

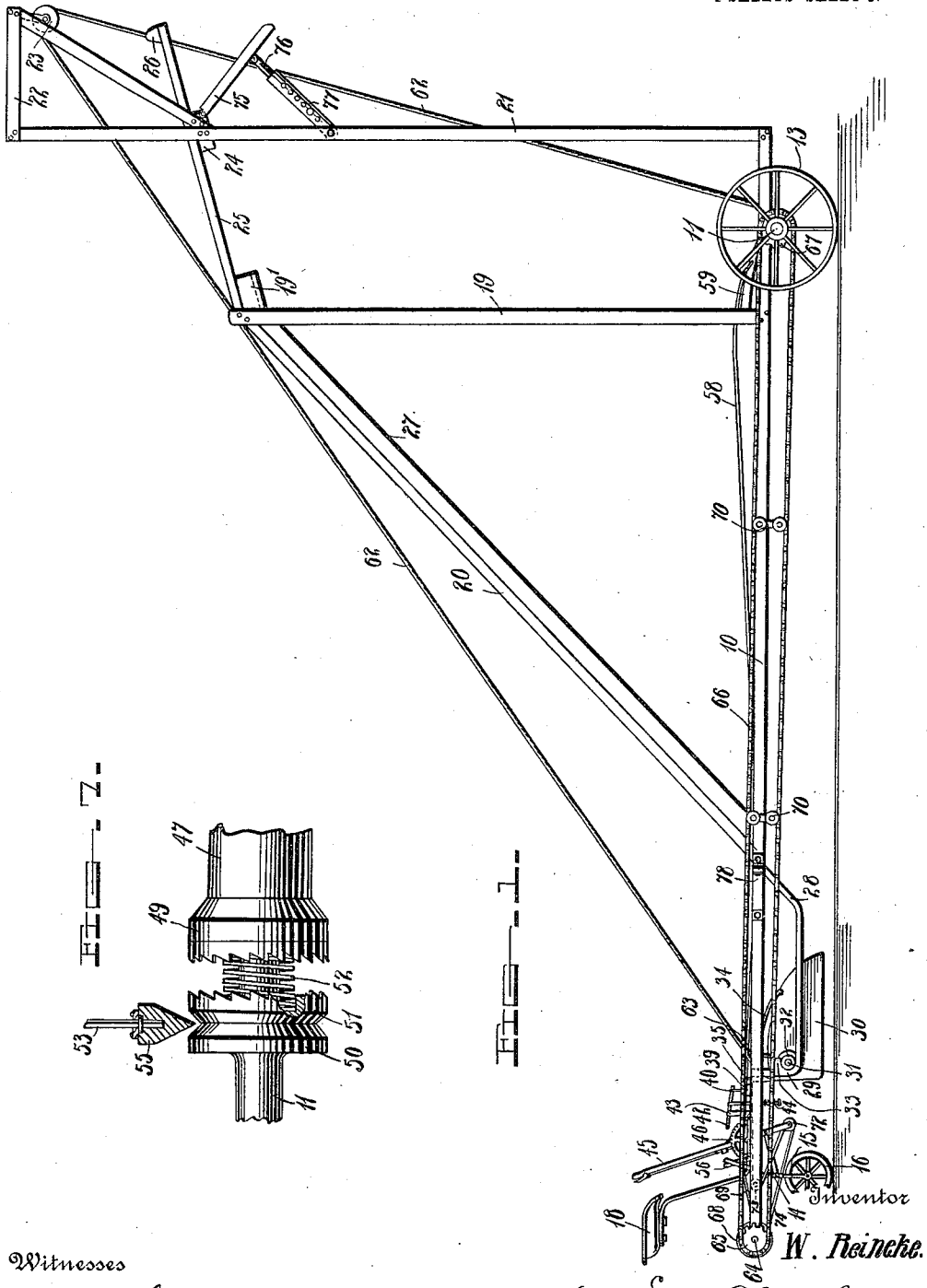
W. REINEKE.
MANURE LOADER.

APPLICATION FILED JAN. 27, 1912.

Patented Feb. 11, 1913.

4 SHEETS-SHEET 1.

1,052,964.



Witnesses

M. C. Fielding.
W. J. Woodman.

By Harry Ellis Chandler.

