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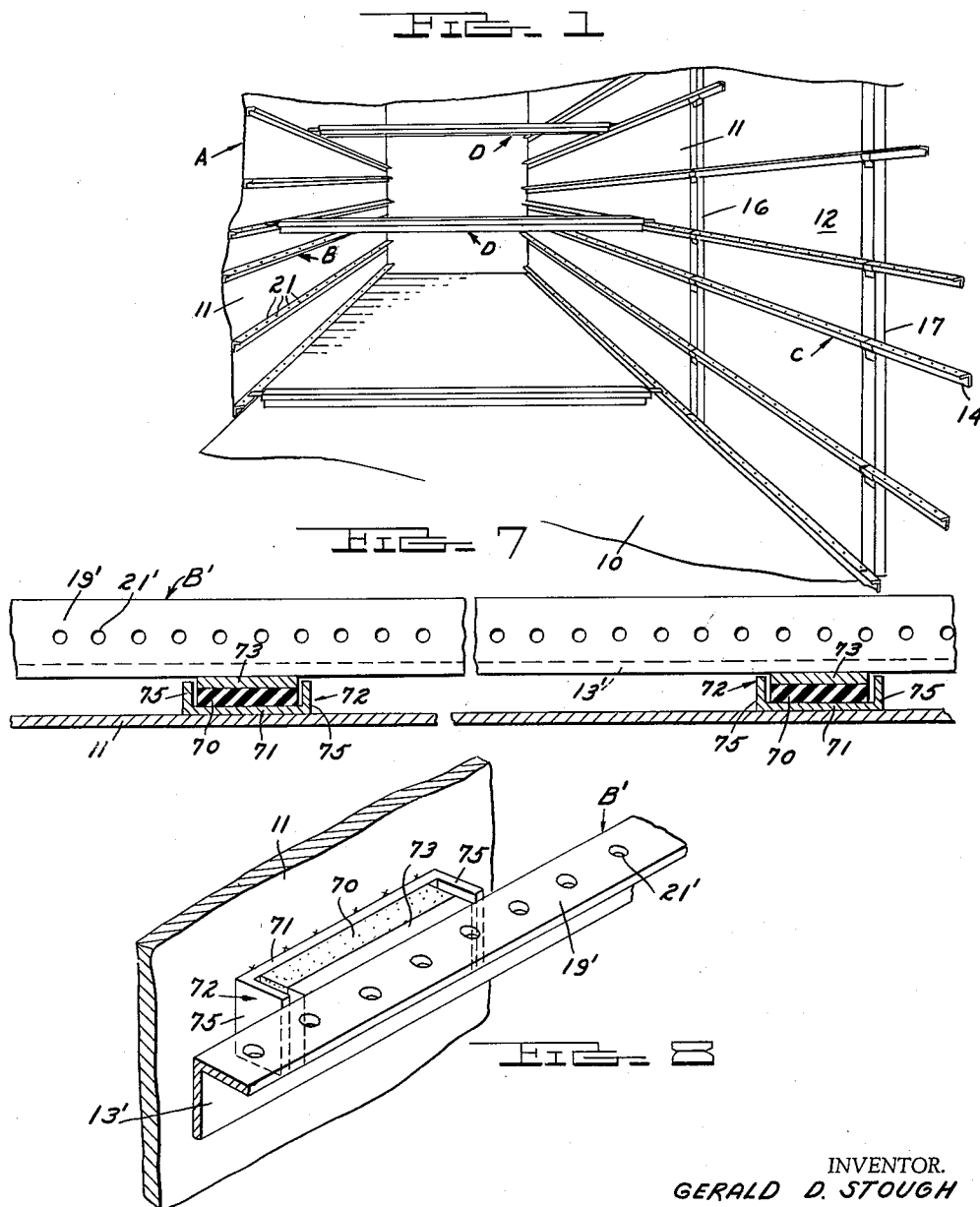
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2,988,019

