March 10, 1959 G. F. OAKLEY 2,876,712

MULTI-DIRECTIONAL ANCHOR FOR LADING STRAPS AND THE LIKE

Filed June 14, 1954 2 Sheets-Sheet 1

FIG. 1

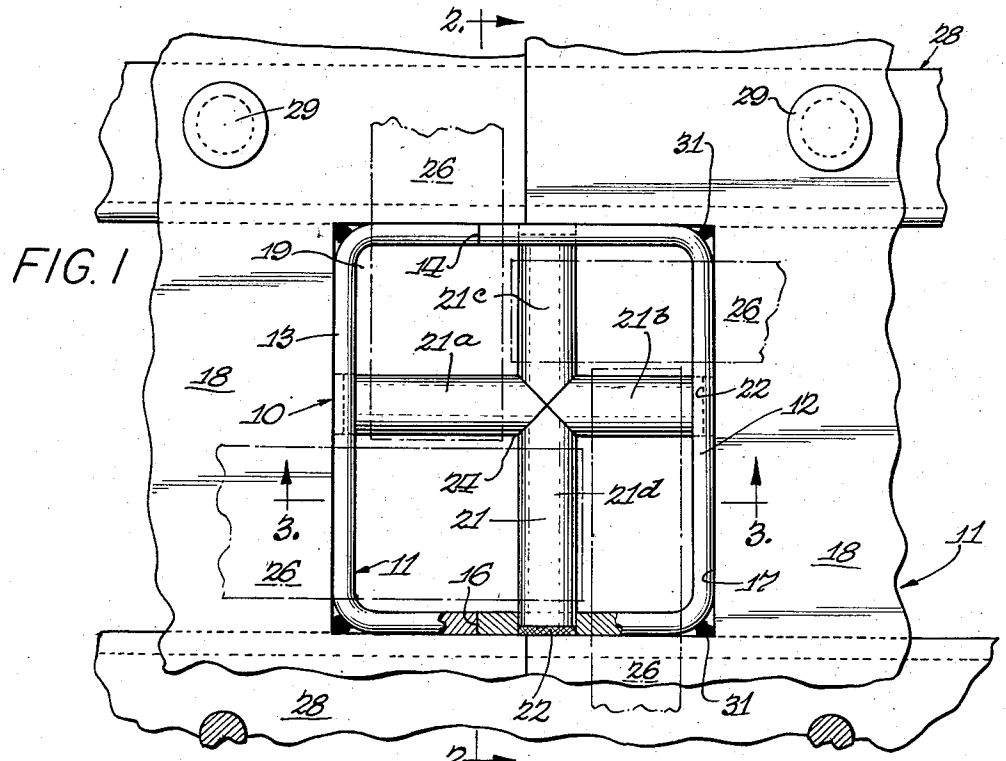


FIG. 2

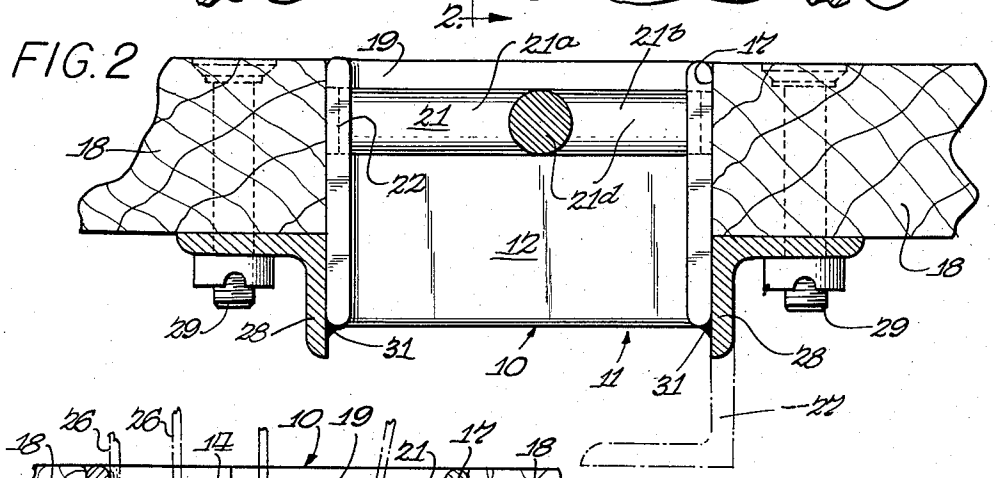
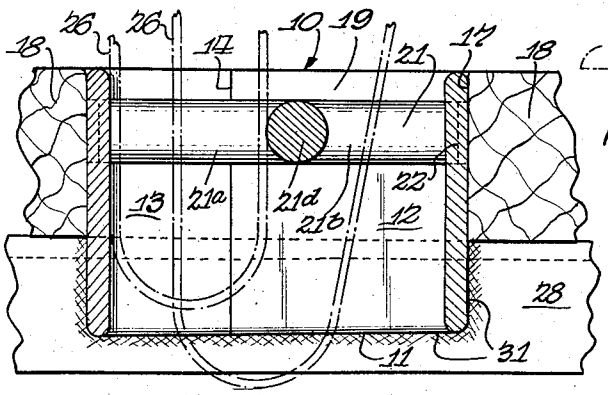


