

No. 829,922

PATENTED AUG. 28, 1906.

W. J. JUDD.

WAGON.

APPLICATION FILED JULY 9, 1904.

3 SHEETS—SHEET 1.

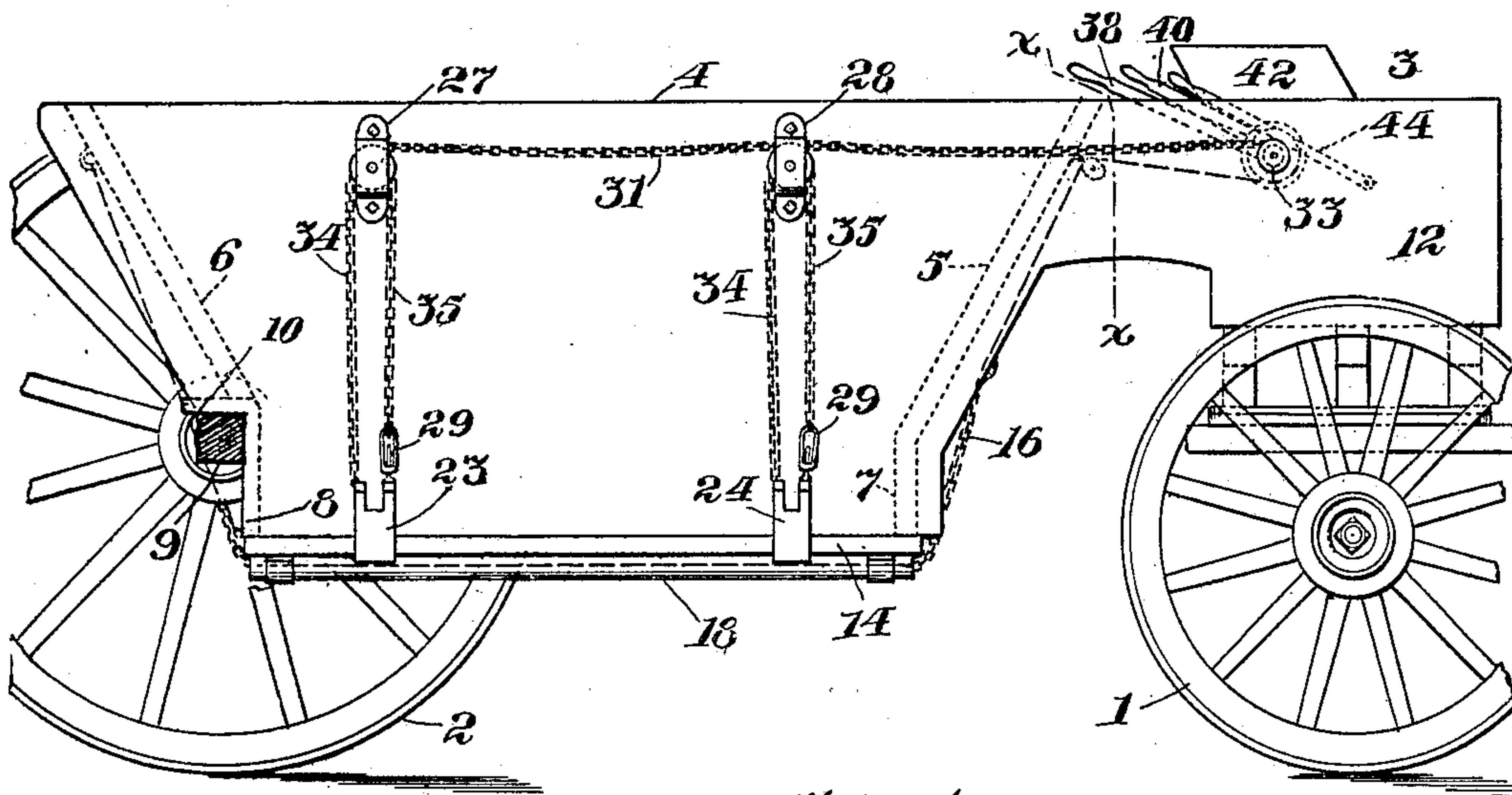


Fig. 1.

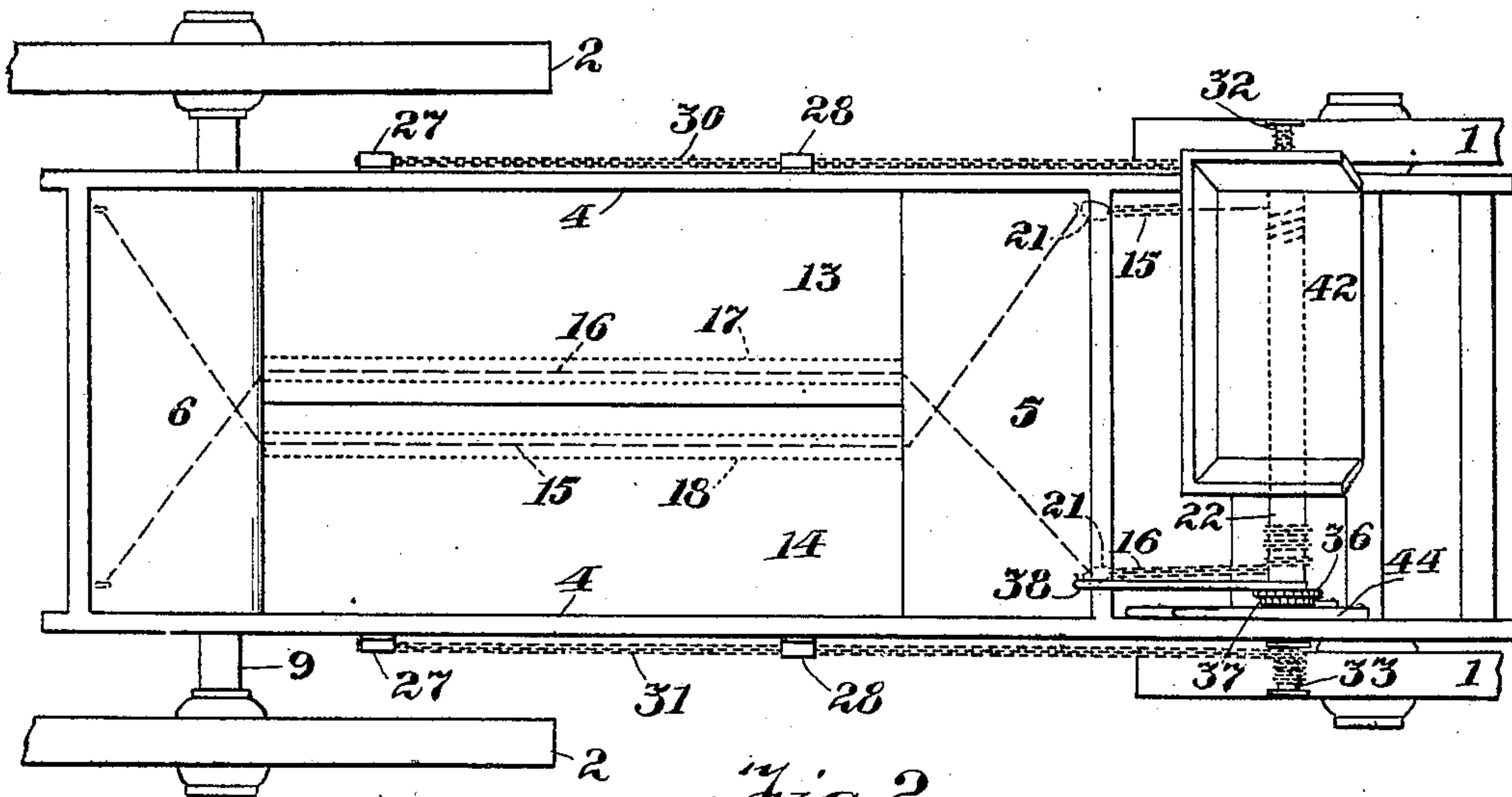


Fig. 2.

WITNESSES:

Robert Head

Wm. W. MacLean.

