A. N. DOUD.

DUMPING WAGON.

APPLICATION FILED SEPT. 24, 1918.

1,328,137.

Patented Jan. 13, 1920.

4 SHEETS—SHEET 1.

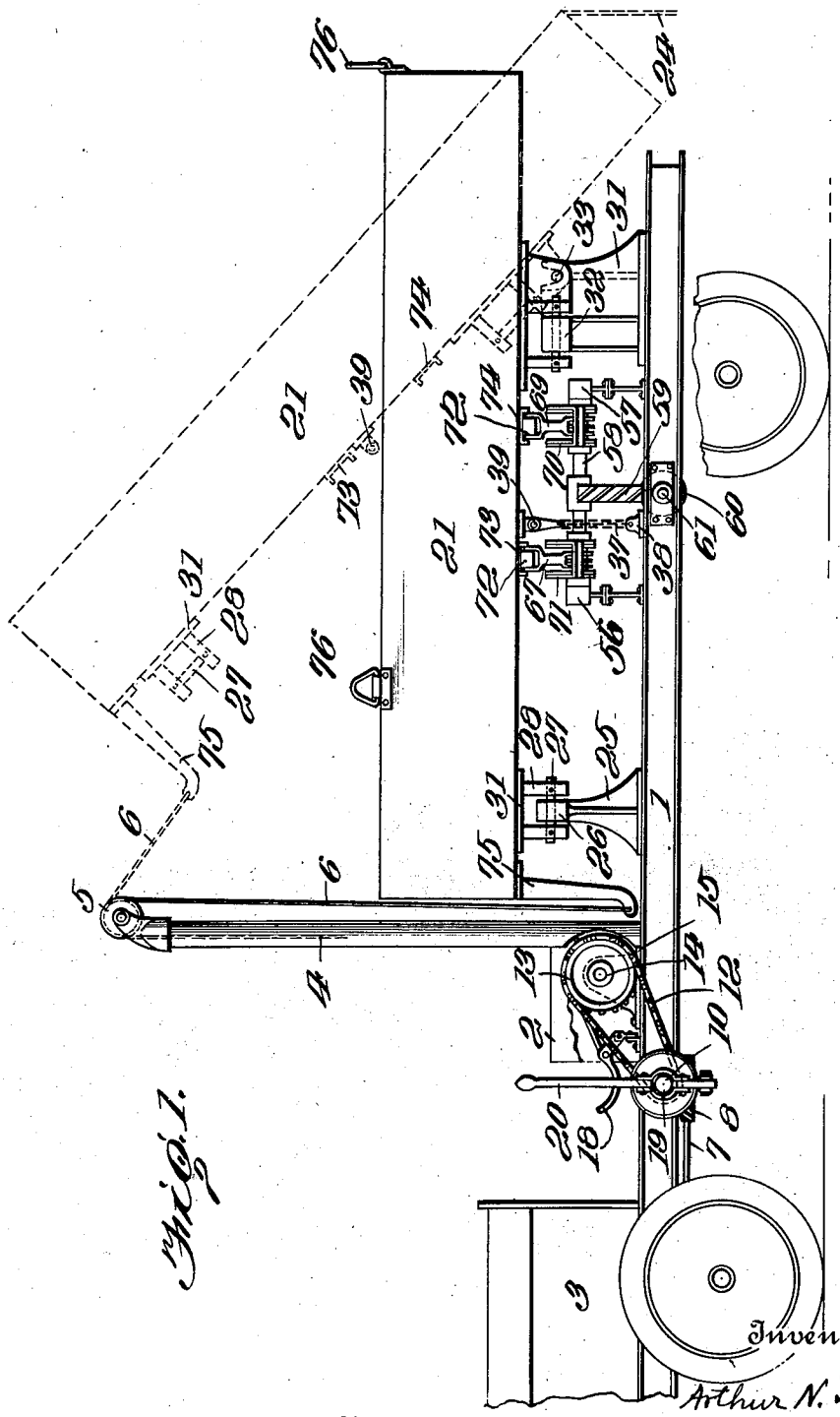


Fig. 1.

