No. 742,350. PATENTED OCT. 27, 1903.

# N. L. PHILLIPS.

## DUMP WAGON.

APPLICATION FILED JULY 24, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

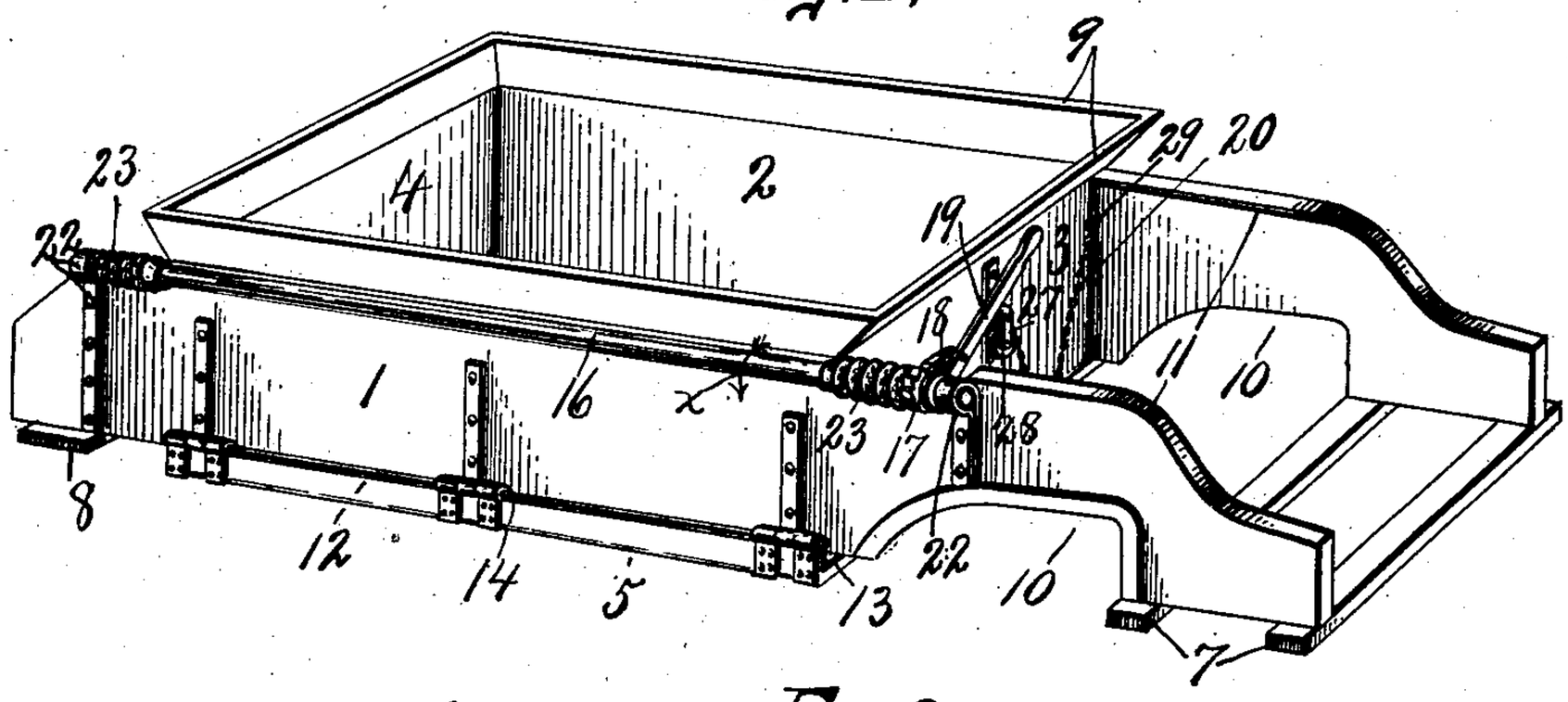
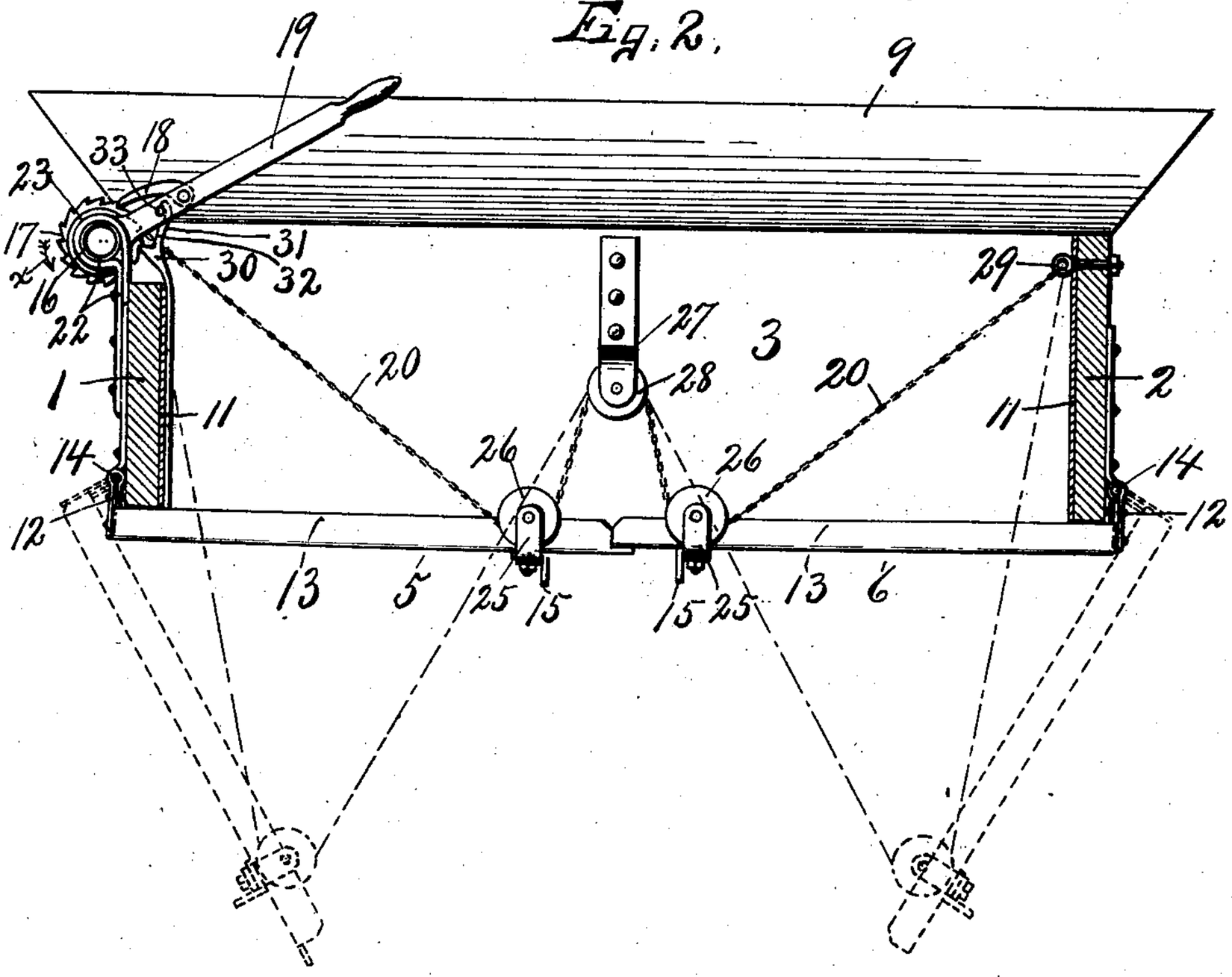



