

Patented Mar. 28, 1916.

2 SHEETS—SHEET 1.

1,177,347.

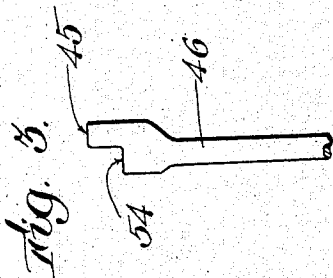


Fig. 3.

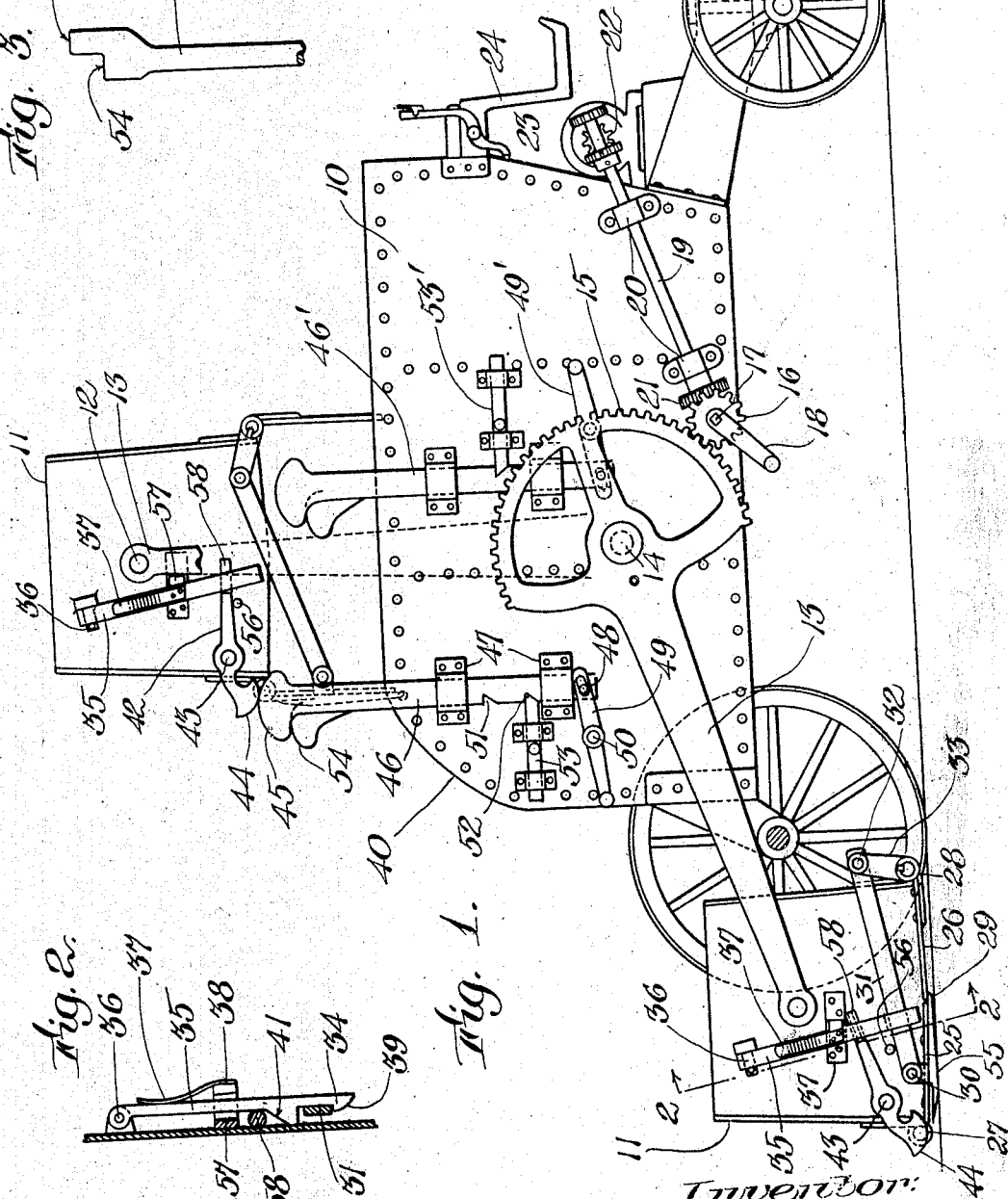


Fig. 1.