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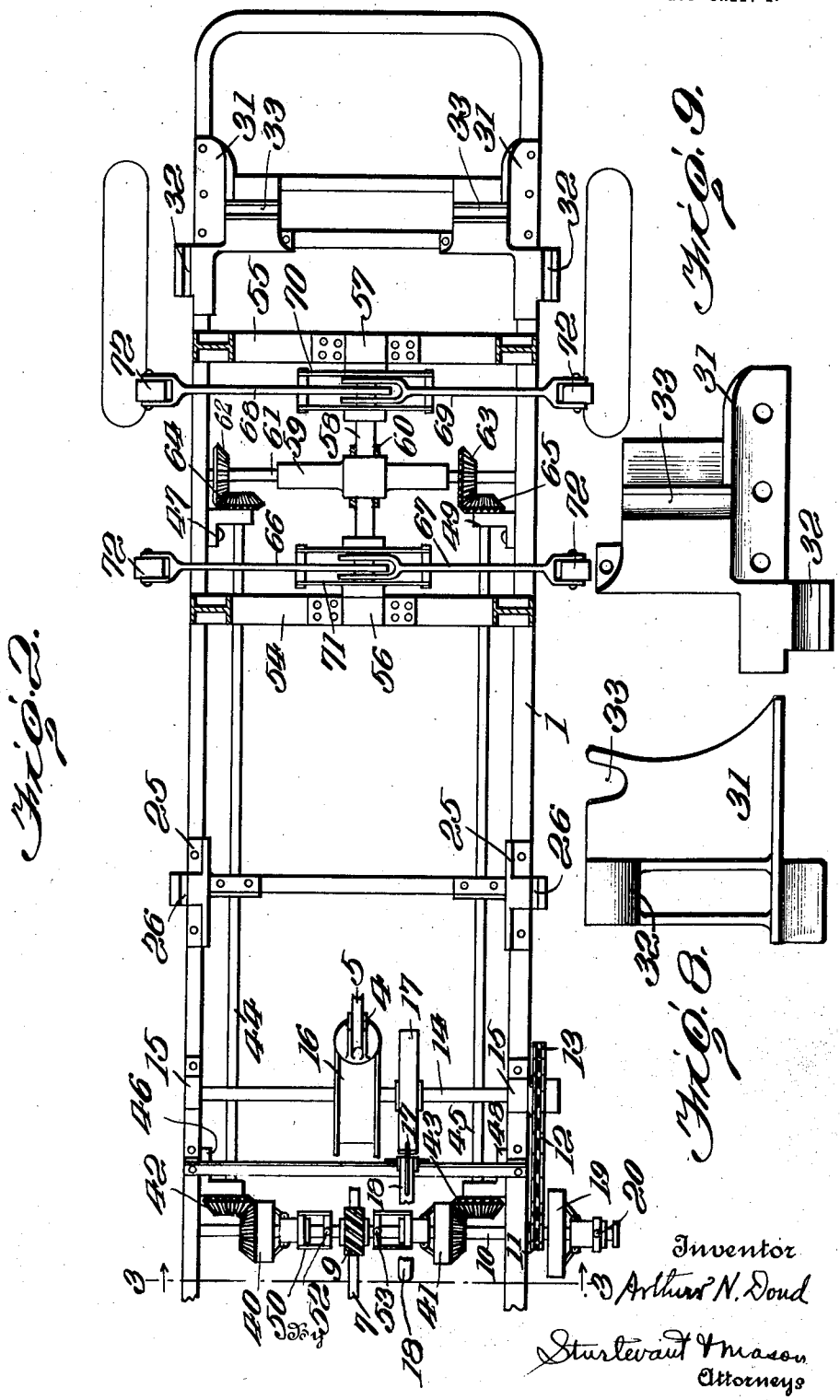


Fig. 2.

Fig. 9.

Fig. 8.

