964,074.

J. WHITE & C. COLE.

MACHINE FOR HANDLING GRAIN.

APPLICATION FILED JUNE 16, 1908.

Patented July 12, 1910.

3 SHEETS—SHEET 1.

Fig. 2.

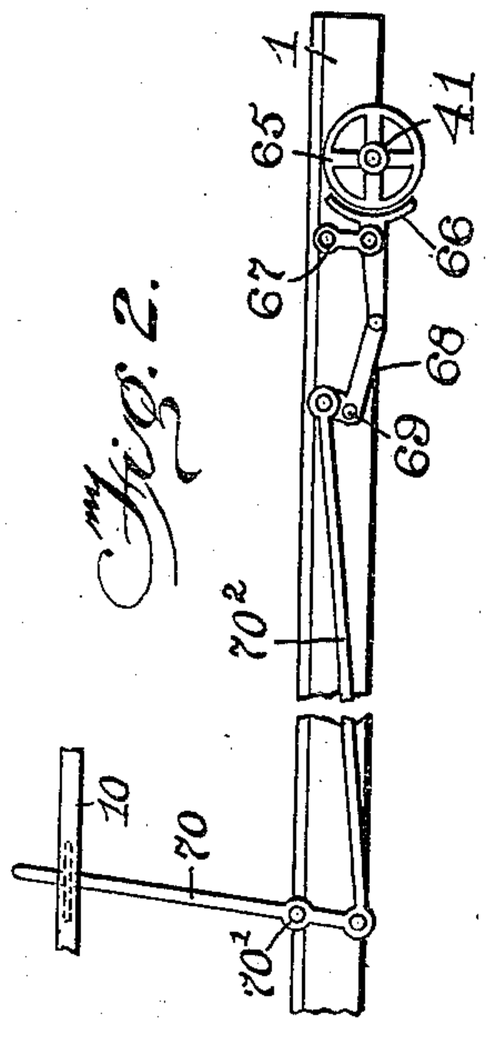

Fig. 1.

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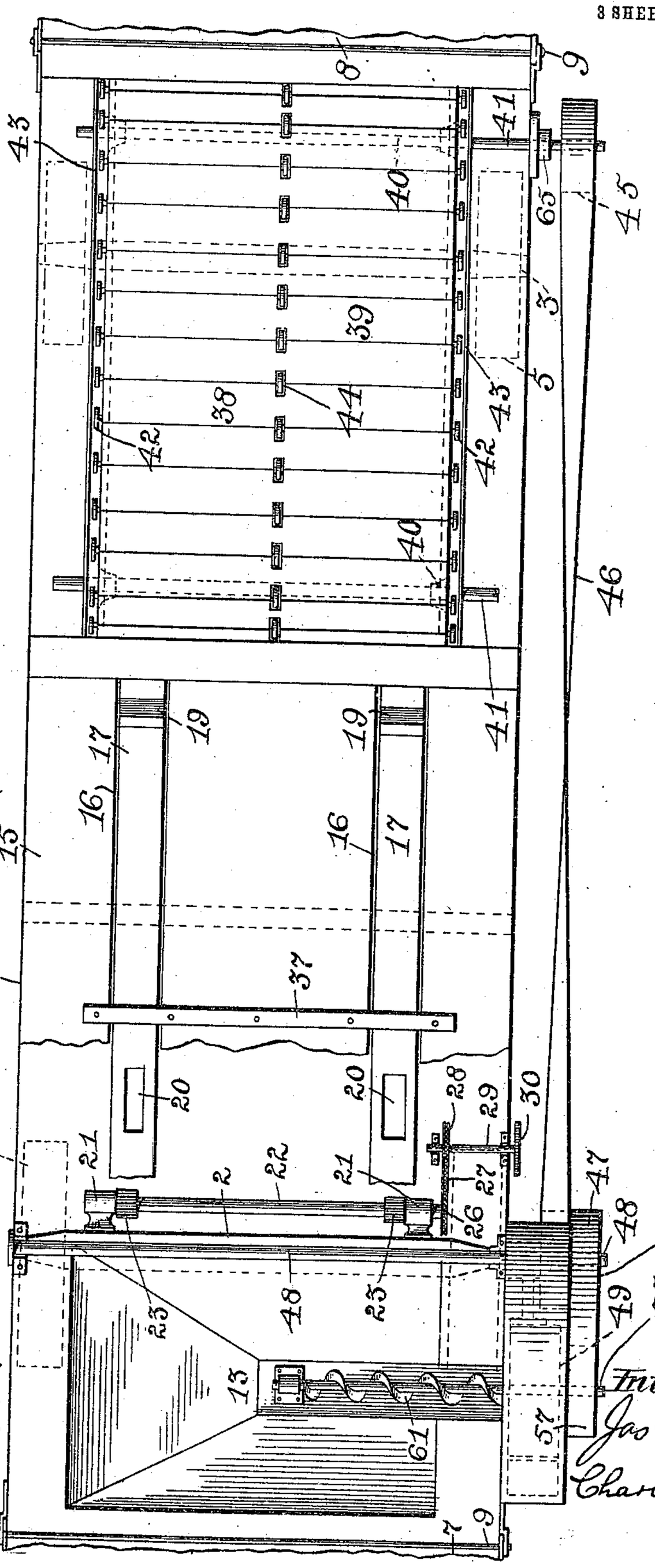

