

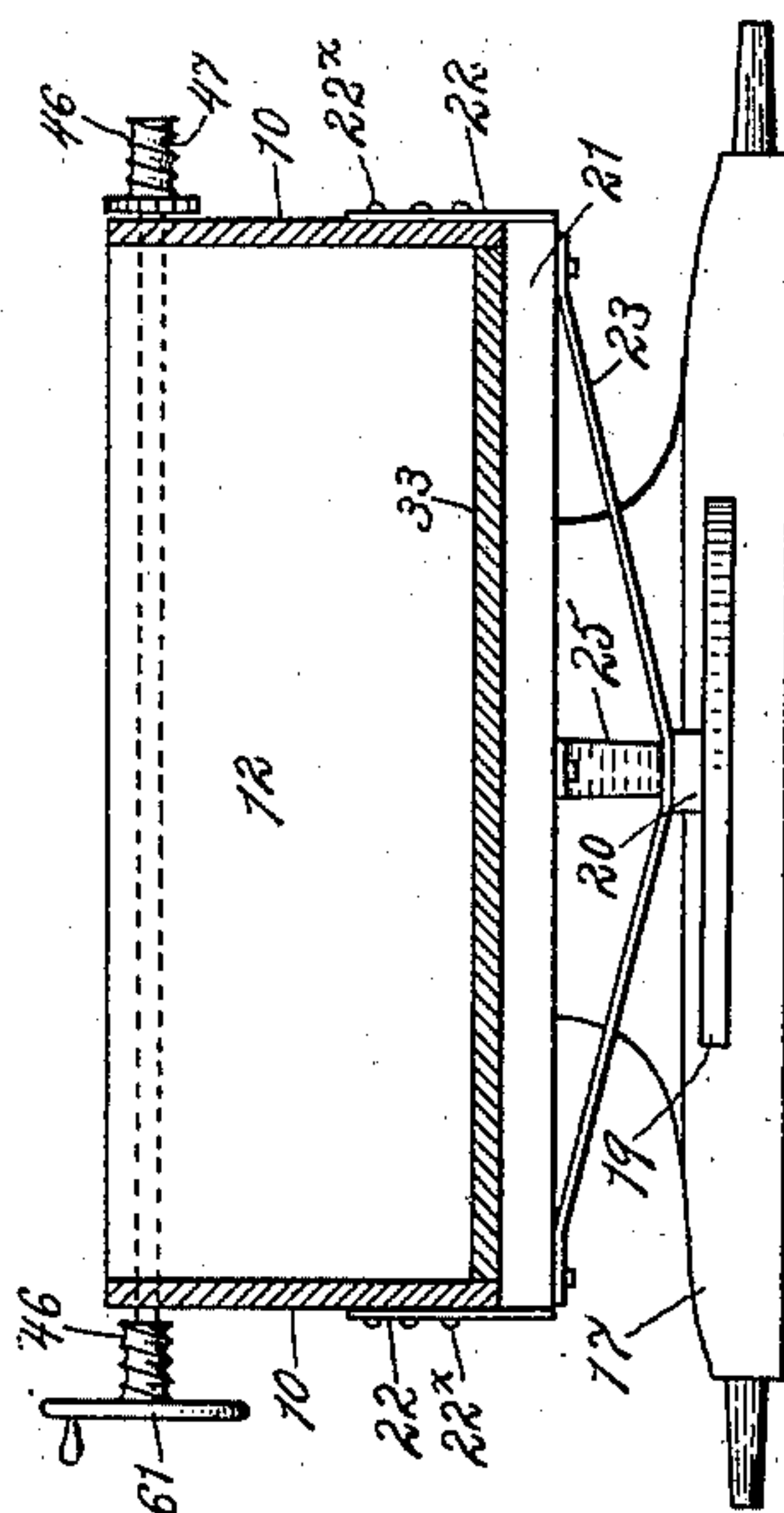
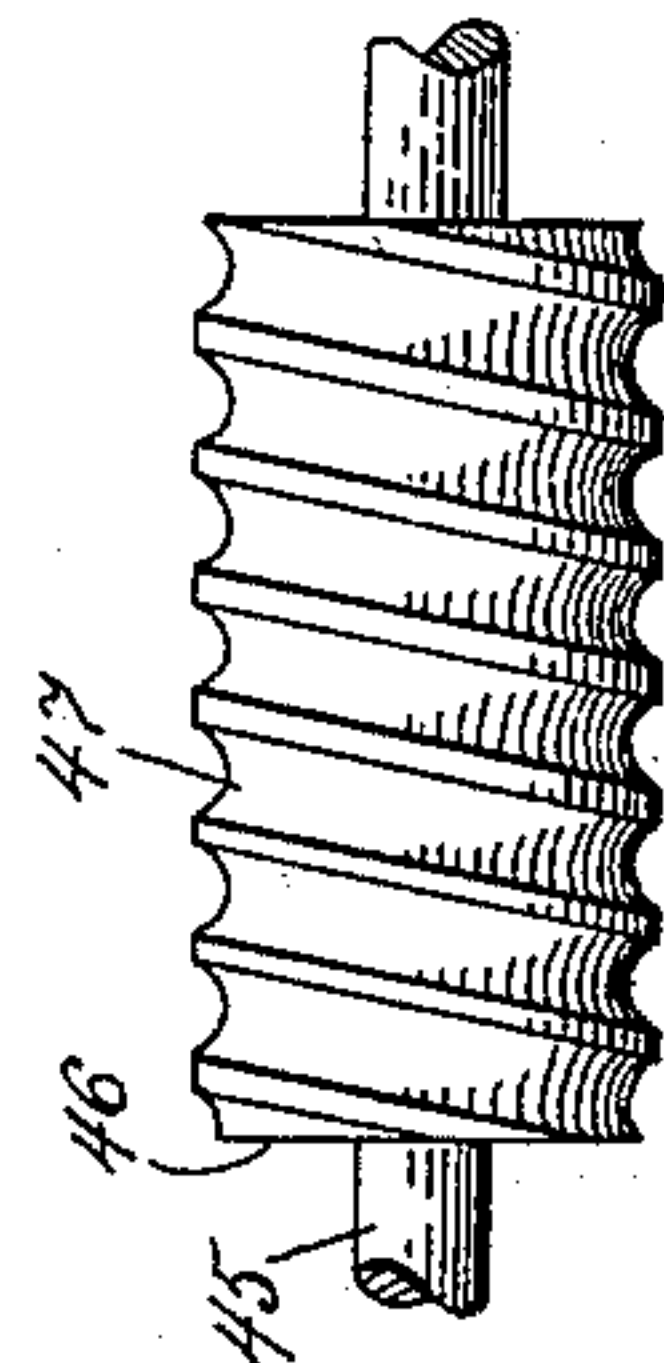
