March 8, 1927. 1,620,097

D. HINDAHL

DUMP DOOR MECHANISM

Filed Nov. 3, 1924

Fig. 1

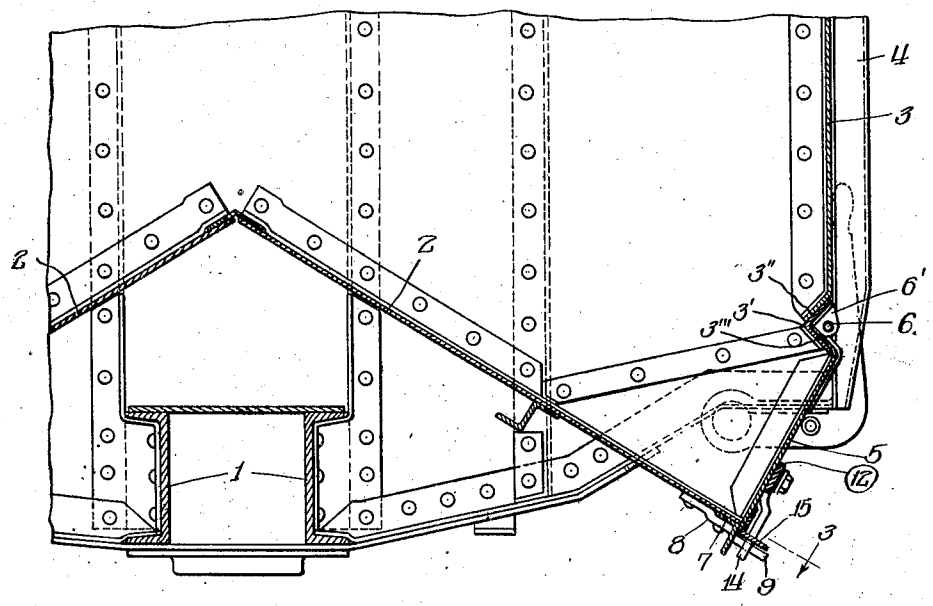


Fig. 2

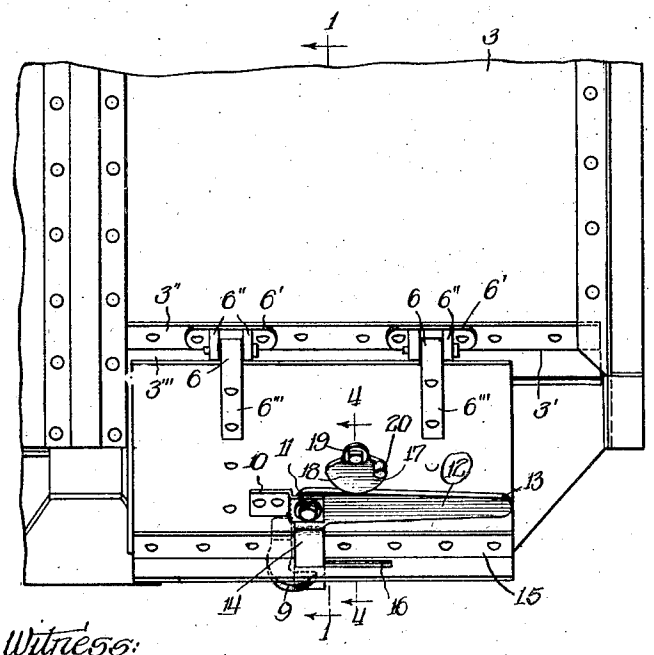


Fig. 3

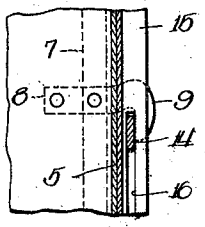
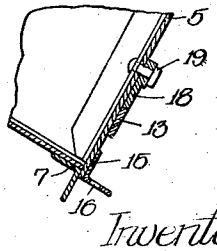


Fig. 4



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Patented Mar. 8, 1927. 1,620,097

UNITED STATES PATENT OFFICE.

