

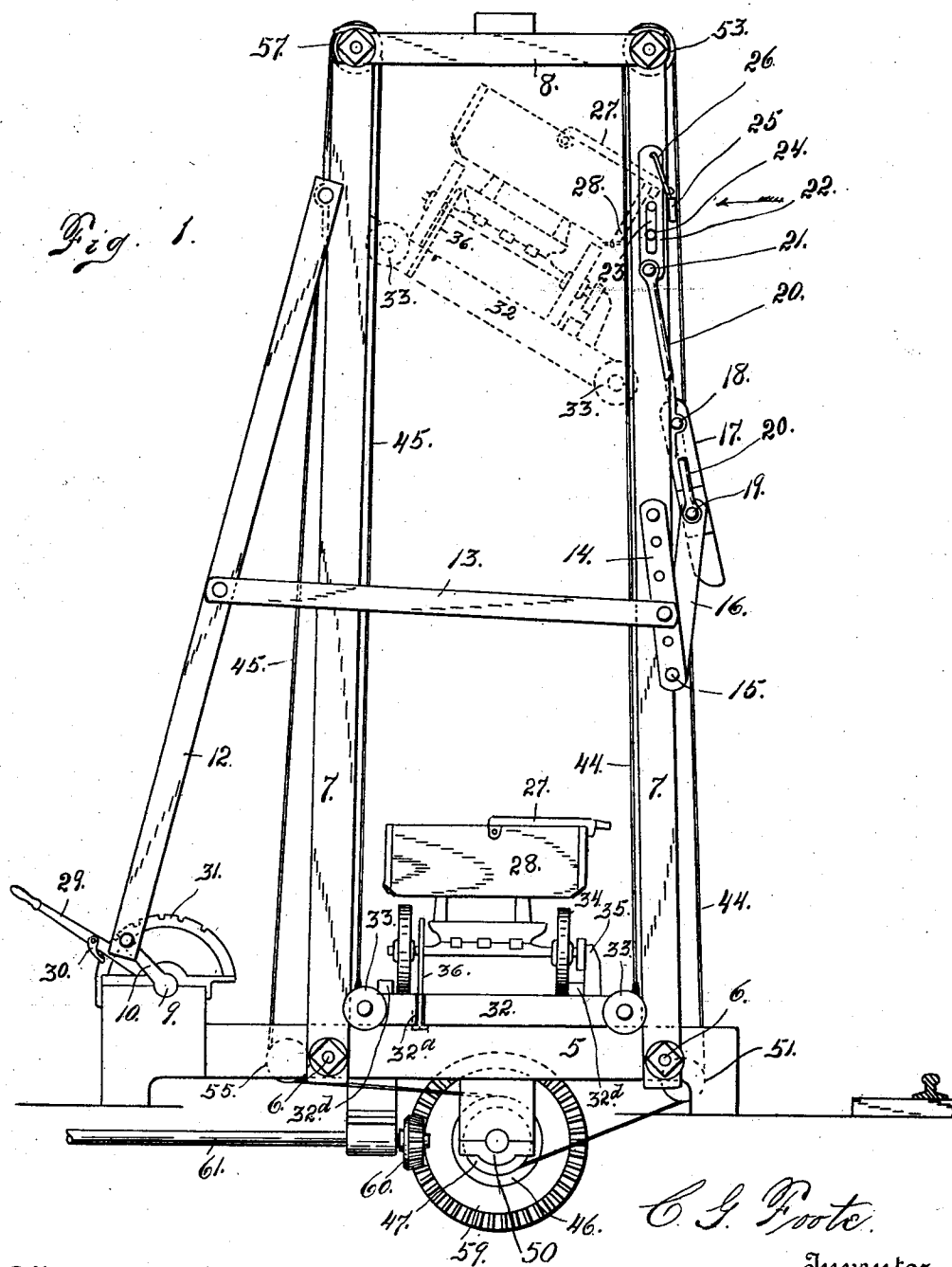
No. 749,139.

PATENTED JAN. 5, 1904.

C. G. FOOTE.
DUMPING APPARATUS.
APPLICATION FILED JULY 3, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses
Otto E. Hoddick.
Dena Nelson.