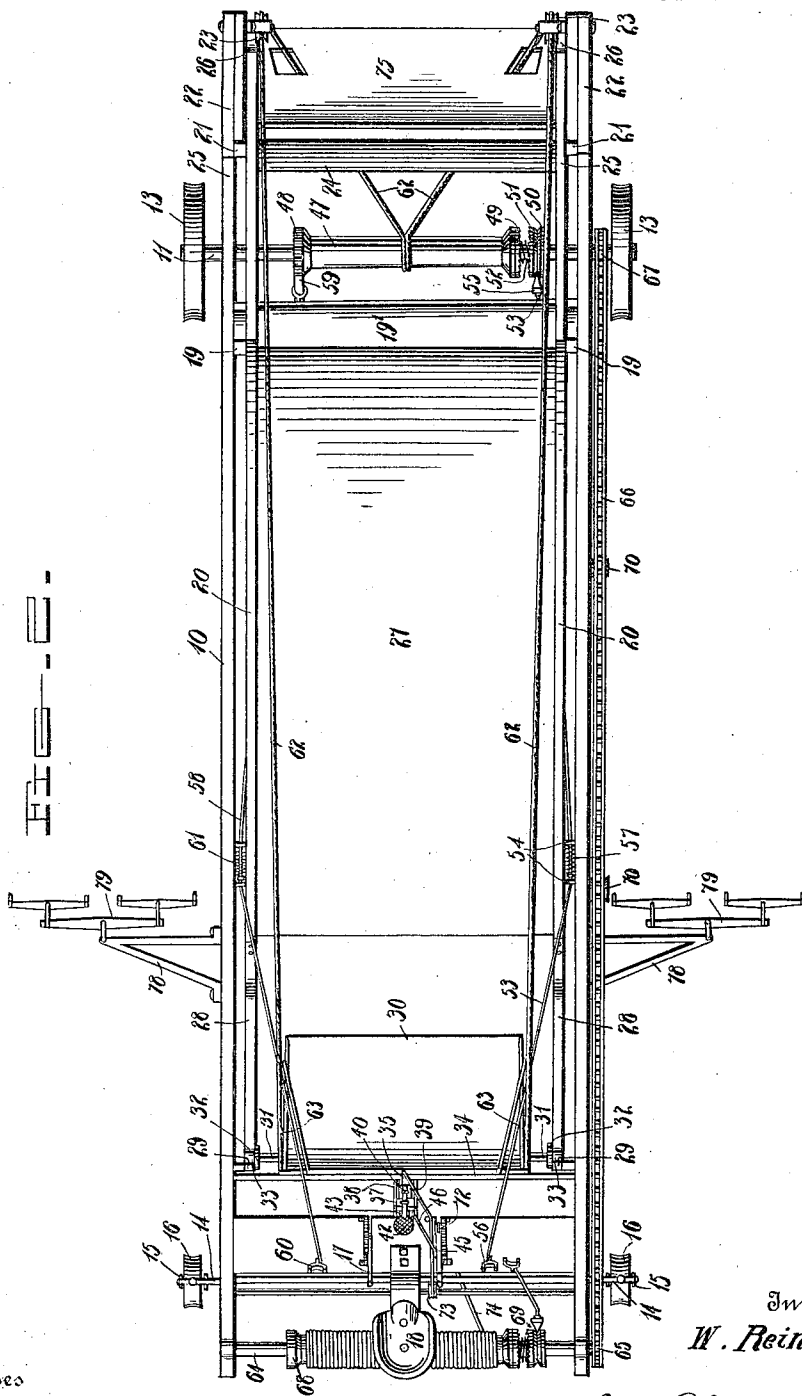
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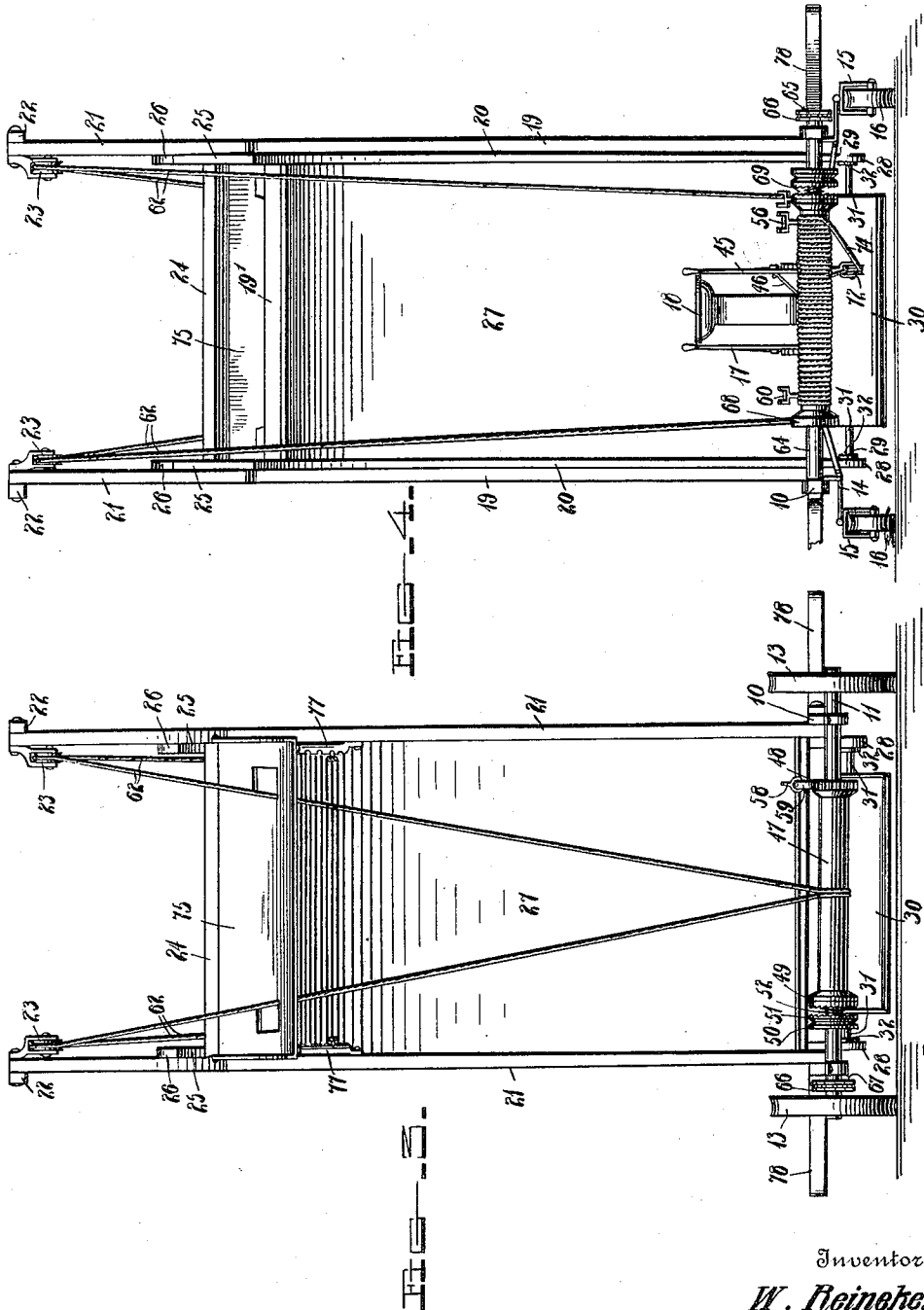
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Witnesses

