June 5, 1923. 1,458,047

J. GASSER

DUMP WAGON

Original Filed Jan. 6, 1922 2 Sheets-Sheet 1

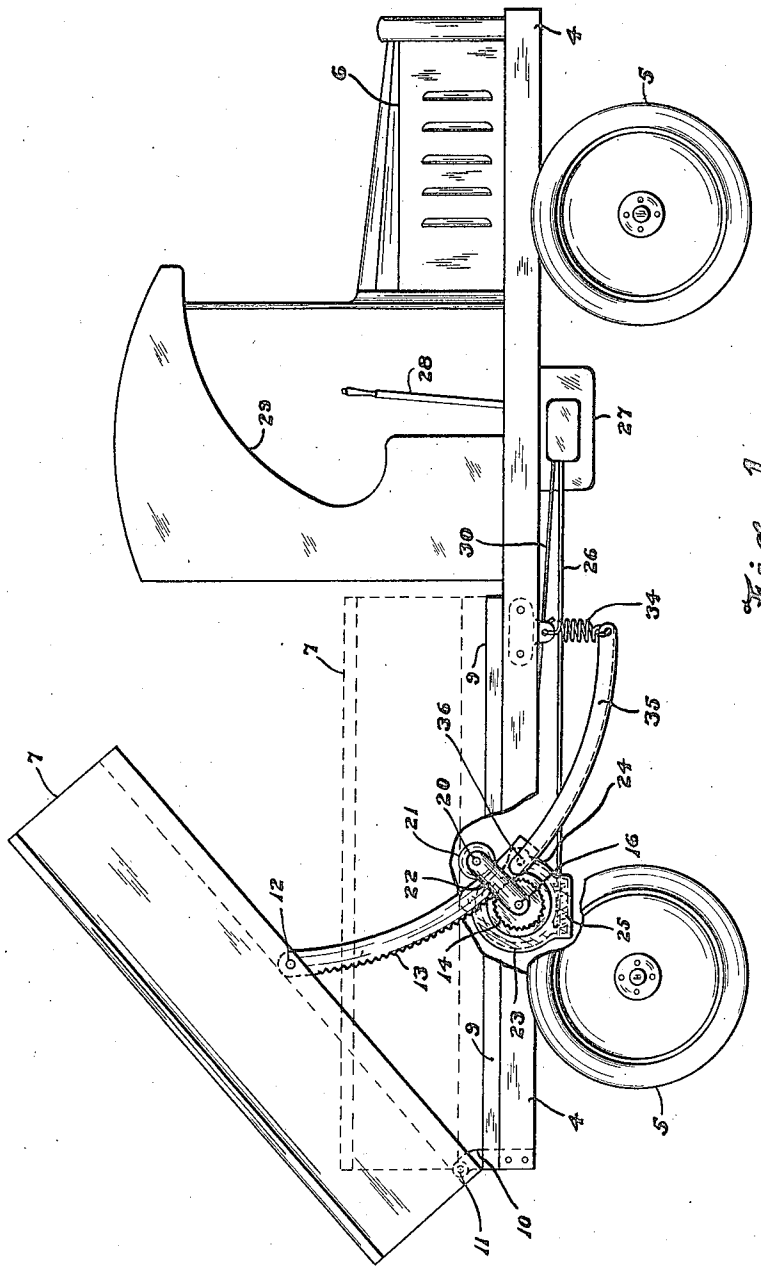


Fig. 1.

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WITNESS:

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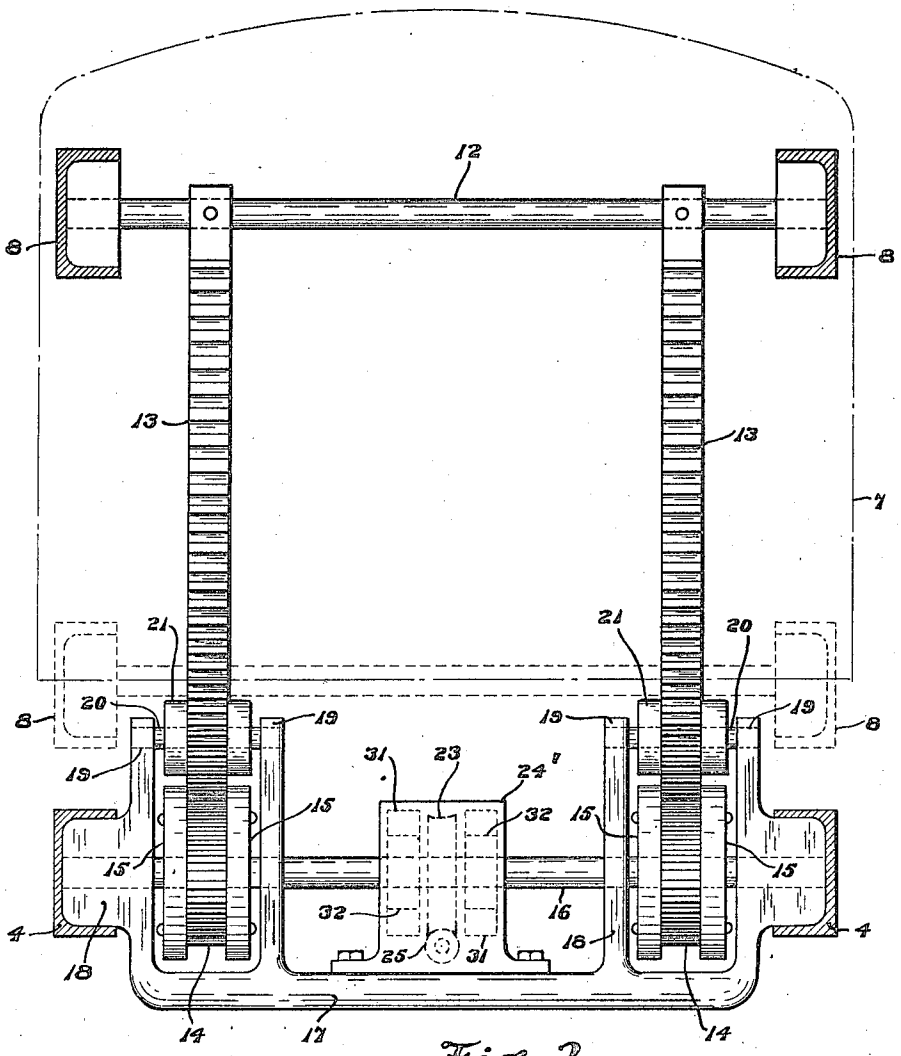


Fig. 2.

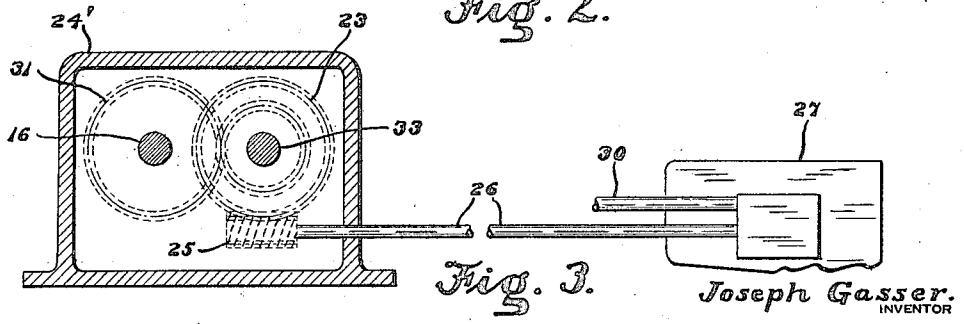


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH GASSER, OF TRENTON, NEW JERSEY, ASSIGNOR TO NEW JERSEY TWIN HOIST COMPANY, A CORPORATION OF NEW JERSEY.

DUMP WAGON.

Application filed January 6, 1922, Serial No. 527,413. Renewed April 19, 1923.

To all whom it may concern:

Be it known that I, JOSEPH GASSER, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented new and useful Improvements in Dump Wagons, of which the following is a specification.

This invention relates to dump wagons and more particularly to that type or form of such wagons which is motor driven, means being actuable by the motor thereof to effect the tipping of the dump-box or body to discharge the contents whilst said dump-box or body can be promptly returned thereby to its normal position.

The primary object of this invention is to provide a novel mechanism for promptly raising and inclining the dump-box or body portion of a dump wagon from its normal position on the chassis or underframe, and vice versa.

Other objects of this invention are the provision of a simple, strong and very effective means for inclining a dump-wagon body portion of box relative to its supporting frame or chassis, said means being operable by the wagon motor.

With the foregoing and other objects in view this invention consists essentially in the novel features of construction, combinations and arrangements of parts hereinafter fully described and more specifically defined by the appended claims.

