

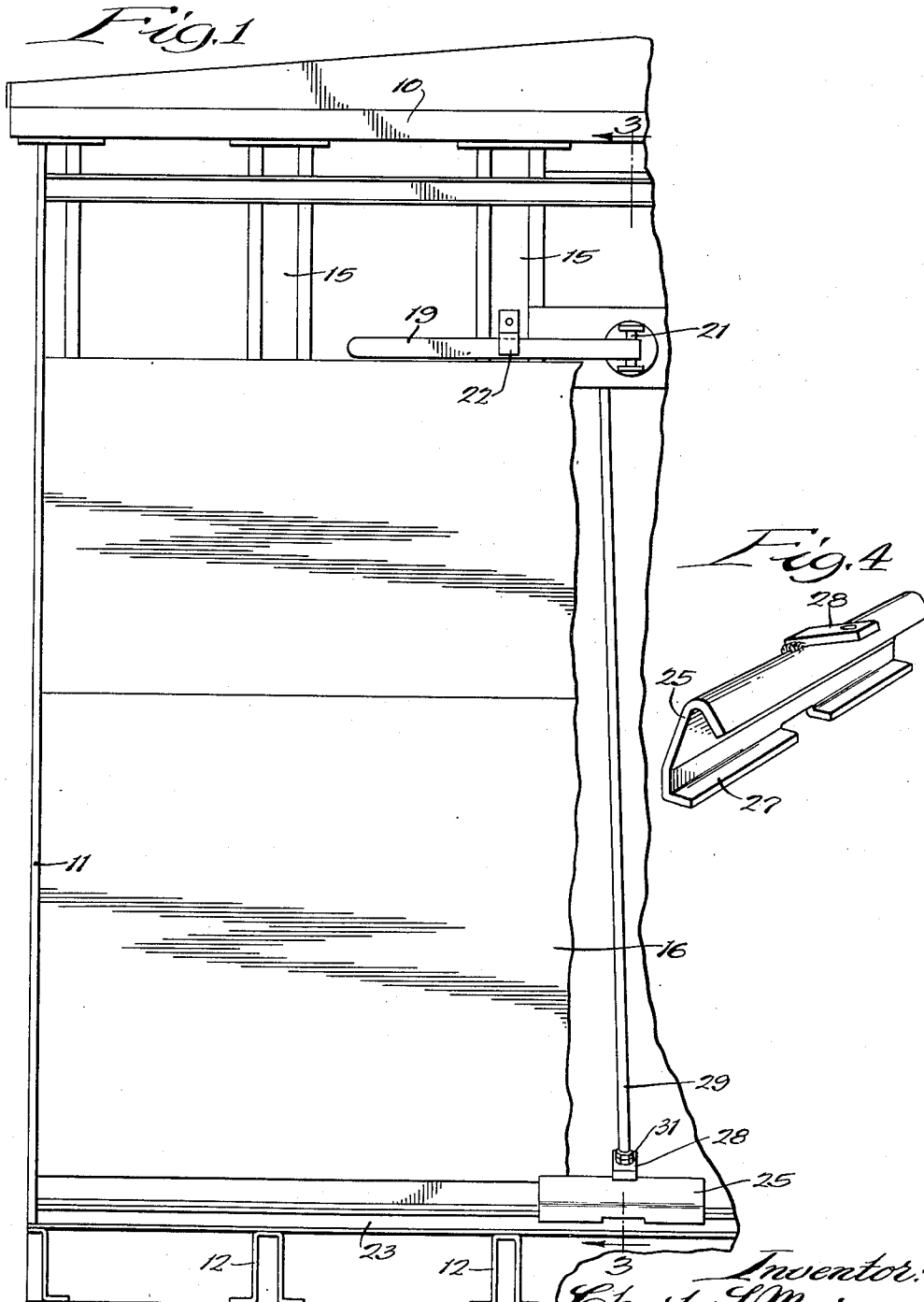
Jan. 31, 1950

C. L. MOORMAN
CONVERTIBLE BULKHEAD

2,495,903

Filed Oct. 22, 1945

2 Sheets-Sheet 1



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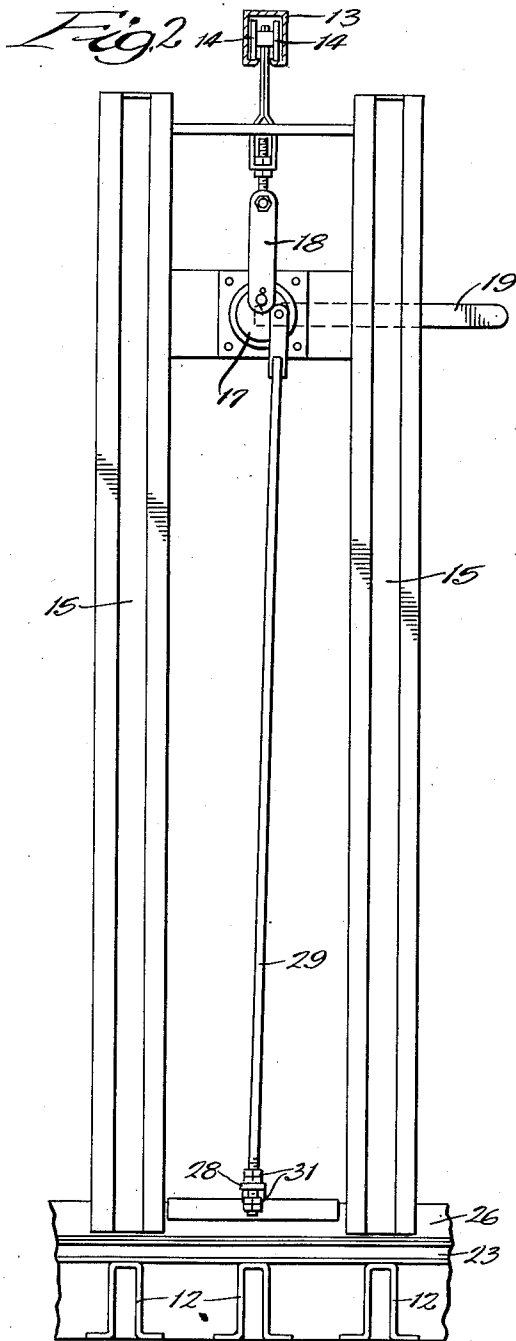
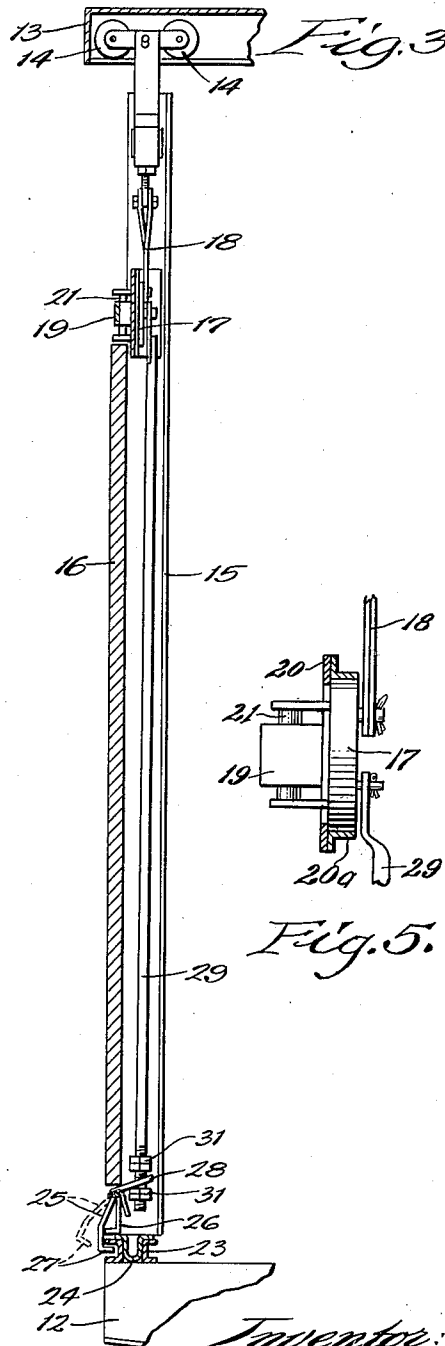
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UNITED STATES PATENT OFFICE

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CONVERTIBLE BULKHEAD

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13 Claims. (Cl. 105-376)

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This invention relates to convertible bulkheads of the type used in refrigerator cars or the like and particularly to operating and holding mechanisms for such bulkheads.

