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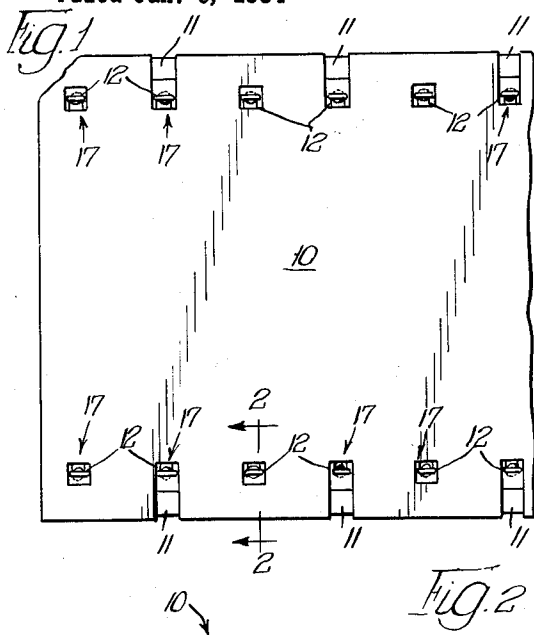
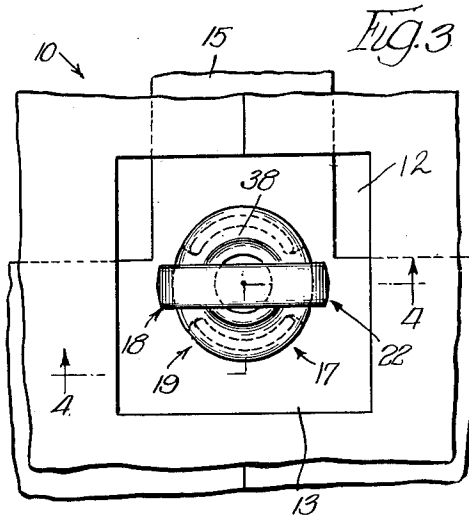
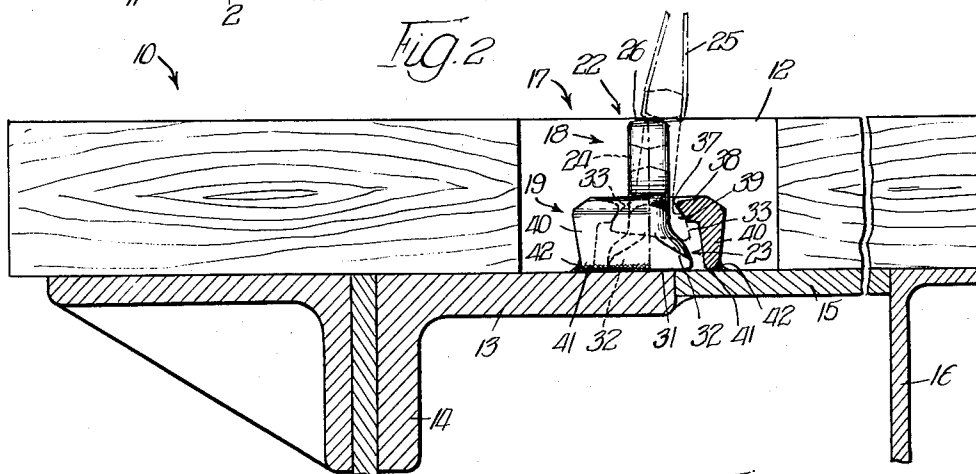
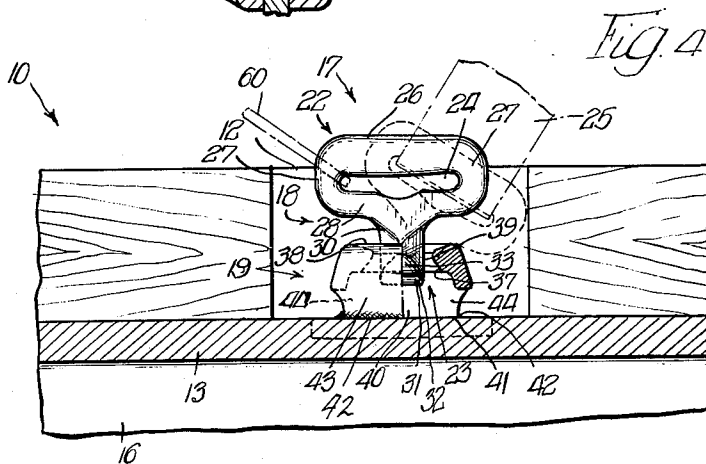
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METHOD OF MAKING A RAILWAY LADING TIE ANCHOR ASSEMBLY

