J. W. MOORE.

DUMP CAR CLOSURE.

APPLICATION FILED OCT. 28, 1909.

972,018.

Patented Oct. 4, 1910.

2 SHEETS—SHEET 1.

FIG. 1.

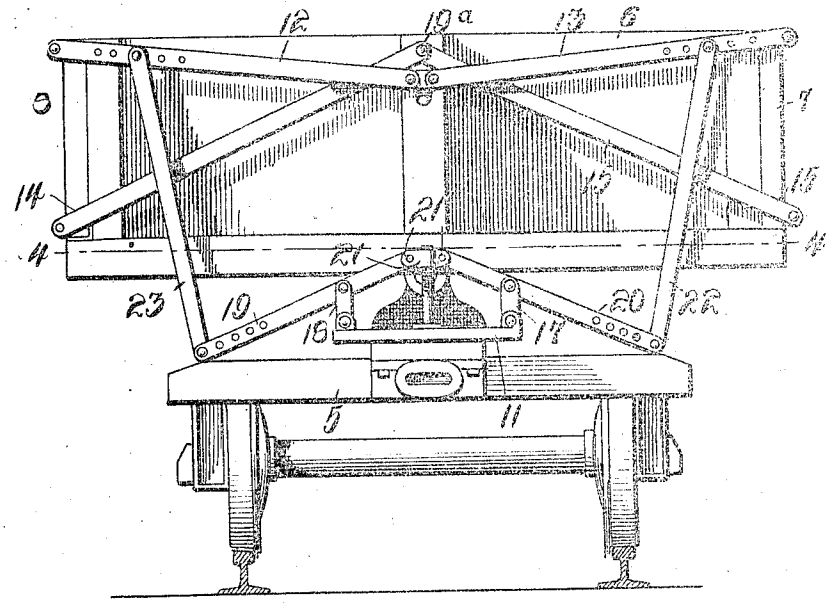
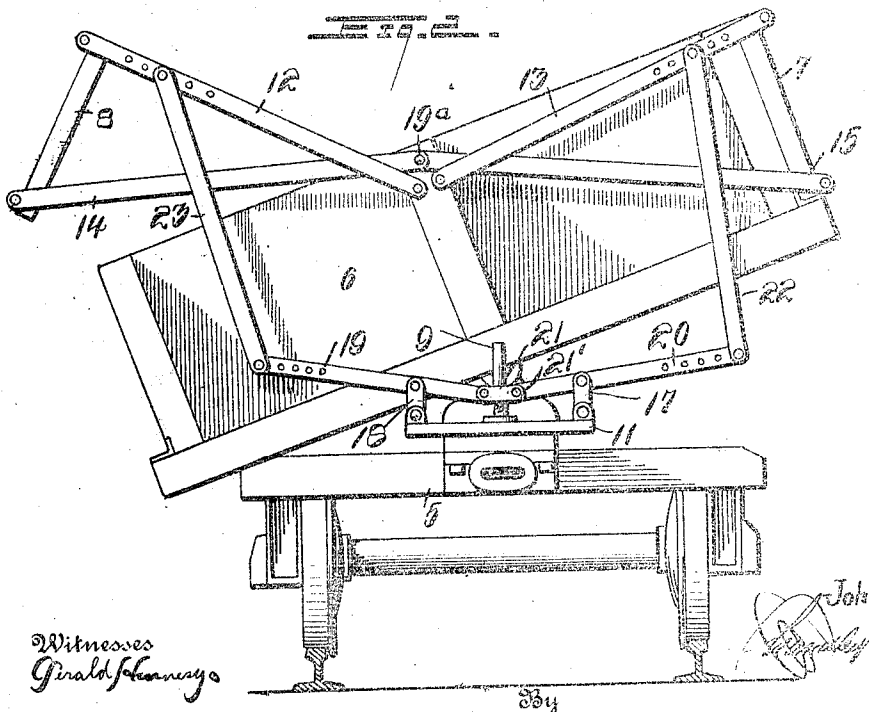


FIG. 2.