CARGO BRACING STRUCTURE

Filed Nov. 4, 1957

2 Sheets-Sheet 1



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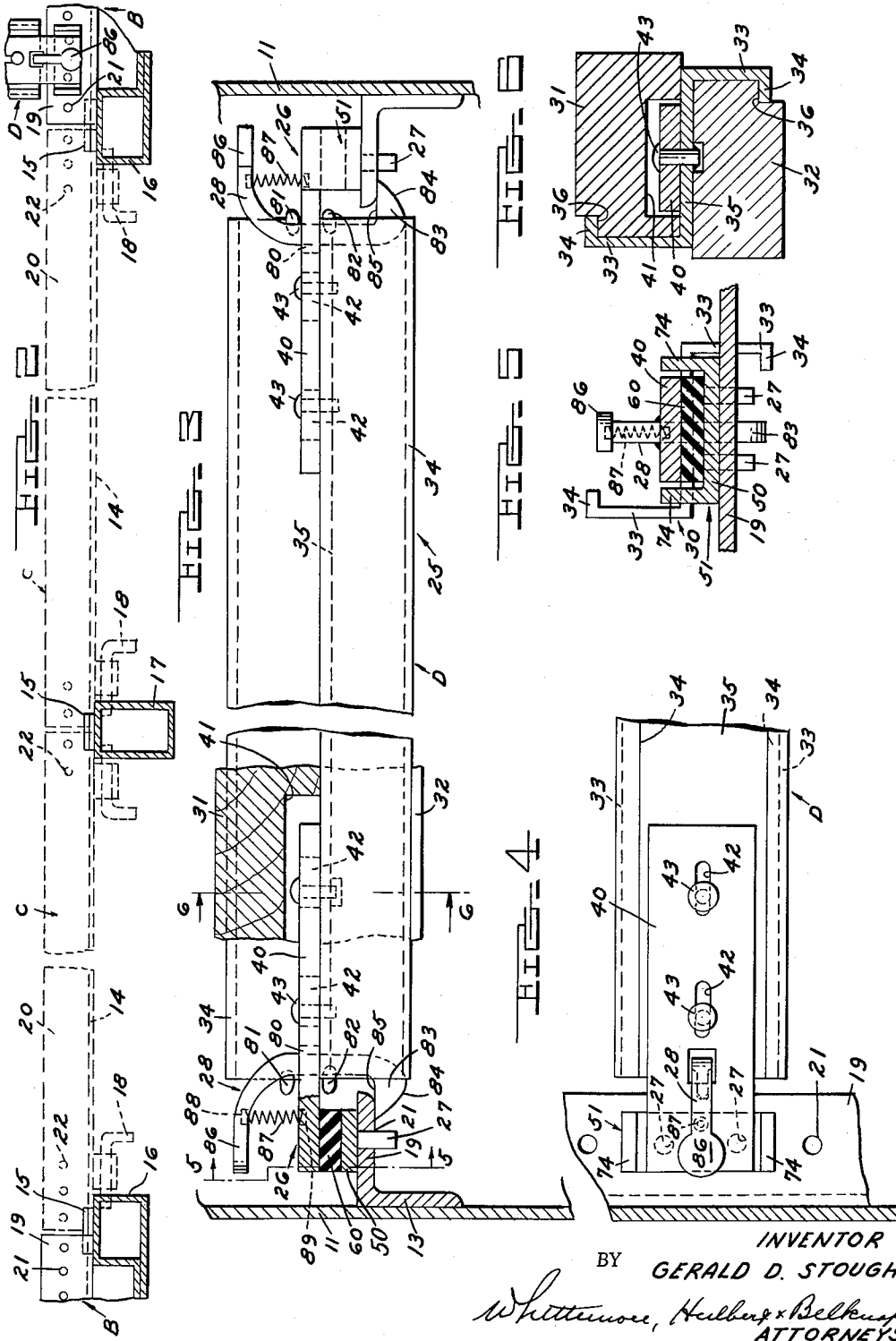
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CARGO BRACING STRUCTURE

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This invention relates generally to cargo bracing structure, and refers more particularly to a movable crossbar and to the means for detachably anchoring or connecting such crossbar to opposite upright side walls of a storage chamber of a transport vehicle.

Heretofore, crossbars of various types have been employed in the storage chambers of transport vehicles, such as box type freight cars, to brace or serve as abutments for cartons or crates containing merchandise of various kinds. When in transit, such cartons or crates are subjected to severe shocks and jars tending to move the cartons or crates lengthwise of the storage chamber, especially when such transport vehicle is stopped suddenly while in motion during a coupling operation i.e. when a vehicle in motion is coupled to a stationary vehicle. Consequently the merchandise in the cartons or crates is jarred severely and oftentimes is damaged, especially if it is fragile, unless some means is provided to absorb the shocks and jars to which it is subjected.

