May 9, 1961 T. O. HENRIKSON 2,983,231

CARGO BRACING MEANS

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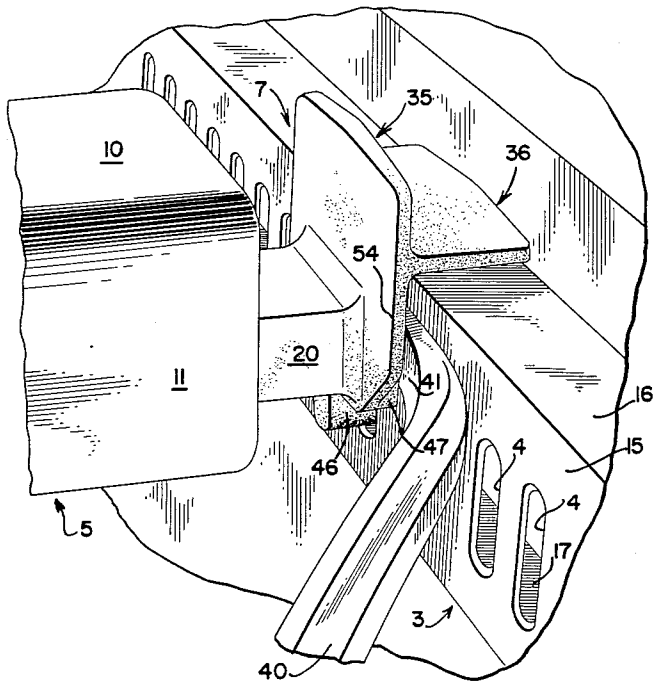
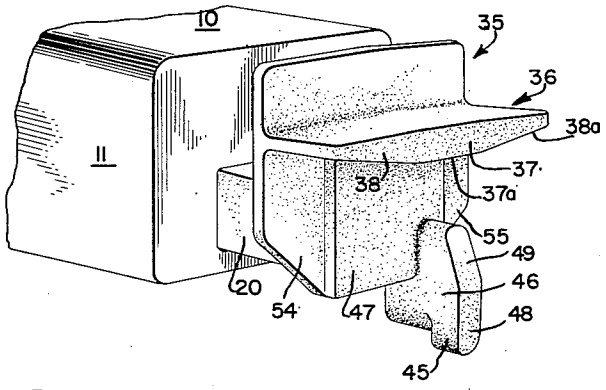


Fig. 1.

Fig. 2.



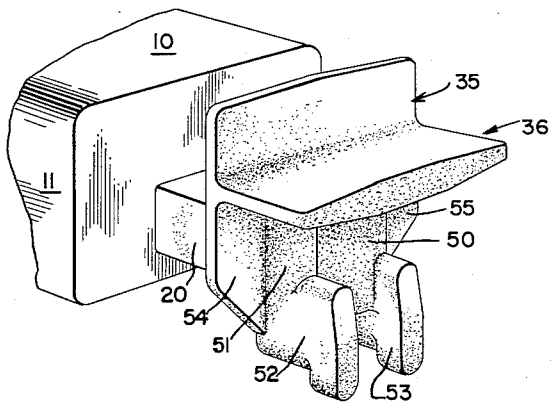


Fig. 4.

