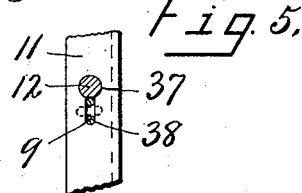
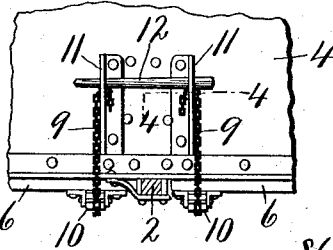
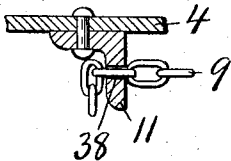
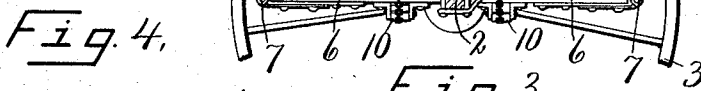
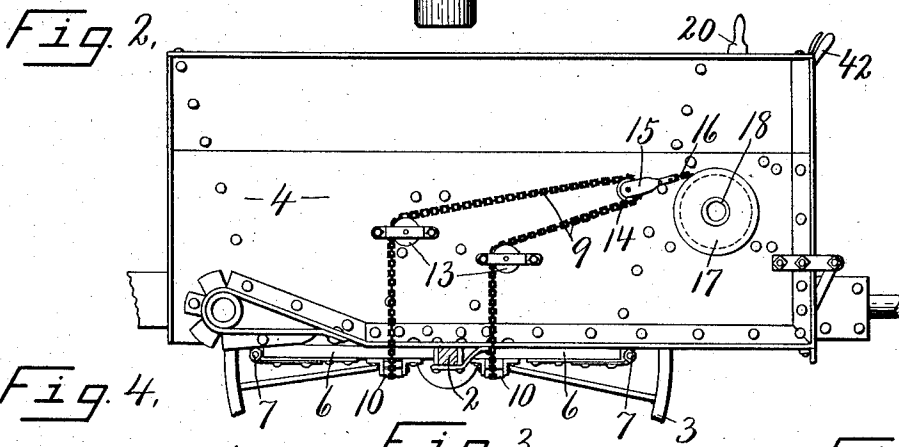
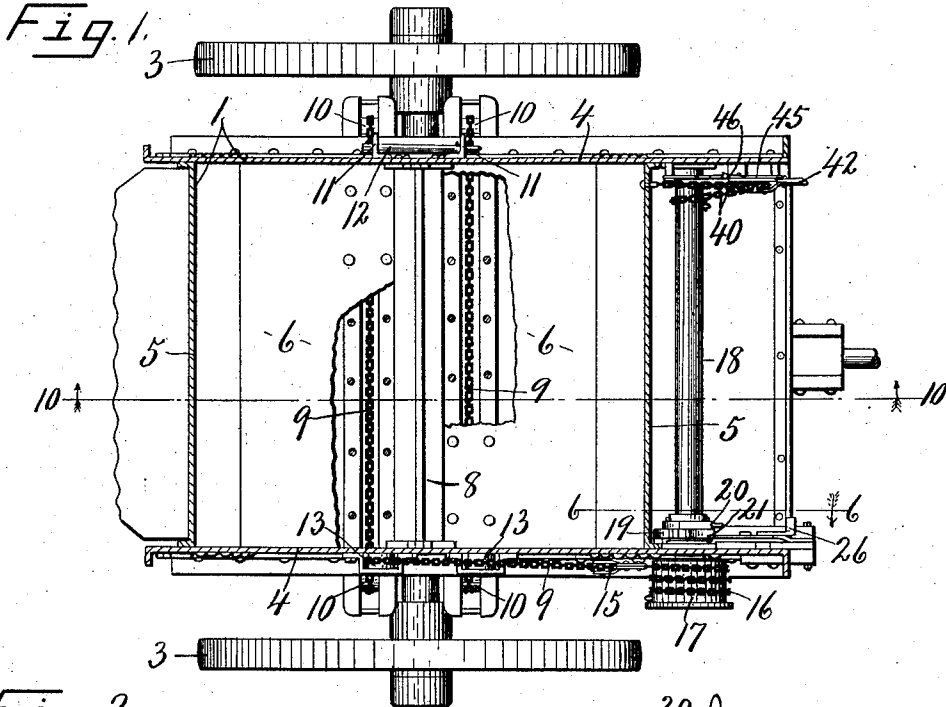