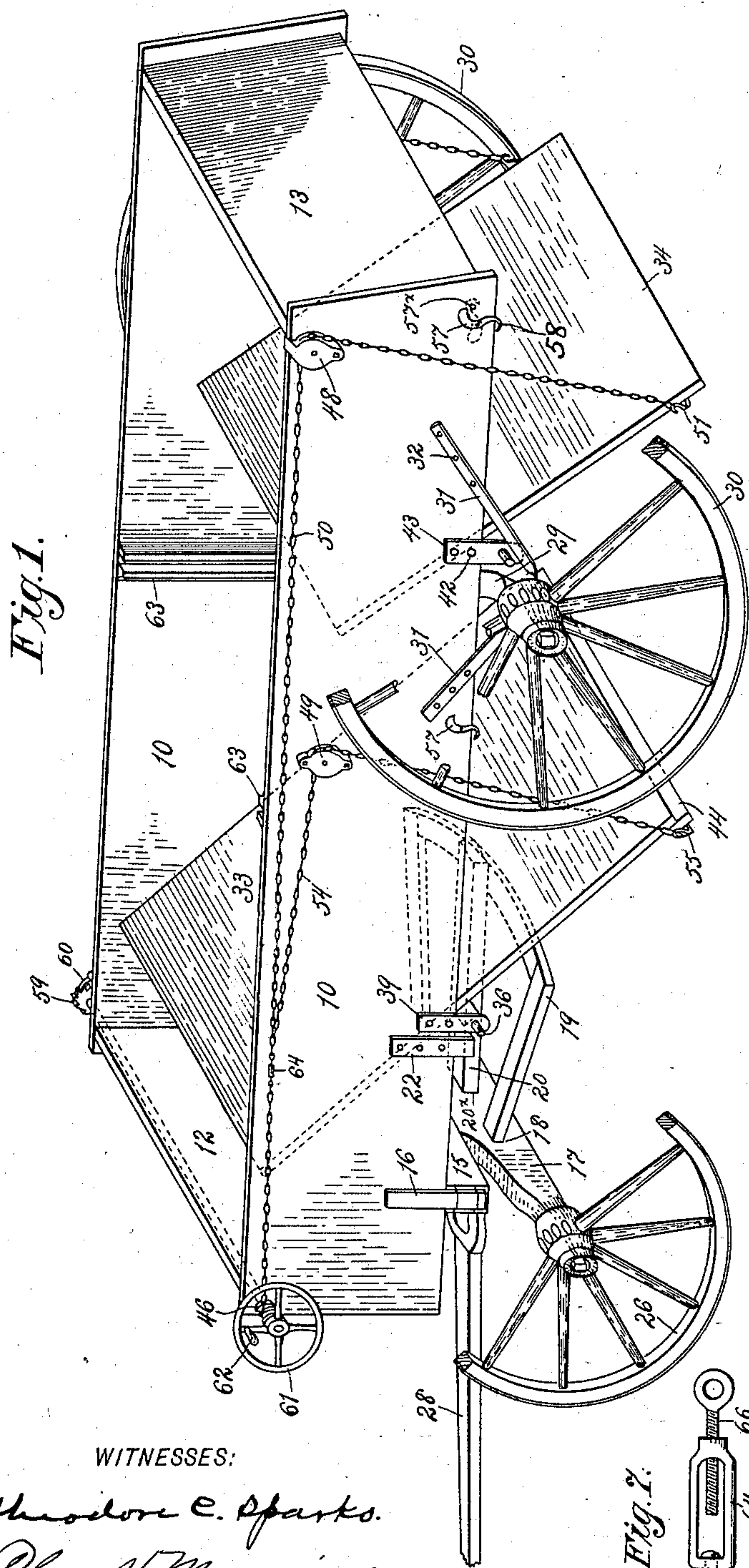
No. 748,075.