Fig. 2.




Witnesses:
F. E. Arthur,
H. E. Chase.

Inventor:
Norvel L. Phillips.
By Howard P. Denson
Attorney.

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## DUMP WAGON.

APPLICATION FILED JULY 24, 1903.

NO MODEL. 2 SHEETS—SHEET 2

Fig. 3.

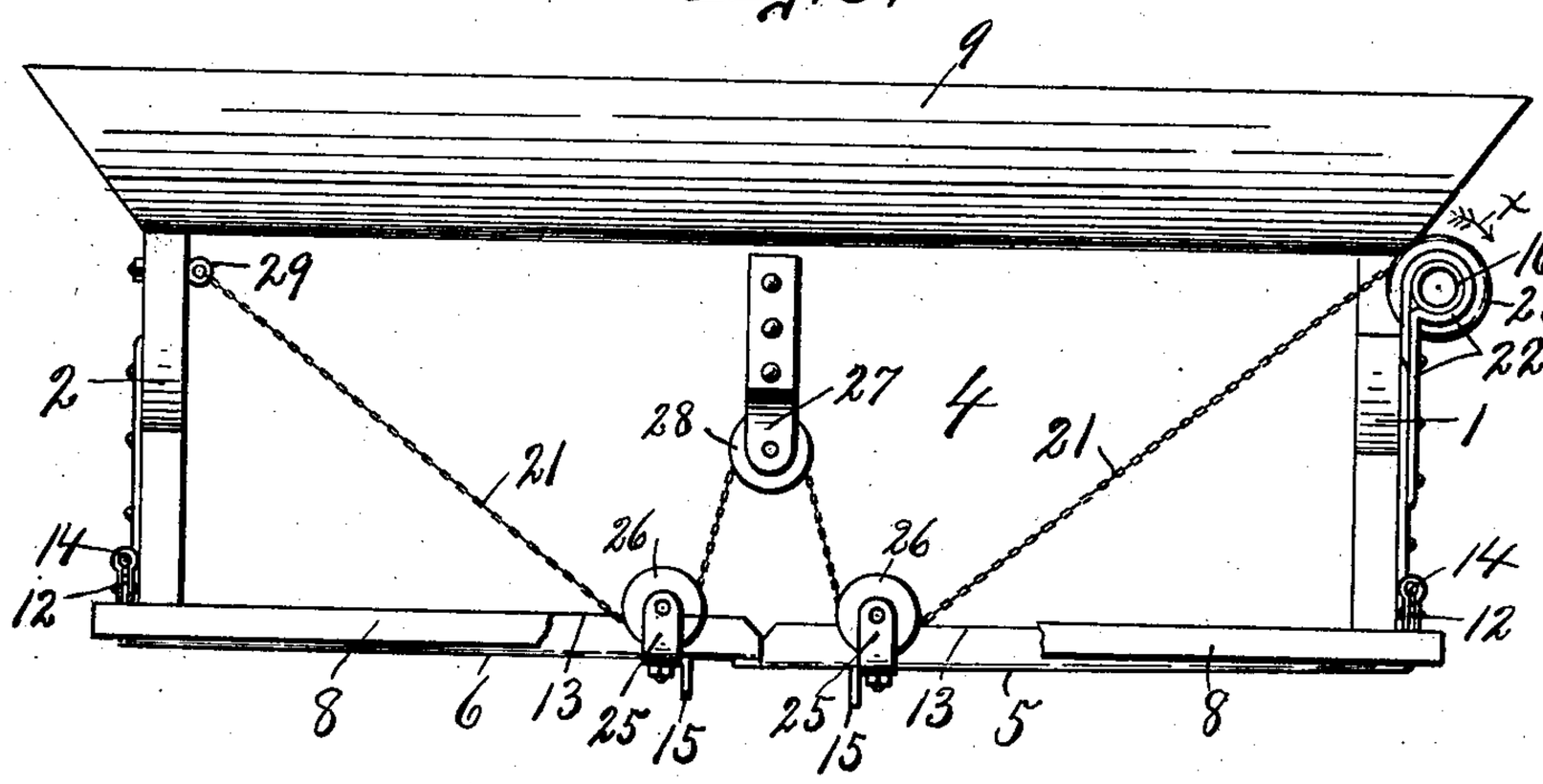



Fig. 4.

