

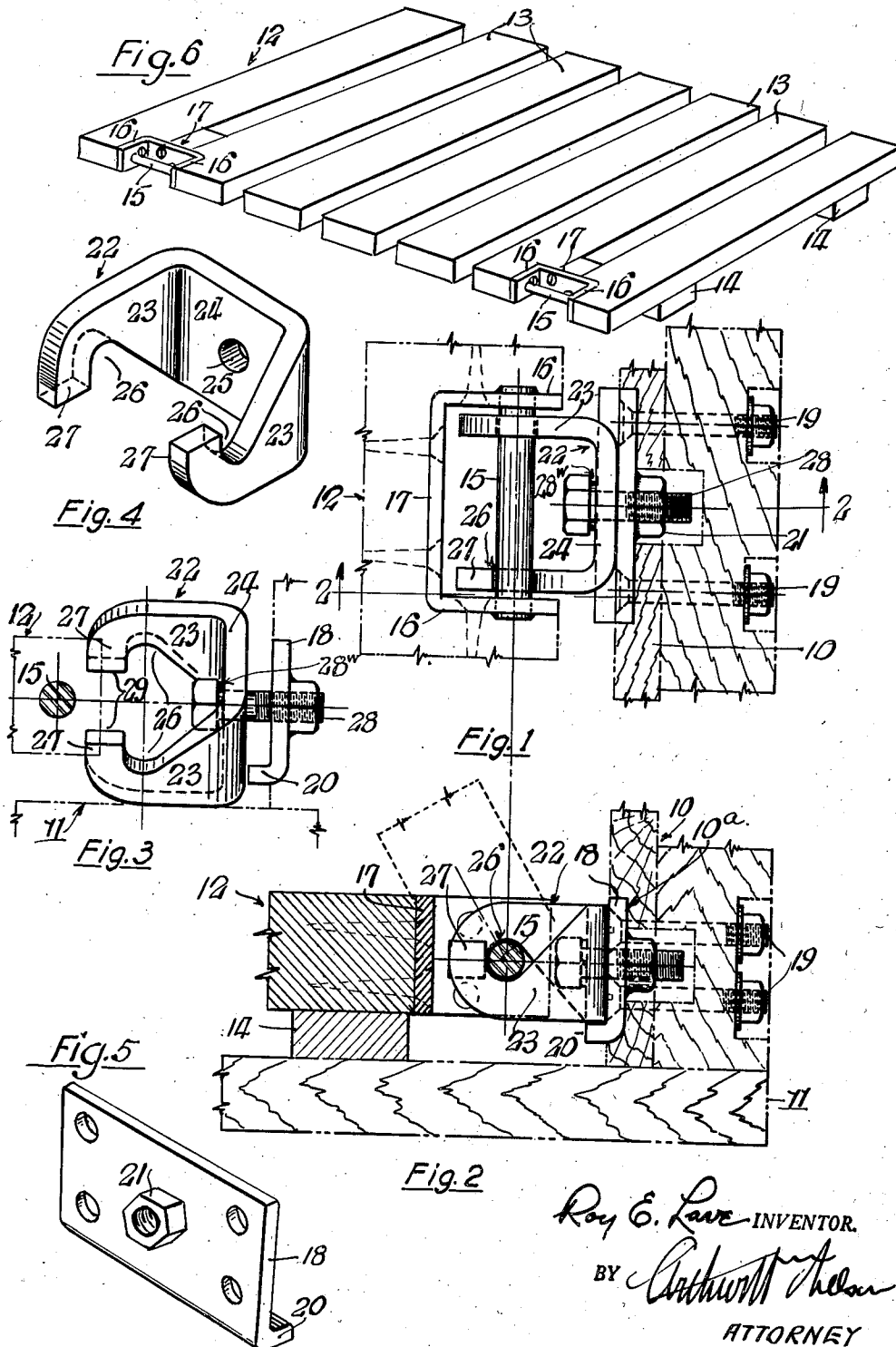
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HINGE CONSTRUCTION

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HINGE CONSTRUCTION

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8 Claims. (Cl. 16—172)

This invention relates to improvements in hinge constructions and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

One of the objects of the invention is to provide a simple and inexpensive hinge construction especially adapted for use in a refrigerator car for connecting the floor racks to the car so that the racks may be swung from their horizontal position upon the floor of the car, into a substantially upright position along the side of the car to permit of a cleaning of the floor.