PATENTED DEC. 29, 1903.

J. T. HOPE.
DUMPING WAGON.
APPLICATION FILED JULY 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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Phoebe Manning

INVENTOR

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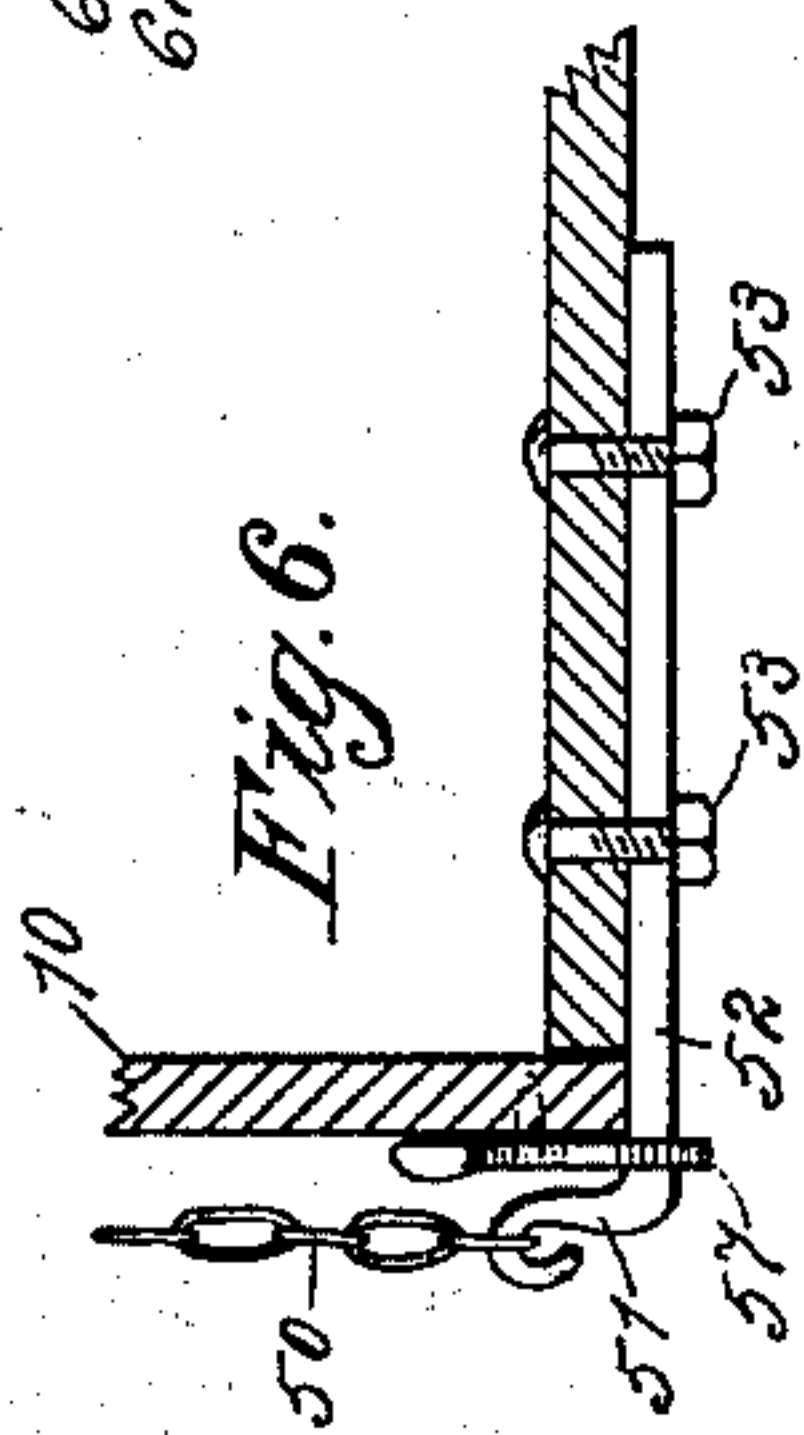
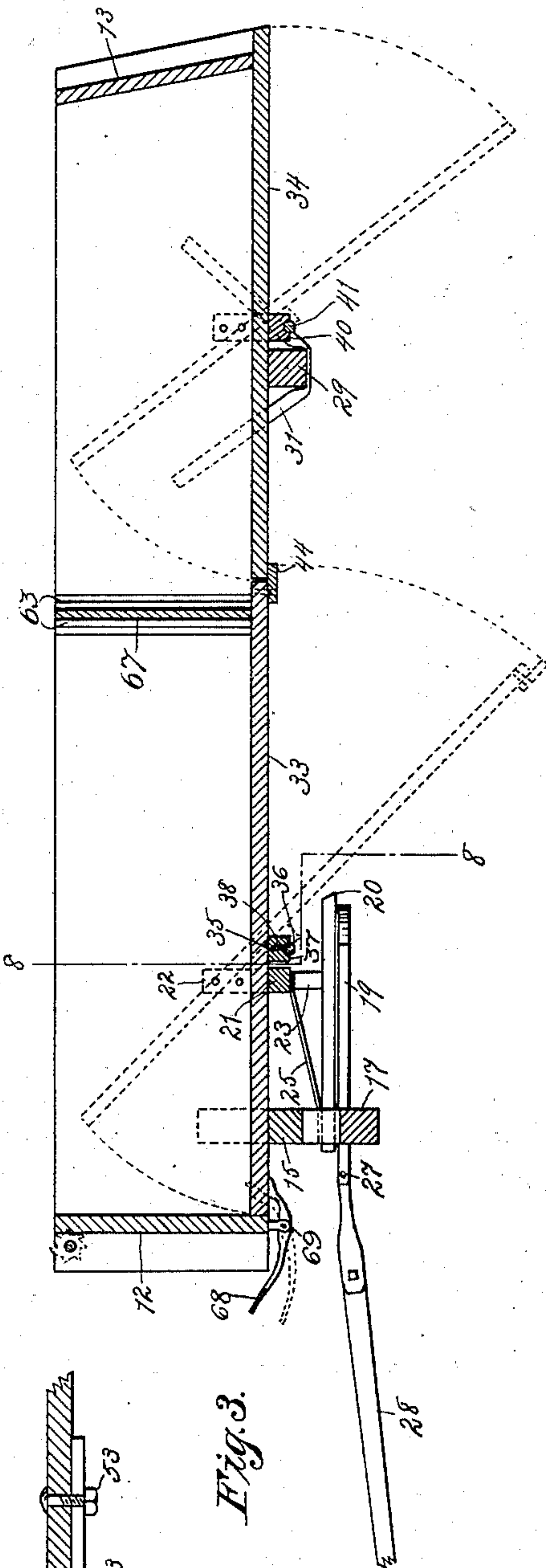
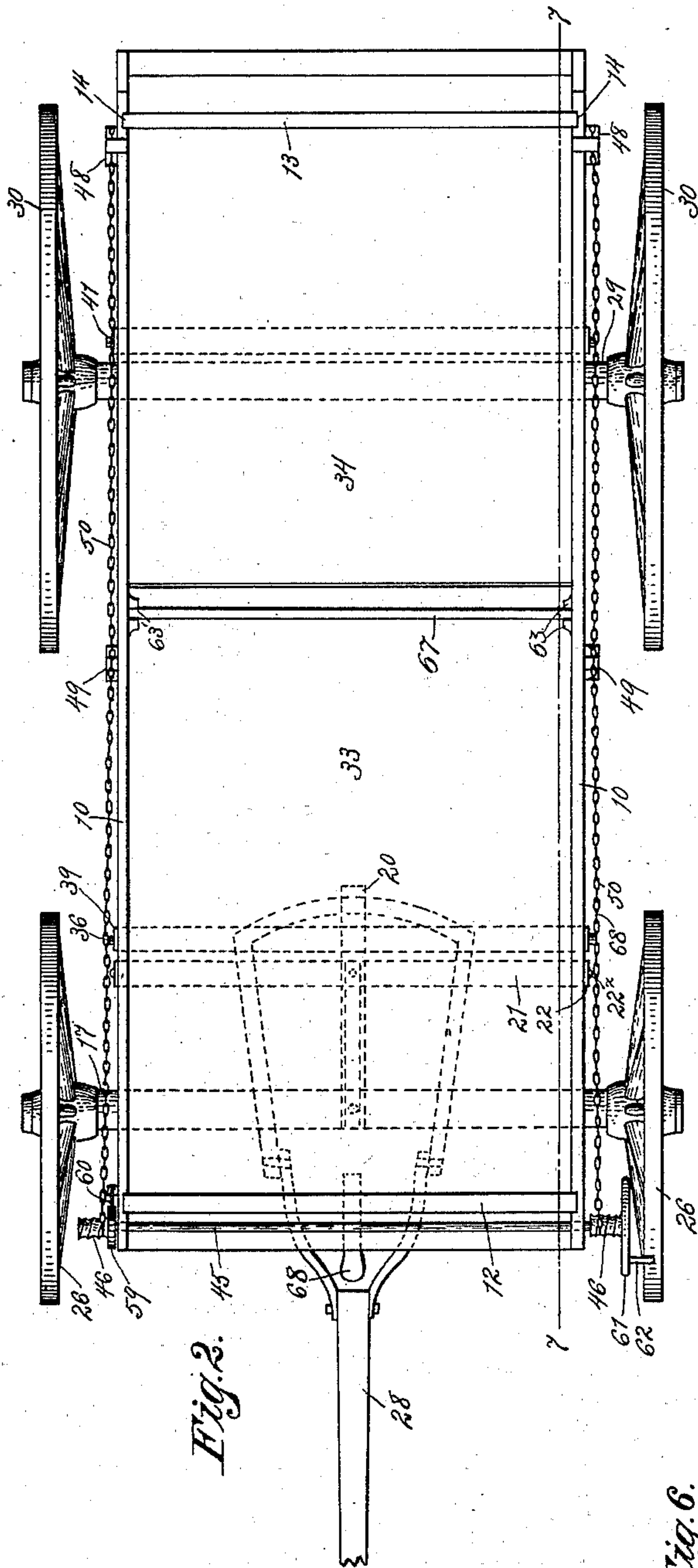
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UNITED STATES PATENT OFFICE.