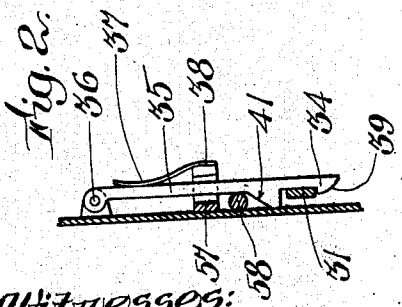
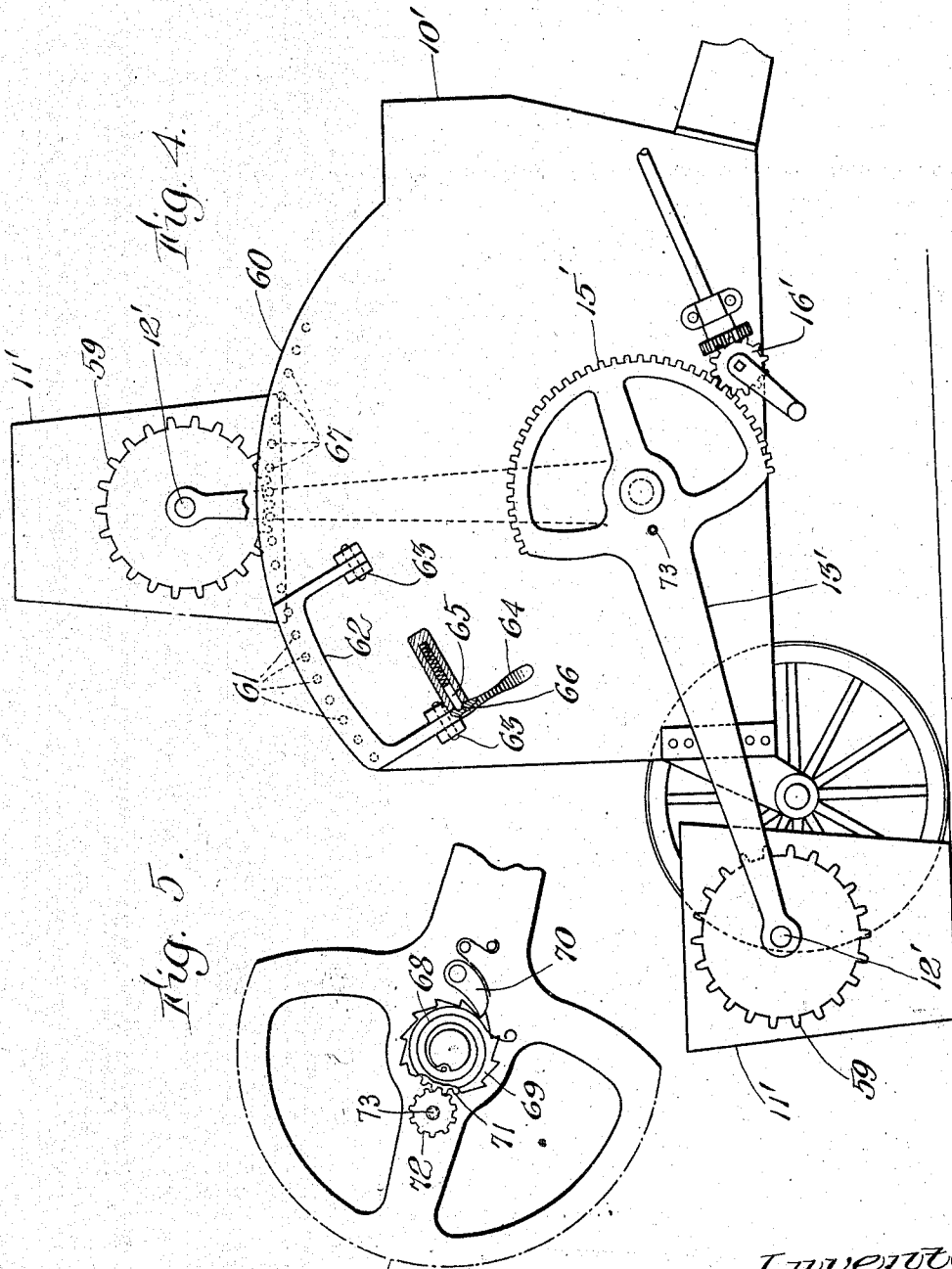


Fig. 2.

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1,177,347.



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UNITED STATES PATENT OFFICE.

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POWER-LOADING WAGON.