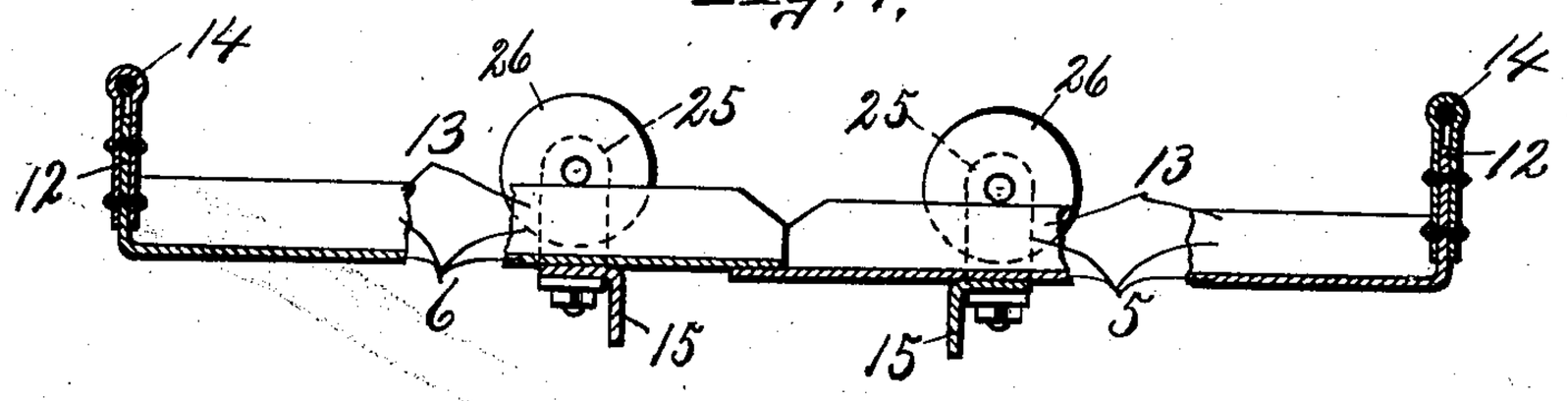



Fig. 5.

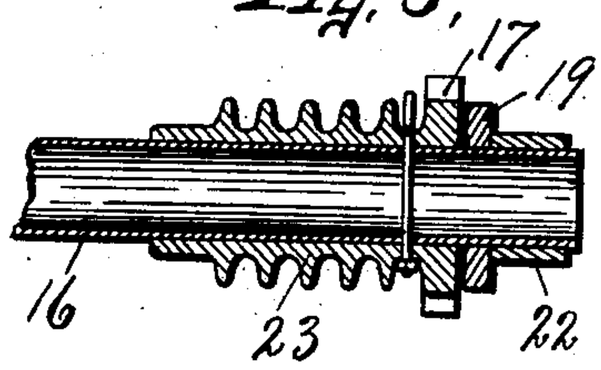
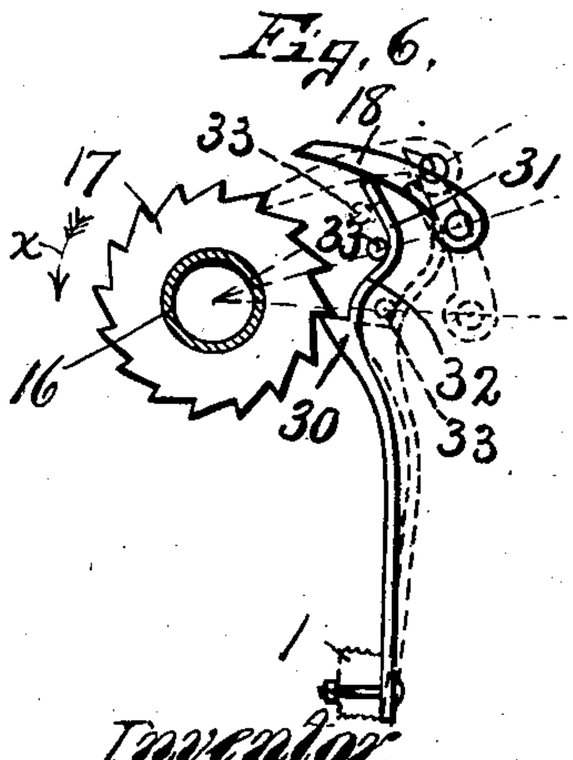



Fig. 6.




Witnesses:
F. E. Arthur,
H. C. Chase

Inventor:
Nowel L. Phillips
By Howard P. Denison
Attorney.

No. 742,350. Patented October 27, 1903.

# UNITED STATES PATENT OFFICE.

NORVEL L. PHILLIPS, OF SYRACUSE, NEW YORK.

## DUMP-WAGON.

SPECIFICATION forming part of Letters Patent No. 742,350, dated October 27, 1903.

Application filed July 24, 1903. Serial No. 166,834. (No model.)

*To all whom it may concern:*

Be it known that I, NORVEL L. PHILLIPS, 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, and refers more particularly to the laterally-swinging bottom doors or sections of the box and operating means therefor.

