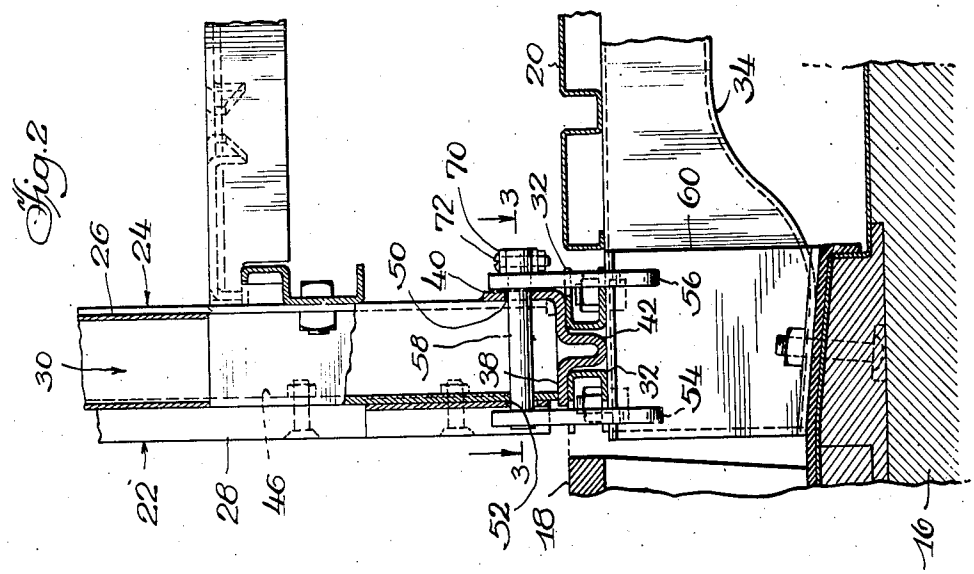
April 18, 1944. J. S. LUNDVALL 2,346,853