JOHN T. HOPE, OF KANSAS CITY, MISSOURI.

DUMPING-WAGON.

SPECIFICATION forming part of Letters Patent No. 748,075, dated December 29, 1903.

Application filed July 28, 1903. Serial No. 167,256. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HOPE, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Dumping-Wagons; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The objects of my invention are, first, a wagon box or body the bottom of which is convertible into self-dumping parts; second, to enable the dumping parts to form a continuous bottom when in a closed position without leakage of the contents of the wagon-box; third, to divide and dump the loose contents of a wagon-box from either end of the box at the will of the driver when the vehicle is in movement or stationary; fourth, to enable the dumping parts of the bottom to be tilted upwardly by the dumped material and avoid dragging the material in the line of direction of the moving wagon; fifth, to accelerate the movement of material gravitated by the dumping parts of the wagon-body; sixth, to effect the raising in position of separate parts of the dumping-bottom simultaneously; seventh, to enable the tilting part or parts of the bottom of the wagon when raised to its normal position to self-lock; eighth, to disassociate the running-gear for dumping-wagons and reinforce the parts; ninth, to shift initially the weight upon the dumping-bottom past its center of gravity; tenth, to take up the slack in the hoisting-chains for separate dumping parts of the bottom equally.

The invention consists in the novel construction and combination of parts, such as will be first fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of the novel dumping-wagon, showing the dumping parts of the bottom in an open discharging position with the intermediate division-board of the wagon-box removed. Fig. 2 is a plan view of the wagon, showing the dumping parts of the bottom in a closed position and the division-board in place. Fig. 3 is a longitudinal sectional view

of the dumping-wagon, taken on the line 7 7 of Fig. 2, showing the position of the dumping parts of the bottom in a closed position and in dotted lines their position when discharging the contents of the wagon-box, also showing the lever for initially shifting the weight on the forward dumping part of the wagon-box. Fig. 4 is a transverse vertical sectional view taken on the line 8 8 of Fig. 3. Fig. 5 is a detail broken view of the chain-winding shaft on the forward end of the wagon-box, showing one of the winding-spools. Fig. 6 is a detail sectional view of the side of the wagon and a portion of the rear end of the rear tilting bottom and the hook connected with the hoisting-chains. Fig. 7 is a detail view of the adjustable devices for taking up the slack in the hoisting-chains.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, 10 10 represent the longitudinal vertical sides, and 12 the forward vertical end, of the wagon-box, which are rigidly connected together, the forward end of said sides projecting a short distance forwardly of the line of said end. The lower edge of said end is flush with the horizontal line of the lower edges of said sides 10 10. The rear end 13 of the wagon-box is the same width as the sides 10 10 and is arranged in the grooves 14 14 on the inner surface of the sides 10 10 at a point a short distance forward of the rear ends of said sides, which grooves incline rearwardly and at an angle to said sides.

Beneath and supporting the sides and forward end of the wagon-box a short distance in rear of said end is a wagon-bolster 15. With each end of said bolster are secured the wagon-stakes 16 16. Beneath the bolster 15 is the forward axle 17 of the wagon, which is of the usual construction and in separate longitudinal parts and slotted transversely at 18 18 to receive the inner ends of the hounds 19 and at 20* to receive the forward end of the coupling pole or bar 20, to the forward and rear axles upon which bar or pole the curved rear end 19^x of the hounds obtains the usual frictional bearing. The bolster 15 under the wagon-box is secured pivotally to the axle 17

