

No. 774,096.

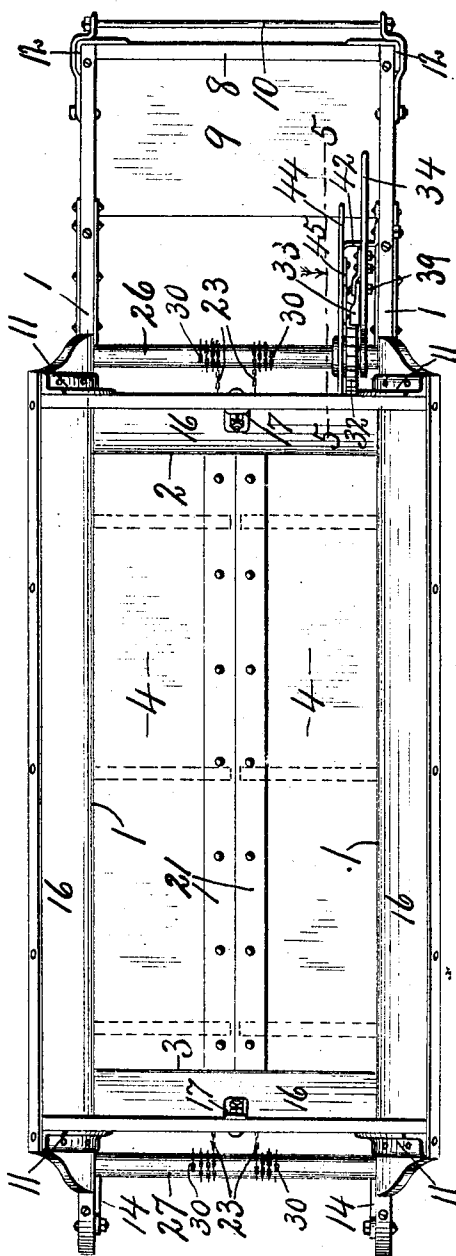
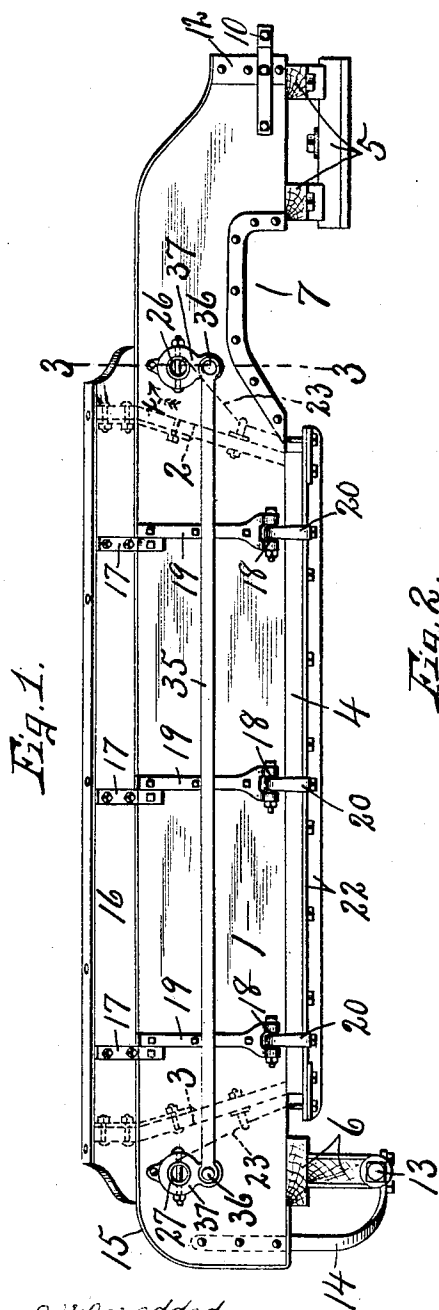
PATENTED NOV. 1, 1904.

J. A. LOVE.
DUMP WAGON.

APPLICATION FILED NOV. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
J. E. Arthur,
W. C. Chase

Inventor:
Joseph A. Love
By
Howard P. Dimson
Attorney.

PATENTED NOV. 1, 1904.

APPLICATION FILED NOV. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 3.

