

E. POSSON.
MOVABLE BULKHEAD FOR REFRIGERATOR CARS.
APPLICATION FILED NOV. 4, 1909.

1,014,093.

Patented Jan. 9, 1912.

5 SHEETS—SHEET 1.

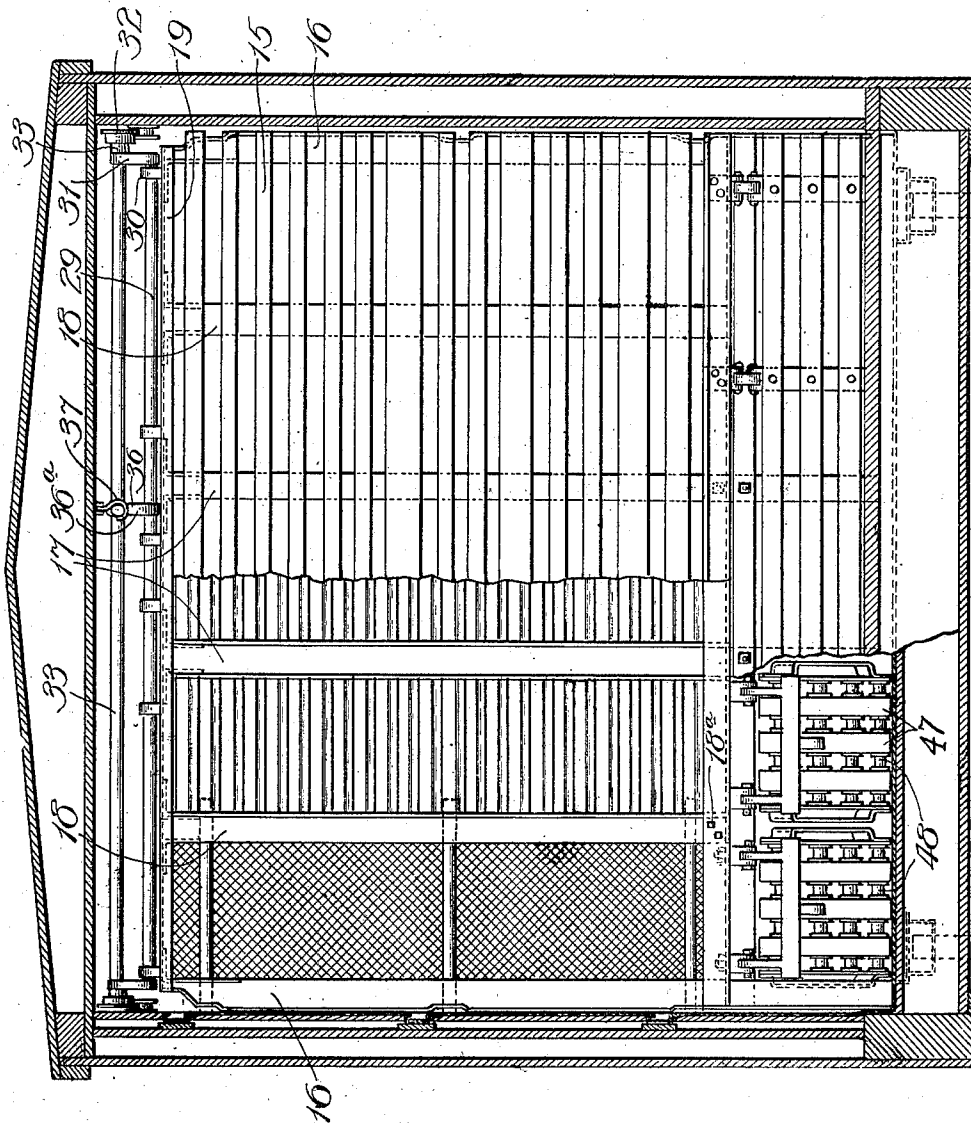


Fig. 1.

Witnesses
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Chas. H. Buell:

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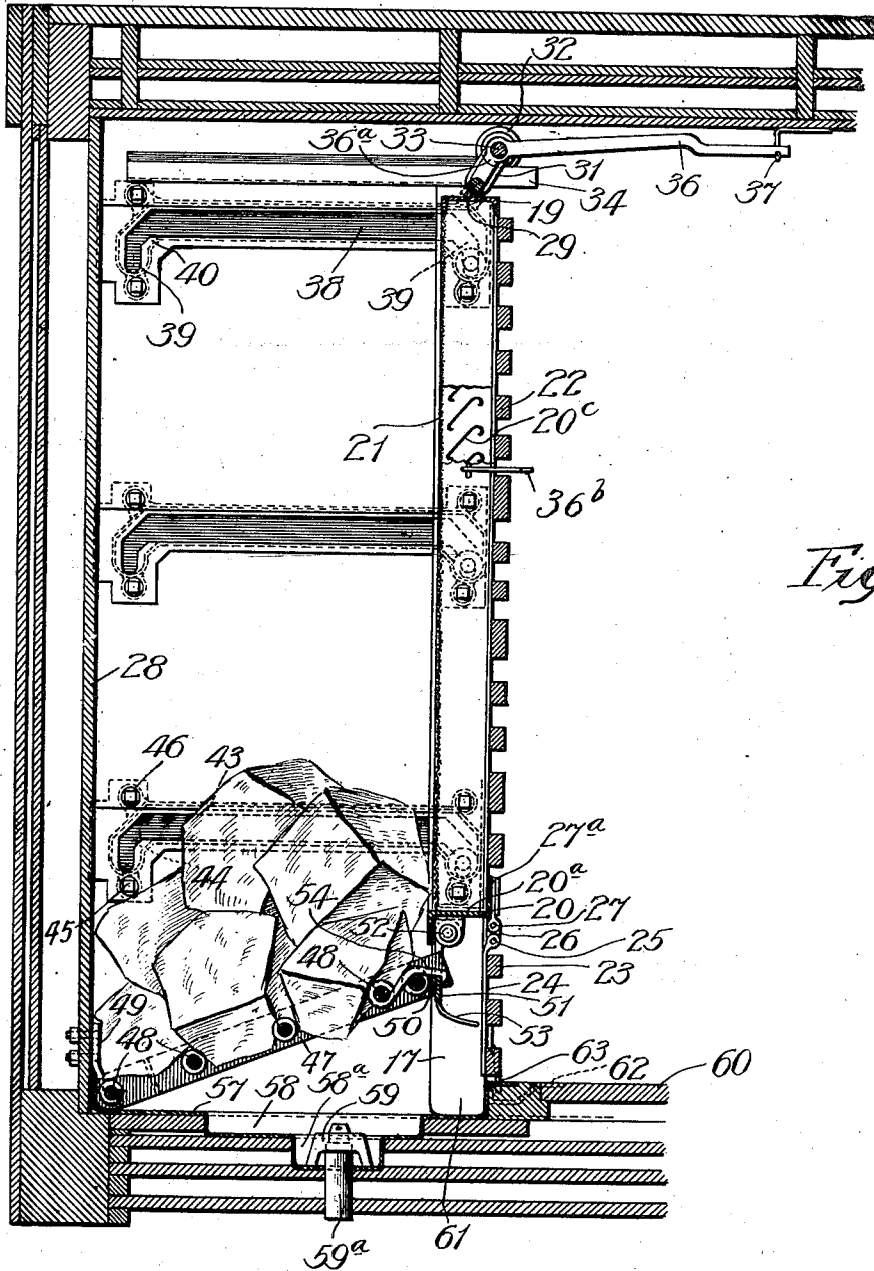


Fig. 2.

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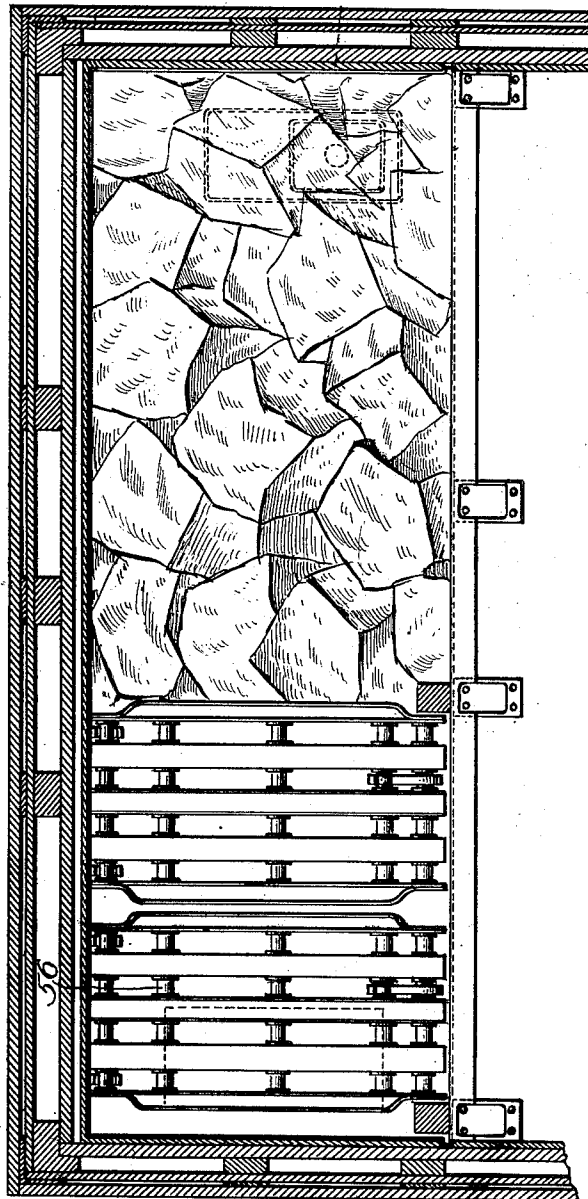
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Fig. 3.



