Dec. 25, 1934. T. H. SYMINGTON 1,985,469

RAILWAY CAR TRUCK BOLSTER

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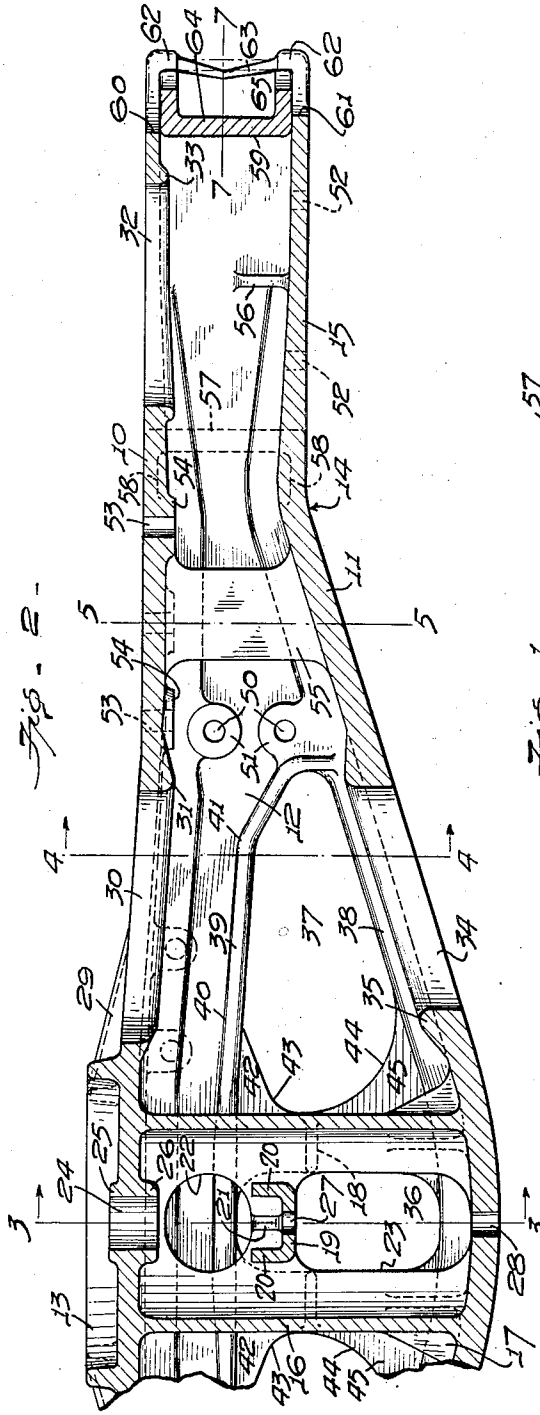


Fig. 2.

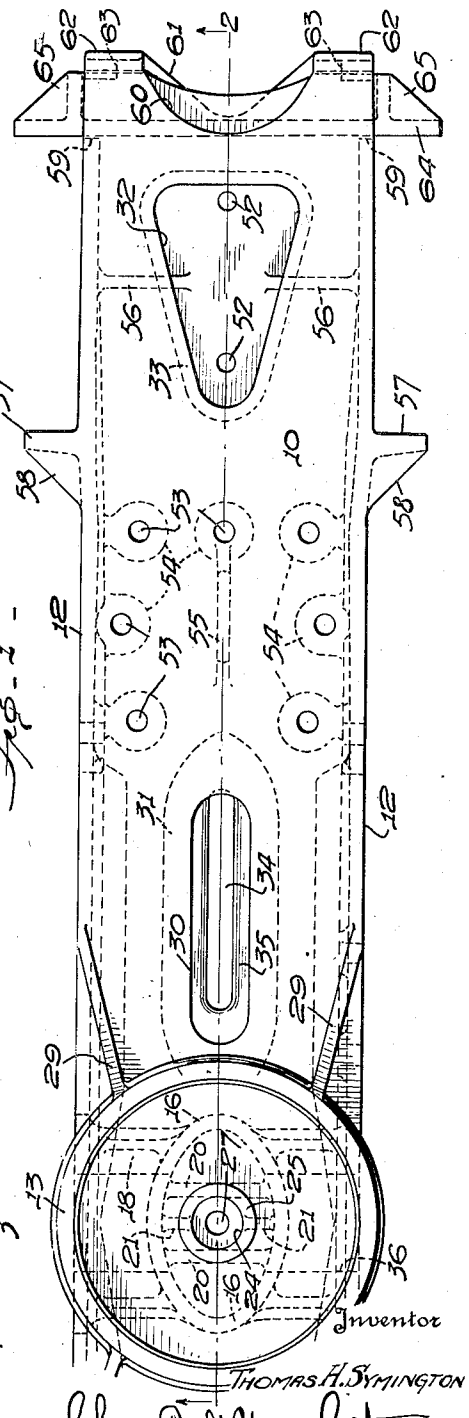


Fig. 1.