C. G. Foote.
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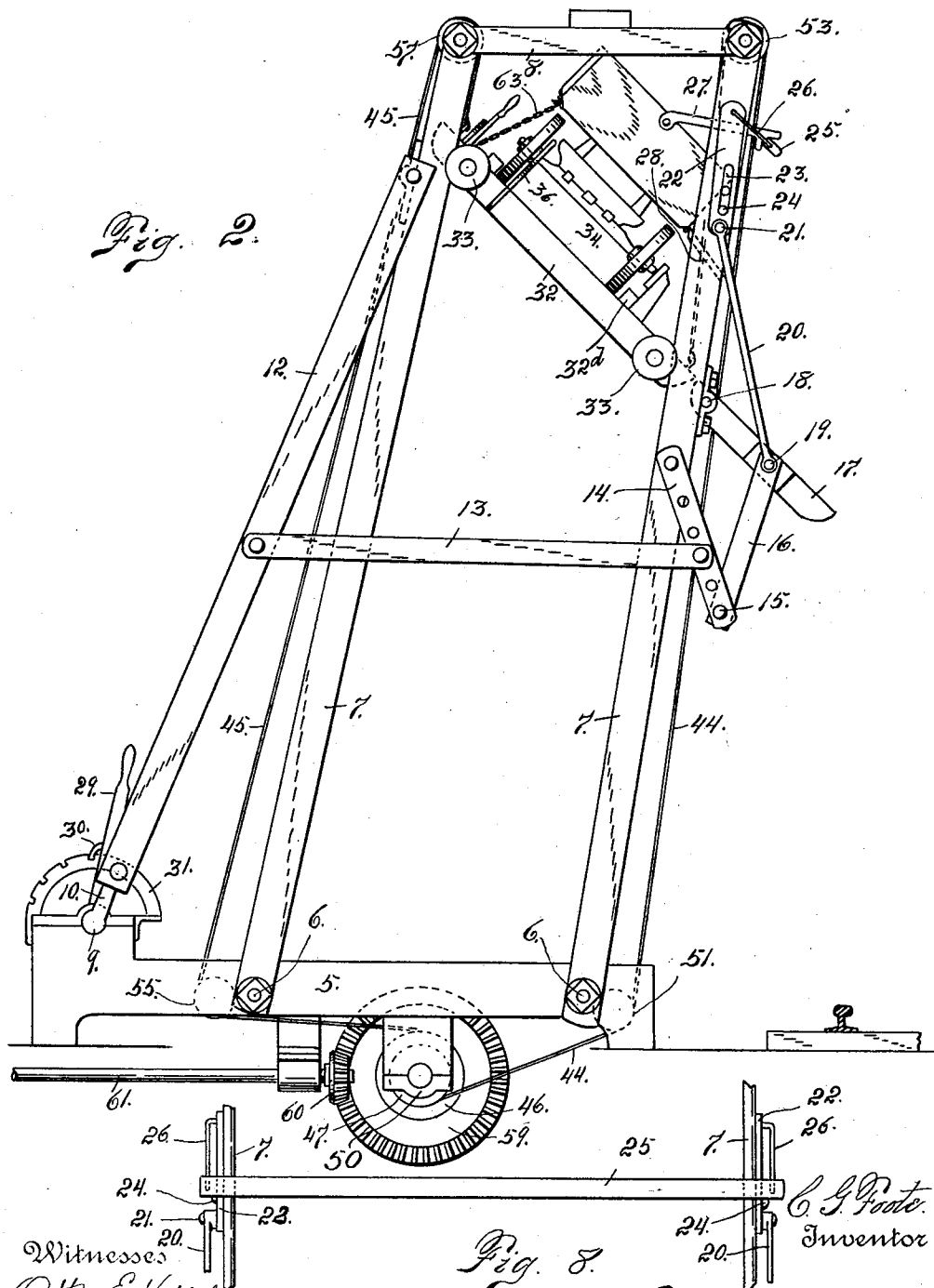
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Fig. 8.