Convertible bulkheads have been proposed for refrigerator cars which can be moved from an extended position separating the car into ice and lading compartments to a retracted position against the end of the car to leave the entire car space available for lading. Such bulkheads have usually been so mounted that they can be raised in the car for movement and have been provided with holding means to prevent movement when they are in a lowered position.

Under certain operating conditions as, for example, high speed on rough track, the bulkhead may rise to release the holding means. If this should occur serious damage to the lading or the car or both may result.

It is accordingly one of the objects of the present invention to provide a convertible bulkhead which is securely latched in position against accidental displacement.

Another object is to provide a convertible bulkhead which is held against movement in the car when it is in a lowered position and in which a releasable latch is provided to prevent accidental raising of the bulkhead.

Still another object is to provide a bulkhead in which the operating mechanism for raising and lowering the bulkhead controls the latch. Preferably the construction is such that initial movement of the operating mechanism releases the latch and subsequent movement raises the bulkhead.

A further object is to provide a simple and inexpensive latch construction for a bulkhead.

A still further object is to provide a simple yet sturdy and reliable mechanism for raising and controlling a bulkhead.

The above and other objects and advantages of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which—

Figure 1 is a partial front elevation of a bulkhead illustrating the mounting thereof in a refrigerator car;

Figure 2 is a partial rear elevation of the bulkhead;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a perspective view of the latch plate;

Figure 5 is a partial section showing the operating mechanism.

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The bulkhead, as illustrated, is mounted in a conventional refrigerator car having a roof 10, side walls 11 and a lading floor supported on longitudinally extending channel beams 12. A track 13 is mounted adjacent the ceiling of the car which may be formed of a channel section part with its lower edges turned in to provide supporting flanges for rollers 14. The rollers are supported by a carriage for movement longitudinally of the car.

A movable bulkhead is mounted in the car for longitudinal movement therein and, as illustrated, is formed by spaced vertical channel beams 15 covered throughout a part of their front surface by planking or the like 16. The bulkhead is adapted to be moved from an extended position spaced from the end of the car to divide the car into a lading compartment and an ice compartment to a retracted position adjacent the end wall of the car. For this purpose the bulkhead is supported from the track 13 in such a manner that it can be raised and lowered and can be moved along the track from its extended to its retracted position when it is raised. As shown, the bulkhead carries adjacent its upper part a support 20 extending between adjacent beams 15 and having an annular flange 20a thereon rotatable supporting plate or disc 17 which is connected by an adjustable link 18 to the carriage on which the rollers 14 are carried. The link 18 is pivotally connected to the supporting plate 17 eccentric to its axis so that the bulkhead will be raised and lowered as the plate is turned.

For turning the plate, an operating handle 19 is provided, pivotally connected to the plate through a vertical spindle 21 on the plate. The operating handle in this way can be swung toward and away from the bulkhead so that it will overlie the upper edge of the planking as shown in Figures 1 and 3 or can be swung out to clear the planking for turning the operating plate. When the bulkhead is in its lowered position, as illustrated, the handle 19 will lie just above the planking 16 and can be secured in place by a rotatable latch member 22. When the latch is released, the handle can be swung out and pulled down by an operator in the lading compartment of the car to raise the bulkhead.