INVENTOR

William J. Judd

BY

Robert K. Kury

ATTORNEY

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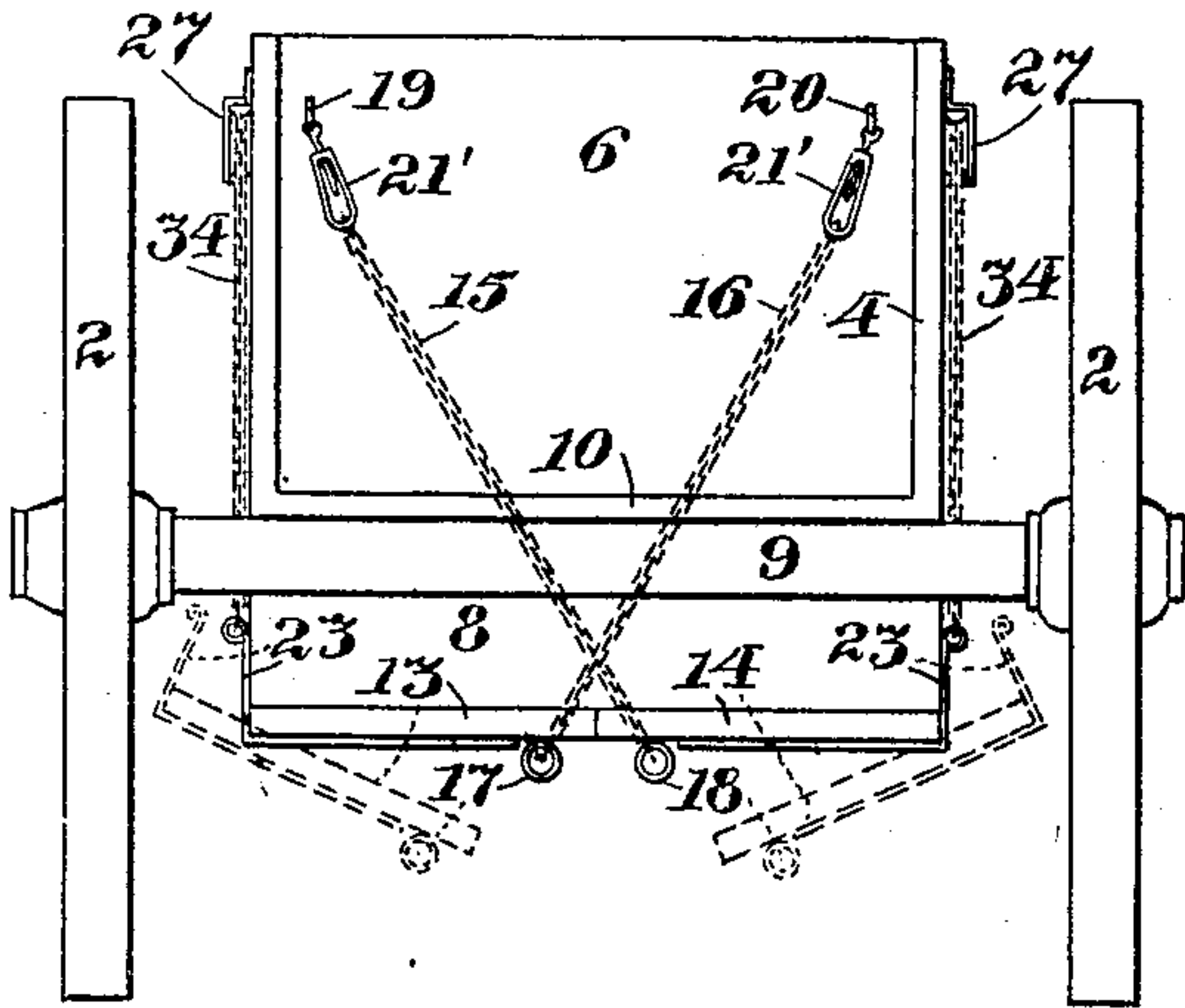


Fig. 3.

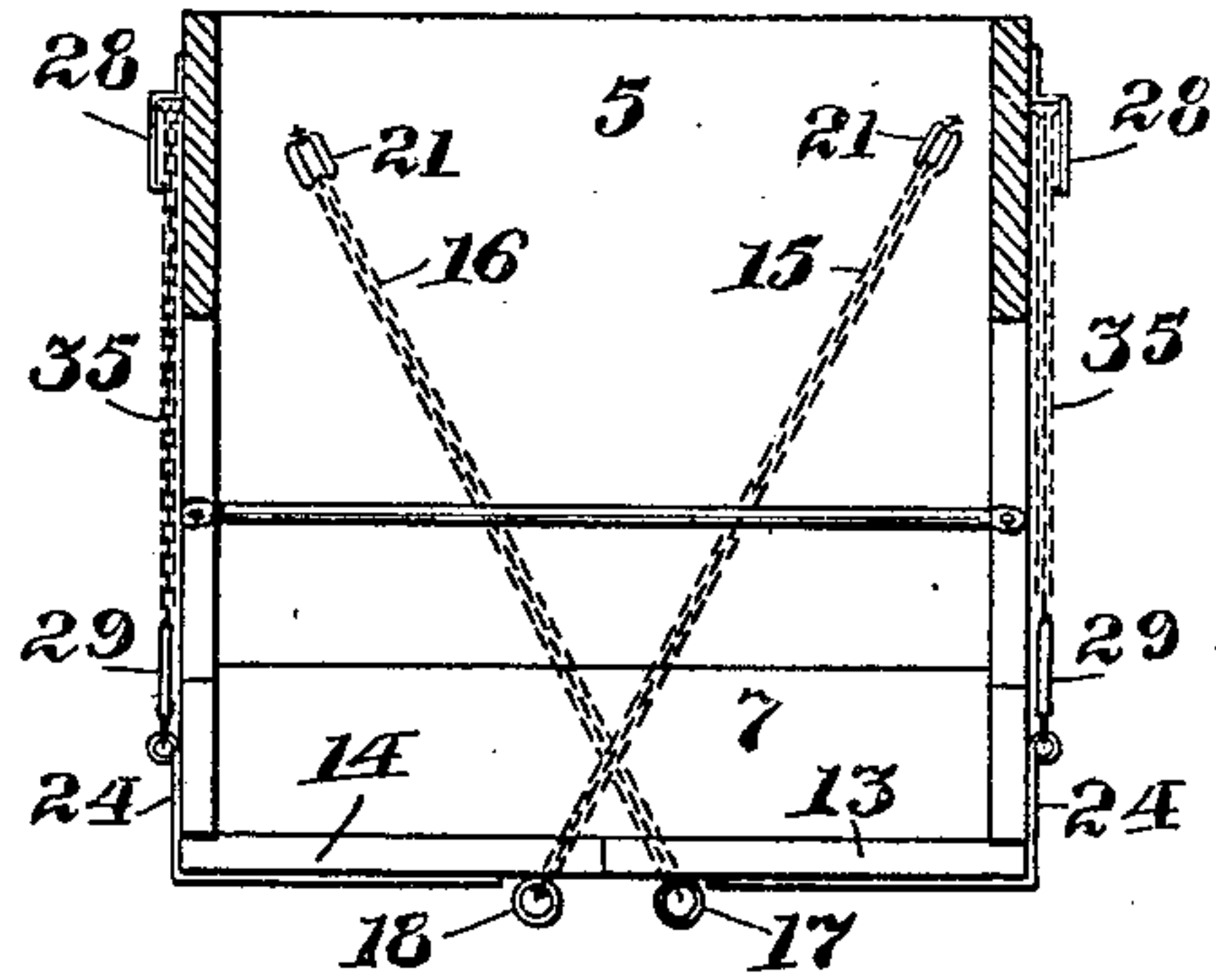


Fig. 4.