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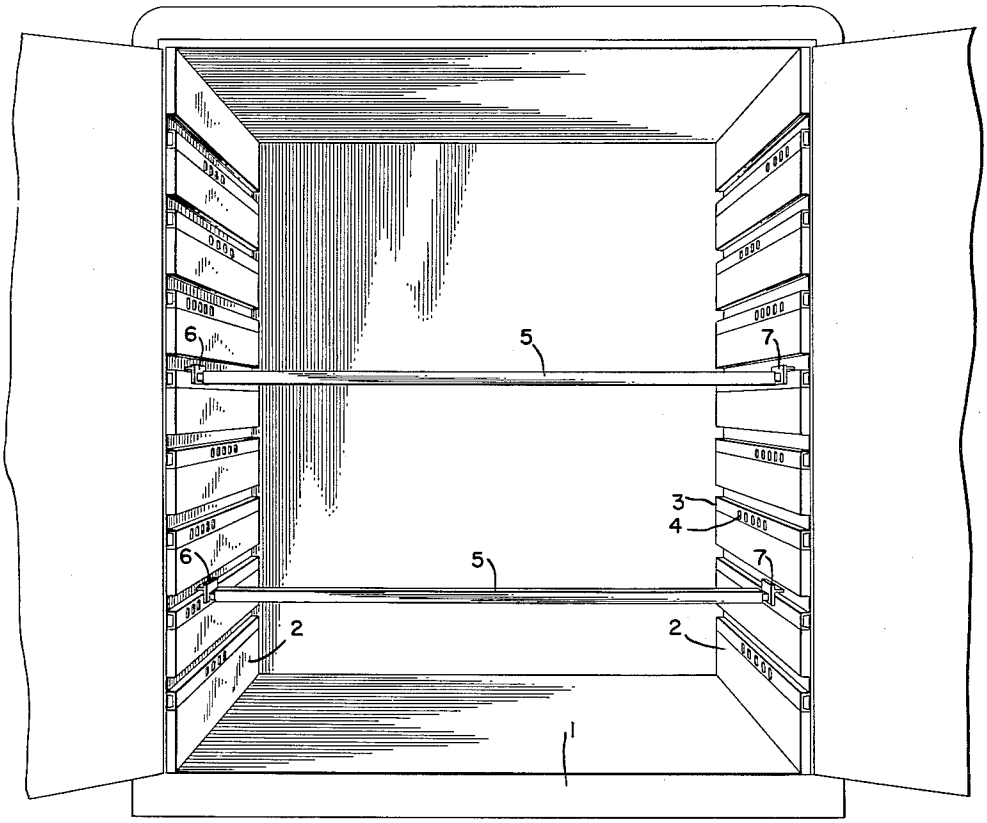
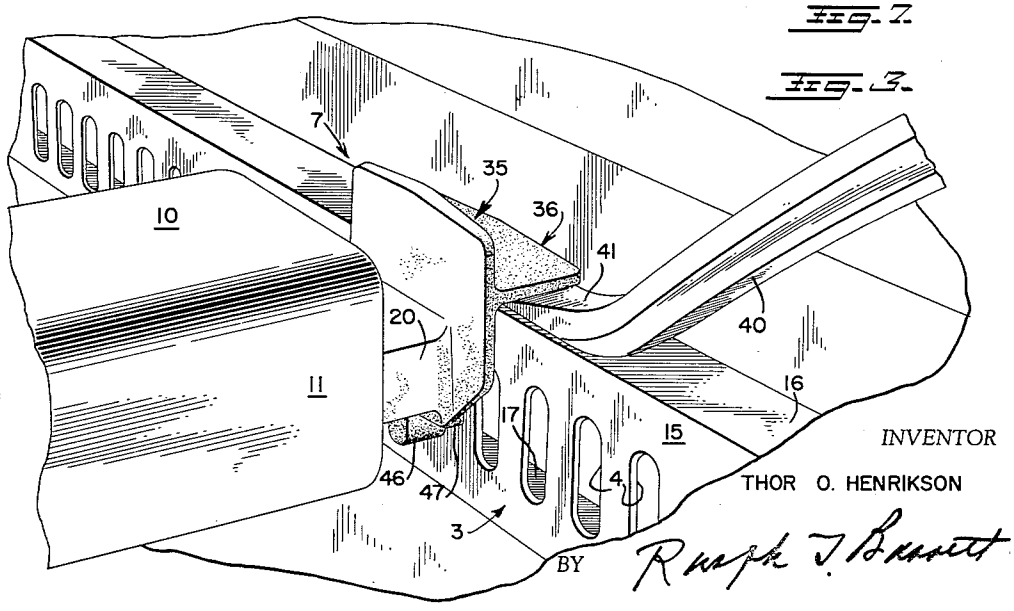


Fig. 2.