CONVERTIBLE ICE BUNKER FOR REFRIGERATOR CARS

Filed Sept. 6, 1943 2 Sheets-Sheet 1



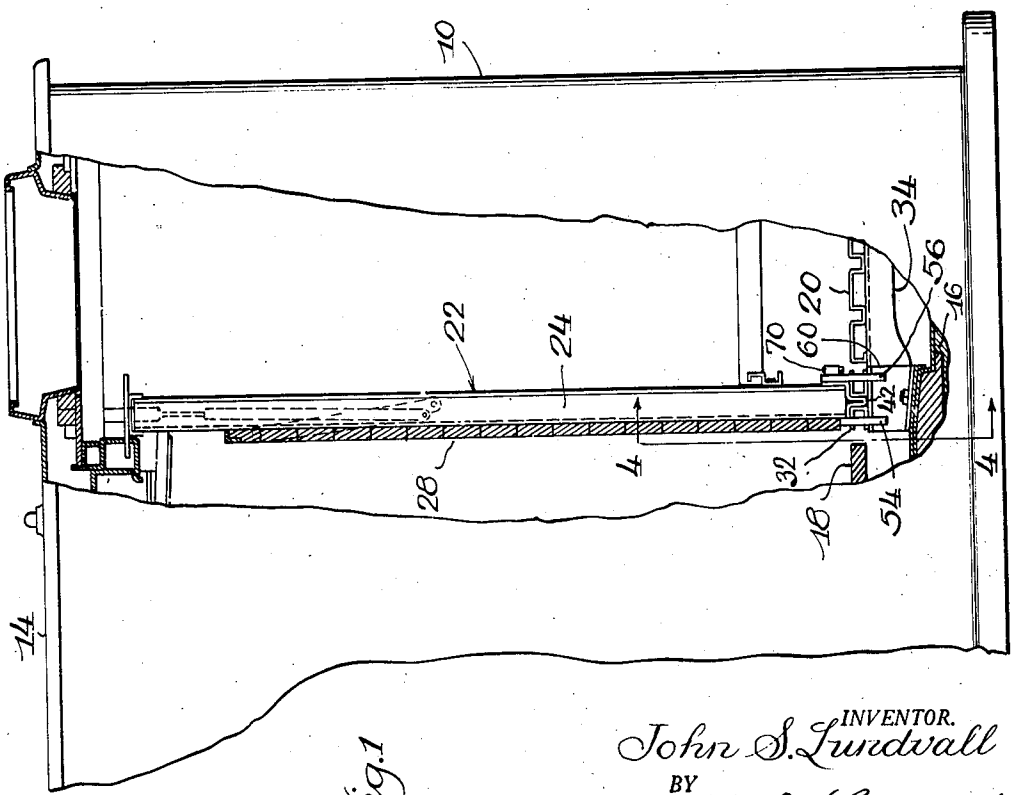


Fig. 1

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Fig. 3

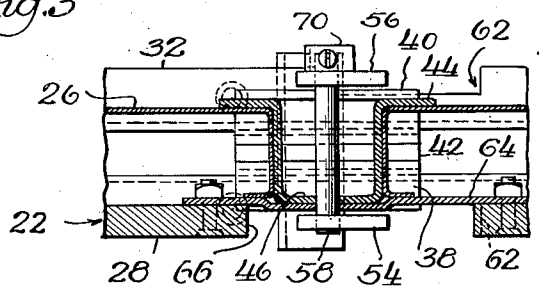
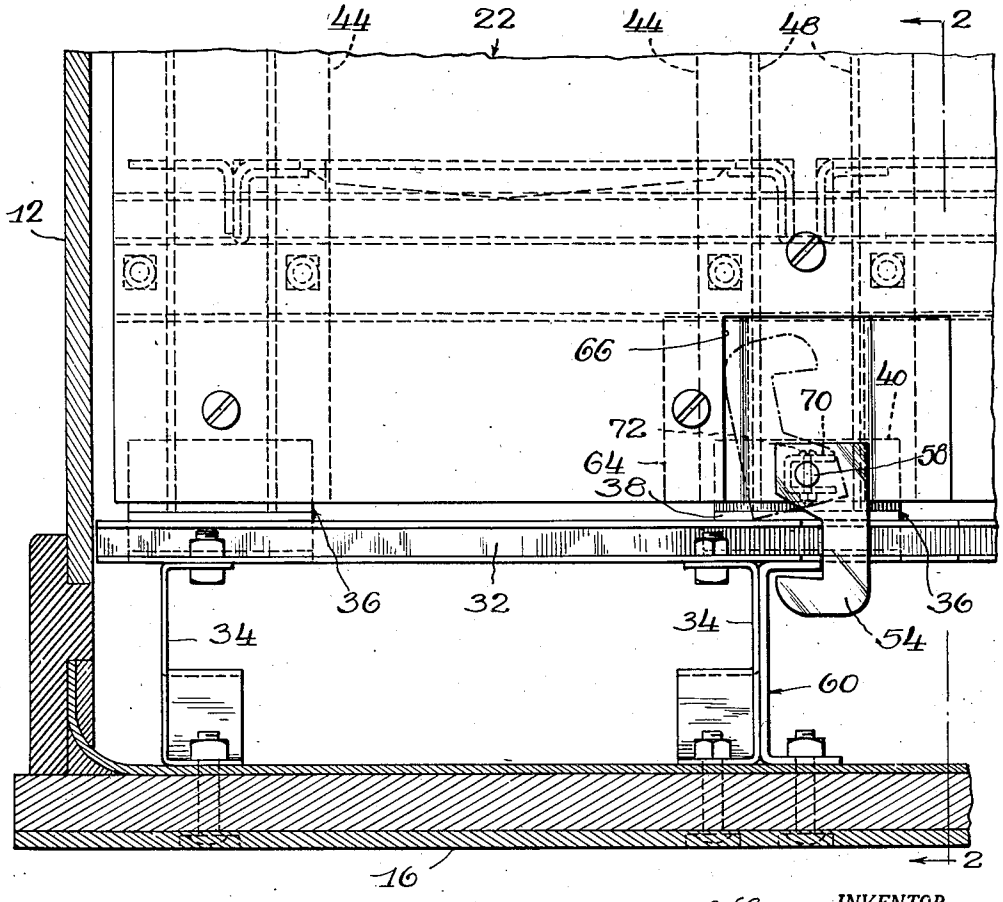