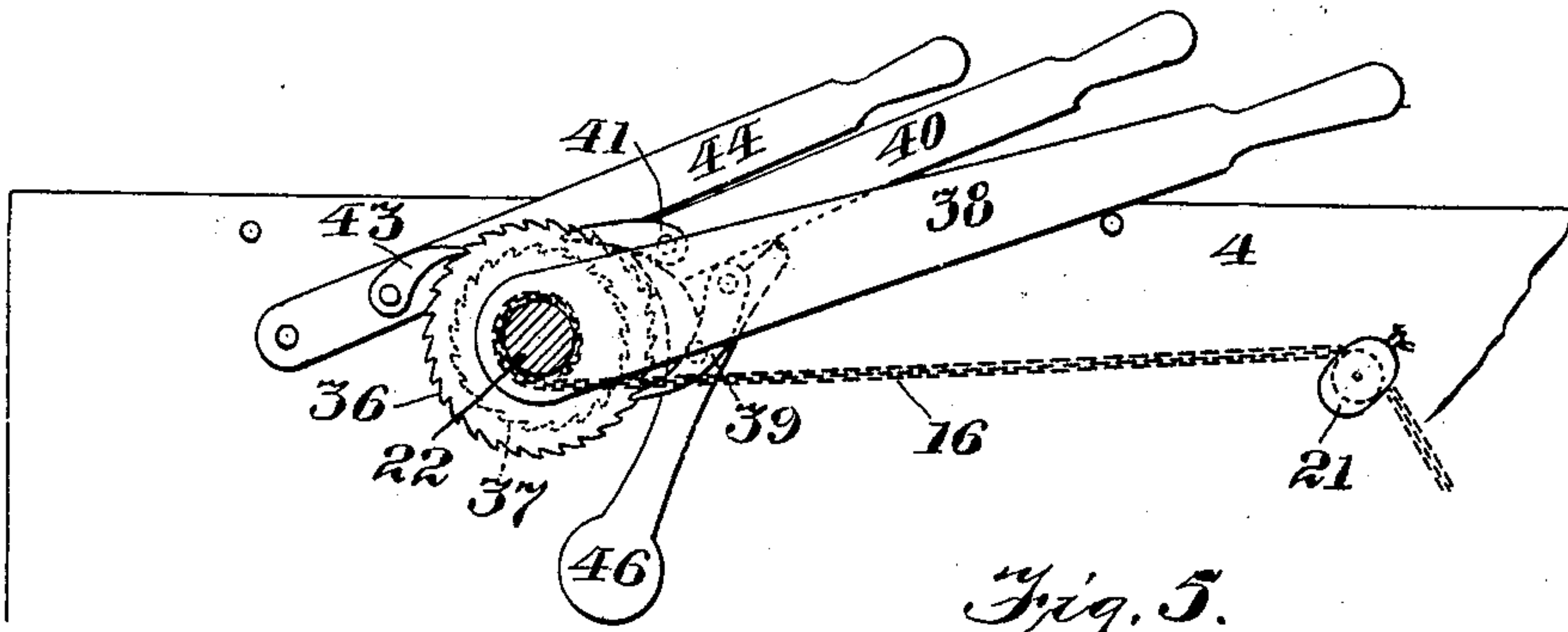


Fig. 5.

WITNESSES:

Robert Head  
Wm O Mac Leard.

INVENTOR

William J Judd

BY

B. Stickney  
ATTORNEY

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W. J. JUDD,  
WAGON.

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3 SHEETS—SHEET 3.

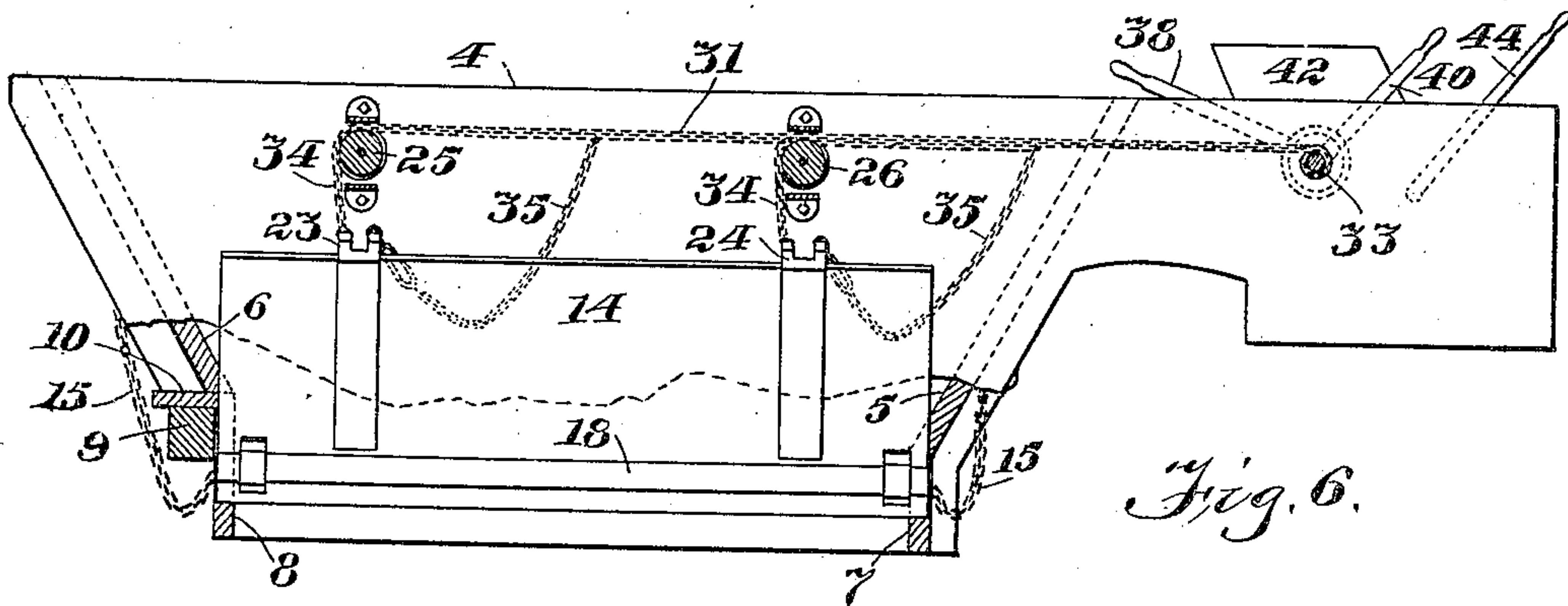


Fig. 6.

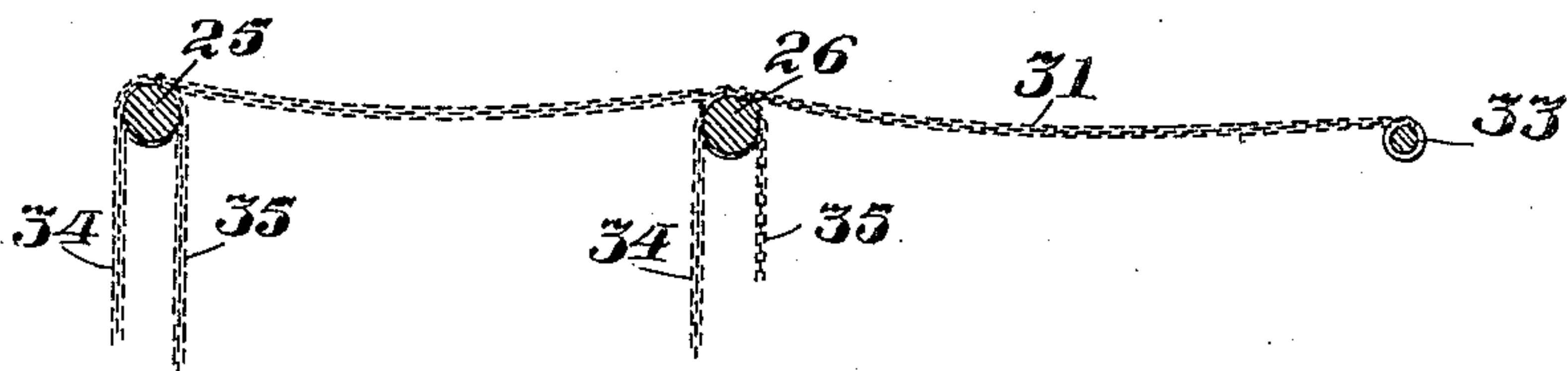


Fig. 7.

