

W. J. HOSCEIT.
CAR DOOR OPERATING MECHANISM.
APPLICATION FILED SEPT. 10, 1917.

Patented Sept. 26, 1922.

2 SHEETS—SHEET 1.

1,430,378.

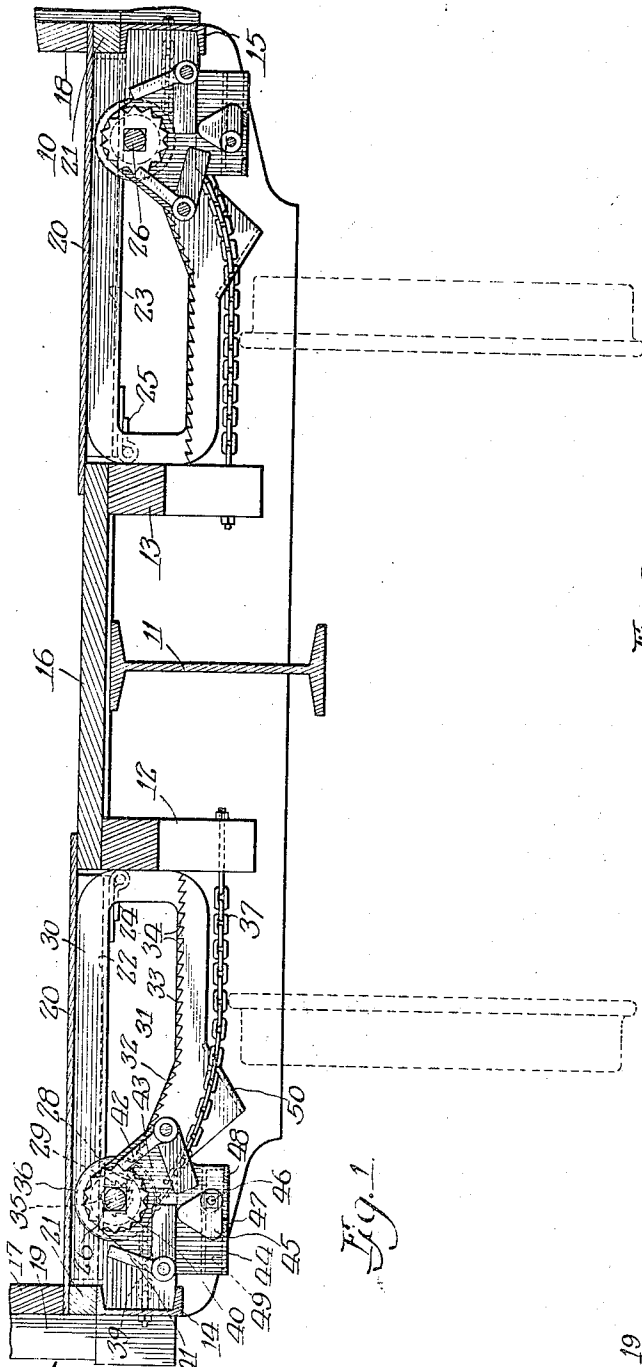


Fig. 1.

