No. 873,187. PATENTED DEC. 10, 1907.

C. C. TAYLOR, G. W. WOOD & M. A. VINCENT.

AUTOMATIC DUMP BED.

APPLICATION FILED JUNE 25, 1906.

2 SHEETS—SHEET 1.

Fig. 1

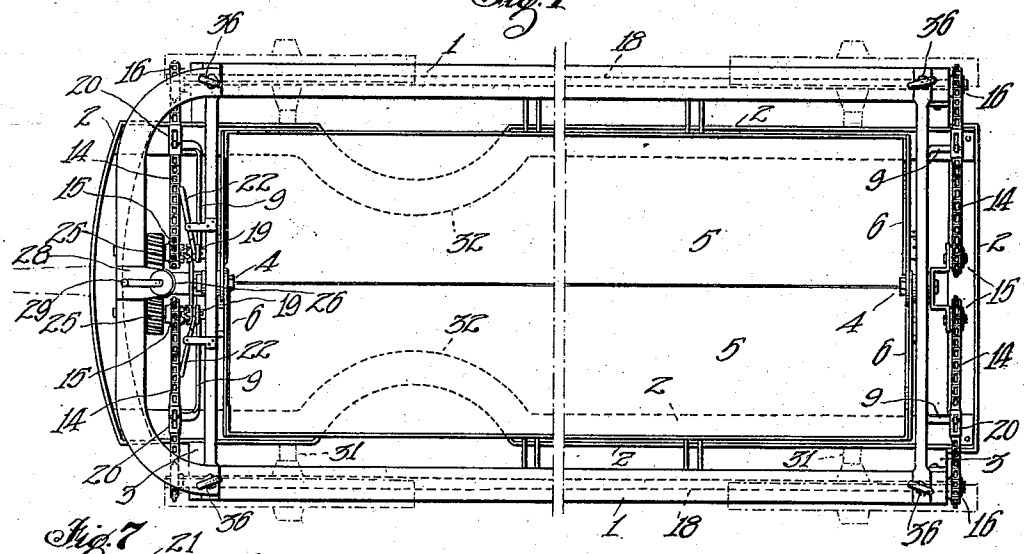


Fig. 7

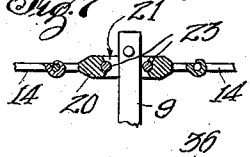
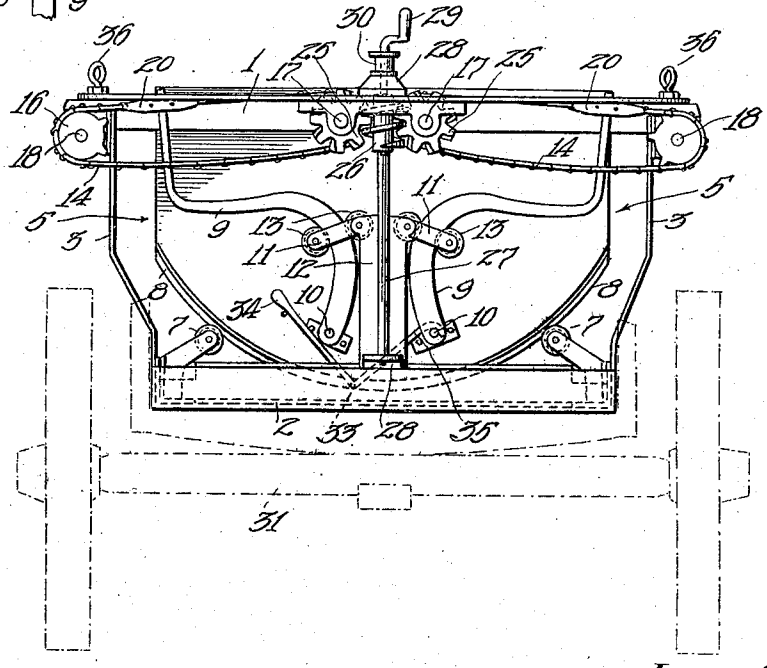


