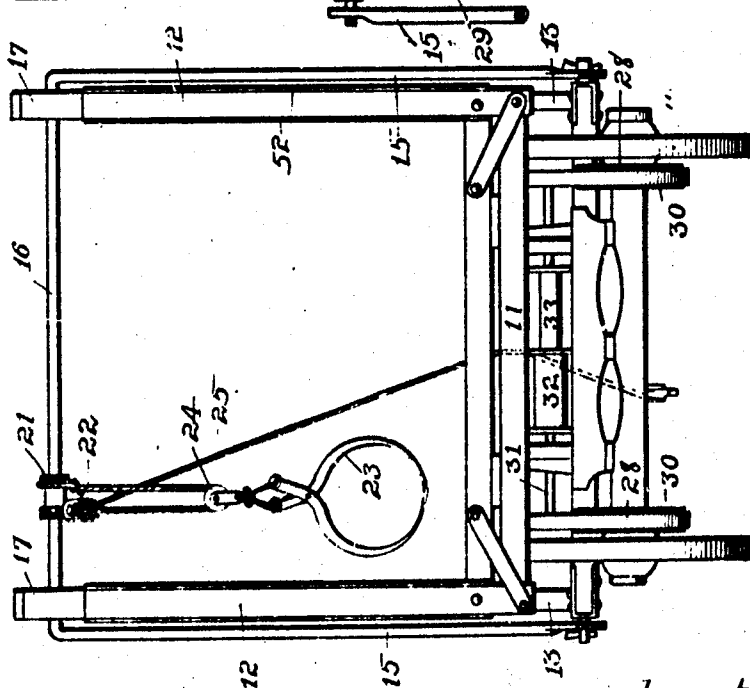


Fig. 3.



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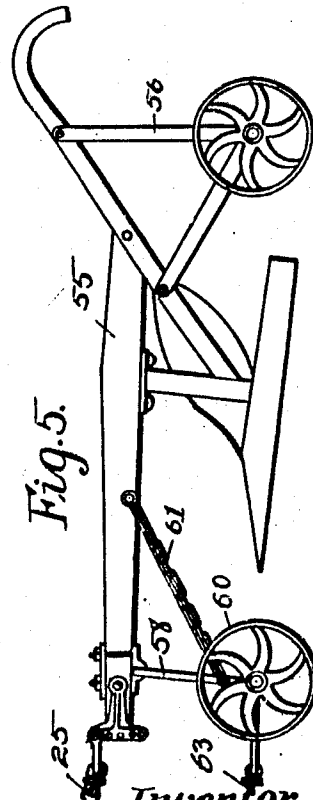
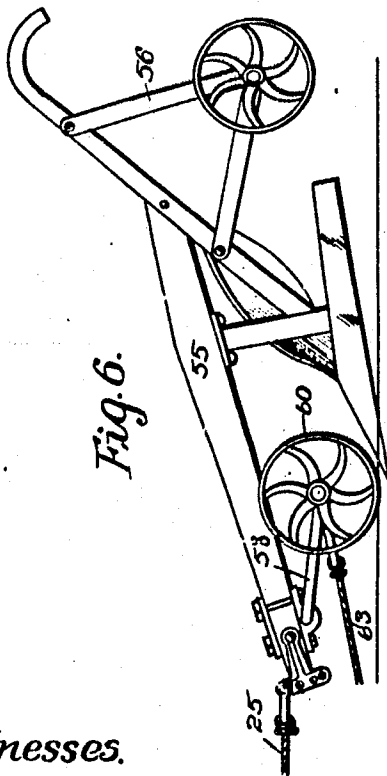
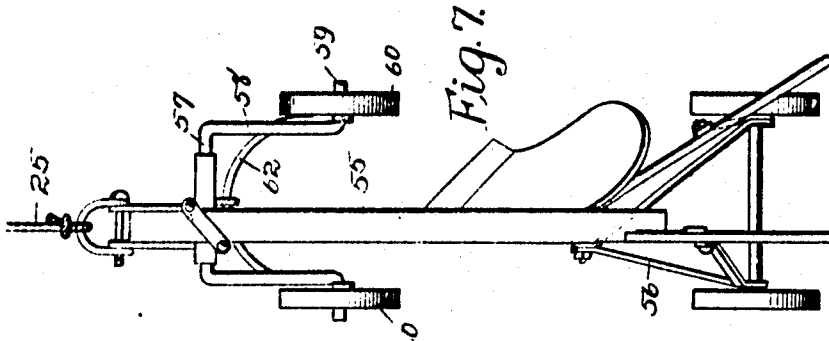
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3 SHEETS-SHEET 3

1,012,734.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ROBERT G. SMITH, OF TAMA, IOWA.