W. ATKINS.
DUMP WAGON.
APPLICATION FILED MAR. 22, 1911.

1,025,359.

Patented May 7, 1912.

3 SHEETS—SHEET 1.



Witnesses:

R. W. Bailey.

H. Elchae

Inventor:

W. Atkins

By

Howard P. Brumlow

Attorney.

W. ATKINS.
DUMP WAGON.
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3 SHEETS—SHEET 2.

Fig. 6.

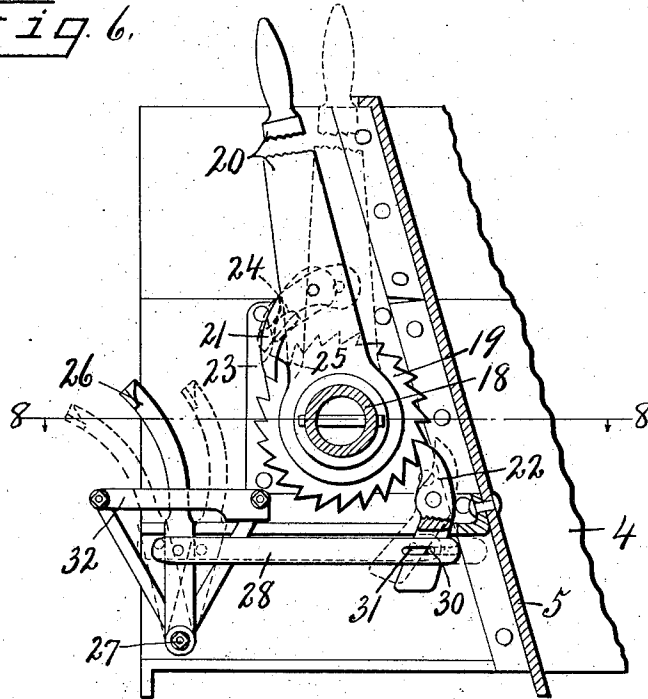


Fig. 7.

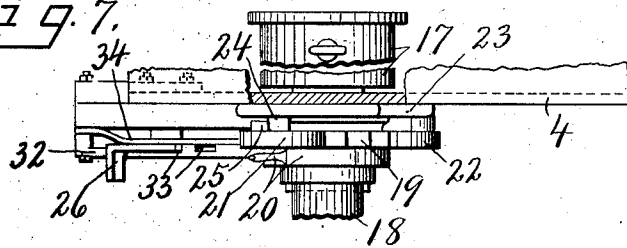
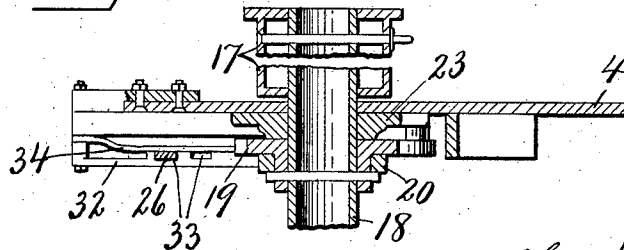


Fig. 8.



Witnesses:

R. W. Bailey.

H. E. Chase.

Inventor

W. Atkins

By Howard P. Hudson
Attorney.

W. ATKINS.
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3 SHEETS—SHEET 3.

Fig. 9.

