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PATENTED FEB. 24, 1903.

J. ROCKE.
PORTABLE GRAIN DUMP AND ELEVATOR.

APPLICATION FILED OCT. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

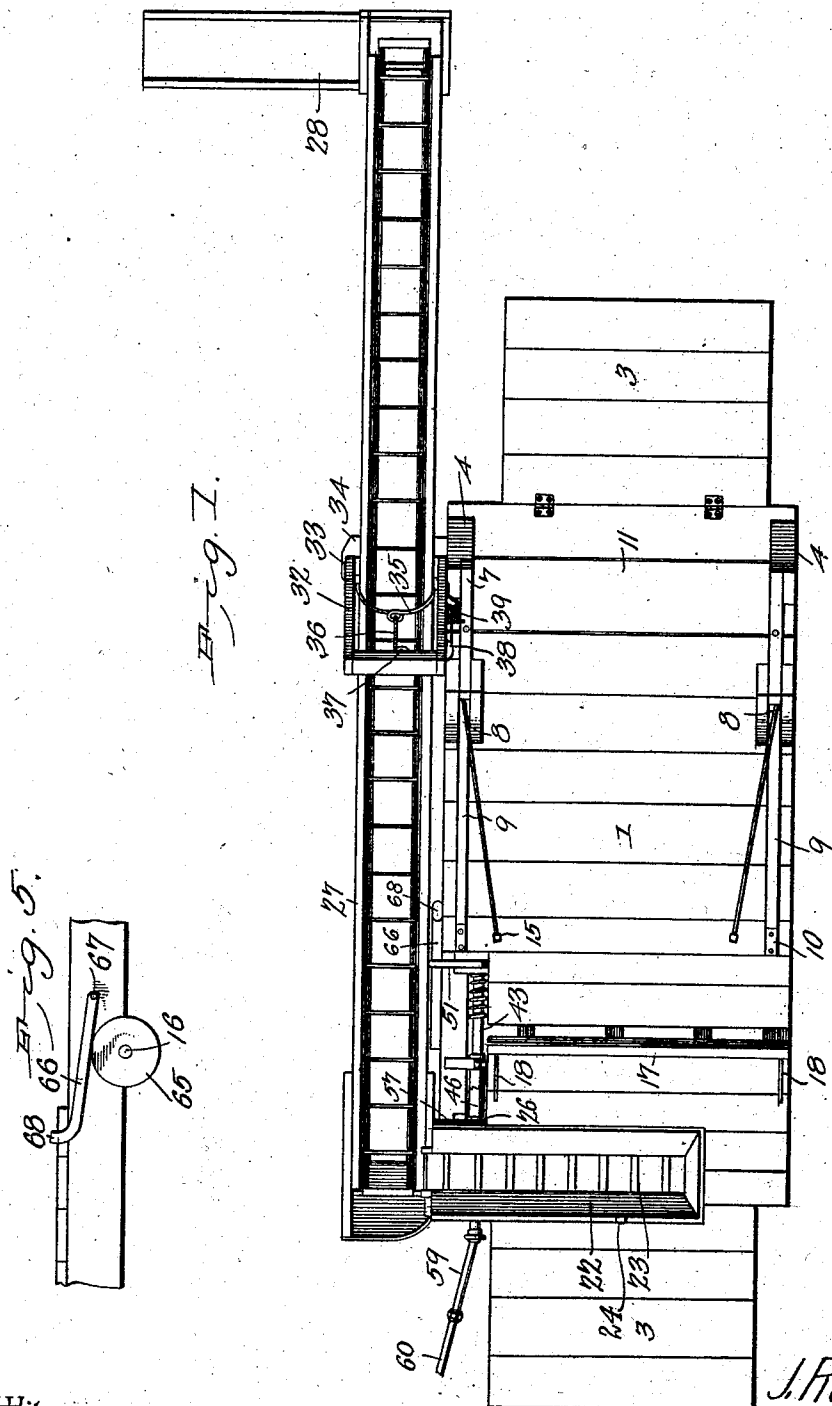
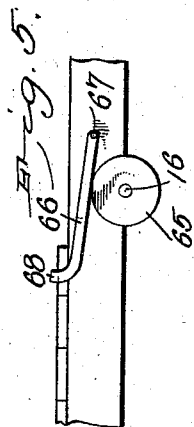


Fig. 1.