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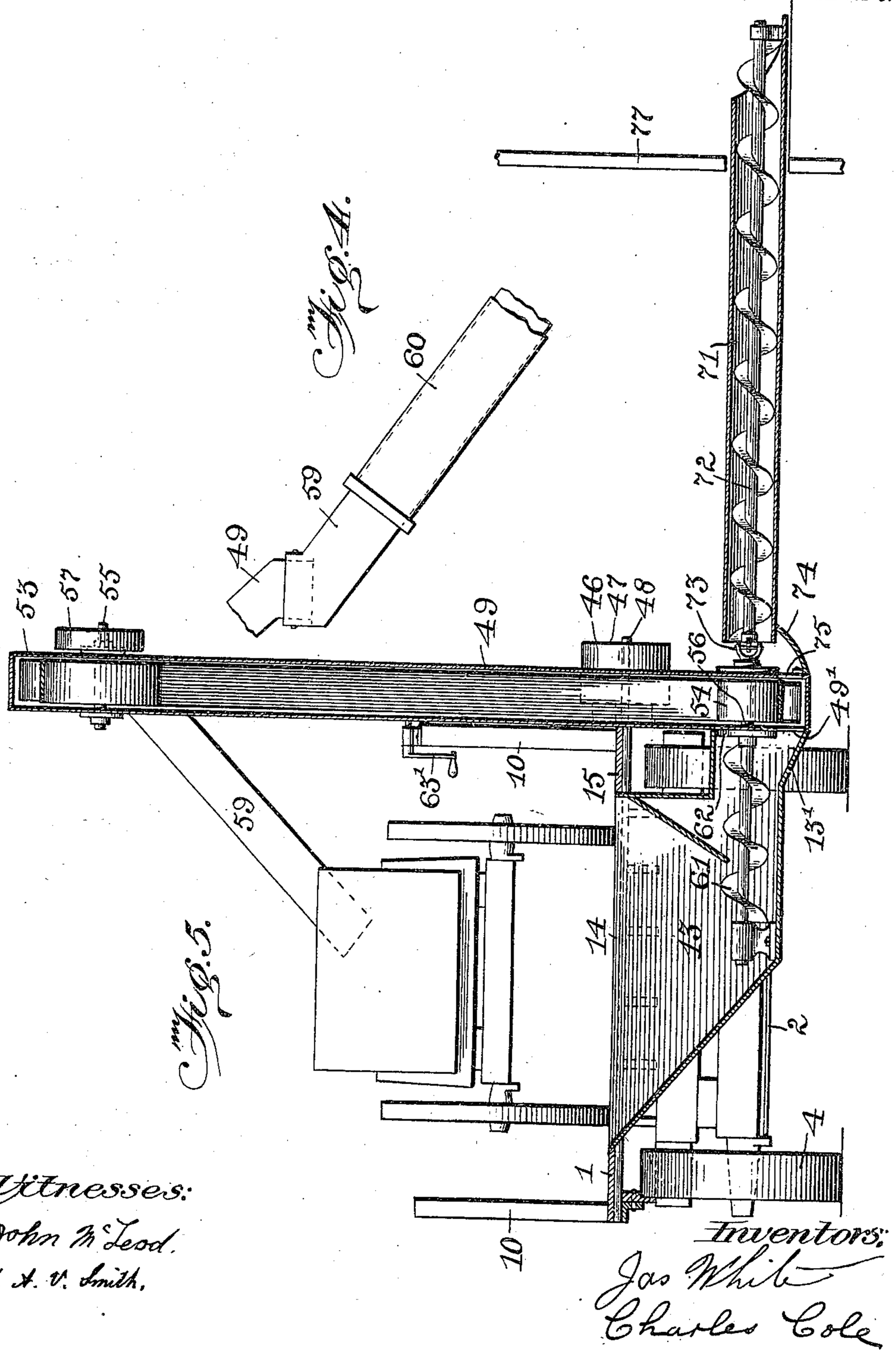

