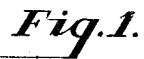


1,066,101.

2 SHEETS-SHEET 1.



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DUMPING VEHICLE.
APPLICATION FILED AUG. 23, 1912.

Patented July 1, 1913
2 SHEETS—SHEET 2.

Fig. 3.

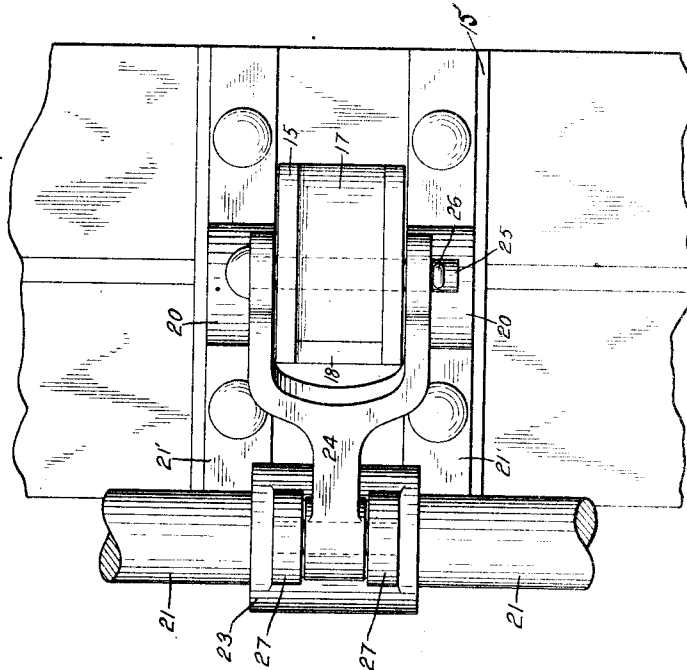
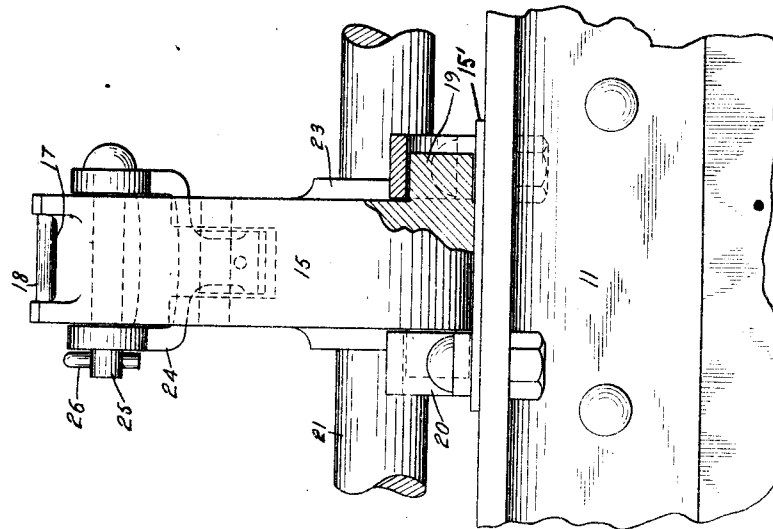


Fig. 4.



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DUMPING-VEHICLE.

1,066,101.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed August 23, 1912. Serial No. 716,575.

To all whom it may concern:

Be it known that I, JOSEPH T. GILMAN, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dumping-Vehicles, of which the following is a full, true, and complete specification.

This invention is an improvement in the operating mechanism of the drop valves of dump cars and similar apparatus, particularly Goodwin dump cars, and its object is to improve the operation of the detent mechanism by simplifying construction and principle of operation, and reducing friction between the parts which require to be moved in order to dump the cargo. This and other objects I attain by means of apparatus embodying the features herein described, and illustrated in the drawings accompanying and forming a part of this specification.