Witnesses:
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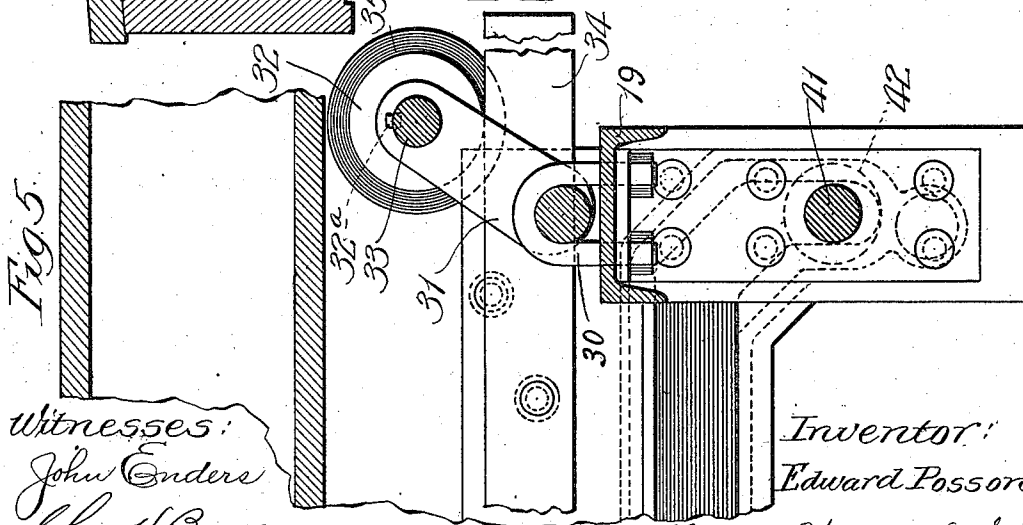
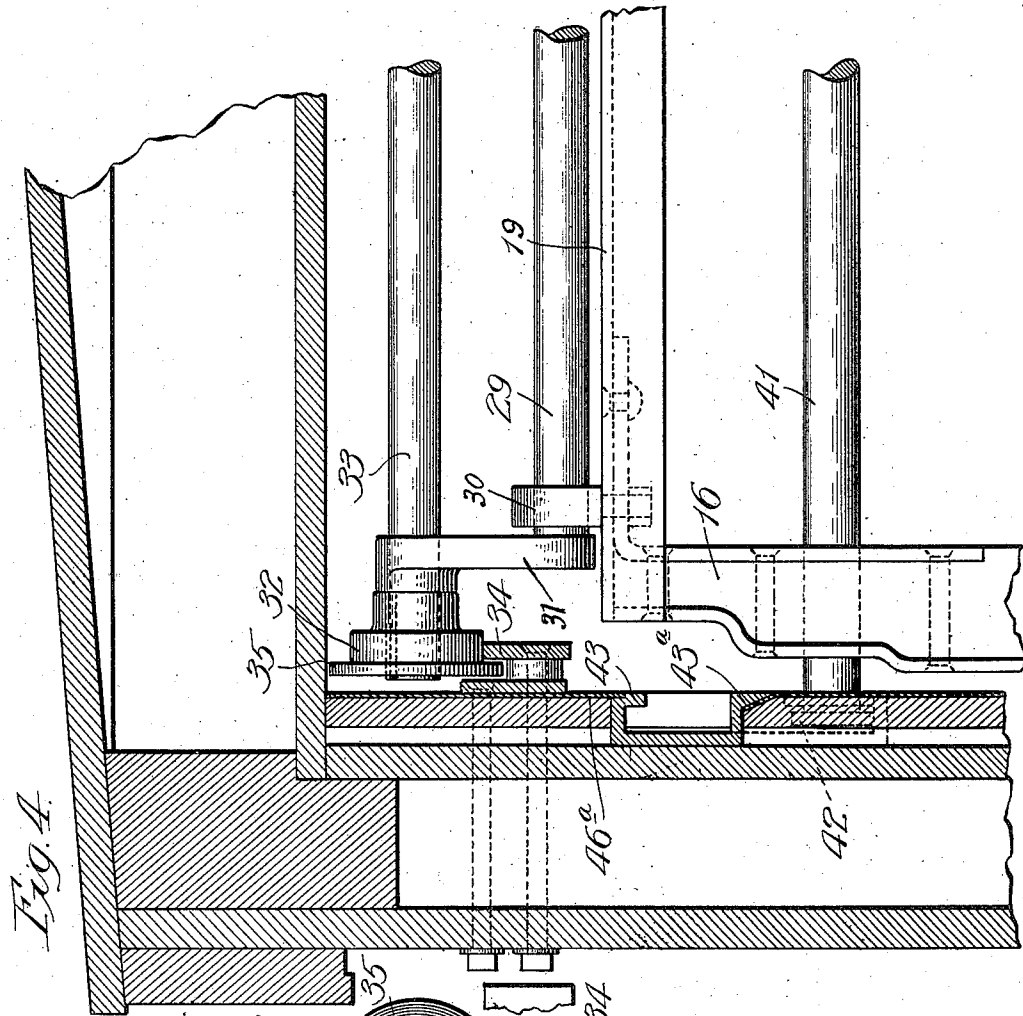