In the past, the cartons and crates have been provided in the walls thereof or between the walls and the merchandise with shock absorbing material, but this requires special packaging procedure and is expensive. Moreover, the special packaging of the merchandise oftentimes is not suitable for re-use after the cargo or crate is opened at its destination and oftentimes the packaging of one kind of merchandise is not thereafter suitable for packaging a different kind of merchandise. Hence the provision in crates or cartons of shock absorbing material has not been very satisfactory.

In the present instance, I have overcome all of the difficulties heretofore encountered by providing sufficient flexibility between the anchored crossbars and the upright side walls of the storage chamber to absorb the shocks and jars to which the cartons or crates are subjected. Thus, with my construction, it is possible to use over and over again the same crossbar and anchorage structures to obtain the shock absorbing results desired without special packaging of the merchandise as aforesaid.

One of the essential objects of the invention is to provide a movable crossbar having at opposite ends thereof anchoring means capable of being detachably interlocked easily and quickly with anchorage means upon the upright side walls of the storage chamber, and also having at opposite ends thereof latch means operable automatically when the anchoring means on the crossbar are interlocked with the anchorage means on said side walls to engage the anchorage means on said side walls to hold the anchoring means on the crossbar against accidental displacement.

Another object is to provide a crossbar structure wherein the anchoring means at opposite ends thereof are provided with supports or heads carried by and projecting endwise from the intermediate body portion of the crossbar, and wherein at least one of said supports or heads is slidable lengthwise of said body portion to facilitate the proper engagement of the anchoring means and the latch means aforesaid of the crossbar with the anchorage means on said side walls.

Another object is to provide either the anchoring means or the anchorage means aforesaid with flexible or elastic shock absorbing means capable of providing sufficient

2

flexibility between the anchored crossbars and the side walls of the storage chamber to enable at least the body portion of the anchored crossbar to yield horizontally within predetermined limits in a direction lengthwise of the storage chamber to absorb shocks and jars when the transport vehicle is stopped suddenly while in motion.

Another object is to provide a crossbar structure wherein the anchoring means at opposite ends thereof include flexible or elastic means capable of absorbing the shock load when the body portion of the anchored crossbar tends to move horizontally in a direction lengthwise of said storage chamber and that also includes means providing positive stops for preventing the body portion of the anchored crossbar from accidentally moving beyond predetermined limits in a direction lengthwise of the storage chamber.

Another object is to provide a crossbar structure that is simple in construction, economical to manufacture and efficient in operation.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings wherein:

FIGURE 1 is a fragmentary perspective view of the interior of a transport vehicle storage chamber, such as a box type freight car, and showing crossbars and side wall and doorway anchorage means therefor.

FIGURE 2 is an enlarged horizontal sectional view through the fixed doorway post and intermediate movable post of the transport vehicle storage chamber, and showing a portion of a crossbar and anchorage means therefor carried by said post.

FIGURE 3 is an enlarged fragmentary vertical sectional view through the side walls of the transport vehicle storage chamber and anchorage means thereon, and showing a crossbar applied to said anchorage means with parts broken away and in section.

FIGURE 4 is a fragmentary top plan view of the construction illustrated in FIGURE 3.

FIGURE 5 is a sectional view taken substantially on the line 5—5 of FIGURE 3.

FIGURE 6 is a sectional view taken substantially on the line 6—6 of FIGURE 3.

FIGURE 7 is a horizontal sectional view through a portion of one side wall of the transport vehicle storage chamber, and showing a slightly modified form of anchorage means for crossbars.

FIGURE 8 is a fragmentary perspective view of the structure illustrated in FIGURE 7.

In the drawings, A is a transport vehicle storage chamber having a load-sustaining floor 10 and spaced upright side walls 11 extending upwardly from and rigid with said floor and provided with one or more door openings 12.

B are vertically spaced horizontal anchorage rails of inverted L cross section upon the upright side walls 11 of the storage chamber, and C are vertically spaced horizontal anchorage rails of inverted L cross section bridging the door opening 12 and disposed between and substantially in horizontal alignment with the rails B. In FIGURES 1 to 5 inclusive, the rails B are stationary and have vertical flanges 13 fixed to the side walls 11, while the rails C are removable and have vertical flanges 14 detachably interlocked with upstanding clips 15 fixed to doorway posts 16 and 17 respectively. Any suitable means such as slidable locking pins 18 may be carried by the removable rails C at opposite ends thereof for engagement with suitable holes or apertures in the posts 16 and 17 to detachably retain the removable rails C in interlocked engagement with the clips 15. The posts 16 are located at opposite upright side edges of the door opening and are preferably fixed to

the floor 10 and side walls 11 of the storage chamber, while the intermediate post 17 may be either shiftably or removably mounted in any suitable manner in the center of the door opening 12. The horizontal flanges 19 and 20 respectively of the stationary and removable rails B and C are provided with longitudinally spaced vertically extending holes or openings 21 and 22 respectively. Such rails B and C constitute the anchorage means aforesaid upon opposite upright side walls of the storage chamber for the crossbars D.