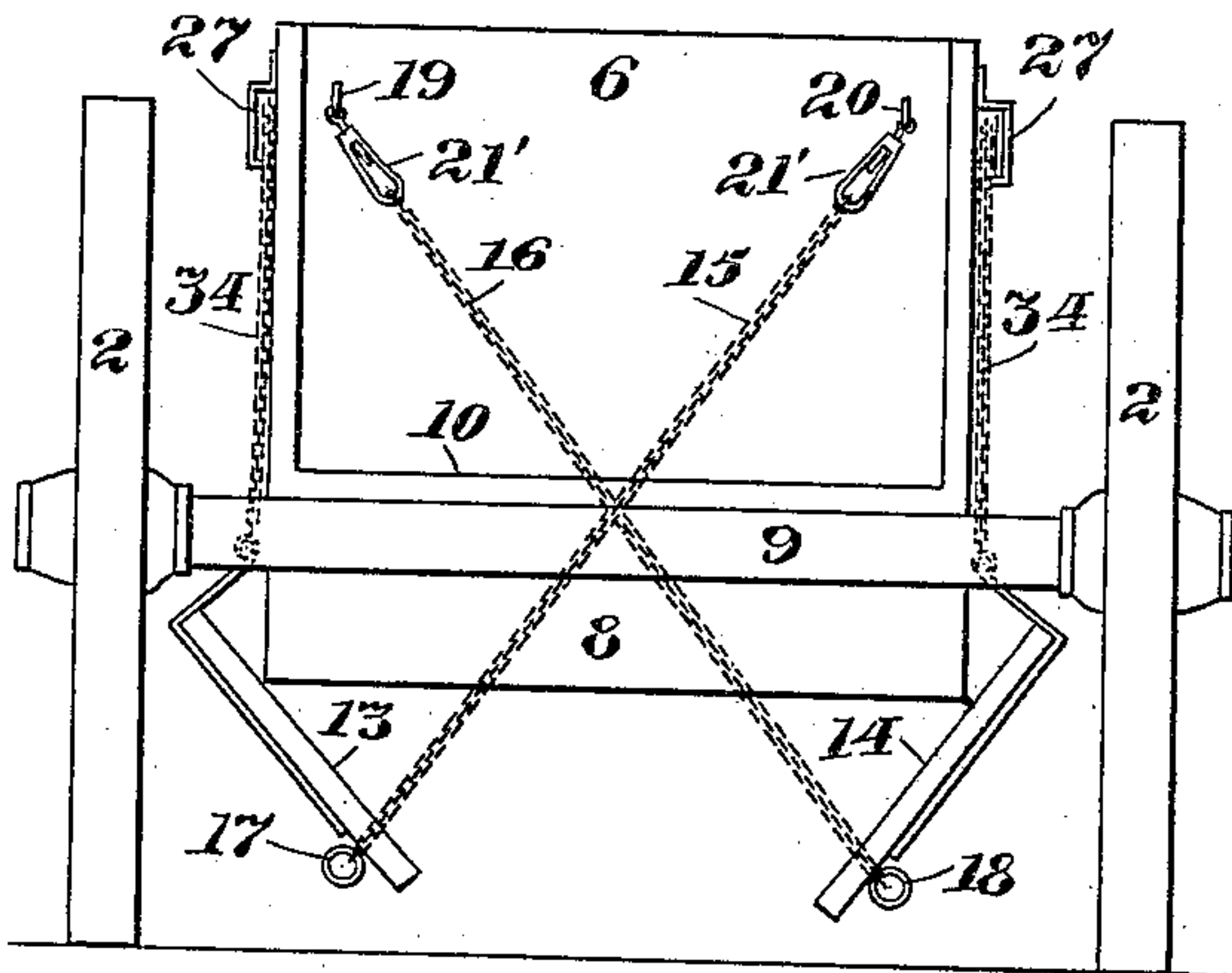


Fig. 8.

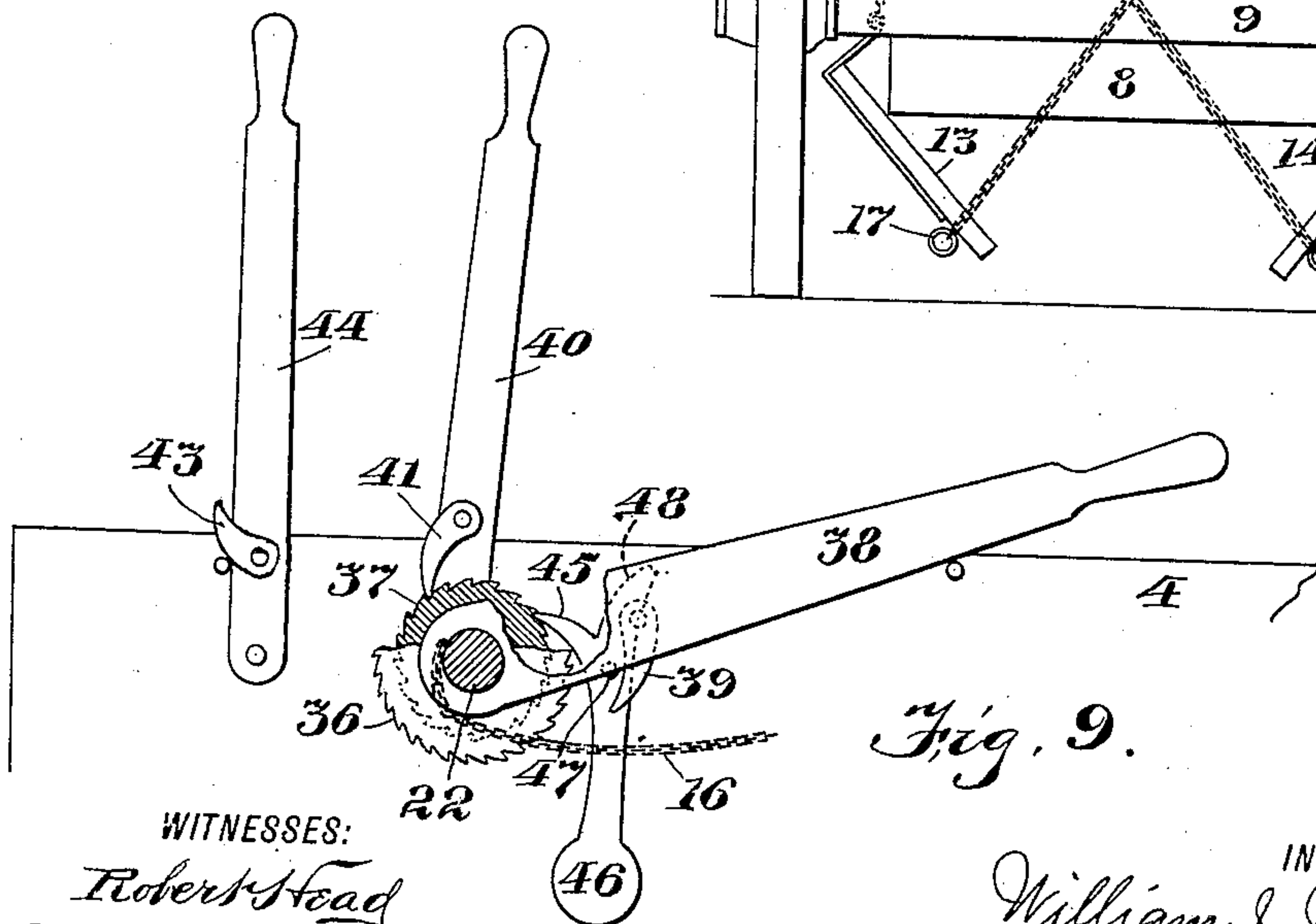


Fig. 9.

WITNESSES:

Robert Head  
Wm. D. MacLean

INVENTOR

William J. Judd

BY

Robert H. Kney  
ATTORNEY



# UNITED STATES PATENT OFFICE.

WILLIAM J. JUDD, OF PARK RIDGE, NEW JERSEY.

## WAGON.

No. 829,922.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed July 9, 1904. Serial No. 215,905.