Filed Jan. 3, 1964

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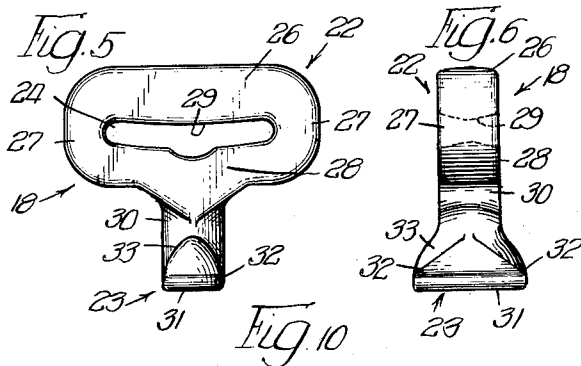
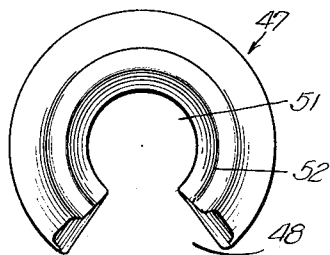
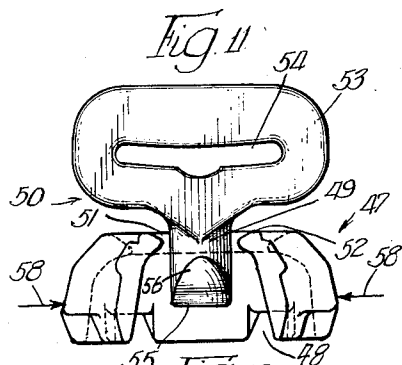
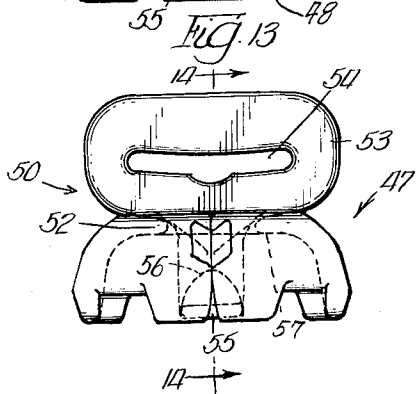
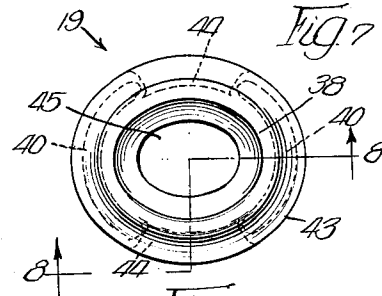
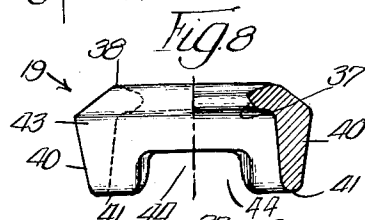
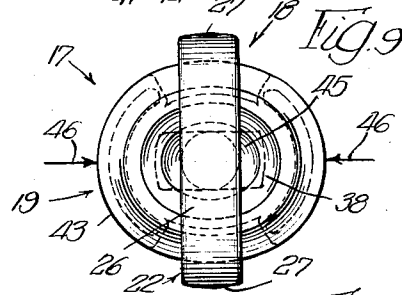
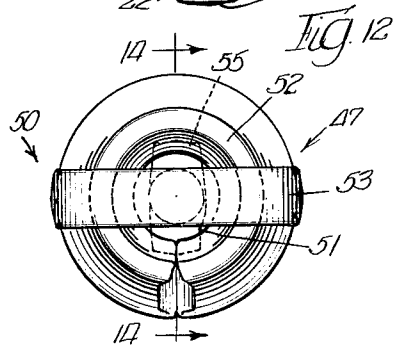
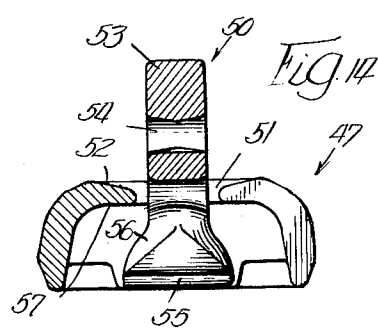
F. JENSEN ETAL