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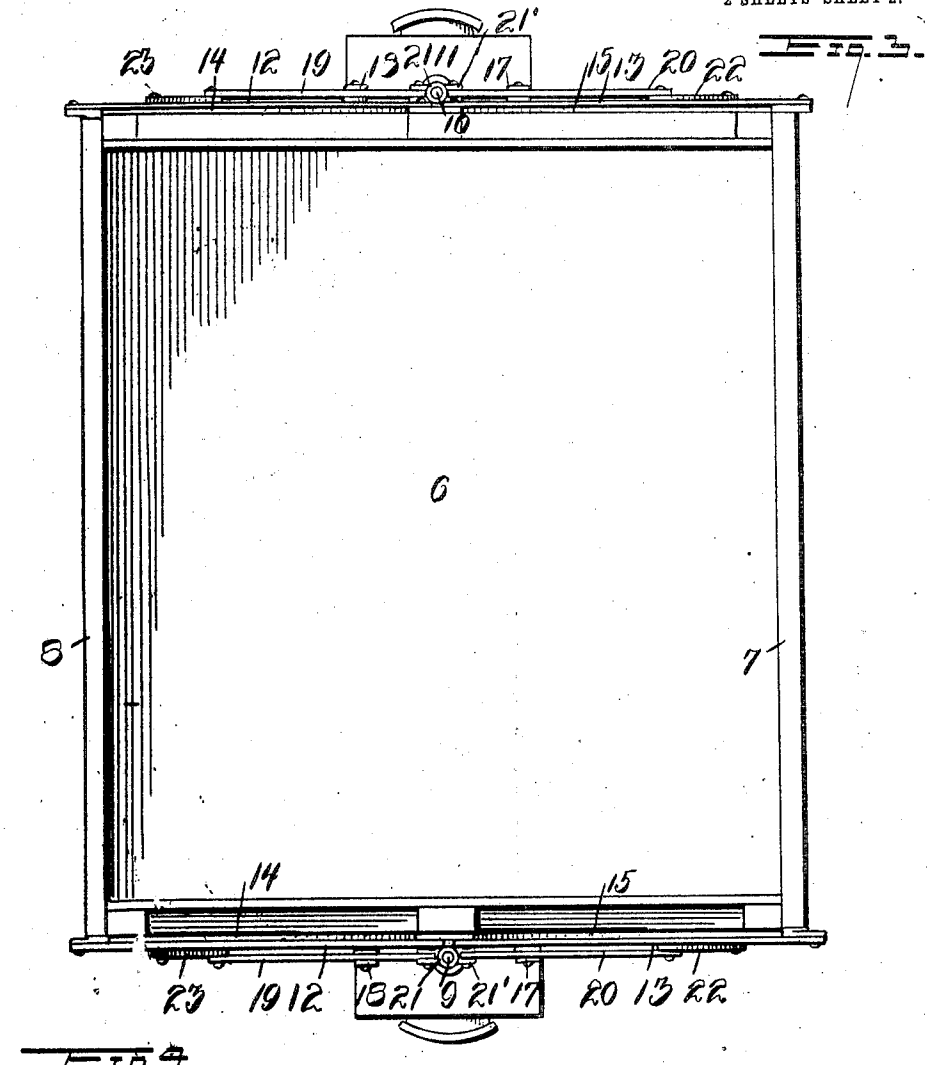
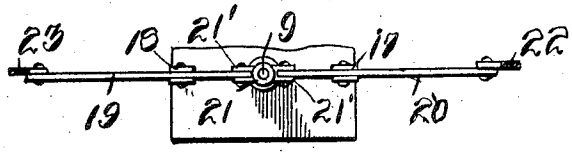


Fig. 2.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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DUMP-CAR CLOSURE.

972,018. Specification of Letters Patent. Patented Oct. 4, 1910.

Application filed October 23, 1909. Serial No. 525,154.

To all whom it may concern:

Be it known that I, JOHN W. MOORE, a citizen of the United States, residing at Bartow, in the county of Polk, State of Florida, have invented certain new and useful Improvements in Dump-Car Closures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to dump cars and more particularly to the type known as lateral tilting.