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UNITED STATES PATENT OFFICE.

JAMES WHITE AND CHARLES COLE, OF CARBERRY, MANITOBA, CANADA.

MACHINE FOR HANDLING GRAIN.

964,074. Specification of Letters Patent. Patented July 12, 1910.

Application filed June 16, 1908. Serial No. 438,827.

To all whom it may concern:

Be it known that we, JAMES WHITE and CHARLES COLE, both of the town of Carberry, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Machines for Handling Grain, of which the following is the specification.

Our invention relates to a labor saving machine of this class and the object of the invention is to provide a machine which will receive a wagon or such like heavy vehicle and dump it into a suitable hopper, the dumping material being elevated and directed to any desired receptacle, such elevating means being actuated by power supplied by draft animals attached to the wagon and without unhitching them.

A further object is to provide an attachment by which material such as grain can be withdrawn from the receptacle and elevated into a wagon carried by the machine.

Our invention consists essentially in a main deck having suitable detachable approaches thereto, a tiltable frame located on the main deck and provided with suitable stop blocks and wheel receiving recesses, an endless platform carried by the deck and forward of the tiltable frame a hopper located to the rear of the frame, an elevator leg located to the side of the hopper and secured to the deck, means for feeding material from the hopper to the leg, means actuated by the endless platform for operating the elevator leg, and means for returning the tiltable platform to the normal position, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 represents a side elevation of the machine, certain portions being removed, and with portions of the elevator leg torn away to disclose construction. Fig. 2 is an enlarged detailed side elevation of a brake employed to prevent the rotation of the endless platform. Fig. 3 is a plan view of a machine with part of the floor removed. Fig. 4 is a detailed side elevation of a portion of the elevator leg showing the adjustable chute connected thereto. Fig. 5 is a sectional end view of the machine when set up for filling a wagon from a granary or car.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 represents the main deck of a machine which is suitably supported from the axles 2 and 3 carrying at their ends the rear and front carriage wheels 4 and 5, respectively, it being understood that the axle 3 is swiveled upon a king bolt 6 in the ordinary manner.

7 and 8 are inclined platforms leading to and away from the main deck to which they are hingedly secured at 9 thereby allowing them to be swung backwardly on the main deck when the machine is being moved from one place to another.