## WAGON-LOADER.

1,012,734.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Application filed January 16, 1911. Serial No. 602,844.

*To all whom it may concern:*

Be it known that I, ROBERT G. SMITH, a citizen of the United States, residing at Tama, in the county of Tama and State of Iowa, have invented a certain new and useful Wagon-Loader, of which the following is a specification.

It is an object of my invention to provide a wagon loading device of simple, durable and very inexpensive construction by which materials such as shocks of corn and the like may be quickly and easily loaded upon a wagon or rack, and placed in approximately any position thereon.

15 A further object is to provide such a wagon loader, which is operated by the same power which moves the wagon and which may be controlled by one person.

20 A further object is to provide such a device by which fodder and the like may be loaded upon a wagon or rack with a minimum of side draft.

25 A further object is to provide an anchoring device having a blade which will automatically engage the surface of the earth while fodder or the like is being lifted from the ground and carried forward on the wagon and which will be released when the lifting arm passes vertical position.

30 Figure 1, shows a side elevation of a wagon loader embodying my invention. Fig. 2, shows a detail sectional view on the line 2-2 of Fig. 1. Fig. 3 shows a rear elevation of my improved wagon loader. Fig. 4 shows a top or plan view of part of the gearing mechanism. Fig. 5 shows a side elevation of the anchoring device with the point of the anchor elevated. Fig. 6 shows a side elevation of my anchoring device with the point of the anchor lowered. Fig. 7 shows a top or plan view of my anchoring device.

In the accompanying drawing the numeral 10 indicates generally the running gear of an ordinary wagon.

45 The numeral 11 indicates an ordinary hay rack mounted thereon, 13 indicates downwardly extending arms, which are secured to said rack at a point in front of the rear axle, 14 indicates a bar extending across the wagon beneath the rack and secured to the arms 13 at their lower end. 15 indicates side members of a lifting arm which are pivotally secured at their lower ends to the cross bar 14 and are detachable therefrom, and 55 which extend upwardly and rearwardly in

the loader when the lifting arm is at the rearward position of its movement, 16 indicates a horizontal member of said lifting arm which connects the upper ends of the members 15. The said lifting arm may be constructed in one piece, and is preferably cylindrical in cross section.

12 indicates upright posts which are attached to the rack on each side of its rear end, 17 indicates braces attached to the upright posts 12 at their upper ends, which extend downwardly and forwardly therefrom to the body of the rack to which they are secured, said braces 17 being designed to receive the lifting arm when the latter is in its rearward position and to prevent its further downward and rearward movement, 20 indicates a bracket attached to the rack 11, at its forward end, 19 indicates a pulley revolvably mounted in said bracket, 21 indicates a sleeve slidably mounted on the member 16 of the lifting arm, 22 indicates a pulley slidably mounted on the member 16, 23 indicates a fork of ordinary construction designed for loading hay or fodder, 24 indicates a pulley attached to said fork and designed to receive the operating rope, 25 indicates the operating rope which is attached to the sleeve 21, and extended therefrom through the pulley 24, the pulley 22, the pulley 19 and thence rearwardly under the rack. The pulleys 22 and 24 may be dispensed with, a pulley attached to the sleeve 21, and the operating rope extended from the fork through said last mentioned pulley and thence as above shown.

My improved loader may be operated by a gearing mechanism attached to the wagon, of which the following is a description. The numeral 30 indicates belt wheels attached to the rear supporting wheels of the wagon, 31 indicates a shaft extending across the wagon beneath the floor of the rack which shaft is rotatably mounted upon the rack frame in front of the rear axle, 29 indicates belt wheels mounted on the shaft 31 in line with the belt wheels 30, 28 indicates belts which travel over the belt wheels 29 and 30 on either side of the wagon. Drums 32 and 33, which are of different diameters, are mounted on the shaft 31, 34 indicates a bar slidably mounted on the rack frame in front of the shaft 31, parallel thereto. Said bar is constructed with a lug 26 which is constructed with an opening designed to receive the