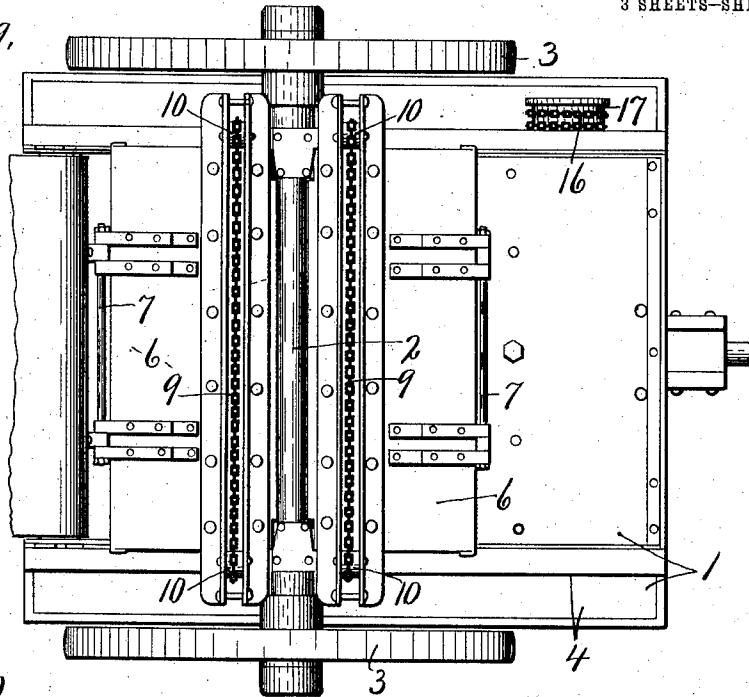


Fig. 10.

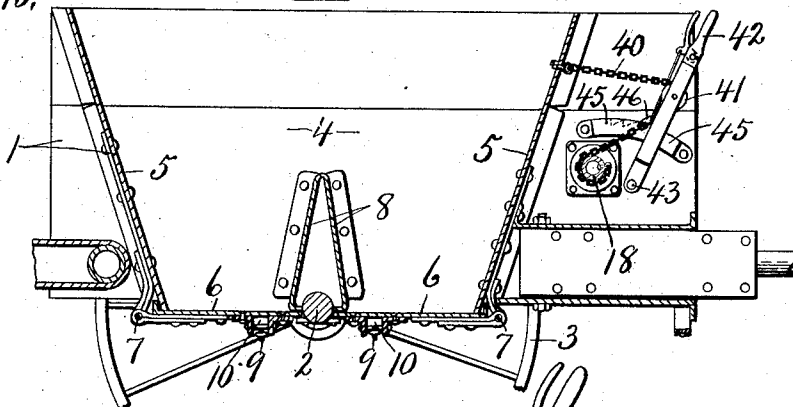
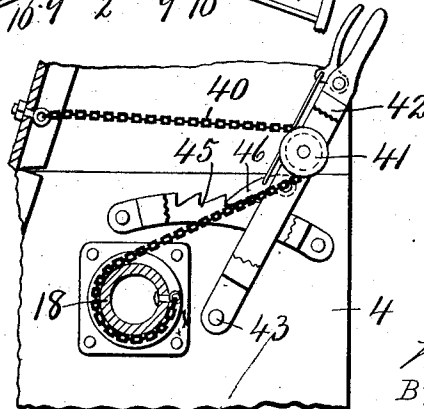


Fig. 11.



Witnesses:

R. M. Bailey

H. E. Chase

Inventor:

W. Atkins

By

Howard P. Benson

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM ATKINS, OF AUBURN, NEW YORK.

DUMP-WAGON.

1,025,359.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed March 22, 1911. Serial No. 616,137.

To all whom it may concern:

Be it known that I, WILLIAM ATKINS, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Dump-Wagons, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in dump wagons and refers more particularly to the door operating and controlling mechanisms, the door operating mechanism being substantially the same as that set forth in my pending application #582,678, filed September 19, 1910. These wagons are especially useful in making good roads, such as filling, resurfacing or grading with stone or other materials, and are preferably composed of two-wheeled carts for use in train or as individual units capable of being drawn from either end by a traction engine or animal power.

