

March 30, 1943.

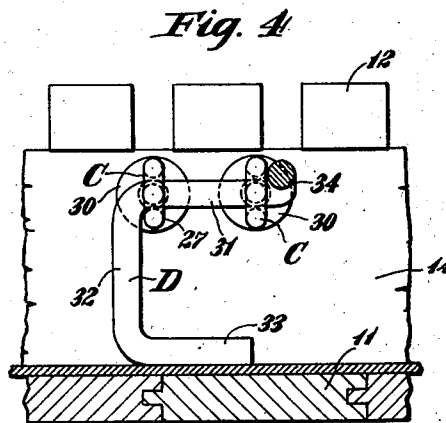
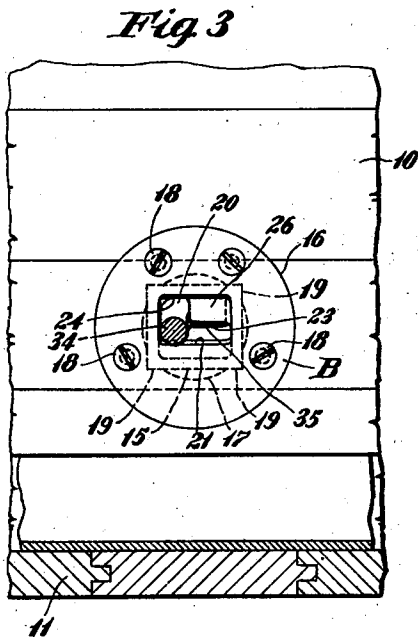
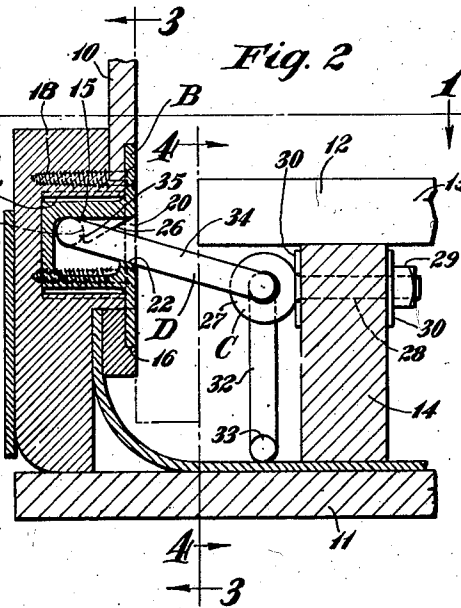
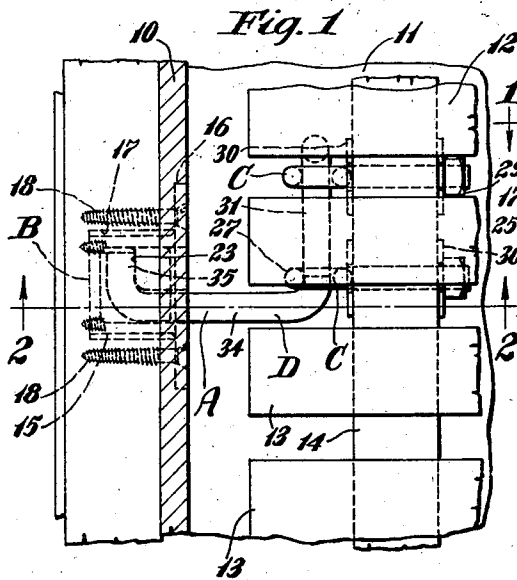
S. B. HASELTINE

