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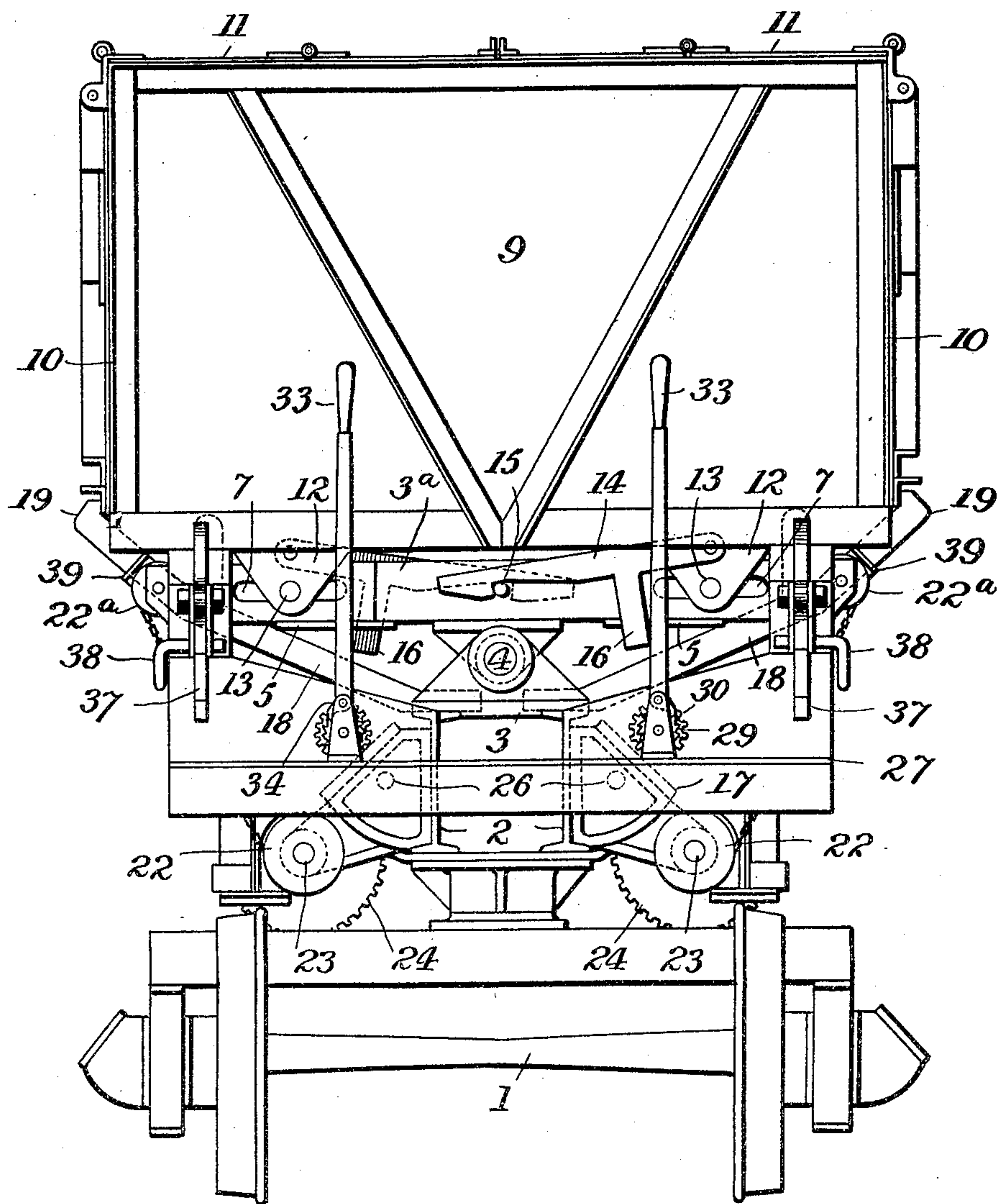
PATENTED MAY 16, 1905.

A. R. PIPER.  
DUMPING VEHICLE OR SIMILAR APPARATUS.

APPLICATION FILED JAN. 10, 1905.

