Jan. 21, 1969 M. STARK 3,422,772

BODY BOLSTER CENTER PLATE ASSEMBLY

Filed Aug. 25, 1966 Sheet 1 of 2

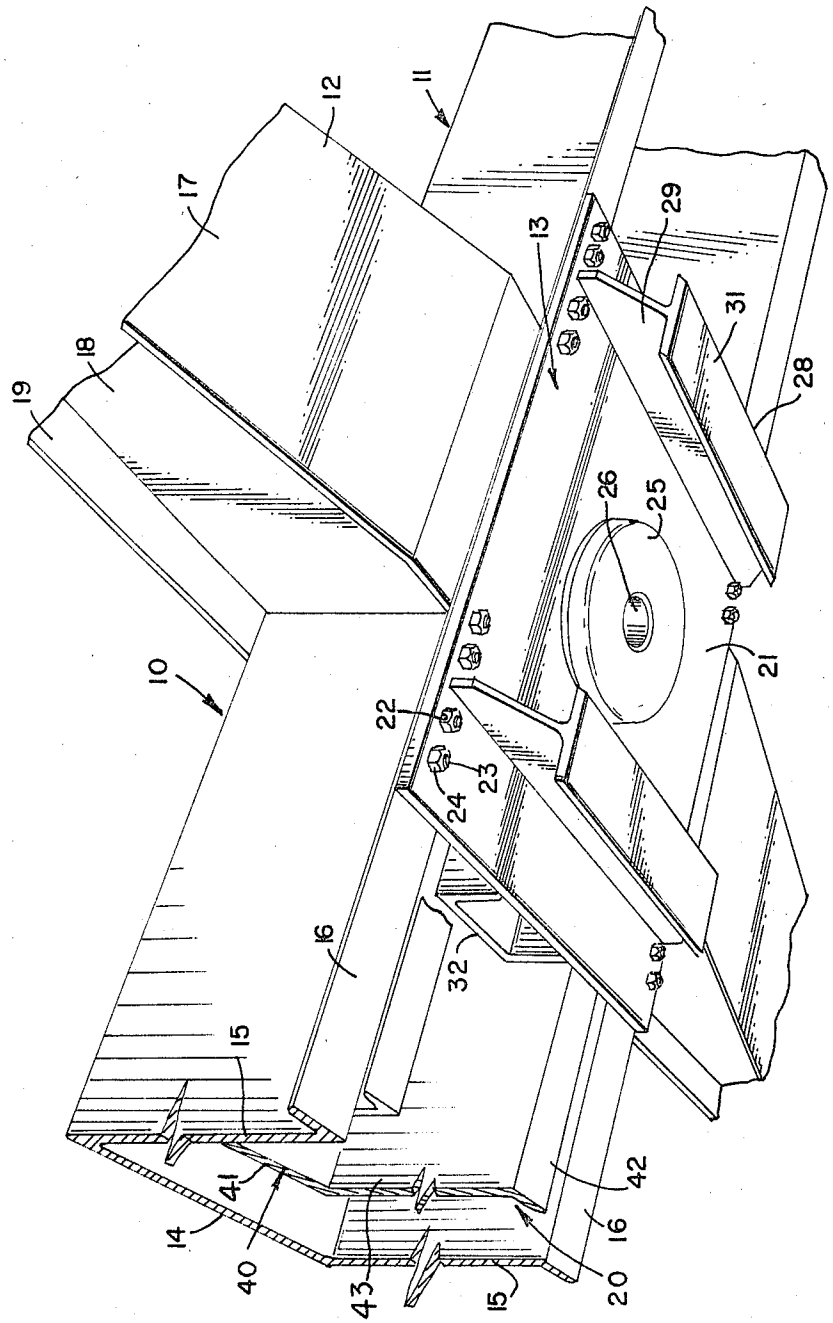

FIG. 1

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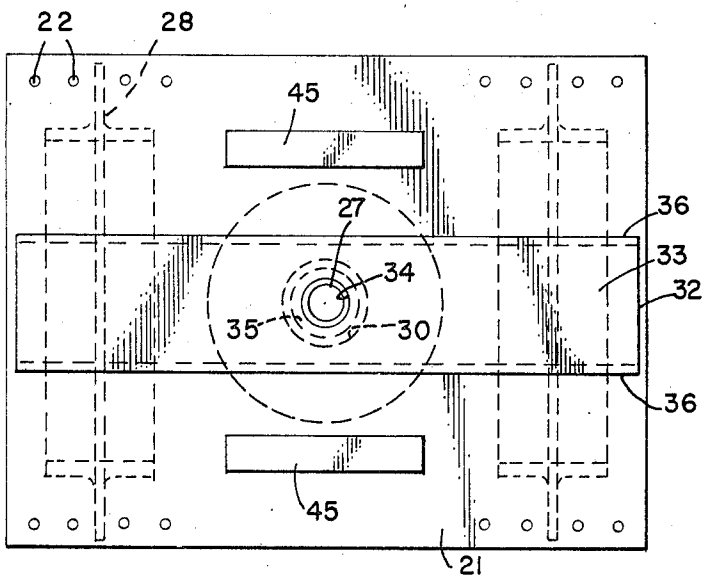

FIG. 2

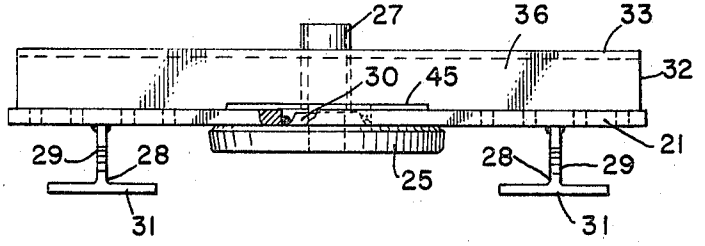

FIG. 3

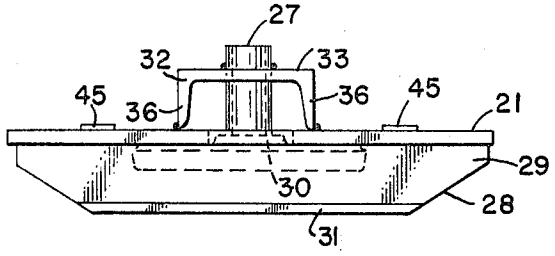

FIG. 4

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BODY BOLSTER CENTER PLATE ASSEMBLY

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Int. Cl. B61f 5/16, 1/00; F16c 17/00

The present invention relates to railway cars and more particularly to a new and improved center plate assembly for such railway cars.

It is a principal object of the present invention to provide a center plate construction which is of simple fabrication and of economical manufacture.

It is another object to provide a center plate assembly which is light weight and at the same time of the requisite strength to assume the stresses imposed thereon.

Further objects and features will hereinafter appear.

In the drawings:

FIG. 1 is a fragmentary perspective view of a typical cushion underframe of a railway car and showing the center plate assembly embodying the principles of the present invention attached thereto;

FIG. 2 is a top plan view of the center plate assembly;

FIG. 3 is a side elevational view of the center plate assembly; and

FIG. 4 is an end elevational view of the center plate assembly.

Referring now to the drawings and in particular to FIG. 1, there is shown a cushion underframe **10** of a railway car including a center sill **11** and bolsters **12** extending therefrom. Fixed adjacent to the bolster **12** for mounting the conventional truck bolster thereon is a center plate assembly **13** embodying the principles of the present invention. Slidably disposed within the center sill **11** for lengthwise movement thereof is a sliding sill **20**. Limiting this lengthwise movement is a cushion unit (not shown) which is arranged in the conventional manner for interaction between the center sill **12** and the sliding sill **15** to reduce the force of impacts applied at the couplers (not shown).