It is well known that a force must be applied to one side of a dump car of ordinary construction to tilt the same in order that the contents of the car may be discharged after which a force must be applied to the opposite side of the car in order to restore the body to its normal horizontal position.

The present invention aims at the production of a car body provided on either side with closures and operating means therefor, whereby the car is automatically returned to its normal horizontal position after it has been tilted and its contents discharged from either side.

The invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is an end elevation of a car body and showing my improved device applied thereto. Fig. 2 is a similar view but showing one of the closures in unsealing position. Fig. 3 is a plan view of a car body and showing the device applied at the opposite ends thereof. Fig. 4 is a sectional plan view on the line 4—4 of Fig. 1.

Similar numerals of reference are employed to designate corresponding parts throughout.

The car to which the invention is shown applied is known as a lateral dump car and consists of the usual trucks and running gear designated in general by the numeral 5, and a body 6, arranged on a pivot extending longitudinally of the body and running gear and located at the longitudinal central line of the body 6. A description of the tilting or dumping mechanism and the various supports used to maintain the car body in a horizontal plane will not be given, since these elements form no part of the present invention. As usual the opposite sides of the body 6 are removed and in their stead are provided the usual closures or doors 7 and 8. These closures or doors extend throughout the length of the car body and in most instances, when the body is tilted, move upwardly so that the contents of the body may pass through the spaces which the doors are adapted to seal when the body is in a horizontal plane.

The construction about to be described is arranged on the opposite ends of the car and in Figs. 1 and 2 it will be seen that rising from that end of the car presented to view, is a standard located a trifle in advance of the end of the car body 6. These standards, since it will be understood that a similar standard is arranged at the opposite end of the car, are designated by the numerals 9 and 10, and are each formed of a cylindrical rod, which rises to a point adjacent the bottom of the car body 6. Extending transverse the lower end portion of each of the standards is a bed block 11, the opposite ends of which project for equal distances beyond the opposite sides of the standards and lie on opposite sides of the longitudinal central line of the car body 6, and trucks. Connection between the closures 7 and the body 6, is established at each end of the body by means of a pair of arms 12 and 13. The inner ends of these arms are pivoted adjacent the upper edge of each end and on opposite sides of the vertical central line of the body 6. The opposite or outer ends of the arms extend to the closures 7 and 8 and are pivotally secured at points adjacent the upper ends of the latter. In order to prevent the closures 7 and 8 from swinging outwardly on the arms 12 and 13, a pair of rods 14 and 15 are employed. The lower ends of these members are pivoted adjacent the lower ends of the closures 7 and 8 while their upper ends are journaled on a pin 19^a, located directly above and intermediate the pivot pins of the inner ends of the arms 12 and 13. With this construction it is evident that the lower ends of the doors will be prevented

from swinging outwardly on the arms 12 and 13.

By reference now to Figs. 1 and 2, it will be seen that located at opposite ends of the bed block 11 are a pair of uprights 17 and 18. These uprights are somewhat less in length than the standards and are pivotally mounted at their lower ends for lateral angular movement in a vertical plane and fulcrumed adjacent the upper ends of the uprights are the intermediate portions of a pair of levers 19 and 20.