Fig. 3.



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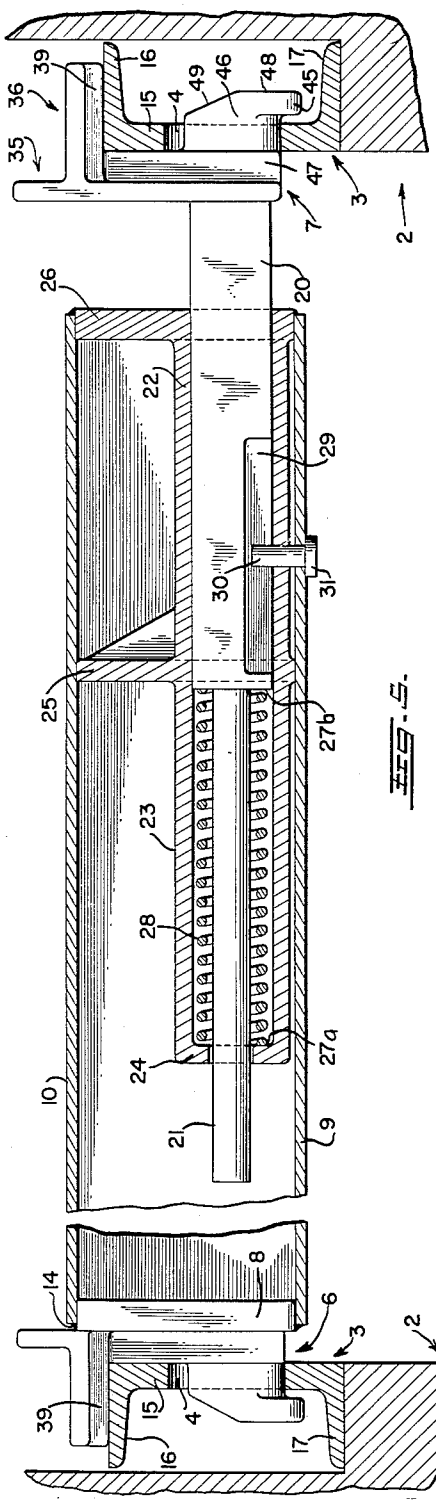


FIG. 5.