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Fig. 3.

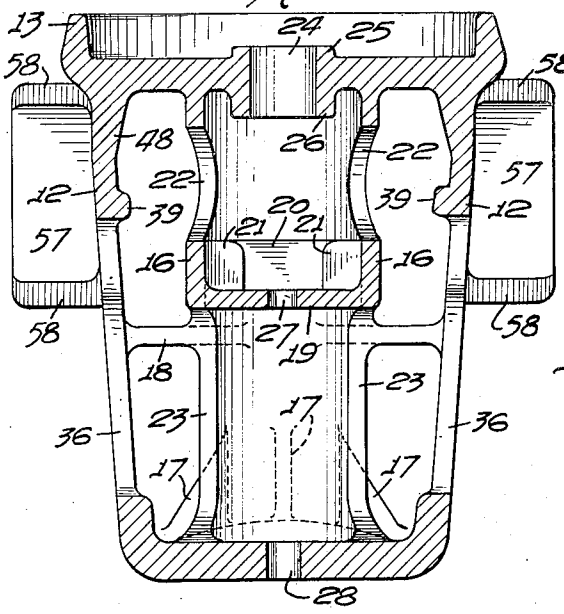


Fig. 5.

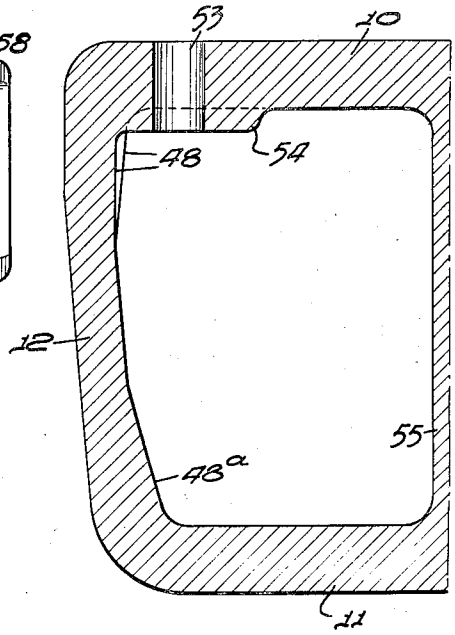


Fig. 4.

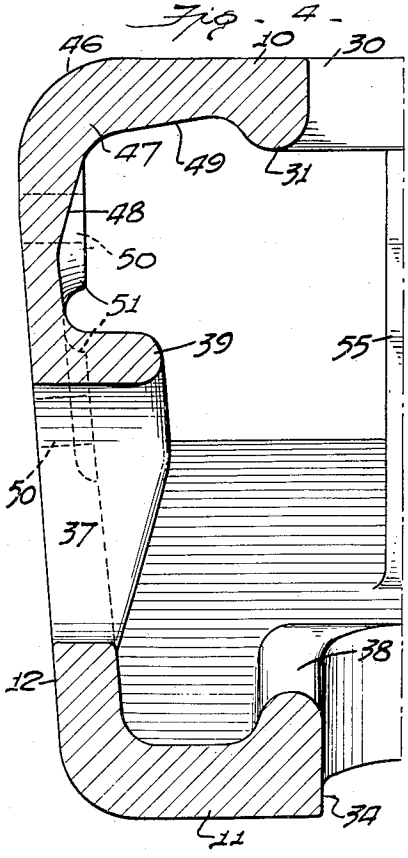


Fig. 6.

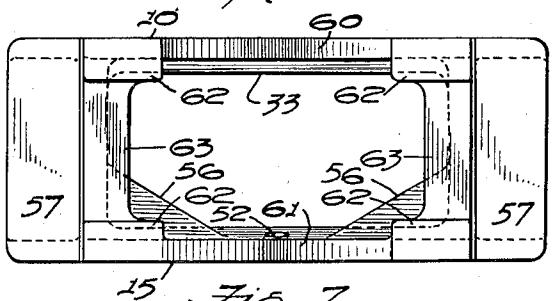
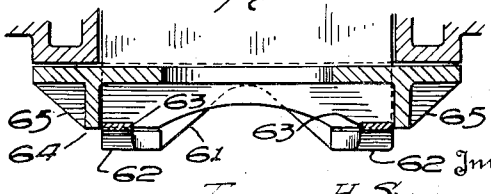


Fig. 7.



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Patented Dec. 25, 1934 1,985,469

UNITED STATES PATENT OFFICE

1,985,469

RAILWAY CAR TRUCK BOLSTER

Thomas H. Symington, Baltimore, Md., assignor to T. H. Symington & Son, Inc., Baltimore, Md., a corporation of Maryland

Application October 27, 1930, Serial No. 491,576

28 Claims. (Cl. 105—230)

The invention relates to railway car trucks and has special reference to the bolsters thereof.