FIG. 3



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FIG. 4

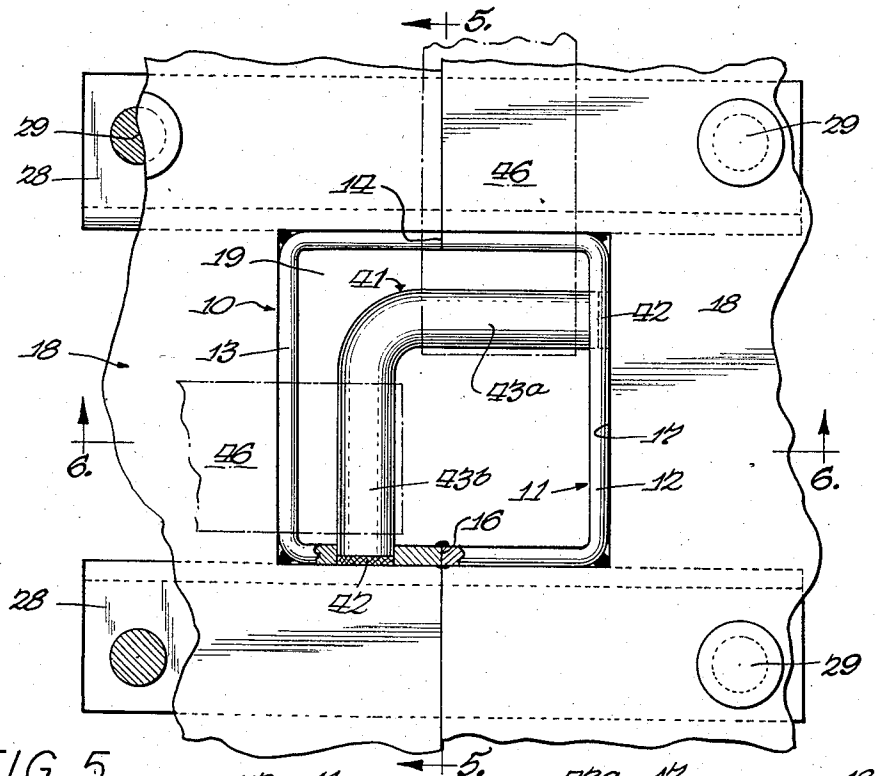
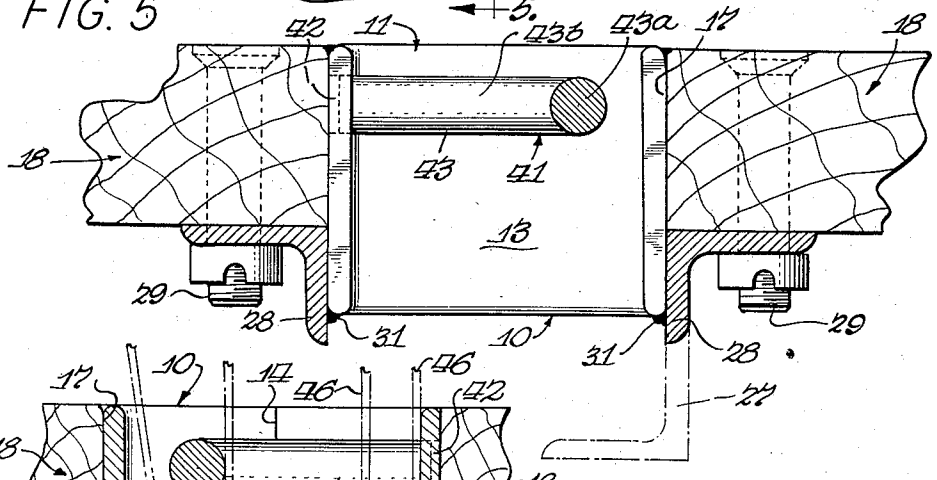


