

1,433,018.

L. J. McMILLIN,
VEHICLE DUMPING APPARATUS.
APPLICATION FILED JUNE 3, 1921.

Patented Oct. 24, 1922.
3 SHEETS—SHEET 1.

Fig. 2.

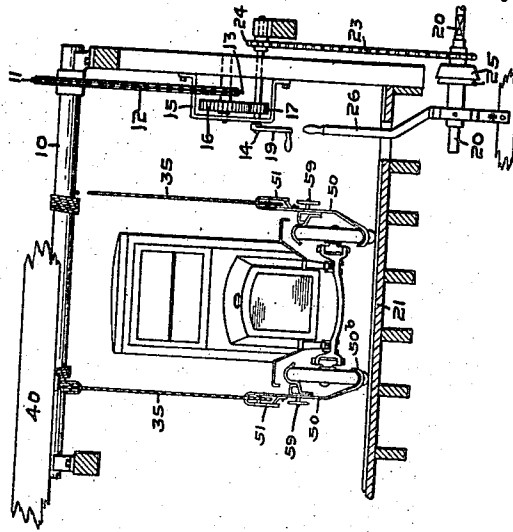


Fig. 1.

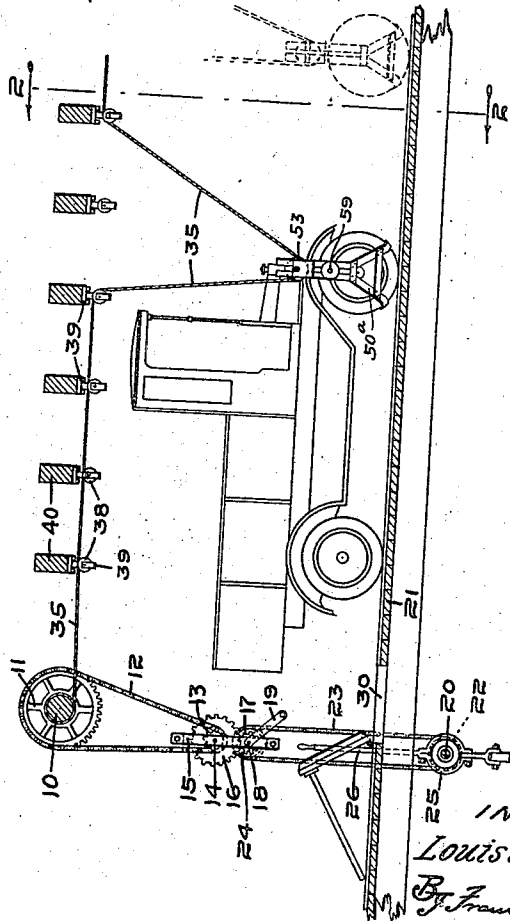
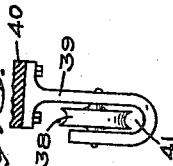


Fig. 3.

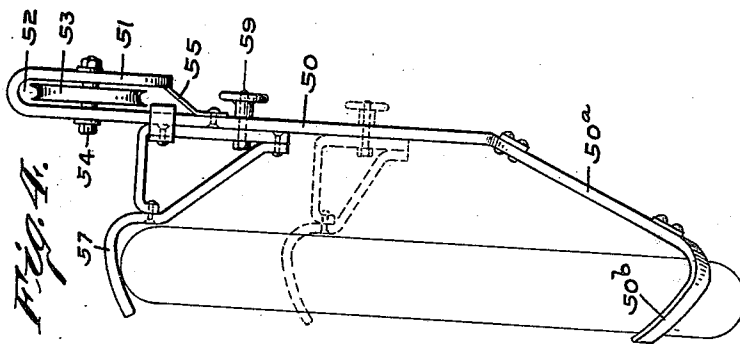
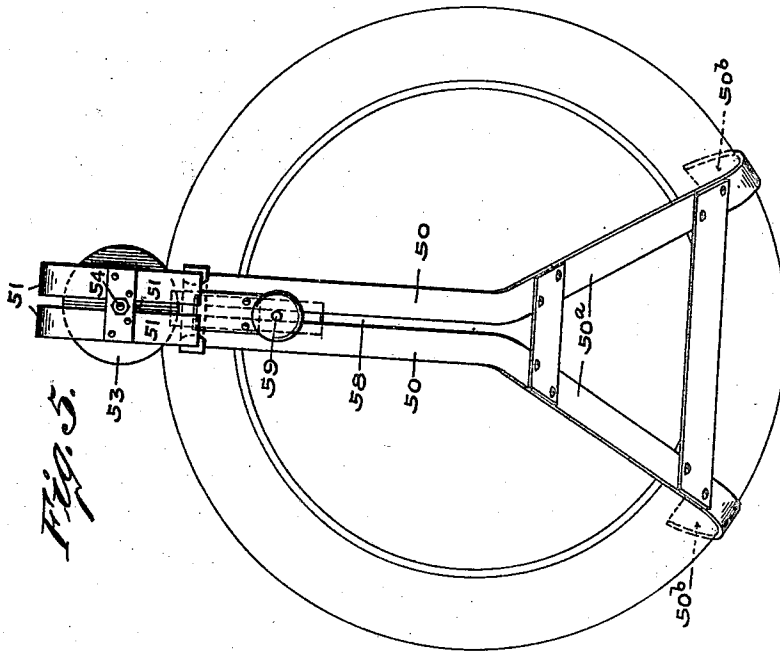