2,315,202

FLOOR RACK

Filed May 9, 1940

2 Sheets-Sheet 1



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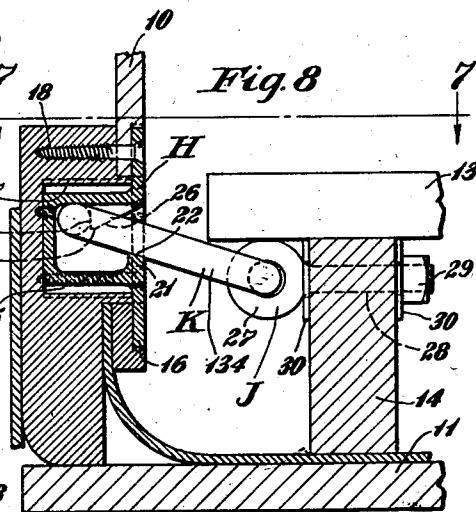
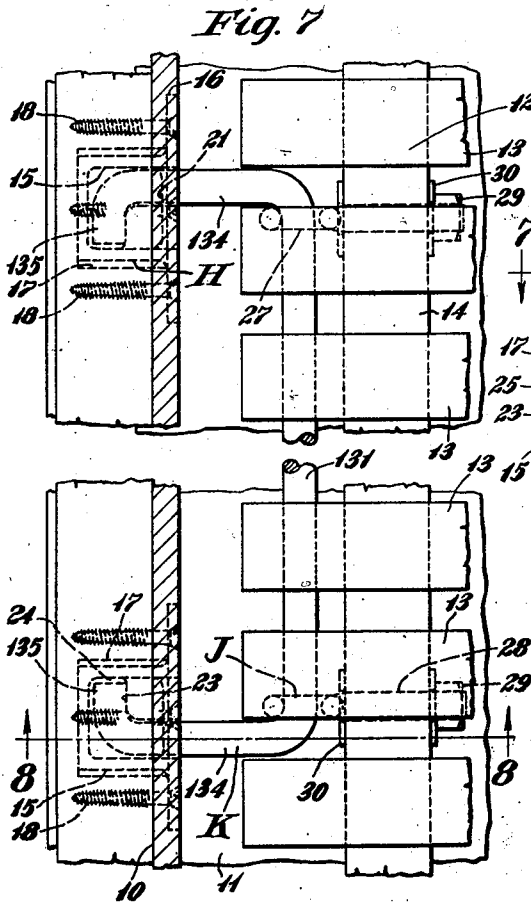
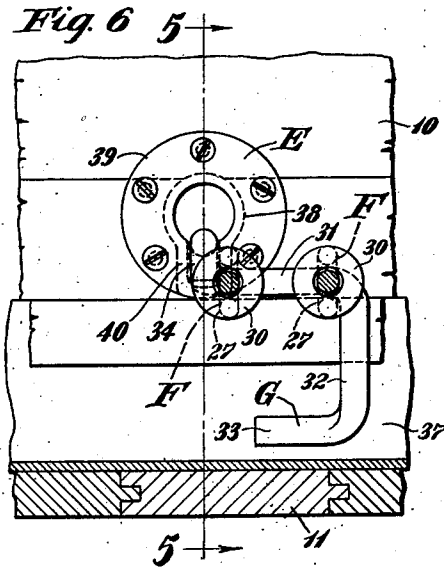
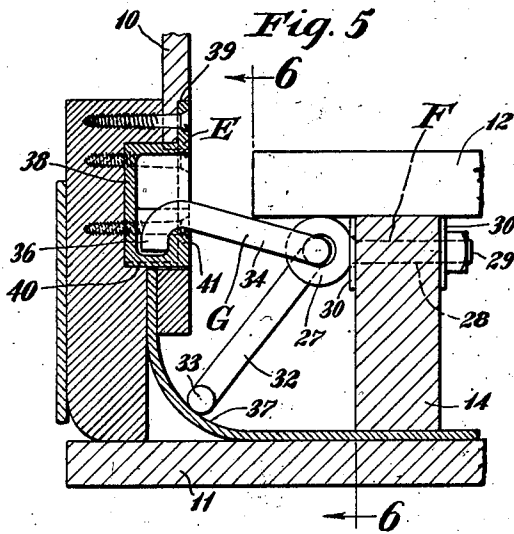
S. B. HASELTINE

2,315,202

FLOOR RACK

Filed May 9, 1940

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,315,202

FLOOR RACK

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Application May 9, 1940, Serial No. 334,213

7 Claims. (Cl. 105—375)

This invention relates to improvements in floor racks for refrigerator cars.