Another object of the invention is to provide a hinge construction for the purpose mentioned which does not project above the top surface of the associated rack when in its horizontal position upon the floor of the car so that the hinge construction in no manner interferes with the loading of commodities into the car.

A further object of the invention is to provide a hinge construction, which after it is installed in a car, involves no parts that may become loose or lost, or require removal when the floor racks are removed from the car for repair or replacement.

Again, it is an object of the invention to provide a hinge construction of this kind wherein a simple turning movement of one of the parts of the hinge in one direction permits of its attachment to the pintle part of the hinge and a turning movement of said part in the other direction permits of its detachment from said pintle for a ready separation of the parts of the hinge as a whole.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawing:

Fig. 1 is a top plan view of a hinge construction embodying the preferred form of the invention, when the parts thereof are disposed in operative relation with respect to parts of a refrigerator car with which they are associated.

Fig. 2 is a vertical sectional view through a part of the improved hinge construction, as taken on the line 2—2 of Fig. 1, and shows the parts in the normal position they occupy when the floor rack is operatively secured in place to the car.

Fig. 3 is a view in side elevation of certain parts of the hinge, in the position they occupy when permitting a separation of said parts for a removal of the floor rack from the car.

Fig. 4 is a perspective view of a certain U shaped member employed in the improved hinge

construction and which will be more fully referred to later.

Fig. 5 is a perspective view of a certain ledge plate employed in the improved hinge construction and which will be more fully referred to later.

Fig. 6 is a perspective view, on a reduced scale, of a floor rack section for a refrigerator car and carrying certain parts of the improved hinge construction.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawing, 10 indicates a part of the siding of a refrigerator car and 11 indicates a part of the fixed floor of the car. The fixed floor of such a car is usually covered by open flooring made up of a plurality of rack sections, one of which appears in perspective in Fig. 6 and is indicated as a whole as at 12. As shown, each rack constitutes a plurality of laterally spaced planks 13, of a length equal to half the width of the car floor 11, fixed to stringers 14—14. These stringers 14 normally rest upon and extend longitudinally of the car floor and support the planks 13 in a position elevated above the car floor a distance equal to the thickness of the stringers. The racks 12 protect the car floor and permit circulation of cold air under and about the lading of the car.

Along one lateral margin of each floor rack section, I provide a pair of hinge pintles 15—15 each fixed, as by welding, at its ends in the side legs 16—16 of an associated U shaped element 17 recessed into and secured in said margins of the rack section, as best appears in Fig. 6.

For each pintle 15, I secure to the inner face of the side of the car near the floor, a plate 18 by means of bolts 19. Preferably each plate 18 fits in a recess 10a (see Fig. 2) in the side of the car so that the front face of said plate is flush with the inner surface of the car siding 10. At the bottom margin of this plate is a projecting shoulder or ledge 20, which extends longitudinally of the car and which projects toward the center of the car. Centrally on the outer side of said plate is fixed a nut 21, the purpose of which will appear later. The siding 10 of the car is suitably recessed to accommodate said nut.

Associated with each pintle 15 and plate 18 is a U shaped hinge member 22, best appearing in perspective in Fig. 4. Said member includes a pair of laterally spaced arms 23, which are joined together at their inner ends by a connecting plate portion 24. Centrally in this plate portion is a hole 25 adapted to register with the

nut 21 on the ledge plate 18. One arm 23 is formed to provide a semicircular, upwardly opening recess 26 in its upper margin and the other arm is formed to provide a semicircular downwardly facing recess 25 in its lower margin. Said recesses have substantially the same axis and face in opposite directions. The recesses 26—26, which have a diameter approximating that of the pintles 15—15 before mentioned, define at the outer ends of the arms 23—23, oppositely facing portions 27—27, the ends of which have an overlapping relation, as best appears in Fig. 2 and impart a hook shape to the outer end of each arm.

Each U shaped member is mounted on its associated ledge plate by means of a bolt 28 which passes freely through the hole 25 in the connecting portion 24 and through the ledge plate 18 to have a threaded engagement in the nut 21 carried by said plate.