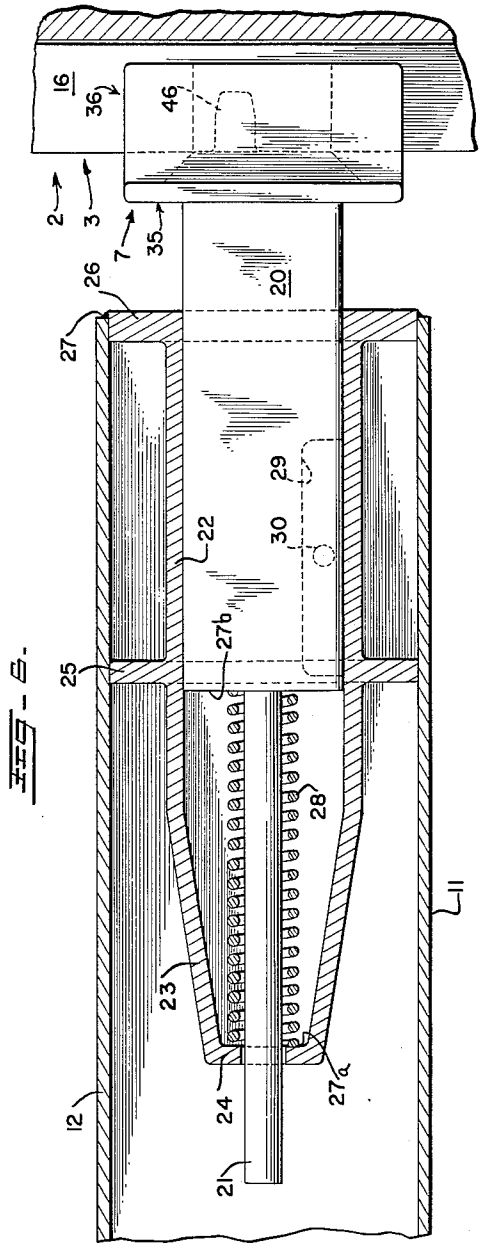


FIG. 6.

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CARGO BRACING MEANS

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11 Claims. (Cl. 105—369)

This invention relates to improvements in load partition beams of the type adapted for use in railway cars, trucks and the like and comprehends improvements in the disclosure of my copending application Serial No. 564,788, filed February 10, 1956, now abandoned. In the devices of the prior art it was sometimes found difficult to conveniently lift the beam sufficiently to withdraw the locating hook or hooks from the slot in the channel, or disengage the hook or hooks when the beam is under loaded conditions.

It is, therefore, an object of this invention to provide means to facilitate the use and application of a lift bar under lift wings on the supporting projection of the hook or between the head and the channel for releasing the parts when under loaded condition.

A further object of the present invention is to provide a head for a lading beam which embodies features which will prevent deterioration of the structure due to wear and which will likewise have the capacity to resist breakage due to overloading.

Another feature of the present invention is to position the hook in line with the shank to eliminate eccentric load conditions on the hook which might occur when placed otherwise.

A further object of the invention is to construct the supporting projection so that integral wings will project above the beam, this arrangement facilitating the control and removal of the head and beam by use of a lift bar.

These and other objects of the invention will more clearly hereinafter appear by reference to the accompanying drawings, wherein like characters of reference designate corresponding parts throughout the several views, in which:

Fig. 1 is an enlarged perspective of a head structure showing its association with a channel and with a lift bar in position for removing the hooks from the channel;

Fig. 2 is an end perspective of the head structure of Fig. 1;

Fig. 3 is a view similar to Fig. 1 showing the lift bar under the supporting projection;

Fig. 4 is a perspective view of a head structure utilizing dual hooks;

Fig. 5 is a longitudinal section through a lading beam;

Fig. 6 is a horizontal fragmentary sectional view showing the structure of Fig. 5; and

Fig. 7 is a transverse section through a lading container showing a proposed arrangement of channels and lading beams.

In order to fully comprehend the nature and use of the invention, the vertical sectional view in Fig. 7 illustrates a lading chamber having the bottom **1** and side walls **2** provided with longitudinally extending horizontal supporting beams **3** formed with suitably spaced perforations **4**. The lading beams **5** are shown with fixed heads **6** and sliding heads **7**, the heads including the hook structures illustrated in other views for engagement with the perforations or elongated openings **4** formed in the outer faces or web of the channels **3**. It is customary in devices of this type to form the beam structure shown in Figs. 5 and 6 of hollow metal and to provide each beam with a fixed head **6** and a sliding head **7**, each of the heads being provided with similarly shaped parts. The fixed head **6** is shown as including a main body **8** having a shape and configuration to snugly fit within the end of the beam as defined by the walls of the hollow beam structure. This beam structure includes bottom wall **9**, top wall **10** and side walls **11** and **12**. The body **8** of the fixed head **6** is preferably welded within the adjacent end of a beam, as shown at **14**.