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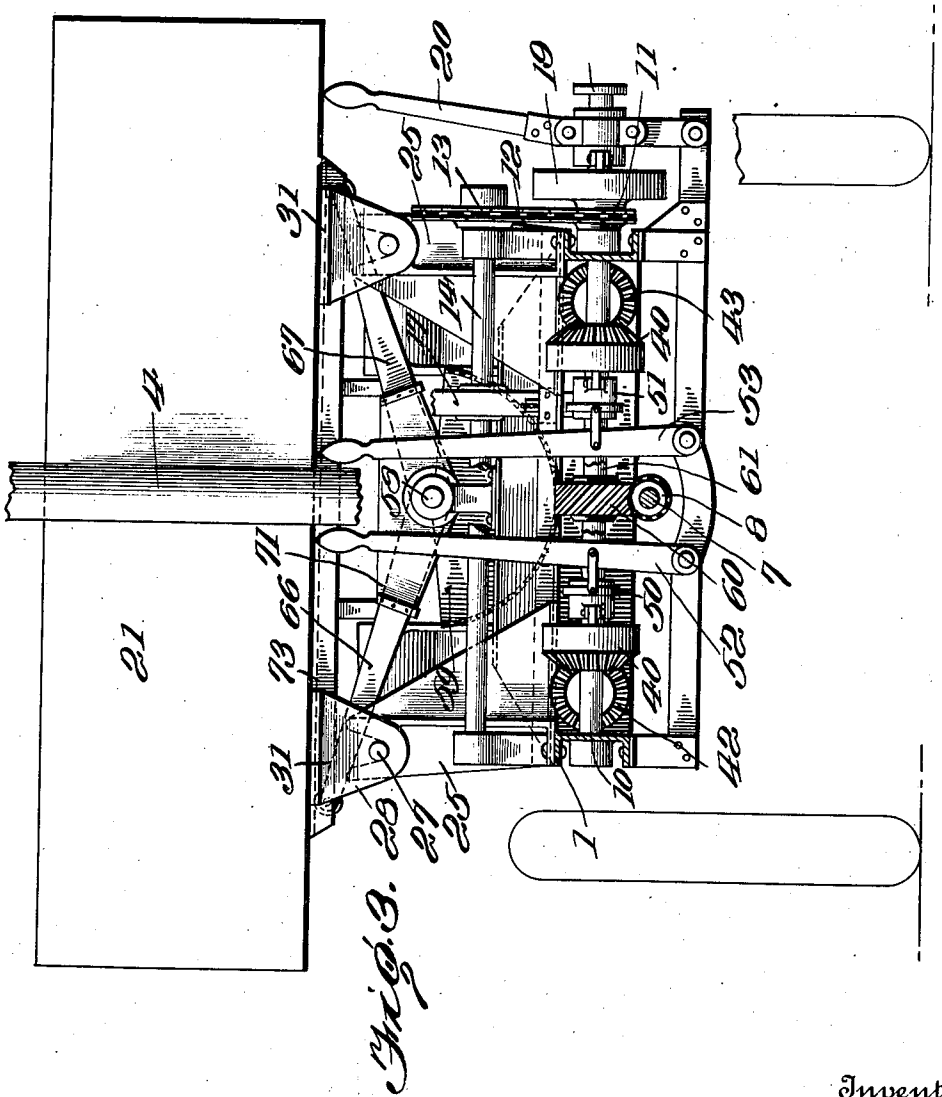


Fig. 9.