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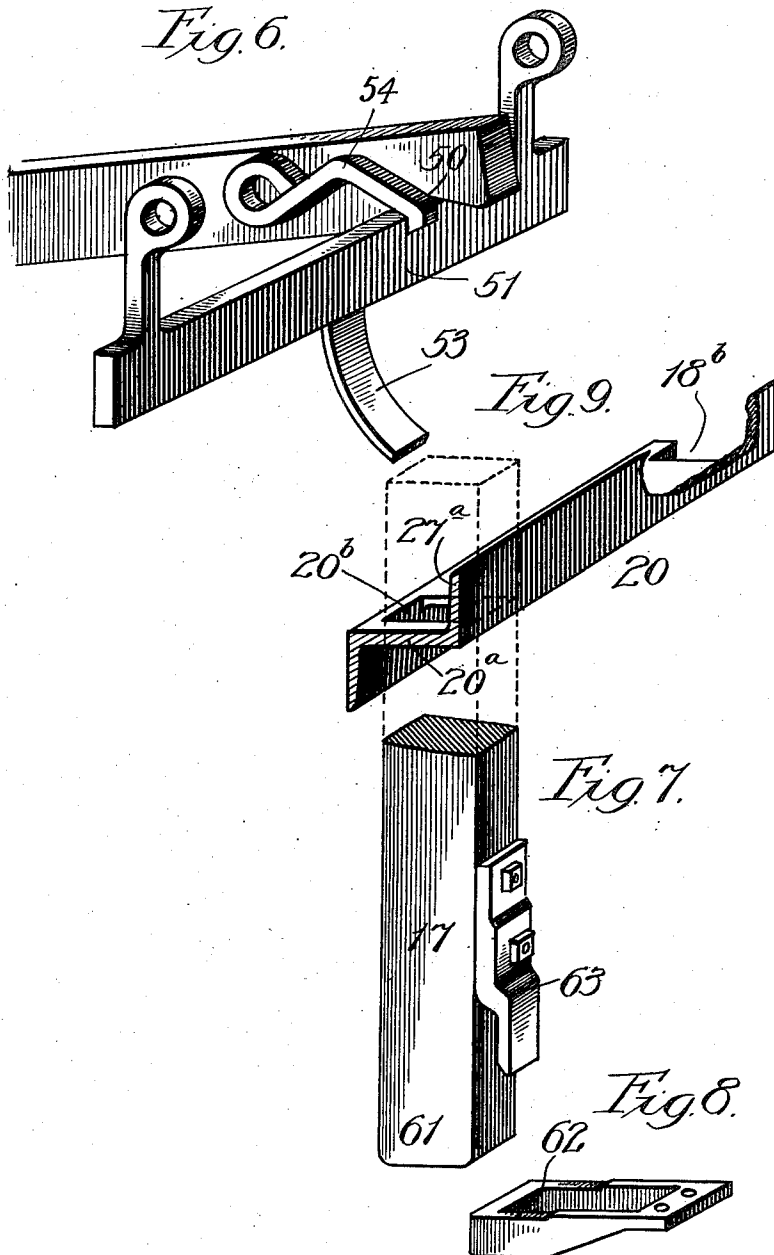
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5 SHEETS—SHEET 5.



