No. 889,603. PATENTED JUNE 2, 1908.

J. W. HAYWOOD.

DUMP WAGON.

APPLICATION FILED SEPT. 24, 1907.

Fig. 1.

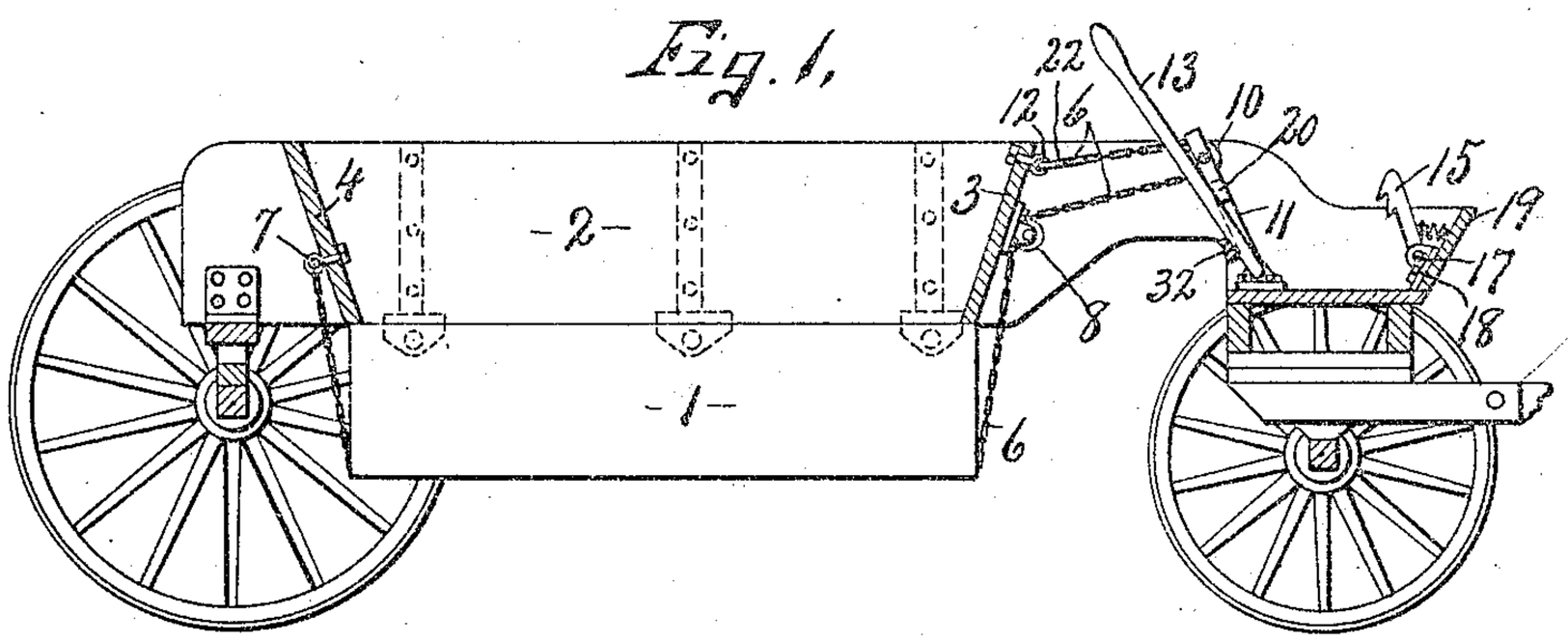


Fig. 2.