Each dump box is provided with a pair of forwardly and rearwardly swinging bottom doors, meeting at or near the transverse center or axle when closed and connected by cables to a suitable drum which is operated by a ratchet and pawl through the medium of a hand lever.

The main object is to provide simple co-active mechanisms for operating and controlling the doors whereby they may be quickly and tightly closed or instantly opened for dumping the load and also checked and temporarily held at any degree of opening for permitting a gradual discharge and spreading of the load over the surface of the ground while the wagon is in motion.

In other words, one of the objects is to provide a simple releasing mechanism whereby the operating mechanism employed in closing the doors may be easily and quickly released and the operating and detaining pawls automatically thrown from their operative positions during such release.

Another object is to provide simple means whereby the operator may control the amount of opening of the doors as may be necessary to evenly distribute the load as the wagon is drawn along the road-bed.

Other objects and uses will be brought out in the following description:

In the drawings—Figures 1 and 2 are respectively a top plan and a side elevation of a dump box showing my improved door controlling mechanism mounted thereon, portions of the box being shown in section in Fig. 1, while portions of the doors in the same figure are broken away to show underlying portions of the door controlling cables. Fig. 3 is a side elevation of a portion of the box showing the manner of fastening and adjusting the ends of the cables, the axle being shown in section. Fig. 4 is an enlarged detail sectional view through one of the cable anchoring flanges taken on line 4—4, Fig. 3. Fig. 5 is an enlarged face view of a portion of one of the same flanges showing one of the cable receiving apertures and locking key, the latter being in section. Fig. 6 is an enlarged sectional view taken on line 6—6, Fig. 1 showing particularly the drum operating and releasing mechanism for controlling the operation of the doors. Fig. 7 is a top plan of the mechanism shown in Fig. 6. Fig. 8 is a sectional view taken on line 8—8, Fig. 6. Fig. 9 is an inverted plan of the dump cart shown in Fig. 1 illustrating the guide mechanism for the under-running cables. Fig. 10 is a longitudinal vertical sectional view through the same cart taken on line 10—10 Fig. 1 showing the means for controlling the opening of the doors to any position. Fig. 11 is an enlarged inner face view of the mechanism for controlling the degree of opening of the doors.

The door operating and controlling mechanism is shown as used in connection with a two-wheeled cart comprising a dump box —1— having an axle —2— and suitable supporting wheels —3—, the cart being similar to that shown in my application previously referred to, the box being provided with side walls —4— end walls —5— and bottom doors —6— which are hinged on transverse axes —7— to or directly below the lower edges of the end walls —5— so as to swing forwardly and rearwardly and meet at or near the axle —2— or substantially midway between the end walls —5—.

An inverted V-shape guard plate —8— preferably covers the axle —2— and extends from side to side of the box to form abutments against which the meeting ends of the doors bear when closed and also serves to divide or deflect the load onto the oppo-

site doors or rather through the openings when the doors are open in the operation of discharging the load.

The closing and opening of the doors is controlled primarily by means of a cable or chain —9— having its opposite ends passed transversely under the meeting ends of the doors around suitable sheaves —10— thereon and adjustably secured or anchored to apertured anchor plates —11— on one side of the box where they are positively held in their adjusted position by a key or pin —12—. The portions of the cable at the opposite side of the box are passed upwardly and forwardly around suitable sheaves —13— on the adjacent side of the box, the intermediate portion of said cable being passed around a sheave —14— of a fall-block —15— having a cable or chain —16— which is passed around and secured to a rotary drum —17—. This drum is secured to one end of a tubular shaft —18— extending transversely of the box at one end thereof and journaled in suitable bearings thereon, the drum —17— being preferably located just at the outside of one side of the box in alinement with the sheaves —13—. Secured to the shaft —18— just inside of the side of the box nearest the drum —17— is a ratchet wheel —19— having a laterally extending hub upon which is journaled the lower end of an upwardly extending hand lever —20— carrying a pawl —21— adapted to engage the teeth of the ratchet wheel for rotating the drum —17— in the operation of closing the doors through the medium of the cables —9— and —16— as the lever —20— is moved back and forth, the doors and drum being held in their adjusted positions by a gravity detent or pawl —22— as best seen in Fig. 6.