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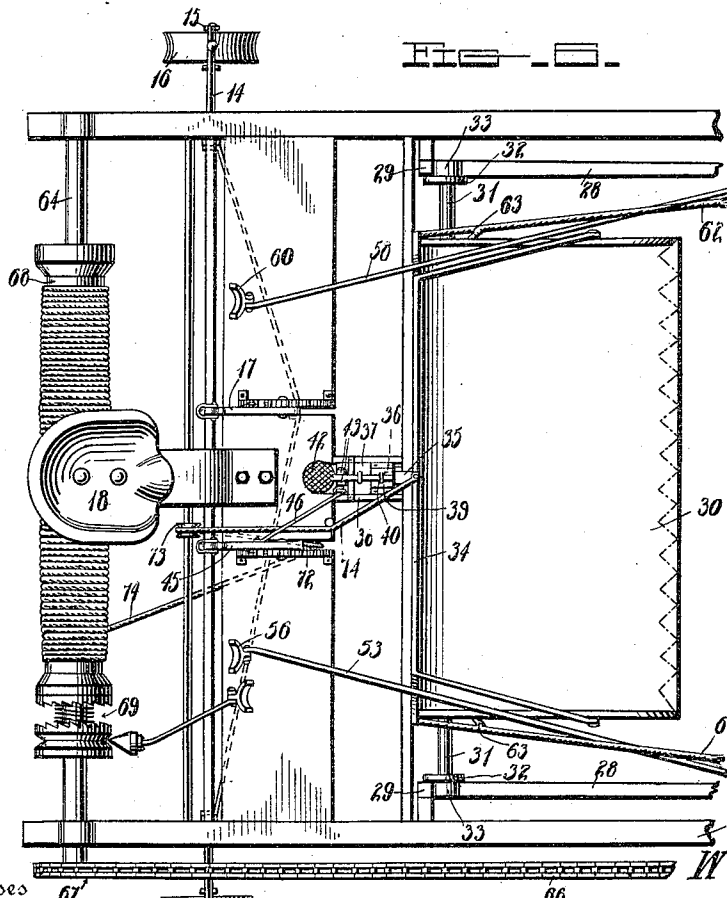
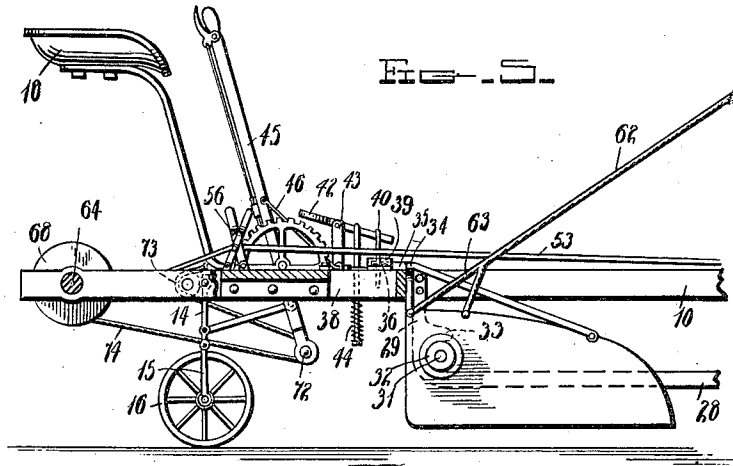
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4 SHEETS—SHEET 4.

