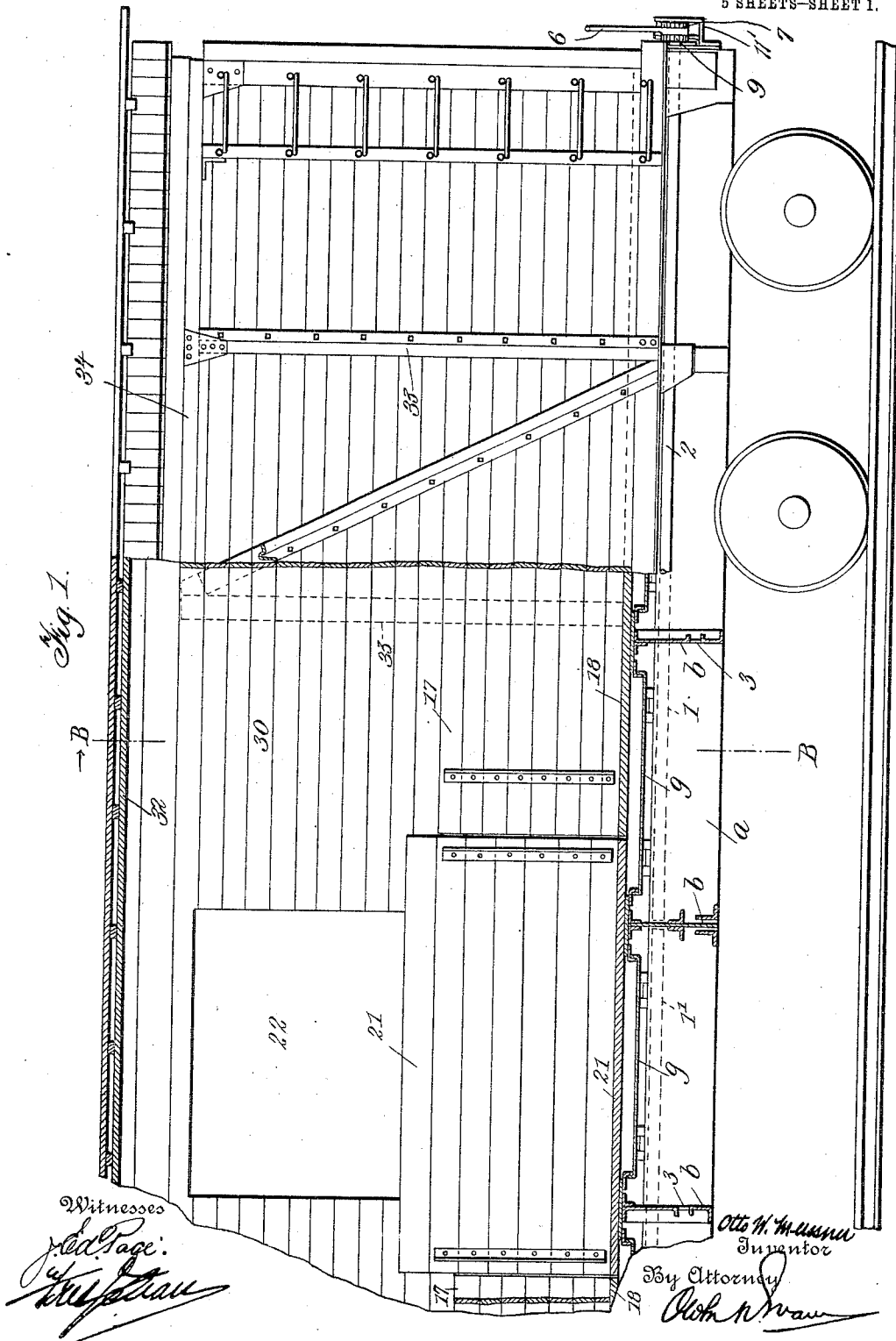


DUMP CAR.

Patented Nov. 19, 1912.

1,044,681.

5 SHEETS—SHEET 1.



O. W. MEISSNER.

DUMP CAR.