In the drawings, Figure 1 is a fragmental, vertical sectional view of a Goodwin type dump car, equipped with an embodiment of my invention. Fig. 2 is an enlargement of a portion of Fig. 1, illustrating the detent which holds the center valve of such car in its closed position in connection with a portion of the detent operating mechanism and the means employed for securing the detent to the center sill of the car. Fig. 3 is a top plan view of a portion of the center sill and the parts shown in Fig. 2. Fig. 4 is a side elevation, partially in section of the apparatus shown in Figs. 1 and 2.

It will be apparent that, while the foregoing figures refer more especially to the valve mechanism of dump cars, the present invention is not limited in its application to such cars, but may be employed in connection with boats or storage bins generally, employing swinging drop doors or valves.

The upper portion of one side of the cargo receptacle of the dump car is indicated at 5 in Fig. 1, and to this side wall is secured a drop door 6, by means of hinge links hung on the brackets 7. The lower, or free edge of each drop door 6 is supported on the upper edge of a center or detent valve 8 when both these valves are in their closed position. The center valves are hung pivotally on a center shaft 9, carried in a series of uprights 10, which are mounted on a beam or

fixed support 11. When the cargo receptacle is that of a railway car this support is the center sill of the car and the uprights 10 are spaced at proper intervals along the length of the same, from end to end of the car. In such case the side wall 5 constitutes the side girder of the car, and a similar side girder is symmetrically placed on the opposite side equipped with a similar drop-door adapted to have its free lower edge releasably supported by a similar center or detent valve 8, all as will be clear to those skilled in this art. In Fig. 1 one of such center valves is shown in its closed position supporting its drop door 6 and the other is open, in the position in which it has released its drop door (not shown).

When in its closed position each center valve is supported by one or more brackets 13 in the nature of strut members, provided with friction rollers 14 and resting by such rollers upon the column detent members 15. These members are provided with roller channels 17 and back stops 18 adapting them to receive the rollers in definite positions, and at their lower ends rest directly upon the top of the center-sill or a bearing plate 15¹ provided thereon for the purpose. The base of the detent is rounded, as shown at 16 and adapted to rock on the sill or plate 15¹ when it is desired to open the valve. Such rocking motion will obviously withdraw the detent from beneath the strut roller and allow the center valve to fall and will thereby release the drop door 6 and cause the cargo to be discharged. The thrust of the load is normally transmitted direct to the center-sill through the detent, the latter being in the position indicated by the lefthand side of Fig. 1, and the effort required to rock the detent to its opening position may be made as slight as desired by properly controlling the pitch of the floor of the roller groove 17. This groove is preferably so formed that the engaging roller 14 and consequently the free edge of the valve 8 on which the roller is mounted, will not be moved upwardly by the detent during its movement from the vertical to the inclined position, and when so formed all the detents on one side of the car can be easily turned by hand, notwithstanding the load on the valves. Obviously the back stop ridges 18 can be so placed as to main-

tain the detents in their upright positions without other support, performing this function additionally to their primary function of limiting the movement of the detents under the rollers. Where the detents are constructed as shown in the drawings, they are provided with side gudgeons 19, on either side, confined under a pair of straps 20, so as to be thereby held to the sill with freedom to rock or roll thereon as above described. The several detents as thus arranged can be withdrawn from under their rollers and restored by any suitable type of operating connection, running to the end of the car where it will be convenient of access for the operator. As shown in the present exemplification, such connection consists of a shaft 21, disposed at one side of the detent and provided with a crank 23 and a link 24 pivotally joined at 25 to the upper portion of the detent. A handle or lever, such as shown in dotted lines at 22 in Fig. 2 applied to the end of the shaft 21 will serve to rock the shaft to the left and thereby rock or roll the detent in the direction of the arrow (Fig. 2) to dump the cargo. The link 24 may be removably connected to the crank end and detent and confined thereto by means of the linch pins 26, the connection to the crank end being preferably by means of an open socket or hook formation as shown at 27.

One or more detents may be employed for supporting each valve 8 located in alignment along the center sill of the car and operated by the same or different operating shafts 21, as preferred. In any case it will be observed that the weight of the load is carried to the center sills entirely independent of the detent operating mechanism. The latter is thus free from friction beyond the natural friction of the shaft 21 and the links 24 in their respective bearings.