*To all whom it may concern:*

Be it known that I, WILLIAM J. JUDD, a citizen of the United States, residing in Park Ridge, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Wagons, of which the following is a specification.

This invention relates to dumping-wagons having movable bottoms or bottom leaves under the control of the driver for both dumping and closing movements.

While suitable for a variety of wagon constructions, my improvements are particularly adapted to the kind of wagon in which two leaves are mounted at their outer edges for hinge movements, their inner edges or portions being permitted to drop to dump the load, and being subsequently drawn up and closed by mechanism under control of the driver. These leaves cannot be closed while the wagon stands over the load which has been dumped, because the closing movement would be obstructed by the dumped material, and hence it is necessary to haul the wagon away from the dump, so as to clear the leaves when they may be closed. These leaves, as they hang below the wagon while the latter is being driven away from the dump, are apt to strike the dump or other obstructions and to become injured and sometimes torn from their fastenings. This objection is greater in the case of a low wagon than where the wagon-body sits high; but, on the other hand, it is a decided advantage to have the wagon-body sit quite near the ground, as it is then more readily and easily filled and emptied, and its contents are easily inspected, and the wagon is more stable and more readily managed.

The main object of this invention is to overcome the above-noted objection with regard to the leaves dangling below the wagon as the latter is hauled away from the dump, while making it practicable to have the wagon-body sit as low as may be desired.

I provide means under the control of the driver for first dumping the load and then drawing the leaves up alongside of the body of the wagon, thus permitting the wagon to be hauled away from the dump without danger of injury to the leaves, and thereupon the leaves may be dropped and swung up together by the driver as the wagon drives along. I preferably employ a single mechanism for controlling all of the movements of

both leaves, so that in all positions the same are positively under control of the driver.

In the present form of the invention I show a single winding-drum and two pairs of cables so connected thereto that when one pair is wound up the other pair is paid out, one pair being connected to close the leaves and the other being connected to raise the leaves edgewise alongside of the wagon-body. The drum may be wound in either direction by hand by means of suitable pawl-and-ratchet or equivalent mechanism.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 a plan, of a dumping-wagon embodying my improvements. Fig. 3 is a rear elevation of the wagon, the leaves being shown by full lines as closed and by dotted lines as partly open. Fig. 4 is a front sectional elevation of the wagon-body, taken at the line *xx* of Fig. 1. Fig. 5 is a detail of the winding-drum and its pawl-and-ratchet mechanism, the drum having been turned so as to close the leaves and being secured by a holding-pawl. Fig. 6 is a side elevation of the body, partly broken away, and showing a leaf drawn up alongside thereof. Fig. 7 is a diagrammatic elevation illustrating the normal condition of the outer supports of the leaves. Fig. 8 is a rear elevation of the wagon and illustrates how the leaves clear the ground as they separate and swing outwardly and up alongside of the wagon, it being observed that in this instance the width of the leaf is materially greater than the clearance between the bottom of the wagon-body and the ground. Fig. 9 is similar to Fig. 5, but illustrates the operation of the devices that raise the leaves alongside of the wagon-body, the devices that close the leaves being out of use.

In the several figures like parts are identified by like signs.

In the present form of the invention front wheels 1 and rear wheels 2 support a body 3, the latter comprising vertical sides 4 and front and rear converging or sloping ends 5 and 6, the lower portions of said ends being preferably vertical, as at 7 8. It will be observed that the body drops well below the axle 9 of the rear wheels and that the sides 4 have jogs 10 to rest on said axle. The front wheels are swiveled, as usual, beneath the driver's box 12.

The bottom of the wagon-body consists of a pair of movable leaves 13 14, shown closed at



Figs. 1, 2, 3, and 4 and open at Figs. 6 and 8. These leaves at their outer edges are supported for hinge movements, so that they may drop at their inner edges to dump the load. They are swung up about their hinges and kept closed by means of a pair of cables 15 16, which pass through tubes 17 18 beneath the leaves near the inner edges of the latter, and at their rear ends are caught at 19 and 20 upon the rear end 6 of the wagon-body. At their front ends the cables or chains extend upwardly from the tubes and pass through blocks or eyes 21, thence forwardly to a drum or pair of drums 22, which is adapted to wind up the cables so as to close the leaves simultaneously or to pay out the cables so as to dump the load. The tubes 17 18 not only guide the chains, but also protect them from injury. By carrying the cables along beneath the leaves and catching them upon the rear end of the wagon the cables are given a strong purchase upon the leaves, and consequently will sustain a heavy load without sagging unduly. Each cable is provided with a turnbuckle 21', Figs. 3 and 8, for making fine adjustments in the length of the cable, whereby compensation may be made for inequalities in the cables arising from any cause, so that the leaves may be both properly closed by the winding-drum. The turnbuckle may, however, be omitted from one cable.

As seen at Figs. 3 and 4, the portions of each cable which extend upwardly from the leaf extend diagonally toward the opposite side of the wagon-body—that is, to the side of the body which is opposite to the hinge or outer edge of the leaf—so that the cables cross. When loaded, the leaves may swing down a trifle, but the downward movement of the diagonal cables (or guys) carries each leaf edgewise against the next, the edge of each leaf serving as an abutment against which the other leaf closes, so that an increase of the load upon the leaves only serves to close them more tightly. At its outer edge each leaf is supported by means of a pair of hangers connected to the end portions of the leaf, and seen at Fig. 1 in normal position, said hangers being preferably flexible and each consisting in this instance of a loop of chain, the lower ends of the chains being attached to supports or lifts 23 24, fixed to the under side of the leaf and projecting upwardly therefrom. At their upper ends these loops are caught upon pulleys or eyes 25 26, Fig. 7, the pulleys being mounted in brackets 27 28 exteriorly of the wagon sides. Normally—that is, when the leaves are closed, the entire weight of the outer portions of the leaves is supported by these brackets, both legs of each loop of chain hanging taut, and preferably one leg of each loop is provided with a turnbuckle 29, whereby either loop may be lengthened or shortened so as to

bring the outer edge of the door normally up against the bottom edge of the side of the wagon-body. One of the turnbuckles may, however, be omitted at each side of the wagon, although the use of both is preferred. The parts 23 24 serve as a hinge for the dumping movement of the leaf because of their loose connection to the chains or hangers.

At the dumping operation the leaves swing downwardly and outwardly, as in dotted lines at Fig. 3 or as at Fig. 8, and they are drawn up edgewise alongside of the wagon-body by means of cables 30 31, extending horizontally alongside of the wagon-body, one at each side thereof, and at their forward ends connected to barrels 32 33, provided upon the winding-drum, so as to be wound up thereon whenever the drum is rotated so as to pay out the other pair of cables 15 16. The cables 30 31 run through the brackets 27 28 and are connected to the hanger-chains at said brackets, so that a forward movement of a cable lifts the rear chain or leg 34 of each hanger, thereby raising the leaf right up alongside of the body, as at Fig. 6, the other leg 35 of the hanger dangling idly, as illustrated. Normally the cables 30 31 may hang loose, as at Fig. 7, the weight of the leaves being taken directly by the hangers or loops and the brackets 27 28. The barrels 32 33 for said cables are rigid with the barrel or drum 22, but of smaller diameter, since at the dumping operation the other cables 15 16 need to be paid out more rapidly than these cables wind up; but the parts may be all so proportioned that the leaves are controlled in their movements and caused to go through the proper dumping, lateral, and upward movements and also to move back and close properly. The two pairs of chains and the drum or drums taken together constitute a single mechanism for effecting the movements of the leaves, and great variations in the details of construction of such mechanism may be resorted to within the scope of the invention.