Each crossbar D has a length substantially equal to the distance between the side walls 11 of the storage chamber and comprises an elongated body portion 25, heads 26 carried by and projecting endwise from said body portion 25 at opposite ends thereof, spaced vertically extending anchoring pins 27 carried by said heads and adapted to be detachably interlocked with the spaced holes 21 and 22 respectively in said rails B and C and pivotally mounted latch elements 28 carried by said heads and operable automatically when the anchoring pins 27 are interlocked with the holes 21 of the rails to engage the undersides of said rails to hold the anchoring pins 27 against accidental displacement.

The body portion 25 of each crossbar comprises a metal rail or beam 30 of substantially S cross section, and two relatively thick strips 31 and 32 respectively of wood or the like. Preferably the oppositely extending lateral flanges 33 of the beam 30 have inturned marginal flanges 34 disposed substantially parallel to the central web 35 of the beam, and the strips 31 and 32 are upon opposite sides of and rigidly secured to the central web 35 of said beam. Such strips 31 and 32 are staggered on the central web 35 and project slightly beyond the lateral flanges 33 of the beam. These strips 31 and 32 also have recesses 36 receiving the marginal flanges 34. Thus the wooden strips 31 and 32 only of the body portion 25 are engageable with the cartons or crates (not shown) when the crossbars are anchored within the storage chamber.

One or both of the heads 26 may be slidable lengthwise of said body portion 25 to facilitate the proper engagement of the anchoring pins 27 and of the latch elements 28 at opposite ends of the crossbar with the rails B and C at opposite side walls of the storage chamber.

Each head 26 comprises a metal bar 40 located within a recess 41 in one of the wood strips and disposed in surface to surface relation with the central web 35 of the body portion 25. When both heads 26 are slidable as illustrated in FIGURE 3, then the bars 40 thereof are provided with spaced elongated slots 42 that receive the shanks of suitable bolts 43 fastened to the central web 35 of the beam. However, when one head 26 only is slidable as aforesaid, then the other head 26 is rigidly secured by any suitable means (not shown) to the central web 35 of the beam.

Preferably the spaced anchoring pins 27 are integral with and extend downwardly from the bases 50 of metal channels 51 located below and substantially parallel to the undersides of the heads 26. Each channel 51 carries one pair of spaced pins 27, and the spacing of said pins corresponds to the spacing of the holes 21 and 22 respectively in the horizontal flanges 19 and 20 respectively of the rails B and C. In the present instance, the channels 51 carrying the pins 27 are yieldably supported from the bars 40 of the heads 26 at opposite ends of the crossbar by means of relatively thick rubber blocks 60 that are between and are rigidly secured in surface to surface relation to the bars 40 and to the bases 50 of the channels 51 and that provide sufficient flexibility between the body portion 25 of the crossbar and the rails B and C to enable the body portion 25 of the anchored crossbar to yield horizontally within predetermined limits in a direction length-

wise of the storage chamber to absorb shocks and jars when the transport vehicle is stopped suddenly while in motion.

As an alternate construction, I may provide rubber blocks 70 between the vertical flanges 13¹ of longitudinally movable rails B¹ and the bases 71 of inwardly opening metal channels 72 upon the upright side walls 11 of the storage chamber. As shown in FIGURES 7 and 8, the bases 71 of the channels are disposed in surface to surface relation with and rigidly secured to the upright side walls 11 of the storage chamber. The rubber blocks 70 are disposed in surface to surface relation with and are rigidly secured to the bases 71 of the channels and to upright metal plates 73 that are disposed in surface to surface relation with and are rigidly secured to the vertical flanges 13¹ of the rails B¹.