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

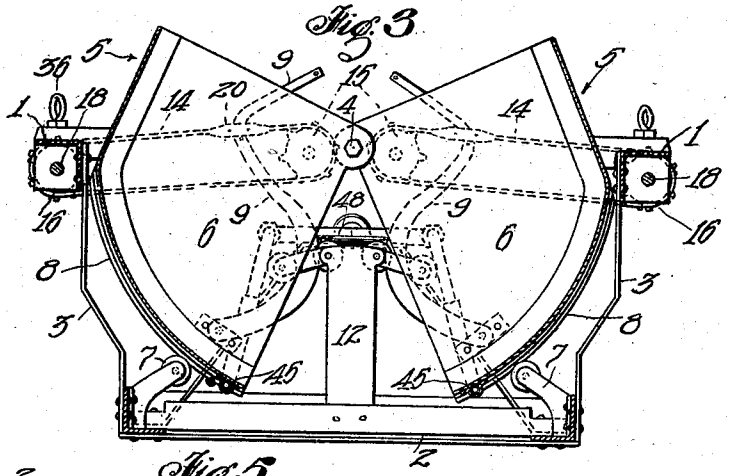


Fig. 4

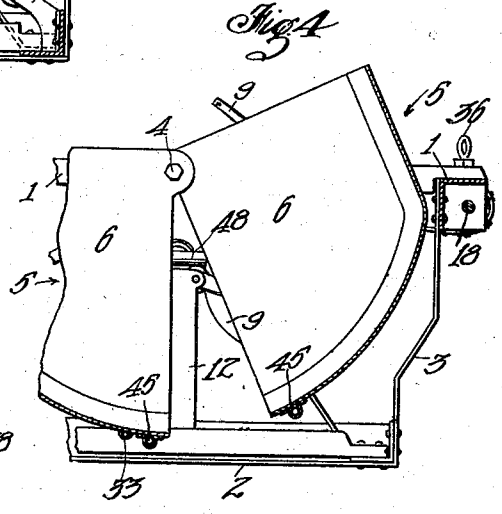


Fig. 5

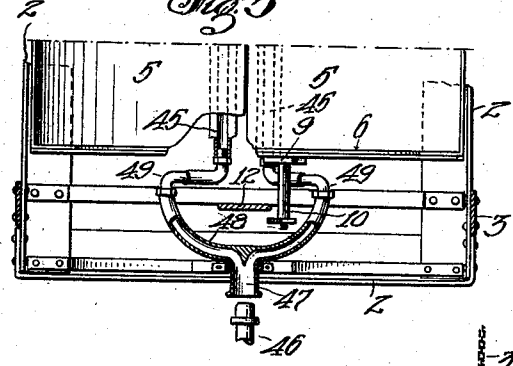
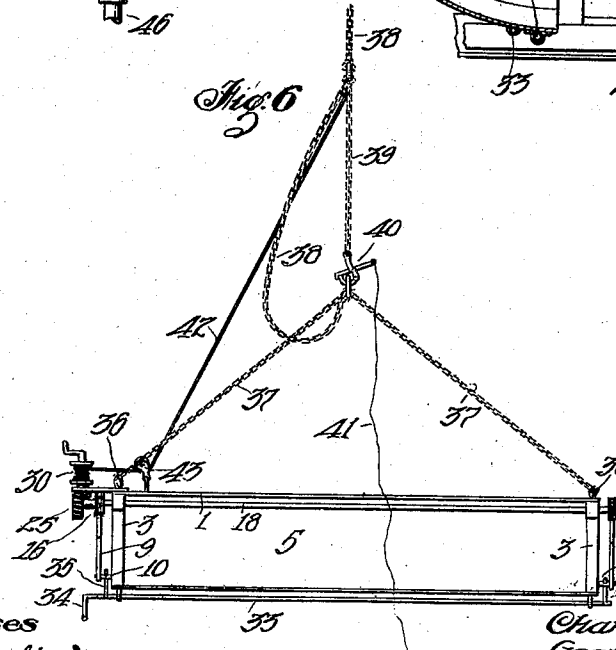


Fig. 6



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UNITED STATES PATENT OFFICE.

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AUTOMATIC DUMP-BED.

No. 873,187. Specification of Letters Patent. Patented Dec. 10, 1907.

Application filed June 25, 1906. Serial No. 323,409.

To all whom it may concern:

Be it known that we, CHARLES C. TAYLOR, GEORGE W. WOOD, and MAYHEW ABBOTT VINCENT, citizens of the United States, residing at San Diego, in the county of San Diego and State of California, have invented a new and useful Automatic Dump-Bed, of which the following is a specification.

This invention relates to a dump bed which can be used on any suitable truck, such as a wagon or car truck, and is adapted for the transportation and discharge of earth or other material.

An important object of the invention is to provide a device of this character that does not require a special wagon but can be manufactured and sold as a unit and placed on any wagon or truck. In this connection an important feature of the invention is that the bed can be lifted from the truck when loaded, either for discharging or for charging, or for transferring it from one truck to another.

Another important object of the invention is to provide a self-dumping bed in which the load will have a tendency to dump itself and in which, after the load is dumped, the parts will have a natural tendency to return to closed position without the use of counterbalancing devices. This object is secured by supporting the dump walls in such manner that the pressure of the load tends to force them outwardly, and when the pressure of the load is removed said walls will tend to move inwardly by their own weight. With this construction the walls of the bed move outwardly and upwardly instead of downwardly when opening, and there results the important advantage that less space is required for clearance of the moving parts and the bed can be brought lower to the ground, or to other obstructions under the bed.

