

Sept. 24, 1963

B. WITHERS

3,104,621

REFRIGERATOR CAR TROLLEY RAIL

Filed April 5, 1962

3 Sheets-Sheet 1

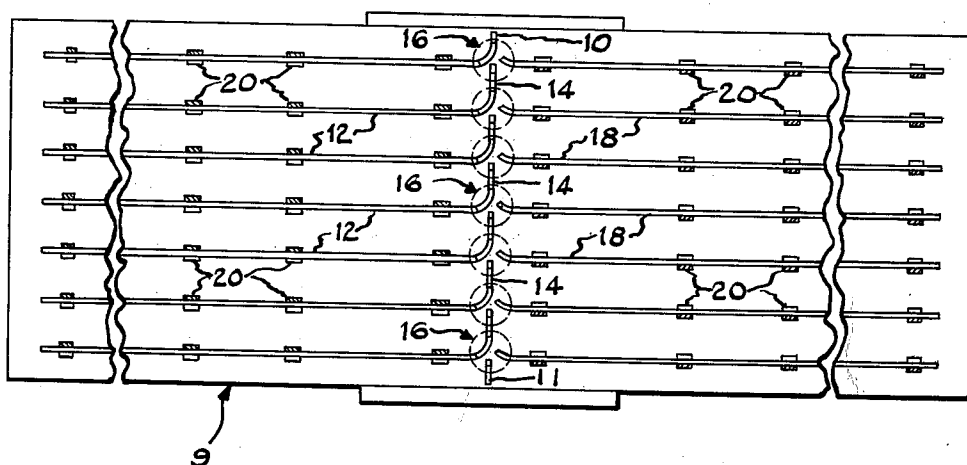


Fig. 1

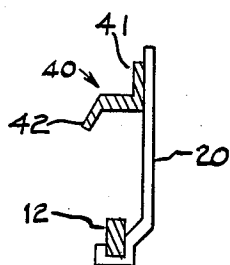


Fig. 3

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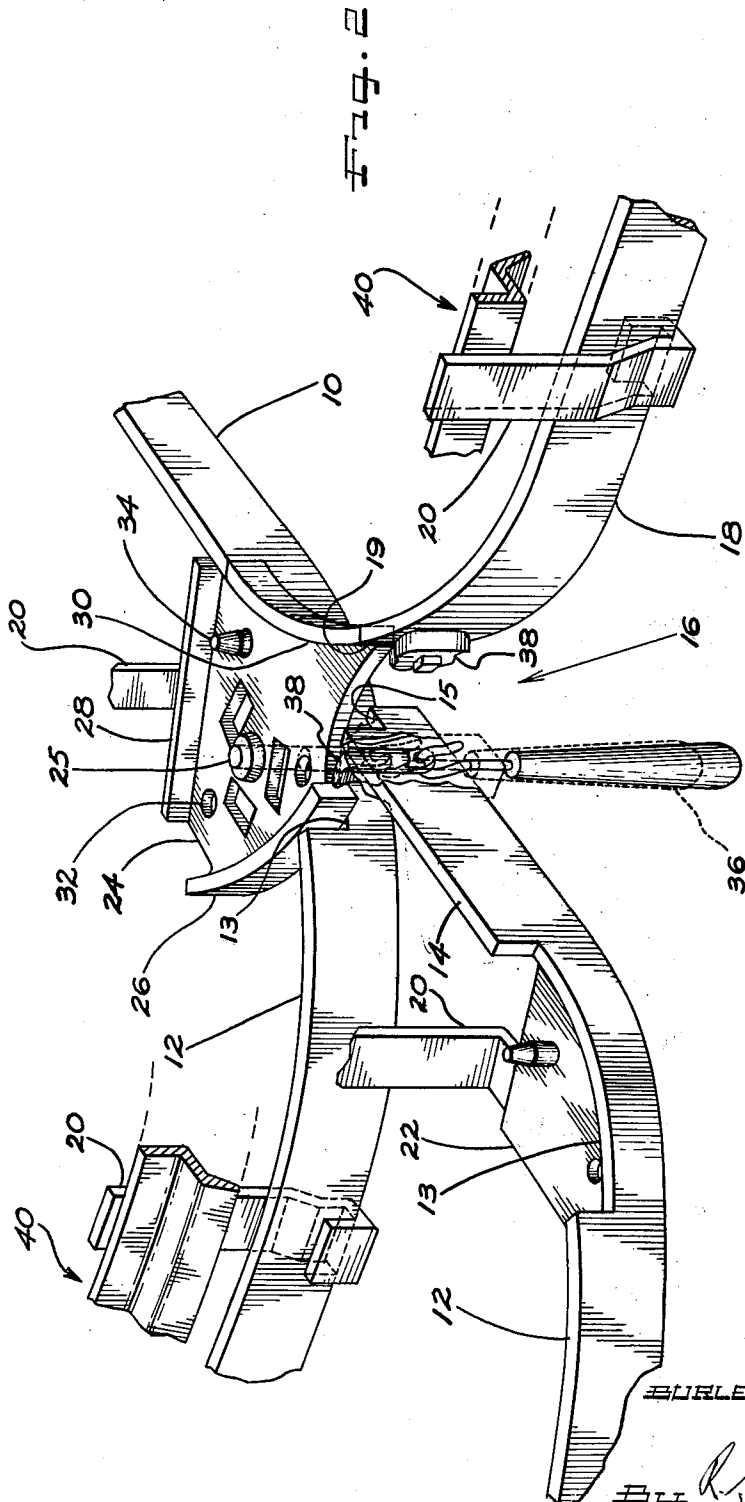
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3 Sheets-Sheet 2