In both constructions aforesaid, the desired flexibility for the purposes set forth is provided between the body portion 25 of each crossbar and the side walls 11 of the storage chamber. Also, both constructions include means providing positive stops for preventing the body portion 25 of each anchored crossbar from accidentally moving beyond predetermined limits lengthwise of the storage chamber. For example, in FIGURE 5 the metal bar 40 and rubber block 60 are centered in the upwardly opening metal channel 51, hence limited lost motion is provided between opposite sides 74 of the channel and said bar 40 and rubber block 60.

In FIGURES 7 and 8, the metal plate 73 and rubber block 70 are centered in the metal channel 72, hence limited lost motion is provided between opposite sides 75 of the channel and said plate 73 and rubber block 70. Consequently, the engagement of the bar 40 with either side 74 of the channel 51, or the engagement of the metal plate 73 with either side 75 of the channel 72 will prevent the body portion 25 of each anchored crossbar from accidentally moving lengthwise of the storage chamber beyond a predetermined limit determined by the space or distance originally provided between the bar 40 and sides 74 or between the metal plate 73 and sides 75.

If desired, the shock absorbing structure illustrated in FIGURES 3 to 5 inclusive and the shock absorbing structure illustrated in FIGURES 7 and 8 respectively may be employed at the same time, or a crossbar devoid of the rubber blocks 60 may be employed with the shock absorbing structure in FIGURES 7 and 8. For example, when the rails B are rigidly secured to the upright side walls 11 of the storage chamber, as illustrated in FIGURES 1 to 5 inclusive, then rubber blocks such as 60 in the crossbar structure illustrated in FIGURES 3 to 5 inclusive could be employed. However when the rails B¹ are movable longitudinally and are flexibly connected to the upright side walls 11 of the storage chamber, as illustrated in FIGURES 7 and 8 respectively, then the rubber blocks such as 60 in the crossbar structure illustrated in FIGURES 3 to 5 inclusive could also be employed, or metal blocks (not shown) similar in configuration to the rubber blocks 60 could be used instead of and as substitutes for said rubber blocks 60 to provide rigid connections between the bases 50 of the channels 51 and the bars 40 of the crossbars.

The pivotally mounted latch elements 28 extend through slots 80 in the bars 40 of the heads 26 at opposite ends of the crossbar. As shown, each latch element 28 is substantially C-shaped in configuration and is provided at the outer edge thereof intermediate its ends with spaced integral lugs 81 and 82 respectively that are disposed upon opposite sides of the bar 40. The upper lugs 81 are engageable with the upper surfaces of the bars 40 and serve as pivots for the latch elements 28, while the lower lugs 82 are engageable with the lower surfaces of the bars 40 and serve as stops for the latch elements.

Each latch element 28 has at its lower end a hook-shaped portion 83 provided with a wedge-shaped or cam-shaped edge 84 that is engageable with the inner edge of

5

either the horizontal flange 19 of an anchorage rail B or the horizontal flange 19¹ of a longitudinally movable anchorage rail B¹, and that is operable to cause the hook-shaped portion 83 to automatically clear either flange 19 of the rail B or the flange 19¹ of the rail B¹ when the pins 27 are lowered or moved downwardly into interlocking engagement with the holes 21 and 21¹ respectively in said horizontal flange 19 and 19¹. The hook-shaped portion 83 is also provided with a substantially flat upper edge 85 that merges into the cam-shaped edge 84 and is engageable with the underside of said horizontal flanges 19 and 19¹ to hold the pins 27 against accidental displacement from the holes 21 and 21¹ after such pins have been interlocked therewith. Each latch element 28 has at its upper end a rounded finger piece 86 by which the latch element may be depressed by hand to cause the hook-shaped portion 83 thereof to be retracted and thereby be disengaged from the horizontal flanges 19 and 19¹ respectively of the rails B and B¹. In this connection, it will be noted that a coil spring 87 is located between and is terminally anchored in vertically spaced recesses 88 and 89 respectively in the latch element 28 and in the adjacent bar 40 for normally retaining the hook-shaped portion 83 in projected position.

In use, the desired number of crossbars D may be detachably anchored at longitudinally spaced points of the stationary and removable rails B and C respectively to brace or serve as abutments for crates, cartons and the like (not shown) containing merchandise of various kinds.