As previously stated the ratchet wheel —19— is disposed in close proximity to the inner side of one side of the box to which is secured a metal plate —23— having an inwardly projecting shoulder —24— adapted to coact with a similar shoulder —25— on the pawl —21— to trip said pawl out of engagement with the teeth of the ratchet wheel when the lever —20— is drawn back to a predetermined position toward the adjacent end of the box, thereby permitting free rotation of the drum in the operation of releasing the doors.

As previously stated the ends of the cables are adjustably secured to one side of the box or rather to the flanges —11— and for this purpose these flanges are provided with apertures —37— and branch slots —38— opening therefrom, the apertures —37— being of sufficient size to permit the links of the chain to pass readily therethrough while the slots —38— are preferably of just sufficient size to receive one of the links flatwise and the sides of the slot

form shoulders which prevents the passage of the cross links therethrough so that when one of the links is adjusted in the slot, this portion of the chain will be held against endwise movement therethrough. In order to more firmly secure the chain in the slot, I preferably employ a tapering key —12— which is driven into the apertures —37— with a close fit so as to be self-retaining thereby preventing the links from being unduly displaced from the slots —38— into the opening —37— when adjusted for use.

Door releasing mechanism.—The means for releasing the drum to permit the free opening of the doors preferably consists of a foot lever —26— located in front of the drum —18— and preferably just inside of the same side of the box near which the hand lever —20— is located, said foot lever being fulcrumed at its lower end at —27— to the adjacent side of the box and is connected by a link —28— to the lower weighted end of the detent —22— so as to trip said detent when the lever is rocked forwardly or away from the drum —18— by pressure of the foot.

In order that the detent —22— may ride freely over the points of the teeth in the operation of winding the cable upon the drum to close the doors, it is connected with a lost motion to the link —28— and for this purpose is provided with a laterally projecting pin —30— which rides in a slot —31— in said link but is normally engaged with the rear end of the slot when winding the cable upon the drum in the operation of closing the doors.

In some instances it is desirable to lock the detent in its holding position to prevent accidental rotation of the drum, as for instance, in long hauls when it is necessary to keep the doors firmly closed and for this purpose the foot lever —26— may be thrown backward from its normal position to one of the positions indicated by dotted lines so as to bring the front end of the slot —31— into engagement with the pin —30— and thereby lock the detent —22— in engagement with the teeth of the ratchet wheel.

By moving the foot lever —26— forwardly to the other dotted position, the detent —22— will be tripped from engagement with the teeth of the ratchet wheel —19— thereby permitting the free rotation of the drum and consequent opening of the doors, it being understood that in case the pawl —21— remains in engagement with the ratchet wheel during the releasing operation, the hand lever —20— will simply be thrown rearwardly until the pawl —21— is tripped by contact of its shoulder —25— with the fixed shoulder —24—, thereby effecting the full release of the doors.

The foot lever —26— is movable along a toothed rack —32— having a series of

notches —33— into which the lever is spring pressed in either of its adjusted positions by means of a spring —34— so as to hold the lever in such adjusted position.

5 *Mechanism for controlling the spreading of the load.*—The means for controlling the degree of opening of the doors for spreading or distributing the load evenly over the surface of the road-bed preferably consists of a
10 cable or chain —40— having one end attached or anchored to the box preferably to the end wall nearest the drum —18— and its intermediate portion passed around a suitable sheave —41— on a lever —42—
15 and its opposite end attached to and adapted to wind upon the shaft —18—, said lever being fulcrumed at —43— to one side of the box opposite that near which the lever —20— is located, directly in front of the
20 drum or shaft —18— so as to move transversely of said shaft. This cable —40— is preferably passed from the sheave over and around the rear side of the shaft —18— so as to tend to wind up said cable when the
25 doors are released or rather when the cable —16— tends to unwind from the drum —17—. In reverse manner when the cable —16— is being wound upon the drum —17— in the operation of closing the doors, the cable —40— is unwound from the shaft
30 —18—.