FIG. 5



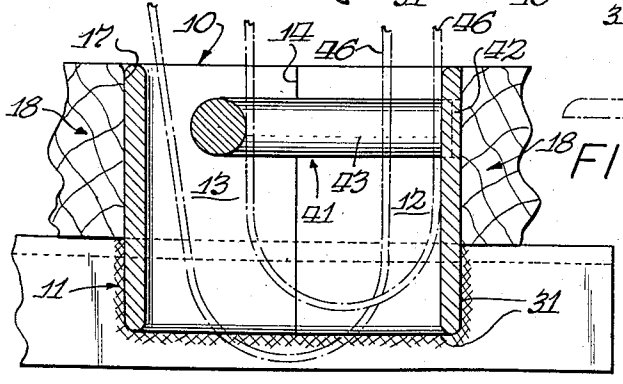


FIG. 6

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MULTI-DIRECTIONAL ANCHOR FOR LADING STRAPS AND THE LIKE

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5 Claims. (Cl. 105—369)

This invention relates to anchors for lading straps and the like, and more particularly to an anchoring device for the securement in place of objects of lading relative to the floor of a flat car or the like by straps or ties which may extend from the anchoring devices in any of a plurality of transversely related directions.

It is a general object of the invention to provide an improved anchor for lading straps and the like suitable for use in the floors of railway cars or in other installations where it is necessary or desirable to utilize straps or ties for the securement of lading and in which installations the securement of lading may require straps or ties which extend from the anchoring devices in either or both of transversely related directions.

It is a further object of the invention to provide an anchor for lading straps and the like which has parts so constructed and arranged that a single such anchoring device will accommodate various straps or ties that may extend in different directions simultaneously for the securement in place of objects of lading.

A further object of this invention is the provision of an anchoring device for lading straps and other lading ties which, in view of its multi-directional character, is unusually suitable for a lading area of limited space such as is found in the floor area of a railway car in that a fewer number of such anchoring devices is necessary to secure variously shaped objects compactly in the lading area.

A still further object of the invention is the provision of an anchor for lading straps and the like which provides ample and convenient tie facilities with a minimum of alteration or installation expense and without a substantial lessening of the supporting strength of the flooring in the lading area.

It is another object of the invention to provide a multi-directional anchor for lading straps or ties which may be advantageously employed in lading areas such as in a railway flat car floor, wherein the anchor is subjected to heavy strains and where it is exposed to detrimental weathering conditions such as ice, snow, rain, and dirt.

It is a further object of the invention to provide a multi-directional anchor for lading straps and the like which is of open construction, so as to facilitate the attachment of lading straps and ties thereto and so as to maintain the anchoring device in a clean and usable condition at all times.

It is a more specific object of the invention to provide a multi-directional anchor for lading straps and ties which may be readily and conveniently applied to railway cars having either wood or metal flooring.

A further object of the invention is the provision of a multi-directional anchor for lading straps and the like which embodies transversely disposed tie anchoring portions in a rugged frame and which affords a safe, efficient, and economical means of securing various types of flexible lading straps and ties to the floor or underframe

parts of railway cars in a plurality of directions simultaneously.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings in which similar characters of reference indicate similar parts throughout the several views.

Referring to the two sheets of drawings:

Fig. 1 is a fragmentary top plan view of a portion of a railway car floor having a multi-directional lading strap anchor embodying my invention positioned in an opening in the car flooring and secured thereto, the view further indicating the application of lading straps to the anchor;

Fig. 2 is a fragmentary sectional view taken substantially on a line 2—2 of Fig. 1 in the direction indicated by the arrows and illustrating the positioning and securement of the lading strap anchor relative to the railway car floor.