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM REINEKE, OF ALTA VISTA, KANSAS.

MANURE-LOADER.

1,052,964.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed January 27, 1912. Serial No. 673,824.

To all whom it may concern:

Be it known that I, WILLIAM REINEKE, a citizen of the United States, residing at Alta Vista, in the county of Wabaunsee and State of Kansas, have invented certain new and useful Improvements in Manure-Loaders, of which the following is a specification.

My invention relates to new and useful improvements in manure loaders, and the object of my invention is to improve the construction and increase the efficiency of machines of the above described type.

A further object of my invention is the provision of a novel controlling mechanism for the scraper, said mechanism being adapted not only to control the scraper while it is being filled but also while it is being raised and tilted to discharge its contents. And a still further object of my invention is to so construct the above described controlling mechanism as to do away with crane arms and the like, the whole control being accomplished by means of cables.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawings which show a preferred embodiment of my device and then specifically pointed out in the claims which are attached to and from a part of this application.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan view thereof. Fig. 3 is a front elevation. Fig. 4 is a rear elevation. Fig. 5 is a detail side elevation of the scraper and its controlling mechanism. Fig. 6 is a detail plan of the same. Fig. 7 is a detail plan of the form of clutch employed in locking the winding drum.

Referring more specifically to the drawings, in which similar reference numerals designate corresponding parts throughout, 10 designates in general the base of my machine which, as shown consists of a substantially rectangular shaped frame which is preferably formed of timbers of sufficient weight to support the super-structure but which may be formed of metal if preferred. The forward end of this frame is provided with alined bearings in which is rotatably journaled a shaft 11 which forms the forward axle of the machine and upon the ends of which are keyed the bearing wheels 13. Swingingly mounted upon opposite sides of the frame adjacent its rear end are down-

wardly extending members having outwardly directed extensions 14 forming hangers upon the ends of which are swivelly mounted forks 15, carrying bearing wheels 16. These members 14 in fact forming tilting axles for the rear bearing wheels. A hand lever 17 carried by the frame is operatively connected to the axle to tilt the same and so raise and lower the rear end of the frame with respect to the ground, a driver's seat 18 being mounted upon the frame within easy reach of the lever.