Witnesses

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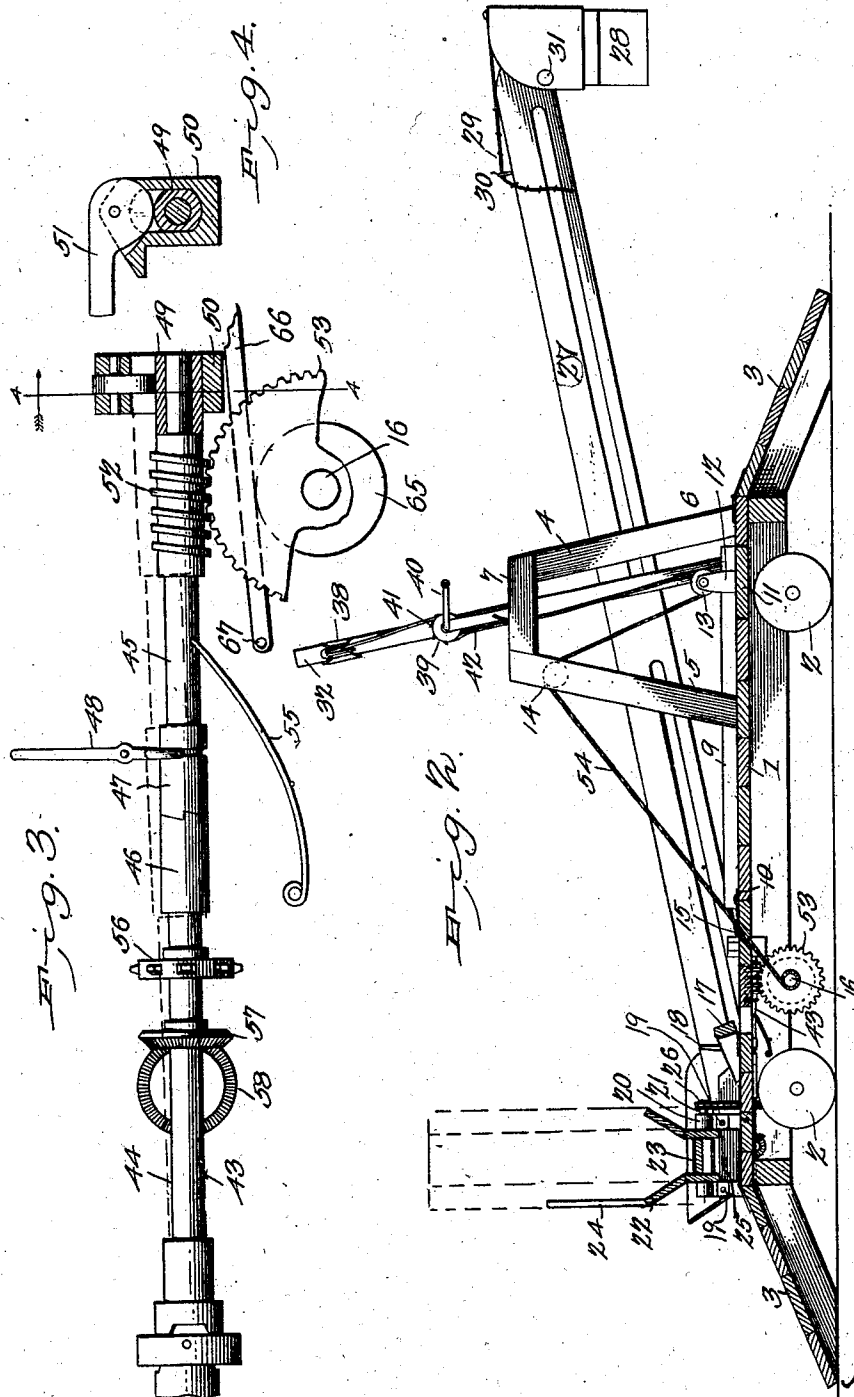
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UNITED STATES PATENT OFFICE.

JOHN ROCKE, OF MEADOWS, ILLINOIS.

PORTABLE GRAIN DUMP AND ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 721,466, dated February 24, 1903.

Application filed October 25, 1902. Serial No. 128,815. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROCKE, a citizen of the United States, residing at Meadows, in the county of McLean and State of Illinois, have invented a new and useful Portable Grain Dump and Elevator, of which the following is a specification.