Fig. 3 is a fragmentary sectional view taken substantially on a line 3—3 of Fig. 1 in the direction of the arrows and, by the dot-and-dash lines, showing one manner of attachment of lading straps to the lading strap anchor.

Fig. 4 is a fragmentary top plan view of a portion of a railway car floor utilizing a modified form of my invention, and further illustrating the application of lading straps to the anchor.

Fig. 5 is a view taken substantially on a line 5—5 of Fig. 4 in the direction of the arrows, and showing the positioning and securement of the modified form of my lading strap anchor to the railway car floor structure.

Fig. 6 is a view taken substantially on a line 6—6 of Fig. 4 in the direction of the arrows, and further illustrating an attachment of a lading strap to my lading strap anchor.

Having reference to the accompanying drawings, wherein exemplary embodiments of my invention are disclosed for illustrative purposes, it will be seen that a multi-directional strap anchor **10** embodying my invention is readily adapted for use with a railway car floor construction **11**. While the improved anchoring device **10** would generally be incorporated in a railway car during the course of construction of the car or when applying new flooring to a used car, its design and arrangement are such that the anchor may be conveniently and efficiently installed at any time as will be hereinafter more fully described.

It is customary in providing lading strap anchors on railway flat cars to locate such anchors in rows aligned laterally and longitudinally of the car floor, that is, along each side of the center sill at end regions of the car floor. In this arrangement, the straps and ties for the holding of objects of lading and which provide lateral securement are attached to the anchor rows adjacent the center sill and extend in a direction lateral to the length of the car, while those providing securement longitudinally of the car or at the end anchor rows extend in a direction longitudinal of the car. With the multi-directional anchor embodying my invention it is necessary only to have a sufficient number of the anchors for adequate securement of the lading without reference to the necessity of providing for extension of lading straps and ties either laterally or longitudinally of the railway car.

Referring in greater detail to the multi-directional lading strap anchor as shown in Fig. 1 and apart from its incorporation in a railway car floor, the anchor **10** comprises a support or supporting frame **11** which is a substantially rigid structure, and which, for convenience of fabrication and assembly of the anchor, is made of two generally U-shaped frame sections **12** and **13** of relatively heavy strap metal with the ends of the U-shaped pieces butted and welded together, as at **14** and **16**, to provide a

rugged and practically rigid frame of generally rectangular shape. The width of the metal strap material in the frame is desirably such that it extends at least through an opening such as **17** in car flooring **18** when mounted in flush relationship to the top of the floor. As thus constructed, the frame **11** provides a plurality of vertical wall portions which enclose a center space or opening **19**.

Across the mid-portion of the center space **19**, as defined by the supporting frame **11**, a substantially rigid metal tie post **21** extends, which tie post is an integrally forged cross-shaped structure or one fabricated from bars but welded together and is secured to the frame by plug weld **22**, to frame sections **12** and **13**, thereby to further increase the strength and rigidity of the supporting frame. The tie post **21**, as shown in Fig. 1, has cross-arms constituting tie post portions **21***a*, **21***b*, **21***c* and **21***d*, such tie post portions being joined together to form a central hub-like juncture **24**. The tie post, having this cross-like configuration, is adapted for the attachment of lading straps or ties **26** to one or more of the tie post portions **21***a*, **21***b*, **21***c* and **21***d*, as indicated by the dot-and-dash lines in Figs. 1 and 3. The tie post **21** for convenience of use, is located adjacent the top of the supporting frame **11** with the tie post portions spaced substantially from the wall portions of frame **11**, so as to facilitate attachment of the lading straps **26**.

In the multi-directional anchor as illustrated, two of the tie post portions **21***a* and **21***d* adjacent and at right angles to each other are of greater length than the two opposite portions **21***b* and **21***c*, which latter portions are also adjacent and at right angles to one another. This structural arrangement is advantageous in enabling lading straps of varying widths to be anchored in either of two laterally disposed directions without slippage and, also, to promote ease of attachment of the lading straps to the anchor.

When constructed as shown in Figs. 1, 2 and 3, the multi-directional anchor embodying my invention will enable at least four lading straps **26** to be attached to the anchor with each strap, if desirable, extending from the anchor in a different direction. This increases greatly the combinations possible for the loading and securement of objects of lading in a given area over that provided by an equivalent number of uni-directional anchors. This greater availability of loading combinations naturally results in efficient use of available anchors and in decreased time of loading as well as increased compactness of the lading.