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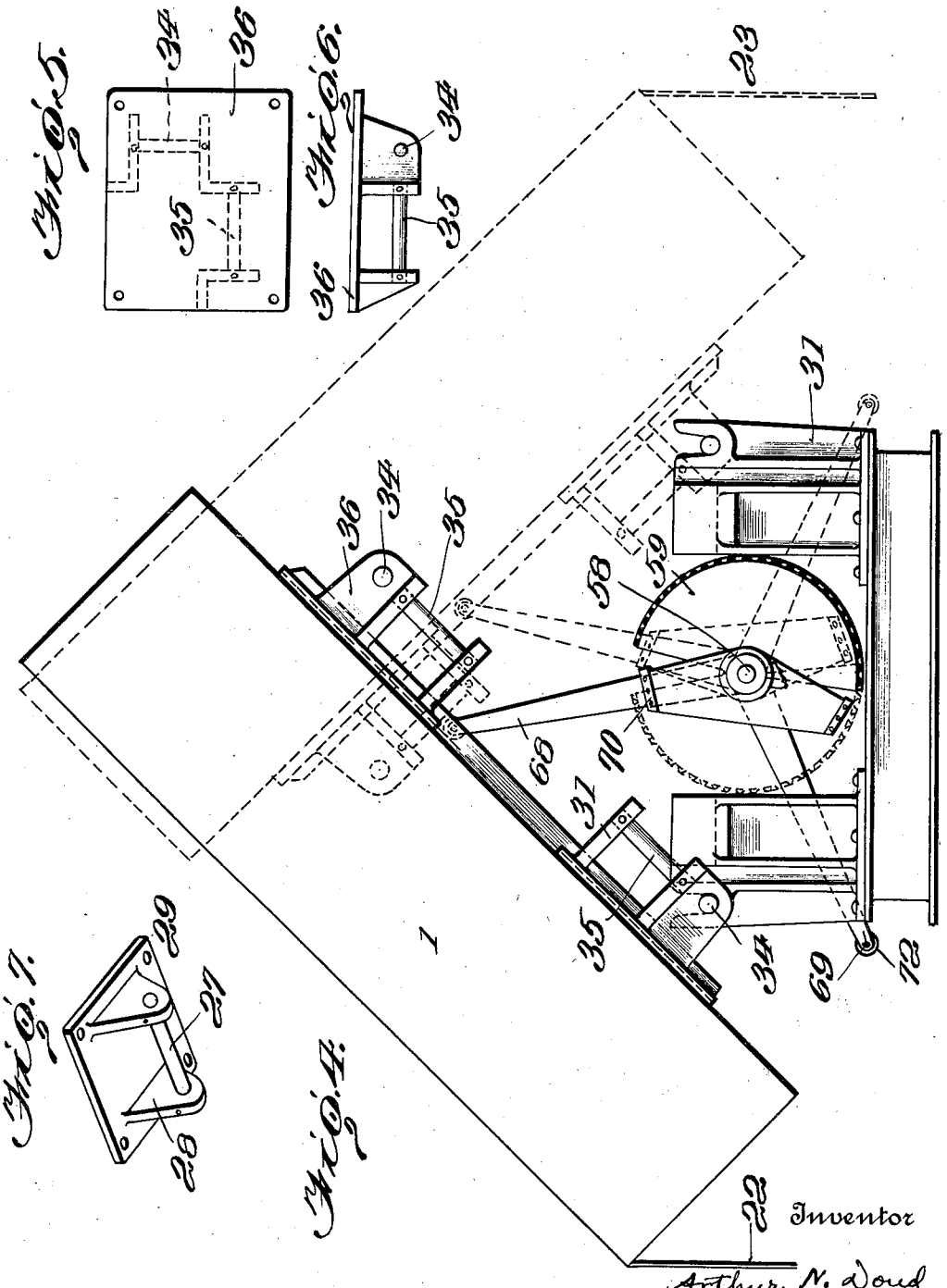
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

ARTHUR NATHAN DOUD, OF WINTHROP, NEW YORK.

DUMPING-WAGON.

1,328,137. Specification of Letters Patent. Patented Jan. 13, 1920.

Application filed September 24, 1918. Serial No. 255,471.

To all whom it may concern:

Be it known that I, ARTHUR N. DOUD, a citizen of the United States, residing at Winthrop, in the county of St. Lawrence, State of New York, have invented certain new and useful Improvements in Dumping-Wagons, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

My invention relates to new and useful improvements in dumping wagons.