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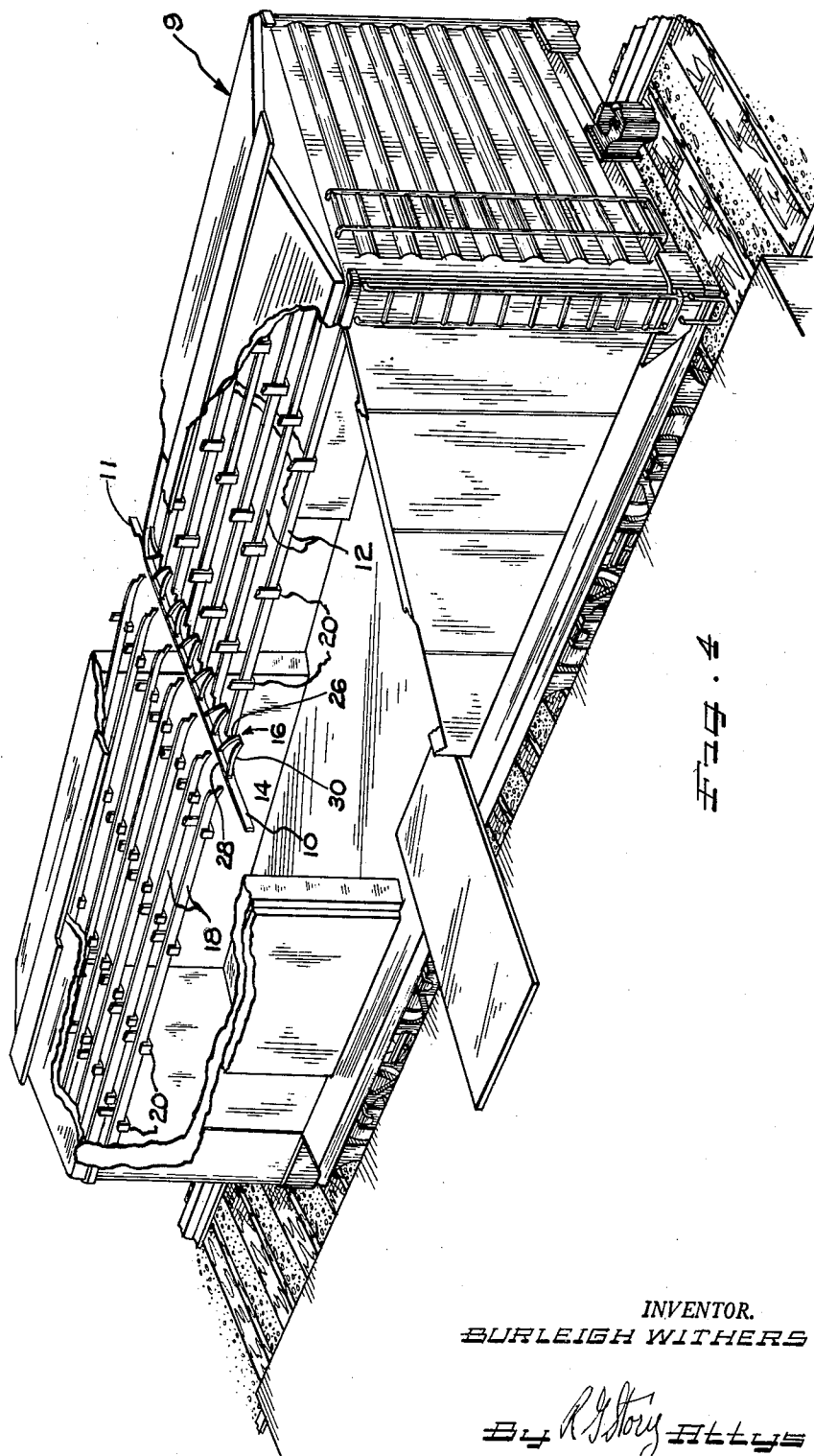
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3 Sheets-Sheet 3