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DUMP-DOOR MECHANISM.

Application filed November 3, 1924. Serial No. 747,404.

The present invention relates to railway cars used principally for carrying coal or other material which may be discharged from the car through suitably arranged doors and specifically to the type of car known as the maxload car in which the entire space between the vertical end walls and the side walls of the car is available for lading to the greatest degree. Such a car is shown for example in the patent to Hart No. 1, 282,227 of October 22nd, 1918.

My present invention has for its object to provide a car of this type in which the dumping doors at the ends of the car so arranged that there will be no projecting parts on the car side, either outside or inside thereof, which would interfere with the use of the car in the dumping machines and to provide against the possibility of these doors swinging open accidentally in the dumping machine or elsewhere and to insure the secure closure thereof under traffic conditions. With these and further objects in view, my invention may be described as follows:

Referring to the drawings—

Figure 1 is a sectional view of part of a railway dump car showing dump door means and locking means embodying the principles of the present invention, said section being taken along the plane indicated by the arrows 1—1 of Figure 2;

Figure 2 is a view in side elevation of a part of the car illustrated in Figure 1;

Figure 3 is a sectional view taken along the plane indicated by the arrows 3—3 of Figure 1; and

Figure 4 is a sectional view taken along the plane indicated by the arrows 4—4 of Figure 2.

The present invention is illustrated in connection with the dumping means commonly provided over the trucks of maxload cars. The center sill of the car is indicated by the numeral 1. Above said sill are the sloping floors 2 which direct the lading laterally of the car. 3 indicates the side wall of the car, which wall is provided with the stakes 4. 5 indicates outwardly swinging doors hinged at the lower edge of the side wall at 6. This wall terminates diagonally above the level of the outer edge of the floor 2. One of these doors is associated with each of the sloping floors 2 and each door is adapted to meet the lower edge of its corresponding sloping floor to form a closure therewith. It will be noted that the lower edge of the side wall 3 is formed with a reentrant angle 3′ having upper and lower sides 3″ and 3‴ respectively. These sides slope from the apex of the angle upwardly and downwardly toward the car side for a purpose presently to be explained. In the present embodiment of my invention, I have shown this angle as formed by an angle iron which may be riveted to the inwardly turned lower edge of the wall 3, though it is obvious that the lower edge of the wall may be turned inwardly and then outwardly so as to form the reentrant angle integral with the wall itself. To the upper outer face of this reentrant angle is fixed the hinge plate 6′ of the hinge 6, this plate being provided with projecting ears 6″ carrying suitable pintles from which the door is swung by means of straps 6‴ bent over at their upper edges to embrace the pintles. By means of this construction I provide a hinge for the door which lies within the reentrant angle formed in the lower edge of the car side so as to present no obstruction to the mechanism of the dumping machine when the car is unloaded by this means.

As will be understood, it is desirable that no obstruction be presented within the car to the discharge of the load whether the car is dumped through the doors or turned over in the dumping machine. It will be seen that the sides 3″ and 3‴ of the reentrant angle extends toward the sides of the car at an angle of approximately 45 degrees, so that if the car is being unloaded through the doors 5 material will readily run off the upper surface 3″, while if the car is turned over in the dumping machine material will run off equally as well from the surface 3‴.