3 SHEETS—SHEET 1.

*Fig. 1.*



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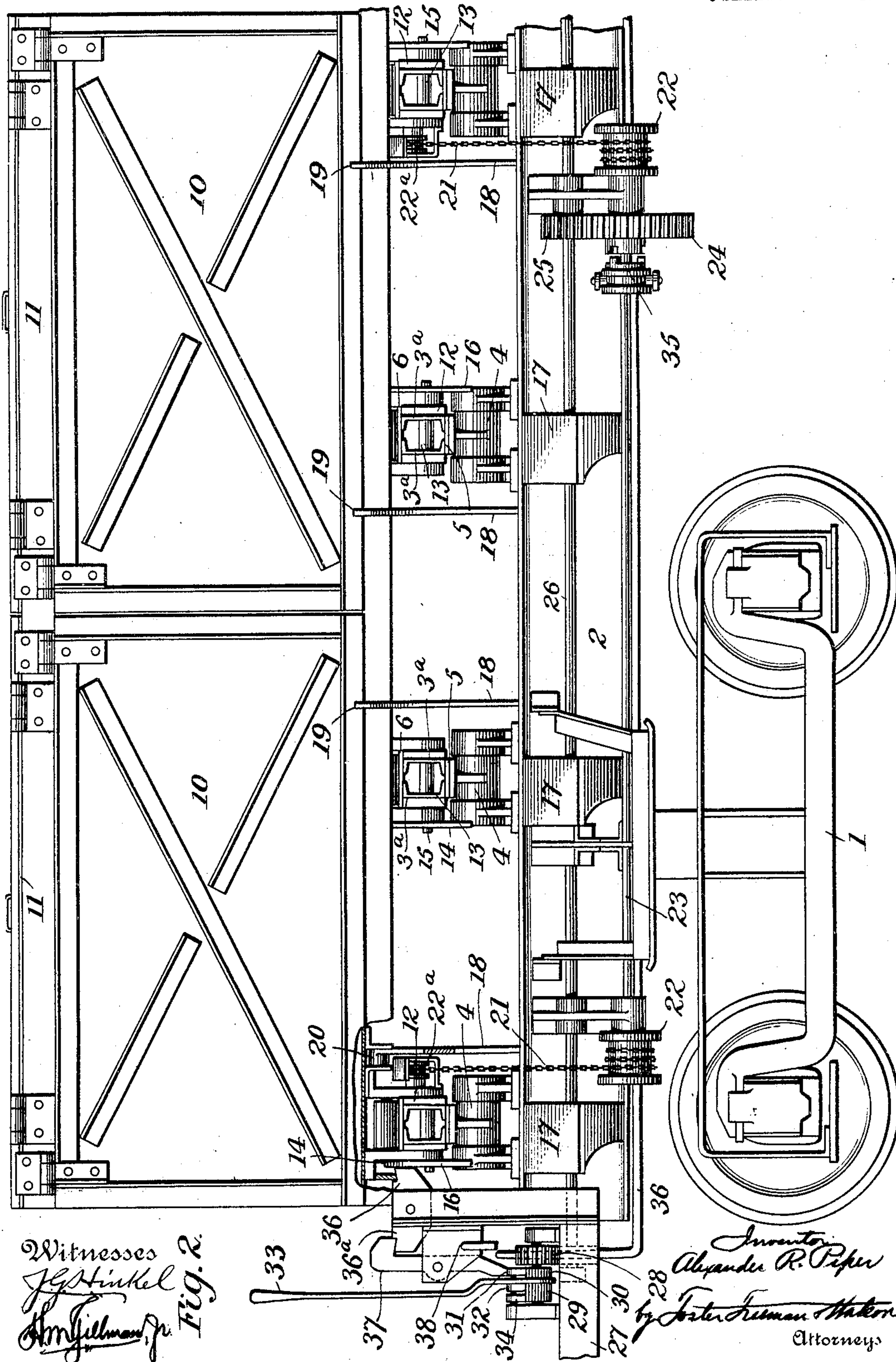