Upwardly extending standards 19 are secured to the sides of the frame intermediate its length and properly braced at their upper ends by the cross piece 19' and extending downwardly and rearwardly from this cross piece is an inclined track 20 the lower end of which passes through the base of the machine and terminates adjacent the ground. The standards 21 which are secured to the forward end of the base frame extend vertically upward to a point considerably above the top of the standards 19 and secured to the upper end of these standards is a forwardly extending frame 22 which is suitably braced to the standards and upon the outer end of this frame is suspended a pulley 23. These standards 21 are braced intermediate their length by a cross piece 24 which also forms a support for the continuation 25 of the track 20, said track portion 25 terminating at a point below the pulley 23 and being provided with a buffer member 26 adapted to stop the passage of the scraper as will be hereinafter described and so prevent it from running off the track. The track 20—25 as best shown in Fig. 2 of the drawings, consists of a pair of spaced rails preferably formed of wood and extending beneath this track and between the rails is an inclined floor 27 the function of which is to support the forward end of the scraper as it passes up the track and as shown in Fig. 2, this floor 27 terminates directly between the standards 21 whereby the manure or other substance contained in the scraper may be discharged between the terminal portions of the track 25. The other or lower end of the floor terminates at the base of the machine. The lower end of the track 20 as previously mentioned, terminates adjacent the ground and secured to the ends of the timbers which form the rails of the track are metallic rails 28, preferably formed of angle iron, said metallic rails extending

rearwardly in a plane horizontal to the drum and terminating in upwardly directed portions 29 the upper ends of which are firmly secured to the frame 1.

5 Positioned between the rails 28 is the scraper 30 which is formed of metal and from the rear portion of the sides of which project trunnions 31 upon which are rotatably mounted bearing wheels 32 adapted
10 to engage with the rails of the track and so support the rear end of the scraper slightly above the ground. The scraper may be of the type shown in full lines having a plain shovel-like blade for engaging the manure
15 or it may be provided with a tooth blade as shown in dotted lines. The portions 29 of the track are provided with forwardly extending brackets 33 which are spaced above the rails 28 in such a manner as to bear over
20 the wheels 32 of the scraper when the latter is positioned at the rear end of the track and thus prevent the scraper from riding upwardly when its forward end is forced into the manure.

25 A bail 34 has its ends pivotally secured to the forward side portion of the scraper and extends rearwardly and upwardly from the same and has its bight portion firmly secured to one end of a bar 35 the free end
30 of which is perforated as at 36. A plate 37 is slidably mounted in a suitable guide way 38 carried by the frame 1 and is provided adjacent its forward end with a housing 39 adapted to receive the perforated end of the
35 bar 35 which is detachably secured in the housing by means of a downwardly directed pin 40 which passes through a perforation in the housing and engages with the perforation of the bar, said pin being carried by
40 the forward end of a foot operated lever 42 which is pivotally mounted intermediate its length between upwardly directed ears 43 carried by the plate and which is normally held in active position by the spring 44. A
45 hand lever 45 is pivoted to the frame of the machine and a link 46 operatively connects this hand lever with the plate 37 by means of which the plate may be moved back and forth to raise and lower the forward end of
50 the scraper. Having thus described the manner in which the scraper is held in operative position I will now describe the mechanism employed in causing the scraper to pass up over the track 20 and to discharge
55 its contents in advance of the machine.

A winding drum 47 is rotatably mounted upon the shaft 11 between the sides of the frame 1 and secured upon one end of this drum is a ratchet wheel 48 while secured
60 upon the other end of the drum is a clutch member 49. A disk 50 is keyed upon the shaft adjacent the clutch member 49 and a second clutch member 51 is carried by the shaft between the disk 50 and the drum,
65 said latter clutch member being slidably