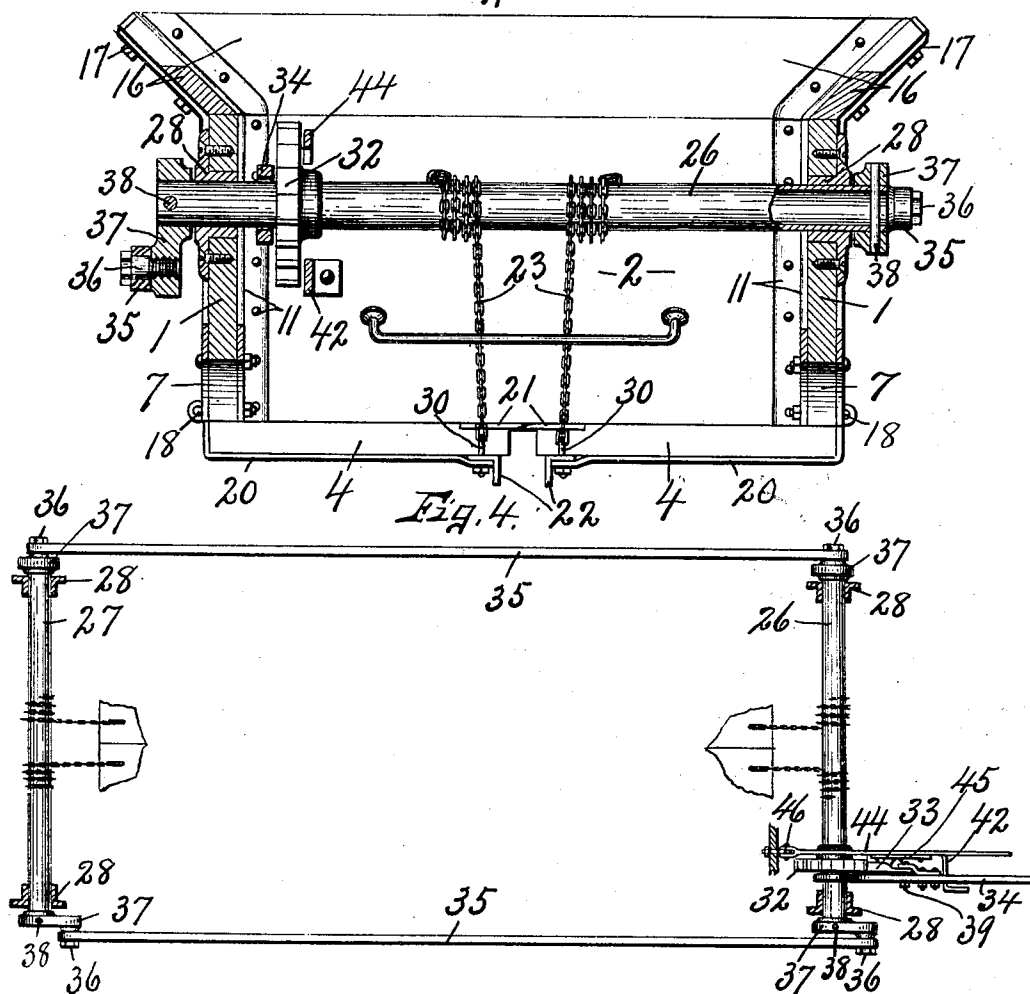
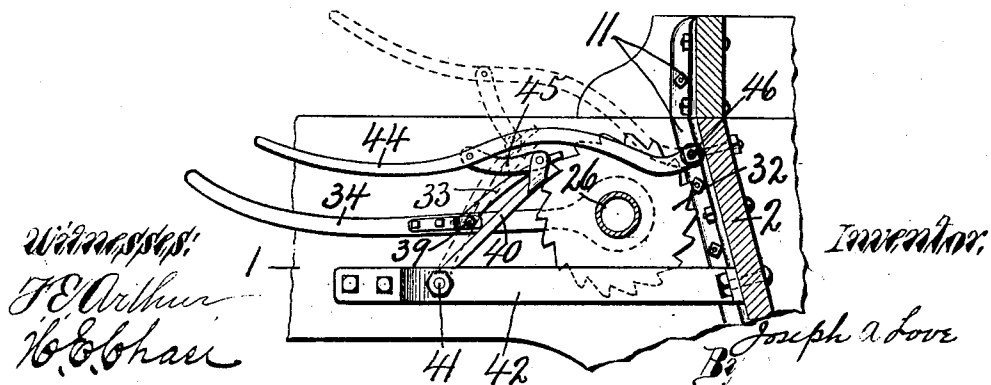


Fig. 5.



Howard P. Dennis Atty.

UNITED STATES PATENT OFFICE.