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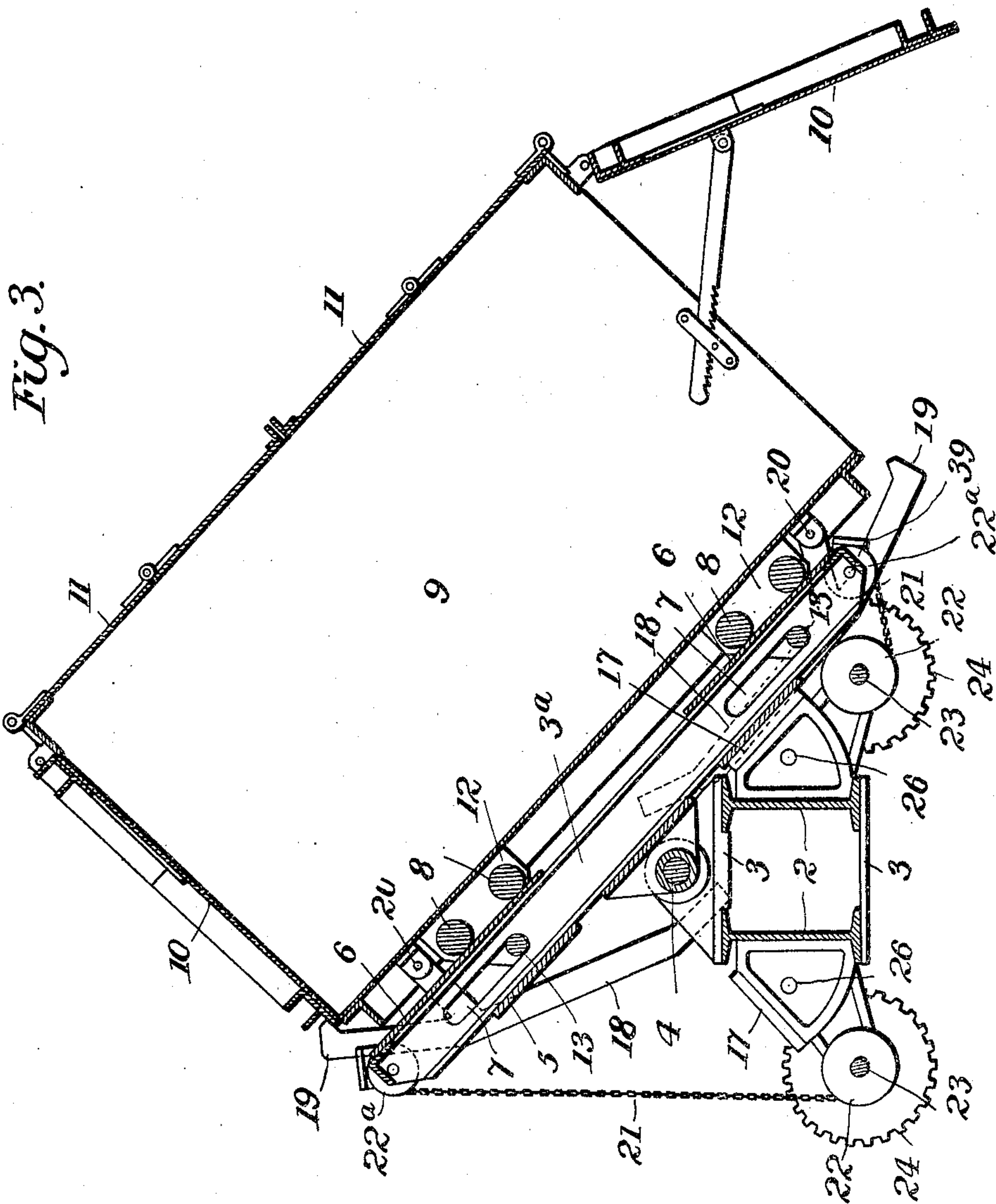
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# UNITED STATES PATENT OFFICE.