Upon the winding-drum is fixed a double ratchet-wheel or two oppositely-acting ratchet-wheels 36 37, the former for closing the leaves, the latter for raising the leaves alongside of the body, said ratchet-wheels being preferably cast in one piece. The ratchet-wheel 36 is operated by a hand-lever 38, having a driving-pawl 39 thereon, and the ratchet-wheel 37 is operated by lever 40, having driving-pawl 41. The winding-drum extends across the driver's box 12 beneath a seat 42, while the levers project upwardly between the right-hand end of the seat and the side of the wagon, where they are conveniently operated by the driver, who thus is enabled to maintain constant control over the leaves. While the lever 38 is being reciprocated to wind up the cables 15 16 to close the leaves, backward movement of the ratchet-wheel 36 is prevented by a holding-pawl 43,



Fig. 5, this pawl being preferably mounted upon a lever 44, which may be swung up to release said pawl 43, Fig. 9. To wind the drum in the opposite direction, the ratchet-lever 40 is reciprocated, backward slip of the ratchet-wheel 37 being prevented by a gravity-pawl 45, having a suitable weight 46, and pivoted at 47 to the side of the wagon. By means of the weight 46 the nose of the pawl 45 is pressed into engagement with the teeth of wheel 37.

When the wagon is carrying a load, the levers may be in the positions indicated at Figs. 1, 2, and 5, swung backwardly and downwardly out of the way of the driver. To dump the load, the winding or driving pawl 39 on the closing lever 38 is thrown out, Fig. 9, and then the releasing-lever 44 is swung upwardly and forwardly, thereby withdrawing the holding-pawl 43 from the ratchet-wheel 36, so that the drum is free to turn in a direction to permit the unwinding or paying out of the inner leaf-sustaining cables 15 16, and the weight of the load may be sufficient to drop the leaves and pull the cables off from the drum. Movement of the drum in this direction causes the leaf-raising cables 30 31 to wind up slowly, whereby the leaves, as they drop at their inner edges, are drawn up at their outer edges, Fig. 8. By proceeding to work the lever 40 the movement of the drum is continued until the leaves are wholly drawn up, Fig. 6, the pawl 45 preventing reverse movement of the drum. The wagon may then be hauled away from the dump without liability of collision of the leaves with any obstructions, and as soon as they are clear of the dump the lever 40 may be swung backwardly and downwardly, contacting with a projection 48, provided upon the gravity holding-pawl 45 and causing said pawl to turn upon its pivot 47 until the ratchet-wheel 37 is released, and at the same time the said driving-pawl 41 rides upon the pawl 45 and is hence withdrawn from said wheel 37, Fig. 5, so that the drum is freed to turn in a direction to pay out the cables 30 31 to drop the leaves below the wagon, this movement of the drum being continued by the operation of the lever 38, whereby the cables 15 16 are drawn onto the drum and the leaves closed tightly, the weight of the load being taken by the holding-pawl 43, engaging the ratchet-wheel 36.

By mounting means upon the exterior of the body and connecting them to the exterior of the leaves for either drawing the leaves upwardly alongside of the body or closing the leaf at will the necessity of making connections within the body from the sides of the body to the inner edges of the leaves is avoided, and the objection of clogging the cables, guides, or other mechanism is overcome, the whole interior of the wagon being left clear and freedom and certainty of operation being

insured. A further advantage is gained by connecting the cables to the ends of the leaves, since this gives an excellent control over the leaves, and liability of sagging at any corner is avoided. It will be observed that the wagon-body may be set very low and that the bottom leaves in their closed position may, if desired, lie at a height from the ground materially less than the width of a leaf, as will be understood from Fig. 8, since in their opening movements the leaves do not assume vertical positions directly below the wagon-body, but first drop at their inner edges to converging positions, and then move laterally or outwardly and are then drawn up edgewise alongside of the body. It will also be noted that the manually-controlled pivoted or rotatable device 22 is movable in one direction to dump the leaves and draw them up alongside of the body and in the opposite direction to close the leaves.

Variations may be resorted to within the scope of my invention and portions of my improvements may be used without others. For instance, it is not necessary to use a double leaf in all cases in practicing certain features of my invention, such features being applicable to dumping-wagons whether having one or two, or more, dumping-leaves.

Having thus described my invention, I claim—

1. In a dumping-wagon, a body having a movable bottom leaf, a winding-drum, means for turning said drum in either direction at will, means for checking the movement of said drum in either direction, and means connected to said drum and mounted upon the exterior of said body and connected to the exterior of said leaf, for either drawing the leaf bodily edgewise up alongside of said body, or closing said leaf, at will.

2. In a dumping-wagon, the combination with a body having a movable bottom leaf and means for drawing said leaf upwardly alongside of said body, of means for closing said leaf.

3. In a dumping-wagon, the combination with a body having a movable bottom leaf, of means connected to said leaf at its inner edge for closing the same, and means connected to said leaf at its outer edge for drawing said leaf upwardly alongside of said body.

4. In a dumping-wagon, a body having a movable bottom leaf, and means connected to the end portions of said leaf for closing the same, in combination with means also connected to the end portions of said leaf for drawing the leaf upwardly alongside of said body.

5. In a dumping-wagon, the combination with a body provided with a bottom leaf, of movable supports for said leaf, and a manually-controlled pivoted or rotatable device operatively connected to said movable supports and movable in one direction to dump



the leaf and draw it up alongside of the body and in the opposite direction to close the leaf.

6. In a dumping-wagon, the combination with a body having sides and ends and provided with a bottom leaf, of means connected to the ends of said leaf at one edge thereof for closing the same, and means mounted upon one of said body sides and exteriorly of said body and connected to the end portions of said leaf near its other edge, for raising the leaf alongside of the body.

7. In a dumping-wagon, the combination with a body having sides and ends and provided with a bottom leaf, of means mounted exteriorly upon the ends of the body and connected to the leaf for closing the same, means mounted exteriorly upon one side of the body and connected to the leaf for lifting the same alongside of the body, and operating means common to said closing and lifting means.

8. In a dumping-wagon, the combination with a body having a bottom leaf which at one edge is loosely supported for a hinge movement, of means connected to the opposite edge of the leaf for closing the same, and an abutment against which said opposite edge may rest in lateral direction; the relation of said closing means to said leaf being such as to tend to swing the edge of said leaf against said abutment when said leaf is moved downwardly by a load thereon, whereby the leaf is tightly closed.

9. In a dumping-wagon, a body having sides and ends and a bottom leaf which at its outer edge is loosely supported for a hinge movement, and a guy for holding said leaf closed; said guy extending from the inner edge of said leaf diagonally upward and toward the opposite side of the body from said hinge-support; and an abutment against which the inner edge of said leaf may rest laterally.

10. In a dumping-wagon, a body having sides and ends and a bottom leaf which at its outer edge is loosely supported for a hinge movement, and a pair of guys for holding said leaf closed; said guys extending diagonally from the inner edge of said leaf at its ends, upwardly and toward the opposite side of the body from said hinged edge, and being mounted exteriorly of the said body; and an abutment against which the inner edge of said leaf may swing laterally upon said guys when the leaf is pressed down by a load.

11. In a dumping-wagon, a body having a bottom leaf mounted at one edge for a hinge movement, a tube extending the length of said leaf along the edge thereof opposite to said hinge, a cable extending through the tube and supported upon each end of the wagon-body, and means for winding up said cable to close said leaf.

12. In a dumping-wagon, a body having sides and ends and a bottom leaf which at its outer edge is loosely supported for a hinge movement, a cable passing beneath said leaf near its opposite edge, cable-guiding means upon said leaf, said cable extending from the ends of the leaf diagonally upward and toward the opposite side of the wagon from said hinge edge, supporting means for the upwardly-extending portions of the cable, cable-winding means, and an abutment against which said leaf may close or press laterally when loaded.

13. In a dumping-wagon, a body having sides and ends and a bottom leaf which at its outer edge is loosely supported for a hinge movement, a tube extending the length of said leaf upon its under side along the edge thereof opposite to said hinge, a cable extending through the tube and extending from the ends thereof diagonally upward and toward the opposite side of said body from said hinge, and exteriorly of the wagon-body, and at one end caught upon the rear end of the body, winding means connected to the forward end of the cable, and an abutment against which the inner edge of said leaf may close or press laterally when loaded.

14. In a dumping-wagon, the combination with a body having sides and ends and a movable bottom leaf, of means supporting the outer edge of the leaf for a hinge movement and also capable of drawing the leaf upwardly alongside of the body, and means connected to the inner edge of the leaf for both closing the same and also limiting its downward swinging movement upon said hinge-support; said means for drawing up the leaf being co-operatively connected to said means for limiting the downward swinging movement.