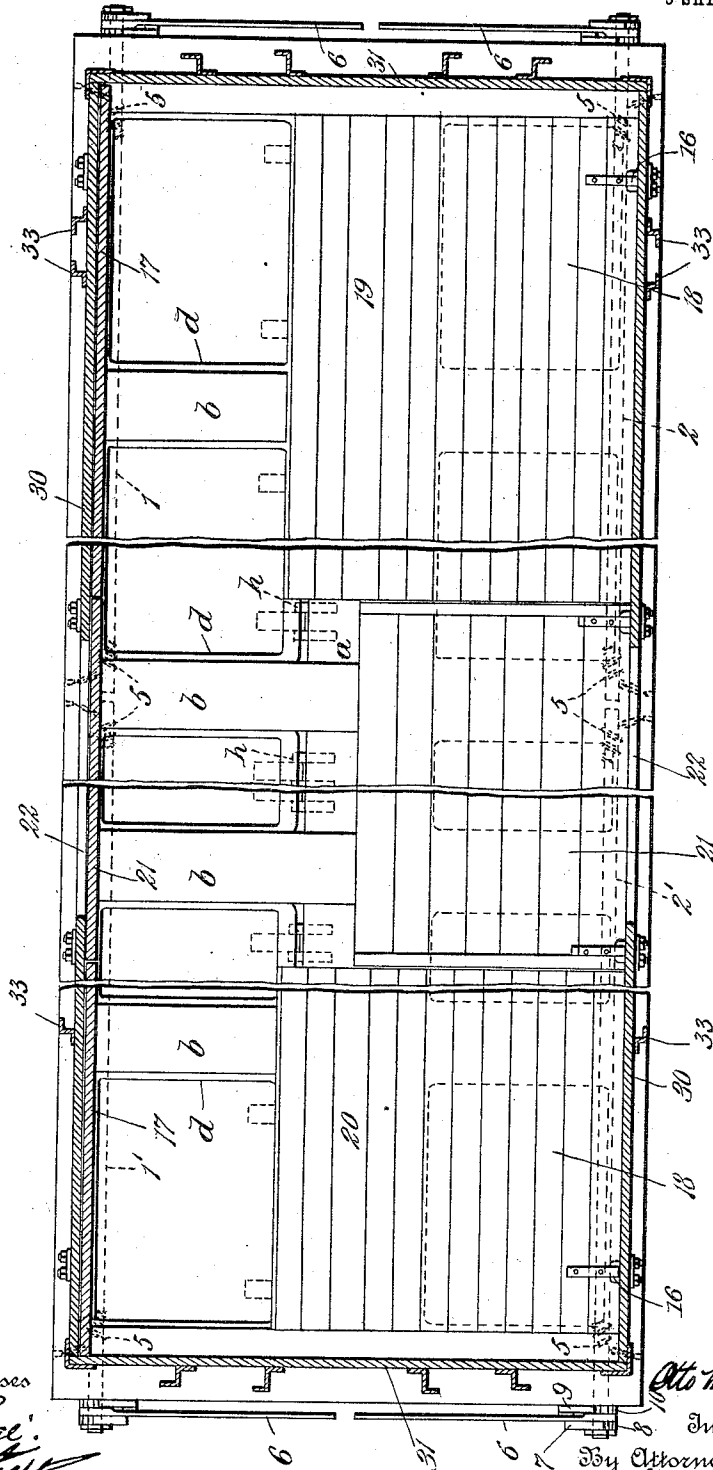
APPLICATION FILED NOV. 14, 1910.

1,044,681.

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5 SHEETS—SHEET 2.

Fig. 2.