ALEXANDER ROSS PIPER, OF BROOKLYN, NEW YORK.

## DUMPING-VEHICLE OR SIMILAR APPARATUS.

SPECIFICATION forming part of Letters Patent No. 789,756, dated May 16, 1905.

Application filed January 10, 1905. Serial No. 240,439.

*To all whom it may concern:*

Be it known that I, ALEXANDER ROSS PIPER, a citizen of the United States, residing at Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Dumping-Vehicles or Similar Apparatus, of which the following is a specification.

The present invention relates to improvements in dumping-vehicles and similar apparatus employed for transporting material, and is particularly applicable to dumping-cars.

The object of the invention is to provide such an apparatus which is especially adapted for use with material that tends to cling to the sides of the receptacle in which it is transported and which cannot be satisfactorily handled in apparatus heretofore proposed.

In particular the invention is intended for use in handling the refuse collected in cities which includes material of all character and which it has heretofore been impossible to expeditiously unload from the vehicles in which it is transported without the aid of hand implements.

In the accompanying drawings, Figure 1 is an end elevation of a car constructed in accordance with the present invention. Fig. 2 is a side elevation of one-half of the car. Fig. 3 is a transverse sectional view showing the car tilted or in position to discharge its load.

Referring to the drawings, it will be seen that the car is mounted on suitable trucks 1, which may be of any desired form and support a main underframe consisting of longitudinally-extending I-beams 2, connected by suitable straps or plates 3, said beams 2 being suitably mounted on the trucks 1 and extending throughout the length of the car. On said underframe is mounted a rocking frame including a plurality of transversely-extending beams 3<sup>a</sup>, said frame being mounted to rock about an axis extending longitudinally of the underframe and being connected to a plurality of shafts 4, mounted in suitable bearings on the underframe. Each of said beams 3<sup>a</sup> is composed of two metal

bars connected by plates 5 6, and in each of said beams near opposite ends thereof are formed slots 7.

On plates 6 of the beams 3<sup>a</sup> of the afore-said rocking frame rest supporting-rollers 8, mounted in suitable bearings carried by a receptacle or body 9. Said body is preferably composed entirely of metal and is provided at its sides with outwardly-swinging doors 10 and has its top closed by hinged lids or covers 11. The bearings for the afore-said supporting-rollers 8 are carried by plates 12, suitably secured to parts of the framework of the body 9, such plates being arranged in pairs on opposite sides of the afore-said beams 3<sup>a</sup> of the rocking frame and the members of each pair being connected by a suitable rod or pin 13, extending through the slot 7 in the beam 3<sup>a</sup>. The body 9 is thus secured to the rocking frame so as to move therewith about the longitudinal axis of the shafts 4 and is also adapted to move laterally on the rocking frame in either direction, such lateral sliding movement being limited by the engagement of the pins 13 with the ends of the slots 7. Suitable means are provided for normally preventing such lateral movement of the body on its rocking frame in either direction. As shown, such means comprise latches 14, pivotally connected to the body 9 and adapted to engage projections 15, extending from the beams 3<sup>a</sup> of the rocking frame. Such latches are arranged on opposite sides of the beams, and each is provided with a depending projection or trip-piece 16, which when the rocking frame has been turned the desired distance about its longitudinal axis will contact with a bumper 17, secured to the underframe. Such contact of the toe 16 with the bumper 17 will release the latch 15 and permit the body to move or slide on the tilting frame in the direction in which such frame has been rocked.

Supplemental latches are provided for holding the swinging doors 10 in closed position when the body 9 is in non-dumping position. These latches in the embodiment of the invention illustrated each include a relatively long arm 18, the free end of which extends across and rests on the top of one of



the I-beams 2 of the underframe, and a shorter arm 19, having at its free end a hook adapted to engage the lower portion of a swinging door and hold the same closed.