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REFRIGERATOR CAR TROLLEY RAIL

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5 Claims. (Cl. 104-91)

This invention relates to improvements in overhead trolley rail systems for transport vehicles and more specifically relates to a novel overhead rail delivery and storage system for carcass goods within refrigerated railway cars.

Prior to my earlier development in this art, described in my joint copending patent application S.N. 87,835, filed February 8, 1961, for Improvements in Refrigerator Car Trolley Rail, substantially all meat packers refrigerated railway cars contained a plurality of separate, unconnected supports from which carcass goods were suspended on hooks. In loading and unloading those cars, it was necessary for a number of laborers to manually carry heavy carcass items from a loading dock into the car or to unload them from the car onto the dock. Carcass goods including beef, lamb and veal could be conveyed on overhead trolley systems along the docks but had to be lifted therefrom and repositioned on relatively stationary hooks within the railway cars. Thus the loading or unloading of those railway cars, where carcass goods had to be suspended from an overhead structure, required laborers to lift heavy items both inside and outside the car to hang them from different overhead fixtures.

While I am aware that certain other systems had previously been proposed for railway cars whereby suspended goods could be moved therein on trolleys, prior to my earlier invention described in the aforementioned application, such systems have either, in the complete absence of rail switches, required a number of removable rails to be shifted between various positions within the car during loading, and removed when the car is readied for transport, or have involved relatively short storage rails disposed transversely of the railway car and accessible only by way of a lengthy longitudinal delivery rail and thus have required a very high number of relatively expensive switches. Furthermore, such systems have resulted in the loss of a substantial amount of storage space within a car.

My earlier disclosed overhead rails systems overcame these disadvantages of the prior art, and possessed the additional advantage of being equally accessible from either side of the transport vehicle. Furthermore, my prior systems virtually eliminated any need for backtracking trolleys through switches for loading or unloading through either side of the railway car. However, to obtain the latter advantage, it was necessary to provide at least one separate switch element for each storage rail within the car. Also, where the storage rails were longitudinally disposed, it was preferred to provide a specific mounting plate for the switches, and this involved some fabrication problems and additional costs.

Moreover, I have found that the highest utilization of space within a vehicle, and greatest ease in loading or unloading such vehicles with consequent operational cost advantages is obtained with systems wherein the storage rails are located longitudinally of the vehicle.

Accordingly, it is a primary object of this invention to provide a permanent overhead rail system for transport vehicles at minimum cost which is compatible with overhead rail systems at loading facilities and provides for overhead conveyance of items to be loaded from the latter unto any of a plurality of longitudinal storage rails within the vehicle.

It is another object of this invention to provide a permanent overhead rail system for a railway car including a plurality of longitudinal storage rails and a minimum num-

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ber of switches providing access from the exterior of the car to any of such storage rails.

The overhead trolley rail system I have devised to obtain these advantages is basically comprised of two sets of parallel longitudinally disposed storage rails which extend from opposite ends of a vehicle to about the center thereof where they terminate with ends curved toward one side and an access door of the vehicle. A plurality of three-way switches equal in number to the rails in one set (one half the total number of rails) are positioned in a line transverse of the vehicle at about the center thereof between the ends of the sets of storage rails. The three-way switches are positioned to be directly accessible to the aforementioned one side and access door; and a number of short rail portions are located between the several switches. Additionally a lead-in rail extends between the aforementioned one access door and the first switch, and a stub rail extends between the opposite side and door of the vehicle and the last switch. Each switch is selectably adjustable to connect the preceding straight rail portion from the preceding switch (or from the lead-in rail) to one storage rail of either set or a subsequent rail portion to the next switch (or to the stub rail).