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METHOD OF MAKING A RAILWAY LADING TIE ANCHOR ASSEMBLY

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METHOD OF MAKING A RAILWAY LADING TIE ANCHOR ASSEMBLY

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1 Claim. (Cl. 29—437)

This invention relates, generally, to railway rolling stock and it has particular relation to methods of making load braces for freight cars, such as flat cars.

Among the objects of this invention are: To provide for distributing over a relatively large area in a new and improved manner the stress applied by a lading tie to a lading tie link which is retained on the car frame or body by a retainer that permits a relatively great latitude of movement of the lading tie link; to mount the link in the retainer to have movement in planes at right angles to each other while maintaining contact therebetween over a relatively large area; to provide for the link to receive a lading tie in the form of a metallic strap and to arrange the lading tie retainer to react against the link in such manner that, for a wide range of directions in which the lading tie may extend, the lading tie is stressed away from its edges rather than being more heavily stressed along an edge; to provide the link with a T-shaped foot portion having convex surfaces on the upper side of the cross portion that engage a frusto-conical surface on the under side of the central portion of the retainer; to construct the link with a head portion integral with the T-shaped foot portion, the head portion having a slot for receiving a lading tie in the form of a metallic strap; to construct the retainer to receive the T-shaped foot portion of the link and then to deform the retainer for holding the link and retainer inseparable while permitting relative movement therebetween over a wide range; to construct the retainer with an oblong opening in its central portion for receiving the cross portion of the T-shaped foot portion of the link and then, after it is inserted in the retainer, deforming the retainer to change the shape of the opening to a generally circular shape; and to construct the retainer of generally C-shape and after insertion of the stem of the T-shaped foot portion in the opening in the central portion, closing the gap in the C-shape to maintain the link and retainer inseparable while permitting a relatively wide range of movement therebetween.

In the drawings:

FIG. 1 is a top plan view of a portion of the top of a flat car to which the present invention can be applied.

FIG. 2 is a vertical sectional view, at an enlarged scale, taken generally along the line 2—2 of FIG. 1.

FIG. 3 is a top plan view, at an enlarged scale, of one of the lading tie anchor assemblies as shown in FIG. 1.

FIG. 4 is a vertical sectional view taken generally along the line 4—4 of FIG. 3.

FIG. 5 is a view, in side elevation and an enlarged scale, of the link that forms a part of the lading tie assembly.

FIG. 6 is a view, in end elevation, of the link shown in FIG. 5.

FIG. 7 is a top plan view of the retainer arranged to receive the link shown in FIGS. 5 and 6, the illustration here being of the retainer before it is deformed.