C. G. Foote.
Inventor
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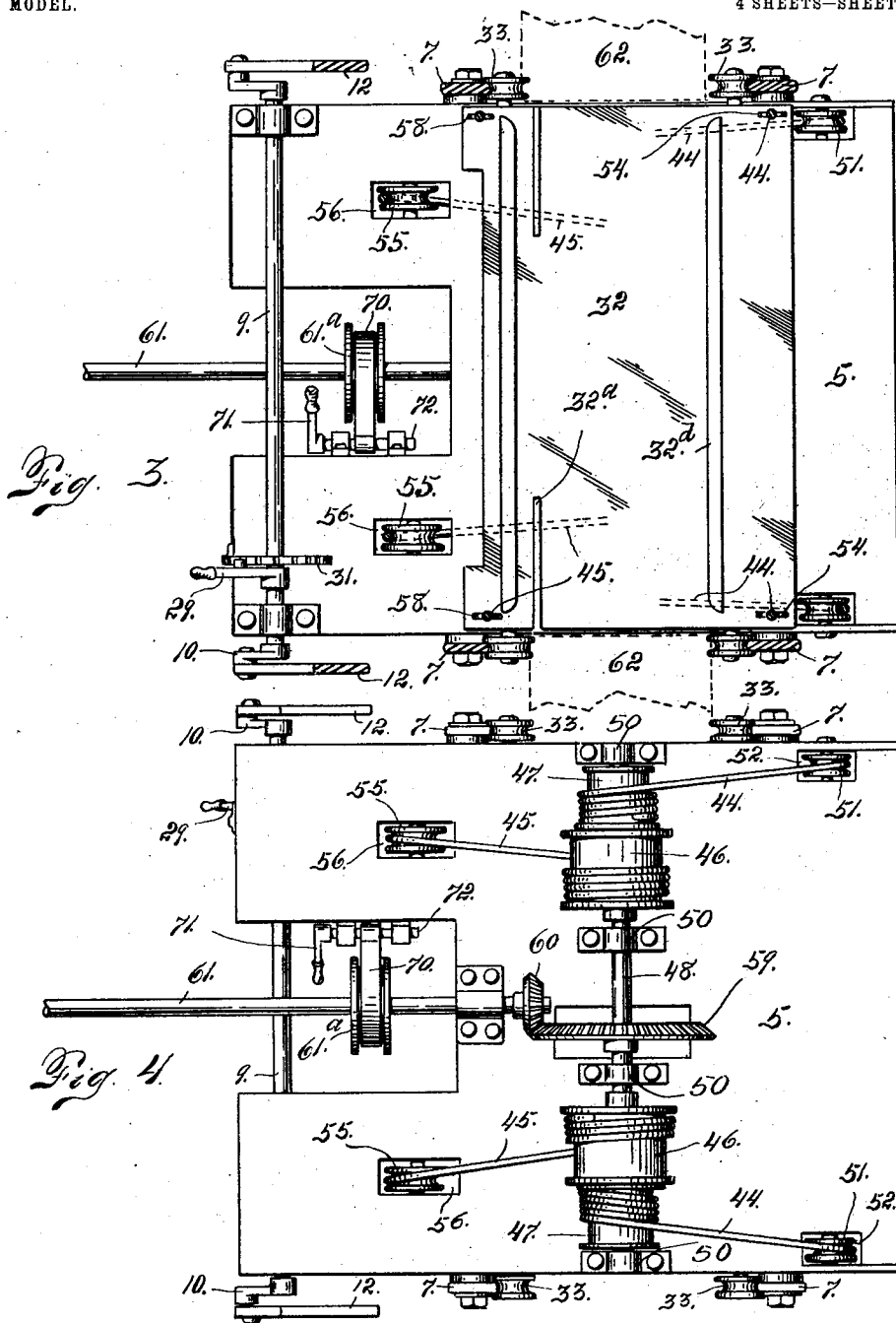
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Otto E. Hoddick.
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By Attorney

UNITED STATES PATENT OFFICE.

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DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 749,139, dated January 5, 1904.