Fig. 4



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UNITED STATES PATENT OFFICE

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CONVERTIBLE ICE BUNKER FOR REFRIGERATOR CARS

John S. Lundvall, Park Ridge, Ill., assignor to Union Asbestos & Rubber Company, Chicago, Ill., a corporation of Illinois

Application September 6, 1943, Serial No. 501,392

3 Claims. (Cl. 105—376)

The invention relates to convertible ice bunkers for refrigerator cars and particularly to convertible bunkers of the type wherein one wall of the bunker comprises a bulkhead extending transversely of the car and movable to a stored position parallel with and adjacent the end wall of the car, and still more particularly to bulkheads of this type which are lowered and raised, vertically, into and out of anchored engagement with the car structure, respectively. My co-pending application for United States Letters Patent, Serial No. 440,027, filed April 22, 1942, illustrates such a structure.

One of the objects of the present invention is to provide a simple and inexpensive means for preventing the accidental raising of the bulkhead out of anchored engagement with the car structure, due to the sudden starting and stopping of the car, as in switching service, causing the bulkhead, as well as the car contents, to jump vertically.

A further object is to provide a locking means, for the purpose above described, which is readily understandable to workmen having scant mechanical ability, such as shippers who are mainly concerned with the loading of their product but who are frequently required to operate the several mechanisms associated with convertible bunkers.

Another object is to provide a simple locking means readily accessible to the operator which is located in plain sight of a person standing in the lading compartment or bunker of the car.

The above and other objects and advantages of the invention will be apparent from the following description of the embodiment shown in the accompanying drawings, in which—

Figure 1 is a fragmentary, side elevational view of the end portion of a refrigerator car; the side wall being broken away to show the bulkhead in extended, bunker-forming, secured position in the car.

Fig. 2 is a fragmentary, enlarged sectional view, taken along line 2—2 of Fig. 4, showing the locking means in cooperative secured relation with the extended bulkhead and the bulkhead support.

Fig. 3 is a fragmentary, enlarged sectional view, taken along line 3—3 of Fig. 2.

Fig. 4 is a fragmentary, enlarged vertical sectional view through a portion of the car, taken along line 4—4 of Fig. 1; the bulkhead being shown in supported, anchored position.

The car structure shown in the drawings may include an end wall 10, a side wall 12, a top wall 14 and a bottom wall 16. A floor rack 18 may be provided in the main lading compartment of the car and a floor rack extension 20 may be provided in the lower portion of the bunker; the floor rack 18 being adapted to support the lading when the bulkhead is in extended position and the combined floor rack 18 and extension 20 being adapted to support the lading when the bulkhead is in stored position. The bulkhead 22 may include a plurality of vertical posts 24 in spaced apart relationship transversely of the car and may be provided with an inner lining 26 and a spaced apart outer lining 28 affixed to the posts 24; the space between the linings 26 and 28 providing a vertical air duct 30 in the bulkhead. A pair of horizontally disposed, spaced apart slats 32—32 may be provided coincident with the lower margin of the bulkhead, adapted to support the bulkhead in extended position, and may be secured in overlying, spaced relation with the car floor by means of stringers 34.