by the king-bolt, (see Fig. 2,) which passes through the said bolster intermediate its ends and through the forward end of the coupling-bar 20 and the axle. Extending transversely to and beneath the forward end of the wagon-box a considerable distance in rear of the bolster 15 is a bar 21, and with the ends of said bars are connected the plates 22, which extend upwardly on the outer surfaces of the sides 10 10 of the wagon-box and are secured thereto by screw-bolts 22^x. In order to provide clearance for the downward movement of the rear end of the forward tilting part of the bottom of the wagon-box, the coupling pole or bar 20 is broken away at a point a short distance rearwardly of the curved rear end 19^x of the hounds, and to maintain its rigidity a strap 23 is secured at a point intermediate its length to the rear end and under side of the portion of the pole or bar 20 connected with the axle, and the outer ends of said strap are extended upwardly and in the direction of the sides 10 10 of the wagon-box and secured to the under side and ends of the bar 21. A brace-bar 25 is connected at one end rigidly with the upper surface and rear end of the transverse bar 21 above the connection of the strap 23 and the forward end of said bar extended between the bolster 15 and axle through which the king-bolt passes, thus affording a strong connection of the wagon-box with the axle.

Upon the axle 17 are the forward wagon-wheels 26 26. With the forward ends of the hounds 20, which extend through the axle 17 and a short distance beyond the forward side thereof, is pivotally connected at 27 the forked ends of the draft-pole 28. The sides 10 10 of the wagon-box are mounted directly upon the rear axle 29 of the wagon, which axle is located the usual distance in rear of the forward axle, upon which rear axle are the rear wagon-wheels 30 30. With the under side and each end of axle 29 and near the hubs of the wheels 30 are secured rigidly the reinforcing-straps 31, the separate ends of each strap being twisted outwardly and extended in opposite directions and at opposite angles of inclination upwardly and connected rigidly with the outer surfaces of the sides 10 10 of the wagon-box by suitable screws or bolts 32.

The bottom of the wagon-box consists of a separate forward tilting or discharging part or platform 33 and a rear separate tilting or discharging part or platform 34, each part of the bottom extending from the inner surface of one side 10 to the inner surface of the other side, the under surfaces of said parts in a closed position being within the lower edges of the sides 10 10. The forward end of the tilting part 33 of the bottom extends from a position nearly in contact with the inner surface of the forward end 12 of the wagon-box and is supported by the bolster 15 on the axle and the running-gear, and its rear end extends to a position a short distance in rear of a point intermediate the forward and rear

ends of said wagon-box. Supporting pivotally said part or platform 33 of the bottom is a transverse beam 35, secured rigidly to the under side of the platform directly above the hounds of the axle and at a point on said platform or part of the bottom less than one-half the distance from the forward to the rear end, so that the center of gravity of a load on the said tilting part of the bottom may be located in rear of its support.

The transverse beam 35 is mounted upon the radius of a transverse rock-shaft 36, a groove 37 in the under side of the beam admitting the upper part of the shaft with which it is parallel, as seen in Fig. 3, the shaft being connected with the under side of the beam rigidly, so as to rock with the shaft by means of the bolts 38. The ends of the rock-shaft 36 extend to a position beyond the vertical lines of the outer surfaces of the sides of the wagon-box and are journaled in the lower perforate ends of the plates or shaft-hangers 39 39 on each side of the wagon-box, the upper ends of which plates are secured vertically in position to the outer surfaces of the sides 10 10 at a point a slight distance in rear of the ends 23 23 of the straps securing the bar 20 above the hounds. The rear part 34 of the bottom is supported in a like manner as described of the forward part 33 by means of a transverse beam 40, secured transversely to the under side of the platform 34, said beam being located in rear of the rear axle 39 and mounted on and secured to a rock-shaft 41, journaled at each end in the perforate lower ends of the plates or shaft-hangers 42, which are secured to the outer surfaces of the sides 10 10 of the wagon-box by the bolts or screws 43. The forward end of the platform 34 is supported by the rear axle 29 of the running-gear.

Upon the under side and rear end of the forward tilting platform is secured rigidly a transverse cleat 44, a portion of which cleat extends beyond the said end of the platform beneath the forward end of the rear part 34 of the bottom and closes the joint when the parts are in line with each other.

The tilted parts of the bottom are controlled as follows: Through the sides 10 10 of the wagon-box and the portion of said sides projecting beyond the forward end 12 extends a transverse shaft 45, which is located a short distance below the line of the upper edges of said sides. Upon each end of the shaft projecting beyond the outer surfaces of the sides is a spool 46, upon the circumference of which spool is a spiral groove 47, extending the length of the spool. (See Fig. 5.) Upon the outer surfaces of the sides 10 10 of the wagon-box, near the upper edges and rear ends, are secured the pulley-blocks 48 48. At a point on the sides 10 10 of the wagon, about equidistant from the blocks 48 and the forward end of the wagon-box, are connected the pulley-blocks 49 49, which are located in position an increased distance downwardly from

the upper edge of the sides 10 10 than the blocks 48.