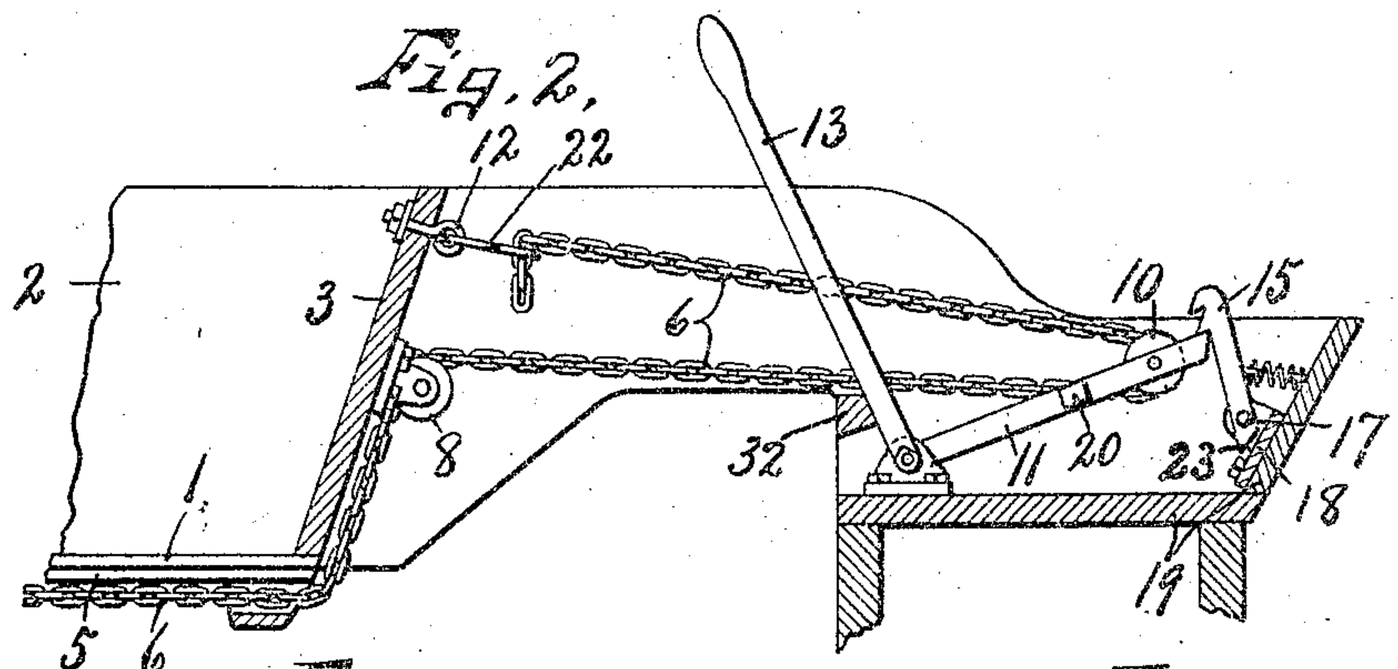


Fig. 3.

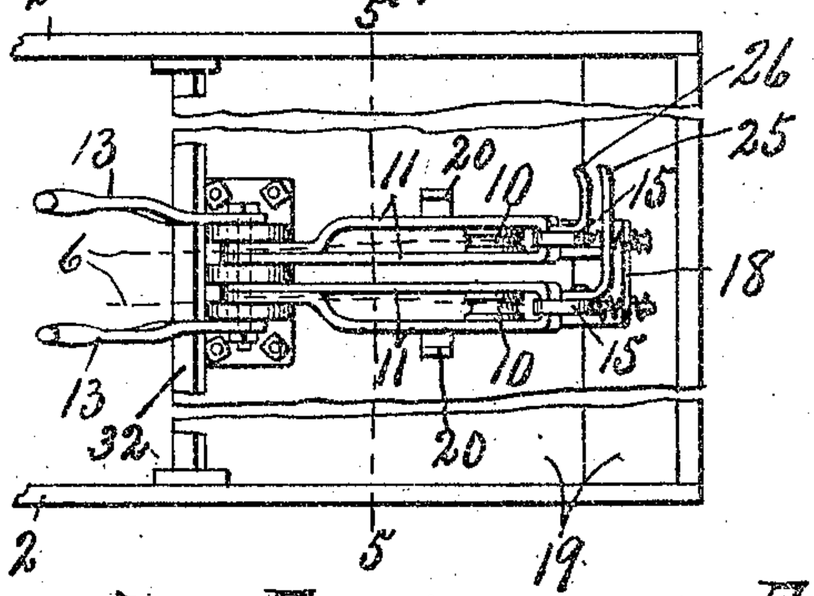


Fig. 4.

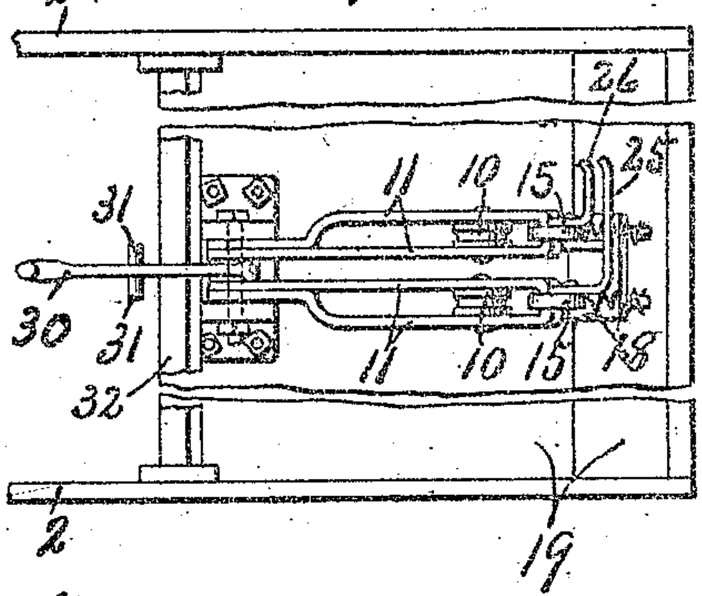


Fig. 6.

