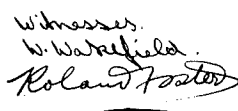


1,053,580.

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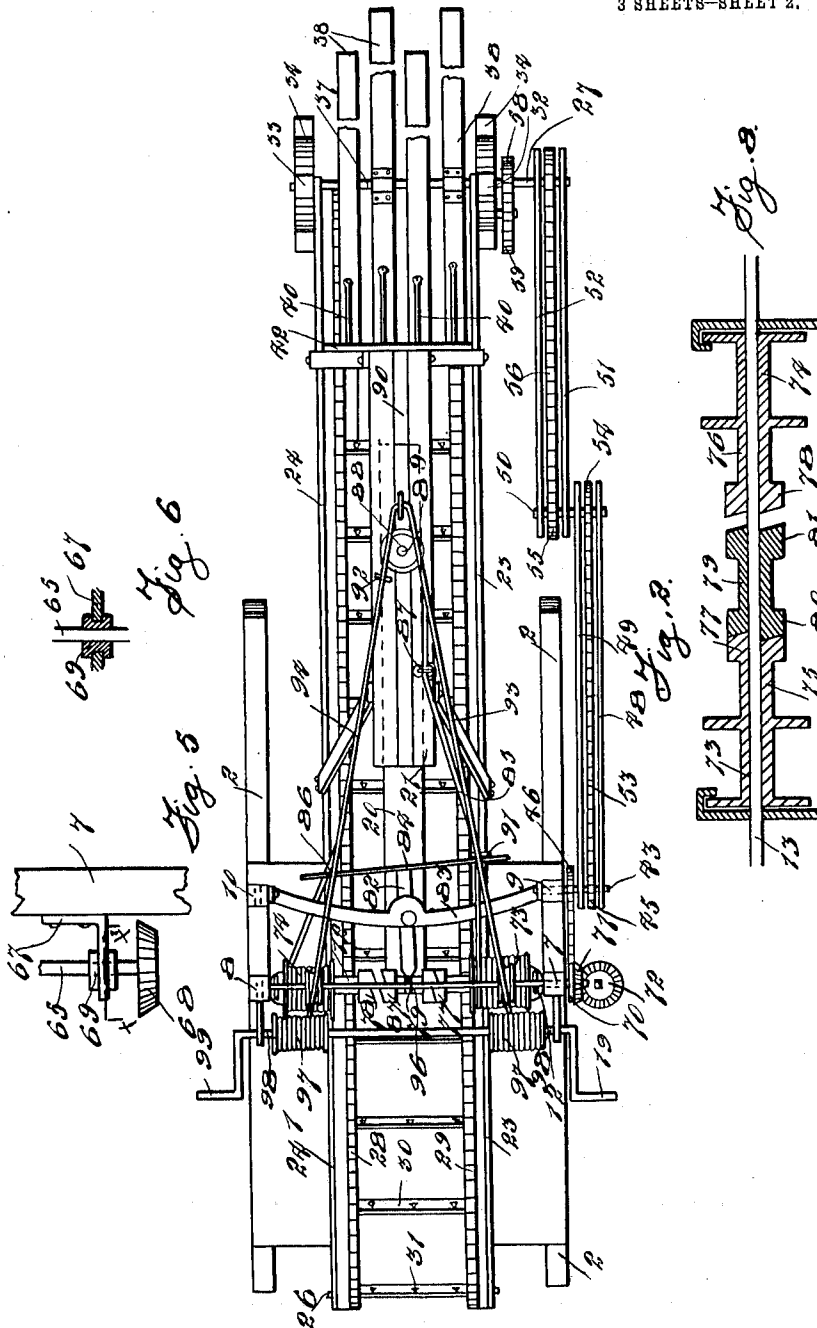
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APPLICATION FILED FEB. 27, 1912.

Patented Feb. 18, 1913.

3 SHEETS—SHEET 2.

1,053,580.