This invention relates to an improved portable grain dump and elevator, such as are used for unloading or discharging grain from wagons and for elevating the same into the bin, granary, or other place of storage; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view my invention consists in the improved construction, arrangement, and combination of parts, which will hereinafter be fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a device constructed in accordance with the principles of my invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is a detail view, on a larger scale, of the main power-shaft of the device and its related parts. Fig. 4 is a sectional detail view taken on the line 4 4 in Fig. 3. Fig. 5 is a sectional detail view illustrating the foot-brake used in connection with my invention.

Corresponding parts in the several figures are indicated by similar numerals of reference.

The main platform 1 of my improved apparatus is mounted on wheels 2, whereby it may be readily moved from one place to another, and it is provided at the ends thereof with hinged approaches 3, which when not in use may be folded upon the platform. A pair of upright frames 4 4 are mounted upon the platform at the sides and near the rear end of the same. (By "rear end" I refer to the end of the platform at which wagons leave the same after being unloaded.) These frames are each composed of inclined upwardly-converging front and rear beams 5 and 6, connected at their upper ends by cap-pieces 7. The front beams may each be composed of two members combining so as to form a slot or of a single member having a vertical slot, the former construction being illustrated in the drawings,

where 8 designates the slot. A pair of beams 9, hinged upon the platform at 10, are extended rearwardly through the slots 8 and are connected at their rear ends with a movable flooring-piece 11, which forms part of the flooring of the platform and which is so disposed that when a wagon occupies the platform in position for tilting the front wheels of such wagon shall rest upon the said movable flooring-piece. The ends of the beams 9 are provided with brackets 12, in which are mounted pulleys 13. Ropes or other flexible members, such as chains, having their ends attached to the cap-pieces 7, are passed under the pulleys 13, thence over pulley 14, journaled in the slots 8, near the upper ends of the latter, and downwardly through inclined slots or openings 15 in the floor of the platform to a transverse shaft 16, to which the ends of said flexible members are attached, it being evident that when the shaft is revolved the ropes will be wound thereon, thus elevating the movable floor-section 11, which while being elevated is securely held by and between the beams 9.

To check the hind wheels of the wagon while its front portion is being elevated, I provide a hinged floor-section 17, provided with brackets 18, which not only form handles by means of which the said hinged floor-section may be manipulated, but also serve as rests to retain the same in the open position shown in Figs. 1 and 2 of the drawings.

The brackets 19 upon the platform 1 at the side and near the front end thereof are provided with bearings 20 for a shaft 21, upon which a trough 22, constituting the casing of an endless carrier, is pivotally mounted. The endless carrier 23 is mounted upon a drum or shaft at the outer end of the trough (not seen in the drawings) and upon the shaft 21, which may be provided with a suitable drum to support the said carrier, if desired. The trough 22 is provided with an arm or handle 24, forming a lever by means of which it may be manipulated to raise or lower it, as may be desired. The outer end of said trough is provided with legs 25 to support it in an operative position, and the shaft 21 has a sprocket-wheel 26, whereby it receives motion from the source of power, as will be presently described. The carrier formed by the trough 22 and its related parts discharges into

an elevator 27, which is pivotally mounted at the inner side of the platform and which is provided at its upper end with a discharge-chute 28, which may be adjusted by means of a knotted rope 29 engaging between a pair of pins 30, according to the height at which the discharge end of the elevator may be raised, said discharge-chute being connected pivotally at 31 with the upper end of the leg of the elevator. The latter extends through a rectangular frame 32, the lower end of which is hinged at 33 to a bracket 34, projecting from the under side of the platform of my improved device. 35 designates a yoke or bail pivotally connected with the leg of the elevator. Attached to this yoke or bail is one end of a rope 36, which is guided by suitably-disposed pulleys 37 and 38 to a winding-drum 39, disposed upon one side of the rectangular frame 32 and having a crank 40, by means of which it may be operated to wind the cord 36 and to raise the discharge end of the elevator to any desired point within the limit of the frame 32. The winding-drum 39 is preferably provided with ratchet-teeth 41, adapted to be engaged by a suitably-disposed spring-pawl 42, whereby the elevator may be retained at any desired adjustment.