With one end of the spools 46 46 and in the groove 47 are connected the inner ends of
5 hoisting-chains 50 50, the other ends of which chains extend to the rear end of the wagon-box and over the pulley in the pulley-blocks 48 48, thence downwardly and connected with the hooks 51 51, located near the rear
10 end and outer longitudinal edges of the rear part 34 of the tilting bottom, the lower ends of which hooks are connected with the outwardly-extended ends of the bars 52 52, which are secured to the under side of the part or
15 platform 34 by the bolts 53 53, as seen in Fig. 6, so that when the part 34 of the bottom is in a closed position there is considerable space between the hooks 51 51 and the outer surfaces of the sides 10 10. With the chains
20 50 50 at a point a considerable distance from their inner ends are connected the inner ends of separating hoisting-chains 54 54, the outer ends of which chains extend over the pulleys in the pulley-blocks 49 49, thence downwardly
25 and connected with the vertical hooks 55 55, secured to the outer projecting ends of bars similar to bars 52 and which are connected with the under side of the cleat 44 on the forward tilting end of the separate part 33 of the
30 bottom in like manner as described of the hooks 51 51. To the outer surfaces of the sides 10 10 of the wagon-box are secured pivotally and directly above the outer ends of the bars 52 52 the self-engaging catches 57 57.
35 These catches are centrally pivoted to the wagon-box and are in the form of the letter S, the upper portion being cast heavier or weightier than the lower portion 58, said lower portion being curved in the arc of a circle and
40 engages with the outer ends of the bars 52 52 when the part 34 of the bottom is in a closed position, the upper end of the catch serving to throw the hooked portion of the catch beneath the bar. Upon the side 10 of the box is a pin
45 57^x, which holds the catch when inverted in position. Similar catches are connected with the sides of the wagon-box, which engage with the bars on the cleat 44 on the forward end of the tilting part 34 of the bottom. On
50 one side of shaft 45, between the spool 46 and the side 10 of the wagon-box, is a ratchet-wheel 59, and on the side of the box is a pawl 60, engaging with the wheel. (See Fig. 2.) Upon the other end of the shaft outside of
55 the spool 46 is a hand-wheel 61, and upon said wheel is a handle 62.

Upon the inner surfaces of the sides 10 10 at a point intermediate the ends 12 and 13 of the wagon-box are vertical guide strips or
60 cleats 63 63, which serve to retain a division-board 67, as shown in full lines in Fig. 2, and dividing the box into separate parts transversely, when required, the lower edge of which board 67 rests upon the rear end of the
65 forward tilting part 33 of the bottom when the said part is in a horizontal or closed position.

In each chain 50 and 54 at a convenient point in its length is inserted an adjusting-link 64, having swivel connection 65, and a
70 screw 66, extending within a perforate end of the link, as seen in Fig. 7, which are respectively connected with detached links, so that a slight adjustment may be made in the length of the chain to a lesser degree than
75 the length of a single link.

The tilting points 33 and 34 of the bottom being in the position as seen in Fig. 1, in which the contents of the wagon-box are fully
80 discharged upon the ground, power is applied to the wheel 61 through the arm 62, and shaft 45 is rotated, the hoisting-chains 50 and 54, communicating an equable draft to the respective rear ends of the parts 33 and 34 of the bottom, the chains winding upon the
85 spools 46 in the grooves 47, so that the take-up is equally proportioned. The length of the separate chains 50 and 54 and the parts of the bottom are drawn into a horizontal position, as seen in Figs. 2 and 3, making close contact
90 with the sides of the wagon-box and forming a continuous bottom, the lower end 58 of the catch 57 engaging automatically with the bar 52, the wagon-box being suitable for the transportation of grain or fine substances,
95 as soil, without sifting through the bottom or unnecessary waste. The catches 57 on the sides of the wagon-box may be canted over upon the pins 57^x so as to be out of engagement with the ends of the bars 52, supporting the hooks 51 and 55, and in this position the ratchet-wheels 59 are held by the
100 pawl 60 when the parts 33 and 34 of the bottom are hoisted into a closed position. Should, however, it be desired to transport different kinds of articles or cereals or different kinds of coals, the division-board 67 is inserted between the cleats or strips 63, the catches
105 thrown into engagement with the ends of the bars 52, and the wagon loaded with the various articles. By the disengagement of the catches from the bars it is readily seen that the contents of the rear end of the wagon-box may be discharged prior to the other end, or vice versa, thus enabling separate deliveries
110 of separate commodities, or fall from the wagon without confusion or intermixing.