Witnesses.
W. Wakefield.
Roland Foster

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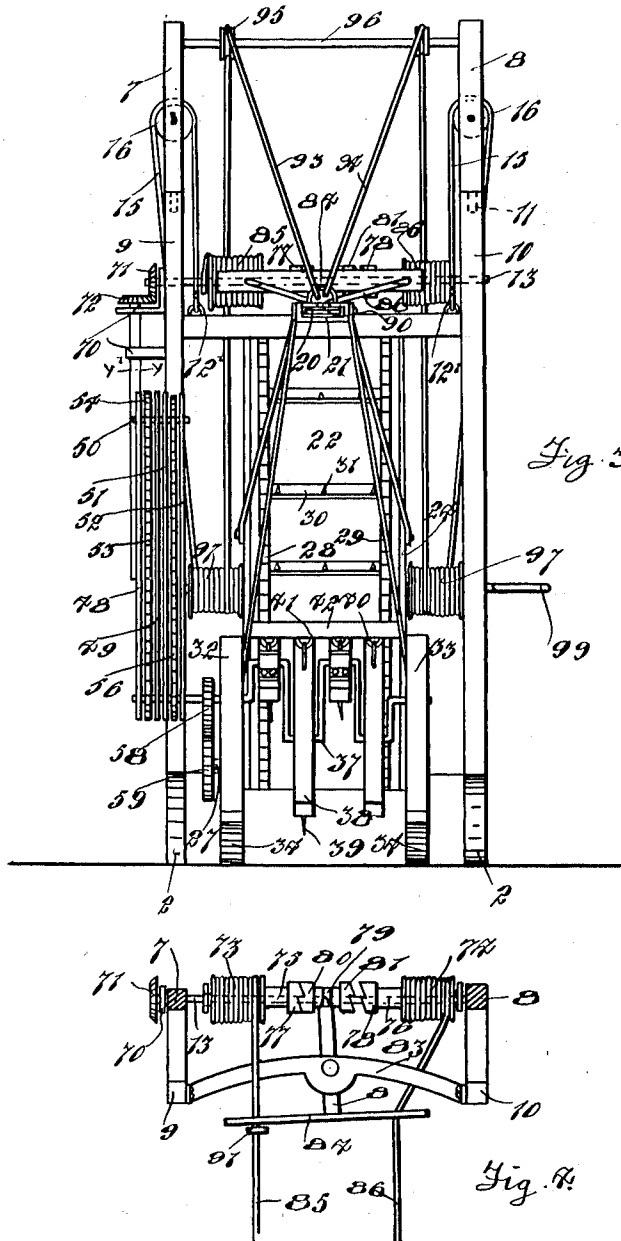
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Fred B. Luskman

B. J. & M. J. DESMOND.
 MANURE LOADING MACHINE.
 APPLICATION FILED FEB. 27, 1912.

1,053,580.

Patented Feb. 18, 1913.

3 SHEETS—SHEET 3.



Witnesses.
 W. Wakefield.
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UNITED STATES PATENT OFFICE.

BERNARD JOSEPH DESMOND AND MATTHEW JERIMIAH DESMOND, OF WINNIPEG,
MANITOBA, CANADA.

MANURE-LOADING MACHINE.

1,053,580.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed February 27, 1912. Serial No. 680,179.

To all whom it may concern:

Be it known that we, BERNARD J. DESMOND and MATTHEW J. DESMOND, both of the city of Winnipeg, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Manure-Loading Machines, of which the following is the specification.