Application filed July 3, 1903. Serial No. 164,131. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. FOOTE, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Dumping Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wagon-dumping apparatus, and while it will be described in this specification more especially in connection with its use in dumping wagons loaded with sugar-beets it is evident that the material carried by the wagon is of no consequence and has nothing to do with the construction of the apparatus, which remains the same whether the wagon to be dumped is loaded with beets, other vegetables, ore, or other material.

One important feature of my improved apparatus consists of means for elevating the wagon to any desired height which may be necessary in order to dump its contents into a car or other receptacle. The apparatus is provided with a base, upon which is mounted a tiltable upright frame forming a guide for a vertically-movable platform, upon which the wagon to be dumped is placed. The mechanism for elevating the platform is so constructed that while starting in a horizontal position the platform is gradually inclined as it is moved upwardly. This is accomplished through the instrumentality of a shaft, upon which are mounted drums of different diameters upon which the lifting-cables are wound, those connected with one side of the platform being wound upon the larger drums, whereby this side of the platform is raised more rapidly than the other, resulting in tilting the platform to the desired inclination by the time it is raised to the required height. Provision is also made for tilting the upright frame after the wagon has been elevated, whereby the latter is brought into the proper relative position to dump its contents into a car or other receptacle located at the side of the apparatus.

Simultaneously with the tilting of the frame a chute is automatically thrown outward to guide the beets or other material into the car and the hinged gate of the wagon-body opened.

Having briefly outlined my improved construction, as well as the function it is intended to perform, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of my improved dumping apparatus, the vertically-movable platform and the wagon mounted thereon being shown in two positions, one in full and the other in dotted lines. Fig. 2 is a side view of the same, showing the frame tilted and the other parts in corresponding positions. Fig. 3 is a horizontal section taken through the upright frame looking downwardly on the platform and base. Fig. 4 is an underneath view of the apparatus. Fig. 5 is a view of the vertically-movable platform shown in detail and on a larger scale. Fig. 6 illustrates the platform mounted at right angles to Fig. 3 and with the wagon in place thereon. In this view the mechanism for locking the wagon in place on the platform is illustrated. Fig. 7 is a top view of the same. Fig. 8 is a detail view of the mechanism for unlocking the hinged gate of the wagon-body. This view is obtained by looking in the direction of the arrow in Fig. 1.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable base, upon which are pivoted, as shown at 6, four upwardly-projecting bars 7. The two adjacent bars 7 on each side are connected at the top by parts 8, only one of which is shown in the drawings. The extremities of each part 8 are pivotally connected with the parts 7. Journalled in the base at the left of the upright frame is a rock-shaft 9, having cranks 10 at its extremities. These cranks are connected with the lower extremities of two rods 12, whose upper extremities are connected with two bars 7 near the top of said bars. One of the rods 12 is connected by a side rod 13 with a link 14, pivotally connected with the bar 7 of the frame remote from the inclined rods 12. The link 14 is connected at its lower extremity, as shown at 15, with an-

other link 16, whose upper extremity is pivotally connected with a chute 17, the latter being hinged to the frame, as shown at 18. At the point 19 where the link 16 is connected with the chute the lower extremity of a rod 20 is also connected with the chute and with the link 16. The upper extremity of the rod 20 is pivotally connected at 21 with a plate 22, slidably mounted on the upper part of a bar 7. There are two rods 20 and two plates 22, one on each side of the machine. (See Fig. 8.) The lower extremity of one of the rods 20 is connected only with the chute, since the links 14 and 16 are only shown on one side of the machine, though they may be used on both sides, if desired. Each plate 22 is slotted, as shown at 23, and slides on a bolt or pin 24, fast in the frame-bar 7. Upon the upper extremities of the two plates 22 is hung a cross-bar 25 by means of two links 26. This cross-bar is adapted to swing outwardly to allow the latch 27 of the hinged wagon-body gate 28 to pass as the wagon is elevated, after which the cross-bar will swing back into place beneath the outer extremity of the said latch. Then as the frame is tilted to the position shown in Fig. 2 the chute is thrown outwardly to direct the contents of the wagon-body into a car or other receptacle, (not shown,) and the plates 20, with the cross-bar 24, are elevated sufficiently to raise the latch 27 and allow the hinged gate 28 to drop to the dumping position. (See Fig. 2.)