Each latch is pivotally connected, as at 20, to the frame of the body 9 at an intermediate point of its length. It will be seen that as the tilting or rocking frame is turned about its axis, the inner ends of the latches 10 being constantly in contact with the underframe, the outer door-engaging ends of such latches on the side of the shaft 4 toward which the tilting frame is rocked will be automatically moved from the position where they will engage said doors, so that when the latches 14 are released and the body allowed to move laterally on the tilting frame such doors will offer no obstruction to the free escape of the contents of the body. It will be observed that the construction and arrangement of latches for holding the swinging doors closed is such that said latches are adapted to be automatically moved about their pivots simultaneously with the rocking of the receptacle—that is, the instant the receptacle commences to rock the latches on the side toward which the load is to be discharged commence to move toward inoperative position. By this construction the initial momentum of the load due to rocking or tipping the body or receptacle is not restricted in the least by the door, and such load can commence to move laterally immediately the rocking of the receptacle commences. In case the load is of material whose parts have little cohesion—such as gravel, stone ballast, &c.—it is very important that the latch be operated immediately on the commencing of the rocking movement of the body, as otherwise the door will be either torn from its fastenings or the equilibrium of the car destroyed and it overturned. As shown in Fig. 3, each door 10 may be provided with means for maintaining it in open position.

In order to rock the tilting frame and body carried thereby about the aforesaid longitudinal axis, it is preferred to employ a plurality of chains 21, each connected at one end to the body 9 and having its other end connected to a winding-drum 22, mounted on a shaft supported in suitable bearings on the underframe, said chains extending over suitable guide-wheels 22<sup>a</sup>, mounted at the side of the tilting frame. As shown, the drums 22 are secured to the shaft 23, and on such shaft is loosely mounted a driving-gear 24, with which meshes a gear 25 on a shaft 26. The latter shaft extends throughout the length of the car-section, under which it is arranged, and at its end beneath the platform 27 of said section is geared to a suitable pinion 28, carried by a shaft mounted in suitable bearings on said platform.

It will be seen from the drawings that the

aforesaid tilting mechanism is duplicated at each side of the car, and while but one section of the car is shown in the drawings it will be understood that similar means are arranged at the platform end of the other section to operate the mechanism for tilting the receptacle of said section. It will therefore be necessary to describe but one set of operating means. On the same shaft with the pinion 28 are mounted two ratchets 29 30, with which are adapted to engage spring-pressed pawls 31 32, carried by an operating-lever 33. It will be seen that the ratchet 29 is of greater width than the ratchet 30, and in addition to the aforesaid pawl 31 a holding-pawl 34 is mounted on one of the bearings of the shaft carrying said ratchets and adapted to hold such ratchet and pinion 28 connected therewith against movement in a direction opposite that in which it is turned by the hand-lever 33. The gear 24 is adapted to be connected with the shaft 23, on which it is mounted, by a clutch 35, the operating-rod 36 for which extends to each end of the car and is provided with arms extending upwardly through the platforms 27.

To normally prevent rocking of the tilting platform, levers 36<sup>a</sup> are fulcrumed on suitable uprights secured to the platform and underframe on opposite sides of the shafts 4. Each of said levers 36<sup>a</sup> is adapted to extend beneath the bottom of the body 9 and is locked in position to prevent downward movement of such body, and therefore of the tilting frame on which the body is mounted, by a lever 37. The last said lever is normally locked in position to engage the lever 36 by means of a removable pin 38. When the pins 38 at either side of the body are withdrawn, the lever 37 can be rocked into position to disengage the lever 36<sup>a</sup>, and the latter will then offer no obstruction to the downward movement of the body 9 and its supporting-frame, but will turn freely about its pivot.

The manner of operating the parts above described and some of the advantages possessed thereby may be briefly stated as follows: When the car is loaded and being moved, the parts occupy the positions shown in Fig. 1, where, it will be seen, the pins 13 occupy positions about midway of the slots 7, in which they are adapted to move, and the latches 14 are all engaging the pins 15 and holding the body 9 from sidewise movement on its supporting-frame. The swinging doors 10 are also held in their closed positions by the supplemental latches, and the body and its supporting-frame are also locked against rocking and tilting movement by the levers 36<sup>a</sup>. When it is desired to unload the body 9, the operator withdraws the pin 38 and moves the lever 37 to inoperative position. The proper clutch-actuating rod 36 is then moved to connect the gear 24 at the side of