FIG. 8 is a vertical sectional view taken generally along the line 8—8 of FIG. 7.

FIG. 9 is a top plan view of the link, shown in FIGS. 5 and 6, assembled with the retainer, shown in FIGS. 7 and 8, and before the retainer has been deformed to hold the link inseparable with respect to the retainer.

FIG. 10 is a top plan view of a modified form of retainer.

FIG. 11 is a view, in side elevation, of the retainer shown in FIG. 10 having assembled therewith a link which is generally of the same construction as the link shown in FIGS. 5 and 6.

FIG. 12 is a top plan view of the lading tie assembly, shown in FIG. 11, with the retainer deformed to hold the link inseparable therewith.

FIG. 13 is a view, in side elevation, of the completed lading tie assembly shown in FIG. 12.

FIG. 14 is a vertical sectional view taken generally along the line 14—14 of FIG. 13.

Referring now particularly to FIGS. 1, 2, 3 and 4 of the drawings, it will be observed that the reference character 10 designates, generally, a portion of the floor of a railway flat car that ordinarily is formed of wood. Stake pockets 11 are provided along opposite sides. In addition square cavities 12 are provided along each of the sides of the floor 10 for receiving lading tie anchor assemblies to be described. Each of the cavities 12 opens through the wood floor and is underlaid, in part, by a flange 13 that forms a part of a side sill angle 14. In addition a metallic floor plate 15 extends underneath each cavity 12 and between the respective flange 13 and a center sill 16. Located in each of the cavities 12 is a lading tie anchor assembly that is indicated, generally, at 17. It includes a link, shown generally at 18, and a retainer, shown generally at 19, both preferably formed of drop forged steel.

FIGS. 5 and 6 of the drawings show in more detail the construction of the link 18. Here it will be noted that the link 18 includes a head portion 22 that is integral with a depending inverted T-shaped foot portion 23. The head portion 22 is provided with a slot 24 for receiving a lading tie 25, FIGS. 2 and 4, that ordinarily is in the form of a metallic strap having a width such as to permit it to be inserted readily through the slot 24. The slot 24 is bounded by a central section 26, integral end sections 27—27 and a central body section 28. The under side 29 of the central section 26 is convex, as seen more clearly in FIG. 6, in order to avoid sharp corners around which a lading tie 25 is arranged to react. The depending inverted T-shaped foot portion 23 includes a stem 30 that is integral with the central body section 28 and preferably is circular in cross section. At the lower end of the stem 30 is a cross portion 31 having end portions 32—32 which are provided with convex surfaces 33 with the result that the upper side of each of the end portions 32—32 presents a generally convex surface for engagement with a generally downwardly facing surface of the retainer 19.

As seen more clearly in FIGS. 2, 4 and 8 of the drawings the convex surfaces 33—33 on the upper sides of the end portions 32—32 are arranged to engage a frusto-conical surface 37, preferably slightly concave, that is located in a central portion 38 of the retainer 19 and around an aperture 39 therein through which the stem 30 is arranged to project and in which it is rotatable through 360°.

It will be observed that the retainer 19 is of inverted U-shape in cross section with the central portion 38 forming the bottom of the U-shape. The arms 40—40 of the inverted U-shaped retainer 19 have end surfaces 41—41 that are arranged to engage the upper surface of the metallic flange 13 and the upper surface of the metallic floor plate 15 as shown in FIG. 2. These end surfaces 41—41 are arranged to be secured to the flange 13 and floor plate 15 by welding as indicated at 42—42. The retainer 19 includes an annular body portion 43 from which the arms 40—40 depend and diametrically oppo-

site slots 44—44 are provided in opposite sides between the arms 40—40.