Witnesses:
John Enders
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UNITED STATES PATENT OFFICE.

EDWARD POSSON, OF CHICAGO, ILLINOIS.

MOVABLE BULKHEAD FOR REFRIGERATOR-CARS.

1,014,093.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed November 4, 1909. Serial No. 526,222.

To all whom it may concern:

Be it known that I, EDWARD POSSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Movable Bulkheads for Refrigerator-Cars, of which the following is a specification.

My invention relates to movable bulkheads or partitions for refrigerator cars by the use of which ice chambers may be partitioned off from the main part of the car at the ends. The bulkheads may be displaced when desired so as to make the entire interior space in the car available for freight.

The object of my invention is to improve the construction of bulkheads of this character in various respects, one of which consists of a series of guideways in the sides of the car which have downwardly turned ends or offsets which serve to securely hold the bulkhead in either of its positions. Convenient and simple means for raising the bulkhead from the depressed ends of the guide have been provided, as well as rollers and a track on which it may be easily moved from one position to another.

Another object consists of providing means for supporting the grate on which the ice is carried and which permits easy access to the lower part of the ice chamber. These supports comprise swinging bails on which the grates are supported at one of their ends, the other end of each grate being pivoted to the car frame.

Another feature comprises stops in the floor of the car into which the vertical posts of the bulkhead frame are lowered.

Other objects and advantages will be apparent in the specification and claims, taken in connection with the drawings, in which—

Figure 1 is a cross section of a refrigerator car body showing a view in elevation with parts broken away of one of the bulkheads. Fig. 2 is a longitudinal vertical section of one end of the car showing the bulkhead in cross section. Fig. 3 is a horizontal section of one end of the car showing the bulkhead in section and a portion of the grates. Fig. 4 is a detail showing one of the upper corners of the bulkhead and the adjacent parts of the car body and showing particularly the shaft and rollers by which the bulkhead is elevated. Fig. 5 is a side view of the same. Fig. 6 is a perspective view of one of the pivoted bails with one

of the grate bars resting thereon and also one of the retaining hooks for said bail in its proper relative position to said parts. Fig. 7 is a perspective view of the lower end of one of the right-hand members of the bulkhead showing a device for engaging the stops in the floor. Fig. 8 is a perspective view of one of said stops. Fig. 9 is a perspective view of one of the frame members.

In the drawings, the reference numeral 16 designates the outer upright frame members or posts of the bulkhead 15. Two similar posts 17 are placed near the center of the bulkhead. Two shorter posts 18 are located between the posts 17 and 16 and extend from the top of the bulkhead to the top of the gate at the bottom. At the top of the bulkhead and fixed to the upper ends of each of the vertical posts 16, 17, and 18 is the horizontally disposed channel bar 19. Near the bottom of the bulkhead is the horizontally disposed Z-bar 20. In the central web 20^a of the Z-bar are rectangular apertures 20^b through which the vertical posts 17 are placed. The shorter posts 18 rest at their lower ends upon the web 20^a of the Z-bar and are fixed to the said Z-bar by means of the bolts 18^a. The Z-bar is recessed at its outer end 18^b to permit the insertion of the outer posts 16. In the body of the bulkhead the deflecting devices 20^c for the air current are placed between these upright posts and are not described in detail herein because they do not form a part of this invention. The netting 21 is placed against the said posts on their inner faces. The slats 22 are fixed to the front faces of the posts and protect the other deflecting devices 20^c. A horizontally pivoted door is provided at the bottom of the bulkhead. This door comprises slats 23 which are fixed to hangers 24 which in turn are pivoted at 25 to links 26. These links in turn are pivoted to eyes 27 which are fixed to the vertical flanges 27^a of the Z-bars 20.

The above described bulkhead is spaced a considerable distance from the end wall 28 of the car and in the space thus provided the ice is deposited.

The bulkhead is provided at its upper edge with a horizontal shaft 29 which is pivotally supported thereon by the bearings 30 fixed to the channel bar 19. The shaft 29 is provided with crank arms 31 preferably integral with said shaft, and in the

outer extremity of said arms 31 the shaft 33 is mounted. A roller 32 is fixed to this shaft at each end by the key 32^a and rolls upon the track 34 which is fixed to the side wall of the car. The roller 32 is provided with a flange 35 to retain it on said track. At or near the middle of the length of the shaft 29 is a lever 36 preferably integral with said shaft. This lever is provided with a bend 36^a at which point the shaft 33 passes through the lever and has a bearing therein. The shaft 29 may be rotated by means of this lever and by means of the eccentrically attached roller 32, above described, the bulkhead may be raised a considerable distance. When thus raised its weight is transferred to the tracks 34. A hook 36^b attached to the bulkhead provides means for retaining the lever 36 in an operated position in which position the bulkhead is carried upon the track 34 by the rollers 32. Another hook 37 provides means for holding the lever 36 in its unoperated position adjacent the roof of the car.