When the bolt is turned in one direction and drawn up fairly tight, it holds the connecting member against the inner face of the associated ledge plate 18. When said parts are in this position the bottom edge of the connecting member 24 engages on the ledge 20 so that the U-shaped member 22 is held against turning movement about the axis of the bolt 28. However, when the bolt is turned in the other direction, it backs out of the nut 21 and when it has been backed out a distance greater than the width of the ledge or shoulder 20, the U shaped member 22 can move outwardly on the bolt, toward its head, so as to clear the ledge. When said member has cleared the ledge, it may be turned about the axis of the bolt into the position shown in Fig. 3 so that the pintle is released from the grasp or engagement of the arms 23—23 to permit a withdrawal of the pintle therefrom and a separation of the rack from the remainder of the hinge construction.

It is apparent that there is a pair of the structures shown in Figs. 1 and 2 for each floor rack used in the car. Assume that each rack 12 is provided with a pair of the pintles 15 in one of its margins and that there is a pair of the parts shown in Fig. 3 fixed to the side of the car for each rack.

To apply a rack in place, the bolts 28—28 are unscrewed so that the connecting plates of the associated U shaped member are disposed in a plane spaced to clear the ledge 20 of the associated plates 18—18. Each U shaped member 22 is then turned about the axis of the associated bolt so that the ends of the hook arms 27—27 are disposed upon opposite sides of the axis of the bolt. This leaves a space or mouth 29 (see Fig. 3) in each U shaped member through which the pintles on the rack may be inserted when the rack is in a substantially horizontal position on the floor 11. When the rack is moved inwardly toward the siding 10, the pintle will pass through said mouth or space to line up with the oppositely facing recesses 26—26 of the arms.

The U-shaped members are then each turned about its associated bolt 28 so that the arms 23—23 engage opposite sides of the pintle. Said U-shaped members are then moved inwardly on their bolts 28—28 until the connecting plates 24 thereof engage the ledge plates and the bottom edge of said connecting plates rest or engage upon the ledge of the associated ledge plate. Thereafter, the bolts 28 are threaded into the nuts 21 until the head presses the lock washer 28w firmly against the connecting plate portion 24. This, of course, holds the U-shaped mem-

bers 22—22 in place against a turning movement or a movement in the direction of the length of the bolt.

The pintles are, therefore, confined in operative relation in the U-shaped members 22—22 so that the rack may be swung about the pintles into a position substantially parallel with the side of the car for a cleaning of the floor 11 of the car. After the floor has been cleaned, the racks may be swung down into position upon said floor.

Should it be desired to remove the racks 12, it is obvious that by reversing the operation of the parts as described in connection with securing the racks in position, they will be freed for removal.

It is to be noted that no part of the hinge construction is disposed above the surface of the rack so that no interference with the loading of commodities into the car is present. After the hinge structures have been installed, there are no loose parts to be removed and possibly be lost, in the removal of the racks for repair or replacement.

While in describing the invention I have referred in detail to the form and arrangement of the parts involved, the same is to be considered only in the illustrative sense and not in the limiting sense.

I claim as my invention:

1. In a hinge construction adapted for use between a stationary part and a second part adapted for a swinging movement with respect to the stationary part, means adapted for attachment to one of said parts so as to provide a pintle therefor, a hinge element adapted to be carried by the other of said parts and including laterally spaced, oppositely facing hook shape arms for engagement with opposite sides of said pintle to provide a bearing for said pintle, and a plate portion connecting one end of said arms, a plate member, a bolt extending through the plate portion of said hinge element and having a threaded engagement in said plate member, said plate member having a ledge portion for engagement by said plate portion of the hinge element when said bolt is drawn up substantially tight so as to hold said hinge element against turning on said bolt.

2. In a hinge construction for use between a stationary part and a second part adapted for a swinging movement with respect thereto, means adapted for attachment to one of said parts to provide a pintle therefor, a hinge element having oppositely facing hook shape arms adapted when said element is in one position for bearing engagement with opposite sides of spaced portions of said pintle, means adapted to be attached to the other of said parts and upon which said hinge element is so mounted as to be turnable about an axis at a right angle to said pintle from a position providing said bearing engagement with said pintle to a position wherein said pintle and said arms may be relatively separated, and coacting means on said hinge element and upon said means upon which it is mounted for holding said element against turning about said axis into that position wherein said pintle and said arms may be relatively separated.