The rock-shaft 9 is operated by a lever 29, provided with a dog or pawl 30, engaging a notch quadrant 31.

The vertically-movable platform is designated 32 and is provided at its four corners with grooved wheels 33, which engage the bars 7 of the upright frame. These bars 7 form tracks for the wheels as the platform 32 is elevated.

The wagon 34 may be locked on the platform in any suitable manner. As shown in the drawings, the platform 32 is provided with an abutment 35, located on the dumping side of the wagon and adapted to prevent the latter from shifting laterally on the platform as the latter is tilted. The wagon is further locked on the platform by hook-shaped arms 36. (See Fig. 6.) These arms are made fast to rock-shafts 37, journaled in the platform and provided at their outer extremities with cranks 38. Between the two shafts 37 a third rock-shaft 39 is journaled in the platform and provided with two cranks 40, projecting in opposite directions and respectively connected with the cranks 38 by rods 41. The bent arms 36 are operated by a lever 42, made fast at one extremity to the rock-shaft 39 and provided with a dog or pawl 42, engaging a ratchet-quadrant 43. By moving the lever 42 to the dotted-line position the arms 36 are also thrown to the dotted-line position in Fig. 6, whereby they engage the axles of the wagon-wheels both in

front and rear, whereby the wagon is locked from moving either forward or back on the platform. The platform 32 is slotted, as shown at 32^a, to allow the arms 36 to operate.

As shown in the drawings, the platform 32, with its load, is elevated by four cables, two of which are designated 44 and the other two 45. The cables 45 are connected with two drums 46 and the cables 44 with two smaller drums 47, fast on a shaft 48, journaled in bearings 50, made fast to the bottom or under surface of the base 5. The cables 44 pass from the drums to engagement with pulleys 51, journaled in the base and located in openings 52, formed in the base, whereby the cables are allowed to pass upwardly over pulleys 53, journaled at the upper extremities of the two right-hand bars 7. After passing over the pulleys 53 the cables pass downwardly, their extremities remote from the drums being attached to the platform 32, as shown at 54. The cables 45 pass from their drums in a direction opposite the cables 44 and engage pulleys 55, journaled in the base and located in openings 56. These cables 45 pass upwardly over pulleys 57, journaled at the upper extremities of the two bars 7 at the left, and thence downwardly to the platform 32, whereby they are connected with eyebolts 58, made fast to the platform.

For the purpose of elevating the platform 32 the shaft 48 may be operated in any suitable manner. As shown in the drawings, a large gear 59 is made fast to the shaft 48 and meshes with a pinion 60, fast on a shaft 61, journaled in the base of the platform and operated by any suitable power. As the shaft 48 is rotated it is evident that the platform 32 will be elevated and that its left-hand extremity, referring to the drawings, will be raised faster than its opposite edge or extremity, whereby the platform is gradually tilted as it is raised to the position shown by dotted lines in Fig. 1. Then as the crank-shaft 9 is turned to the position indicated by the lever 29 in Fig. 2 the upright frame is tilted toward the right, the chute 17 thrown outwardly, and the cross-bar 25 raised to unlatch the hinged gate of the wagon-body, as heretofore explained, allowing the contents of the wagon-body to escape to the chute, whereby they are directed into the car or other receptacle.

The platform 32 is provided with two guide-tracks 32^a, which prevent the wheels of the wagon from shifting laterally in either direction.

The shaft 61 is provided with a fast pulley 61^a, which is connected with a band-brake 70, operated by means of a lever 71, connected with the rock-shaft 72.

In order to permit the placing of the wagon upon the platform 32, a sort of skid 62 (indicated by dotted lines in Figs. 3 and 7) may be employed. There will be one of these skids at each end of the platform to enable the wagon to enter the platform at one end

and pass off from the platform at the opposite end. These skids may be connected in any suitable manner with the ends of the platform at one extremity, while their opposite extremities rest upon the ground or other surface, which the wagon leaves as it approaches the platform.