1,177,347.

Specification of Letters Patent.

Patented Mar. 28, 1916.

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To all whom it may concern:

Be it known that I, CHARLES W. MAYER, a citizen of the United States, and resident of Rochester, county of Monroe, State of New York, have invented an Improvement in Power-Loading Wagons, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The present invention relates to apparatus for filling vehicle or wagon bodies by power operated means, adapted to lift a receptacle filled with material from the ground or a lower level, elevate and transfer the same over the body, and finally dumping the contents into the body.

While having other and more general fields of usefulness the invention is well adapted for use in the ash, garbage and refuse collection service of cities, and is equally applicable to motor operated and horse-drawn vehicles.

The invention comprises mechanism for holding a receptacle on or near the ground while it is being filled, with provision for lifting the filled receptacle up over the body, preferably over the end thereof to a position where the contents may be dumped into a desired part of the body. In the preferred embodiments a large bucket adapted to rest on the ground while being filled, is carried on long swinging arms which are power operated to lift the filled bucket, and there being cooperating devices on the bucket and on the vehicle body for effecting the discharge of the bucket contents, this being effected in one embodiment by the opening of the bucket bottom to dump its contents as the bucket reaches a position over the part of the body into which it is desired that it be dumped.

The above and other objects and features of the invention will be better understood from the following detailed description taken in connection with the accompanying drawings and will be thereafter pointed out in the appended claims.

Referring to the drawings, Figure 1 is a side elevation of a vehicle equipped with my invention; Fig. 2 is a fragmentary sectional view on line 2-2 of Fig. 1 showing a part of the dumping mechanism; Fig. 3 is a fragmentary detail side view showing another part of the dumping mechanism; Fig. 4 is a side elevation showing a modified

form of the invention, and Fig. 5 is a detail of a counterbalancing device.

Referring to Figs. 1 to 3, the truck body 10 may be of any standard or usual construction and it is shown as an unusually high one to illustrate the possibilities of my invention for filling larger and higher bodies than can readily be filled by hand. A large bucket is indicated at 11, equipped with trunnions 12 at an upper part thereof engaged by the ends of long lever arms 13 at either side of the truck body, these arms being pivoted or fulcrumed at 14 to a shaft carried by the truck body and being extended at the other side of such pivoted point to form gear segments 15 which are engaged by pinions 16 mounted on a shaft 17 also carried in a lower part of the vehicle body. The shaft 17 may be turned by means of a hand crank 18 to swing the arms 13 upward and thus lift the bucket. I preferably, however, lift the bucket by power operating means which has a transmission consisting of a shaft 19 diagonally mounted in bearings 20 at the sides of the body, having fixed thereto at one end a gear or pin wheel 21 cooperating with a similar wheel on the shaft 17 to drive the same, and the shaft 19 having at its other end reversing gear connections 22 from a motor 23 which may be conveniently positioned beneath the driver's seat 24. To permit the bucket 11 to be easily dumped its bottom is formed of two plates or wings 25, 26 pivoted at 27, 28 at the sides of the bucket and normally interfitting as at 29 to make the bottom closure. The plate 25 has pivoted to an upstanding lug thereof one end of a stout and stiff link bar 31 whose other end is pivoted at 32 to an upstanding lever arm 33 rigid with the plate 26. It will be understood that the link bar 31 with its pivot connections 30, 32 and the arm 33 are at the side of the bucket. As a means to engage the link bar 31 so as to hold the plates 25, 26 in bottom closing position I provide a catch 34 at the lower end of a bar 35 pivoted at 36 to the bucket side, this catch being pressed to engaging position by a spring 37 fixed to a lug on the bucket as at 38, the lower end of this bar whereon the catch 34 is formed being beveled off as at 39 so that as the bar 31 is lifted up the catch can snap thereunder.