The object of the invention is to provide a dumping wagon in which the body is dumped by a mechanism driven by the engine which is employed in driving the wagon, and provides a removable body which may be readily removed from the chassis without disconnecting any bolts, screws, or the like, so that the body may be removed by a crane and the contents thereof dumped at such removed point and the body placed back on the chassis, ready for use, by simply hooking a three-way dumping chain into the eyes attached to the sides and rear end of the body.

Another object of the invention is to provide a wagon of this character, in which the body may be dumped in three directions—that is, to either side or at the rear, and at the same time providing for the ready raising of the body from the running gear, as heretofore set forth.

A further object of the invention is to provide side dumping mechanism, so that the body may be placed down low to the chassis or running gear and the side lifting arms on one side will not interfere with the dumping of the body when the lifting arms on the other side are in operation and thus allow the body to be tilted at a greater angle for side dumping.

A further object of the invention is to provide a simple cheap and effective structure adapted to accomplish the hereinbefore stated objects and having certain details of structure and combination of parts hereinafter more fully set forth.

In the accompanying drawings:

Figure 1 is a side elevation of a dumping wagon embodying my invention and showing the body in dotted lines for the end dumping;

Fig. 2 is a top plan view of the chassis, showing the mechanism for the side dump and the clutch mechanism for controlling the same;

Fig. 3 is an end view showing the hinge connection between the chassis and the body and also the side dumping arms;

Fig. 4 is a side elevation showing the body dumped to one side, in full lines, and to the other side in dotted lines;

Fig. 5 is a plan view of one of the rear hinge sections carried by the body, showing the means by which the body may be dumped to the side or rear;

Fig. 6 is a side elevation of Fig. 5;

Fig. 7 is a perspective view of one of the forward hinge sections carried by the body;

Fig. 8 is a side elevation of one of the rear hinge sections carried by the chassis; and

Fig. 9 is a top plan view of Fig. 8.

Referring now to the drawings, 1 represents the chassis of the ordinary self-propelled truck, having the driver's seat 2, arranged in rear of the hood 3, and may be driven in any desired manner, as the specific construction of the drive for propelling the truck has no essential connection with the construction of the body and its manner of operation, as the same could be connected up with any form of truck drive—whether chain or gear drive. In rear of the driver's seat 2, and rigidly supported, is a lifting leg 4, carrying a pulley 5 at its upper end, over which passes a cable 6, which is attached to the forward end of the body for lifting the same, as will be hereinafter more fully described.

In the form of truck to which I have applied my invention, the wheels are driven by the shaft 7, running from the engine within the hood to the transmission and the shaft is, therefore, at all times driven when the engine is running, so that the power for dumping the body is taken from the said shaft and the body can be dumped while the truck is standing or in motion. This shaft 7 is provided with a worm 8, meshing with a worm gear 9, carried by the transverse shaft 10 mounted in proper bearings in the chassis, whereby the transverse shaft is at all times rotated upon the rotation of the shaft 7. The shaft 10, on the outside of the chassis, is provided with a sprocket wheel 11, over which passes the sprocket chain 12, the said chain passing over the sprocket wheel 13 carried by the shaft 14.

The shaft 14 is rotatably supported in bearings 15 mounted upon the chassis in front of the lifting leg 4, and is provided at the center with a drum 16, upon which is

wound the cable 6, for raising the forward end of the vehicle. Mounted upon the shaft 14, and at one side of the drum 16, is a brake drum around which passes the brake band 17, operated by the lever 18, so that the forward end of the body may be lowered after a load is dumped, as will be hereinafter more fully described. The sprocket wheel 11 is loosely mounted upon the shaft 10, and is adapted to be coupled thereto by means of a clutch 19, operated by the clutch lever 20, whereby the drum 16 is rotated for raising the forward end of the body and the body supported in said raised position by the brake band and lowered at will by the same.