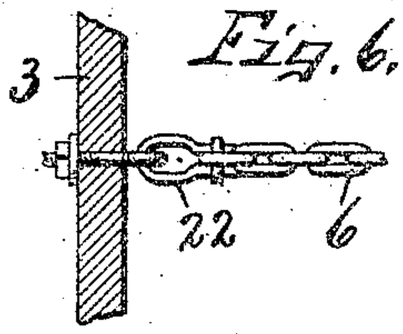
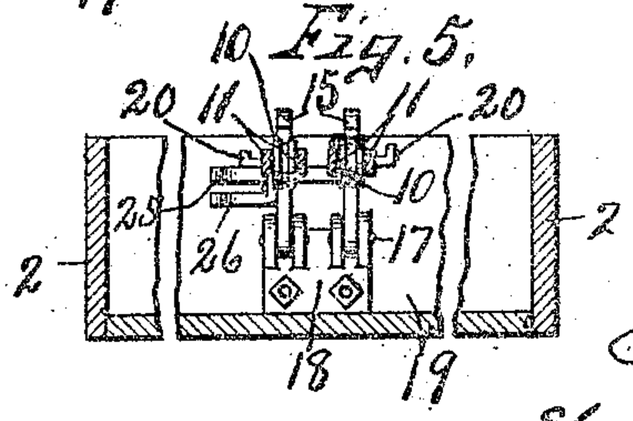


Fig. 5.



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DUMP-WAGON.

No. 889,603. Specification of Letters Patent. Patented June 2, 1908.

Application filed September 24, 1907. Serial No. 394,336.

To all whom it may concern:

Be it known that I, JOHN W. HAYWOOD, of Baldwinsville, 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 certain improvements in dump wagons having laterally swinging bottom doors hinged to the sides and meeting at substantially the longitudinal center of the box and refers more particularly to the means for controlling the operation of the doors. In most of the dump wagons of this class now in common use, the operation of the doors is controlled by a suitable chain or chains connected to one or both ends of the doors and adapted to be wound upon a drum which in turn is usually rotated by means of a ratchet wheel and pawl through the medium of the lever upon which the pawl is mounted. This drum is necessarily comparatively small in diameter and requires a number of turns and usually a greater number of operations of the handle to bring the doors from their extreme open position to their extreme closed position and the work of closing the doors is, therefore, not only laborious but requires considerable time and attention from the driver when in many instances, particularly in irregular excavations and fills the handling of the team requires his full attention and both hands.

The main object, therefore, of my present invention is to provide means whereby the driver or operator may close the doors with a single comparatively short stroke of a suitable lever and whereby the movement of the lever through an arc of given length will take up a length of chain substantially equal to twice the length of the arc of movement of the lever.

Another object is to free the lever from connection with other parts of the door closing mechanism after said doors are closed and during the operation of opening the same.

A still further object is to enable the operator to open either door individually and independently of the other or to open both doors simultaneously thereby permitting substantially half of the load to be dumped in one place and the other half in another place or the whole load may be dumped at once.

Other more specific objects and uses will be brought out in the following description.

In the drawings—Figure 1 is a longitudinal sectional view of a dump wagon showing the door controlling mechanism in elevation and unlocked with the doors open. Fig. 2 is an enlarged longitudinal sectional view of a portion of the dump wagon showing the door controlling mechanism as locked and the doors closed. Fig. 3 is a top plan of the door controlling mechanism seen in Fig. 1 and adjacent portions of the box or frame upon which said mechanism is mounted. Fig. 4 is a similar top plan of a modified form of door controlling mechanism in which a single lever instead of two levers is employed to throw the separate door operating mechanisms into position to close the door. Fig. 5 is a sectional view taken on line 5—5, Fig. 3. Fig. 6 is a horizontal sectional view of the front end of the box to which the chains are anchored showing particularly the grab hook which permits the chains to be properly adjusted.

In Figs. 1, 2 and 3, I have shown a dump box as provided with opposite laterally swinging doors —1— hinged to the sides —2— and meeting at substantially the longitudinal center of the box, the bottom doors —1— being co-extensive with the distance between the lower edges of the ends —3— and —4— and in this instance are made of sheet steel having lengthwise reinforcing ribs —5— running lengthwise thereof in proximity to their meeting edges. The exact form, size and construction of the box is, however, immaterial except that the door closing device is particularly applicable for laterally swinging bottom doors and may be useful in controlling the operation of other than laterally swinging bottom doors and I do not, therefore, limit my present invention to the form of dump wagon herein shown and described.