JOSEPH A. LOVE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THOMAS F. MOORE, OF SYRACUSE, NEW YORK.

DUMP-WAGON.

SPECIFICATION forming part of Letters Patent No. 774,096, dated November 1, 1904.

Application filed November 25, 1903. Serial No. 182,651. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. LOVE, of Syracuse, in the county of Onondaga, 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 improvements in dump-wagons in which the box is provided with laterally-swinging bottom sections or doors which are hinged to the sides of the box with their meeting edges substantially midway between the sides and parallel with the line of draft and in which these doors are controlled by a suitable winding-drum at the front of the box and connections between said drum and the front and rear ends of the doors. These connections usually consist of cables or chains, which are necessarily of considerable length, and therefore tend to stretch more or less unequally when subjected to a severe strain, such as is produced by a heavy load of dirt, gravel, sand, or clay resting on the dumping bottom sections, and this strain is often aggravated by the jolting of the wagon when in transit to the dumping-place and frequently permits the meeting edges and ends of the bottom sections to gap or open sufficiently to permit the material in the box to sift or escape therethrough while in transit. Furthermore, the use of cables or chains extending along the sides, top, or bottom of the box is objectionable for the reason that it requires special fittings or idlers to keep the slack within reasonable bounds and produces unnecessary friction and wear upon the box and is extremely noisy in operation.

My main object, therefore, is to hold the rear drum from independent rotation, and thereby prevent sagging of the rear ends of the doors by substituting a rigid bar connection for transmitting rotary motion from the front to the rear drum in place of the long chain connections commonly employed for this purpose and using short chain connections between the drums and adjacent ends of the doors, thereby avoiding the use of chains along the sides, bottom, or top of the box.

Other objects will appear in the following description.

In the drawings, Figures 1 and 2 are respectively a side elevation and a top plan of a dump-box, showing the various elements of my invention applied thereto. Fig. 3 is an enlarged sectional view taken on line 3-3, Fig. 1, showing particularly the front end of the apparatus seen in Figs. 1 and 2. Fig. 4 is a top plan of the detached mechanism for controlling the operation of the doors. Fig. 5 is an enlarged sectional view taken on line 5-5, Fig. 2, showing an inner face view of the means for rotating, holding, and releasing the front drum.

Similar reference characters indicate corresponding parts in all the views.

The dump-box is here shown as consisting of sides 1 and front and rear end walls 2 and 3 and laterally-swinging bottom sections or doors 4, the sides 1 being extended forwardly and rearwardly beyond the ends 2 and 3, and these extensions are mounted upon and secured to the front and rear bolsters, as 5 and 6, of the running-gear of the wagon. The lower edges of the front extensions of the sides are cut away at 7 between the front end wall 2 and bolster 5 to permit the front wheels to turn under the body, while the extreme front ends of said sides are united by a transverse footboard 8 and platform 9 and also by a tie-rod 10. The sides and end walls 2 are united and braced at the corners by angle-irons 11, and the footboard 8 is also joined to the sides by metal corner-plates 12, while the rear extensions of the sides are tied to the rear axles, as 13, by iron braces 14, and the top and rear edges of these sides are protected from undue wear by metal bands 15.

The dump-box is here shown as provided with upper flaring extensions 16, which are secured to the main body by metal straps or braces 17; but it is evident that these extensions may be dispensed with, if desired.

The bottom doors and portions of the box-sections between the end walls, which are adapted to receive and contain the load, are interposed between the rear axle and the cut-outs 7, so as not to interfere with the turning

of the front wheels. These doors or swinging bottom sections 4 are preferably formed of wood and are hinged at 18 to the sides of the box through the medium of strap-hinge sections 19 and 20, the former being bolted to the sides 1, and the latter are secured to the bottom doors 4 and turn up at their outer ends, so that the hinge-pins are slightly above the lower edges of the sides 1 and cause the doors to swing upwardly clear of the ground when in the act of dumping the load. The combined widths of the wood doors is slightly less than the width of the box to form a gap or space between the meeting edges when the doors are closed, and thereby permit said doors to freely expand and shrink without liability of binding or otherwise interfering with their full movement to the closed position. In order to close this gap or opening, the meeting edges of the doors are provided with comparatively narrow metal plates 21, which are embedded or recessed in the upper faces of the wood doors and project laterally beyond their meeting edges and overlap one upon the other, so that when the door shrinks the gap will still be closed and when they expand the plates ride one upon the other. Each of the doors 4 is provided with a lengthwise reinforcing-rib or angle-iron 22, which is secured to the under face of the door near its meeting edge and by the same fastening means which hold the plates 21 in place. It is now seen that the meeting edge of each door is bound between metal bands 21 and 22, which materially stiffen the same against sagging under a load and also protects the door from undue wear, while the opposite ends of the angle-irons 22 project beyond the ends of the doors and form a convenient and secure anchorage for the ends of the winding chains or cables 23, presently described.