The lower edge of each sloping floor 2 is bounded by the reinforcing angle 7, which may be cut away to permit the mounting of the hook member 8, which is firmly riveted, or otherwise firmly secured, to the under side of the corresponding floor 2. Said hook member 8 is provided with a hooked over portion 9, the purpose of which will be referred to hereinafter. Mounted upon the outer side of each swinging door 5 is the holding member 10 of Z-shaped conformation. One leg of said member 10 is firmly riveted to its corresponding door 5 and the other leg of said member 10 forms

the support for the pin 11, which is fastened to the door 5 and to said member 10 to provide a pivot for the lever 12. Said lever 12 is provided with the operating arm 13 and the latching arm 14. The lower edge of each sloping door 5 is provided with the reinforcing angle 15, which is slotted, as indicated in Figure 2 by the numeral 16, to permit the insertion therethrough of the latch arm 14 of the lever 12. It will be clear from an inspection of Figure 2 that the latch arm 14, by reason of its engagement with the angle 15 and by reason of its engagement with the hooked over portion of the hook 9, is adapted to hold the swinging door 5 in closed position.

For holding the lever 12 in latching position, the present invention contemplates the provision of a cam member 17 having a cam surface 18 adapted to engage the upper side of the lever arm 13. Said cam member 17 is rotatably mounted upon the pin 19, which pin is fastened to the swinging door 5. The cam member 17 may be provided with the lug 20, which lug provides a convenient member which may be struck by the operator with any convenient means to drive the cam member into wedging relationship with the lever arm 13 or to release said cam member from such wedging relationship.

It will be noted that as with the hinge member above described, so the locking member for the door presents no obstructions to the use of the dumping machine.

The mode of operation of the above described embodiment of the present invention will be clear without detailed description. When the parts are in locked position as shown in Figure 2, the operator, in order to release said parts, will strike the cam member 17 a blow and release same from wedging engagement with the lever arm 13. The lever arm 13 may then be moved with a counterclockwise movement by means of a hammer or other tool, whereby the latch portion 14 of lever 12 is released from engagement with the hooked over end portion 9 of the hook 8. The weight of the swinging door 5 will tend to cause the opening of said door. When lading is being carried by the car, the weight of said lading will also cause the opening of each door 5, whereby lading will be discharged laterally of the tracks upon which the car is mounted. After the discharge of said lading, the door 5 may be readily swung to closed position and the lever 12 may be moved to a position in which the latch arm 14 thereof will engage with the hooked over end portion 9 of the hook 8. By reason of the fact that the latching arm 14 engages hooked over end portion 9 of the hook 8, the corresponding door 5 will be held securely against opening movement. In order to lock the lever 12 in its holding position, the cam member 17 may be rotated about the pin 19 and said cam member 17 may be given a sharp blow to drive same into wedging relationship with the upper side of the lever arm 13. When the wedging relationship is had between the cam member 17 and the lever arm 13, the door 5 will be held firmly in position, whereby said door will not open under the severe stresses encountered in railway service.

Though a preferred embodiment of the present invention has been described in detail, it will be clear that many modifications will occur to those skilled in the art. It is intended to cover all such modifications that fall within the scope of the appended claims.

What is claimed is:

1. In a railway dump car, a floor member, a swinging door, said floor member and door having abutting relationship to form a closure, a reinforcing angle on said door along the line of said closure, a hook member secured to said floor member on the under side of said floor member, and a lever member mounted upon said swinging door and having a portion adapted to have hooking relationship with said hook member, the angle on said swinging door being provided with a slot for reception of said lever member.

2. In a dump car, a floor member, a swinging door adapted to have abutting relationship with an edge of said floor member, a reinforcing angle on the swinging edge of said door member, a catch member secured to the under side of said floor member and a pivoted latch member carried by said door member on the outside thereof, said angle having a slot to permit the engagement of said latch member with said catch member.

3. In a railway dump car, a floor member, a swinging door member forming a closure therewith at an edge of said floor member, said door member being provided with a reinforcing angle arranged along the swinging edge thereof, a catch member secured to said floor member on the under side thereof, a latch member pivoted to said door member on the outer side thereof, said reinforcing angle being provided with a slot for permitting movement of said latch member to and from latching position, and a wedging cam member for holding said latch member in latching position.

Signed at Chicago, Illinois, this 30th day of October, 1924.

DAVID HINDAHL.