In order to demonstrate the practicability of my improved door controlling mechanism I have shown a pair of chains —6— each extending under the meeting edge of one of

the doors and anchored at its rear end to a suitable anchorage —7— on the rear end of the box while the front portions thereof are extended upwardly over separate sheaves or idlers —8— just in front of the front end —3— and some distance above the bottom of the box, the front portions of said chains being passed around additional sheaves —10— which are mounted upon swinging levers —11— the front extremities of the chains being then secured to suitable anchors —12— on the front end —3— of the box as clearly shown in Figs. 1 and 2. The essential feature of my invention, however, consists in passing the intermediate portion of a chain as —6— around a sheave as —10— on a swinging lever as —11— and connecting one end of the chain to a fixed anchorage on the box while the other end is connected to one of the doors in combination with a hand lever —13— for rocking the lever —11— in one direction and a detent as —15— for holding the lever —11— in its adjusted position. It, therefore, appears that each door and its chain —6— is provided with a separate operating lever —11— having a sheave or idler around which the chain is adapted to render and owing to the fact that one end of each chain is fastened to a fixed anchor and its other end is connected to the door it is evident that by rocking the lever —11— backward and forward, a considerably greater length of the chain which is attached to the door is let out and taken up than the length of the arc through which the sheave of the lever —11— swings and, in this instance, each lever is adapted to move independently of the other and to be held by a separate detent as —15—.

Each lever is fulcrumed at —17— to a suitable bracket —18— on the front of the box frame or platform —19— usually in front of the seat, not shown, and its upper end is adapted to swing forwardly and rearwardly into and out of engagement with its holding pawl or detent —15—, the sheave or idler —10— and connection of the chain —6— with the anchorage —12— being adjusted so that a predetermined movement of the lever —11— from its rearward position to its extreme forward position will carry the door from its extreme open position to its extreme closed position. In this particular instance, the lever —11— swings through an arc of substantially 90° and the sheave —10— moves through an arc substantially equal to half the arc through which the meeting ends of the door swings, so that when the lever —11— is thrown to its extreme rearward position the corresponding door is full open, each of said levers —11— being provided with a stop shoulder —20— adapted to engage and to be engaged by the lever —13—.

It will be seen upon reference to Fig. 2 that the lever —11— swings forwardly nearly to a horizontal position in closing the door and, therefore, the lower side of the chain —6— upon which the greatest strain is exerted when the box is loaded draws close to the fulcrum —17— and relieves in a measure the strain upon the detent —15— thereby permitting the latter to be easily thrown out of holding engagement therewith. The detents —15— are preferably hinged at their lower ends at —17— to the front of the platform —19— as best seen in Fig. 2 and are provided with one or more engaging teeth to compensate for slight lengthening of the chain although the chains are detachably engaged with a grab hook —22— of the anchor —12— which permits said chain to be properly adjusted to cause the doors to be closed when the lever —11— is swung into holding engagement with one or the other of the teeth of the detent —15—. The lower ends of the detents —15— are beveled at —23— to hold them against undue forward movement and still permit them to fall by gravity into position to be engaged by the free end of the levers —11—. The detents —15— are provided with laterally projecting foot pieces —25— and —26— lying normally one above the other and within reaching distance of the seat, not shown, that the driver or operator may readily push either or both of the detents out of holding engagement with their respective levers —11— thereby permitting one or both doors to drop or swing downwardly and laterally to discharge the load.

In Figs. 1, 2 and 3, I have shown separate operating levers —13— for the levers —11— while in Fig. 4 I have shown a single operating lever —30— playing between the levers —11— and provided with opposite shoulders —31— for engaging and rocking the levers —11— forwardly until the latter are brought into holding engagement with their detents —15—, whereupon the lever —30— or the levers —13— as the case may be return to their normal position against a suitable rest —32— where they are in position to be reengaged by the lever —11— when the load is discharged.

What I claim is:

1. A door operating mechanism for dump wagons comprising a chain having one end connected to the door and its other end connected to a fixed anchorage on the wagon, and a lever provided with a bearing engaging the intermediate portion of the chain.

2. A door operating mechanism for dump wagons comprising a chain having one end connected to the door and its other end connected to a fixed anchorage on the wagon, a movable sheave or idler engaging the intermediate portion of the chain, and means for moving said idler in one direction.

3. In a dump wagon, a dump box having

laterally swinging bottom doors, separate chains, each having one end connected to a fixed anchorage on the wagon and its other end connected to one of the doors for controlling the action of the latter, separate movable elements, each engaging the intermediate portion of one of the chains, means for forcing said elements in one direction to close the doors, and separate detents for holding said elements in their operative position.

In witness whereof I have hereunto set my hand this 19th day of September 1907.

JOHN W. HAYWOOD.

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