INVENTOR:
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By Frank W. Hornum,
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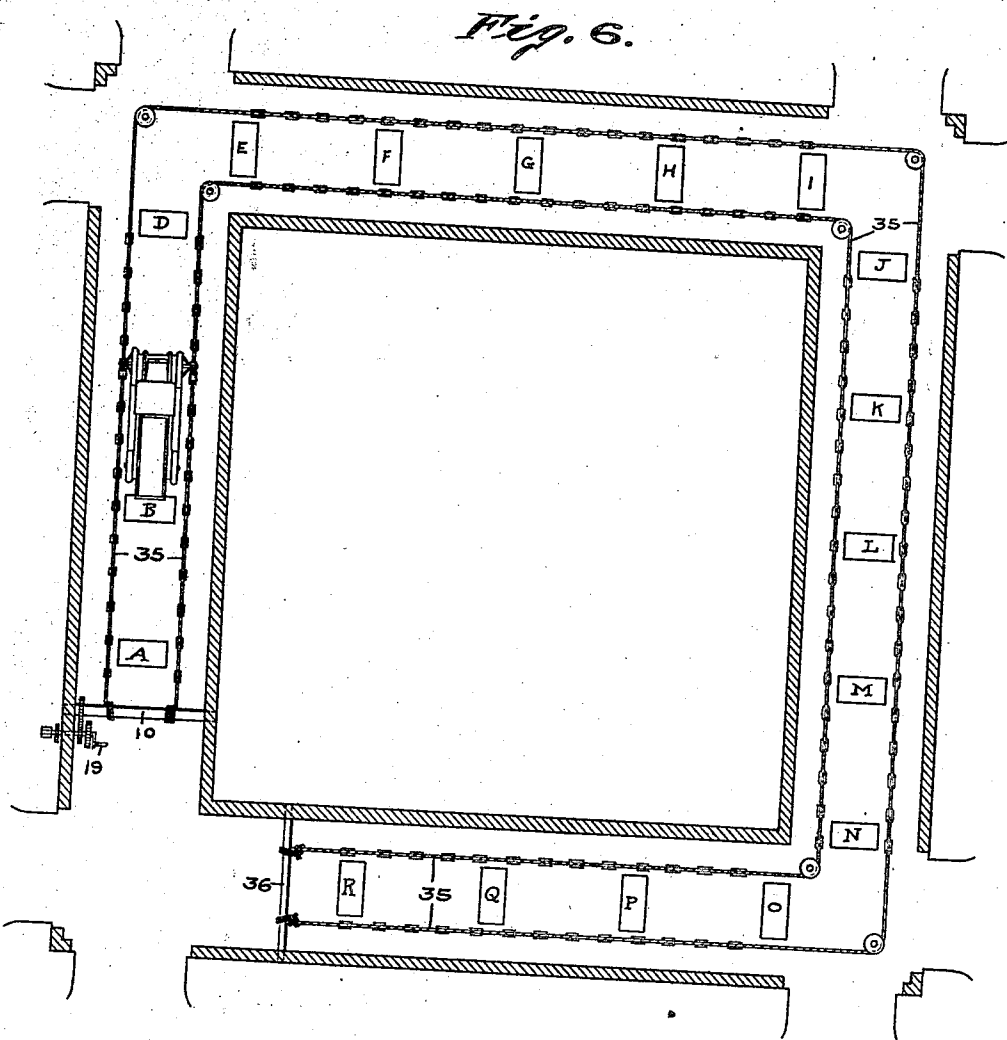


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UNITED STATES PATENT OFFICE.

LOUIS J. McMILLIN, OF INDIANAPOLIS, INDIANA.