One object of the invention is to provide a sectional floor rack construction for railway cars of the refrigerator type, hinged to the car in such a manner that the rack sections may be readily detached for removal from the car when desired to convert the car for lading which does not require elevation from the floor.

A further object of the invention is to provide in a construction of the character described in the preceding paragraph simple and efficient rugged hinge means which is connected to the car in such a manner as to be readily detachable from the latter.

A more specific object of the invention is to provide hinge means for floor racks comprising a minimum number of parts which may be fabricated at low cost.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawings forming a part of this specification, Figure 1 is a horizontal sectional view through a portion of the side wall of a car showing a portion of a floor rack in plan and illustrating my improvements in connection therewith, the section being substantially on the line 1—1 of Figure 2. Figure 2 is a vertical sectional view, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a vertical sectional view, corresponding substantially to the line 3—3 of Figure 2. Figure 4 is a vertical sectional view, corresponding substantially to the line 4—4 of Figure 2. Figure 5 is a view similar to Figure 2, illustrating another embodiment of the invention, the section in Figure 5 being substantially on the line 5—5 of Figure 6. Figure 6 is a vertical sectional view, corresponding substantially to the line 6—6 of Figure 5. Figure 7 is a horizontal sectional view through a portion of the side wall of a car showing a broken portion of a floor rack in plan and illustrating still another embodiment of the invention, the section corresponding substantially to the line 7—7 of Figure 8. Figure 8 is a vertical sectional view, corresponding substantially to the line 8—8 of Figure 7.

In said drawings, 10 indicates generally one of the side walls of a refrigerator car, 11 the floor of the car, and 12 a portion of the usual floor rack. As is well known to those skilled in this art, the usual refrigerator car is provided with bulkheads or transverse partitions at opposite ends which separate the ice compartments from

the remainder of the car, and the space between the bulkheads serves to accommodate the lading. When the car is used for lading requiring elevation from the floor, the entire floor space between the bulk heads is covered by the floor rack structure. It is common practice to employ a floor rack structure composed of a plurality of separate sections comprising two sets, the sets being divided lengthwise of the car and each set being divided transversely of the car into individual sections. The part of the floor rack hereinbefore referred to, and which is indicated by 12, is a portion of one of the individual sections of the rack.

As shown in the drawings, each floor rack section 12 comprises spaced transverse slats 13 secured to laterally spaced supporting beams or stringers 14. Each section 12 thus forms a unit and in accordance with my invention is arranged for bodily removal from the car.

Referring first to the embodiment of the invention illustrated in Figures 1 to 4 inclusive, each floor rack section 12 is connected to the corresponding wall 10 of the car by my improved detachable hinge connection indicated broadly by A, which supports the floor rack section along the outer edge at a plurality of points for swinging movement, the hinge means being directly supported on and connected to the wall 10 of the car.

My improved supporting hinge connection A comprises broadly a supporting keeper B fixed to the wall 10, a pair of supporting eye bolts C—C secured to the floor rack, and a hinge member or arm D pivotally connected to the eye bolts and detachably secured to the supporting keeper B.