3. In a hinge construction for use between a stationary part and a second part adapted for a swinging movement with respect thereto, means adapted for attachment to one of said parts to provide a pintle therefor, a hinge element hav-

ing oppositely facing hook shape arms adapted when said element is in one position for bearing engagement with opposite sides of spaced portions of said pintle, means adapted to be attached to the other of said parts and upon which said hinge element is so mounted as to be turnable about an axis at a right angle to said pintle from a position providing said bearing engagement with said pintle to a position wherein said pintle and said arms may be relatively separated, said means providing said mounting being operative to permit movement of said hinge element in a direction parallel with said axis into positions toward and away from said pintle, and means operative to engage and hold said hinge element against a turning movement about said axis when said hinge element is in one of said positions.

4. In a hinge construction for use between a stationary part and a second part adapted for a swinging movement with respect thereto, means adapted for attachment to one of said parts to provide a pintle therefor, a hinge element having oppositely facing hook shape arms adapted when said element is in one position for bearing engagement with opposite sides of spaced portions of said pintle, means adapted for attachment to the other of said parts, a bolt arranged at a right angle to said pintle and extending through a portion of said hinge element and having a threaded connection with said means adapted for attachment to said other of said parts, said bolt providing an axis about which the hinge element may be turned from a position wherein said arms have a bearing engagement with said pintle into a position wherein said arms and said pintle may be relatively separated, means carried by said means adapted for attachment to said other of said parts and adapted for engagement by a part of said hinge element, to prevent its turning upon said bolt and which bolt may be turned to permit movement of the hinge element in the direction of the length of the bolt into a position beyond the influence of said last mentioned means so as to be turnable upon said bolt into a position permitting the relative separation between said arms and said pintle.

5. In a hinge construction for use between a stationary part and a second part adapted for a swinging movement with respect thereto, means adapted for attachment to one of said parts to provide a pintle therefor, a hinge element having oppositely facing hook shape arms adapted when said element is in one position for bearing engagement with opposite sides of spaced portions of said pintle, a plate portion connecting one end of said arms together, a plate member adapted to be fixed to said other

of said parts, a bolt extending through said plate portion and having a threaded engagement in said plate member, said plate member including a ledge portion for engagement by said plate portion so as to prevent the turning of the hinge element upon said bolt when said bolt has been manipulated to draw the plate portion of said hinge element in toward said plate member.

6. An assembly for a hinge construction of the kind described and embodying therein a hinge element having oppositely facing hook shaped arms and a plate portion connecting one end of said arms together, a plate like member, means providing a guided movement of said hinge element toward and away from said plate like member and about which said hinge element may be turned from one position to another, and means on said plate-like member and adapted to be engaged by a part of said plate portion when the hinge element is in one position for preventing said turning movement of said hinge element from said one position to said another position.

7. An assembly for a hinge construction of the kind described and embodying therein a hinge element having oppositely facing hook shaped arms and a plate portion connecting one end of said arms together, said plate portion having an opening therethrough, a plate-like member, a bolt extending through said opening in the plate portion and having a threaded engagement in said plate-like member and whereby said plate portion may be moved in the direction of the length of said bolt into and out of engagement with said plate-like member, said plate portion and said plate-like member having interchangeable parts which prevent the turning of said hinge element upon the bolt when said plate portion and said plate-like element are engaged.

8. An assembly for a hinge construction of the kind described and embodying therein a hinge element having oppositely facing hook shaped arms and a plate portion connecting one end of said arms together, said plate portion having an opening therethrough, a plate-like member, a bolt extending through said opening in the plate portion and having a threaded engagement in said plate-like member and whereby said plate portion may be moved in the direction of the length of said bolt into and out of engagement with said plate-like member, and a ledge on said plate-like member adapted for engagement by a part of said plate portion so as to prevent its turning movement on the bolt when said plate portion and said plate-like member are engaged.

ROY E. LAVE.

Patent No. 2,315,801.

CERTIFICATE OF CORRECTION.

ROY E. LAVE.

April 6, 1943.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 38, claim 7, for "interchangeable" read --interengagement--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of May, A. D. 1943.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.