10 is a suitable railing appearing at each side of the deck its purpose being to prevent restive horses from passing over the sides of the deck. The main deck is reinforced in the center on each side by the truss 11 and truss rods 12.

Rearwardly of the machine is located a hopper 13 adapted to be closed by any suitable form of cover 14 the cover being level with the flooring 15 of the deck when in position so that a wagon can be driven over the hopper when desired. Forwardly of the hopper the flooring is cut away at 16 to admit of two similar beams 17 secured to a cross shaft 18 rotatably mounted in suitable bearings formed in the supporting beams of the main deck. The beams are supplied forwardly with stop blocks 19 and rearwardly with recesses 20 the purpose of which will hereinafter be more fully explained.

The parts above described constitute what is termed the tiltable frame.

21 are bearing brackets secured to the axle 2 and carrying a cross shaft 22 having suitable pinions 23 mounted thereon the pinions appearing to the inner sides of the brackets.

24 are racks secured firmly to the beams 17 and designed so as to engage with the pinions 23 throughout the motion of the tilting frame.

25 are braces passing between the beams and the racks.

26 is a chain wheel united by a chain 27 to a chain wheel 28 carried by the shaft 29 mounted in suitable bearings secured to the main deck. 30 is a further chain wheel on the shaft 29 connected through a chain 31 with a chain wheel 32 keyed on the shaft 33 secured in any suitable manner to the rail 10.

34 is a ratchet wheel located on the shaft, and 35 is a ratchet or dog playing on the ratchet wheel.

36 is a crank having a suitable handle thereon, the crank appearing at the inner side of the railing so as to be within con-

venient range of a driver when approaching the tilting frame.

37 is a cross bar firmly bolted to the upper face of the main deck and forward of the recesses 20 hereinbefore referred to.

38 is an endless flexible platform formed from united cross members 39 and supported upon opposing octagonal wheels 40 which are mounted upon cross shafts 41 mounted in the supporting beams of the main deck. It will be understood of course that the flooring of the main deck is cut away to admit of the endless platform the upper side of which is slightly above the level of the remaining portion of the flooring of the deck.

42 are rollers secured to the members 39 of the platform such rollers operating on suitable angle irons 43 located on the main deck. The angle irons simply form runways for the roller and prevent the endless platforms sagging between the octagonal wheels 40. 44 are rollers similar to those 42 located at the center of the platform and designed to operate on a suitable supporting bar carried by the main deck.

The shaft 41 is extended at one side of the deck and has a pulley 45 keyed to it, the pulley being connected through a cross belt 46 with a second pulley 47 located on a shaft 48 mounted in the beams of the main deck.

49 is an elevator leg secured to the shaft 48 by a bracket 50 and to the rail 10 by bolts 51 which pass through lugs 52 carried by the leg. Within the leg is suitable endless conveyer 53× mounted on upper and lower wheels 53 and 54 carried upon shafts 55 and 56 respectively. The shaft 55 is supplied with a pulley 57 which is united with the pulley 47 by means of a belt 58.

59 is a chute secured to the elevator in a manner which will allow it to be swung either way as desired. The chute has a telescoping section 60 whereby it can be shortened or lengthened as desired. The hopper is provided with a neck 13′ the end of which adjoins the lower portion of the elevator leg when in its upright position so the material within the hopper can be fed directly to the elevator leg through the opening 49′ therein. Any suitable form of gate can be provided to close the neck of the hopper when required.

61 is a worm conveyer located within the hopper and adapted when in operation to feed grain through the neck of the hopper and thence to the elevator leg when the gate is open. The worm is supplied at one end with a suitable coupling 62 whereby it can be detachably connected with the shaft 54 when desired. According to the construction it will be seen that when the bolts 51 are released the leg can be swung on the shaft 48 without having to disconnect the belt 58 from the pulleys. This is done when it is desired to move the machine from one place to another. When this is done it will be understood that the gate in the neck 13′ will have to be closed to prevent the grain in the hopper from escaping.