The keeper B is preferably in the form of a casting having a socket portion 15 of rectangular boxlike form provided with a surrounding, laterally projecting flange 16 by which the same is fixed to the car wall. The keeper B is seated in a recess 17 provided in the wall 10, as clearly shown in Figure 2, and is secured in place and fixed to the wall 10 by screws 18—18, or similar securing elements, extending through the flange 16 and into the wall 10, the flange 16 being set into the wall so that the outer face of the keeper is flush with the inner face of said wall. The recess 17 in which the keeper B is seated is preferably in the form of a cylindrical opening having its side wall notched at four points, as indicated at 19—19, to fit the four corners of the rectangular boxlike socket and thereby secure the keeper against rotation. At the flanged end of the

keeper the boxlike socket thereof is provided with a substantially rectangular mouth or opening 20 which is of substantially the same width as the socket. At the lower side of the mouth 20 the keeper is provided with an upstanding, relatively thick, short wall 21 which rises slightly above the bottom wall of the socket 15 and extends continuously from one side to the other of the opening 20. The upper edge of the wall 21 is downwardly and outwardly inclined or beveled, as indicated at 22. The upper wall of the socket 15 is provided on the interior thereof with a depending retaining lug or stop 23 which is located on the right hand side of the socket, as shown in Figure 3, thus leaving an opening 24 at the left hand side of said socket to accommodate the cooperating portion of the hinge arm, as hereinafter pointed out. The rear face of the lug 23 is spaced from the back wall of the socket, as shown most clearly in Figure 2, and has its rear face slightly rounded concavely to provide a seat 25. The underneath face 26 of the lug 23 is forwardly and upwardly inclined from the seat 25 to the open end of the socket and terminates flush with the upper edge wall of the opening 24.

The supporting eye bolts C—C, which are preferably two in number, are secured to the outermost stringer 14 of the floor rack section. Each eye bolt comprises a circular or ring-like eye portion 27 and a threaded shank 28 provided with the usual securing nut 29. The shank of each eye bolt C extends through the stringer 14 and washers 30—30 are preferably interposed between the stringer 14 and the eye 27 and nut 29 of the same. The eye bolts C—C are located at the same level close to, but spaced slightly below, the bottom sides of the slats 13—13. The two eye bolts C—C form bearing means for the hinge member or arm D and have the openings of the eyes thereof in transverse, horizontal alignment. The eye bolts are laterally spaced apart the proper distance to accommodate the pivot portion of the hinge member or arm D, as hereinafter pointed out.

The hinge member D is in the form of a bent bar of cylindrical cross section, the diameter of the bar being such as to rotatably fit within the openings of the eye members 27—27 of the eye bolts C—C. As clearly shown in Figure 4, each arm comprises a horizontally disposed bearing section 31 journaled in the eye members 27—27 of the eye bolts C—C, a depending right angularly bent leg section 32 at the left hand end of the bearing section 31 continuous with said section 31, a horizontally disposed, right angularly bent foot section 33 at the lower end of the section 32, which extends in the same direction as the section 31 and is continuous with said section 32, and a right angularly bent hinge arm section proper 34 at the right hand end of the section 31 and continuous therewith. The hinge arm section 34, as shown most clearly in Figure 2, extends toward and into the keeper B and has its outer extremity bent at right angles to provide a relatively short hook 35 engaged in back of the stop or lug 23 of the keeper, as shown in Figures 1, 2, and 3. As shown in Figure 2, when the hinge member D is engaged with the keeper B, the leg section 32 is disposed substantially vertically, while the arm 34 is inclined upwardly away from the rack 12. As shown in Figure 1, the hinge member D is supported by the eye bolts C—C in such a position that the arm section 34 swings freely between the corresponding two adjacent slats of the rack 12.

When the rack section is operatively connected

to the side wall of the car for swinging movement, the foot section 33 rests on the floor 11 of the car and the arm section 34 is in hooked engagement with the lug 23 of the keeper B, the hook 35 of the hinge member being held seated against the seat 25 through the arm section 34 being held in raised or inclined position by engagement with the beveled upper face 22 of the wall 21 of the keeper on which the arm rests to maintain the hooked end 35 of said arm seated against the seating face 25 on the lug 23.