While the storage chamber of the transport vehicle is being loaded, the doorway rails C are removed, and if desired, the doorway post 17 may be removed or shifted out of the way. After the interior of the storage chamber at opposite ends thereof has been loaded and braced by crossbars, then the space in the storage chamber opposite the doorway 12 is loaded. The doorway bars C and posts 17 are then assembled in the doorway 12, as illustrated in FIGURE 1, so that the pins 27 of additional crossbars D may be engaged with selected holes 22 in the removable rails C to brace the load opposite the doorway. Such crossbars D may be easily anchored by moving them downwardly so that the pins 27 at opposite ends thereof will enter selected holes 21, 21¹ and 22 respectively in the rails B, B¹ and C. The latches 28 at opposite ends of the crossbars will automatically lock the crossbars in position when the pins 27 are interlocked with the selected holes in the rails B, B¹ and C.

While in transit, the rubber blocks 60 or 70, depending upon which is used, will provide sufficient flexibility between the anchored crossbars D and the upright side walls 11 of the storage chamber to permit the body portions 25 of such crossbars to yield horizontally in a direction lengthwise of the storage chamber to absorb the shocks and jars to which the cartons or crates are subjected in the event the transport vehicle is stopped suddenly while in motion. Should for any reason the rubber blocks 60 rupture or break loose, then the engagement of the metal bars 40 with one of the sides 74 of the metal channels 51 will effectively prevent the body portions 25 of the crossbars affected from accidentally moving beyond predetermined limits in a direction lengthwise of the storage chamber.

What I claim as my invention is:

1. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with selected vertically extending openings in horizontally extending rigid anchorage rails secured to and extending lengthwise of opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage rails for bracing cargo shiftably supported upon a floor of said

6

storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage rails, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber while absorbing the shock load thereof during such restraint, including shock absorbing blocks of rubber-like material on the undersides of and fixed to the end portions of said supporting bars, rigid upwardly opening channel-shaped members straddling said blocks and said supporting bars, the bases of said channel-shaped members being on the undersides of and secured to said blocks and adapted to be supported upon said anchorage rails, and rigid anchoring pins secured to and projecting downwardly from the bases of said channel-shaped members and adapted to be detachably interlocked with selected openings in the anchorage rails aforesaid.

2. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with selected vertically extending openings in horizontally extending rigid anchorage rails secured to and extending lengthwise of opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage rails for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage rails, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber while absorbing the shock load thereof during such restraint, including shock absorbing blocks of rubber-like material on the undersides of and fixed to the end portions of said supporting bars, rigid upwardly opening channel-shaped members straddling said blocks and said supporting bars, the bases of said channel-shaped members being on the undersides of and secured to said blocks and adapted to be supported upon said anchorage rails, rigid anchoring pins secured to and projecting downwardly from the bases of said channel-shaped members and adapted to be detachably interlocked with selected openings in the anchorage rails aforesaid, and means pivotally connected to said supporting bars and engageable with the undersides of said anchorage rails to prevent accidental displacement of said pins from said selected openings.

3. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with rigid anchorage means mounted upon opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage means for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage means, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber while absorbing the shock load thereof during such restraint, including resilient blocks carried by the end portions of said supporting bars, and rigid anchoring means carried by said resilient blocks and adapted to be detachably interlocked with the anchorage means upon said upright side walls.

4. A portable cargo bracing structure adapted to ex-

tend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with rigid anchorage means mounted upon opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage means for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage means, means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber while absorbing the shock load thereof during such restraint, including blocks of resilient material carried by the end portions of said supporting bars, rigid members on the undersides of and secured to said blocks, and rigid anchoring means carried by said rigid members and adapted to be detachably interlocked with the anchorage means upon said upright side walls, said rigid members having portions straddling said supporting bars for limiting the horizontal movement aforesaid of said body portion.

5. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with horizontally extending anchorage rails mounted upon opposite upright side walls of said storage chamber; comprising a horizontally extending crossbar having an elongated rigid body portion provided throughout its length at approximately the center thereof with a horizontally extending elongated rigid web, horizontally extending rigid bars respectively secured in substantially parallel relation to said rigid web at opposite ends thereof and having free end portions projecting endwise beyond said web, blocks of rubber-like material permanently bonded to the undersides of the free end portions of said bars, upwardly opening rigid channels of substantially U cross section straddling said blocks and the free end portions of said bars, the bases of said channels being permanently bonded to the undersides of said blocks, opposite sides of said channels extending upwardly beside and serving as abutments for opposite side edges of said blocks and the free end portions of said bars, and rigid vertical pins rigidly fixed to and depending from the undersides of the bases of said channels for detachable interlocking engagement with selected vertical openings in the anchorage rails aforesaid.