It is therefore evident from the foregoing description that by firmly holding the lever —42— either by hand or through the medium of other holding mechanism presently
35 described, the doors will be prevented from opening or at least the operator may control the opening of the doors to any degree by simply allowing the lever —42— to be
40 drawn back the desired distance by the winding of the cable —40— on the shaft —18—.

In order that the doors may be allowed to open a predetermined degree without further attention from the operator, the lever —42— is caused to move along a toothed
45 rack —45— which is adapted to be engaged by a pawl —46— on the lever and is set to the desired position before the doors are released from their closed position by the operation of the foot lever —26—.

The amount of opening of the doors for spreading purposes depends somewhat upon the material which is to be spread, that is,
55 if comparatively fine stone is used, the doors are permitted to open to a less degree than when coarser stone is employed for the resurfacing of the road and the lever —42— is therefore set to allow the doors to open
60 to a predetermined degree corresponding to the quality of surfacing material which it is desired to spread.

When it is desired to open the doors full open for dumping purposes, the lever —42—
65 may be drawn back to its limit of movement

or sufficient to allow such full opening of the doors and in some instances it might be practicable to return the doors to their closed position by a single forward movement of the lever —42— which it is apparent would rotate the shaft —18— and drum
70 —17— in the same direction as would be produced by the forward operation of the lever —20—. This operation of the doors by means of the lever —42— however would
75 require considerable power and the doors are preferably closed by means of the lever —20— through the medium of the drum —17— and cables —16— and —9—.

By connecting the cable —16— with the cable —9— through the medium of the fall-block —15— in the manner shown, it is evident that should one door close in advance of the other, the cable —9— will render
80 freely around the sheave —14— as the drum —17— continues to rotate, thereby drawing up the lagging door until both are firmly closed and held in their closed position by the detent —22—.

What I claim is:

90 1. A door controlling mechanism for dump wagons having bottom doors hinged on transverse axes, a cable having its ends running transversely under the doors and adjustably secured to one side of the box,
95 sheaves on the opposite side of the box around which the cable is passed, a fall-block around which the intermediate portion of the cable is passed, a drum and means for rotating the same, and an additional
100 cable attached to and wound upon the drum and connected to the fall-block.

2. In combination with a dump-box having bottom doors hinged on transverse axes, a rotary drum journaled on the box, means
105 for rotating the drum, a cable having one end attached to the drum and adapted to be wound thereon, a fall-block attached to the other end of the cable, an additional cable having its intermediate portion passed
110 around the sheave of the fall-block and its opposite ends passed under the doors and attached to the opposite sides of the box.

3. In combination with a dump box having a door adapted to open under the weight
115 of a load, means including a drum for closing the door, and separate means including a cable wound upon the drum as the door opens for controlling the degree of opening of the door.
120

4. Door controlling mechanism for dump boxes comprising a drum, cable connections between the drum and door, a lever, a sheave on the lever, and a separate cable passed
125 around the sheave and having one end attached to the drum and its other end attached to the box.

5. In a dump wagon, a box having a self opening door, means including a rotary member for closing the door, a cable hav-
130

ing one end attached to said rotary member and its other end attached to the box, and means for tightening and loosening the cable.

- 5 6. In combination with a dump box having a bottom door, a drum, connections between the drum and door whereby the drum is rotated as the doors are opened, a lever having a sheave, and a cable passed around
10 the sheave and having one end attached to

the drum and its other end attached to the dump box for controlling the degree of opening of the doors.

In witness whereof I have hereunto set my hand on this 17th day of March 1911. 15

WILLIAM ATKINS.

Witnesses:

E. F. SPEARING,
H. P. DENISON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."