Further objects and advantages will become apparent upon reading the following description of one embodiment of my invention in conjunction with the drawings wherein:

FIGURE 1 is a diagrammatic plan view of the preferred overhead rail layout of my present invention;

FIGURE 2 is a perspective view of a portion of the preferred rail layout with parts removed, showing one switch and the mounting for an additional switch turntable, the latter turntable being omitted;

FIGURE 3 is a sectional elevational view of a preferred storage rail; and

FIGURE 4 is a perspective view of a railway car, with parts broken away, containing the present invention.

Referring to FIGURES 1 and 4 a preferred overhead rail system is shown installed within a railway car generally 9. As is usual in railway car construction, centrally located access doors are provided at each side of the car structure. The present overhead rail system includes a relatively short lead-in rail segment 10 at one access door, and a short stub rail 11 at the opposite access door aligned with the lead-in rail.

In the preferred system a plurality of longitudinal storage rails 12 are mounted in one end of the car 9. The preferred rail 12 is curved so that its end portion at the center of the car is substantially perpendicular to the storage portion of the rail. A shallow recess 13 is cut into the top surface of each rail 12 along the curve; and the end portion of each rail 12 is in the form of a straight segment 14 aligned between the lead-in rail 10 and stub rail 11. Furthermore the straight segment 14 of each storage rail 12 terminates in a relieved seat 15 (visible in FIGURE 2) which is cooperable with a three-way switch shown generally at 16.

A second set of parallel storage rails 18 are positioned longitudinally of the car extending from the opposite end thereof to about the center. The latter rails terminate at about the center of the car in a slight curve ending in relieved seats 19 similar to the seats 15 at the ends of rails 12.

All of the rails 12 and 18 are positioned parallel to one another and longitudinally of the car 9. Each rail 18 is substantially aligned with a corresponding rail 12 at the opposite end of the car. I have found that where the overhead rail system is to be utilized in supporting carcass goods from packing houses when suspended from the usual type trolley found in packing houses, the upper surface of the rails 12 and 18 should be at least 77½ inches above the floor of the car. Additionally, it is de-

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sirable to provide 14 inch center line spacing between adjacent rails and at least 6 inches spacing of the outermost rails from the walls of the car. A uniform suspension system of the usual type hangers 20 suspends the rails 12 and 18 at the aforementioned height from the ceiling of the railway car 9.

As may be best seen in FIGURE 2 each three-way switch structure generally 16 comprises a switch mounting plate 22 which is secured to the inside of the curved section of each rail 12 adjacent the recess 13 therein. It should also be noted in FIGURE 2 that the recess 13 extends to the beginning of the straight segment 14 of the storage rail 12. Each switch mounting plate 22 is also supported from the ceiling structure of the car 9 by a separate hanger 20. No unusual or special supporting structure for the system of rails and switches is required.

A switch turntable 24 is fixed to a downwardly extending shaft 25 which extends through a hole in the appropriate mounting plate 22. In FIGURE 2 it may be seen that the turntable 24 supports a right curved track section 26, a straight track section 28 and a left curved track section 30. Each of these track sections extends slightly beyond the limits of the turntable so as to be engageable with the appropriate seats 15 and 19 and the recess 13. The turntable 24 and shaft 25 are manually rotatable upon the mounting plate 22 to bring any one of three peripherally mounted track sections into connection between preceding straight track segment 14 and, respectively, one of either the longitudinal storage portion of rails 12 or 18, or the following straight track section of the next adjacent storage rail 12.

The turntable 24 of each switch, generally 16, also contains three alignment holes 32 which are cooperable with a pin 34 secured to the respective mounting plate 22. The switch 16 is operated through a handle 36 which extends downwardly from shaft 25 below the mounting plate 22 so as to be manipulated by an operator. The handle 36 need merely be lifted to raise the switch turntable 24 above the pin 34 and rotated to connect the proper track section 26, 28, or 30 between the appropriate rail members. The turntable is then lowered onto the mounting plate 22 and pin 34 will extend through an appropriate alignment hole 32 to correct any slight maladjustment of the turntable and to prevent the switch 16 from being displaced from the selected position.

It may also be noted in FIGURE 2 that the ends of each straight track segment 14 and storage rails 18 are provided with pivoted and weighted track stops 38 which extend upwardly to prevent trolleys from rolling off of the rails when the switch is open, and will be pivoted to an inoperative position by the switch when the latter is closed upon the appropriate section of rail.