operating rope 25, 36 indicates a vertical rod rotatably mounted upon the front end of the rack, 37 indicates a handle at the upper end of said rod 36, the rod 36 is constructed at its lower end to form a crank 38, rotatably mounted on the crank pin of the crank 38 is a rod 39 which extends rearwardly in the rack, 27 indicates a bracket secured to the frame of the rack near the bar 34, 40 indicates a bell crank lever which is pivotally secured in horizontal position to the bracket 27, one arm of the bell crank lever 40 is pivotally secured to the rear end of the rod 39, and the other has an elongated opening 42, 41 indicates a pin on the cross bar 34 which is slidably mounted in the opening 42. The shaft 36 with the accompanying mechanism hereinbefore described, is designed to move the rope 25 laterally under the rack so that it will wind either on the drum 32 or the drum 33 at the option of the operator, and give a relatively high or low gear.

I have provided a belt tightener which will now be described: The numeral 42 indicates a vertical rod rotatably mounted upon the rack at its forward end, 43 indicates a handle at the upper end of the rod 42. The rod 42 at its lower end is constructed to form a crank 44, 45 indicates a rod rotatably mounted upon the crank pin of the crank 44 and extending rearwardly in the machine, 46 indicates a rock bar extending across the rack beneath its floor and rotatably mounted on the rack frame. At its end said rock bar has downwardly and rearwardly extending arms 47. At the end of said arms are rotatably mounted wheels 48 which are designed to frictionally engage the belts 28. The upwardly extending arms 49, (Fig. 1) is rigidly secured to the rock bar 46, and at its upper end is rotatably mounted on the rod 45. The belts 28 may be tightened by means of this vertical rod 42 and its accompanying mechanism.

One of the upright posts 12 is boxed to form a vertical hollow post 52 as shown in Fig. 1, 50 indicates a pulley mounted upon said hollow post, near the top, 51 indicates a rope or chain which is fastened to one of the side members 15 of the lifting arm and extended through the pulley 50, into the boxed post 52. At the end of rope 51 in the boxed post 52 is a weight 53 designed to move freely up and down in said boxed post. The length of the rope is such that when the lifting arm is at the forward limit of its movement the weight 53 will be at the top of the boxed post 52 and will tend to draw the lifting arm rearwardly past its vertical position, whereas when the lifting arm has passed vertical position in its rearward movement, the weight 53, rests in the rack frame at the foot of the hollow post 52.

My improved wagon loader may be used

with the gearing device hereinbefore described or may be operated by extending the operating rope rearwardly underneath the wagon to a point in the rear thereof and by providing means for anchoring said rope when the wagon is driven forward. An ordinary crow bar may be used as such anchoring means. I have provided a special anchoring device of which the following is a description: The numeral 55 indicates an ordinary plow, 56 indicates a two wheeled truck attached to said plow in the rear of the plow share, 57 indicates a horizontal shaft pivotally mounted upon the plow beam near its forward end at right angles to the longitudinal axis of the said plow beam said shaft being constructed with arms 58 at its ends which are at right angles to the shaft 57. The arms 58 are bent at their ends to form axles 59 at right angles to said arms as shown in Fig. 7. Wheels 60 are rotatably mounted upon the axles 59, 61 indicates chains or ropes secured to the plow beam at a point in the rear of the shaft 57 and extending to the arms 58 when the same are in vertical position and secured thereto said chain being designed to prevent the further forward movement of the arms 58 in relation to the plow 55 after said arms have reached vertical position; 62 indicates a forwardly curved arm secured to the arms 58 near their lower ends, the plane of the arm 62 being at right angles to the plane of the arms 58. The operating rope 25, may be extended rearwardly from the wagon and fastened to the arm 62, 63 indicates a rope or chain which is secured to the rear of the rack and to the plow beam, and is of such length as to reach from the rack to the plow beam when the lifting arm has passed vertical position in its forward movement. When said lifting arm is at the rearward position of its movement, the fork is loaded, and the wagon is moved ahead, the anchoring device is drawn forward at the same time by the rope 25, the wheels 60 are held back by friction with the surface on which the device rests, the plow beam is lowered and the point of the plow will enter the earth. When the lifting arms pass vertical position in their forward movements, the draft on the rope 25 ceases and the anchoring device is then drawn forward by the rope or chain 63. The arms 58 are brought to vertical position, the plow share is lifted above the surface on which the anchoring device rests and said anchoring device then travels on the rear truck and on the wheels 60.