The guides 38 are provided in the walls of the car and serve to guide the bulkhead between its two positions, one of said positions being that shown in the drawings in which a space is separated off for an ice chamber, the other of said positions being adjacent the end wall of the car. These guides have a channel-shaped cross section of rectangular form in which the ends of pins 41 are made to operate. The ends of the pins 41 are provided with heads 42 which lie within the retaining flange 43 of the said guides 38. The guides 38 are provided at the ends with downwardly extending portions or offsets 39. The pins 41 drop into these downwardly extending portions 39 in either position of the bulkhead and the bulkhead is thereby securely retained in position. In order to move the bulkhead from one position to the other it is necessary to first raise it by means of the lever 36 as will be clear from the previous description of the parts related thereto. When thus raised the bulkhead is free to slide along the guide 38 to the other position. The downwardly extending portions 39 of the guides are provided with the short retaining guard 40 at their lower and inner faces. The guides are securely held in position in the walls of the car by means of bolts 45, 46, etc. The sheet metal lining 46^a is cut away around the guides 38 and is made to lap over the upper edges 43 and to lie within the lower edges 43^a of the guides 38.

The ice grates 47 are provided for the ice to rest upon in the lower portion of the ice chamber and are pivoted at one edge to the hooks 49 which are bolted to the end wall of the car. The spacing thimbles 48 serve as means for making this pivotal connection.

The said grates 47 are composed of bars which are spaced by thimbles 48. The grates 47 are given an inclined position as shown in the drawings for the purpose of causing the blocks of ice to move away from the bulkhead and against the end 28 of the car body. By this means the bulkhead is protected in a large measure against damage by the pressure of the ice.

The grates 47 are composed of independent sections which form a series which lies transversely of the car at the bottom of the ice chamber. The separate ends of the grate sections are supported by the swinging bail 51, which is pivoted at 52 to the under side of the Z-bar 20. The grate bars are notched at their ends as shown at 50 where they rest upon the bail 51. The downwardly projecting and outwardly curved tongue 53 is provided on each bail and serves as a means by which the grate bars may push the bail out of the way momentarily when the grates are being raised to their inclined positions. The grate sections are adapted to drop into the pan 57 at the bottom of the ice chamber. The depth of this pan is equal to the depth of the grate sections and when the sections are lowered their upper surfaces are therefore in the same plane with the floor of the car. The bail 51 is retained in position below the elevated end of the grate sections by the hook 54 which is pivoted on one of the spacing thimbles 48. It is prevented from dropping down to an excessive degree when not engaged with the bail by another of the spacing thimbles. The pan 57 is provided with a depressed portion 58 and in this depressed portion is a further depression 58^a in which is placed the trap 59. The trap 59 retains a small portion of the water below the level of the end of the outlet pipe 59^a, thus sealing the ice chamber against admission of air from the outside of the car.

The extended lower ends 61 of the upright frame members 16 and 17 rest upon the bottom of the pan 57 adjacent the inner edge where said pan lies against the floor 60 of the car. Near the lower end 61 of the said upright frame members is a short bar 63 which is adapted to engage the stop 62 in the floor of the car. This stop 62 is a hollow metal device into which the bar 63 projects. When the bulkhead is lowered into position the bar 63 enters the recess in the stop 62.

The operation of my improved bulkhead has already been largely referred to throughout the preceding portion of the specification. It may be further said that the bulkhead may be very quickly and conveniently moved from the position shown in the drawings to a position adjacent the end of the car by first pulling downwardly upon the lever 36, which raises the bulkhead a distance equal to the depth of the downwardly

extending portions 39 of the guides 38. This movement causes the weight of the bulkhead to be thrown upon the rollers 32 which rest upon the track 34. The bulkhead is then free to be moved along the track and the heads 42 of the pins 41 are free to slide along the guides 38 to the other extremity of said guides and when in the latter position the lever 36 may be allowed to rise to a position adjacent the ceiling of the car. By this movement of the lever 36 the bulkhead is permitted to settle into a position adjacent the end wall of the car. The pins 41 drop into the downwardly extending portions 39 of the guides 38 and hold it in that position. The return movement of the bulkhead to its former position may of course be effected in a similar manner. If it is desired to retain the bulkhead in a supported position while being moved from one point to the other without effort on the part of the operator, the lever 36 may be engaged by the hook 36^b on the bulkhead.

Both rollers 32 at the ends of the shaft 33 being keyed thereto the lateral edges of the bulkhead are caused to move at the same speed and no attention is required of the operator in causing the bulkhead to move upwardly into position.

When the bulkhead is used as a partition as above described and an ice chamber is thereby divided off, the ice may be dropped into said chamber in the usual way through a hatch in the roof of the car. The ice would fall upon the grates 47 and the weight of said ice would be carried partly by the bails 51 which are suspended from the Z-bar 20 and partly by the hooks 49. If it is desired to remove remnants of ice in the ice chamber before moving the bulkhead to a position adjacent the end of the car, the grates 47 may be dropped into the pan 57. In doing this the retaining hooks 54 would be first raised after which the bails 51 may be easily swung out from beneath the ends of the grates. In view of the fact that the ice grates are made in sections it would be clear that one only of these sections may be lowered at a time and the ice at any particular part of the ice chamber may be removed. The gate 23 would of course be raised out of the way when removing the ice. The link 26 serves an important function when thus raising the gate as it permits the pivot 25 to be swung out of a vertical line below the pivot 27. This permits the gate 23 to be fully swung around to a vertical position against the slats 22 of the bulkhead.