The primary object is to arrange the winding shaft or drums in such manner as to permit the use of comparatively short cables for operating the doors and to apply equal power close to both ends of the doors, so that the slack of the cables and consequent sagging of either end of the doors are reduced to a minimum.

Another object is to provide means whereby a single movement of the same lever which is used to rotate the shaft to wind the cables and close the doors causes the winding-pawl and holding-detent for the shaft to be thrown out of operative position, so that the cables are free to unwind to permit the dumping of the bottom sections.

Further objects will appear in the following description.

In the drawings, Figure 1 is a perspective view of a portion of a dump-wagon embodying the features of my invention. Figs. 2 and 3 are respectively front and rear end views of the parts seen in Fig. 1, the front ends of the side bars of the box being cut away and in section in Fig. 2. Fig. 4 is an enlarged transverse section, partly broken away, of the swinging bottom doors or sections, showing particularly the overlapping feature and reinforcing-ribs. Fig. 5 is an enlarged sectional view of one end of the winding-shaft and the adjacent spirally-grooved drum and ratchet thereon. Fig. 6 is an enlarged end view of the shaft and ratchet and the winding and holding means in different positions.

Similar reference characters indicate corresponding parts in all the views.

In carrying out the objects stated I provide a box consisting of opposite side walls 1 and 2, front and rear end walls 3 and 4, and laterally-swinging bottom doors or sections 5 and 6. The side walls are preferably formed of wood and extend forwardly and rearwardly beyond the end walls and are united to each other by transverse bars 7 and 8, which serve as convenient bearings for the bolsters or axles (not shown) of the wagon, so that the box proper between the end walls is located between the front and rear axles and sufficiently at the rear to permit the front wheels to turn under the side bars and in front of the front end wall 3. The upper edges of the side and end walls are provided with outwardly-flaring portions 9, which form a hopper-shape extension, but may be dispensed with, if desired. The front extensions of the side walls are recessed at 10 to receive the steering-wheels and are reinforced by metal plates 11, which are secured to their inner faces and serve to strengthen the recessed portions. The bottom edges of the end walls and those of the side walls between the end walls are disposed in substantially the same horizontal plane and form abutments for the sides and ends of the doors when closed. These doors are preferably formed of sheet metal, as steel, and are provided with marginal upturned flanges 12 and 13 at their longitudinal and end edges, which lap or fit upon the outer sides of the side and end walls of the box to prevent the escape or leakage of the material therefrom and also to stiffen the doors, which are hinged at their outer longitudinal edges at 14 to suitable hinge-straps on the sides of the box, and their inner lengthwise edges extend a slight distance beyond the longitudinal center of the box and overlap one upon the other to further prevent any gap or leakage-opening in the bottom when the doors are closed. In order to further strengthen or stiffen the doors, suitable angle-irons are secured to their lower faces near and parallel with their meeting edges to form lengthwise depending ribs 15, extending from end to end of the doors.

The means for controlling the swinging movement of the doors preferably consist of a lengthwise rotary shaft 16, a ratchet and pawl 17 and 18, and a lever 19 for rotating the shaft, and separate cables 20 and 21 connecting the opposite ends of the shaft to the doors. The shaft 16 is arranged along the outside of the upper edge of the side wall 1,

parallel with the swinging axes of the doors or bottom sections 5 and 6 and also parallel with the line of draft and extends forwardly and rearwardly beyond the end walls of the box, the opposite ends of said shaft being journaled in suitable brackets 22 on the side wall 1 and are provided with spirally-grooved winding-drums 23, which are located just inside of the brackets, but extend forwardly and rearwardly beyond the end walls 3 and 4 to receive the cables 20 and 21 and wind them transversely of the box. The ratchet 17 is also secured to the shaft and preferably forms a part of the front winding-drum 23, and the pawl 18 is pivoted to the lever 19, which in turn is loosely mounted on the shaft between the front bearing 22 and adjacent end of the ratchet 17, so that by rocking the lever upwardly and outwardly the pawl engages the ratchet and rotates the shaft in the direction indicated by arrow *x* to wind both cables and to thereby close the doors 5 and 6.