In the further disclosure of the invention reference is to be had to the accompanying sheets of explanatory drawings constituting a part of this specification, and in which like characters of reference designate the same or corresponding parts in all the views.

Figure 1 is a side elevation showing the application of my invention to a motor driven dump-wagon, the dump-box or body portion being shown in its inclined or dumping position.

Figure 2 is a rear end view of a slightly modified form of dump-box or body inclining mechanism in fully raised position; and,

Figure 3 is a detail view of the actuating or drive mechanism therefor.

Referring more particularly to the views the numeral 4 designates the chassis, 5 the wheels, and 6 the motor of a self-propelled dump-wagon and 7 the dump-box or body thereof, all of said parts being in accordance with the well known structures of such vehicles and forming no part of this invention.

According to my invention the dump-box or body 7 is supported on rigidly connected longitudinal and opposed channels 8, 8 adapted to normally seat on the underframe 9 that is appropriately mounted on the chassis 4. In order to provide a suitable hinge connection between the dump-box or body 7 and the chassis I secure to said chassis 4 at its rear end a pair of brackets 10 in which is journaled a transverse shaft 11 the free ends whereof are suitably fixed to the aforesaid opposed channels 8, 8 and it will be easily seen from Figure 1 that said manner of connecting the dump-box or body 7 to the underframe 9 provides a very strong and serviceable means whereby any lateral displacement of the former relative to the latter is effectively prevented.

Appropriately journaled transversely beneath the dump-box or body 7 between the longitudinal channels 8, 8 is second shaft 12 to which are connected the upper ends of arcuate rack bars 13, 13 that serve as later on explained to raise and incline said dump-box or body 7 These arcuate rack bars 13, 13 are adapted to mesh with correspondingly toothed pinions 14, 14 having side flanges 15, of larger diameter secured thereto so that said arcuate racks 13, 13 are protected against lateral displacement and torsional derangement. The aforesaid toothed pinions 14, 14 are keyed or otherwise securely mounted on a transverse shaft 16 journaled in a duplex forked bearing 17 mounted in and securely attached to the chassis 4. On an examination of Figure 2 more particularly it will be seen that the duplex forked bearing journal portions 18 are upwardly extended to provide additional journals 19 for stub axles 20 having anti-friction flanged rollers 21 adapted to engage that edge opposed to the toothed parts of the aforesaid rack bars 13 and maintain the same always in operative engagement with the toothed pinions 14, 14. In Figure 1 it will be observed that the stub axles 20 of the anti-friction rollers 21 are supported on their inner sides by inclined links 22, their manner of construction and application being well understood

by those acquainted with the art to which my invention appertains.

In the form of my invention shown by Figure 1 it will be seen that the shaft 16 is provided with a worm-wheel 23 enclosed in an appropriate housing 24, and said worm-wheel 23 is rotated by a worm 25 on a longitudinal shaft 26 driven through suitable clutch gearing from the motor transmission 27, a control lever 28 being provided in the driver's cab 29 for engaging and disengaging said clutch gearing, as will be clearly understood by those conversant with motor propelled vehicles. An apropriate knock-out—not shown—actuable by a rod 30 is provided for tripping the aforesaid clutch gearing when the dump body or box 7 reaches its maximum elevation and locking said dump body in such position.

In the modified form of the invention shown by Figures 2 and 3 it will be seen that the shaft 16 is suitably journaled in an appropriate housing 24' mounted on the aforesaid duplex forked bearing 17 and that it is provided with a pair of spaced spur gears 31 in mesh with correspondingly toothed pinions 32 on a countershaft 33 that is fitted with the worm-wheel 23 driven by the worm 25 as hereinbefore described. Thus it will be seen that a reducing gear is provided which is particularly serviceable for use in connection with the heavier service types of motor driven dump-wagons.

Appropriately supported on the housings 24 by a pivot pin 36 or other suitable advancing means are channel-shaped arcuate members or guides 35 of cross-section corresponding to the width of the aforesaid rack bars 13 and in which said rack bars are adapted to slide or telescope as will be clearly understood from an examination of the drawings. These members or guides 35 are resiliently suspended at their other free end from loosely depending contractile springs 34 which are carried from the chassis by means of suitable brackets fixed thereto. These guide members 35 direct the course of the rack bars 13 as the body descends and encase the guides protecting them from dust or dirt while the spring suspension of the free end of the guide absorbs the shock consequent upon the downward movement of the rack bars.