In FIGURES 2 and 3 it will also be noted that the longitudinal storage portion of each rail 12 and 18 is provided with a coextensive overhead trolley retainer generally 40. The trolley retainer 40 is preferably of extruded metal in the form of an angle 41, one arm of which has an outwardly turned flange 42. The retainer 40 is secured to the hangers 20 so that the flange 42 is disposed outwardly and downwardly with respect to the storage rail. Distance between the retainer 40 and rail is such that a trolley (not shown) may ride freely upon the rail while the upper part thereof is beneath the angle piece 41 and within the flange 42. This will prevent the trolley from being bounced or swung from the rail either during loading or unloading operations and while the car is being transported.

Operation of the system of this invention will have become obvious from the preceding description. To load a car 9 provided with such an overhead rail system, it is merely necessary to connect the lead-in rail to the existing dock facility and turn all switches 16, except the one at the far side of the car, to the straight through position. The switch 16 at the far side of the car is turned to one

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of either rails 12 or 18. Thereafter items are trollied from the dock across the lead-in rail 10 and switches 16 to the selected storage rail. When one of either rails 12 or 18 have been filled the switch 16 is turned to the opposite rail and the latter is filled. Thereafter the next preceding switch 16, in the direction of the lead-in rail 10, is turned alternately to rails 12 and 18. This method is repeated until the car is filled. To unload the car the steps are substantially reversed, first discharging material from the rails 12 and 18 closest to the lead-in rail 10.

If the car 9 should be delivered to a loading dock facility with the stub rail 11 adjacent the dock, a similar procedure is followed; however it will be necessary to back switch each item when either loading or unloading the storage rails 12 and 18. However, as the operation applies to rails 12 and 18 closer to the stub rail 11, the number of back switching steps may be reduced simply by first running as many items as possible backwardly upon adjacent straight track segments 14 and switches 16 and then connecting the appropriate switch 16 to direct that number of items to either storage rail 12 or 18, or to the stub rail 11 for loading or unloading respectively.

Obviously many modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

1. An improved overhead rail system for railway cars or the like having centrally disposed access doors, said rail system comprising: a plurality of first storage rails disposed substantially longitudinally of the railway car and extending from about the center of the car to one end thereof, each of said first storage rails being curved at about the center of the car toward one access door and terminating in a straight portion perpendicular to said storage rail and extending to near the next of said first rails toward said door; a plurality of second storage rails disposed substantially longitudinally of said car opposite said first rails, said second rails extending from the opposite end of the car being slightly curved at about the center of the car toward said door; and a plurality of three-way switches connected to the first rails at the curve therein, each of said switches being adapted to be selectively adjustable to direct items entering the car from said door to one of said first and second rails and the straight portion of the next of said first rail from said door.

2. The improved system of claim 1 wherein a plurality of longitudinal retainer guards are secured above said first and second storage rails to prevent items suspended from said rails from being displaced therefrom.

3. An improved overhead rail system for railway cars or the like having centrally disposed access doors, said rail system comprising: a plurality of first storage rails disposed substantially longitudinally of the railway car and extending from about the center of the car to one end thereof, each of said first storage rails being curved at about the center of the car toward one access door and terminating in a straight portion perpendicular to said storage rail and extending to near the next of said first rails toward said door, the end of said straight portion being relieved to form a seat, each of said storage rails also having a recess on the curved part thereof extending from said straight portion; a plurality of second storage rails equal in number to said first rails, said second storage rails being disposed substantially longitudinally of said car opposite said first rails and extending from the opposite end of the car to about the center thereof whereat said rails are curved toward said door and relieved to form a seat at the end thereof; and three-way switches mounted to said first rails adjacent each recess thereon, each of said switches being adjustable across said recess and said seats to selectively connect said straight portion of a first rail to one of said first and second storage rails

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and the straight portion of the next of said first rail from said door.

4. The improved system of claim 3 wherein each three-way switch comprises a turntable and three track segments mounted thereon, the ends of said segments extending beyond said turntable and being cooperable respectively with said recess and between said recess and said seats to selectively connect said rails.

5. The improved system of claim 3 wherein a plurality of longitudinal retainer guards are secured above said

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first and second storage rails to prevent items suspended from said rails from being displaced therefrom.

References Cited in the file of this patent

UNITED STATES PATENTS

440,907	Wetzler	Nov. 18, 1890
624,302	Cook	May 2, 1909
1,144,371	Miller	June 29, 1915
1,878,605	Schmidt et al.	Sept. 20, 1932
2,960,940	Schreyer	Nov. 22, 1960