With the division-board removed the wagon-box is adapted for the transportation of loose material in bulk, such as corn or grain,
120 and when it is desired to discharge the contents of the wagon the pawl 60 is disengaged from the ratchet-wheel and the center of gravity of the load being toward the rear ends of the parts 33 and 34 of the bottom a slack
125 in the chains 50 and 54 is sufficient to tilt the parts downward and effect the discharge, it being observed that the position of the beams 35 on the rock-shaft is such that they move on a greater arc of the circle than the rock-
130 shafts, and consequently a throw or impetus is given to the material discharged from the parts of the bottom at the time the free movement of the material has tilted the separate

parts of the bottom downwardly. In the breaking up of the compact body of the material in the wagon-box anterior its final discharge the respective forward and rear ends of the separate parts 33 and 34 of the bottom move away from each other, and the resistance to this movement becomes less when the first movement downward of the tilting part 33 occurs, and this start given the contents of the box is immediately discharged. Frequently the portion of the load imposed upon the forward part 33 of the bottom may be heaviest adjacent to the forward end of the wagon-box and compact, so that to overcome the gravity of the material and cause a movement upwardly so far as to expose the opening an initial movement of the forward end of the part 33 may be necessary. To effect this result, upon the lower edge of the forward end 12 of the wagon-box is a foot-operated lever 68, which is pivotally connected at a point midway its length to a bearing 69, the outer end of the lever being extended forwardly and curved upwardly in a slight degree and the rear end curved upwardly and made to contact with the under surface and forward end of the part 33 of the bottom, so that downward pressure of the foot will give the initial movement upwardly, so as to shift the load.

In the application of my invention to a wagon in which fifth-wheels are employed the beam supporting the wagon-box is secured rigidly to the upper portion of the fifth-wheel, and I may use a number of beams upon the underside of the wagon-box the same as beam 21 and upon each side of said beam.

The rear ends 13 of the wagon-box may be withdrawn from the sides at any time the wagon-box is required for the purpose of carrying lumber or for expressage, and thus adapting the wagon for all uses required of a wagon. The tilting bottom may be applied to a two-wheel cart or to railway-cars or to vehicles when required and operated as heretofore described, it being observed that the weight of the load in the wagon-box is sustained to a considerable extent by the axles and running-gear of the wagon instead of throwing the jar wholly upon the sides of the wagon-box.

Such modifications of my invention may be employed as are within the scope of the invention.

Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

1. A vehicle having sides, and a separable bottom pivotally supported between its forward and rear ends, and adapted to be tilted in a discharging position, said pivoted supports being located in rear of the axle of the vehicle and means for hoisting a projection on one part overlapping the tilting end of said bottom.

2. A wagon box or body and a separable bot-

tom thereto in separate longitudinal parts, a pivotal support for each part located between the forward and rear ends of each part, means for supporting each part in a horizontal position, and a projection on one part overlapping the space at the junction of said parts with each other.

3. A vehicle having sides, and a separable tilting bottom, a pivotal support for said bottom between its forward and rear ends and means for automatically fastening one of the ends of said tilting bottom with the sides of the vehicle.

4. A vehicle having sides, and a separable tilting platform or bottom, a rock-shaft supported in suitable bearings, and devices radial to the shaft connecting said shaft with the said platform.

5. A vehicle having sides, and a separable tilting platform or bottom, shaft-hangers upon the sides of said vehicle, a transverse rock-shaft in said hangers, and a transverse beam upon the radius of said shaft connected therewith and with the under side of said platform.

6. A wagon-box and a separable bottom divided into separate tilting parts, a pivoted support for each part between its respective ends, a removable division-board separating the wagon-box transversely, and supported by the rear end of the forward tilting part of the bottom and means for securing one part of the bottom while the other is tilted in a discharging position.

7. A wagon-box and a separable bottom divided transversely into separate tilting or discharging parts, a pivoted support for each part, separate hoisting devices connected with the discharging ends of each part of said bottom, and a winding device on said wagon-box for taking up the slack in the separate hoisting devices equally.

8. A wagon-box and a separable bottom divided transversely into separate tilting or discharging parts, a pivoted support for each part, separate hoisting-chains connected with the respective tilting parts of the bottom and joined together and a winding device on the wagon-box, one end of one of said chains being connected with the winding device.

9. A wagon-box and a separable bottom divided transversely into separate tilting or discharging parts, a pivotal support for each part, chain connections on the rear ends of said parts, separate hoisting-chains on the outer surface of the wagon-box and sheaves connected with said outer surface of the wagon-box above the chain-connecting devices on the tilting parts of the bottom when said parts are in a closed position.

10. In a dumping-wagon, a wagon-body, and a separable tilting bottom pivoted supports for said bottom, between its respective ends, and the forward end of said tilting bottom supported by upon the running-gear.

11. In a dumping-wagon, a wagon-box, a separable tilting bottom, pivoted supports

therefor between its respective forward and rear ends, and an elevating-lever upon the wagon-box operating the forward end of the tilting bottom.

5 12. In a dumping-wagon, a wagon-body, a separable discharging-bottom and forward and rear axles to said wagon, a separable coupling-bar and means for connecting the separable coupling-bar with the wagon-body.

10 13. In a dumping-wagon, a wagon-body having a separable discharging-bottom, and forward and rear axles to said wagon, a separable coupling-bar, and a brace bar or bars

connecting the separable coupling-bar with the wagon-body.

15 14. In a dumping-wagon, a wagon-body having separable tilting or discharging bottom and forward and rear axles, a separable coupling-bar, and brace-bars connecting the separable coupling-bar with the wagon-body, and 20 a separate brace-bar connecting the wagon-body with the axle.

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