mounted upon the shaft and adapted to rotate therewith, a helical spring 52 being interposed between the two clutch members to normally hold them out of engagement with each other. A connecting rod 53 is
70 slidably mounted through suitable guides 54 carried by the frame and is provided adjacent its forward end with a clutch operating member 55 adapted to be moved between the disk 50 and the clutch member
75 51 to force the latter into engagement with the clutch member 49. This clutch operating member consists of a disk shaped body member having a forwardly extending conical end adapted to engage between the disk
80 50 and the clutch member 51 and to force the same apart in such a manner that when the clutch is locked the disk portion of the operating member will lie between the two. As shown, the guides are so formed as to
85 permit of sufficient lateral movement of the rod as to enable the member 55 to move toward the drum under the influence of the disk 50. The operating member 55 is held against longitudinal movement upon the rod
90 by means of suitable collars but is free to rotate thereon by means of which all friction between the member 55, the disk 50 and the clutch member 51 is avoided. The rear end of the connecting rod 53 is operatively connected to a foot lever 56 positioned adjacent
95 the operator's seat. A helical spring 57 surrounds the connecting rod with one end bearing against one of the guides thereof and with the other end bearing against a collar carried by the rod in such a manner
100 as to normally hold the operating member 55 in withdrawn position. A second connecting rod 58 also supported in suitable guides carried by the frame has its forward end pivotally secured to a pawl 59 which is pivoted to the frame in position to be swung into engagement with the ratchet wheel 48
105 and so prevent rotation of the drum when the clutch is in inoperative position and the rear end of this connecting rod is operatively secured to a foot lever 60. This second rod is also provided with a spring 61 similar to the spring 57 for normally holding the pawl out of engagement with the ratchet wheel.
110 115

The cables 62 are connected by one end to the drum 47 and said cables are passed upwardly over the pulleys 23 and then downwardly and rearwardly and are secured by their free ends to bales 63 the ends of which
120 are pivotally secured to the upper rear portions of the side members of the scraper.

Journalled in suitable bearings carried by the rear end of the frame 1 and rotatable therein is a shaft 64 upon one end of which
125 is keyed a sprocket wheel 65, and a sprocket chain 66 operates with this sprocket wheel and with a similar sprocket wheel 67 carried by the shaft 11. Rotatable upon this shaft is a second winding drum 68 having a
130

clutch 69 similar in operation and construction to the clutch 51—52 by means of which the drum 68 may be locked to the shaft to rotate therewith. Chain tightening devices 70 are carried by the frame intermediate its length and bear against the chain 66 to keep the same tight and render its operation effective.

The hand lever 45 which is pivoted intermediate its length at a point adjacent the rear of the frame is provided at its free end with a pulley 72, which pulley is in alignment with a second pulley 73 carried by the frame. A cable 74 is secured by one end to the winding drum and is then passed forwardly over the pulley 72, rearwardly around the pulley 73 and then forwardly again and secured to the bail 34 of the scraper. The cables 62 and 74 are so fastened to the drums 47 and 68 that when one of the cables is being wound the other one is being unwound. By providing the hand lever 45 with its pulley, it is possible to draw in a portion of the cable 74 at any time and to thus tilt the forward end of the scraper upwardly.

Hinged to the forward edge of the brace 24 is a baffle member 75, preferably formed of wood, and adapted to receive the contents of the scraper when the latter is discharged between the rails, said baffle member being supported at any desired angle by means of the telescopically expansible members 76—77 carried by the brace portions of the standards 21.

The side members of the frame 10 are provided intermediate their length with outwardly extending bracket members 78 and carried by these bracket members are double-trees 79 by means of which draft animals may be harnessed to the machine.

In operation the parts of the machine are in the position shown in Figs. 1 to 4 of the drawings, with both the clutches 51—52 and 69 in inoperative position and with the pawl 59 in engagement with the ratchet of the drum 47. The hand lever 45 is then actuated to bring the forward end of the scraper in engagement with the material to be raised and the machine is advanced forwardly until the scraper has been filled. Pressure is then exerted upon the foot lever 42 to release the scraper, the pawl 59 is thrown out of engagement with its ratchet and the clutches 51—52 and 69 are thrown into operative position when the machine is further advanced causing the winding of the cable 62 on the drum 47 and the consequent movement of the scraper forwardly along the track 28. Meanwhile the hand lever 45 is manipulated to tilt the forward end of the scraper upwardly in such a manner that a further winding of the cable 62 causes the scraper to pass readily up over the track 28 with its blade portion bearing against

and supported by the frame 27. As the scraper passes between the standards 21 the lever 45 is released and the pull of the cable 62 being then directly upward causes the tilting of the scraper and the consequent discharge of its contents upon the baffle member 75. When so discharged, the lever 45 is again actuated to tilt the scraper back into position and the machine is moved rearwardly, the clutches remaining as before, thus causing a winding of the cable 74 upon its drum and a consequent unwinding of the cable 62 from the drum 47, said movement of the cable permitting the scraper to move downwardly along the track to return to its original position when it is again secured in place by means of the pin 40.