Attention is called to the fact that the rock-shaft 9 instead of being operated by a hand-lever for the purpose of tilting the upright frame may be operated by power applied in any suitable manner from the motor or engine (not shown) employed in elevating the platform.

A chain 63 is shown in Fig. 2 to hold the wagon-body in place. This chain may be secured to the platform at one extremity and hooked into the wagon-body at the opposite extremity.

Attention is called to the fact that while the term "wagon" is used in the specification any other vehicle may be employed in connection with my improved apparatus.

Attention is called to the fact that the bars 7 on the right and left hand sides of the apparatus approach each other as they extend upwardly, whereby their upper extremities are closer together than their lower extremities. The degree of this taper is regulated to correspond with the inclination of the vertically-movable platform 32, since as the said platform increases its inclination during its upward movement the distance between the bars 7 or the tracks which the wheels 33 of the platform engage must grow less in order that the said tracks or bars may fit or maintain their proper position or relation with reference to the track-wheels of the platform.

Having thus described my invention, what I claim is—

1. In an apparatus of the class described, the combination of an upright frame provided with tracks on the opposite sides, which tracks approach each other as they extend upwardly, a platform provided with walls engaging the tracks of the frame, the said platform being vertically movable on the tracks, a lifting mechanism connected with the platform and arranged to raise one side of it faster than the other whereby the platform is tilted during the elevating operation.

2. The combination of a suitable base, upright bars mounted thereon and forming tracks on opposite sides which tracks are inclined to approach each other as they extend upwardly, a platform provided with wheels which engage said tracks, means for securing a wagon on the platform, a shaft journaled in the base, a drum mounted on the shaft and having two parts of different diameters, cables connected with the respective drum parts and with the platform, and pulleys mounted on the bars and over which the cables pass, the arrangement being such that the two sides of the platform are raised at different speeds whereby the platform is tilted to harmonize with the inclined tracks.

3. The combination with a base, of four upright bars pivotally mounted on the base, a platform provided with wheels engaging the bars which form tracks for the wheels whereby the platform is vertically movable, lifting-cables connected with the platform, and drums of different diameters with which the cables are connected, the larger drum-cables being connected with one side of the platform and the smaller drum-cables with the opposite side, and suitable means connected with the upright bars for tilting the same.

4. The combination with a base, of upright bars pivotally mounted on the base, a platform provided with wheels engaging the bars which form tracks for the wheels whereby the platform is vertically movable, lifting-cables connected with the platform, and suitable means connected with the upright bars for tilting the same.

5. The combination of an upright frame having tracks on opposite sides, which are inclined to approach each other as they extend upwardly, a vertically-movable platform engaging said tracks, and means connected with the platform for elevating and tilting the same simultaneously.

6. The combination of a tiltable upright frame, a platform vertically movable on said frame, and means for tilting the frame.

7. The combination of a tiltable upright frame, a platform vertically movable on said frame, and means for tilting the frame comprising a rock-shaft provided with cranks, and rods connecting the cranks of the rock-shaft with the tiltable frame.

8. The combination of an upright frame, composed of tracks on opposite sides, which tracks approach each other as they extend upwardly, a platform vertically movable on said tracks, means for elevating the platform on the frame and tilting the same simultaneously to harmonize with the inclination of the tracks, a chute hinged to the frame at a suitable point to receive the dumped contents of the wagon-body, and suitable means for throwing the hinged chute outwardly to receive and guide the contents of the wagon-body into a car or other suitable receptacle.

9. The combination with a suitable base, of an upright frame mounted thereon, and composed of tracks on opposite sides, the said tracks being inclined to approach each other as they extend upwardly, a platform vertically movable on the said tracks, a shaft journaled on the base, drums of different diameters fast on the shaft, means for rotating the shaft, lifting-cables connected with the drums and with the opposite sides of the platform, the cables connected with one side of the platform, being connected with the larger drums, and the cables connected with the other side of the platform with the smaller drums, whereby as the drums are rotated the two sides of the platform are unequally elevated whereby the platform is tilted simultaneously with the operation of elevating the same, and suitable

able pulleys mounted on the base and on the upright frame for supporting and guiding the lifting-cables.