15. In a dumping-wagon, the combination with a body having a movable bottom leaf, of means, including a cable and cable-winding devices, for supporting the outer edge of said leaf for a hinge movement and also drawing the leaf up alongside the body, and means connected to said leaf near its inner edge for closing the same.

16. In a dumping-wagon, the combination with a body having a movable bottom leaf, of means, including a cable, means connecting said cable to said leaf at its outer edge near its ends, and cable-winding devices, for supporting said outer edge for a hinge movement and also drawing the leaf up alongside the body, and coöperative means connected to said leaf near its inner edge for closing the same and also restraining the hinge movement of the leaf at the dumping operation.

17. In a dumping-wagon, the combination with a body provided with a movable bottom leaf, of means having a hinge connection to the outer edge of said leaf for drawing the same up alongside of the body, a cable pass-



ing along said leaf near its inner edge and beneath the same, supporting means for the ends of said cable, and cable-winding means.

18. In a dumping-wagon, the combination  
5 with a body provided with a movable bottom leaf, of a cable connected to the outer edge of said leaf for drawing the same up alongside of the body, a cable connected to the inner edge of said leaf for closing the same, and  
10 winding means common to said cables and effective, when winding either cable, to pay out the other cable.

19. In a dumping-wagon, the combination  
15 with a body provided with a movable bottom leaf, of a cable, means connecting said cable to the outer edge of said leaf for drawing the same up alongside of the body, a cable passing along said leaf near its inner edge and beneath the same, supporting means for the  
20 ends of the inner cable, and winding means common to said cables and effective when winding up either cable to pay out the other cable.

20. In a dumping-wagon, a body having  
25 sides and ends and a bottom leaf, a cable passing beneath and guided upon said leaf near its inner edge, said cable extending from the ends of the leaf diagonally upward and toward the opposite side of the wagon from  
30 the outer edge of the leaf, supporting means for the upwardly-extending portions of the cable, an abutment against which the inner edge of said leaf may close or press laterally when loaded, a cable connected to the outer  
35 edge of said leaf for drawing the same up alongside of said body, and winding means common to said cables and effective when winding up either cable to pay out the other cable.

40 21. In a dumping-wagon, a body having a pair of downwardly and outwardly swinging bottom leaves, and means mounted upon the exterior of said body and connected to the exterior of said leaves, for either drawing the  
45 leaves simultaneously upward alongside of the body, or simultaneously closing the leaves at will.

22. In a dumping-wagon, the combination  
50 with a body having a pair of movable bottom leaves and means for lifting said leaves alongside of said body, of means for closing said leaves; said lifting means and closing means having a common operating member which is movable in one direction to dump and lift  
55 the leaves and in the opposite direction to close the leaves.

23. In a dumping-wagon, the combination  
60 with a body having a pair of movable bottom leaves, of means connected to said leaves at their inner edges for closing the same, means connected to said leaves at their outer edges for lifting them alongside of the body, and a common operating member for said closing and lifting means.

65 24. In a dumping-wagon, a body having a

pair of movable bottom leaves, and means connected to the end portions of the leaves for closing the same, in combination with means also connected to the end portions of said leaves for drawing the leaves simultaneously upward alongside of said body. 70

25. In a dumping-wagon, the combination  
75 with a body provided with a pair of bottom leaves, of movable supports for each of said leaves, and a single manually-controlled pivoted or rotatable device operatively connected to the movable supports and movable in one direction to dump the leaves and draw them up alongside of the body and in the opposite direction to close the leaves. 80

26. In a dumping-wagon, the combination  
85 with a body having sides and ends and provided with a pair of bottom leaves, of a cable connected to the ends of each leaf at one edge thereof for closing the same, cables mounted upon the body sides exteriorly thereof and connected to the end portions of the leaves near their outer edges, for raising the leaves alongside of the body, and a single manually-controlled member for controlling  
90 all of said cables.

27. In a dumping-wagon, the combination  
95 with a body having sides and ends and provided with a pair of bottom leaves, of means mounted exteriorly upon the ends of the body and connected to said leaves for closing the same, and means mounted exteriorly upon the sides of the body for drawing said leaves upwardly alongside of the body.

28. In a dumping-wagon, the combination  
100 with a body having a pair of bottom leaves which at their outer edges are loosely supported for hinge movements, of means connected to the inner edges of the leaves for closing the same; the relation of said closing  
105 means to said leaves being such as to tend to swing them together laterally when the leaves are moved downwardly by a load thereon.

29. In a dumping-wagon, a body having  
110 sides and ends and a pair of bottom leaves which at their outer ends are loosely supported for hinge movements, and guys for holding said leaves closed; said guys crossing, each extending from the inner edge of its leaf upwardly to a point above the other leaf, so  
115 that a load upon the leaves tends to swing their edges together.

30. In a dumping-wagon, a body having  
120 sides and ends and a pair of bottom leaves which at their outer edges are loosely supported for hinge movements, and a pair of guys for holding each of said leaves closed, all of said guys being mounted exteriorly at the ends of said body; the guys for each leaf extending from the inner edge of the leaf  
125 upwardly and toward the opposite side of the wagon, so that a load upon the leaves tends to press their edges together.

31. In a dumping-wagon, a body having a  
130 pair of bottom leaves mounted at their outer



edges for hinge movements, a tube extending the length of each leaf along the inner edge thereof, cables extending through the tubes and supported upon the ends of the wagon-body, and means common to said cables for winding them up to close the leaves.

32. In a dumping-wagon, a body having sides and ends and a pair of bottom leaves which at their outer edges are loosely supported, cables passing beneath said leaves near their inner edges, cable-guiding means upon said leaves, each cable extending from the ends of its leaf diagonally upward toward the opposite side of the wagon, supporting means for the upwardly-extending portions of the cables, and a winding-drum to which both of said cables are connected.

33. In a dumping-wagon, the combination with a body having sides and ends and a pair of movable bottom leaves, of means supporting the outer edges of the leaves for hinge movements and also capable of lifting the leaves upwardly edgewise alongside of the body, and means connected to the inner edges of the leaves for both closing the same and also limiting their downward swinging movement upon their hinge-supports; said means for lifting the leaves being coöperatively connected to said means for limiting the downward swinging movement; and a common manually-controlled actuator for all of said leaf-controlling devices.

34. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of means, including a pair of cables and a winding device common thereto, for supporting the outer edges of the leaves for hinge movements and also lifting the leaves edgewise alongside of the body; and means connected to said leaves near their inner edges for closing the same simultaneously.

35. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of means, including a pair of cables, and also including connections from said leaves at their outer edges near their ends, and also including cable-winding devices, for supporting said outer edges for hinge movements and also lifting said leaves edgewise alongside of the body, and coöperative means connected to said leaves near their inner edges for closing the same and also restraining the hinge movements of the leaves at the dumping operation; a common manually-controlled device being connected to both said lifting and said closing means for operating the same.

36. In a dumping-wagon, the combination with a body provided with a pair of movable bottom leaves, of means having hinge connections to the outer edges of said leaves for drawing the same up simultaneously alongside of the body, said means including a cable and winding means; a pair of cables passing along said leaves near their inner edges and

beneath the same, and supporting means for the ends of said cables; said pair of cables being also connected to said winding means so as to be paid out when the leaves are drawn up alongside of the body.

37. In a dumping-wagon, the combination with a body provided with a pair of movable bottom leaves, of a pair of cables connected to the outer edges of said leaves for drawing the same up alongside of the body, a pair of cables connected to the inner edges of said leaves for closing the same, and winding means common to all of said cables and effective, when winding either pair, to pay out the other pair of cables.

38. In a dumping-wagon, the combination with a body provided with a pair of movable bottom leaves, of a pair of cables, means connecting said cables to the outer edges of said leaves for drawing the same up alongside of the body, a pair of cables passing along said leaves near their inner edges and beneath the same, supporting means for the ends of said inner cables, and winding means common to all of said cables and effective when winding up either pair of cables to pay out the other pair.