6. As an article of manufacture, an elongated portable freight bracing crossbar to extend transversely across, between, and be detachably secured at opposite ends thereof to rigid anchorage means therefor mounted upon opposite upright sides of a longitudinally extending elongated storage chamber of a transport vehicle, said crossbar having an elongated rigid body portion to extend horizontally across said storage chamber for bracing engagement with freight shiftably supported upon a floor of said storage chamber, said elongated body portion being provided at opposite ends thereof with endwise extensions to terminate short of opposite upright sides of said storage chamber in juxtaposition to said rigid anchorage means aforesaid at opposite upright sides of said storage chamber, elastic shock absorbing elements carried by said endwise extensions, and rigid anchoring means for said crossbar carried by said elastic shock absorbing elements and detachably engageable with the rigid anchorage means aforesaid upon opposite upright sides of said storage chamber, said elastic shock absorbing elements being flexible to yieldingly restrain horizontal movement of said elongated body portion by said shiftable freight in a direction lengthwise of said storage chamber by being stressed in shear while said rigid an-

choring means is detachably engaged with said rigid anchorage means.

7. As an article of manufacture, an elongated portable freight bracing crossbar to extend transversely across, between, and be detachably secured at opposite ends thereof to rigid anchorage means therefor mounted upon opposite upright sides of a longitudinally extending elongated storage chamber of a transport vehicle, said crossbar having an elongated rigid body portion to extend horizontally across said storage chamber for bracing engagement with freight shiftably supported upon a floor of said storage chamber, elastic shock absorbing elements carried by said elongated rigid body portion at opposite ends thereof, and rigid anchoring means for said crossbar carried by said elastic shock absorbing elements and detachably engageable with the rigid anchorage means aforesaid, said elastic shock absorbing elements being between portions respectively of said elongated rigid body portion and said rigid anchoring means and being flexible to yieldingly restrain horizontal movement of the elongated rigid body portion by said shiftable freight in a direction lengthwise of said storage chamber by being stressed in shear while said rigid anchoring means is detachably engaged with said rigid anchorage means.

8. As an article of manufacture, an elongated portable freight bracing crossbar to extend transversely across, between, and be detachably secured at opposite ends thereof to rigid anchorage means therefor mounted upon opposite upright sides of a longitudinally extending elongated storage chamber of a transport vehicle, said crossbar having an elongated rigid body portion to extend horizontally across said storage chamber for bracing engagement with freight shiftably supported upon a floor of said storage chamber, means at opposite ends of said elongated rigid body portion for detachably anchoring said crossbar to the rigid anchorage means therefor at opposite upright sides of said storage chamber, and an elastic shock absorbing connection between each anchoring means and said elongated rigid body portion, said shock absorbing connection being flexible to yieldingly restrain horizontal movement of the elongated rigid body portion by said shiftable freight in a direction lengthwise of said storage chamber by being stressed in shear while said rigid anchoring means is detachably anchored to said rigid anchorage means.

9. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with rigid anchorage means therefor mounted upon opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said rigid anchorage means to brace cargo shiftably supported upon a floor of said storage chamber, rigid bars connected to, extending lengthwise of, and projecting endwise from said body portion at opposite ends thereof, said rigid bars having end portions adapted to overlie said rigid anchorage means, and means for yieldably supporting the end portions of said rigid bars and for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear, including shock absorbing bodies of elastic material fixed to and carried by the end portions of said rigid bars, and rigid anchoring means for said crossbar fixed to and carried by said shock absorbing bodies to be detachably interlocked with the rigid anchorage means aforesaid on the opposed upright side walls of said storage chamber.

10. As an article of manufacture, an elongated portable freight bracing crossbar to extend transversely across, between, and be detachably secured at opposite ends thereof to rigid anchorage means therefor mounted upon opposite upright sides of a longitudinally extending elongated storage chamber of a transport vehicle; said cross-

bar having an elongated rigid body portion to extend horizontally across said storage chamber for bracing engagement with freight shiftably supported upon a floor of said storage chamber, said body portion having rigid endwise extensions at opposite ends thereof, bodies of elastic material rigidly secured to and suspended from said endwise extensions, and rigid anchoring means for said crossbar rigidly secured to and suspended from said bodies of elastic material, said rigid anchoring means being adapted to be detachably interlocked with the rigid anchorage means aforesaid upon said opposite upright sides of said storage chamber, and said bodies of elastic material being flexible to yieldingly restrain horizontal movement of said body portion by said shiftable freight in a direction lengthwise of said storage chamber by being stressed in shear while the rigid anchoring means is detachably interlocked with said rigid anchorage means.

11. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with horizontally extending rigid anchorage rails secured to and extending lengthwise of opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage rails for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage rails, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear, including elastic shock absorbing means carried by the end portions of said supporting bars, and rigid anchoring means carried by said shock absorbing means and adapted to be detachably interlocked with the anchorage rails aforesaid.

12. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with horizontally extending rigid anchorage rails secured to and extending lengthwise of opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage rails for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage rails, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear, including elastic shock absorbing means carried by the end portions of said supporting bars, rigid anchoring means carried by said shock absorbing means and adapted to be detachably interlocked with the anchorage rails aforesaid, and means connected to said supporting bars and engageable with portions of said anchorage rails to prevent accidental displacement of said rigid anchoring means from said rigid anchorage rails.

13. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with selected openings in rigid anchorage members secured to opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage members for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting end-

wise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage members, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear, including shock absorbing blocks of rubber-like material on the undersides of and fixed to the end portions of said supporting bars, rigid members on the undersides of and fixed to said blocks and adapted to be supported upon the anchorage members aforesaid, and rigid anchoring means on the undersides of and fixed to said rigid members and adapted to be detachably interlocked with selected openings in the anchorage members aforesaid.

14. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with selected openings in rigid anchorage members secured to opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage members for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage members, and means for yieldably restraining horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear, including shock absorbing blocks of rubber-like material on the undersides of and fixed to the end portions of said supporting bars, rigid members on the undersides of and fixed to said blocks and adapted to be supported upon the anchorage members aforesaid, rigid anchoring means on the undersides of and fixed to said rigid members and adapted to be detachably interlocked with selected openings in the anchorage members aforesaid, and means connected to said supporting bars and engageable with portions of said anchorage members to prevent accidental displacement of said rigid anchoring means from said selected openings.

15. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with rigid anchorage elements secured to opposite upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage elements for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having end portions adapted to overlie said anchorage elements, rigid members adapted to be supported upon the anchorage elements aforesaid, rigid anchoring means carried by said rigid members and adapted to be detachably interlocked with the anchorage elements aforesaid, and yieldable connections between said rigid members and said supporting bars including shock absorbing means between and secured to said rigid members and the end portions of said supporting bars, said shock absorbing means being flexible to yieldingly restrain horizontal movement of said rigid body portion by said shiftable cargo in a direction lengthwise of said storage chamber by being stressed in shear while said rigid anchoring means is detachably interlocked with said rigid anchorage elements.

16. A portable cargo bracing structure adapted to extend transversely across an elongated longitudinally extending storage chamber of a transport vehicle and adapted to be terminally interlocked with selected vertically extending openings in horizontally extending rigid anchorage rails secured to and extending lengthwise of opposite

11

upright side walls of said storage chamber; comprising an elongated crossbar having an elongated rigid body portion adapted to extend horizontally across said storage chamber between said anchorage rails for bracing cargo shiftably supported upon a floor of said storage chamber, supporting bars of metal connected to and projecting endwise from said body portion at opposite ends thereof, said supporting bars having substantially flat end portions adapted to overlie said anchorage rails, substantially flat rigid members adapted to be supported upon the anchorage rails aforesaid, rigid anchoring means secured to and projecting downwardly from said flat rigid members and adapted to be detachably interlocked with selected openings in the anchorage rails aforesaid, and yieldable connections between said flat rigid members and the flat end portions of said supporting bars including shock absorbing blocks of rubber-like material between and secured in surface to surface relation to said flat rigid members and the flat end portions of said supporting bars, said blocks of rubber-like material being flexible to yieldingly restrain horizontal movement of said body portion by said shiftable cargo in a direction lengthwise of said stor-

12

age chamber by being stressed in shear while said rigid anchoring means is detachably interlocked with selected openings in the anchorage rails aforesaid, and upright means on said flat rigid members adjacent opposite side edges of and engageable by the flat end portions of said supporting bars to limit the horizontal movement aforesaid of said body portion.

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2,514,229	Fahland	July 4, 1950
2,592,666	Doherty	Apr. 15, 1952
2,725,826	Tobin et al.	Dec. 6, 1955
2,873,693	Chapman et al.	Feb. 17, 1959
2,911,925	Adler	Nov. 10, 1959