VEHICLE-DUMPING APPARATUS.

Application filed June 3, 1921. Serial No. 474,805.

To all whom it may concern:

Be it known that I, LOUIS J. McMILLIN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Vehicle-Dumping Apparatus, of which the following is a specification.

This invention relates to certain means for unloading or dumping grain from wagons and trucks into grain receiving and storing pits in and about grain elevators, and has for its principal object the utilization and arrangement of certain mechanism whereby a single power unit and dumping apparatus is sufficient to dump the contents of all wagons and trucks, transporting grain to such elevators, into any one of a large number of grain receiving pits which are usually arranged beneath the main floor of the grain elevator building.

A further object of the invention consists in the provision of suitable vehicle hoisting cables having sufficient slack to form bights which can be moved from one grain receiving pit to another, thereby enabling grain of a particular grade and character to be discharged into the desired receiving pit, and which also enables the discharge ends of the vehicles to be maintained the proper effective dumping position relatively to the mouths of the pits irrespective of the difference in length of the vehicles in which the grain is transported, by moving the bights in the hoisting cables nearer or farther away from the mouths of the pits, as the conditions in each case may dictate.

There are other objects which will appear from a perusal of the following description and claims, which are accomplished by means of one of my preferred embodiments which I have illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view through a portion of the unloading floor of a grain elevator building, showing the mouth of a grain pit and the relative location of my invention and a vehicle in which grain is transported. Fig. 2 is a transverse section on the plane 2—2 in Fig. 1. Fig. 3 is a front elevation, on a considerably enlarged scale, of one of the sheave-wheels which provides both a bearing point and guide for the hoisting cables. Fig. 4 is an edge view, on an enlarged scale, of one of the vehicle wheel-gripping devices. Fig. 5 is a front eleva-

tion of the construction shown in Fig. 4. Fig. 6 is an arbitrarily arranged diagrammatic plan view of a grain elevator, showing the location of the various grain receiving pits, together with the relative location of my dumping apparatus thereto.

Referring to the drawings, the dumping of the contents of a vehicle, which may be accomplished at any one of the several grain receiving pits by means of a single hoisting apparatus arranged at the most convenient point as may be determined by the outlay of the pits, comprises a revoluble hoisting drum 10, which is usually arranged in suitable bearings immediately below the joists of the second floor of the building. Drum 10 is provided at one end with a sprocket wheel 11 and is rotated through the medium of a sprocket chain 12 leading to a sprocket wheel 13 located on a shaft 14, the latter being journaled in a frame 15 usually attached to the side of the building. Shaft 14 is also provided with a pinion 16 which meshes with a corresponding pinion 17 arranged on an intermediate shaft 18 journaled in frame 15. Shaft 14 may be provided with a hand-crank 19 if desired for the manual operation of drum 10, but I prefer to employ a mechanical power unit, usually an electric motor, not shown, which is connected to a main driving shaft 20 arranged beneath the dumping floor 21 of the building. The main driving shaft 20 is also provided with a sprocket wheel 22 and by means of a sprocket chain 23 leading to a sprocket wheel 24 on intermediate shaft 18 drum 10 may be mechanically driven. Shaft 20 is further provided with a suitable shifting-clutch mechanism 25 and shifting lever 26 so that the movable parts of the hoisting mechanism including the drum 10 may be thrown into and out of operation.

Figure 1 illustrates a grain carrying vehicle in proper dumping position relatively to a door opening 30 leading into a grain receiving pit which is located beneath floor 21, and Fig. 6 illustrates an arbitrary arranged plan of a plurality of grain receiving pits. Examining the above figures it will be observed that a pair of parallel cables 35 extend away from drum 10 immediately below the lower edges of the joists of the second floor of the building, and these cables extend the entire length of the area containing all of the openings 30 leading into the series of grain receiving pits, irrespective as

to whether the pits extend in a straight-away line away from drum 10 or are arranged otherwise, their arrangement depending upon the structural outlay of the building.