Our invention relates to a portable machine for handling manure in large quantities, the machine being driven by an engine and constructed so that it will rake up manure from the pile and elevate it onto a load, and it consists essentially in a main platform mounted on suitable skids and supplied with an engine, an upright frame carried by the platform, an adjustable cross-beam slidably carried by the frame and supplied with an extending bar, an adjustable frame slidably mounted on the bar and carrying an inclined conveyer, shoes at the lower end of the conveyer, rakes or pickers designed to deposit material on the conveyer, means actuated by the engine for driving the picker and the conveyer, means for advancing and receding the adjustable frame on the bar, means for raising and lowering the cross beam, and means for tilting the adjustable frame, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is a side elevation of the complete machine. Fig. 2 is a plan view of the machine. Fig. 3 is an end view of the same. Fig. 4 is an enlarged detailed plan view of the clutches controlling the movement of the adjustable frame. Fig. 5 is an enlarged detailed side elevation of the bracket supporting the lower end of the upright drive shaft. Fig. 6 is a cross sectional view through the bracket the section being taken in the plane denoted by the line X X', Fig. 5. Fig. 7 is a cross sectional view through the drive shaft, the section being taken in the plane denoted by the line Y Y', Fig. 3. Fig. 8 is an enlarged detailed longitudinal sectional view through the drum shaft and adjoining parts.

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

1 represents a main platform carried by suitable skids 2 and supporting an engine

3 of which 4 is the main drive shaft and 5 the drive pulley. The platform supports an upright frame 6 formed from pairs of opposing upright beams 7 and 8 and 9 and 10 connected at the top by short beams 11.

12 is a cross beam normally located between the uprights 7 and 8 and supported by two hangers 12' from a drum shaft 13 having the ends thereof passing through suitable vertically directed slots 14 formed in the beams 7 and 8. The cross beam and shaft are adjustably supported by cables or ropes 15 which pass upwardly over pulleys 16 mounted in the uprights 7 and 8 and thence downwardly to drums 17 carried by a common winding shaft 18 fitted with a cranked end 19.

20 is a supporting bar extending forwardly from the central portion of the beam 12 and carrying slidably an adjustable frame 21, which frame supports an endless conveyer 22. The conveyer is constructed with the usual sides 23 and 24, cross deck 25, end shafts 26 and 27, and chains 28 and 29 supplied with cross bars 30 carrying short prongs 31. The ascending sides of the chains drag over the deck so that any material deposited on the lower end of the conveyer is delivered over the upper end of it.

32 and 33 are two standards secured permanently to the sides of the conveyer and carrying shoes 34 adjustably fastened there to by screws 35. The standards support a shaft 36 fitted in the present instance with four cranks 37 which carry rake bars 38 supplied with suitable downwardly extending prongs 39. The rear ends of the rake bars are provided with guide rods 40 fastened at their ends to the bars and having the body portions thereof passing through eyes 41 carried by a cross piece 42 secured permanently to the adjustable frame. These rods guide the rear ends of the rakes or pickers.

43 is a countershaft mounted in the beams 9 and 10 and provided with a pulley 44 and two chain wheels 45 and 46, the pulley 44 being connected to the pulley 5 by a belt 47.

48 and 49 are a pair of similar bars swung on the shaft 43 and having the outer ends connected by a short shaft 50 to a further pair of bars 51 and 52 having the forward ends thereof swung on the crank shaft 36. The chain wheel 45 is connected through a

chain 53 with a chain wheel 54 on the shaft 50 and this shaft carries a further chain wheel 55 connected by a chain 56 with a chain wheel 57 on the end of the crank shaft 51 and 52.

58 is a gear wheel fixed on the counter shaft and meshing with a gear wheel 59 located on the shaft 27 of the conveyer. The above construction allows the conveyer and the rakes or pickers to be driven in any of the adjusted positions of the frame 21.

60 is a short shaft carried by the beams 7 and 8 and provided with a chain wheel 61 and a bevel pinion 62, the chain wheel being connected by a chain 63 with the chain wheel 46 already mentioned.

64 is an upright drive shaft formed from two telescoping members 65 and 66, the member 65 being square and fitting within a square opening in the member 66. The member 65 is mounted in a suitable bracket 67 carried by the upright 7 and is supplied at the lower end with a bevel pinion 68 meshing with the bevel pinion 62. The bracket 67 carries a bearing 69 which is rotatable in the bracket but is provided with a square central opening which receives the member 65. The upper member 66 of the upright drive shaft is connected to the drum shaft 13 by hangers 70.