When the rack section 12 is swung upwardly against the side wall of the car, the same will hinge on the bearing section 31 of the hinge member D with the weight of the rack section supported by the leg 32 and foot 33 resting on the floor of the car. The connection of the hinge member D with the keeper is thus relieved from strain and the arm of the hinge member D is prevented from becoming, disengaged from the keeper, inasmuch as said arm 34 cannot drop down as long as the foot 33 rests on the floor of the car.

To disengage the rack section 12 from the wall 10 for removal of the rack from the car, the rack section is raised and tilted, elevating the outer edge, thus permitting the arm 34 to swing downwardly through the action of gravity and clear the lug 23 of the keeper. With the inner edge of the rack thus raised and the hinge arm disengaged from the lug of the keeper, the rack section is pulled bodily away from the wall of the car, thereby completely withdrawing the arm from engagement with the keeper. The disengaged rack section may then be removed from the car.

To connect the rack section to the side wall of the car, substantially a reverse procedure is followed. The rack section to be connected is placed with the hinge end thereof closely adjacent the side wall of the car. With the rack section raised and tilted to the proper extent, the hinge arm will assume a position to align with the opening of the keeper, the leg section 32 being free to swing on account of the foot 33 having been raised from the floor of the car. In this connection it is pointed out that the downward swinging action of the arm 34 is positively limited by engagement of the foot end of the leg section of the hinge member with the vertical side face of the stringer 14, the stringer thus acting as a stop member. With the arm 34 held stationary with respect to the rack by the stop action of the leg section 32, the rack which is still in raised and tilted position is pushed toward the wall of the car to insert the hooked end 35 of the arm 34 into the keeper B. As the arm 34 is pushed into the keeper socket, the hooked end 35 of said arm is cammed downwardly by the inclined underneath face 26 of the lug 23, thereby guiding the hook to position the same in back of said lug. As soon as the hooked portion clears the rear end of the lug 23, the rack section is brought down to rest on the floor. As this position is assumed, the arm 34 rocks over the edge 22 of the wall 21 of the keeper, thus raising the hook 35 to a position behind the lug 23 and locking the rack securely thereto.

Referring next to the embodiment of the invention illustrated in Figures 5 and 6, my improved hinged connection comprises broadly a keeper E, supporting eye bolts F—F and a hinge arm G.

The supporting eye bolts F—F are identical with the eye bolts C—C hereinbefore described and have the eye and shank portions and the

securing nuts thereof also indicated by 27, 28, and 29, respectively. Washers 30—30 are also preferably interposed between the stringer 14 and the eyes and nuts of the eye bolts F—F.

The hinge arm G is similar to the hinge arm D hereinbefore described except as hereinafter pointed out, including a horizontal bearing section similar to the section 31, and also indicated by 31, a depending leg section similar to the leg section 32, and also indicated by 32, a foot section similar to the foot section 33, and also indicated by 33, and an arm section similar to the arm section 34, and also indicated by 34. The hinge member G differs from the hinge member D in that the arm section 34 of the former has the extremity thereof bent downwardly to form a depending hook 36 which cooperates with the keeper E, and that the leg section 32 is inclined to the vertical, as shown in Figure 5, to bear on an upwardly curved section at the edge extremity of the floor cover plate, which upwardly curved section is indicated by 37.

The pivotal connection of the hinge member G with the eye bolts F—F is precisely the same as the connection of the arm D with the eye bolts C—C described in connection with Figures 1 to 4 inclusive.

The keeper E comprises a socket member 38 open at the front side having an annular securing flange 39. The socket member 38 is of generally cylindrical boxlike form having a downwardly extending, substantially radially offset pocket section 40 at the bottom side provided with a relatively thick, upstanding front wall 41 forming a shoulder for engagement by the hook 36. The upper edge of the wall 41 is preferably rounded off, as shown in Figure 5, to properly interfit with the curvature of the curved portion of the hook 36. The keeper E is set into the wall 10 of the car with its outer face flush with the inner surface of said wall and is held in place by screws or similar securing elements extending through the flange 39.