From the foregoing description and an examination of the drawings the operation and advantages of my novel dump-box inclining means will be clearly apparent without further explanation, and whilst the same has been primarily devised for application to vehicles such as one usually finds devoted to the carrying of material subsequently to be dumped or quickly unloaded, I wish it understood that I do not so restrict myself. Still further it will be obvious that detail changes may be effected and other combinations of parts evolved that will function in precisely the same manner as the embodiments of my invention hereinbefore outlined, and the right is therefor, hereby reserved to make such changes or variations as fairly lie within the scope of the appended claims.

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

1. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of an arcuate rack pivoted beneath and intermediate the ends of said hinged body, an arcuate guide supported from the vehicle, a gear housing member, an arcuate guide supported on said gear housing in which said rack is adapted to telescope, means for moving said arcuate rack for effecting the inclination of said hinged body to dumping position and vice versa, and means for locking said racks as the hinged body reaches the limit of its upward movement.

2. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of a pair of spaced arcuate racks pivoted by a transverse shaft beneath and intermediate the ends of said hinged body, a gear housing member, an arcuate channel-shaped guide supported on said gear housing member for each of the aforesaid racks and resiliently suspended at its free end upon spring members, and means for locking said racks as the hinged body reaches the limit of its upward movement.

3. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of a pair of spaced arcuate racks pivoted by a transverse shaft beneath and intermediate the ends of said hinged body, a gear housing member, an arcuately shaped guide for each of the aforesaid racks hingedly mounted on said housing member and having its free end suspended by spring members and in which said racks are adapted to telescope, means for simultaneously moving said arcuate racks for effecting the inclination of said hinged body to dumping position and vice versa, and means for locking said racks as the hinged body reaches the limit of its upward movement.

4. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of a pair of spaced arcuate racks pivoted by a transverse shaft beneath and intermediate the ends of said hinged body, a gear housing member, an arcuately channel-shaped guide for each of the aforesaid racks hingedly mounted on said housing member having its free end suspended on spring members carried by the vehicle chassis and in which said racks

are adapted to telescope, a transverse shaft journaled in a duplex forked bearing supported by the vehicle chassis, pinions on said shaft in mesh with the aforesaid arcuate racks, a worm-wheel intermediate said pinions and adapted to be driven by a worm-drive operable from the vehicle transmission for moving the aforesaid arcuate racks to effect the inclination of the hinged body to dumping position and vice versa, and means for locking said racks as the hinged body reaches the limit of its upward movement.

5. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of a pair of spaced arcuate racks pivoted by a transverse shaft beneath and intermediate the ends of said hinged body, a gear housing member, an arcuately channel-shaped guide for each of the aforesaid racks hingedly mounted on said housing member having its free end suspended on spring members carried by the vehicle chassis and in which said racks are adapted to telescope, a transverse shaft journaled in a duplex forked bearing supported by the vehicle chassis, pinions on said shaft in mesh with the aforesaid arcuate racks, spur gears on said shaft intermediate the aforesaid pinions, pinions on a counter-shaft in mesh with the said spur gears, a worm-wheel on said counter-shaft intermediate the last mentioned pinions and adapted to be driven by a worm-drive operable from the vehicle transmission for moving the aforesaid arcuate racks to effect the inclination of the hinged body to dumping position and vice versa, and means for locking said racks as the hinged body reaches the limit of its upward movement.

6. The combination with a vehicle understructure and a superposed body hinged to the rear end thereof of a pair of spaced arcuate racks pivoted by a transverse shaft beneath and intermediate the ends of said hinged body, a gear housing member, an arcuately channel-shaped guide for each of the aforesaid racks hingedly mounted on said gear housing having its free end resiliently suspended on spring members carried by the chassis and in which said racks are adapted to telescope, a transverse shaft journaled in a duplex forked bearing supported by the vehicle chassis, pinions on said shaft in mesh with the aforesaid arcuate racks, spur gears on said shaft intermediate the aforesaid pinions, pinions on a counter-shaft in mesh with the said spur gears, a worm-wheel on said counter-shaft intermediate the last mentioned pinions and adapted to be driven by a worm-drive operable from the vehicle transmission for moving the aforesaid arcuate racks to effect the inclination of the hinged body to dumping position and vice versa, said worm-drive counter-shaft and associated reduction gearing being enclosed in a housing mounted on the aforesaid duplex forked bearing, and means for locking said racks as the hinged body reaches the limit of its upward movement.

In testimony whereof I affix my signature.

JOSEPH GASSER.