71 is a bevel wheel fixed on the end of the shaft 13 and meshing with a bevel wheel 72 located on the upper end of the member 66. The shaft 13 carries two loose drums 73 and 74 supplied with extending sleeves 75 and 76 terminating in male clutch members 77 and 78.

79 is a further sleeve feathered centrally on the shaft 13 and presenting at the ends two female clutch members 80 and 81 designed to engage with the clutch members 77 and 78, respectively, upon the sleeve being shifted.

82 is a lever pivotally mounted on a bracket 83 carried by the upright frame and having the rear end thereof connected to and spanning the sleeve 79 and the forward end supplied with a trip bar 84.

85 and 86 are two cables wound in each instance in opposite directions on the drums 73 and 74 and extending forwardly through a suitable opening formed in the bar 84 after which they pass and are tied to a common anchoring pin 87 extending upwardly from the face of the adjustable frame 21. The cable 86 passes over a pulley 88 carried by a pin 89 passing downwardly through a slot 90 formed in the adjustable frame into the supporting bar 20.

91 and 92 are two trip pieces carried by the cables 85 and 86, these being arranged so that the trip bar is automatically thrown first in one direction and then in the other as long as the shaft 13 is rotated. It is to be understood that the members 91 and 92 engage the ends of the trip bar as the cables

are wound on the drums. The drums are prevented from end movement on the shaft in any suitable manner.

The adjustable frame is supported by a pair of cables 93 and 94 passing over pulleys 95 carried by a cross shaft 96 mounted in the upper ends of the beams 7 and 8, which cables, after passing over the pulleys, pass downwardly to drums 97 mounted on a winding shaft 98 carried by the beams 7 and 8. The shaft is supplied with a crank 99.

100 is an inclined deflecting plate carried by the standards 32 and 33 and adapted to direct material collected by the forks onto the conveyer.

101 is a swinging plate pivotally secured to the upper end of the conveyer and arranged to direct material thrown from the conveyer onto a wagon or other vehicle. It will be seen that this latter plate is necessary as the conveyer is constantly shifted backwardly and forwardly and consequently if no plate were provided there would be the possibility of the manure dropping onto the ground instead of into the wagon box. It is to be understood that the lower edge of the plate rests in working position continuously on the side of the wagon dragging on it as the conveyer shifts.

The operation of the device is now described assuring the engine started so as to rotate the shaft 43 in a right hand direction. The attendant first adjusts the beam 12 by means of the drum shaft 18 and then raises or lowers the forward end of the bar 20 so that the shoes 34 will rest on the manure pile. As the shaft 43 is rotated it operates the crank shaft 36 through the chains 53 and 56 and also causes the conveyer to move so as to collect and elevate all material drawn in or raked by the prongs 39 on the crank shaft 36. Simultaneously the shaft 64 is rotated by the chains 63 and drives the drum shaft 13. This causes one of the cables to wind onto one of the drums and the other of the cables to wind off of the other of the drums until such time that the trip piece carried by the winding cable engages with the trip bar. Immediately this occurs the trip bar is swung in the direction which engages the clutch members controlling the free or unwinding drum so that it is rotated with the shaft 13 to wind and winds the cable carried thereby onto it, while the other drum has its controlling clutch members disengaged thereby allowing it to run free of the shaft and consequently unwind as the opposite drum winds. The winding of the opposite drum continues until the trip piece on the cable carried by it engages with the trip bar and shifts the central sleeve to engage the clutch members controlling the opposite drum. This operation continues as long as the machine is working so that the adjustable frame is

pulled constantly forward and backward on the bar 20 the shoes meantime riding on the heap and the prongs 39 gathering the manure elevating it over the conveyer 100.