In the incorporation of the multi-directional lading strap anchor **10** in a standard railway flat car having a wood floor supported by the car underframe, the opening **17** is made in the flooring **18** and is of a size approximately that of the outside dimensions of supporting frame **11**. As shown, the opening **17** may be made at the juncture of two flooring elements so that such opening extends partially into each of the adjacent flooring elements, thereby avoiding the excessive weakening of any single flooring element. Securement of the anchor **10** to the railway car floor construction may, of course, be made to the wooden floor **18** but for greater strength and solidity, attachment is preferably made either to the car underframe **27** or to strong metal angle strips **28** on opposite sides of the frame **11**, provided for that purpose, and which, in turn, are secured to the car floor **18** by fastening means, such as bolts **29**.

In the type of mounting shown in the drawing, two metal angle strips **28** extend under the flooring in a direction transverse to the length of the flooring elements and adjacent the edges of floor opening **17**. The angle strips **28** have arms or flanges secured to the car flooring **18**, as by bolts **29**. It is desirable to have the angle strips extend considerably beyond the floor opening **17** so as to afford greater strength to the flooring and thus compensate for any weakening of the floor as a result of the opening **19**.

As has been previously pointed out, the width of the material of the supporting frame **11** is such that the anchor extends at least through the opening **17**. The lower edge of the anchor **10** wil thus lie adjacent and engage the angle strips **28** to which it is secured as by weld joints **31**. Securement of the anchor **10** to the angle strips **28** provides a strong and substantially rigid attachment which, of course, is of importance considering the function of the lading strap anchor. This manner of securement is of particular advantage where the lading strap anchor is being installed in railway car structures at positions spaced from the underframe parts. Where the railway car construction and the desired location of the anchor permit, securement of the anchor **10** may be made directly to the car underframe, thereby eliminating the need for one or both of the angle strips.

A modified form of my multi-directional lading strap anchor is depicted in Figs. 4, 5 and 6, and has a tie post which is of a construction that enables lading straps secured to it to be extended in the directions of either or both of two transverse planes, such directions being generally perpendicular to each other. As illustrated, this form of lading strap anchor **10** includes a substantially rigid tie post **41** secured to supporting frame **11** as by plug welds **42**. The tie post **41** is of a general L-configuration the angularly disposed leg portions of which constitute tie post portions **43***a* and **43***b* to which lading straps **46** may be attached, as shown in Figs. 1 and 3 by the dot-and-dash lines. The tie post **41** is located adjacent the top edges of the supporting frame, so that the lading straps may extend therefrom at a wide variety of angles without effecting any bends or kinks in the lading strap which would be detrimental to its strength. The tie post portions **43***a* and **43***b* are, of course, spaced substantially from the wall portions of frame **11** which extend in substantially parallel relationship thereto, so as to facilitate insertion and attachment of the lading straps. The supporting frame **11** for tie post **41** is similar to that used in the preferred embodiment of the invention as is the manner of securement of the modified lading strap anchor to the railway car floor construction. When incorporated in a railway flat car, the L-shaped tie post **41** will enable ties from a single anchor to be made simultaneously both laterally and longitudinally of the length of the flat car.

In the attachment of lading straps **26** and **46** to tie posts **21** and **41**, as shown in Figs. 3 and 6, the lading strap is turned back or bent at one end and the bent portion inserted or forced downwardly between the tie post portion to which it is to be affixed and the adjacent wall portion of supporting frame **11**. After the end of the lading strap has passed the tie post portion, it springs or is moved toward or against the opposite wall portion of the supporting frame and is then pulled upwardly to be secured to the main part of the lading strap. Such attachment is facilitated by the lading strap anchor **10** being open at both ends, so that no limitation is placed on the downward movement of the strap as it is being attached.

The advantages resulting from the lading strap anchor **10** being open at both ends include that of the anchor being self-cleaning in that foreign objects and debris will pass through the center space or opening **19** defined by the supporting frame **11**. This is of particular desirability for lading strap anchors used on railway flat cars where they are exposed to adverse weather, ice, snow, rain, and the like, as well as to dirt. By the anchor **10** being open and clean at all times, cleaning out operations preliminary to attachment of the lading straps are eliminated and a longer life and wear of the anchor and the adjacent car structure are assured.