My wagon loader is practically operated by fastening the fork 23 in the hay, grain or fodder desired to be loaded. When the gearing device is used the belt is tightened by means of the tightener heretofore described. The wagon is driven forward and the

operating rope 25 is wound on the drum 32 or the drum 33, as the operator may desire by the rotation of the shaft 31 which rotation is effected by means of the belts 28 traveling on the belt wheels 30 and 32. When the fork with its load is raised to the member 16 of the lifting arm, said member 16 is then drawn forwardly on the rack and the load on the fork 23 can be readily deposited approximately at any place on the rack. By reason of the fact that the sleeve 31 and the pulley 22 are slidably mounted on the member 16 and can be readily moved to the side of the rack nearest the hay, fodder or the like which is to be loaded, the tendency to pull the rack sidewise is reduced to a minimum by my improved loader. The fodder or the like may if desired be loaded from a point in the rear of the wagon thus avoiding all side draft.

By means of the rope shifting device above described the operating rope 25 may be wound upon the drum 32 or the drum 33 at the option of the operator and the fork load lifted and carried forward by greater or less forward movement of the wagon.

As hereinbefore stated the use of the gear mechanism may be dispensed with and a device used for anchoring the end of the operating rope 25 which extends rearwardly beneath the wagon. An ordinary crow bar will serve as such anchoring device. By means of the special anchoring device above described, the rope is automatically anchored and released. When the anchoring device is drawn forward by the rope 25, the plow share is directed downwardly into the earth. When the lifting arm has passed vertical position in its forward movement the draft on the rope 25 is released and the anchoring device is then drawn forward by the rope 63, the draft on the rope 63 draws the arms 58 forward to vertical position thus lifting the plow share above the surface on which the anchoring device rests and causing said device to travel on the truck 56 and the wheels 60. When my anchoring device is employed one person can operate my loader. While remaining at all times near the rear of the wagon, the operator can drive the team and when the material to be loaded is near the rear of the wagon can fix the fork 23 therein, and can drive the wagon forwardly. The anchoring device will operate automatically. When the draft on the rope 25 is released after the lifting arm has passed its vertical position, the anchoring device will travel on the truck 56 and the wheels 60 and may be readily drawn forward by the operator by means of the rope 63 to position in close proximity to the rear of the wagon. If the load on the fork 23 is discharged after the lifting arm has passed vertical position, said lifting arm is drawn rearwardly past said vertical position by

means of the weight 53 and the rope 52 and drops upon the braces 17.

Among the advantages secured by my improved loader are the following: The loader may be controlled by one person thus accomplishing a great saving of labor. A whole shock of corn or other material may be loaded at one operation thus effecting a considerable saving of time in loading the wagon. In other wagon loaders the side draft is a serious defect. As above stated, I avoid side draft by means of the slidable sleeve 21 and the slidable pulley 32, which may be moved to any position on the member 16, and by the construction and arrangement of my loader whereby fodder and the like may be loaded from the rear of the wagon.

I claim as my invention:

1. In combination with an ordinary wagon running gear and hay rack, a lifting arm comprising a horizontal bar extending across said hay rack above its body, arms attached to said bar and extending downwardly therefrom to the sides of said rack and pivotally secured thereto, means for limiting the rearward movement of said lifting arm and for preventing it from reaching a substantially horizontal position in such movement, and means for drawing said arm forward on the rack.

2. A loader designed to be used with an ordinary wagon and hay rack, comprising side members designed to be pivotally and detachably mounted on the sides of said hay rack at a point in front of the rear axle, a horizontal member above the body of the hay rack attached to the side members at their upper ends, means for limiting the rearward movement of said lifting arm and for preventing it from reaching a substantially horizontal position in such movement, and an operating rope for drawing the said lifting arm forward with relation to the hay rack.

3. A wagon loader designed to be used with an ordinary wagon running gear and hay rack, comprising a lifting arm constructed of two side members designed to be pivotally attached to the sides of said rack at a point in front of rear axle and to extend upwardly therefrom, and a horizontal member attached to said side members at their upper end, means for limiting the rearward movement of said lifting arm, and for preventing it from reaching a substantially horizontal position in such movement, means for drawing the said lifting arm forward past a vertical line, means for drawing said lifting arm rearwardly past vertical position from its forward position.