In Fig. 5 the sectional view of the beam supporting channel **3** is best illustrated, this channel includiing the web **15** and upper and lower flanges **16** and **17**, respectively. The web **15** is provided with spaced vertically elongated slots **4** in which the hooks projecting from the head extend. A supporting projection of the head normally lies upon the upper surface of the upper flange **16** of the channel. The sliding head completing the lading beam includes the head **7** fixed to a shank **20** having inner guide rod extension **21**. The shank **20** and the guide rod extension **21** project into a housing **22** having a reduced inner portion **23** with flanges **24** defining an inner closed end portion. The body **22** is provided with inner and outer flanges **25** and **26** which are snugly received within the walls of the beam to position the housing and the outer flange **26** is welded to the end of the housing, as shown at **27**. A spring **28** abuts the inner end wall **27***a* of the housing and the inner face **27***b* of the shank and normally urges the sliding shank and head assembly outwardly within the limits defined by the slot **29** which receives the inner extremity **30** of the pin **31**, the latter projecting through the bottom of the beam wall **9**, the bottom of the housing **22** and into the slot **29** where it functions to permit the movement of the sliding head inwardly and outwardly.

Referring now to Figs. 1, 2 and 3, which disclose the sliding head carried on the shank **20**, it will be seen that this head includes a vertical plate-like body shown at **35**, this body **35** being formed as an integral part of the shank or welded thereto as desired. The body **35** has extending laterally therefrom above its center a horizontally positioned supporting projection **36** with a thickened medial portion **37** (Fig. 2) having a lower flat face **37***a* and lateral lift wings **38**, the undersurfaces of which are upwardly tapered as at **38***a* to provide inwardly converging recesses **39** when the supporting projection is seating on the upper face of the flange **16**, shown more clearly in Fig. 5. These recesses **39** provide an area in which to extend the working extremity of a lift bar or like tool indicated at **40**, as shown in Fig. 3. In Fig. 3 the tapered end **41** of the lift bar is shown as projecting beneath a jacking wing of the head **36** and between the wing and top surface of the flange **16** of the channel for lifting the beam vertically to disengage the hooked extremity **45** of the hook member **46** from within the slot **4** in which it has been seated. The hook **46**, Fig. 2, projects from the thickened medial wall portion **47** of the lower portion of the vertical plate-like body **35** fixed to the shank **20**. The hook **46** has its lower outer face portion **48** extending generally vertically while the upper portion of this outer face portion **48** of the hook **46** is flat and inwardly inclined as at **49** to assist in the socketing and unsocketing of the structure.

Still referring to Fig. 2 it will be seen that the vertical plate **35** is relatively wide, closely approximating the width of the lading beam and it will be further noted that the central thickened portion **37** of the horizontal supporting projection **36** provides a relatively heavy strong supporting area and that the lift wings which extend laterally at each side of the medial portion and are defined in part by the tapered underfaces **38***a*, pro-

ject the full width of the vertical plate-like body 35. It will also be noted that the lift wings projecting laterally of the thickened medial supporting projection 37 are strengthened by a tapering of the thickened wall portion laterally and rearwardly to add strength to the structure and to give body to the part engaged by the lifting tool or lift bar. It will be further seen from an inspection of the drawings that the shank of the head is positioned medially of the vertical plate 35 at the thickened lower area 47 which supports the hook structure, and that the shank is further positioned at the lower portion of the thickened portion 47 so as to be directly rearward of the hook structure.

Referring now to Fig. 4 it will be seen that the structure is generally identical with the disclosure of Fig. 2 with the exception that a pair of hooks are provided and project from the lower spaced corners of the thickened medial portion 50 of the vertical plate 35. In this showing the lateral walls 51 of the thickened area 50 are generally tapered and merge with the hooks 52 and 53 which are positioned at each bottom of the lateral sides of the thickened portion. Hooks 52 and 53 are laterally spaced off center of the beam structure, as is also indicated for the single hook in Fig. 6, allowing for greater flexibility when bracing a load. In the structure of Fig. 4 it will be noted that the thickened area 50 is somewhat increased over the thickened area shown in Fig. 2, although this may or may not be essential in accordance with requirements. Obviously where two or more hooks are provided, they are suitably spaced to engage the spaced slots 4 in the beams 3.