In closing the valves, the valves 6 are first moved to the normal position by any suitable means and the valves 8 are then swung upwardly, on their supporting shaft 9, so that they engage the lower edges of the valves 6. The levers 22 are then turned to move the detents 15 to the vertical position, so that they engage and support the rollers 14. It will be apparent that the stops 18 at the ends of the groove 17 on the detents may be omitted and that other means, such, for example, as stops on the shafts 22, may be employed for limiting the motion of the detents and for preventing them from swinging inwardly past the vertical position.

Inasmuch as the operating shafts 21 are separate from the detents and do not receive the weight imposed on the latter by the valves and by the detents transmitted directly to the center-sill, the construction shown herein constitutes one form of the

detent mechanism disclosed and claimed broadly in my co-pending application, Serial No. 716,574, filed of even date herewith.

I claim:

1. In combination with a drop valve of an apparatus of the character described, a locking detent for the valve, a support on which the detent is rockably supported and to which it applies the load on the valve, and means for rocking the detent on said support, to release the valve: 70 75

2. In combination with a drop valve of an apparatus of the character described, a valve supporting detent provided fixedly with a rounded base, a support for the detent with which such base is in rocking engagement and to which it applies the load on the valve, and means for rocking the detent on said support to release the valve. 80

3. In combination with a swinging valve of an apparatus of the character described, a rocking detent for supporting the valve in a closed position having a rounded base, a support on which said base rests, means for confining the detent on the support, and means for rocking the detent on said support to release the valve. 85 90

4. In combination with a valve of an apparatus of the character described, a valve locking detent provided with a rounded base, a support on which the base rocks, means for securing the detent to the support, comprising lugs on the detent and straps secured to the support for guiding the lugs during the rocking motion of the detent, and means for rocking the detent. 100

5. In combination with a drop valve of an apparatus of the class described, a detent, for supporting and releasing the valve, provided at one end with a groove for engaging a friction roller carried by the valve and at the other end with a rounded base, a support on which said base rests rockably, and means for withdrawing the detent from engagement with the friction roller by rocking it on the base. 105 110

6. In combination in an apparatus of the class described, a drop valve, a center sill support, a column detent transmitting the load on the valve directly to said support, said detent normally resting directly on said support, and means supported independently of such thrust transmitting means for withdrawing said detent from its valve supporting position. 115 120

7. In combination in an apparatus of the class described, a drop valve, a center sill support, a column detent transmitting the load of the valve to the support and normally resting directly on the latter, and a shaft at one side of said detent having crank arm connection with said detent to withdraw the same from valve supporting position. 125

8. In combination in an apparatus of the 130

class described, a valve, a friction roller mounted on the valve, a detent provided at one end with a groove for receiving the roller and at the other end with a rounded base, a support for the detent, with which the rounded base is in rocking engagement, means for rocking the detent on the base and thereby releasing the roller from the groove and means for securing the detent to the support, comprising lugs located on each side of the detent, and guiding means therefor located on the support.

9. In combination in an apparatus of the class described, a base support, a swinging valve provided with a friction roller, a detent provided at one end with a rounded base portion, normally resting directly on said support, and at the other end with a groove for receiving the friction roller, and a stop carried by the detent and so positioned thereon, that the forces imparted to the detent by the roller normally holds the detent in a vertical position.

10. In a valved dumping vehicle, the com-

bination of dumping valves, a center sill, column detents transmitting the load of said valves directly to said sill and formed to rock thereon, longitudinal releasing shafts and crank arm connections between said shafts and said detents.

11. In a valved dumping vehicle, the combination of a base support, dumping valves, valve-supporting detents constituting thrust connections between the valves and the base support and adapted to be moved out of the paths of the valves to release the same, valve-releasing shafts external to said detents and outside the paths of the valves, and separable connections between said shafts and detents.

In testimony whereof, I have signed this specification in the presence of two witnesses.

JOSEPH T. GILMAN.

Witnesses:

B. E. SAFFORD,
H. VAN SCOY.