5 As the manure pile diminishes in size the attendant loosens or adjusts the cables 15 and those 93 and 94.

What we claim as our invention is:—

1. The combination with a suitably mounted upright frame, of a normally inclined conveyer slidably carried by the frame, means for alternately advancing and receding the conveyer, means located at the lower end of the conveyer for gathering up and depositing material on to the lower end of the conveyer as the conveyer passes forwardly and backwardly, as and for the purpose specified.

2. The combination with an upright frame, of an adjustable frame slidably supported from the upright frame, an inclined conveyer carried by the adjustable frame, means for alternately advancing and receding the adjustable frame on the slidable support, rake bars adjoining the lower end of the conveyer and provided with prongs, said rake bars being carried by a crank shaft, a plate extending from the lower end of the conveyer and adapted to direct collected material on to the conveyer, and means for operating the conveyer and for rotating the crank shaft, as and for the purpose specified.

3. The combination with a portable platform, of an upright frame carried by the platform, an adjustable frame carried by the upright frame and supported slidably in respect to the same, means for automatically shifting the adjustable frame forwardly and backwardly on the sliding support, an inclined conveyer carried by the adjustable frame, standards fastened to the lower end of the conveyer, a plate adjoining the lower end of the conveyer and adapted to direct material thereon, a crank shaft carried by the standards, rake bars supplied with prongs and mounted on the crank shaft, means slidably supporting the rear ends of the rake bars, and means for continuously driving the conveyer and the crank shaft, as and for the purpose specified.

4. The combination comprising, a portable platform, an upright frame carried by the platform and presenting a pair of opposing guide slots, a drum shaft operating within the slots, means for adjustably supporting the drum shaft, means for driving the drum shaft in all the adjusted positions, a cross beam carried by the shaft, a supporting bar extending forwardly from the cross beam, means adjustably supporting the forward end of the supporting bar, an adjustable frame slidably mounted on the sup-

porting bar, means actuated by the drum shaft for sliding the adjustable frame alternately forwardly and backwardly on the supporting bar, an endless inclined conveyer carried by the adjustable frame and movable forwardly and backwardly therewith, a plate adjoining the lower end of the conveyer adapted to direct collected material on to the conveyer, rake bars provided with prongs adjoining the lower end of the conveyer, and means for driving the rake bars and the conveyer in all positions of the adjustable frame, as and for the purpose specified.

5. The combination comprising, a portable platform, an upright frame carried by the platform and presenting a pair of opposing guide slots, a drum shaft operating within the slots, means for adjustably supporting the drum shaft, means for driving the drum shaft in all the adjusted positions, a cross beam carried by the shaft, a supporting bar extending forwardly from the cross beam, means adjustably supporting the forward end of the supporting bar, an adjustable frame slidably mounted on the supporting bar, drums mounted on the drum shaft, a cable wound on one of the drums in one direction and extending to the adjustable frame where it is fastened, a cable wound on the other of the drums in the opposite direction to the former cable and passing forwardly to the adjustable frame where it is also fastened, a pulley carried by the supporting bar in advance of the fastening point of the latter cable to the frame which pulley receives the cable, means controlling the drums whereby they are alternately rotated with and freed from the shaft to wind one cable and release the other, thereby causing the adjustable frame to be shifted automatically forwardly and backwardly on the bar, an inclined conveyer carried by the adjustable frame, standards secured to the lower end of the conveyer, shoes carried by the standards, a plate carried also by the standards and designed to pass material on to the conveyer, a crank shaft mounted in the standards, rake bars carried by the crank shaft provided with prongs, means slidably supporting the rear end of the rake bars, and means for driving the crank shaft and the conveyer continuously from a drive means located on the platform, as and for the purpose specified.

Signed at Winnipeg, this 29th day of January, 1912.

BERNARD JOSEPH DESMOND.

MATTHEW JERMAH DESMOND.

In the presence of—

G. S. ROXBURGH,

L. GOULD.