Referring to both forms shown in Figs. 2 and 4, it will be obvious that the thickened walls 47 and 50 will abut the outer web faces of the channel when the lading beam is in position and that this thickened portion will thereby function to space the vertical jacking wings 54 and 55 outwardly from the web channel, as shown in Fig. 1. The location of the jacking wings 54 and 55 in spaced relation to the web 15 of the channel will provide an area in which to insert a lift bar 40, as shown in Fig. 1, to shift the sliding head out of its recess or recesses in accordance with the type of head used, i.e. either single or multiple.

What I claim is:

1. In a cargo brace assembly for the merchandising chamber of a carrier, a combination comprising rail members fixed along the opposite side walls of the carrier in substantially the same horizontal plane and formed with spaced longitudinally arranged recesses, the cargo brace including a medial beam structure having a longitudinally extending recess at one end, a head at one end of the beam structure formed with a hook for engaging a recess in a rail member, a slidable head member at the other end of the beam structure including a shank slidably mounted in said recess within the beam structure, said slidable head including a vertical plate member, a horizontal supporting projection extending outwardly from the outer face of said plate for seating on the upper surface of a rail, said plate member below said horizontal supporting projection including a thickened medial portion for abutting the rail and a hook projecting therefrom for engaging in one of said recesses formed in the rail member, and laterally extending wings projecting from each side of said thickened medial portion and spaced rearward from the front face of the thickened portion, whereby recesses are provided between the rail and wing projections for accommodating an actuating bar below the horizontal supporting member and between the vertical wings and the web of the rail member.

2. In a cargo brace assembly for the lading chamber of a carrier or the like, a combination comprising beam supporting rail members fixed along the side walls defining the lading chamber and arranged in a generally horizontal plane, the rail members including an upper supporting surface and a plurality of longitudinally extending spaced openings, a cargo brace including a beam structure and head members at each end of the beam structure for supporting engagement with the rail members, one of said head members including a shank slidably mounted within one end of the beam structure, a vertical plate connected to the outer end of said shank generally medially of its width and transversely of said beam, said plate member including a medial portion and a receding lateral wing at each side thereof, a horizontal supporting projection extending outwardly from the plate member above said shank, said horizontal projection having a medial portion for sliding engagement with the supporting surface of one of said rail members, and laterally projecting lift wings adapted to be positioned above the rail member engaged by the medial portion of said horizontal projection, the medial portion of said plate below said horizontal supporting projection engaging the adjacent face of the rail member and spacing the lateral wings of the plate from the face of the rail member to facilitate the insertion of a tool for disengaging the head from the rail member, and a projection extending from said plate for engagement within an opening in said beam.

3. The structure of claim 2 characterized in that the medial portion of the plate member below the horizontal supporting projection is provided with a plurality of axially projecting spaced parallel members for engaging within the spaced openings in a rail member, one of said axially projecting members being formed with a depending hook.

4. In an attaching head for connecting a lading beam to its support, said attaching head including a vertical plate, said plate including at its upper portion a horizontal supporting projection extending outwardly therefrom, said horizontal projection including a medial supporting portion having a lower support engaging area and projecting lifting wings extending laterally from each side of said supporting portion, said lifting wings having portions positioned above the bottom surface of the supporting area, a central projection fixedly secured to said plate and extending outwardly from said plate and located below said supporting area for abutting association with said support, a pair of laterally extending vertical jacking wings set inwardly from the outer face of said projection, and a downturned hook member extending from said central projection, said central projection terminating inwardly of the outer end of said hook member and said hook member terminating inwardly of the outer end of said supporting projection.

5. The structure of claim 4 characterized in that the central projection extending outwardly from the plate includes an outer flat area for abutting contact with the support and the downturned hook member is positioned at one side of the center of said flat area and is provided with a rearwardly inclined upper end face portion.

6. The structure of claim 4 characterized in that a plurality of downturned hook members extend from the central projection, the hook members being spaced at each side of the central projection and having their hooked portions below the same.