Another object of the invention is to provide for partial dumping of the load and reclosure of the bed so that material can be dumped in successive portions at any desired places.

Another object of the invention is to provide a dumping bed which can be made to discharge its load in a lateral direction, this being an advantage where the load is to be dumped at the edge of a bank or hill.

The invention is applicable to transportation of earth, mud, sand, ore, or any other material, and it may, for example, be applied for carrying asphalt composition used in paving streets, etc., and one object of the invention is to provide means for facilitating discharge of the asphalt from the bed when so used. For this purpose the invention provides for heating the mouth or outlet of the bed so that the asphalt composition cannot "freeze" and clog in such manner as to prevent its discharge.

The accompanying drawings illustrate the invention.

Figure 1 is a plan of the dump bed. Fig. 2 is an end elevation thereof in closed position. Fig. 3 is a vertical section of the bed in open position. Fig. 4 is a partial section of the bed, showing one-half of the bed open and the other half closed. Fig. 5 is a detail of the heating means. Fig. 6 is a side elevation showing the manner in which the bed is lifted by a derrick cable. Fig. 7 is a detail of the bed operating means.

The frame of the machine is preferably formed with a rectangular top member 1, a rectangular bottom member 2, and standards 3 supporting the top from the bottom member. On the said top member are pivots 4 for the two bed members 5, each consisting of a shell of sheet metal having a longitudinal portion bent as a segment of a cylinder and having end plates 6 which overlap one another at their upper and inner portions and engage the pivots 4 for the said members, these bed members swinging toward and from one another on said pivots and extending downwardly from said pivots, so that the walls of said members move in an upward curve as they separate. The upper part of the wall of each member is substantially straight and vertical when the bed is closed and the lower part of said wall is curved substantially concentric with the pivots 4. Each bed member 5 is provided with curved tracks 8 on such concentric portion, with which engage antifriction rolls 7 carried by the frame member 2 of the machine so as to largely take the load off of the pivots 4.

When the two bed members are brought together, as shown in Figs. 1 and 2, they form a closed-bottom trough adapted to receive earth, mud, or other material. In the case of mud, sand, and some other materials, the weight of the material will produce a lateral pressure on the wall of each bed member tending to force it outwardly, and means are provided for controlling such outward move-

ment or for producing such movement independently of the action of the load, such means comprising a lever 9 secured by pivot 10 to each bed member and provided with a fixed bearing or fulcrum, and with means for operating on its other end. The fulcrum for the said lever consists of links 11 pivoted to a standard 12 on the base 2, the lever 9 working between rolls 13 on said links so as to turn and to travel longitudinally therebetween. Above said fulcrum the said lever extends outwardly and is bent up at its end to engage the operating means. Said operating means consists of a chain 14 running on sprocket wheels 15, 16, mounted on shafts 17, 18, said chain carrying a block 20 having a hole 21 through which the upward extension or arm of the lever 9 extends. An antifriction roller 23 is provided on each side of said lever arm. Sprocket wheel 15 is loose on its shaft, and a clutch member 19, slidable and feathered on said shaft, is operated by a handle 22 to clutch or unclutch the connection between the shaft and said wheel. The shafts 17 of the respective sprockets 15 carry worm gears 25 engaging on opposite sides of a worm 26 carried by a vertical shaft 27 mounted in bearings 28. The upper end of said shaft 27 is provided with operating means, such as a crank handle 29, and a winding drum 30 may also be provided thereon for the purpose hereinafter stated. The above operating apparatus may be located at the forward end of the dump bed. At the rear end of said bed the shells or bed members are provided with operating means, comprising levers 9, chains 14, and sprocket wheels 15, 16. The shafts 18 carrying sprocket wheels 16 extend longitudinally at each side of the frame so as to operate the rear end from the front end. The frame member 2 has a flat bottom so as to be adapted to rest on any wagon or car truck, such as indicated at 31 in Figs. 1 and 2, and the said frame may be bent inwardly as at 32 to make room for the fore wheels of the wagon in turning. Means are provided for locking the two bed members in closed position, said means consisting of a rod 33 extending longitudinally under one of the bed members and pivoted thereto, and having an operating handle 34 at one end, and provided with two hook arms 35, each adapted to engage over a projection on the other bed member, for example, the pivot 10 for the lever 9 thereof.

The dump bed is provided with means for lifting the same as by a derrick, or otherwise, the upper frame member 1 having an eye-bolt 36 at each corner to receive the lifting tackle as shown in Fig. 6. For this purpose chains or cables 37 may be attached to said eyes and may converge to a lifting line such as a chain or cable 38 operated by the derrick. To enable the derrick operating power to effect the opening of the dump bed, the lifting line 38 may have a slackening attachment consisting of a line 39 attached at its ends to the line 38 and having a snap hook 40, this line 39 being shorter than the part of the line 38 between the ends of which it extends so that when the said line 39 is so attached, it will slacken such line 38, and on release of the snap hook, as by a controlling rope 41, the said slack portion will straighten out. At or above such slack portion is attached a cable or line 42 running around a sheave 43 and connected to the winding drum 30 on the bed controlling shaft 27, so that when the cable moves, as above described, in taking up the slack, it will draw on the winding drum and turn the latter to open out the two bed members and discharge the contents of the bed.