Witnesses

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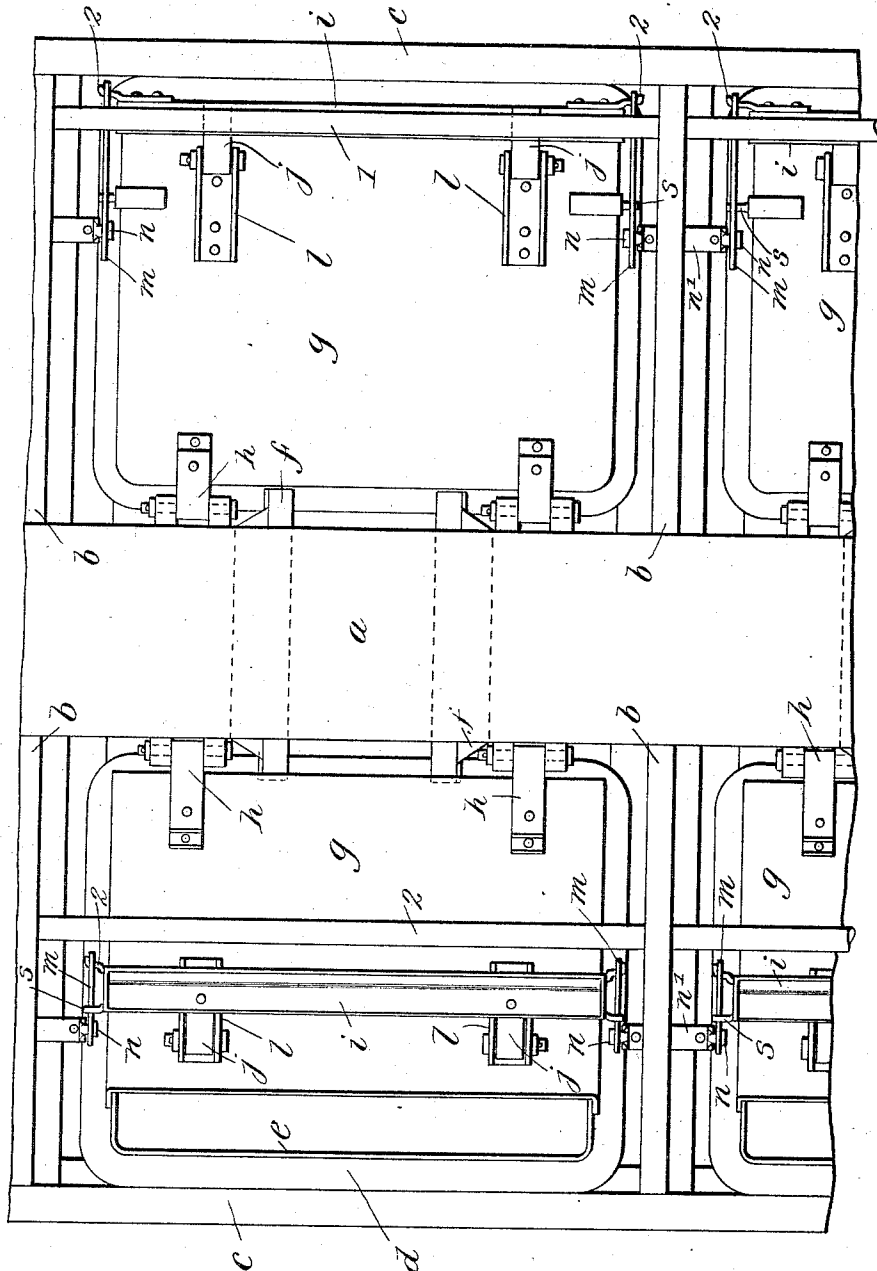
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5 SHEETS—SHEET 4.



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Fig. 4.

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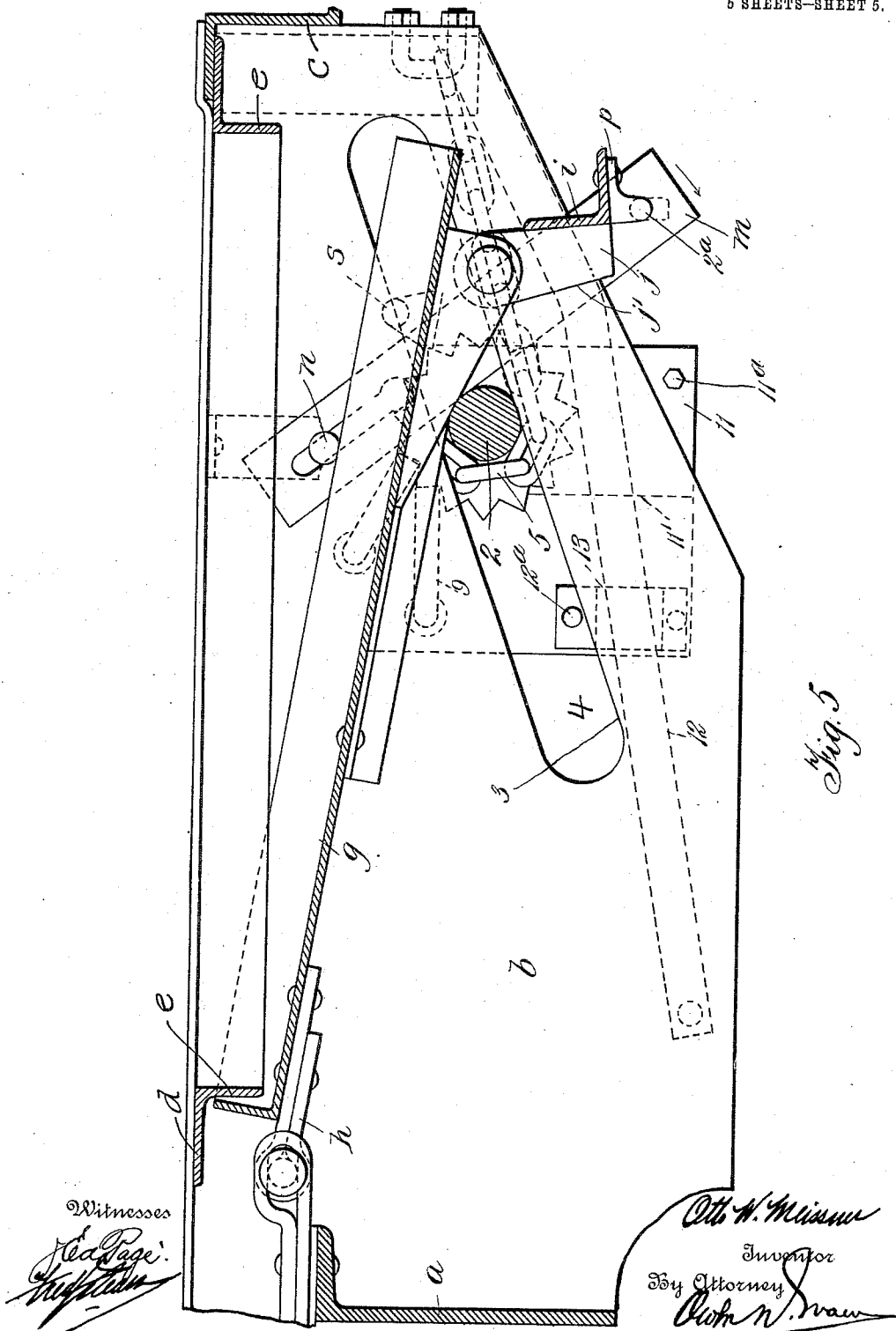
DUMP CAR.