The dumping body 21 is of any desired structure having the sides 22 and 23 hinged at their upper ends and locked at their lower ends by means of any form of latch, so that either side may be released for the side dumping. The tail-gate 24 is also hinged at its upper end and held closed by latches similar to those holding the sides closed, and adapted to be released for end dumping. The chassis adjacent the leg 4, is provided at each side with a hinge section 25, which are of the form shown in Fig. 3 of the drawings. The upper end of the hinge section 25 is provided with longitudinally extending grooves 26, which loosely fit around the horizontally supported pins 27, carried by the lower ends of the arms 28, of the hinge section 29, carried by the bottom of the body, as clearly shown in Fig. 1 of the drawings.

The chassis, adjacent its rear end and on each side, is provided with upwardly extending hinge sections 31, which are of the shape shown in Figs. 8 and 9 of the drawings, and each having a longitudinal groove 32 and transverse groove 33, into which extend the longitudinal pins 34 and the transverse pins 35, carried by the hinge section 36, which is rigidly secured to the bottom of the body 21. By this structure, it will be seen that the body has no permanent connection with the chassis, but the weight thereof holds the pins in the grooves and thus allows the dumping of the body on either side or to the rear. In order to prevent any liability of the body rocking on the pins during the movement of the truck, I have provided chains 37 on each side. The lower ends of the chains are permanently attached to the chassis at 38, and provided at their upper ends with any desired hook or latch, so that the chains may be released for dumping. In dumping rearwardly, it will be necessary to release the chains on both sides, but for the side dumping it is only necessary to release the chain on the side opposite to that on which the load is to be dumped.

The shaft 10, on each side of the worm gear 9, is provided with beveled gears 40 and 41 loosely mounted thereon and meshing with gears 42 and 43, rigidly secured to the forward ends of the longitudinally extending shafts 44 and 45. The shafts 44 and 45 are mounted to rotate in brackets 46, 47, 48 and 49, carried by the chassis 1, as clearly shown in Fig. 2 of the drawings. The shaft 10, as heretofore described, rotates continuously when the engine is running, but the beveled gears 40 and 41 being loose on the shaft are not driven, and are adapted to be locked to the shaft by means of the separate clutches 50 and 51, operated by levers 52 and 53, so that either of the shafts 44 or 45 may be operated for the purpose of dumping the body to either side, as will be hereinafter more fully described.

The chassis 1, in front of the rear hinge connections, is provided with transverse bars 54 and 55, carrying the bearings 56 and 57, in which is mounted the shaft 58, and which carries the segmental worm gear 59. The worm gear 59 meshes with the worm 60, carried by the shaft 61, which is rotatably supported by the chassis 1, and carries the beveled gears 62 and 63, meshing with the beveled gears 64 and 65, rigidly secured to the rear ends of the shafts 44 and 45, as fully shown in Fig. 2 of the drawings. The shaft 58 on each side of the worm gear 59, is provided with arms 66, 67, 68 and 69, loosely mounted on the shaft. Rigidly carried by the shaft and adapted to operate the arms are two cradles or supports 70 and 71, the upper edges of which engage the arms and normally hold them in the position shown in Fig. 3 of the drawings. The upper ends of the arms are provided with rollers 72, which bear against plates 73 and 74, carried by the lower face of the body 21. The cradles 70 and 71 extend up some distance so that their upper edges will normally engage the arms and hold the rollers in engagement with the plates 73 and 74. This arrangement allows the body to be set low down. The arms, as heretofore stated, are pivotally and loosely mounted upon the shaft and thus the arms on the dumping side will engage the chassis and stop, while the arms on the opposite side will continue upwardly by engagement of the edge of the cradle therewith.