In case the bed is used for carrying and dumping asphalt composition it is preferred to provide means for heating the lower edge or lip of each bed member, said means consisting, for example, of a tubular conduit formed on the bottom of said member by a trough plate 45 secured to said bottom, the ends of said conduit being open and means being provided at one end for injecting hot air thereinto. Such means may consist of a burner 46 discharging into a fitting 47, having two diverging tubular legs 48 leading through extensible or telescopic tubular connections 49 to the respective conduits 45. The burner 46 is provided with means for operating the same under considerable pressure so as to inject its blast through the connections specified into the respective conduits and warm the discharging edge or lip of each conduit throughout the entire length thereof, thereby preventing the asphalt from "freezing" or sticking at such edge.

The operation of the dump bed is as follows:—The bed is placed on any suitable support or carrier, such as a wagon truck or car truck, and the two members are closed and are held together by their locking means 33, 35. The material to be transported is then charged into the bed and the vehicle is moved to dumping position and the bed then dumped by releasing the clutch 19, or if desired by operation of the shaft 27, turning the worm 26 and allowing or causing the chains 14 to operate through the arms 9 and separating, or allowing separation of, the bed members or shells 5. The weight of the material will cause an outward pressure on each bed member so that the movement of the controlling means 26, 27 requires no power except that involved in relieving the bed members from the controlling action thereof. In this connection it will be understood that the worms 26 will operate positively to hold the bed members from outward movement except as such movement is allowed by operation of the worms. When the bed has been dumped, the pivoted bed members will tend to move together again by gravity, this movement also being controlled by releasing

the clutch or by the operation of the worms. If it is desired to dump only part of the load, the bed members may be separated only part way to dump a portion of the load and may then be closed together again, and in this way the load may be distributed, or different parts thereof dumped successively in different positions. This is of considerable importance, especially in track or road work, where filling or ballast is to be distributed along the roadway, and a further feature of advantage in such connection is the fact that the bed dumps directly downward instead of to the side of the track, both of these features saving large expense in manual labor which is involved in the present practice of dumping or filling of ballast at definite locations and distributing it by manual labor.

What we claim is:—

1. An automatic dump bed comprising a frame, dump bed members pivoted on said frame and movable outwardly and upwardly to open the dump bed, a controlling lever connected to each dump bed, a fulcrum for said lever and operating means for said lever, comprising a chain, sprocket wheels for said chain, and a worm gearing connected to operate said sprocket wheels.

2. An automatic dump bed comprising a frame, dump bed members pivoted on said frame and movable outwardly and upwardly to open the dump bed, a controlling lever connected to each dump bed, a fulcrum for said lever and operating means for said lever, comprising a chain, sprocket wheels for said chain, a worm gearing connected to operate said sprocket wheels, and clutch means between said worm gearing and chains.

3. An automatic dump bed comprising a frame, dump members pivoted thereon to move outwardly and upwardly in opening the dump bed, a controlling means for the dump members comprising a worm gearing, and a clutch connection between the worm gearing and each of the dump members whereby each dump member can be disconnected from the controlling means, and whereby when the clutch connection is established the worm gearing will hold the dump members in position.

4. A dump bed comprising a frame, dump bed members pivoted thereon to move outwardly and upwardly in opening the dump bed, controlling means for the dump bed members and a clutch connection between said controlling means and each dump bed member, whereby either of said dump bed members can be disconnected from the operating means, leaving the other member to be operated separately.

5. An automatic dump bed comprising a frame, dump bed members to move outwardly and upwardly in opening the dump bed, a controlling and operating mechanism for said dump bed members pivoted with an operating drum, means for suspending the dump bed frame, an operating and suspending line for said suspension means, a releasable connection between the two parts of said line to produce a slack therein, means for releasing said releasable connection, and a line extending from the suspending and operating line above said connection and connected to the winding drum for operation thereof to control opening of the dump bed.

6. An automatic dump bed comprising a frame, a dump bed member pivoted on said frame and movable to open and close the dump bed, and means for heating the bottom of said member near the discharge edge thereof.

In testimony whereof, we have hereunto set our hands at city of San Diego, California this 19th day of June 1906.

CHARLES C. TAYLOR.
GEORGE W. WOOD.
MAYHEW ABBOTT VINCENT.

In presence of—
W. J. MOSSHOLDER,
DELIA A. SEVERIN.