The plates 25, 26 being held in bottom closing position with the bar 31 engaged over the latch 34 as seen in Figs. 1 and 2, the

bucket may be lowered to rest on the pavement and be filled with the material to be loaded. When it is to be lifted up the power from the motor 23 is turned on to swing the arms 13 up bringing the bucket up around over the rear of the body which is shown as rounded off at 40 for clearance. As the bucket reaches a position over the body, the dumping mechanism is actuated to permit opening of the bottom plates 25, 26 in the following manner. The bar 35 is equipped with a wedge formation 41 facing upwardly and this is engaged by a lever finger 42 pivoted to the bucket side at 43 and having a rearward extension at 44 shown as rounded to be engaged by the rounded top 45 of an upright post 46 which is slidably mounted in bearings 47 at the side of the body. This post has pivotal connection at 48 with an operating lever 49 pivoted at 50 and it also has two notches 51, 52 adapted to be selectively engaged by a slidable lock bolt 53 to hold said post in elevated operative position or lowered inoperative position at will. As the finger end 44 thus engages the rounded top 45 of said post its outer end is pressed down against the wedge surface 41 to move the bar 35 outward and disengage the catch 34 from the link bar 31, thus permitting the bottom plates to swing downward and open the entire bucket bottom. For closing the bucket bottom as the bucket is again swung downward, the post 46 has a shoulder 54 at one side of and lower than its top 45 which shoulder is adapted to engage a runner 55 on the bottom of plate 25 in a manner to press this plate up, and through the connecting link bar 31 and lever arm 33 to also throw the plate 26 up to bottom closing position. A pin 56 is fixed to the bucket side in proper position to prevent the lever finger 42 from moving down too far.

To permit the dumping of the bucket in different positions it is desirable to provide a plurality of the upright posts 46 and to illustrate this point I show a second post 46' mounted forward of the post 46, this second post having a lock bolt 53' and upright lever 49' in all respects like those before described, it being understood that when this post is to be used the rear post 46 is lowered to inoperative position; and it being further understood that one or more other similar posts may be added if found desirable.

The mounting of spring 37 at 38 is as shown on a bracket 57 through which the bar 35 passes so that this bracket serves as an upward and outward stop for this bar. This bracket is also arranged to serve as a forward stop against which the arms 13 co-act on the return of the bucket to cause the proper cooperation of the shoulder 54 with the runner 55. This bracket also acts as a stop for the lever finger 42 preventing it

from rising higher than necessary, and as noted it acts as a support for the spring 37. The rounded end of lever finger 42 is as shown relatively heavy so that it acts as a counterweight tending to lift the outer or operative end of the lever finger 42. The runner 55 is substantially lower than the rounded end 44 of the trip finger so that it will clear the pavement with certainty as the bucket rests thereon. The shoe 55 is also considerably lower than any part of the plate 26 so that this plate will always clear the top 54 of the post. The operative end of lever finger 42 is preferably equipped with a hardened roller 58 to reduce friction as it presses against the wedge surface 41.

In Fig. 4 I show a modified form of the invention wherein the truck body 10' may be similar to that of the preceding form, and the bucket 11' is likewise carried on long swinging arms 13' operable by gearing 15', 16' in like manner as in the first described form. In this form of the invention the bucket 11' instead of having a dumping bottom has provision to be turned over for dumping from its top and to facilitate this the bucket is preferably largest at the top, with tapering sides to a relatively smaller bottom. To effect the dumping of this bucket it is carried on trunnions 12' at the ends of the arms 13' and has fixed at its side a gear or pin wheel 59 adapted to come into mesh with a line of pins or fixed teeth at the top of the body as the bucket arrives at this position. The top of the body is equipped with arcuate upward extensions at its sides as indicated at 60 which rise above the lower part of the bucket as it is dumped, thus affording a screen or guard to prevent the contents being blown or scattered about as it is dumped. For engagement with the teeth of wheel 59 I provide an arcuate series of fixed teeth or pins extending inward near the top of the arcuate portions 60. A number of these pins 61 toward the rear of the body are carried on a plate 62 pivoted to lugs at the side of the body as at 63 whereby these pins may be swung to position to engage the teeth of wheel 59 or swung out of such position at will. The plate 62 is adapted to be swung for this purpose by a handle 64 which normally projects out from the body at some little angle, and the plate is yieldingly held in the position to which it is moved by a spring pressed pin 65 engaging a seat 66 in the plate. The pins 61 when in operative position are thus adapted to engage the teeth of gear wheel 59 and effect the dumping of the bucket into the rear portion of the body. When it is desired to dump into a forward portion of the body the pins 61 are swung out of operative position, and the bucket then remains upright until it reaches the position seen in Fig. 4 when the teeth

of gear wheel 59 engage the fixed forward pins 67 which project in at a forward portion of the body. In either case the bucket is automatically righted as it swings back to be filled again.