In operation, when it is desired to dump a load rearwardly, the two chains 37 are unhooked from the body of the truck. The lever 20 is operated to connect the sprocket wheel 11 with the continuously rotating shaft 10. The sprocket chain 12 drives the sprocket 13, which in turn rotates the shaft 14 and the cable 6 is wound upon the drum 16. The opposite end of the cable is connected to an arm 75, carried by the body 21, and the forward end of the body raised and the rear end rocking on the hinge members, heretofore described. When the body has been raised the desired distance the brake

lever 18 is operated, causing the brake band 17 to grip the drum and the body is supported in its raised position. After the load is dumped, the brake lever is slightly released and the body allowed to gradually go down by its own weight. When it is desired to dump the load to one side, the chain 37, on the opposite side from which it is desired to dump the body, is released and the clutch 50 is operated through its lever, so as to cause the bevel gear 40 to rotate with the shaft 10, which in turn drives the bevel gear 42, carried by the shaft 44. The rotation of the shaft 44 causes the bevel gear 64 to rotate the beveled gear 62, which in turn rotates the shaft 61. The worm 60 engages the worm gear 59 and causes the shaft 58 to revolve. The cradles 70 and 71, carried by the shaft 58, oscillate therewith and engage the two arms 66 and 68 forcing them upwardly. The outer ends of the arms engage the bottom of the body and force the body upwardly the desired distance so as to dump the contents thereof. After the load has been dumped, the clutch 50 is thrown out and the clutch 51 thrown in, which drives the worm 60 in the opposite direction and gradually allows the body to go down until it rests on the hinge sections. When the body is to be dumped on the opposite side, the clutch 51 is operated and the operation is the same except that the body is tilted to the other side.

By this construction, it will be seen that the body simply rests in the hinge section and by providing the body at the sides and rear ends with eyes 76, the body is readily raised from the chassis by a derrick and the contents dumped at a distant point and when replaced on the chassis, there are no connections to be made except to fasten the cable 6 to the arm 75.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A dumping wagon, the combination with a chassis, of a body removably and pivotally supported thereby, a crane for raising the forward end of the body for dumping it to the rear, and pivoted arms carried by the chassis and adapted to dump the body to either side.

2. A dumping wagon, the combination with a chassis, of a body removably and pivotally supported thereby, a crane for raising the forward end of the body for dumping it to the rear, an oscillating cradle carried by the chassis, and pivoted arms supported by the cradle and adapted to dump the body to either side.

3. A dumping wagon, the combination with a chassis and an engine, of a body removably and pivotally supported by the chassis, and means operated by the engine for dumping the body to the rear or to either side and constructed and arranged so as to allow the body to be removed and replaced on the chassis without disconnecting bolts, screws, or the like.

4. A dumping wagon, the combination with a chassis and an engine, of a body removably and pivotally supported by the chassis, means for dumping the body to the rear, and arms adapted to engage the body and dump it to either side.

5. A dumping wagon, the combination with the chassis of a truck, of a body pivotally supported by the chassis to tilt to either side or end, means for raising the forward end of the body, and arms adapted to engage the underside of the body and raise either side for dumping the body.

6. A dumping wagon, the combination with the chassis of a truck, of a body pivotally supported by the chassis to tilt to either side or end, means for raising the forward end of the body, pivoted arms carried by the chassis and engaging the lower face of the body, and means for operating the arms for tilting the body to either side.

7. A dumping wagon, the combination with the chassis of a motor truck, of a body pivotally supported by the chassis to tilt to either side or end, means operated by the motor of the truck for raising the forward end of the truck, pivoted arms carried by the chassis and engaging the bottom of the body adjacent each side, and means operated by the motor for operating the arms for tilting the body to either side.

8. A dumping wagon, the combination with the chassis of a motor truck, of a body pivotally supported by the chassis to tilt to either side or rear end, means operated by the motor of the truck for raising the forward end of the truck, pivoted arms carried by the chassis and engaging the bottom of the body adjacent each side, an oscillating member adapted to engage said arms, and means operated by the motor for oscillating said member for raising the arms on either side for tilting the body to either side.

9. A dumping wagon, the combination with the chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt to either side or rear end, means operated by the motor of the truck for raising the forward end of the truck, pivoted arms carried by the chassis and engaging the bottom of the body adjacent each side, an oscillating member adapted to engage said arms, and means operated by the motor for oscillating said member for raising the arms on either side for tilting the body to either side.