I have thus far described the general construction of the dump-box and its swinging bottom sections; but the most important feature of this invention lies in the means for controlling the operation of the dumping bottom sections, whereby the sagging of the doors and other disadvantages are practically overcome. For this purpose I have provided two drums 26 and 27, which are arranged transversely of the line of draft at substantially right angles to the meeting edges and swinging axes of the doors, the drum 26 being located in front of the front end wall of the box and its opposite ends are journaled in metal sleeves 28, which are secured in suitable openings in the front extensions of the side walls 1, while the other drum, 27, is located at the rear of the rear end wall of the box and is journaled in metal sleeves 28, which are also secured in suitable openings in the rearward extensions of the sides 1. The front cables 23 are attached to eyes 30 on the front ends of the angle-bars 22 and are attached to and wound upon the front drum 26, and the rear

cables are similarly secured to the rear ends of the angle-irons and are attached to and wound upon the rear drum. It now appears that the drums are connected to the ends of the doors by separate short cables or chains, which are drawn in lines substantially parallel with the line of draft and being short and the drums close to the work the liability to stretch is reduced to a minimum.

The front drum is rotated through the medium of a ratchet-wheel 32 and a pawl 33, which is mounted upon and actuated by a hand-lever 34. Rotary motion is transmitted from the front drum to the rear drum by means of rigid connecting-bars 35, which are located outside of and extend along the opposite sides of the box and have their opposite ends pivotally connected to the rear ends of the drums at one side of their axes and are preferably pivoted at 36 to suitable crank-arms 37, which are secured to the ends of the drums by pins 38. These crank-arms all have substantially the same degree of "throw;" but those at one side are set a quarter-turn in advance of those at the opposite side to prevent any possibility of a dead-lock and to render the winding operation easier and more positive.

The ratchet-wheel 32 is secured to the front drum 26 just inside of the right-hand side of the box, and the lever 34 is fulcrumed on the drum, while the pawl 33 is pivoted at 39 to the lever and drops by gravity into engagement with the teeth of the ratchet-wheel, so that the front drum is rotated in the direction indicated by arrow *x* by the upward pull of the hand-lever to wind the front chains thereon, and thereby elevate or close the doors, similar motion being imparted to the rear drum and rear ends of the doors by the connecting-bars 35 and rear chains 25.

The drums are locked to hold the doors in their closed position by means of a holding-detent 40, which is pivoted at 41 to a bracket 42 on the box, and its free end falls by gravity into engagement with one of the teeth of the ratchet-wheel and directly beneath the free end of the pawl 33. In fact, the pawl 33 rides upon the end of the detent 40 and is thereby thrown out of engagement with the ratchet-wheel 32 when the lever 34 returns by gravity to the position of rest, (seen in Fig. 5;) but when it is desired to dump the load the detent 40 is drawn out of engagement with the ratchet-wheel by a separate lever 44, which is connected by a link 45 to said detent, so that the two form a toggle and operate to simultaneously force both detent and pawl out of engagement with the ratchet-wheel when the lever 44 is elevated to release the doors. This lever 44 is hinged at its rear end to an eye 46 on the front end wall of the box, and it will be observed that both levers are located within easy reaching distance from the seat and are each pulled upwardly in the act of closing and releasing the doors, respectively,

being located at opposite ends of the ratchet-wheel, so that each may be operated independently without interference with the other.

This invention lies, primarily, in transmitting rotary motion from the front to the rear drum by means of rigid bars, in the specific construction and arrangement of the swinging doors, and also in the specific means for controlling the operation of the doors.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a dump-wagon, the combination with a box having swinging bottom doors, rotary drums extending transversely of and beyond the opposite sides of the box and connected to opposite ends of the door to elevate the same, rigid bars eccentrically connected to the outer ends of the drums to transmit rotary motion from one drum to the other, and means to rotate one of the drums.

2. In a dump-wagon, the combination with a box having swinging bottom doors, rotary drums located at the ends of the doors and connected thereto to elevate the same, rigid bars located at opposite sides of the box and each eccentrically connected to the adjacent ends of the drums to transmit rotary motion from one drum to the other, and means to rotate one of the drums.

