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CONVERTIBLE BULKHEAD FOR
REFRIGERATOR CARS

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The invention relates to refrigerator cars having an ice bunker in an end thereof, separated from an adjacent lading compartment by a movable bulkhead, the bulkhead being movable to a stored position adjacent the end wall of the car when the ice bunker is not needed. The conventional refrigerator car has one or more hatch openings in the roof of the car, above the bunker, and it will be seen that when the bulkhead is moved to stored position and lading is placed below the hatch openings, means must be provided to keep dirt, cinders, etc., from entering the hatch openings and damaging the lading therebelow.

Patent No. 2,238,700 issued to John S. Lundvall on April 15, 1941, shows a movable bulkhead and deflector for the hatch opening, and discloses the type of convertible bulkhead now being used in refrigerator cars.

Certain commodities hauled in refrigerator cars require ventilation in transit, in which case the hatch covers are secured in partly opened positions. Certain other commodities require that the hatch covers be secured in closed position to prevent air entering the car in transit. The locking means for securing the hatch cover in closed position (to prevent opening of the cover in transit) must be operable from the inside of the car only, as the operators at icing stations might otherwise open them by mistake and cause damage to the lading. It is one of the principal objects of the present invention to provide improved locking means, operable from the interior of the car only, in conjunction with a deflector panel adapted to keep air borne elements from entering upon the lading beneath the hatch opening.

An object of the invention is to provide improved means for locking and unlocking the hatch covers of refrigerator cars from the interior of the car.

A further object is to provide improved means for locking and unlocking the hatch covers of refrigerator cars from the interior of the car, in conjunction with a deflector panel underneath the hatch opening.

A further object is to provide improved means for locking and unlocking the hatch covers of refrigerator cars from the interior of the car, the locking means being readily understandable by a person standing below the deflector panel and the locking means.

Another object is to provide improved hatch cover locking means which will remain in selec-

tive locked or unlocked positions until intentionally moved to opposite position.

A further object is to provide hatch closure locking means, including elements adapted to protect the locking means from bending or otherwise becoming inoperative due to dropping objects upon said locking means.

Another object is to provide a combined deflector and hatch closure locking means of simple and inexpensive construction.

A further object is to provide a deflector having an improved hatch cover locking means combined therewith which will offer a minimum obstruction to the free movement of air through the hatch opening and deflector and into the car.

Other advantages, objects and capabilities of the invention will appear from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing, in which

Figure 1 is a fragmentary transverse sectional elevation of a portion of the end of a car, showing the bulkhead in stored position and the hatch cover locked in closed position, the view being taken along line 1—1 of Fig. 2.

Fig. 2 is a fragmentary longitudinal sectional elevation of the same end of the car, taken along line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken along line 3—3 of Fig. 1.

Referring to the drawing, the numeral 10 indicates the roof, 12 indicates the end wall and 14 indicates the side wall of a refrigerator car, all of which may be of conventional insulated construction. Hatch openings 16 may be provided in the roof of the car, above the ice bunker, to provide means for ventilating the car and charging the ice bunker with ice. A hatch cover 18 may be hingedly secured to the car structure by means of hinges 20. The hatch cover 18 may be of conventional insulated construction and may be provided with the usual closing bar (not shown) on the exterior of the car. A bulkhead 22 may extend transversely of the car adapted to serve as one wall of an ice bunker in the end of the car when extended, and movable to a stored position (as shown in the drawing) when the ice bunker is not required. The bulkhead 22 may be mounted within the car for movement longitudinally thereof, in any of the conventional methods, such as by rollers adjacent the top or bottom of the bulkhead, or both, said rollers being supported upon suitable track means affixed to the car. The bulkhead may be provided, adjacent its upper margin with a deflector 24