10. The combination with an upright frame, of a vertically-movable platform mounted thereon, said platform being adapted to support a wagon, means for securing the wagon in place on the platform, and means connected with the upright frame for opening the hinged gate of the wagon-body after the latter is sufficiently elevated for the purpose.
11. The combination of an upright frame, a platform vertically movable on the frame and adapted to hold a wagon provided with a body having a normally locked hinged gate, a device vertically movable on the frame, a cross-bar connected with the said device by links, whereby the cross-bar is allowed to swing outwardly as the platform is raised, and suitable means for actuating the device whereby the cross-bar is lifted to unlock the hinged gate of the wagon-body.
12. The combination of an upright frame, a platform vertically movable thereon, a chute hinged to the frame and normally occupying a position close to the frame, a link also hinged to the frame, a second link connected with the first-named link at one extremity and with the hinged chute at the opposite extremity, a rock-shaft suitably mounted, a connecting-rod actuated by the rock-shaft, a second connecting-rod leading from the first-named rod and connected with one of the links, whereby as the rock-shaft is actuated the hinged chute is raised to a position properly inclined.
13. The combination with a suitable base, of an upright frame pivotally connected with the base, a platform vertically movable on the upright frame, a rock-shaft suitably journaled and provided with cranks, and connecting-rods leading from the cranks of the rock-shaft to the upper part of the upright frame, whereby as the rock-shaft is actuated the upright frame may be tilted or returned to its normal position as desired.
14. The combination with a suitable base, an upright frame pivotally mounted on the base, a chute hinged to the upright frame at a suitable point above the base, a rock-shaft suitably journaled, rods connecting cranks on the rock-shaft with the frame for tilting the latter, suitable means mounted on the upright frame and connected with the chute for actuating the latter, and a connecting-rod leading from one of the first-named connecting-rods, to the means for actuating the chute, whereby the upright frame and the hinged chute are simultaneously actuated.
15. The combination with a suitable platform, of means for supporting a wagon on said platform, comprising hook-shaped bars or arms pivotally mounted on the platform and adapted when thrown to the operative position, to engage the axles of the wagon in the front and rear, whereby the latter is prevented from moving either forwardly or back-

wardly on the platform, and suitable means for operating the arms.

16. The combination with a suitable platform adapted to hold a wagon, of devices pivotally mounted on the platform and separated whereby they are adapted when thrown to position to engage the axles of the wagon in the front and rear to prevent the wagon from moving in either direction when the locking devices are applied, the platform being slotted to receive the said devices, a rock-shaft interposed between the two devices, and a suitable connection between the said devices and the rock-shaft whereby as the latter is operated the said devices are simultaneously actuated.
17. The combination of two devices movably mounted on the platform and separated whereby they are adapted when thrown to the operative position to engage the wagon in the front and rear, to prevent it from moving either forwardly or backwardly, and a rock-shaft interposed between the said devices and connected with the latter to simultaneously actuate the same as the rock-shaft is operated.
18. The combination with a platform adapted to hold a wagon, of two rock-shafts suitably mounted on the platform, hook-shaped arms secured to the rock-shafts and adapted to engage the wagon in the front and rear, when the said arms are thrown to the operative position, cranks fast on the rock-shafts, an intermediate rock-shaft also mounted on the platform and provided with cranks projecting in opposite directions, connecting-rods connecting the cranks of the intermediate rock-shaft with the cranks of the other rock-shafts, and a lever-arm connected with the intermediate rock-shaft for controlling the said devices.
19. The combination of four upright bars so arranged that the two bars on one side approach the two bars on the other side as they extend upwardly, in combination with the platform having wheels engaging the said bars which form tracks for the platform-wheels, and suitable means for elevating the platform whereby the latter is inclined simultaneously with its upward movement, the degree of its inclination being regulated to correspond with the diminishing distance between the track-bars.
20. The combination of upwardly-projecting separated tracks, the distance between the tracks diminishing as they extend upwardly, a platform movably engaging said tracks, and means connected with the platform for elevating and tilting the same simultaneously, the tilting action of the platform and the varying distance between the tracks being regulated to harmonize.

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

CHARLES G. FOOTE.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.