APPLICATION FILED NOV. 14, 1910.

1,044,681.

Patented Nov. 19, 1912.

5 SHEETS—SHEET 5.



# UNITED STATES PATENT OFFICE.

OTTO WILLIAM MEISSNER, OF MONTREAL, QUEBEC, CANADA.

## DUMP-CAR.

1,044,681.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed November 14, 1910. Serial No. 592,222.

*To all whom it may concern:*

Be it known that I, OTTO WILLIAM MEISSNER, a citizen of the United States of America, and a resident of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Dump-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to cars and particularly to convertible cars which are adapted to be used either as dump cars or general service freight.

My invention has for its object to provide an improved construction for certain of the parts of the car as will be pointed out in the following description, the invention consisting essentially of the particular construction, arrangement, and combination of parts as hereinafter set forth. For full comprehension, however, of my invention reference must be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate the same parts and wherein—

Figure 1 is a side elevation partly in section of a car having my invention embodied therein; Fig. 2 is a horizontal sectional view thereof taken on line A A Fig. 3; Fig. 3 is a transverse sectional view taken on line B B Fig. 1; Fig. 4 is an underside plan view of a portion of the car; and Fig. 5 is an enlarged detail sectional view taken on the line B B Fig. 1.

The understructure of the car on which the car body is supported comprises a center sill *a* in the form of a box girder and having laterally extending arms *b* riveted or otherwise rigidly secured thereto and between which the trap doors for discharging grain or other loose material, and which will be presently further described are located, the outer ends of the arms supporting Z-shaped side stiffeners *c* secured thereto. The frames *d* for the trap doors are preferably formed of angle bars with downwardly projecting flanges *e* and are suitably secured by rivets or otherwise at their ends and sides respectively to the arms *b* and the center sill *a* and side stiffeners *c*, these frames being secured directly to the arms *b* and side stiffeners *c* and to the center sill by means of transverse members *f* rigidly mounted on the latter and to which the frames *d* are fastened, these frames serving to stiffen the

understructure to better resist diagonal strains or corner shocks.

The doors *g* present flanges *g'* at their ends and inner sides, the outer sides being open, thus constituting a trough particularly adapted for rapid unloading. These doors are arranged in two series disposed on opposite sides of and hinged by hinges *h* to the center sill *a* and extending from end to end of the car, and arranged to swing downwardly and inwardly to cause the material to be discharged toward the sides of the car while the hinges or pivot points of the doors of each series are in line with one another so that all the doors swing on a common axis and may therefore be readily operated in unison.