43 designates the main power-shaft, which is mounted in suitable bearings longitudinally in the frame of the platform of my improved device near the inner edge thereof, whereby is meant the edge alongside of which the elevator is disposed. Said power-shaft consists of two parts or sections 44 and 45, adapted to be connected by means of a clutch comprising a fixed member 46, mounted upon the inner or rear end of the shaft member 44, and a sleeve 47, slidably mounted upon the adjacent end of the shaft member 45 and operated, by means of a lever 48, to throw it into or out of engagement with the clutch member 46. The inner end of the shaft-section 45 is journaled in a sleeve 49, which is vertically movable in a boxing 50, in which it may be retained in a depressed position by the action of a cam-lever 51, so as to cause a worm 52 upon said shaft-section to engage a worm-gear 53 upon the shaft 16, thereby operating the said shaft to wind thereon the ropes of flexible members 54, which serve for the purpose of elevating the tilting device hereinbefore described.

55 designates a spring suitably disposed below the shaft-section 45 and bearing upwardly against the same to force it in an upward direction. It is obvious that when the said shaft-section is released from the pressure of the cam-lever 51 the spring 55 will force it in an upward direction and out of engagement with the worm-gear 53.

The shaft-section 44 carries a sprocket-wheel 56, which is connected by a chain 57 with the sprocket-wheel 26 upon the shaft 21 of the endless carrier contained in the trough 22. The said shaft-section also has a bevel-gear 57, meshing with a similar bevel-gear 58 upon

the lower shaft of the endless carrier of the elevator, to which motion is in this manner transmitted.

The shaft comprising the sections 44 and 45 receives motion, by means of universally-jointed tumbling-rods, from a horse-power or other suitable source of power. One of said tumbling-rods (or more, as may be desired) I intend to make extensible, as shown in Fig. 1, each being composed of a stem or shaft 59, which is square or polygonal in cross-section and which engages a correspondingly-shaped bore in the sleeve-section 60. By this construction the device which constitutes my invention may be moved longitudinally to some extent, so as to discharge into several individual bins when a row of these receptacles are disposed closely together without the necessity of moving the horse-power or other source of power from which motion is supplied to my improved device.

The shaft 16 is provided near one end thereof with a friction wheel or disk 65, the rim of which is adapted to be engaged by a lever 66, pivotally secured to the frame at 67 and having a foot-piece or treadle 68, which extends upwardly through a slot in the flooring. This device constitutes a brake by means of which the rotation of the shaft 16 may be retarded, as will be readily understood.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood. In order to operate the device, the trough 22, containing the endless carrier at the front end of the platform, is raised, by means of the lever or handle attached thereto, to an approximately vertical position, as indicated in Fig. 2 of the drawings, while the loaded wagon is being driven onto the platform. When the front wheels of the wagon reach the movable flooring-board 11, the floor-section 17 is raised to the position indicated in Figs. 1 and 2 of the drawings, when it will check the hind wheels of the wagon and prevent the latter from running back against the trough 22, which is now lowered to the position shown in full lines in Figs. 1 and 2. During this time the entire shaft 43 receives rotary motion from the source of power and the endless carriers are constantly in motion; but the inner end of the shaft is raised, so as to bring the worm 52 out of contact with the worm-gear 53. When the wagon is in position, the cam-lever 51 is operated, so as to bring the worm 52 into mesh with the worm-wheel 53, thus causing the shaft 16 to be rotated, with the result of elevating the flooring-board 11, supported upon the arms 9, and thus tilting the wagon, the end-gate of which has meanwhile been opened, so as to discharge its contents into the trough of the endless carrier, the latter having also been restored to its normal position behind the wagon. When the wagon has been sufficiently tilted, the lever 48 may be operated so as to throw the

clutch members 47 and 46 out of gear. The wagon will thus be retained in its tilted position by the intermeshing worm-gear while the endless carriers of the trough 22 and the elevator are being operated so as to carry the contents of the wagon to the place of storage. As soon as the contents of the wagon has been discharged the cam-lever 51 is thrown to release its pressure upon the shaft-section 45, when the latter by the tension of the spring 55 will be instantly elevated to a position out of mesh with the worm-wheel 53. The weight of the wagon will now, exerting its downward pressure upon the flooring-board 11, restore the latter to its normal position, the rotation of the shaft 16 being meanwhile retarded by means of the foot lever or brake 66, thus preventing the front and end of the wagon from being too suddenly lowered, and thereby prematurely started down the incline of the approach. While this is taking place preparations may be made for the reception of another wagon, which may closely follow the first one as the latter leaves the platform.