the car toward which the load is to be discharged to its supporting-shaft. The lever 33 is then actuated to rotate said shaft 23 and wind the chains 21, connected with the drums 22 thereof, upon such drums, thus drawing the side of the rocking frame over which said chains pass downwardly toward the underframe. During such downward movement, the free ends of the latch-arms 18 resting on the beams 2 of the underframe, the arms 19 of such latches are moved away from the doors 10, and thereafter the latches 14 are tripped by contact of their projections 16 with the bumpers 17. When the latter latches are released, the body 9 will move rapidly downward through a distance limited by the pins 13 coming in contact with the ends of the slots 7. To check such downward movement of the body, buffers 39 may be provided on the rocking frame, said buffers extending into the path of the plates 12, which support the rolls 8. It will be seen that the downward movement of the body will be suddenly checked by its contact with said buffers and the ends of the slots 7, which will impart a jar or blow to the load that assists materially in discharging it from the receptacle or body 9. When the body is emptied, the previously-engaged gear 24 is disconnected by operating the clutch-rod 36, and the corresponding gear at the other side of the frame being connected the tilting frame and body will be returned to their normal horizontal position by actuating the other hand-lever, 33.

Preferably there are two of the bodies 9 on each car, Fig. 2, as aforesaid, illustrating but one-half or section of such a car, and each of said bodies is preferably divided into two compartments, as shown in the drawings.

In the foregoing description there is described and the drawings illustrate one embodiment of the present invention, which has been found very satisfactory for the purpose stated. It is evident, however, that the invention may be embodied in various other forms and that the embodiment thereof selected for illustration may be modified without departing from or sacrificing the advantages of the invention. For instance, the invention is applicable to barges or scows as well as to cars or wheeled transportation apparatus.

Having thus described the invention, what is claimed is—

1. The combination of a movable support, a rocking frame mounted on said support, a receptacle connected to said frame and adapted to move thereon, means for holding the receptacle stationary on said frame, means for rocking said frame and receptacle while the latter is held from movement on the frame, and means for releasing said holding means during the rocking movement to per-

mit the receptacle to move relative to said frame, substantially as described. 65

2. The combination of a movable support, a frame mounted on the support to rock in opposite directions about a horizontal axis, a receptacle supported by said frame and adapted to move thereon toward either side, means for holding the receptacle against movement on the rocking frame, means for rocking said frame and receptacle while the latter is held from movement on the frame, and means for automatically releasing said holding means during the rocking movement to permit the receptacle to move relative to said frame in the direction of the rocking movement, substantially as described. 70 75 80

3. The combination of a movable support, a rocking frame mounted on said support, a receptacle connected to said frame and adapted to move thereon, means for holding the receptacle stationary on said frame, means for rocking the frame and receptacle while the latter is held from movement on the frame, and means for causing said receptacle to have a limited movement relative to said frame, after a portion of the rocking movement thereof has been completed, substantially as described. 85 90

4. The combination of a wheeled support or truck, a rocking frame mounted on said truck, a receptacle connected to said frame and adapted to move thereon, means adapted to prevent rocking of said frame and receptacle, means for rocking said frame when the aforesaid locking means are released, means for holding the receptacle stationary on the frame, and means for automatically releasing the devices for preventing movement of the receptacle relative to the rocking frame at a predetermined point in such rocking movement, substantially as described. 95 100 105

5. The combination of a wheeled support or truck, a rocking frame mounted on said truck, a receptacle connected to said frame and adapted to move thereon, means adapted to engage the receptacle to prevent rocking of said frame, means for rocking said frame when the aforesaid locking means are released, means for holding the receptacle stationary on the frame, and means for automatically releasing the devices for preventing movement of the receptacle relative to the rocking frame at a predetermined point in such rocking movement, substantially as described. 110 115

6. The combination of a wheeled support or truck, a rocking frame mounted on said truck, a receptacle connected to said frame, and adapted to move thereon, levers fulcrumed on uprights secured to the truck and adapted to extend beneath the receptacle to prevent rocking movement of the frame, means for securing said levers in engaging position, means for rocking said frame and receptacle when said levers are released, means 120 125



for holding the receptacle stationary on the rocking frame, and means for releasing the last said receptacle-holding means at a predetermined point in said rocking movement, substantially as described.