The underframe comprises the center sill **11** which may be of the substantially Z-section type including a top plate **14**, side webs **15**, and outwardly flaring side flanges **16** extending integrally from the lower ends of the side webs **15**. Fixed to the side webs **15** and to the outwardly flaring flanges **16** is the bolster **12** including a bottom plate **17** extending between a pair of longitudinally spaced side webs **18**. Fixed across the upper ends of the side webs **18** is a top plate **19**.

The sliding sill may be formed similarly to the center sill **11** including a top plate **41**, side webs **43**, from the lower edges of which there extend horizontal flanges **42**. The horizontal flanges **42** rest on the center plate assembly **13** as more fully to be explained hereinafter.

The center plate assembly **13** includes a base plate **21** having a plurality of openings **22** along the sides of the plate **21** which are spaced complementary to openings formed in the outwardly flaring flanges **16** of the center sill **11** and receive bolts **23** which are suitably fixed by nuts **24**. In this manner the center plate assembly **13** is fixed to the underside of the center sill **11** in alignment wih the bolster **17**.

The base plate **21** is provided at the center thereof with a downwardly depending male center plate **25** having an axial opening **26**. The center plate **25** is adapted to seat within a complementary female recess or bowl formed in the truck bolster (not shown) in the usual manner. Projecting upwardly from the inner face of the center plate **25** is a boss **30** which is received within an opening **35** and welded therein. Extending from the upper face of the boss **30** and located axially with respect to

the opening **26** is a cylindrical pipe **27** which receives the king pin for connecting the truck to the center plate **25**. The pipe **27** is fixed to the boss **30** by means of welding.

To assume the lateral compression loading imposed on the center plate assembly **13** by the shear load imposed on the center sill **11** are longitudinally spaced and transversely extending beam members **28**. As shown, the beam members **28** are the equivalent of an H-beam and are of substantially T-shaped cross section including a vertical flange **29** and a horizontal flange **31** spaced from the base plate **21**. The horizontal flange **31** is of sufficient width or area to assume the lateral compression loading created by the shear loading transmitted along the length of the center sill **11**. The horizontal flange **31** accomplishes this result with a minimum amount of weight and eliminates the extremely cumbersome and heavy structure employed heretofore.

It is to be noted that the vertical leg or web **29** is fixed at its free end to the underside of the base plate **21** by means of welding. Moreover, the leg **29** is disposed between two pairs of the four openings **22** located in the base plate **21**. This facilitates the welding of the transverse T-members **28** to the underside of the base plate **21** so that the welding may be accomplished either at a location remote from the center sill as a sub-assembly or when the base plate is assembled on the center sill **11**. The welding is achieved by the semi-automatic type which insures a better joint at the vertical leg and the base plate **21**.

Extending across the upper surface of the base plate **21** is a U-shaped channel member **32** having a horizontal web **33** in which there is formed an opening **34** which receives the pipe **27**. The pipe **27** assists as a locating member for the channel **32** which serves to assume the shear stresses imposed on the center plate assembly **13**.

The channel **32** is fixed to the upper side of the plate **21** by means of welding extending along the lower edge of the downwardly depending legs **36**. It is to be noted that the weld located in this position permits access of the semi-automatic type of welding equipment for the attachment and thereby facilitates the production and the manufacture of the center plate assembly. At the same time the utilization of a channel member reduces the bulk and weight of the reinforcements used heretofore. Fixed to the upper face of the plate **21** and disposed on opposite sides of the pipe **27** are wear plates **45**. The wear plates **45** may be engageable with wear plates (not shown) fixed to the flanges **42** of the sliding sill member.