63 is a drum mounted upon a suitable crank shaft 63′ located on the rail 10.

64 is a rope or cable fastened to the drum and to the elevator leg whereby the elevator leg can be raised to its upper position by winding the rope on the drum.

In order to prevent the endless platform from rotating when not desired I have placed a friction pulley 65 on the end of the shaft 41 upon which plays a friction bar 66 swung from the main deck by a link 67 connected with a bell crank 68 pivotally secured by a pin 69 to the deck. At the opposite end of the machine I have provided a hand lever 70 which is pivoted to the deck at 70′ and has its lower end connected by a link 70^2 with the bell crank 68. Any suitable means is provided on the railing 10 whereby the lever 70 can be held in a locked position.

In order that the device may be used for loading a wagon from a granary or such like I have provided a worm conveyer 71 the shaft 72 of which is connected to the shaft 56 by means of a universal joint at 73. A metal sheet 74 is secured to the lower end of the elevator leg and passes beneath the adjoining end of the conveyer 71, and the elevator leg is supplied with an opening 75 to the side adjoining the conveyer in order to admit grain to the leg from the conveyer.

When it is required to unload a wagon filled with grain and elevate it into a car with our machine the driver drives his team onto the main deck passing up the sloped platform 7. The cover of the hopper is at this time in its closed position and the tiltable frame is in its horizontal position being held by the action of the pawl on the ratchet wheel. When the wagon has reached the position where the front wheels are engaging the blocks 19 and the rear wheels are in the recesses 20 the team is stopped being at this time on the endless platform 38. The cover of the hopper is then removed and the ratchet 35 is released from the ratchet wheel. The recesses and the blocks above mentioned are so located in respect to the shaft 18 that a wagon filled with grain is unevenly balanced on the platform the greater part of the weight being toward the rear. Consequently as soon as the ratchet is released the wagon tilts backwardly and the grain flows from it directly to the hopper thereby emptying the wagon. The driver next releases the friction bar 66 from the wheel 65 by means of the lever 70 and starts his team the result being that the revolving platform moves and the team remains stationary in respect to the machine. The belt connections between the

revolving platform and the elevator leg are such that the grain deposited in the hopper is withdrawn by the worm and carried by the buckets or carriers to the top of the leg where it is directed to the chute 59 and can be deposited in any desired receptacle such as a car or granary. As soon as the load of grain has been elevated from the hopper the driver or teamster throws the friction bar into engagement with the wheel and stops the rotation of the platform. The team immediately advances with the result that the rear wagon wheels begin to mount the bar 37, and in doing so transfers the greater part of the weight of the wagon forwardly of the rod 18 so that the tilting frame is brought to the horizontal position. When this movement is taking place the ratchet is escaping over the ratchet wheel and finally holds the tilting frame in its horizontal position when the movement is complete. The wagon is then driven off the main deck by way of the platform 8. When it is desired to use the machine for loading a wagon from a granary the empty wagon is driven onto the main deck and the tiltable frame is kept in the horizontal position the endless frame being allowed to rotate. The conveyer 71 is attached to the machine and the gate controlling the opening 75 is opened. The extending end of the conveyer is passed into the granary as represented at 77 the grain being withdrawn therefrom by the conveyer and deposited in the elevator leg where it is elevated and directed to the chute 59 which enters the wagon. As soon as the wagon is filled the friction bar is thrown into engagement with the wheel 65 and the team is driven from the main deck.

What we claim as our invention is:

In a machine of the class described, the combination with the main deck, a hopper located toward the rear end thereof, an elevator leg pivoted to the deck, a worm conveyer located in the bottom of the hopper, upper and lower cross shafts in the elevator, an endless conveyer passing over said shafts, means for detachably engaging the worm conveyer to the lower shaft, and means for closing the opening between the hopper and elevator when the elevator is swung on its pivot.

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