7. The structure of claim 4 characterized in that the vertical plate is connected to the beam by a shank which is fixed to the plate within the plane of the central projection extending outwardly from said plate.

8. In a cargo brace assembly for the merchandise chamber of a carrier, a combination comprising guide rails arranged along the sidewalls of the carrier in substantially the same horizontal plane, said guide rails having longitudinally arranged recesses formed therein, trackways formed along said guide rails, said brace including a medial beam structure and end head members, one of which is slidable longitudinally of the beam, said head members including at least one axially extending hook for engaging in one of said recesses in the guide rails, the hook being offset from the longitudinal central axis of the beam and being rigidly combined with an

upwardly spaced integral supporting projection, said integral supporting projection having a medial downwardly facing surface for seating on said trackway and laterally extending portions having bottom faces positioned above the bottom face of said medial downwardly facing surface, said projection extending substantially beyond the hooks, whereby a portion of the medial downwardly facing surface of the supporting projections will rest upon the top face of the guide rail when the hooks are removed from said recesses.

9. In a cargo brace assembly for the merchandising chamber of a carrier, a combination comprising horizontally arranged channels positioned along the opposite side walls of the carrier, the channels having their flanges horizontal and their webs formed with spaced recesses, the cargo brace including a medial beam structure, a fixed head at one end of the beam structure having an integral hook portion for engaging the spaced recesses in the web of an associated channel, and an upper integral projection for seating on the upper surface of the upper horizontal flange of the channel, a slidable head mounted in the other end of the cargo brace, said slidable head including a shank portion slidably arranged in a socket formed in the beam and normally urged outwardly by a spring in the socket, said head including a downwardly extending hook for engaging a recess in the web of an associated channel, and an integral supporting projection spaced above the hook for seating upon and slidable along the top surface of the upper flange of the channel, said supporting projection extending laterally of each side of the hook and outwardly beyond the end of the hook, whereby the hook may be disengaged from the recess in the web while portions of the supporting projections still in supporting engagement with the upper web.

10. In a cargo brace assembly for the merchandising chamber of a carrier, a combination comprising horizontally arranged channels positioned along the opposite side walls of the carrier, the channels having their flanges horizontal and their webs formed with spaced recesses, the cargo brace including a medial beam structure, a fixed head at one end of the beam structure having a hook portion for engaging the spaced recesses in the web of an associated channel, and an upper projection for seating on the upper surface of the upper horizontal flange of the channel, a slidable head mounted in the other end of the cargo brace, said slidable head including a shank portion slidably arranged in a socket formed in the beam and normally urged outwardly by a spring in the socket, said socket for the slidable head being positioned below the horizontal center of the beam, said head including a downwardly extending hook for engaging a recess in the web of an associated channel, and an integral supporting projection spaced above the hook for seating upon and slidable along the top surface of the upper flange of the channel, said supporting projection extending laterally of each side of the hook and outwardly beyond the end of the hook, whereby the hook may be disengaged from the recess in the web while portions of the supporting projection are still in supporting engagement with the upper web.

11. In a cargo brace assembly for the merchandise chamber of a carrier, a combination comprising guide rails extending longitudinally along the side walls defining the chamber and having vertical faces formed with spaced longitudinally extending recesses and upper longitudinally extending trackways, said brace assembly including a medial beam structure and end head members carried thereby, one of which is slidable longitudinally of the beam, said head members including generally vertical end faces adapted to be positioned adjacent the vertical faces of said guide rails when the parts are operably assembled, integral hook extensions having neck portions rigidly fixed to and projecting from said vertical faces and adapted for engagement in the recesses, said recesses having greater vertical dimension than the hook to permit the latter to be lifted and retracted therefrom, supporting projections rigidly fixed to and projecting from said head members, said projections being positioned above the hooks and extending laterally at each side of its associated hook structure, and extending sufficiently outwardly beyond the hooks to permit supporting engagement on said trackways when said hooks are retracted from their recesses.

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