10. A dumping wagon, the combination with the chassis of a motor truck, of hinge members carried by the forward end of the chassis and having longitudinal grooves, a hinge member carried by the rear end of

the chassis and having longitudinal and transverse grooves, a body, depending members resting in said grooves, means for raising the forward end of the body and rocking the body in the transverse grooves, and means for raising either side of the body and rocking the body in the longitudinal grooves on the opposite side.

11. A dumping wagon, the combination with the chassis of a motor truck, of hinge members carried by the forward and rear ends of the chassis, a body having hinge members coöperating therewith to allow the body to tilt to the end or either side, means operated by the motor for raising the forward end of the body, pivoted arms engaging the bottom of the body, and means operated by the motor for operating the arms for tilting the body to either side.

12. A dumping wagon, the combination with the chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt toward the rear end or either side, a leg carried by the chassis forward of the body, a drum driven by the motor, a cable wound on the drum and passing over the pulley carried by the upper end of the leg and removably attached to the body, pivoted arms carried by the chassis and engaging the bottom of the body adjacent each side, and means operated by the motor for operating the arms for tilting the body to either side.

13. A dumping wagon, the combination with the chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt toward the rear end or either side, means operated by the motor for raising the forward end of the body, a longitudinally extending shaft carried by the chassis adjacent its rear end, means driven by the motor for rotating said shaft in either direction, arms loosely pivoted on the shaft and engaging the bottom of the body adjacent both sides, a cradle rigidly carried by the shaft and having free engagement with the respective arms and adapted to engage the arms for raising those on either side to tilt the body and allowing the arms on the opposite side to lower and rest upon the chassis.

14. A dumping wagon, the combination with the chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt toward the rear end or either side, means operated by the motor for raising the forward end of the body, a longitudinal shaft carried by the chassis adjacent its rear end, means driven by the motor for rotating said shaft in either direction, arms loosely mounted upon the shaft on each side of the shaft rotating means and engaging the bottom of the body adjacent both sides, cradles rigidly carried by the shaft and adapted to engage the arms for raising those on either side to tilt the body and allow the arms on the opposite side to lower and rest upon the chassis.

15. A dumping wagon, the combination with the chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt toward the rear end or either side, a leg carried by the chassis forward of the body, a cable driven by the engine and passing over a pulley carried by the upper end of the leg and secured to the body and adapted to raise the forward end of the body, a longitudinal shaft carried by the chassis adjacent its rear end, a worm gear carried by the shaft, a worm meshing with said gear, means operated by the engine for driving the worm in either direction for oscillating the shaft in either directon, arms loosely mounted upon the shaft on each side of the worm gear and engaging the body adjacent both sides, cradles rigidly carried by the shaft and adapted to engage the arms for raising those on either side and allowing the arms on the opposite side to lower.

16. A dumping wagon, the combination with a chassis of a motor truck, of a body removably and pivotally supported by the chassis to tilt toward the rear end or either side, or to be raised free of the chassis without having to detach connecting mechanism, means operated by the motor for raising the forward end of the body when resting upon the chassis, a longitudinal shaft carried by the chassis adjacent its rear end, a worm gear carried by the shaft, a worm meshing with said gear, means operated by the engine for driving the worm in either direction for oscillating the shaft in either direction, arms loosely mounted upon the shaft on each side of the worm gear and engaging the body adjacent both sides, cradles rigidly carried by the shaft and having free engagement with the respective arms for raising those on either side and simultaneously permitting the arms on the opposite side to lower.

17. A dumping wagon, the combination with a chassis, of a body having members loosely resting in upwardly open sockets and held in the same by gravity, and means rocking the body in the sockets for dumping the body to either side and the rear, whereby the body can be lifted bodily from the chassis without removing or operating any mechanical element.

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

ARTHUR NATHAN DOUD.

Witnesses:
J. BURTON FARRAR,
ALBERT J. FIELDS.