The lading strap anchors embodying tie post **21** and tie post **41** are both multi-directional in that they enable lading straps to be extended from the anchors in a plurality of directions simultaneously. This results

from each of the tie post portions 21*a*, 21*b*, 21*c* and 21*d* and portions 43*a* and 43*b* being angularly disposed with respect to its adjacent portion, such angle, of course, causing the lading straps to extend outwardly from the anchor in different directions. In the embodiments shown in the drawings, the angle is approximately 90 degrees which effects a similar angle in the extension of the lading straps. In the lading strap anchor utilizing tie post 41, the tie post may be considered as being of a single length having a 90 degree angle midway of the length and with the two segments of the single length extending from such angle to the wall portion of the supporting frame as constituting tie post portions 43*a* and 43*b*. It is, of course, possible to use a tie post of a single length having one or more angles of varying degrees if such is desired.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of constructions set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. An anchor for lading straps and the like for mounting in an opening extending through the floor of a railway flat car or the like and in substantially flush relationship to the top surface of the floor and comprising, in combination, a rigid support constituting steel strap material shaped to provide a plurality of pairs of substantially parallel wall portions in spaced relationship with the ends of the portions of each pair secured to the ends of the other pair to form a closed rectangular wall, said support being open at its top and bottom ends and providing a center opening between said parallel wall portions, and a rigid metal tie post extending into said center opening and secured to at least two of the wall portions, said tie post comprising at least two tie post portions, having a common juncture and adjoined together only at the mid portion of the support and the outer ends of which are each secured directly to one of the wall portions of the support, and one of which portions is angularly disposed longitudinally with respect to the adjacent portion and each of which is spaced laterally of its longitudinal dimension from the wall portions of the support to provide for the separate securement of a lading strap to each individual portion.

2. An anchor for lading straps and the like as defined in claim 1, and wherein said tie post is of generally cross-like configuration in which the tie post portions constitute cross-arms each having its other ends secured to the respective wall portions of the support.

3. An anchor for lading straps and the like comprising a substantially rigid metal supporting frame open at opposite ends and defining a center space therein, and a substantially rigid metal tie post extending into said center space and secured to the frame at each of its ends,

said tie post comprising at least two tie post portions adjoined to one another at a mid-position of the center space and from which they radiate so that each is angularly disposed with respect to its adjacent portion and each is spaced from the other and from the supporting frame to provide space for the separate insertion and securement of a lading strap to each of the portions of the post.

4. An anchor for lading straps and the like for mounting in an opening extending through the floor of a railway flat car or the like and in substantially flush relationship to the top surface of the floor and comprising, in combination, a rigid support constituting steel strap material shaped to provide a plurality of pairs of substantially parallel wall portions in spaced relationship to one another with the ends of the wall portions of each pair secured to the ends of the wall portions of the other pair to form a closed wall of rectangular shape, said support being open at its top and bottom ends and providing a center opening between said parallel wall portions, and a rigid metal tie post extending into said center opening and secured to at least two of the wall portions, said tie post comprising at least two tie post portions, the outer ends of which are each secured directly to one of the wall portions of the support, and one of which tie post portions is angularly disposed longitudinally with respect to the adjacent portion and each of which is spaced laterally of its longitudinal dimension from the wall portions of the support so as to permit the insertion and securement of a lading strap relative to either portion, said tie post being characterized by being a single length of metal bar having its ends secured to adjacent angularly disposed wall portions of the support, and said tie post portions comprising two segments of the length of said tie post.

5. An anchor for lading straps and the like comprising a substantially rigid metal supporting frame open at opposite ends and having angularly disposed wall portions forming a closed wall of polygonal peripheral configuration, which wall defines a center space therein, and a substantially rigid metal tie post extending into said center space and having each of its ends secured to different wall portions of the frame, said tie post comprising two tie post portions each of which is angularly disposed with respect to its adjacent portion and each of which tie post portions extends into said center space from a position apart from the other and spaced laterally of itself from the supporting frame to provide space for the insertion of a lading strap at the sides of the post.

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