The free ends of the doors which constitute the open ends of the trough are sealed or closed by angular valvular members *i* provided with means whereby they may be swung underneath the doors when the latter are opened, such means being preferably arranged to act automatically. As shown in the drawings the member *i* is secured near its opposite ends to the ends of a pair of door-rail arms *j* pivoted at their other ends as at *k* to a pair of fixed door-rails *l* secured by rivets or other suitable means on the underside of the door at opposite ends thereof. These arms *j* are caused to turn on their pivots *k* to swing the members *i* under the door, by means of a pair of links *m* located adjacent to the opposite ends of the door and which are each connected at one end by a sliding pivotal connection to the lateral arms *b*, such sliding pivotal connections being effected by studs *n* projecting from brackets *n'* secured to the arms *b*, these studs *n* passing through slots *o* in the links. The opposite ends of these links are pivotally connected to studs *2<sup>a</sup>* projecting from plates *p* riveted to the member *i*.

Mounted on opposite sides of each door are a pair of teats *s* which are adapted as will be pointed out later, to bear upon the links and cause the valvular members to be swung away from the free ends of the doors and under the latter as they open in the event of the valvular members failing to move thus through the action of gravity.

The door operating means comprises laterally movable horizontal shafts 1, 1' and 2, 2', extending longitudinally of the car on opposite sides of the center sill beneath the

doors and on which the outer sides of the latter are supported, the shafts 1 and 2 extending from one end of the car to the center thereof and the shafts 1' and 2', extending from the opposite end of the car to the center, these shafts being supported at their inner ends by the center arm *b* as shown in Fig. 1. These shafts in turn rest on and are adapted to roll or travel on transverse rails 3 inclined upwardly toward their outer ends and preferably formed by the lower walls of inclined slots 4 in the lateral arms *b*. To these shafts are attached the ends of chains 5 which are fastened at their opposite ends to angular extensions of the arms *b*. Upon rotation of the shafts the chains are caused to wind thereupon or unwind therefrom whereby the shafts will be caused to travel up or down the inclined rails to close or open the doors, each of these shafts being operated by levers 6, loosely mounted on the opposite ends thereof which project slightly beyond the ends of the car; operative connection between the levers and shafts being effected by any suitable means, the means here indicated comprising pawls 7 pivoted on the levers and engaging with ratchet wheels 8 rigid on the ends of the shafts, while the shafts are locked by means of pawls 9 engaging ratchet wheels 10 on the shafts. The pawls 9 are pivoted on a floating plate 11 which travels with the shaft, the end of the latter projecting therethrough.

When the doors are being operated the shafts 1 and 2 travel under the fixed door-rails *l* and the door-rail arms *j*, the rails *l* inclining upwardly toward the inner edges of the doors.

In order that the shafts may be caused to force the doors tightly against the door frames when the doors are closed the door rail arms *j* are tapered to cause their rail surface *j'* to be inclined upwardly toward the outer ends of the doors to present a diminished angle of convergence to the rails 3 so that the shafts may be wedged therebetween and the arms *j* when the doors are closed. By mounting the valvular members on the door-rail arms *j* the wedging of the shafts therebetween and the rails 3 not only closes the doors tightly but also acts to hold the valvular members firmly in position closing the open or free ends of the doors.

As will be seen from the foregoing description this invention provides a car the doors of which are, when closed, proof against leakage, and, in addition the operating thereof is facilitated.

In order that the car may be converted when desired into a general service freight car when it is not desired to use it for the conveyance of grain or like material it is provided with a flooring located just above the door frame *z*, the portion of the flooring over the doors *g* being removable, the floor-

ing being divided longitudinally into three sections comprising end and middle sections, such sections being disposed in pairs and hinged as at 16 to opposite sides of the car. The end sections 17, 17', and 18, 18', are of a width substantially equal to the width of the door openings, the balance of the flooring between such sections being formed by center floor sections 19 and 20 permanently secured in place. The middle sections, 21, are each of a width substantially one half that of the car so that when in position their free edges abut, these sections acting as bridging members between the usual side doors 22 of the car, contiguous to which they are placed, and the center sections 19 and 20.

When the car is to be used as a grain car the sections 17, 17', and 18, 18', are swung up to a vertical position alongside the walls of the car, as shown in Figs. 1, 2 and 3, the middle sections thus forming grain doors, as shown clearly in Fig. 1.