39. In a dumping-wagon, the combination with a body having sides and ends and a pair of bottom leaves, of a pair of cables passing beneath and guided upon said leaves near their inner edges, said cables extending from the ends of said leaves diagonally upward and each toward the opposite side of the wagon, so that the cables cross, supporting means for the upwardly-extending portions of the cables, a pair of cables connected to the outer edges of said leaves for drawing the same up alongside of said body, and winding means common to all of said cables and effective when winding up either pair of cables to pay out the other pair of cables.

40. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of a winding-drum, two pairs of cables connected to said drum, one pair being connected to close said leaves and the other pair being connected to draw said leaves up alongside of the body, and manually-controlled means for turning said drum in opposite directions; said cables being so connected that when one pair is wound the other pair is paid out.

41. In a dumping-wagon, the combination with a body having sides and ends and movable bottom leaves, of a winding-drum mounted transversely of the body at the front part thereof and having portions projecting from the opposite sides of the wagon, a pair of cables connected to the projecting portions of said drum and having connections exterior of said body to the outer edges of the leaves for lifting the latter alongside of the body, a pair of cables extending from said drum down and beneath said leaves and sup-



ported at the rear end of the body for closing said leaves, a ratchet-wheel and lever for winding said drum in one direction, and manually-controlled means for turning said drum in the opposite direction; said cables being so connected to said drum that one pair is paid out while the other pair is wound up.

42. In a dumping-wagon, the combination with a body having sides and ends and a pair of movable bottom leaves, of two pairs of flexible hangers exterior of said body and connected to the sides thereof so as to be sustained thereby, and also connected at their lower ends to the outer edges of said leaves so as normally to sustain the same, a cable connected to said hangers for shortening the same so as to draw up said leaves, and means for closing the leaves.

43. In a dumping-wagon, the combination with a body having sides and ends and a pair of movable bottom leaves, of two pairs of hangers exterior of said body and hanging therefrom and connected at their lower ends to the outer edges of said leaves so as normally to sustain the same, a pair of cables normally loose and connected to said hangers for drawing said leaves up alongside of said body, a pair of cables also connected to said leaves for closing the same, and winding means common to all of said cables and effective to pay out one pair of cables while winding up the other pair.

44. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of two pairs of cables and means for drawing up either pair and simultaneously paying out the other pair; one pair of cables being connected to close said leaves and the other pair being connected to draw the leaves up alongside of said body.

45. In a dumping-wagon, the combination with a body having a bottom leaf, of a flexible loop supporting said leaf at its outer edge and extending up from said leaf, a supporting member over which said loop runs, a cable connected to the upper portion of said loop, means for winding said cable, and means controlling the opening and closing movements of the leaf.

46. In a dumping-wagon, the combination with a body having a bottom leaf and means for controlling the opening and closing movements of the leaf, of a flexible loop provided with length-adjusting means and supporting said leaf at its outer edge, a block or eye through which said loop runs, and means connected to the upper portion of said loop for drawing up the leaf.

47. In a dumping-wagon, the combination with a body having a bottom leaf and means for controlling the opening and closing movements of the leaf, of a pair of flexible loops supporting said leaf at its outer edge, a cable connected to said loops for lifting the leaf

edgewise, and means winding up said cable at the opening of the leaf and paying out said cable at the closing of the leaf.

48. In a dumping-wagon, the combination with a body having a bottom leaf and a cable passing therebeneath for closing the same, of a pair of flexible loops each provided with means for length adjustment and supporting said leaf at its outer edge, a cable connected to said loops for lifting the leaf edgewise, and winding means common to said cables and effective to pay out either cable while winding up the other cable.

49. In a dumping-wagon, the combination with a body having a bottom leaf and closing means therefor, of a pair of devices supporting the outer edge of said leaf and independently adjustable for setting up the leaf, and a cable connected to said supporting devices for lifting the leaf edgewise alongside of the wagon.

50. In a dumping-wagon, the combination with a body having a pair of bottom leaves, of two pairs of cables, and a common winding-drum for all of said cables; one pair of cables being connected to lift said leaves edgewise alongside of the body and the other pair of cables being connected to close said leaves, each cable being provided with length-adjusting means, and the cables being so connected to the drum that either pair is paid out while the other pair is wound up.

51. In a dumping-wagon, the combination with a body having a movable bottom leaf, of a winding-drum having large and small barrels, a cable winding over the large barrel and passing beneath the inner edge of said leaf and caught at its rear end upon said body, for closing said leaf, a cable winding over the small barrel, a plurality of pulleys or eyes through which the last-mentioned cable passes, and flexible connections at said pulleys ramifying from said cable to the outer edge of said leaf; said cables being so connected to said drum that when either is wound up the other is paid out.

52. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of a winding-drum having large and small barrels, a pair of cables winding over the small barrels and connected to the outer edges of said leaves for raising the same alongside of said body, and a pair of cables winding over the large drum or drums and passing beneath the leaves near their inner edges and caught at their rear ends upon the wagon-body, for closing said leaves; said cables being so connected that when either pair is wound up the other pair is paid out.

53. In a dumping-wagon, the combination with a body having a movable dumping-leaf, of a cable for closing said leaf, a cable for moving said leaf in the opposite direction, a winding-drum to which said cables are so connected that when either is wound thereon



the other is paid out, pawl-and-ratchet mechanism for turning said drum manually in one direction, and pawl-and-ratchet mechanism for turning said drum manually in the other direction.

54. In a dumping-wagon, the combination with a body having a movable bottom leaf, of a cable for closing said leaf, a cable for drawing said leaf up alongside of said body, a winding-drum to which said cables are so connected that when either is wound thereon the other is paid out, two ratchet-wheels rigid with said drum, two levers having pawls releasably engaging said ratchet-wheels for turning the drum in either one direction or the other at will, and releasable holding-pawls for engagement with said ratchet-wheels.

55. In a dumping-wagon, the combination with a body having a movable bottom leaf, of a cable for closing said leaf, a cable for drawing said leaf up alongside of said body, a winding-drum to which said cables are so connected that when either is wound thereon the other is paid out, two ratchet-wheels connected to said drum, a lever, driving-pawl and holding-pawl for one of said ratchet-wheels, and a lever, driving-pawl thereon, and gravity holding-pawl for the other of said ratchet-wheels; said gravity-pawl having a projection engageable by the last-mentioned lever, for releasing said gravity-pawl.

56. In a dumping-wagon, the combination with a body having a movable bottom leaf, of a cable for closing said leaf, a cable for drawing said leaf up alongside of said body, a winding-drum to which said cables are so connected that when either is wound thereon the other is paid out, two ratchet-wheels connected to said drum, a lever, driving-pawl and holding-pawl for one of said ratchet-wheels; said holding-pawl being releasable by a movement of said lever and being also provided with a part which, at the releasing movement of said lever, effects a release of said driving-pawl; and a lever, driving-pawl and holding-pawl for the other of said ratchet-wheels.

57. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of a pair of cables for closing said leaves, a pair of cables for drawing said leaves up alongside of said body, a winding-drum to which all of said cables are so connected that when either pair is wound thereon the other pair is paid out, a ratchet-wheel connected to said drum, a lever, driving-pawl and holding-pawl for one of said ratchet-wheels, both said pawls being releasable by a movement of said lever, and means for turning said drum in the opposite direction.

58. In a dumping-wagon, the combination with a body having a movable bottom leaf, of a lifting device mounted upon the outside of the body and connected to the leaf, and means for closing said leaf.

59. In a dumping-wagon, the combination with a body having a pair of movable bottom leaves, of devices mounted upon the outside of the body and connected to said leaves for raising them, a single member for controlling both of the raising devices; and means for closing the leaves.

60. In a dumping-wagon, the combination with a load receptacle or body, of a pair of movable bottom leaves loosely connected at their outer edges to said body, cables extending to the ends of the leaves for both closing said leaves and pressing them edgewise together, said cables extending upwardly from the inner edges of said leaves outside of said body, and means for winding the cables simultaneously.

61. In a dumping-wagon, the combination with a body, of a winding device, cables connected to the winding device, a pair of movable bottom leaves loosely connected at their outer edges to said body, and means cooperating with said cables for closing the leaves and causing the latter to press together edgewise when closed.

WILLIAM J. JUDD.

Witnesses:

B. C. STICKNEY,  
WM. N. MACLEAN.