With each of the described forms of the invention I preferably provide means for counterbalancing the weight of the bucket and contents, and of the swinging arms. Such counterbalance may assume various forms but for illustrative purposes I show a coil spring 68 surrounding the shaft 14, fixed at one end thereto or to an adjacent portion of the segment member 15, the other end of this spring being fixed to a ratchet wheel member 69 mounted to turn on shaft 14 and having cooperative therewith a spring pressed pawl 70. The ratchet wheel 69 has fixed thereto a gear wheel meshing with a gear pinion 72 fixed on a shaft having a projecting squared end 73. By this construction the tension of the spring can be adjusted as required for different kinds of garbage or to make up for its deterioration by turning the shaft 73 with the application of a suitable crank or wrench thereto.

It is to be observed that the bucket as it swings down, also swings out clear of the truck body and is adapted to set on the pavement in a convenient position for filling; also that the mechanism for effecting the dumping of the bucket is entirely automatic and of a simple and effective character, the bucket bottom being also automatically closed without attention from the operator as the bucket is swung back downward, in the one form, and the bucket being automatically righted by the gear device in the second form of the invention as the bucket is returned to filling position. The plurality of upright posts, and the movable pin-carrying plate respectively, afford a means whereby the bucket can be dumped into different parts of the vehicle body at will, and the change made from dumping into one part to into another with ease and despatch.

I am aware that the invention can be embodied in numerous other specific forms without departing from the essential attributes or spirit thereof and I therefore desire the present embodiment to be considered as illustrative and not restrictive and refer to the appended claims rather than to the foregoing description to indicate the scope of the invention.

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

1. Apparatus of the kind described, comprising a vehicle-body having a bottom and side and end walls forming a container for loose material, and mechanism for filling the same consisting of a receiving bucket having a dumping bottom, means carried by

the vehicle-body for swinging said bucket vertically from a lowered position on the ground to a position over the vehicle-body, and means for automatically opening the bottom of the bucket as it comes to position over the body and for automatically closing said bottom as it is lowered.

2. Apparatus of the kind described, comprising a vehicle body having a bottom and side and end walls forming a container for loose material, and means for filling the same consisting of a bucket having a dumping bottom, said bucket being arranged outside of the vehicle body in all positions of the bucket, vertically-swinging arms pivoted at the sides of the body and carrying said bucket, said arms being of a length to permit the bucket to rest on the ground outside of the vehicle-body, and cooperative means on the bucket and the vehicle-body for automatically opening the bucket bottom as it comes to position over the body.

3. Apparatus of the kind described, comprising a vehicle body formed to serve as a container for loose material with relatively high retaining walls, a container bucket having a dumping bottom, arms pivotally mounted at the sides of the body and engaging said bucket at their ends, said arms being of a length to permit the bucket to rest on the ground to be filled and to swing up over the end of the body to a position thereover for dumping, the bucket being arranged outside of the body in all positions of the bucket, said body having provision to effect a dumping of the bucket as it comes to position thereover, and said arms having gear segments carried thereby with power connections thereto for lifting the bucket.

4. Apparatus of the kind described, comprising a vehicle body having relatively high walls and a receiving container bucket having an opening bottom swingingly mounted on the body so as to rest on the ground to be filled and to swing up over the body for dumping thereinto, said body having a plurality of means spaced apart along its length adapted to be selectively moved into operative position for dumping the bucket in a predetermined part of the body.

5. Apparatus of the kind described, comprising a vehicle body, a receiving bucket swingingly mounted thereon adapted to be lowered for filling and to swing up over the body for dumping, and a plurality of upstanding posts adjustably mounted on the body at different points along its length, said posts being selectively movable to an operative position for engaging the bucket to dump the same in different parts of the body.

6. Apparatus of the kind described, comprising a vehicle body, a receiving bucket swingingly mounted thereon to be lowered for filling and to swing up over the body for

dumping thereinto, said bucket having an opening bottom, and an upstanding post mounted on the vehicle body, said post having one part formed to effect an opening 5 of the bucket bottom, and another part formed to effect a closure thereof as the bucket swings back after dumping.

7. Apparatus of the kind described, comprising a body, and mechanism for filling 10 the same consisting in a bucket and a vertically swinging arm by which the bucket is carried having operating provision adapted to lift the bucket to a position over the body, said bucket having an opening bottom, and

being arranged outside of the body in all positions of the bucket, and cooperating means on the body and bucket adapted to permit opening of the bucket bottom as the bucket comes to position over the body, and to effect closing of the bucket bottom as the bucket 20 moves for lowering.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES W. MAYER.

Witnesses:

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