The side walls 30, in which the doors 22 are located, end walls 31 and roof 32 of the car body are supported by a steel frame superstructure comprising uprights 33 supported by the arms *b* and connected together at their tops by longitudinal members 34, transverse rafters 35 carried by these members supporting the longitudinal roof beams 36.

Operation: When the car is to be used as a dump car for the conveyance of grain or the like the side floor members are swung to a vertical position alongside the side walls 30, leaving the trap doors *g* exposed and the car is filled in the usual manner through the opening 37 in the end wall 31. When it is desired to unload the car the doors *g* are opened by operating levers 6, the shafts 1, 1' and 2, 2' unwinding from the chains 5 and rolling down the inclined rails 3, and the weight of the doors and material piled thereon causing them to swing open. The opening of the doors causes the valvular members *i* to be swung thereunder as follows:—As the shafts in their travel down the rails 3 move from under the door rail arms *j* the latter are released and the valvular members *i* will fall by gravity until the links *m* rest on the shafts, and as the shafts continue their movement and the doors open the valvular members will continue to swing downwardly until the position shown in Fig. 5 is reached, the further movement of the doors causing (through the action of the links *m*) the arms and valvular members to swing in the direction indicated by the arrow to the position shown at the left side of Fig. 3 in which position the doors are fully open, the valvular members being thus protected from rain, sleet or the like, the slots in the links accommodating the difference in the distance between the ends of the arms *j* and the studs *n* when the doors are

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in open and closed position. In case the valvular members when released should fail to swing away from the end of the doors or if after reaching the position shown in Fig. 5 they should tend to swing in the wrong direction, the teats *s* on the sides of the doors will bear upon the links and cause them to swing the arms and valvular members in the proper direction.

10 To close the doors the shafts 1 and 2 are caused to roll up the rails 3 by operating the levers 6 and winding the chains 5 thereon, the shafts in their travel bearing successively against the undersides of the doors, the fixed rails 7 and the arms *j* between which latter and the rails 3 they are finally wedged, thus holding the doors firmly closed with the valvular members closing the free ends thereof.

20 When using the car as a dump car for the conveyance of material which is not possible to load therein through the opening 37 the middle floor sections 21 may be swung down to form a bridge between the door 18 and the central floor sections 19 and 20, a runway being thus formed by the bridging members and the center sections for trucks or the like carrying the material with which the car is being loaded.

30 When the car is to be used as a general service freight car all the members forming the side sections are swung down and the car is thus provided with an even flooring for the piling of material thereon.

35 What I claim is as follows:—

1. In a dump car, the combination of a trap door, a valvular member secured to the door and adapted to seal one end thereof, and means actuated by the movement of the door adapted to automatically swing the valvular member away from the said end.

2. In a dump car, the combination of a center sill, a plurality of arms spaced apart and extending laterally from the center sill on opposite sides thereof, a plurality of trough shaped doors located between said arms and arranged in two series on opposite sides of and being hinged to the center sills, said trough shaped doors being open at their outer ends, valvular members closing the open ends of such trough shaped doors, and means for swinging said valvular members

away from the open ends of the doors and underneath the latter.

3. In a dump car, the combination of a center sill, a plurality of arms spaced apart and extending laterally from the center sill on opposite sides thereof, a plurality of trough shaped doors located between said arms and arranged in two series on opposite sides of and being hinged to the center sill, said trough shaped doors being open at their outer ends, valvular members closing the open ends of such trough shaped doors, and automatically acting means for swinging said valvular members away from the open ends of and underneath the doors when the latter are opened.

4. In a dump car, the combination of a center sill, a plurality of arms spaced apart and extending laterally from the center sill on opposite sides thereof, a plurality of trough shaped doors located between said arms and arranged in two series on opposite sides of and being hinged to the center sill, said trough shaped doors being open at their outer ends, valvular members closing the open ends of such trough shaped doors, means for simultaneously opening and closing all the doors in either series, and automatically acting means for swinging said valvular members away from the open ends of and underneath the doors when the latter are opened.

5. A dump car having a center sill, a plurality of arms spaced apart and extending laterally from such center sill, side sills connecting the ends of the said lateral arms, a plurality of upwardly flanged doors located between such lateral arms and frames for such doors, such frames comprising angle bars having downwardly projecting flanges adapted to be inclosed by the said upwardly projecting door flanges, the said frames being secured to the said lateral arms and center and side sills and serving to stiffen the car frame against diagonal strains.

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

OTTO WILLIAM MEISSNER.

Witnesses:

ALEX CURRIE,  
FRED J. SEARS.