Witnesses:
C. F. Rossner
Chas. L. Byron

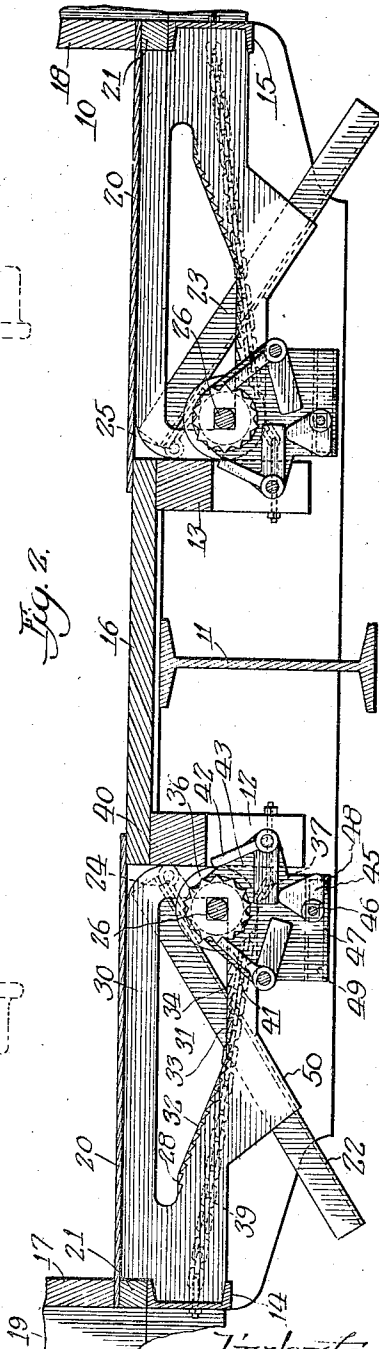


Fig. 2.

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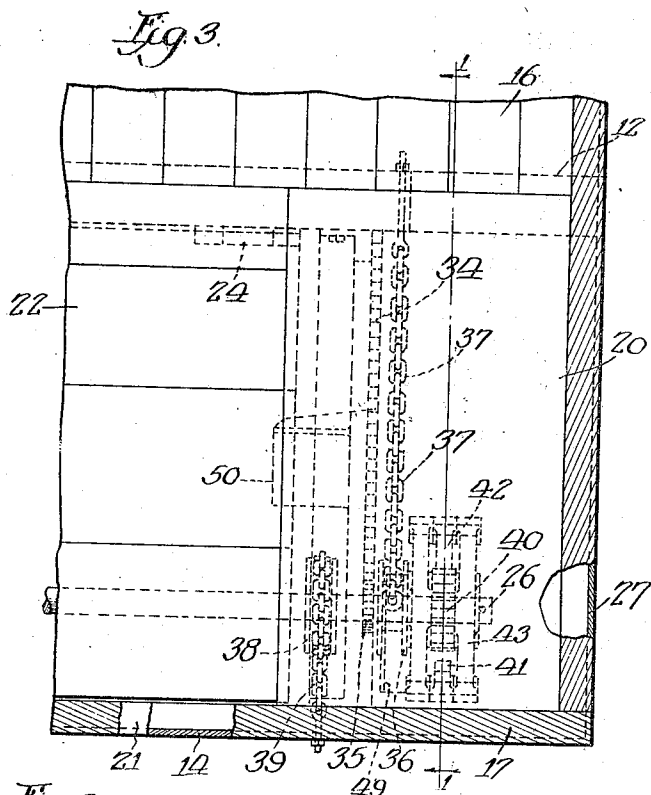
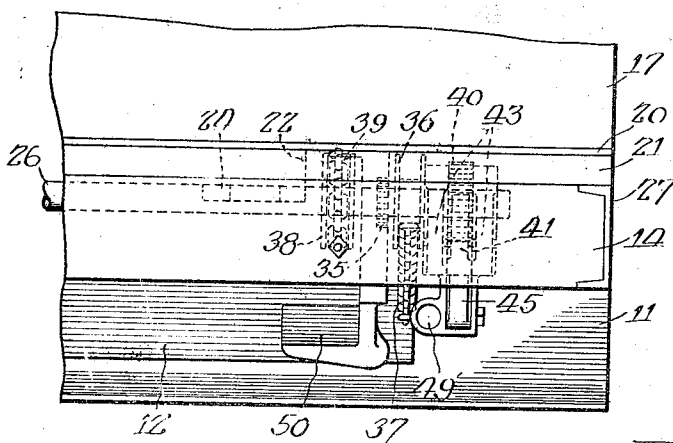


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM JOSEPH HOSCEIT, OF CHICAGO, ILLINOIS.

CAR-DOOR-OPERATING MECHANISM.

Application filed September 10, 1917. Serial No. 190,505.

To all whom it may concern:

Be it known that I, WILLIAM JOSEPH HOSCEIT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Door-Operating Mechanism, of which the following is a specification.

This invention relates to railway cars, and more particularly to door operating mechanism therefor.

One object of the invention is to facilitate the operation of drop doors for railway cars.

Another object is to overcome the necessity of extending the door operating shaft through or beyond the car end sill.

Another object is to provide improved door operating mechanism adapted to meet the various requirements for successful commercial operation.