Secured to the front and rear ends of each of the doors near their meeting edges are suitable bearings 25, in which are journaled sheaves or rollers 26, and directly over the opposite ends of said meeting edges and secured to the outer faces of the end walls 3 and 4 are suitable hangers 27, in which are journaled additional sheaves or rollers 28. The cables 20 and 21 extend transversely of the box in close proximity to the outer faces of the end walls 3 and 4 and around their respective sheaves or rollers 26 and 28 and are secured at one end to their respective drums 23 to wind in their spiral grooves, while their opposite ends are secured to fixed anchors 29 on the opposite side of the box. The intermediate portions of these cables are passed around the lower faces of the sheaves 26 and over the upper faces of the sheaves 28, and it therefore becomes apparent that when the shaft is rotated in the direction indicated by arrow *x* the cables are wound upon their respective drums and operate upon both ends of the doors to close the same and that by placing the drums in close proximity to the ends of the doors the cables are comparatively short, and the usual slack or lag of both cables and doors when closing the latter is therefore reduced to a minimum, thus insuring a quick and positive action.

Another feature of my invention lies in the means for holding and releasing the doors in the act of dumping or discharging the load, which consists, essentially, of a spring-detent 30, secured to the inner side wall of the box in line with the ratchet and normally engaged with one of its teeth below that engaged by the pawl 17 (see Figs. 2 and 7) and is provided with an upwardly-projecting arm 31, having a cam-face 32 and adapted to engage the lower face of the pawl 17 inside of its pivot. A pin or stud 33 is secured to and projects from the lever 19 between the shaft and pivot of the pawl and is arranged to engage the cam 32 when the lever is depressed, and thereby spring the detent inwardly to disengage it from the ratchet and release the shaft and doors connected thereto, the upper end of the extension being arranged to first engage and lift the pawl from the ratchet as the lever descends, after which the continued movement of said lever downwardly carries the pin to operate the detent, as described. It now becomes apparent that the swinging doors or bottom sections of the box are forced to their closed position by the movement of the lever 19 in one direction from its normal position and are caused to be released by the movement of the lever in the opposite direction and that the detent serves the double purpose of holding the shaft from rotation when the doors are closed and also forcing the pawl from its operative position before and during the release of the doors.

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

1. In a dump-wagon, a box having swinging bottom sections and a rotary shaft having their axes substantially parallel with the line of draft, and separate cables operatively connected to the shaft and to the opposite ends of the bottom sections, whereby the rotation of the shaft operates the cables transversely of the box to actuate the bottom sections.

2. A dump-wagon comprising a box having bottom sections hinged to the side walls of the box, a rotary shaft mounted on one of the side walls and extending from front to rear of the box, winding-drums on the opposite ends of the shaft having spiral grooves, separate cables secured to the drums and riding in the grooves, said cables being operatively connected to the opposite ends of the sections for closing the same when the shaft is rotated.

3. In a dump-wagon, the combination with a box having swinging bottom sections, of a shaft rotatably mounted on one of the side walls of the box and extending beyond its front and rear end walls, separate cables secured to the shaft and anchored to the opposite side of the box, the intermediate portions of the cables being operatively connected to actuate the swinging bottom sections.

4. The combination with the swinging bottom sections of a dump-wagon, of a winding-shaft and cables connected to actuate said sections, a pawl and ratchet for rotating the shaft, a lever actuating the pawl, a detent for the ratchet in the path of the pawl to trip the latter when the lever is depressed, and means on the lever to engage and trip the detent by the continued depression of the lever.

5. In a dump-wagon, a swinging door, a winding-drum and a cable connecting the door and drum, in combination with means to rotate the drum comprising a ratchet, a lever and a pawl mounted on the lever, a detent engaging the ratchet, and means on the lever to engage and trip the detent.

6. A dump-wagon comprising a box having swinging bottom sections hinged to its side walls and overlapping at their meeting edges, reinforcing-ribs secured to sections near their meeting edges, sheaves mounted on the end walls of the box, additional sheaves mounted on the ends of the bottom sections near the meeting edges, a shaft rotatably mounted on one of the side walls of the box parallel with the swinging axes of said sections, and separate cables passed over their respective sheaves and having corresponding ends secured to the opposite ends of the shaft, and fixed anchors for the opposite ends of the cables.

In witness whereof I have hereunto set my hand this 16th day of July, 1903.

NORVEL L. PHILLIPS.

Witnesses:
H. E. CHASE,
MILDRED M. NOTT.