3. In a dump-wagon, the combination with a box having swinging bottom doors, rotary drums connected to the opposite ends of the doors to elevate the same and extending beyond the opposite sides of the box, rigid bars at opposite sides of the box pivotally connected to the adjacent ends of the drums at one side of their axes to transmit rotary motion from one drum to the other, and means to rotate one of the drums.

4. In a dump-wagon, the combination with a box having swinging bottom sections hinged to its sides, rotary drums at the ends of the box, cables connecting the drums to the adjacent ends of said sections, a rigid bar extending at right angles to the axes of the drums and eccentrically connected to the drums at one side of the box, and means to rotate one of the drums.

5. In a dump-wagon, the combination with a box having swinging bottom sections, rotary drums having parallel axes disposed at right angles to the swinging axes of said sections, cables connecting the drums to the ends of the doors, a rigid bar eccentrically connected to the drums to transmit rotary motion from one drum to the other and hold the drums from independent movement, and means to rotate one of the drums.

6. In a dump-wagon, the combination with a box having laterally-swinging bottom doors meeting substantially midway between the sides, of rotary drums at the front and rear ends of the box connected to the doors, opposite rigid bars eccentrically connected to adja-

cent ends of the drums to transmit rotary motion from one to the other and to hold them from independent movement, and means to rotate one of the drums.

7. In a dump-wagon the combination with swinging bottom doors of a box, of rotary drums at the ends of and above the doors, separate cables connecting the drums to the ends of the doors, crank-arms on the ends of the drums, bars at opposite sides of the box connecting the adjacent crank-arms to transmit rotary motion from one drum to the other and to hold said drums from independent movement, and means to rotate one of the drums.

8. In a dump-wagon, the combination with a box having swinging bottom doors hinged to the sides of the box and meeting substantially midway between said sides, front and rear drums extending transversely of the box through its sides, chains connecting the drums to the adjacent ends of the doors, means for rotating the front drum, and inflexible bars at opposite sides of the box, each bar being eccentrically connected to the adjacent ends of the drums at the same side of their axes whereby rotary motion is transmitted from the front drum to the rear drum, and the rear drum is held from independent rotary movement.

9. In a dump-wagon the combination with a dump-box having swinging bottom doors hinged to the sides of the box, front and rear drums located above the opposite ends of the doors and extending transversely of their meeting edges, said drums extending beyond the opposite sides of the box, chains or cables connecting the drums to the adjacent ends of the doors, means for rotating the front drum, and inflexible bars at opposite sides of the box each eccentrically connected to the adjacent ends of the drums at the same side of their axes to transmit rotary motion from the front drum to the rear drum and to hold the rear drum in its adjusted position, said bars being connected at different sides of the axis of the drums to obviate dead-center lock.

10. In a dump-wagon, the combination with a dump-box having swinging bottom doors, of a rotary drum journaled in the sides of the box in front of the front end of the box, a second drum journaled in the sides of the box at the rear of the rear end, an inflexible bar having its opposite ends eccentrically connected to the drums at the same side of their axes for transmitting motion from the front drum to the rear drum and for holding the rear drum from independent movement, means to rotate the front drum, and cables connecting said drums with the adjacent ends of the doors.

11. In a dump-wagon, the combination of a dump-box having swinging bottom doors, rotary drums at the front and rear ends of the box and extending beyond the opposite sides

of the box, cables connecting the drums to the adjacent ends of the doors, crank-arms on the outer ends of the drums, rigid bars connecting the crank-arms, mechanism connected to
5 wind the front drums, a holding-detent for the winding mechanism, and a lever operatively connected to break the connection between said mechanism and drum and to simultaneously release the holding-detent, said bars
10 operating to hold the rear drum in its adjusted position.

12. In a dump-wagon, the combination of, a box having swinging bottom sections, a rotary drum connected to operate said sec-

tions, a ratchet on the drum, a lever fulcrumed 15 on the drum and provided with a pawl to engage and rotate the ratchet and drum, a holding-detent engaged with the ratchet, a release-lever connected to the detent to draw the same from its holding position, said detent being 20 operatively connected to force the pawl from the ratchet when the release-lever is operated.

In witness whereof I have hereunto set my hand this 20th day of November, 1903.

JOSEPH A. LOVE.

Witnesses:

H. E. CHASE,

MILDRED M. NOTT.