Generally speaking, these and other objects are accomplished by providing in a railway car, the combination of a movably mounted door, an operating shaft under said door, and means hung on said shaft for operating the latter whereby the door (or doors) may be moved.

The invention is illustrated on the accompanying sheets of drawings in which,

Figure 1 is a fragmentary transverse sectional view of a railway freight car embodying my invention, showing the drop doors in raised or closed position, the section being taken in the plane of line 1—1 of Figure 3;

Figure 2 is a similar sectional view showing the same with the drop doors in their lowered or open position;

Figure 3 is a fragmentary plan view, parts being in section, of a railway car embodying my invention; and

Figure 4 is a side elevation of the arrangement disclosed in Figure 3.

The various novel features of my invention will be apparent from the following description and drawings, and will be particularly pointed out in the appended claims.

Referring to the figures of the drawing, it will be noted that I have shown a general service freight car 10 having a center sill 11, intermediate sills 12 and 13 on opposite sides thereof, and outer sill members 14 and 15 which support the car floor 16 and car sides 17 and 18. The car sides are reinforced by suitable stakes 19. As shown, portions of

the floor take the form of metal sheets 20, the outer ends of which are mounted upon spacing members 21 mounted on the side sills 14 and 15. However, it will be appreciated that the floor may be of wood throughout.

Drop doors 22 and 23 are pivotally connected by suitable hinges 24 and 25, respectively, to the intermediate sills 12 and 13 or the floor 16 or to both. These drop doors 22 and 23 are arranged to swing downwardly and inwardly toward the center of the car to permit the load to be dumped. It will be understood that there are a plurality of these doors on each side of the center of the car. Normally, these doors are held in raised or closed position, by rolling shafts 26 which at all times are located under the doors. These shafts 26 extend longitudinally with respect to the car, and by means of my invention it is not necessary that these shafts should extend to, through or beyond the end sills 27 of the car.

The door operating mechanisms on both sides of the car are the same, so the operating mechanism on one side only will be referred to particularly in the description.

As shown in Figure 1 of the drawings, the doors 22 are in raised or closed position and are held in such position by the operating shaft 26 which is retained in its elevated position by resting upon the floor 28 of a recess 29, formed in a casting or forging 30, which is suitably supported by and between the intermediate sill 12 and side sill 14, said casting having a relatively large central opening 31 to permit the operating shaft 26 to roll upon the inclined guide portion 32 and horizontal guide portion 33 of the lower part of the casting 30. This casting also is provided with a laterally extending ratchet portion 34, which is adapted to cooperate with a pawl 35 loosely mounted upon the operating shaft 26, the function of which pawl under certain conditions is to prevent a backward or inward movement of the shaft 26 when so desired and thereby also prevent accidental opening of the door 22.

In connection with the operation of the shaft 26 the latter is provided with a sheave 36 rigidly mounted upon the shaft 26 and around which a chain 37 passes, one end of the chain being secured to the sheave and the other end of the chain being secured to

the intermediate sill 12. The shaft 26 also is provided with another sheave 38, around which passes a chain 39, one end of which chain is anchored to the sheave 38 and the other end of which is anchored to the side sill 14. This shaft is also provided with a squared portion to which is secured a ratchet wheel 40 which is adapted to be actuated in opposite directions by two pawls 41 and 42. These pawls are pivotally mounted between the side members 43 of a casting 44, which casting is loosely mounted or hung upon the operating shaft 26 and is movable transversely therewith. Pivoted between the side members 43 of the casting at the lower end thereof is a keeper or lock member 45, the function of which is to hold either one or the other of the pawls 41 and 42 out of engagement with the ratchet wheel 40.