When the bulkhead is in its lowered position, as shown, it is adapted to be held against movement in the car by cooperating parts on the bulkhead and in the car. As shown, a transverse supporting beam 23 is provided carried by the longitudinal beams 12 and forming a transverse

open channel extending across the car. The lower edge of the bulkhead carries a channel shaped fin 24 adapted to fit into the opening in the beam 23 so that the bulkhead will be held against longitudinal movement. When the bulkhead is raised, the fin 24 will clear the beam 23 so that the bulkhead can be moved freely along the track.

In use it might occur with the bulkhead in its lowered position that it will tend to rise out of the channel in the beam 23 as, for example, when operating over rough track or due to the action of the lading and the ice thereon. To prevent accidental raising of the bulkhead, a latch is provided engageable with the beam 23 to hold the bulkhead in its lowered position resting on the beam. As shown, the latch comprises a latch plate 25 bent over at its upper edge to provide a hook portion which is adapted to be hooked over a cross beam 26 at the lower edge of the bulkhead. As best seen in Figure 3, the latch plate extends over the outer face of the beam 26 and has an intumed latching flange 27 at its lower edge adapted to engage a horizontal flange on the beam 23. The plate 25 is so balanced that it normally tends to move by gravity to the latching position, as shown in full lines.

To release the latch and permit raising of the bulkhead when desired, an operating arm 28 is welded to the latch plate and projects inwardly therefrom toward the center of the bulkhead at an acute angle to the horizontal, as seen in Figure 3. The arm 28 is perforated to receive a link 29 which extends through the perforations in the arm and carries abutments such as stop nuts 31 on the opposite sides of the plate. The link 29 is pivoted to the operating plate 17 at a point spaced substantially 90° from the connection of the link 18 to the plate, as best seen in Figure 2.

When the bulkhead is lowered and the operating plate is turned to the position shown, the link 29 will be raised to permit the latch plate to move to its latching position. In this position the flange 27 engages the beam 23 positively to prevent raising of the bulkhead. When it is desired to raise the bulkhead, the arm 19 is turned in a clockwise direction, as seen in Figure 2, to press down on the link 29 and to pull down on the link 18. Due to the spacing of the pivots, it will be seen that the link 29 will be moved more rapidly than the link 18 during initial movement of the operating lever. When the link 29 is moved down, the upper stop nut 31 will engage the top of the arm 28 to rock the latch plate 25 to its release position as shown in dotted lines in Figure 3. This operation will occur during initial turning of the operating plate 17 before the bulkhead has been raised to any appreciable extent so that upon continued turning of the operating plate, the bulkhead can be raised freely.

While one embodiment of the invention has been shown and described in detail, it will be understood that this is illustrative only and is not intended as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. In a refrigerator car or the like having a longitudinally extending track therein, a bulkhead, means connecting the bulkhead to the track for movement thereon from an extended to a retracted position, and for raising and lowering the bulkhead, a movable operating member to control raising and lowering of the bulkhead, a latch to prevent movement of the bulkhead when

it is in lowered position, and a connection from the operating member to the latch to release the latch when the operating member is moved in a direction to raise the bulkhead.

2. In a refrigerator car or the like having a longitudinally extending track therein, a bulkhead, means connecting the bulkhead to the track for movement thereon from an extended to a retracted position, and for raising and lowering the bulkhead, a movable operating member to control raising and lowering of the bulkhead, cooperating parts on the car and the bulkhead to prevent movement of the bulkhead in the car when it is in lowered position, a latch to prevent raising of the bulkhead from a lowered position, and a connection from the operating member to the latch to release the latch when the operating member is moved in a direction to raise the bulkhead.

3. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, a rotatable operating member on the bulkhead, means including a link connected to the operating member for supporting the bulkhead on the track whereby the bulkhead will be raised and lowered as the operating member is turned, a latch to hold the bulkhead against movement when it is in lowered position, and a connection from the operating member to the latch to release the latch when the operating member is turned in a direction to raise the bulkhead.

4. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, a rotatable operating member on the bulkhead, means including a link connected to the operating member for supporting the bulkhead on the track whereby the bulkhead will be raised and lowered as the operating member is turned, cooperating parts on the car and the bulkhead to hold the bulkhead against movement when it is in lowered position, a pivoted latch on the bulkhead to hold it against raising, and a link connecting the operating member to the latch to release the latch when the operating member is turned in a direction to raise the bulkhead.

5. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, an operating plate on the bulkhead rotatable about a horizontal axis, means including a link connecting the plate to the track whereby the bulkhead will be raised when the plate is turned, a supporting member in the car on which the bulkhead rests when it is in lowered position, a pivoted latch on the bulkhead engageable with the supporting member to prevent movement of the bulkhead, and a connection from the operating plate to the latch to release the latch when the plate is turned in a direction to raise the bulkhead.

6. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, an operating plate on the bulkhead rotatable about a horizontal axis, means including a link connecting the plate to the track whereby the bulkhead will be raised when the plate is turned, a supporting member in the car on which the bulkhead rests when it is in lowered position, the supporting member and bulkhead being formed with interengaging parts to prevent movement of the bulkhead along the track when the bulkhead is in lowered position, a pivoted latch on the bulkhead engageable with the supporting member to prevent raising of the bulkhead, and a link connecting the operating plate to the latch

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to release the latch when the plate is turned in a direction to raise the bulkhead.

7. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, an operating plate on the bulkhead rotatable about a horizontal axis, means including a link connecting the plate to the track whereby the bulkhead will be raised when the plate is turned, a supporting member in the car on which the bulkhead rests when it is in lowered position, the supporting member and bulkhead being formed with interengaging parts to prevent movement of the bulkhead along the track when the bulkhead is in lowered position, a pivoted latch on the bulkhead engageable with the supporting member to prevent raising of the bulkhead, and a link connecting the operating plate to the latch to release the latch when the plate is turned in a direction to raise the bulkhead, the connections of the links to the operating plate being spaced substantially 90° whereby turning of the plate will first release the latch and thereafter raise the bulkhead.

8. In a refrigerator car or the like having a longitudinally extending track therein, a vertical bulkhead, means supporting the bulkhead on the track and movable to raise and lower the bulkhead, a latch to prevent movement of the bulkhead when it is in lowered position, and means connecting the latch to the supporting means to release the latch upon initial movement of the supporting means in a direction to raise the bulkhead.

9. In a refrigerator car or the like, a bulkhead having a horizontal beam extending across its bottom, a latch plate pivotally supported on the beam having a hook portion pivotally to hook over the beam and an angular latching flange to engage a cooperating latch part in the car, the latch plate being so balanced that it tends to move by gravity to latching position, and an operating arm on the latch plate to move it to release position.

10. In a refrigerator car or the like, a bulkhead having a horizontal beam extending across its bottom, a latch plate pivotally supported on the beam having a hook portion pivotally to hook over the beam and an angular latching flange to engage a cooperating latch part in the car, the latch plate being so balanced that it tends to move by

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gravity to latching position, an operating arm on the latch plate, and a link extending vertically of the bulkhead and engageable with the arm to turn the latch plate to release position when the link is moved vertically.

11. In a refrigerator car or the like having a longitudinally extending track in the upper part of the car, a vertical bulkhead, an operating plate on the bulkhead rotatable about a horizontal axis, means including a link connecting the plate to the track so that the bulkhead will be raised when the plate is turned, and an operating handle connected to the plate to turn it.

12. In a refrigerator car or the like having a longitudinally extending track in the upper part of the car, a vertical bulkhead, an operating plate on the bulkhead rotatable about a horizontal axis, means including a link connecting the plate to the track so that the bulkhead will be raised when the plate is turned, and an operating handle pivoted to the plate to swing toward and away from the bulkhead through which the plate can be turned.

13. In a refrigerator car or the like having a longitudinally extending track in the upper part of the car, a bulkhead including spaced vertical beams and planking over the lading side of the beams terminating short of the top thereof, an operating plate supported by the beams adjacent the top of the planking and rotatable about a horizontal axis, means including a link connecting the plate to the track so that the bulkhead will be raised as the plate is turned, and a handle pivoted to the plate to swing toward and away from the bulkhead, the handle being mounted to lie above the planking and to swing out over the planking to turn the plate.

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