movably mounted upon rollers 26, which rollers may be supported upon tracks 28 affixed to the side walls of the car, said deflector being disposed in a substantially horizontal plane below and adjacent the car ceiling 30 and the hatch opening 16. The deflector 24 may be hingedly affixed to the bulkhead 22 by means of hinges 32 whereby the deflector will move in a horizontal plane lengthwise of the car as the bulkhead is moved from stored position (as shown) to extended, bunker forming position. The deflector may comprise a metallic sheet extending in a horizontal plane transversely of the car and extending substantially from one side wall 14 to the opposed side wall 14, provided with opposed marginal upturned flanges 34 and an intermediate marginal upturned flange 36. The margin of the metallic sheet, opposite the flanged margin 36, may be flanged downwardly as indicated at 38. The upturned flanges 34 and 36 are adapted to form a pan-shaped deflector to prevent rain, cinders, etc., from entering the car except at the downwardly flanged margin 38, where these elements will be directed into the hollow bulkhead 22, and downwardly therethrough to the floor of the car.

While I show, in the drawing, a metallic deflector 24 extending substantially from side wall to side wall of the car, I contemplate a deflector made of wood or other suitable material and also contemplate the use of two separate deflectors, one under each hatchway (there being two hatchways over each bunker ordinarily).

The hatch cover 18 may be provided with a depending lug 40 affixed to the underside thereof and adapted to extend downwardly, when the cover is closed, to a position closely adjacent the horizontal portion of the deflector 24. The lug 40 may comprise a U-shaped metal forging or casting provided at its lower end with aligned apertures 42 through the spaced apart members 44 and may terminate adjacent its abutment with the hatch cover in opposed outwardly extending flanged portions 46 adapted to be secured to the cover by means of bolts or other suitable fastening members.

The plane portion of the deflector may have an aperture therethrough adjacent and to one side of the lower portion of the lug 40, and an inverted box-like housing 48 may be affixed to the deflector with the vertical walls of the housing coincident with the periphery of the aperture. The housing 48 is adapted to provide an upstanding substantially closed housing above the aperture in the deflector sheet wherein a locking means may be mounted for securing the hatch cover and the ventilator in fixed relationship and whereby to prevent rain and dirt from passing downwardly through the aperture. Two of the opposed vertical walls of the housing 48 may be provided with aligned apertures adapted to receive a slide bolt 50 having its axis in a substantially horizontal plane and having slidable supported engagement with the said opposed vertical walls. Intermediate the opposed vertical walls which slidably support the bolt 50, the bolt 50 may be provided with a laterally extending handle 52 rigidly affixed thereto. The handle 52 may normally be disposed in a vertical depending position with respect to the bolt 50 and may project below the deflector where it may be grasped by the operator to move the bolt 50 into position for locking the hatch cover or moved in the opposite direction for unlocking the cover. The handle 52 may also serve as a means for limiting the slidable move-

ment of the bolt 50 in both directions by contacting one or the other of the vertical walls which support the bolt. One of the vertical walls of the housing 48 may be provided with a laterally projecting rib 54 extending in a horizontal plane adapted to retain the handle 52 in selective positions to which the handle has been moved manually. The rim 54 may comprise a shelf-like member affixed to one of the vertical walls of the housing 48 and terminating at its opposed end portions short of the adjacent spaced apart walls of the housing whereby said end portions will serve as detents to prevent the handle from moving from one of the selected positions to the opposite position, as by oscillation or jarring of the car in service. The handle 52 may be moved from one of its set positions to the opposite set position by moving it from its normal vertical depending position to an angular position away from the detent rib 54, in which latter position it will clear the rim 54 and may be moved freely. Upon movement of the handle 52 from one position to the other position (while the handle is held away from the rib 54) it will assume its normal vertical depending position adjacent the end of the rib 54 and remain in this position until it is intentionally changed. A bracket 58 may be affixed to the deflector in spaced relationship with the housing 48 and may comprise an angle member having a horizontal leg affixed to the main deflector sheet and a vertical upstanding leg. The vertical leg may have an aperture therethrough in axial alignment with the slide bolt 50 adapted to receive the end of the slide bolt when the hatch cover is locked.