As shown in the left hand portion of Figure 1, it will be noted that the triangular keeper is swung about its pivotal point 46 and under the weighted arm of the pawl 41 for retaining the other arm of said pawl out of engagement with the ratchet wheel 40. Under these conditions the upper arm of the pawl 42 is caused to move into engagement with the ratchet wheel 40, due to the excess weight of the other or lower arm of the pawl 42. As shown, the door 22, and, as a matter of fact, all of the doors on that side of the car, are held in raised position by the shaft 26 upon which said doors rest, and the shaft occupies the recess portion 29 in the casting 30 with the safety pawl 35 engaging one of the teeth of the ratchet portion 32. If it is desired to open the drop doors on the left hand side of the car, it is merely necessary to raise the pawl 42 out of engagement with the ratchet wheel 40 and swing the lock 45 from its left hand position where it is supported by a stop 47 on the casting to its right hand position where it rests upon a stop 48 and under the weighted arm of the pawl 42. By means of this swinging movement of the lock 45 the pawl 42 will be held out of engagement with the ratchet wheel 40 and the pawl 41 will be permitted to fall into engagement with said ratchet wheel 40. To actuate the shaft to the right a suitable bar is passed into the circular opening 49 at one side of the casting 44, and the casting is thereby given an oscillatory movement to rotate the operating shaft 26 in a clockwise direction causing the chain 39 to be unwound from its sheave 38 and the chain 37 to be wound upon its sheave 36, it being understood that the pawl 35 is first swung into a position so that it will not actively engage its ratchet 34. This causes the operating shaft 26 to move bodily to the right or toward the middle of the car. As soon as the shaft is moved out of the recess 29, said shaft will roll down the

inclined portion 32 of the casting 30 and along the horizontal portion 33 thereof. As the operating shaft moves in this manner the doors 22 resting thereon swing downwardly about their pivotal points into an open position whereupon the load in the car may be dumped.

The casting 30 is provided with a stop portion 50 against which the doors or certain of said doors rest after they have opened a predetermined amount. If it is desired that the different doors be opened variable amounts appropriate stops at various points may be provided. In Figure 2 the doors 22 on the left hand side of the car are shown in open position and the operating parts in a corresponding position. To raise or close the doors 22, it is merely necessary to throw the safety pawl back into position where it may cooperate with the ratchet 34 and swing the triangular lock 45 to the left after raising the pawl 41 whereupon the pawl 41 will be held out of engagement with the ratchet wheel 40 and the other pawl 42 will be permitted to fall into engagement with said ratchet wheel. The casting 44 may now be oscillated about the operating shaft 26 to actuate the shaft in a counterclockwise direction. As a result of this cooperation between the pawl 42 and the ratchet wheel 40, the chain 37 will be unwound from its sheave 36 and the chain 39 will be wound upon its sheave, the operating shaft 26 caused to move to the left over the surfaces 33 and 32 and into the recess 29 of the casting 30 to raise or close the dump doors 22, the safety dog during the movement of the shaft at all times preventing an accidental backward movement of the shaft 26. The operating mechanism for the doors on the right hand side of the car is a duplicate of the arrangement just described for the doors on the left hand side of the car. By means of this simple arrangement the dump doors may be controlled and operated in a very efficient manner.

It is apparent that there may be various modifications of the arrangement herein particularly shown and described, and it is my intention to cover all such modifications which do not involve a departure from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. In a railway car, the combination of a movably mounted door, an operating shaft for supporting the door, a ratchet wheel mounted on said shaft, a member pivotally mounted on said shaft, pawls pivotally mounted on said member and cooperating with the said ratchet to operate the shaft for movement of said door, and means for holding one of said pawls out of engagement with said ratchet wheel.

2. In a railway car, the combination of a

movably mounted door, a shaft for supporting the door, a ratchet mounted on said shaft, a member pivoted on said shaft, pawls pivotally connected to said member and operatively associated with said ratchet for operating the shaft whereby there may be a movement of the door, and a lock member for holding one of said pawls out of engagement with said ratchet wheel when the other
10 pawl is in engagement therewith.

3. A door operating mechanism for railway cars, including a laterally movable shaft, a member hung from said shaft, means carried by said member for transmitting
15 movement from said member to said shaft, and means pivoted on said member whereby

said transmitting means may be held in an inoperative position.

4. A door operating mechanism for railway cars, including a laterally movable 20 shaft, a member hung from said shaft, a plurality of means carried by said member for transmitting movement from said member to said shaft to move said shaft in different directions, and means pivoted on said 25 member whereby said transmitting means may be selectively held in an inoperative position.

Signed at Chicago, Cook County, Illinois,
this 28th day of August, 1917.

WILLIAM JOSEPH HOSCEIT.