Initially the retainer 19 is drop forged to the configuration shown in FIG. 7. Here it will be observed that the retainer 19 is generally oval or oblong and that an oblong aperture 45 is provided therein. Preferably the aperture 45 is elliptical. The reason for the oblong aperture 45 is to permit assembly of the link 18 with the retainer 19. After the inverted T-shaped foot portion 23 has been inserted through the oblong aperture 45 the assembly, as shown in FIG. 9, is placed in a press and force is applied as indicated by arrows 46—46, to opposite sides of the retainer 19 sufficient to deform it to change the oblong aperture 45 to the aperture 39 which is circular. When such deformation has been completed, the link 18 is inseparable from the retainer 19 in any position to which it may be rotated.

FIG. 2 shows that, when the link 18 is not required to resist tension of a lading tie 25, it occupies the position here shown by full line where the upper surface of the central section 26 is flush with the upper surface of the floor 10 of the flat car. When the lading tie 25 is applied and placed under tension, the link 18 may occupy the position shown by broken lines. Here it will be observed that the convex surfaces 33—33 fully engage diametrically opposite portions of the frusto-conical surface 37. This distributes relatively widely the tension force applied to the link 18 by the lading tie 25 and transmits it to the retainer 19.

FIG. 4 shows how the convex surface 33 engages the frusto-conical surface 37 and permits the link 18 to swing from the position shown by full lines to the position shown by broken lines, depending upon the direction in which tension is applied by the lading tie 25. Here again the tension force is distributed over a relatively large area of the retainer 19.

Since the link 18 can occupy various positions, as illustrated by FIGS. 2 and 4, it will be apparent that the tension force applied by the lading tie 25 to the central section 26 of the link 18 will be distributed substantially uniformly between the edges or sides of the lading tie 25 and will not be concentrated on one or the other edges or adjacent them as might be the case if the link 18 were not mounted so as to have substantially universal movement in planes at right angles to each other with respect to the retainer 19.

A modified construction for the lading tie anchor assembly is illustrated in FIGS. 10—14. In FIG. 10 it will be observed that a retainer 47 is provided that is generally C-shaped and has a gap 48. The retainer 47 may be formed of drop forged steel. The gap 48 is provided for receiving a stem 49 of a link, shown generally at 50, which is generally of the same construction as the link 18 described hereinbefore. The gap 48 opens into an aperture 51 in a central portion 52 of the retainer 47.

The link 50 includes a head portion 53 that is provided with a slot 54 for receiving a lading tie, such as the lading tie 25. At the lower end of the stem 49 there is an integral cross portion 55 to complete the inverted T-shape. The ends of the cross portion 55 have convex surfaces 56 for engagement with an under surface 57 of the central portion 52.

After the link 50 has been assembled with the retainer 47, as shown in FIG. 11, the assembly is placed in a press and forces are applied, as indicated by arrows 58—58, to opposite sides of the retainer 47 sufficient to close the gap 48 and provide the construction as shown in FIG. 13. Now the link 50 is inseparable from the retainer 47 which can be welded to the metallic plates of the railway car in the manner previously described. The link 50 can be rotated through 360° in the aperture 51. In addition it can be moved in planes at right angles to each other with respect to the retainer 47 through substantial extents, such as indicated in FIGS. 2 and 4, for the link 18.

As shown in FIG. 4, if desired, a wire or cable 60 can also be extended through the slot 24.

What is claimed as new is:

Method of manufacturing railway lading tie anchor means including a metallic lading tie link retainer of inverted U-shape in cross section having an apertured central portion and a metallic lading tie link having a lading tie receiving head portion and an integral inverted T-shaped foot portion having the stem circular in cross section, said method comprising:

- (a) providing an oblong opening in said central portion such that the stem of said T-shaped foot portion can be inserted therethrough,
- (b) inserting said stem in said opening with the cross portion of said T-shaped foot portion underneath said bottom portion of said lading tie retainer, and
- (c) deforming said lading tie retainer endwise to provide a generally circular configuration for it and said aperture with the periphery of said aperture spaced from the stem of said T-shaped foot portion.

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