As shown in Figure 5, the hook 36 is engaged in the pocket 40 in back of the wall 41 to anchor the floor rack section to the side wall of the car. When the rack section is swung upwardly to fold the same against the side wall of the car, it pivots on the bearing section 31 of the hinge member, the leg section 32 supporting said member. Inasmuch as the leg section 32 is at an inclination, the pressure exerted thereon due to the weight of the rack section imparts an outward pulling force on the arm 34 and its hook 36, thereby firmly holding the hook seated against the shoulder formed by the wall 41 of the keeper.

To disengage the hooked end 36 of the hinge arm or member G to permit removal of the rack section, the rack section is raised upwardly until the hook clears the shoulder 41 of the keeper. The rack is then pulled away from the wall 10 to completely withdraw the arm section 34 of the hinge arm G from the keeper.

To connect the rack section to the car wall substantially the reverse procedure is followed, the hook being engaged within the pocket 40 and over the stop wall 41 of the keeper.

Referring next to the embodiment of the invention illustrated in Figures 7 and 8, my improved hinge connection comprises broadly a pair of keepers H—H, a pair of supporting eye bolts J—J, and a hinge member K.

The keepers H—H are two in number and with the exception that they are right and left hand are identical with the keeper B described in con-

nection with Figures 1 to 4 inclusive. The various parts of the keepers H—H, being identical with the corresponding parts of the keeper B, are indicated by the same reference characters as employed for these parts in Figures 1 to 4 inclusive.

The eye bolts J—J are identical with the eye bolts C—C, hereinbefore described, and the parts thereof are indicated by the same reference characters as used in connection with said eye bolts C—C.

The hinge member K is in the form of a bent bar of cylindrical cross section, the diameter of the bar being such as to rotatably fit the bearing openings of the eye members 27 of the eye bolts J—J. As clearly shown in Figure 7, the hinge member K comprises an elongated, horizontally disposed bearing section 131 journaled in the eye members 27—27 of the bolts J—J and right angularly bent arm sections 134—134 at opposite ends of the bearing section 131. The arm sections 134—134 extend in the same direction, thus giving the hinge member K a substantially U-shaped contour. The arm sections 134—134 and hooked ends 135—135 are identical with the hooked end of the arm 34 of the hinge member D hereinbefore described, with the exception that the hooked ends 135 are respectively right and left to properly cooperate with the right and left keepers H—H.

In disconnecting the rack from the side wall of the car, the rack section is lifted until the arms 134—134 drop sufficiently through the action of gravity to clear the lugs 23—23 of the keepers H—H. The rack section is then pulled away from the wall to completely withdraw the arms 134—134 of the hinge member K from the keepers H—H. To connect the rack section to the car walls, substantially the reverse procedure is followed, the hooked ends 135—135 of the arm sections 134—134 being engaged with the keepers H—H while the rack section is in raised position so that the arms 134—134 will ride over the walls 21—21 of the keepers and the hooked ends 135—135 will pass between the walls 21—21 and the lugs 23—23 to bring the hooked ends 135—135 into alignment with the spaces between the lugs 23—23 and the rear wall of the socket so that as the rack section is lowered the hooked ends 135—135 will engage in back of said lugs to secure the rack section to the keeper when the rack section has been lowered onto the floor.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a floor rack structure including a separate rack section for a refrigerator car having a side wall, the combination with a socketed keeper fixed to said wall; of supporting eye members fixed to the rack section and having the openings of the eyes in axial alignment; and a one-piece hinge member pivotally connected to said rack and anchored to the keeper, said hinge member comprising a continuous cylindrical bar having the opposite end portions thereof bent at right angles to the intermediate portion thereof, said intermediate portion being journaled in the openings of the eye members with the angularly bent portions laterally outwardly of said eyes and forming stops to limit endwise movement of said hinge members and one of said right an-

gularly bent portions having a hook at its extremity anchored in the socket of said keeper, whereby said rack section is mounted for swinging movement by said first named portion to fold against the side wall of the car.