The stringers 34 may comprise channel-like pressed metal members extending longitudinally of the car coincident with the locations of the posts 24, with their web portions vertically disposed and their opposed flanged margins horizontally disposed. The stringers 34 are adapted to support the floor rack extension 20 and the slats 32—32 in overlying spaced relation with the car floor; the upper surfaces of the extension 20 and the slats 32—32 being preferably coplanar with the upper surface of the floor rack 18 whereby to provide a flush lading supporting floor throughout the length of the car. The lower end of one or more of the posts 24 may be provided with an angular shaped metal plate member 36 having a horizontally disposed portion 38 in flatwise, affixed engagement with the end of the post, and a vertically disposed upturned portion 40 in abutting affixed engagement with the inner surface of the post. The portion 38 of the member 36 may be provided with a depending lateral projection 42, extending parallel with and being adapted to interlockingly nest within the space between the slats 32—32; the portion 38 having supported relationship with the slats 32—32 and the projection 42 being preferably supported by the adjacent stringer 34.

The post 24 may comprise a channel shaped member having outwardly flanged longitudinal margins 44 and a spaced apart web 46 connected by parallel spaced apart walls 48; the

channel being open toward the ice bunker side of the post. The portion **40** of the member **36** may have spanning, flatwise, affixed relation with the opposed flanges **44** of the post and may have an aperture **50** therethrough. The web **46** may have an aperture **52** in horizontal alignment with the aperture **50**; apertures **50** and **52** being adapted to pivotally mount the locking member.

The locking member may comprise a pair of pivoted detents **54** and **56** affixed to the opposed ends of a horizontally disposed rotary pin **58** mounted in the apertures **50** and **52**. The detents **54—56** may comprise flat metal plates having a hook configuration with their planes parallel with the plane of the bulkhead; both hooks being in common alignment with respect to the pin **58** whereby they will move simultaneously as the pin **58** is rotated. The locking member may be affixed to one or more of the bulkhead posts **24**; the stringer **34**, adjacent the locking member being provided with a channel-shaped member **60** having a vertical web in back-to-back engagement with the web portion of the adjacent stringer and having a horizontally disposed flange in opposed coplanar alignment with the upper flange of the stringer **34**. The member **60** may be disposed transversely of the slats **32—32** and may extend slightly beyond each of the opposed longitudinal margins of the assembled slats **32—32**.

The detents **54—56** may be disposed adjacent the outer and inner surfaces of the adjacent post, respectively, any may swing in a vertical plane parallel with the plane of the bulkhead, into and out of interlocking relation with the upper flange of the member **60**; the hook portion of each detent being adapted to underlie the last named flange when in operative position. The transverse width of the assembled slats **32—32** may be greater than the transverse width of the assembled detents **54—56**, and the opposed longitudinal margins of the assembled slats **32—32** may be provided with notched portions **62**, adapted to permit the detents to move into cooperative locked relationship with the member **60** without interfering with the slats **32—32**.

The outer lining **28** may comprise a series of vertically aligned, horizontally disposed boards in flatwise, affixed engagement with the posts **24**. The lower board or boards may be interrupted adjacent the locking member whereby to keep the detent **54** within the outer surface of the lining **28** and to provide space intermediate the adjacent ends of the interrupted boards to accommodate the swinging of the detent **54**; it being important to shippers that no metal parts of the bulkhead project beyond the lining **28**. The adadjacent ends of the interrupted boards may be secured to the bulkhead by means of a metal plate **64** affixed to the outer face of the post and having opposed vertical margins in affixed, overlapping relation with said adjacent ends of the boards. The reference numeral **66** indicates the end of one of the interrupted boards adapted to serve as a means of limiting the throw of the detent **54** and adapted to hold detents **54—56** in inoperative position (as indicated by dotted lines in Fig. 4).