From the foregoing description it will be apparent that I have provided a highly efficient machine and one which at the same time is comparatively simple both in construction and operation. I have moreover provided a controlling mechanism for the scraper by means of which the latter is firmly maintained in position while being loaded, said mechanism being entirely independent of crane arms or similar rigid and unwieldy parts. Because of this when the scraper is to be raised to discharge its contents it becomes to all intents an independent carrier controlled wholly by cables and the track upon which it travels. By means of the engagement of the cable 74 of the hand lever 45 the scraper may be readily tilted at any time during its progress to prevent any possible catching of the same upon the floor of the track which may otherwise occur.

It will of course be understood that changes in details of construction, may be made within the scope of the appended claims, without departing from the spirit of my invention.

What I claim is:—

1. A machine of the character described, comprising a supporting frame, upright standards carried by said frame, an inclined track supported by said standards and frame and terminating in a horizontal portion below the frame, a scraper mounted for movement on said track, means for holding said scraper upon the horizontal portion of the track, means for tilting the forward end of said scraper while so held, means for causing said scraper to travel up and down the track, and means for tilting said scraper while so traveling.

2. A machine of the character described, comprising a supporting frame, upwardly extending standards carried by said frame, an inclined track terminating at its lower end in a horizontal extension, a scraper mounted to travel on said track, a plate reciprocally mounted upon the supporting frame, connecting means between said plate

and the forward end of the scraper, means for reciprocating said plate to tilt the scraper, means for causing said scraper to travel up said track, means for causing said scraper to travel down said track, and means for tilting said scraper while traveling.

3. A machine of the character described comprising a supporting frame, upwardly extending standards carried by said frame, an inclined track carried by said frame and standards, a scraper movable on said track, means for holding the forward end of said scraper in engagement with the ground, means for preventing upward movement of the rear end of said scraper when so held, means for moving said scraper up and down the track, and means for tilting said scraper at any desired time during its movement.

4. A machine of the character described, comprising a supporting frame, upright standards carried by said frame, a track carried by said standards and frame, a scraper mounted for movement upon said track, means for holding said scraper at one end of said track, said means including means for raising and depressing the forward end of the scraper, revolubly mounted drums carried by said supporting frame, means for revolving said drums, cables secured by one end to said drums and by their opposite ends to said scraper, and means coacting with one of said cables to tilt the scraper.

5. A machine of the character described, comprising a supporting frame, upright standards carried by said frame, an inclined track supported by said standards and frame, a scraper mounted for movement on said track, a shaft journaled in the forward end of said frame, means for rotating said shaft, a drum rotatable on said shaft, means for causing said drum to rotate with the shaft, cables connected by one end to said drum, the opposite ends being passed upwardly over pulleys carried by said stand-

ards, and then rearwardly and downwardly and secured to the scraper, a shaft journaled in the rear end of said frame, means whereby the rotation of the first mentioned shaft will cause a corresponding rotation of the second shaft, a drum rotatable on said second shaft, means for causing said latter drum to rotate with its shaft, a cable secured by one end to said latter drum and by its opposite end to the scraper, and means coacting with said latter cable for tilting said scraper.

6. A machine of the character described, comprising a supporting frame, upright standards carried by said frame, an inclined track supported by said standards and frame, a scraper mounted for movement on said track, cables secured to said scraper and extending forwardly of the frame, a cable secured to said scraper and extending rearwardly of the frame, means for winding and unwinding said cables to cause the scraper to move on its track, and means coacting with said latter cable for tilting the scraper when so moved.

7. A machine of the character described, comprising a supporting frame, upright standards carried by said frame, an inclined track supported by said standards and frame, a scraper mounted for movement on said track, cables secured to said scraper and extending forwardly of the frame, a cable secured to said scraper and extended rearwardly over a fixed pulley then forwardly over a movable pulley and then rearwardly again, means for winding and unwinding said cables, said means being so arranged that as the first cables are wound the latter is unwound, and means for moving said movable pulley.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM REINEKE.

Witnesses:

JONAS JOHNSON,
G. W. BERENDS.