5 The ends of the hoisting cables 35 extend somewhat beyond the furthestmost located pit where their ends are suitably anchored on a cross-beam 36 attached to the building, and the length of cables 35 is sufficiently

10 in excess of the distance between the drum 10 and cross-beam 36 to provide the necessary slack in forming the bights or loops in the cables so as to permit of an attachment being formed between the latter and

15 front wheels of the vehicles, as clearly shown in Fig. 1. Cables 35 are maintained in a substantially horizontal plane between drum 10 and cross-beam 36 by means of a series of pulleys or sheave-wheels 38 which

20 are arranged in bearing-frames 39 (Fig. 3), of which one end of each frame 39 is securely bolted to the underside of the second-floor joist 40. Each bearing-frame 39 is bent to form a hook which is arranged so

25 as to provide a space 41 intervening the body and hooked-end for the reception of one of the sheave-wheels 38, the free hook-shaped end of the bearing-frame 39 being of sufficient length to form an outer support

30 for the outer trunnion end of sheave-wheel 38, this construction permitting cables 35 to be removed or replaced from one or more of the sheave-wheels as circumstances may require. Hence, if it is desired to dump a load of grain in the first

35 pit from the dumping apparatus, designated as A in Fig. 1, it is necessary to bring all of the slack in the cables to form the necessary bights at this point, and if

40 the next vehicle to be dumped is stationed at pit L the slack in the cables, after having released the cables from the vehicle at pit A, is moved by applying a pulling stress

45 with a suitable hook in the hands of an operator at pit L to bring the slack in the cables to that point. After proper attachment is made between the cables 35 and the vehicle at pit L, the same hoisting apparatus employed for dumping a vehicle at

50 pit A is capable of dumping the vehicle at pit L, or at any other pit in the series in which it is desired to discharge grain. The flexibility of the dumping apparatus is rendered possible, first, in providing the necessary slack in the cables 35 to form the

55 bights; second, by the method of either sustaining and when necessary freeing the cables 35 at any point intermediate their length for the formation of the bights, and,

60 third, by means of the sheave-wheels I am able to provide a large number of different points of fulcrum for the cables in hoisting vehicles at different positions from the single hoisting apparatus.

65 To provide an easy and safe means for connecting and disconnecting the vehicles to the intermediate portions of cables 35, I contemplate the use of a pair of gripping devices for embracing the peripheries of the front vehicle wheels of a vehicle, and as

70 shown in Figs. 4 and 5 these gripping devices each comprise a frame 50 which extends vertically approximately from the hub of the wheel to and somewhat beyond the periphery of the latter. The upper end of

75 frame 50 is bent outwardly and downwardly into a hook 51 which stands parallel with the face of frame 50 and is arranged to provide a channel 52 intervening the frame and hook which is adapted to receive a chan-

80 nelled sheave-wheel 53 which is mounted on an axle 54 journaled in the frame and hook. One of the cables 35 is passed under the sheave-wheel 53 and its accidental displacement is prevented by means of a resilient

85 leaf spring 55 which extends across the channel 52, but which can be easily pressed back for the removal of cable 35 when desired. The lower end of frame 50 is bifurcated into a pair of diverging arms 50^a

90 which terminate at their free ends into the curved hooks 50^b adapted to receive the peripheral face of the tire of the wheel, and hooks 50^b, by means of the diverging character of arms 50^a, are arranged so as to

95 contact the periphery of the wheel a sufficient distance apart so that the points of contact will be above a point where a plane passing vertically through the axis of the wheel intersects the lower portion of the

100 tire, which construction permits that portion of the periphery of the wheel between the hooks 50^b to extend slightly below the points of contact of said hooks and which acts as a brace for temporarily holding the

105 wheel in the frame while the latter is being clamped fast. The wheel is clamped at its top by means of a hook 57 which may be adjusted vertically in frame 50 by means

110 of a slot 58 and a bolt 59, whereby the effective clamping of wheels of different diameters is rendered possible.

By means of the foregoing described arrangement of parts it will be observed that I have produced a simple and economically

115 installed and operated apparatus by which vehicles for transporting grain to elevators can be dumped in any one of a series of grain receiving pits.

Having thus fully described my said in-

120 vention, what I claim as new and desire to secure by Letters Patent, is—

1. A hoisting apparatus comprising a revoluble drum, a hauling cable attached to the drum and having its free end secured at

125 a point remote from the drum, said cable having sufficient length to form a bight intermediate its ends, a series of guide-means adapted to guide the cable in a determined path of travel and to vary the point of hoist-

130

ing along said cable relatively to the hoisting drum, and means for imparting movement of rotation to the hoisting drum.

2. A hoisting apparatus comprising a revoluble drum, a hauling cable attached at one end to the drum and having its other end secured at a point remote from the drum, said cable having a bight formed therein by increasing the length of the cable to exceed the distance between its points of attachment, a series of uniformly spaced guide-

means arranged between the drum and the remote point of attachment of the cable, said guide-means adapted to guide the cable in a determined path and to change the position of the bight relatively to the drum. 15

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this 28th day of May, A. D., one thousand nine hundred and twenty-one.

LOUIS J. McMILLIN. [L. s.]