The downwardly curved tongues 53 on the bails 51 are very convenient for the operator to seize for the purpose of swinging the bails 51 out of engagement with the ends of the grates 47. Their forwardly projecting position causes the hand of the operator to be out of the path of the falling grates. They

also enable the grates to push them out of the way when said grates are being raised.

When the bulkhead is lowered into the position shown in the drawings where it serves as a partition for dividing off space as an ice chamber, the lower end 61 of the upright members of the bulkhead frame drop into their proper positions in the forward part of the pan 57, and the bars 63 enter the recess of the stops 62 without any attention on the part of the operator.

The bottom of the pan is below the level of the floor 60 and it will be clear that the water in said pan cannot find its way out upon the floor 60 and cause damage to the contents in the car.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

I claim:

1. A refrigerator car having a movable partition across the end thereof whereby space may be divided off as an ice chamber or may be connected to the central part of the car, flanged guides in the walls of said car, and flanged members projecting from the body of said partition and adapted to slide in said guides.

2. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to the central part of the car, flanged guides in the walls of said car for said partition, and flanged members projecting from the body of said partition and adapted to slide in said guides, said guides having offsets for holding said partition in different positions.

3. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to the central part of the car, guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions, and means for moving said partition out of engagement with said offsets and into position for moving along said guides.

4. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to a central part of the car, guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions, means for moving said partition out of engagement with said offsets and into position for moving along said guides, and means for supporting the weight of said partition while it is being moved along said guides.

5. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to the central part of the car, guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions, means for moving said partition out of engagement with said offsets and into position for moving along said guides, means for retaining said partition in the latter position, and means for supporting the weight of said partition while it is being moved along said guides.
6. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to a central part of the car, guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions, means for moving said partition out of engagement with said offsets and into position for moving along said guides, means for retaining said partition in the latter position, means for supporting the weight of said partition while it is being moved along said guides, and stops in the floor of the car engaging said partition.
7. A refrigerator car having a movable partition across the end thereof whereby space may be divided off as an ice chamber or may be connected to the central part of the car, flanged guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions, and flanged pins on said partition, each of which is adapted to slide in one of said guides.
8. A refrigerator car having a movable partition across the end thereof whereby a space may be divided off as an ice chamber or may be connected to the central part of the car, guides in the walls of said car for said partition, said guides having offsets for holding said partition in different positions and having retaining flanges, pins on said partition, each of which is adapted to slide in one of said guides and has a head adapted to cooperate with said retaining flanges to hold said pin in its guide.
9. A refrigerator car having a movable partition across the end thereof whereby space may be divided off as an ice chamber or may be connected to the central part of the car, a guide in the wall of the car for said partition, said guide having an offset to receive and to hold the partition in the position in which it serves as a wall of an ice chamber, another offset to receive and hold said partition adjacent the end wall of the car, and means for retaining the said partition in engagement with said guide.
10. A refrigerator car having a movable partition across the end thereof, a guide for said partition having a downwardly extending offset at each end, a shaft journaled upon said partition, a roller eccentrically attached to said shaft, a track for said roller, a lever on said shaft by which the shaft may be rotated and by means of said roller the partition may be raised out of either of said offsets and made free to move along said guides.
11. A refrigerator car having a movable partition across the end thereof, a shaft journaled upon said partition, a roller eccentrically attached to said shaft, a track for said roller, a lever on said shaft by which it may be rotated and the weight of the partition transferred to said track, and a retaining hook for said lever.
12. A refrigerator car having a movable transverse partition, an ice grate supported at one of its ends by said partition, and a bail pivoted to said partition by which the end of said grate is supported.
13. A refrigerator car having a movable transverse partition, an ice grate supported at one of its ends by said partition, a bail pivoted to said partition by which the end of said grate is supported, and means for retaining said bail in engagement with said grate.
14. A refrigerator car having a movable transverse partition, an ice grate composed of a plurality of independent sections, each section being supported at one end by said partition, and a plurality of bails pivoted to said partition for supporting the ends of said grate sections.
15. A refrigerator car having a movable transverse partition, an ice grate composed of a plurality of independent sections, each section being supported at one end by said partition, a plurality of bails pivoted to said partition for supporting the end of said grate sections, and a hook pivoted to each section and engaging said bail to retain said bail in engagement with said grate.
16. A refrigerator car having a movable transverse partition, an ice grate supported at one of its ends by said partition, a bail pivoted to said partition by which the end of said grate is supported, and a tongue on said bail by which the grate may momentarily push said bail out of its path while being moved into engagement therewith.
17. A refrigerator car having a movable transverse partition, an ice grate composed of a plurality of independent sections each section being supported at one end by said partition, a pan in the floor of the car into which the said grate sections may be laid, and upright frame members in said partition adapted to rest on their lower ends in said pans between the grate sections.
18. A refrigerator car having a movable