What is claimed is:

1. A center plate assembly for a cushion underframe railway car, said center plate assembly comprising a base plate, a center plate fixed to said base plate and having a circular opening, an open ended tube mounted on one side of said center plate in co-axial alignment with said circular opening, a pair of longitudinally spaced reinforcing members of substantially T-section having a vertical leg and a horizontal leg, said terminal end of said reinforcing members being fixed to the underside of said base plate on opposite sides of said center plate, a channel member including a horizontal web and vertical legs depending from the side edges of said web, means fixing the terminal ends of said downwardly depending legs to said top side of said base plate, and an opening in said horizontal web accommodating said cylindrical tube therein.

2. A center plate assembly for a cushion underframe railway car, said center plate assembly comprising a base plate, a center plate fixed to said base plate and having an axial circular opening, an open ended tube mounted on one side of said center plate in coaxial alignment with said circular opening, a pair of longitudinally spaced reinforcing members each having a vertical leg and a horizontal

web extending from one end of said leg, said other end of each of said reinforcing members being fixed to the underside of said base plate on opposite sides of said center plate to support said horizontal web in vertical spaced relationship to said base plate, a channel member including a horizontal web and vertical legs depending from the side edges of said web, means fixing the terminal ends of said downwardly depending legs to said top side of said base plate, an opening in said horizontal web accommodating cylindrical tube therein.

3. The invention as defined in claim 2 wherein said center plate is formed with a boss, and said base plate is formed with an opening in which said boss is fixed.

4. The invention as defined in claim 3 wherein said cylindrical tube is fixed to said boss.

5. A center plate assembly for a cushion underframe railway car, said center plate assembly comprising a base plate, an opening in said base plate, a center plate fixed to said base plate and having a circular opening, said center plate having a boss formed on one face of said center plate and disposed in said center plate opening, weld means fixing said boss in said opening, an open ended cylindrical tube fixed to said boss in coaxial alignment with said center plate circular opening, a pair of longitudinally spaced reinforcing members of substantially T-section having a vertical leg and a horizontal leg, the terminal ends of said reinforcing members being fixed to the underside of said base plate on opposite sides of said center plate, a channel member including a horizontal web and vertical legs depending from the side edges of said web, means fixing the terminal ends of said downwardly depending legs to said top side of said base plate, an opening in said horizontal web accommodating said cylindrical tube therein.

6. A center plate assembly for the underframe central sill of a railroad car, said center plate assembly comprising:

a flat base plate adapted for attachment to the lateral underside portions of the central sill and being provided with an aperture,

a center plate having an apertured portion being attached to the apertured portion of said base plate,

a channel member adapted to be extended longitudinally with the central sill of the car and mounted on top of said flat base,

said channel member having upright side portions attaching with said base plate to define therewith and with its top portion a box section beam to carry the center plate load in torsion and bending longitudinally with the central sill,

inverted T section beams attached on opposite sides of said center plate to the underside of said base plate and being spaced longitudinally of one another and transverse to said channel member,

each T section defining with said base plate a composite I-beam which receives the center plate load and distributes the load to the central sill.

7. The invention according to claim 6, and

a guide for the center pin received in the apertured portion of the center plate and extendable thereabove,

said channel member having its top apertured in receiving said guide for supporting same.

8. A railroad car having an underframe central sill means and a pair of center plate assemblies at opposite ends of the car sill means, each center plate assembly comprising:

a flat base plate attached to the lateral underside portions of the central sill and having an apertured portion,

a center plate having an apertured portion being attached to the apertured portion of said base plate,

a channel member extending longitudinally within the central sill means of the car and mounted on top of said flat base,

said channel member having a top portion and upright side portions attaching with said base plate to define therewith and with its top portion a longitudinally extending box section beam to carry the center plate load in bending longitudinally of the central sill and in torsion,

inverted T section beams attached on opposite sides of said center plate to the underside of said base plate and being spaced longitudinally of one another and transverse to the channel member,

each T section defining with said base plate a composite I-beam which receives the center plate load and distributes the load to the central sill.

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U.S. Cl. X.R.

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