When the hatch cover is closed and the bulkhead is in stored position adjacent the end wall of the car, the lug 40 is adapted to extend downwardly from the hatch cover and between the housing 48 and the bracket 58, with the apertures 42 of the lug 40 and the apertures of the housing 48 and the bracket 58 in alignment with the slide bolt 50. An inverted U-shaped member 60 may be affixed to the deflector adapted to protect the end portion of the slide bolt 50 when in retracted position and to prevent the end portion from being bent over as by objects falling upon it.

It is important that a locking means of the type above described be in plain view of an operator standing below the deflector and the means of operating the locking means should be readily understandable by looking up at it, as many operators may not be otherwise familiar with the operation and may let the loaded car go out under the impression that the hatch cover is locked in closed position whereas it may not be locked. In this event, the cover may be opened in transit, resulting in costly damage to the lading or total loss of the lading. The present invention is adapted to prevent such a mistake and insure the lading reaching its destination in good marketable condition.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. In a refrigerator car having a hatch in the roof thereof, a hatch cover, and a horizontally disposed movable wall below said hatch adapted to deflect air entering the hatch; means for securing said cover in closed position comprising a detent on said cover and cooperative detent means on said movable wall, said last named detent means including an aperture through said wall provided with upstanding peripheral walls, a bolt

extending across said aperture and mounted on said walls for horizontal slidable movement and provided with a normally vertical extending depending lateral arm intermediate its ends and intermediate said walls, said arm being adapted for manually sliding said bolt into and out of interlocking engagement with said detent, said arm also being adapted to limit the sliding movement of said bolt in opposite directions, the respective moved positions of said bolt and said arm being visible, through said aperture, from the interior of the car.

2. In a refrigerator car having a hatch in the roof thereof, a hatch cover, and a horizontally disposed movable wall below said hatch adapted to deflect air borne elements entering the hatch; means for securing the hatch cover in closed position comprising a detent on said cover and detent means on said movable wall, said last named detent means including an aperture through said wall provided with opposed peripheral walls extending upwardly, a bolt extending transversely through said opposed walls adapted for axial sliding movement and provided with a relatively fixed and normally vertically depending lateral arm intermediate its ends and intermediate said opposed walls adapted for manually sliding said bolt into and out of holding engagement with said detent, and a detent affixed to one of said peripheral walls adapted to engage said arm and maintain said arm and bolt in hatch cover locking position until intentionally moved therefrom, the respective moved positions of said bolt and said arm being visible, through said aperture, from the interior of the car.

3. In a refrigerator car having a hatch in the roof thereof, a hatch cover, and a horizontally disposed wall below said hatch adapted to deflect air borne elements entering the car through the

hatch; means for securing said cover in closed position comprising a detent on said cover and adjacent detent means on said wall, said detent means including an aperture through said wall, an inverted box-like housing having a top wall and depending side walls, said side walls being coincident with and affixed to the periphery of said aperture, a bolt extending through two of said side walls adapted for axial sliding movement across said aperture, a laterally depending arm on said bolt intermediate said two of said side walls, said arm being adapted to be manually moved whereby to slide said bolt into or out of cooperative holding engagement with said detent on said cover, the respective positions of said bolt and said arm being visible, through said aperture, from the interior of the car.

4. In a refrigerator car having a hatch in the roof thereof, a hatch cover, and a horizontally disposed movable wall below said hatch adapted to deflect air entering the car through the hatch; means for securing said cover in closed position including a detent on said cover and cooperative detent means on said wall, said last named detent means including a box-like housing affixed to said wall having substantially closed top and side walls and a bottom opening communicating with the interior of the car, a bolt extending through opposed side walls of said housing adapted for sliding movement in a horizontal plane and having a relatively fixed depending operating arm intermediate its opposed ends and intermediate said opposed walls, said arm being adapted for manually sliding said bolt into and out of interlocking engagement with the cover detent, the respective positions of said bolt and said arm being visible from the interior of the car beneath said wall.

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