Particular attention is directed to the new and novel bulkhead supporting structure (slats **32—32** and assocciated structure), adapted to support the bulkhead in its extended position; adapted to hold the bulkhead against movement longitudinally of the car when in extended position; adapted to provide the very important free movement of the chilled air downwardly through the air duct **30**, through the spaces between the assembled slats **32—32** and into the air space below the lading; and adapted to provide a simple, economical means of providing a member, intermediate the floor rack **18** and the floor rack extension **20**, having the same general shape as the slats in the rack **18** and in the extension **20** (uniformity in the lading supporting floor) and being free from depressions and open spaces which might permit the lading to enter therein and damage same when the lading shifts longitudinally in transit.

The slats **32—32** may comprise U-shaped, elongated, metal members in spaced apart, adjacent, back-to-back relationship, supported by the stringers **34** and (coincident with the location of the locking members) by the members **60**.

The parallel, spaced apart marginal portions of the slats **32—32** may be horizontally disposed; the upper marginal portions being adapted to support the lading and the extended bulkhead and the lower marginal portions having supported engagement with the stringers **34** and members **60**. The lower marginal portions of the slats **32—32** may be affixed to their supporting members by bolts or other suitable fastening means.

The detent **54** may be permanently secured to the adjacent end of the pin **58**, as by welding or by riveting the end of the pin over the detent. In order to facilitate the application of the detent mechanism to the bulkhead post, the detent **56** may be removably secured to the adjacent end of the pin **58**. The detent **56** may have an aperture therethrough adapted to receive the end of the pin **58** and may be provided with spaced apart laterally projecting, parallel lugs **70—70** disposed on opposite sides of the aperture and the assembled pin **58**. The lugs **70—70** and the pin **58** may have aligned apertures therethrough adapted to receive a bolt **72**. The detents and associated pin may be secured in assembled relationship with the bulkhead by means of the bolt **72** and may be readily removed after the bolt **72** is removed from the assembly.

A second set of slats **32—32** may be provided adjacent the end wall of the car, to provide a bulkhead supporting and locking arrangement for the stored bulkhead.

It will be understood that the member **60** may be omitted, if desired; in which event the detents **54—56** may be arranged for interlocking relationship with the upper flange of the stringer **34**, but I prefer to use the member **60** in the interest of additional strength.

I claim:

1. In a refrigerator car having a convertible ice bunker, a bulkhead forming a wall of said bunker, said bulkhead being movable to selective positions longitudinally of the car and being vertically shiftable into interlocked relation with the car floor structure whereby to maintain said bulkhead against movement in either direction longitudinally of the car; a detent secured to the lower portion of the bulkhead, a second detent secured to said floor structure, said first named detent being adapted for selective interlocking relation with said second detent whereby to maintain said bulkhead against vertical movement sufficient to release it from interlocked relation with said floor structure.

2. In a refrigerator car having a convertible ice bunker, a bulkhead forming a wall of said

bunker, said bulkhead being movable to selective positions longitudinally of the car and being shiftable vertically into interlocked relation with the car floor structure whereby to maintain said bulkhead against movement in either direction longitudinally of the car; a pivoted detent secured to the lower marginal portion of the bulkhead, a fixed detent secured to the floor structure, said pivoted detent being selectively swingable into cooperative interlocking engagement with said fixed detent whereby to limit the vertical movement of and maintain said bulkhead in interlocked relation with said floor structure.

3. In a refrigerator car having a convertible ice bunker, a bulkhead forming a wall of said bunker and provided with a depending portion adjacent its lower margin, a pair of elongated spaced apart beams in parallel supporting relation with said bulkhead and in overlying spaced supported relation with the car floor, said portion having nested relation with and between said spaced apart beams adapted to anchor the bulkhead against movement longitudinally of the car, said bulkhead being movable vertically out of anchored engagement with said beams and movable longitudinally of the car; a detent on said bulkhead selectively movable into cooperative interlocked relation with a detent mounted upon said floor adapted to maintain said bulkhead in supported anchored relation with said beams.

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