Reference now to Fig. 4, discloses the fact that slidingly fitted on each of the standards 9 and 10 is a collar 21, having oppositely arranged ears 21′, to which are pivoted the inner ends of the levers 19 and 20. The outer ends of the levers 19 and 20, extend to points substantially intermediate the longitudinal center and opposite sides of the car body 6, and connection between the outer ends of the levers 19 and 20 and arms 12 and 13 is established by means of a pair of links 22 and 23. The upper ends of the links 22 and 23 are pivoted at points adjacent the outer ends of the arms 12 and 13, while the lower ends of the said links are pivoted to the outer ends of the levers 19 and 20. With this construction it is evident when a force is applied on one side of the bottom of the car body in order to tilt the latter that the ascending side or that to which the force is applied will, by virtue of the link on that side of the body move the outer end of the lever to which the link is connected, upwardly. This upward movement of the outer end of the lever will cause its inner end to move in an opposite direction, whereby the inner end of the opposite lever will be moved likewise and its outer end moved upwardly. This upward movement of the outer end of the last-named lever will impart an upward movement to the link on the opposite side of the car and by virtue of the connection between this last-named link and the arm at the upper end of the adjacent closure the latter will be moved bodily upward as the tilting movement of the car body continues and occupy the position shown in Fig. 2. When the parts are so positioned it is evident that the contents of the car will be discharged through the unsealed opening. It will be observed, owing to the length of the arc of movement of the closure, that when the car body is tilted the lower end of the said closure will be in a horizontal plane with the middle of the upper end of the car body, or substantially so, so that when the latter is relieved of its contents the closure will, by its own weight, descend and restore the car body to its normal horizontal position. It will be observed, during the descending movement of the closure, the outer end of the lever to which it is connected by means of the link will be moved downward, whereby an opposite movement will be imparted to the inner ends of the levers, thus causing the outer end of the opposite lever to descend and this downward movement of the last-named lever will, by virtue of its connection with one of the arms, produce a downward pull on the elevated side of the car body, whereby the latter will return to its normal horizontal position by the time the closure is over the discharge opening. Thus it will be seen that I have provided a device which may automatically seal the discharge opening and return the car body to its normal horizontal position.

It will be understood that the closure employed will be of sufficient width to perform the function just described and it will be further observed that the outer ends of the levers 19 and 20, and outer ends of the arms 12 and 13, are provided with a plurality of spaced openings, thus permitting the ends of the links to be so positioned, that the required leverage may be exerted by the doors or closures since it can be seen by shifting the lower ends of the links to the openings at the outer ends of the levers 19 and 20, that closures comparatively light in weight may perform the closing function equally as well as when the inner ends of the links are moved to points adjacent the fulcrums of the levers, and heavier closures used.

From the foregoing it can be seen that I have provided a device which is exceedingly simple in structure and comparatively inexpensive to manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

What is claimed as new, is:—

1. In a dump car the combination of a support, a car body pivotally mounted thereon for tilting laterally in either direction and having discharge openings in opposite sides, closures for said openings, arms each having its outer end pivotally connected to the upper side of one of the closures and its inner end pivotally connected to the car body, rods each having its outer end pivotally connected to the lower side of one of the closures and its inner end pivotally connected to the car body, rocking elements mounted on the support and levers fulcrumed on said rocking elements, said levers having their inner ends connected together and their outer ends pivotally connected to said arms.

2. In a dump car, the combination of a support, a car body pivotally mounted thereon for tilting laterally in either direction and having discharge openings in opposite sides, closures for said openings, arms each having its outer end pivotally connected to the upper side of one of the closures and its inner end pivotally connected to the car

body, rods each having its outer end pivotally connected to the lower side of one of the closures and its inner end pivotally connected to the car body, rocking elements mounted on the support, levers fulcrumed on said rocking elements and having their inner ends connected together, and links connecting the outer portions of said levers to said arms.

3. In a dump car, the combination of a support, a car body pivotally mounted thereon for tilting laterally in either direction and having discharge openings in opposite sides, closures for said openings, arms each having its outer end pivotally connected to the upper side of one of the closures and its inner end pivotally connected to the car body, rods each having its outer end pivotally connected to the lower side of one of the closures and its inner end pivotally connected to the car body, rocking elements mounted on the support, levers fulcrumed on said rocking elements and having their inner ends connected together and links having their lower ends adjustably pivotally connected to the outer portions of said levers and their upper ends adjustably pivotally connected to the outer portions of said arms.

4. In a dump car, the combination of a support, a car body pivotally mounted thereon for tilting laterally in either direction and having discharge openings in opposite sides, closures for said openings, arms each having its outer end pivotally connected to the upper side of one of the closures and its inner end pivotally connected to the car body, rods each having its outer end pivotally connected to the lower side of one of the closures and its inner end pivotally connected to the car body, rocking elements mounted on the support, vertical guide elements on said support between said rocking elements, collars movable vertically on said guide elements, levers fulcrumed on said rocking elements and having their inner ends pivotally connected to said collars, and links connecting the outer portions of the said levers to the said arms.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN W. MOORE.

Witnesses:
E. O. Lyons,
George Levy.