I have in the foregoing described the preferred construction of my invention; but I desire it to be understood that I do not limit myself as regards the details thereof, but reserve the right to any changes, modifications, and alterations which may be resorted to without departing from the spirit and scope of my invention or sacrificing any degree of its utility.

Having thus described my invention, I claim—

1. In an unloading apparatus, a platform having inclined approaches, a receiving-trough pivotally mounted and disposed transversely across the platform, and a hinged plank forming a part of the flooring of said platform adjacent to said trough and provided with upwardly-extending brackets.

2. In an unloading apparatus, a platform, a loose flooring-plank adapted to support the front wheels of a wagon driven onto the platform, a pair of beams hingedly connected with said platform and having their free ends connected with said loose flooring-plank, hoisting means for said plank guided over suitably-disposed pulleys and having their ends connected with a shaft disposed transversely under the platform, a worm-wheel upon said shaft, a worm disposed to be thrown into and out of engagement with said wheel and operating means.

3. In an unloading apparatus, a platform, a loose flooring-plank adapted to support the front wheels of a wagon driven onto the platform, frames rising from the sides of the latter and having vertically-slotted front beams, beams connected hingedly with the platform, guided in the slots of the frame-beams and having their free ends connected with the loose flooring-plank, hoisting means connected with the cap-beams of the frames, guided over suitably-disposed pulleys, including pulleys at the free ends of the hinged beams and

connected with a transversely-disposed shaft under the platform, and means for rotating said shaft and for temporarily retaining it stationary when the rotation thereof is suspended.

4. In an unloading apparatus, a platform, a loose flooring-plank adapted to support the front wheels of a wagon driven onto the platform, frames rising from the sides of the latter and having vertically-slotted front beams, beams connected with the platform, guided in the slots of the frame-beams and having their free ends connected with the loose flooring-plank, a transversely-disposed shaft under the platform and flexible connecting means between said shaft and the cap-beams of the frames rising from the platform, said connecting means being guided over suitably-disposed pulleys including pulleys at the ends of the hinged beams connected by the loose flooring-plank.

5. In an unloading apparatus, a platform, a pair of beams hinged at the sides thereof, a loose flooring-plank connecting said beams, flexible hoisting means for the free ends of the beams connected by the loose flooring-plank, a transversely-disposed shaft forming a winding-drum for said hoisting means, a worm-wheel upon said shaft, a power-shaft composed of two sections having its inner end mounted in a vertically-slidable box, a casing for said box, a cam-lever mounted to depress the shaft-boxing in said casing, a spring disposed below the shaft to force it in an upward direction, a worm upon the inner shaft-section engaging the worm-gear when depressed by the action of the cam-lever against the oppositely-disposed spring, and clutch means connecting the ends of the shaft-sections.

6. In an unloading apparatus, a platform, a transversely-disposed pivotally-mounted receiving-trough having an endless carrier, a hinged flooring-plank disposed adjacent to said trough and having upwardly-extending brackets forming a wagon-check, means for tilting a wagon disposed upon the platform, a pivotally-mounted elevator disposed to receive the discharge from the receiving-trough, means for vertically adjusting the discharge end of said elevator, a power-shaft composed of two sections, clutch means to connect said shaft-sections, means for transmitting motion from said shaft to the endless carriers of the receiving-trough and the elevator, a worm-gear upon the inner shaft-section, a shaft constituting a winding-drum for the flexible connections of the wagon-tilting means and having a worm-wheel meshing with said worm-gear, and means for optionally throwing the latter into and out of engagement with said worm-wheel.

7. In an unloading apparatus, a platform, a loose flooring-plank adapted to support the front wheels of a wagon driven onto the platform, frames rising from the sides of the latter and having vertically-slotted front beams,

beams, hingedly connected with the platform, guided in the slots on the front frame-beams and having their free ends connected with the loose flooring-plank, a transversely-disposed shaft under the platform, rope connections between said shaft and the cap-beams of the frames rising from the platform, said connecting-ropes being guided over suitably-disposed pulleys including pulleys at the ends of the hinged beams connected by the loose flooring-plank, means for operating the

transverse shaft, a friction-disk upon the latter, and a foot-lever engaging said friction-disk and having a treadle end extending through a slot in the floor of the platform. 15

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN ROCKE.

Witnesses:

D. N. CLAUDON,
DANL. CLAUDON.