transverse partition, an ice grate composed of a plurality of independent sections each section being supported at one end by said partition, a pan in the floor of the car into which the said grate section may be laid, upright frame members in said partition adapted to rest on their lower ends in said pan between the grate sections, a stop in the car floor adjacent said pan, and means on said upright frame members for engaging said stop.

19. A refrigerator car having a movable transverse partition, a pan in the floor of the car, an upright frame member in said partition adapted to rest at its lower end in said pan, a stop in the car floor adjacent said pan, and means on said upright frame member for engaging said stop.

20. A refrigerator car having an ice chamber, a grate for supporting the ice in said chamber, a pan in the bottom of said chamber, said grate having an elevated position for holding ice and being adapted to be lowered into said pan.

21. A refrigerator car having an ice chamber, a pan in the bottom of said chamber, a grate for supporting the ice in said chamber having one end resting in said pan and the other end elevated above the same, said grate being adapted to be lowered into said pan.

22. A refrigerator car having an ice chamber, a pan in the bottom of said chamber, a grate for supporting the ice in said chamber, said grate being adapted to be lowered into said pan, and a gate in the wall of said ice chamber through which access may be had to said chamber above said grate when the latter is lowered in said pan.

23. A refrigerator car having a movable transverse partition, a pan in the bottom of said chamber, a grate having one end resting in said pan and the other end supported by said partition and adapted to be lowered into said pan, and a gate in said partition through which access may be had to said chamber when the grate is lowered.

24. A refrigerator car having an ice chamber, a pan in the bottom of said chamber below the level of the floor of the car, and an ice grate adapted to be lowered into said pan and when so lowered to have its upper surface at substantially the same level as the floor of the car.

25. A refrigerator car having an ice chamber, a floor having a depressed portion beneath said chamber, and an ice grate adapted to be lowered into said depression.

26. A refrigerator car having an ice chamber, a floor having a depressed portion beneath said chamber, an ice grate adapted to be lowered into said depression, and a second depressed portion in the bottom of said first named depressed portion adapted

to receive the water from said first named portion.

27. A refrigerator car having an ice chamber, a floor having a depressed portion beneath said chamber, an ice grate adapted to be lowered into said depression, a second depressed portion in the bottom of said first named depressed portion adapted to receive the water from said first named portion, a third depressed portion in the bottom of said second depressed portion, and a water vent in said last named depression.

28. A refrigerator car having an ice chamber, a floor having a depressed portion beneath said chamber, an ice grate adapted to be lowered into said depression, a second depressed portion in the bottom of said first named depressed portion adapted to receive the water from said first named portion, a third depressed portion in the bottom of said second depressed portion, a water vent in said last named depression, and a water trap or seal in said third depression to prevent entrance of air into said car.

29. A refrigerator car having an ice chamber, a floor having a depressed portion beneath said chamber, an ice grate adapted to be lowered into said depression, a further depressed portion adapted to receive the water from the first named depression, a water vent in said last named depression, and a water trap or seal in said last named depression to prevent the entrance of air in said car.

30. A refrigerator car having a movable transverse partition, a gate in the bottom of said partition, and a link pivotally attached to said gate at one end of said link, and to the partition at the other end of said link, whereby said gate may be given a bodily movement as well as a rotary movement when moving said gate to an open position.

31. A refrigerator car having a movable transverse partition, a gate at the bottom of said partition, and means whereby said gate may be given a bodily movement as well as a rotary movement when opening said gate.

32. A refrigerator car having a movable transverse partition whereby an ice chamber may be divided off from the central part of the car, guiding channels in the wall of the car serving to guide said movable partition, a lining of sheet metal on said wall, said lining being fitted to the guiding channels around their peripheries whereby said channels serve the purpose of a lining in that portion of the wall which they occupy.

33. A refrigerator car having a movable transverse partition, rollers by which said partition is carried, tracks on the walls of the car for said rollers, a shaft to which said rollers are fixed, another shaft rotatably mounted on said partition, and to which

said first-named shaft is eccentrically attached, and means for effecting rotation of said second-named shaft.

34. A refrigerator car having a movable
5 transverse partition, rollers by which said partition is carried, means by which said rollers are constrained to move in unison, and means for transferring the weight of

said partition to said rollers when it is desired to move said partition.

In testimony whereof, I have subscribed
my name.

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Witnesses:

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