7. The combination of a wheeled support or truck, a frame mounted on said truck to rock about an axis extending longitudinally thereof and including a plurality of transversely-extending, parallel, beams, a receptacle mounted on said beams and having downwardly-extending projections on opposite sides thereof, means connecting said downward projections and extending through slots in said beams, whereby the receptacle is adapted to rock with said frame about the aforesaid axis and also to move laterally relative to said frame, and means for rocking the frame in either direction about its said axis, substantially as described.

8. The combination of a wheeled support or truck, a frame mounted on said truck to rock about an axis extending longitudinally thereof and including a plurality of transversely-extending, parallel, beams, a receptacle mounted on and having downwardly-extending projections on opposite sides of said beams, means connecting said downward projections and extending above and below portions of said beams, whereby the receptacle is adapted to move laterally relative to said beams while rocking with said frame about the aforesaid axis, means for limiting such sliding movement of the receptacle on the frame, and means for rocking the frame in either direction about its said axis, substantially as described.

9. The combination of a wheeled support or truck, a frame mounted on said truck to rock about an axis extending longitudinally thereof, a receptacle mounted on said frame to rock therewith and adapted to also move laterally on said frame, latches pivotally mounted on said receptacle and adapted to engage said frame to limit movement of the receptacle on said frame in either direction, means for rocking said frame and receptacle in either direction about the aforesaid axis, and means for automatically releasing the latch which acts to prevent movement of the receptacle on said frame in the direction in which the latter is rocked, substantially as described.

10. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof, a receptacle mounted on said frame to rock therewith and adapted to also move laterally thereof, latches pivotally mounted on said receptacle and adapted to engage said frame at points in the plane of said axis, to limit movement of the receptacle on said frame in either direction, means for rocking said frame and receptacle in either direction about the aforesaid axis, and means for au-

tomatically releasing the latch which acts to prevent movement of the receptacle on said frame in the direction in which the latter is rocked, substantially as described.

11. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof and including a plurality of transversely-extending, parallel, beams, a receptacle mounted on said beams and having downwardly-extending projections on opposite sides thereof, means connecting said downward projections and extending above and below portions of said beams, whereby the receptacle is adapted to move laterally relative to said beams while rocking with said frame about the aforesaid axis, latches pivotally mounted on said receptacle on opposite sides of one of said transverse beams of the rocking frame, and engaging said beam to normally prevent lateral movement of the receptacle on said frame in either direction, means for rocking said frame and receptacle in either direction about the aforesaid axis, and means for automatically releasing the latch which acts to prevent movement of the receptacle on said frame in the direction in which the latter is rocked, substantially as described.

12. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof and including a plurality of transversely-extending, parallel, beams, a receptacle mounted on said beams and having downwardly-extending projections on opposite sides thereof, means connecting said downward projections and extending above and below portions of said beams, whereby the receptacle is adapted to move laterally relative to said beams while rocking with said frame about the aforesaid axis, latches pivotally mounted on said receptacle on opposite sides of one of said transverse beams of the rocking frame, and engaging projections extending from said beam, in the plane of the axis about which said frame is adapted to rock, to prevent movement of the receptacle relative to said frame in either direction, means for rocking said frame and receptacle in either direction about the aforesaid axis, and means for automatically releasing the latch which acts to prevent movement of the receptacle on said frame in the direction in which the latter is rocked, substantially as described.

13. The combination of a wheeled support or truck, a frame mounted to rock about an axis extending longitudinally of the truck, a receptacle supported on said frame and having swinging doors at its sides, latches pivotally connected with the receptacle and adapted to hold the said swinging doors in closed position, said latches constantly engaging the truck, and means for rocking said frame



and receptacle in either direction about the said axis, the latches, being so arranged that they will be automatically moved from engagement with the doors of the receptacle on the side toward which the frame and receptacle are rocked at the commencement of the rocking movement of the receptacle, substantially as described.