2. In a floor rack structure including a separate rack section for a refrigerator car having a side wall, the combination with a keeper fixed to said side wall; of a pair of supporting eye members fixed to the rack section and having the openings of the eyes thereof in horizontal alignment; and a one-piece hinge member comprising a continuous, cylindrical bar having a section thereof journaled in the openings of said eye members, said section being substantially straight, a second straight section continuous with one end of said first named bar section and depending therefrom and resting on the floor of the car, and a third section continuous with the other end of said first named bar section and extending at right angles thereto, and into said keeper and having at its extremity a hooked portion in shouldered engagement with the keeper whereby said rack is mounted for swinging movement by the first named section of the bar to fold against the side wall of the car, said right angular end sections embracing said eye members to retain said hinge member against endwise displacement.

3. In a floor rack structure including a separate rack section for a refrigerator car having a side wall, the combination with a pair of keepers fixed to said side wall; of a pair of supporting eyes fixed to the rack section and having the openings of the eyes thereof in horizontal alignment; and a one-piece hinge member comprising a continuous cylindrical bar having its opposite end sections bent laterally at right angles to the intermediate section to provide hinge arms, said intermediate section being journaled in the openings of the eyes and said end sections having hooked extremities anchored to said keepers whereby said rack is mounted for swinging movement by said intermediate section of the bar to fold against the side wall of the car, said right angular end sections embracing said eye members to retain said hinge member against endwise displacement.

4. In a floor rack structure including a separate rack section for a refrigerator car having a side wall, the combination with a socketed keeper fixed to the car wall, said keeper having an upstanding retaining shoulder; of a hinge arm pivoted to said rack section, said arm having a downturned hooked end engaged with said upstanding shoulder of the keeper, said arm having a supporting leg rigid therewith, said leg en-

gaging the floor to support said hinge arm, said leg being inclined upwardly away from the car wall to exert a pulling action on said arm away from said wall to hold said hooked end engaged with said shoulder under pressure during swinging movement of the rack section about the pivot of the hinge member.

5. In a floor rack structure including a separate rack section for a refrigerator car having a side wall, the combination with a socketed keeper secured to said side wall; of a hinge arm pivoted at one end to said rack section, said arm having a laterally projecting lug at the other end detachably engageable with said keeper; a supporting leg rigid with the hinged end of said arm for supporting the hinged portion of said arm during swinging movement of said rack section about the pivot of the hinge member; and a shoulder on said keeper engaging beneath said arm to hold the arm against downward swinging movement about said lug.

6. In a refrigerator car having a side wall and a floor, the combination with a removable floor rack section adapted to rest on the floor; of a socketed keeper on the car wall, said keeper having an interior retaining lug depending from the top wall thereof, said lug having an inclined bottom cam face, an upstanding supporting wall on said keeper below said lug; and a hinge arm pivoted at one end to said rack, said arm having a laterally projecting lug at the other end detachably engaged in back of the lug of the keeper when the rack section is resting on the floor, said arm being supported on said upstanding wall of the keeper to hold the same against downward swinging movement away from said lug.

7. In a refrigerator car having a side wall and floor, the combination with a removable floor rack section adapted to rest on said floor; of a fixed vertically disposed keeper having an open mouthed pocket said keeper being fixed to the car side wall, said keeper having a supporting ledge at the bottom of said mouth; a depending interior retaining lug at the top of said pocket, said lug being spaced from the rear wall of the socket; and an arm hinged at one end to said rack section and having a laterally projecting hook at its extremity adapted to pass freely through the space between said supporting ledge and lug and be engaged in back of said lug to anchor the arm to said keeper, said arm being supported from beneath by said supporting ledge to maintain said hook engaged with said lug when said rack section is resting on the floor.

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