4. A loader designed to be used with an ordinary wagon running gear and hay rack comprising brackets extending downwardly from the rack frame at a point in front of

the rear axle, arms pivotally mounted on said brackets detachable therefrom and extending upwardly therefrom, a horizontal member secured to the upper ends of said arms, said arms and horizontal member forming a detachable lifting arm, upright posts designed to be secured to said rack at each side at its rear end, braces fastened to the upper ends of said posts and extending downwardly and forwardly therefrom to the rack frame to which they are designed to be secured, said braces being designed to receive the said lifting arm at the rearward limit of its movement and to prevent its further downward and rearward movement, and means for drawing said lifting arm forward in relation to said rack.

5. In combination with an ordinary wagon running gear and hay rack, arms extending downwardly from each side of said rack in front of the rear axle of said running gear, a lifting arm comprising side members pivotally secured to the lower ends of said arms and extending upwardly therefrom, and a horizontal arm attached to said side members at their upper ends, above the body of said rack, means for limiting the downward and rearward movement of said lifting arm, an operating rope secured to said lifting arm, extending across the forward end of said rack and then rearwardly thereunder, and an anchoring device for the said rope.

6. In combination with an ordinary wagon running gear and hay rack a lifting arm comprising a horizontal bar, extending across said hay rack above the body thereof, arms attached to said horizontal bar extending downwardly therefrom to the sides of said rack and pivotally secured thereto, means for limiting the rearward movement of said lifting arm, an operating rope secured to said lifting arm, and extending across the front end of the rack and then rearwardly beneath said rack, and means for anchoring said rope with relation to said wagon, so that when the wagon is drawn forward, the lifting arm will be drawn forward thereon.

7. In combination with an ordinary wagon running gear and hay rack a lifting arm comprising a horizontal bar, extending across said hay rack above its body, arms attached to said bar and extending downwardly therefrom to the sides of said rack and pivotally secured thereto, means for limiting the rearward movement of said lifting arm, an operating rope secured to said lifting arm and extending across the front end of said rack and then rearwardly thereunder, a drum, and a gearing mechanism attached to said running gear and operated by the supporting wheels thereof, designed to wind said rope on said drum.

8. In a wagon loader designed to be used

with an ordinary wagon running gear and hay rack, a combination of a lifting arm comprising side members pivoted to the sides of the rack, and a horizontal member, means for drawing said lifting arm forwardly on said rack, a hollow upright post secured to said lifting arm at its upper end, and extending therefrom to the upper end of said hollow post, when the lifting arm is at the forward limit of its motion, and a weight attached to said rope, and designed to move freely up and down in said post said rope and weight being designed to draw said lifting arm rearwardly from its forward position past vertical position.

9. In combination with an ordinary wagon running gear and hay rack, a lifting arm pivoted to said hay rack, an operating rope secured to said lifting arm and extended therefrom over the front end of the rack and rearwardly thereunder, belt wheels 30 mounted upon the rear supporting wheels of the running gear, a horizontal shaft rotatably mounted upon the frame of the hay rack on its lower side and extending across said rack, belt wheels 20 rigidly mounted on the said horizontal shaft in line with the belt wheels 30, belts 28 designed to travel upon the belt wheels 29 and 30, means for tightening said belts, a drum mounted upon said horizontal shaft, the said operating rope being designed to be wound upon said drum.

10. In combination with an ordinary wagon running gear and hay rack, a lifting arm pivoted to said hay rack, an operating rope secured to said lifting arm and extended therefrom over the front end of the rack and rearwardly thereunder, belt wheels mounted upon the rear supporting wheels of said running gear, a horizontal shaft rotatably mounted upon the frame of said hay rack on its lower side and extending across said rack, belt wheels rigidly mounted on said horizontal shaft in line with the belt wheels above described, belts designed to travel upon the said belt wheels, means for tightening said belts, drums mounted upon said horizontal shaft said drums being of different diameters and being designed to receive the operating rope which is wound thereon, and means for adjusting said operating rope to be wound upon the different sizes of drums at the option of the person controlling the wagon loader.

11. In combination with an ordinary wagon running gear and hay rack a lifting arm pivotally mounted on said hay rack, an operating rope secured to said lifting arm and extending forwardly across the front of the hay rack and then rearwardly thereunder, an anchoring device comprising a two wheeled truck, an ordinary walking plow mounted thereon in the rear of the plowshare, a two wheeled truck pivotally

attached to the forward end of the plow beam, means for limiting the forward motion said last mentioned truck, a rope 63 secured to said rack and to said last mentioned truck of such length that when the lifting arm has passed vertical position in its forward movement, and the draft on the rope 25 is

released, the anchoring device will be drawn forward by said rope 63.

Des Moines, Iowa, Dec. 13, 1910.

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