14. The combination of a wheeled support or truck, a frame mounted to rock about an axis extending longitudinally of the truck, a receptacle supported on the frame and having swinging doors at its sides, latches pivotally mounted beneath the receptacle at intermediate points of their length and each having one end constantly engaging a portion of the truck, whereby they are adapted to be automatically moved about their pivots simultaneously with the commencement of the rocking of the receptacle, the other ends of said latches being adapted to engage the swinging doors of the receptacle and hold them in closed position except as the frame and receptacle are rocked to dump the contents of the receptacle, substantially as described.

15. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof, a receptacle mounted on the frame and having outwardly-swinging side doors, latches pivotally mounted on the receptacle and each having an arm adapted to engage one of the swinging sides of the receptacle and another arm extending beneath the receptacle and bearing constantly on a portion of the truck, whereby said latch is adapted to be moved to inoperative position on the commencement of the rocking of the receptacle, and means for rocking said frame and receptacle about the aforesaid axis, substantially as described.

16. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof, a receptacle supported on the frame and adapted to move laterally thereon, said receptacle having outwardly-swinging doors in its sides, latches pivotally connected with the receptacle and adapted to engage said rocking frame to hold the receptacle against sidewise movement in either direction thereon, supplemental latches pivotally mounted on the receptacle and adapted to engage said swinging doors, means for rocking the frame and receptacle in either direction about said axis, and means for automatically releasing all of said latches on the side of the said axis toward which the frame and receptacle are rocked, substantially as described.

17. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof, a receptacle supported on the frame and adapted to move laterally thereon, said

receptacle having outwardly-swinging doors in its sides, latches pivotally connected with the receptacle and adapted to engage said rocking frame to hold the receptacle against sidewise movement in either direction thereon, supplemental latches pivotally mounted on the receptacle and adapted to engage said swinging doors, means for rocking said frame and receptacle in either direction about said axis, and means on the truck for automatically moving all of the latches on the side of the said axis toward which the frame and receptacle are rocked into inoperative position, substantially as described.

18. The combination of a wheeled support or truck, a frame mounted on the truck to rock about an axis extending longitudinally thereof, a receptacle connected to said frame and adapted to move thereon, means on the platforms for normally locking the frame and receptacle from movement about said axis, means adapted to be actuated from the platforms for rocking the frame and receptacle when said locking means are released, means for holding the receptacle stationary on the rocking frame, and means for automatically releasing the last said means during the rocking movement, substantially as described.

19. The combination of a movable support, a frame mounted to rock about an axis on said support, a receptacle movable bodily on said frame transversely of said axis, means for rocking the frame to cause said transverse movement of the receptacle, and means for imparting a jar or vibration to the receptacle at the termination of said transverse movement, substantially as and for the purpose described.

20. The combination of a movable support, a frame mounted to rock about an axis on said support, a receptacle movable bodily on said frame transversely of said axis, means for rocking the frame to cause said transverse movement, means for normally locking the receptacle against such transverse movement, means for releasing said locking devices during the rocking movement of the frame, and means adapted to impart a jar or vibration to said receptacle at the termination of its transverse movement on the frame, substantially as and for the purpose described.

21. The combination of a movable support, a frame mounted on said support to rock about a suitable axis, a receptacle secured to said support and adapted to slide thereon, and means for rocking said frame and receptacle, the connections between the frame and receptacle being such that at the termination of the transverse movement of the receptacle on the frame a jar or vibration will be imparted to the receptacle, substantially as and for the purpose described.

22. The combination of a movable support, a frame mounted to rock about an axis on said support, a receptacle movable on said



frame transversely of said axis, means for  
rocking the frame to cause said transverse  
movement, and stops for limiting said trans-  
verse movement of the receptacle on the  
5 frame and imparting a jar or vibration to the  
receptacle at the termination of such move-  
ment, substantially as and for the purpose de-  
scribed.

In testimony whereof I have signed my  
name to this specification in the presence of 10  
two subscribing witnesses.

ALEXANDER ROSS PIPER.

Witnesses:

BURTON RUEL DODGE,  
ROBT. H. STEVENS.