The principal object of the invention, generally stated, is to provide a novel and improved bolster for railway car trucks, particularly for use in or to form a part of a truck of that type in which the spring plank is eliminated, for example as disclosed in my co-pending application for patent for Railway car trucks, filed July 31, 1930, Serial No. 472,116.

Generally speaking and by way of introduction, it should be remembered that by eliminating the spring plank a railway car truck can be greatly reduced in weight and the cost can be decreased owing to the fact that there is one less part necessary. Furthermore by eliminating the spring plank there is no danger of cocking or tilting the side frames with respect to each other as the result of manufacturing variations in the length of bolsters supposed to be uniform in size. In addition, the elimination of the spring plank makes it possible to use a bolster of greater depth than what is considered the A. R. A. standard so that greater strength with less weight may be had. Of course with the elimination of the spring plank it is quite apparent that the bolster then becomes the only element which holds the side frames square. It is therefore proper that the bolster be made sufficiently strong to take any twisting strains which might come upon it, that its column engaging lugs be increased in area to give a greater bearing against the side frame for reducing the wear, and that adequate means be provided cooperating with the side frame and the bolster for holding them in the proper relative positions. These features are discussed in said co-pending application but are repeated here for the sake of clearness.

It is with all of the foregoing facts and conditions in view that I have divised the present invention which has for an important object the provision of a bolster which is not limited for use in a truck of the spring plankless type and which will possess the maximum strength throughout and therefore capable of successful and prolonged use in trucks beneath high capacity cars.

Another object of the invention is to provide a truck bolster of the cast type in which the various component parts, surfaces, angles and curves are so related as to produce a bolster having what may be considered the maximum strength for resisting cantilever strains and withstanding transverse loading without any danger of buckling at any point or points, and that, too, while reducing the weight by judicious coring and reduction of the thickness of the metal at neutral points, the ultimate result of the novel design being greatly increased strength with decreased weight.

Another object of the invention is to provide a bolster of this character which is adapted to be used in connection with the conventional type of center plate and side bearings, the former being received within a center bearing of ordinary design except in so far as its bracing is concerned and the latter being adapted to be mounted upon the top of the bolster as is customary.

Another object of the invention is to provide a bolster having its ends so constructed that the coacting side frames may be removed by pulling them directly outward without lowering the bolster.

Another object of the invention is to provide a bolster having its ends so constructed that the outside guide lugs are removable.

Another object of the invention is to construct a bolster so that, upon cooling of the metal after pouring, the cores may be so arranged that, as the cooling strains are applied, the cores may yield through openings provided on the neutral axis of the bolster, thus reducing foundry losses due to cooling cracks often appearing in bolster castings.

Another object of the invention is to provide a bolster which, if made of a depth which will not cause it to interfere with the spring plank, may be used in an ordinary type of truck in which the spring plank is not eliminated.

Yet another object is to provide a bolster which will not cost more to produce than one of ordinary design and which in addition to the points of advantage above stressed will be a distinct improvement in the art.

To the attainment of the foregoing and other objects and advantages, the invention preferably consists in the detailed construction, combination, location and relative positions of body elements, walls, surfaces, reinforcing ribs, webs and the like to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings in which:

Figure 1 is a top plan view of a portion of a bolster constructed in accordance with my invention, one end being broken away as both are the same,

Figure 2 is a central vertical longitudinal section taken on the line 2—2 of Figure 1,

Figure 3 is a vertical cross sectional view taken on the line 3—3 of Figure 2,

Figure 4 is a cross section taken on the line 4—4 of Figure 2,

Figure 5 is a similar view on the line 5—5 of Figure 2,

Figure 6 is an end elevation,

Figure 7 is a fragmentary horizontal section on the line 7—7 of Figure 2.

Referring more particularly to the drawings I have shown the bolster as conforming in some respects to the usual practice in so far as the general shape is concerned, the features of radical departure being structural and internal. This bolster is formed in one piece as a casting and comprises an elongated body including a top wall 10, a bottom 11 and sides 12, the bottom being of less width than the top and the sides sloping upwardly and outwardly so that the body will be trapezium shaped in cross section. The top 10 of course constitutes a compression member while the bottom 11 constitutes a tension member. The top 10 is substantially horizontal throughout its major portion but inclines upwardly to a slight extent toward the center bearing which may be the usual upstanding circular flange 13 and which is adapted to receive and cooperate with the ordinary type of center plate which depends from the body bolster, not shown. The bolster is of maximum depth at its center and the bottom 11 inclines or slopes upwardly from the center to the point 14 from which it extends horizontally, the resultant end portion 15 being consequently of much less depth so as to conform substantially to the general standard and so that the usual nest of truck springs, not shown, may be engaged beneath the end within the window opening of the side frame, not shown. Other details in regard to the cooperation of the bolster with the side frame will be given later on.

At its center the bolster is preferably of greater depth than the standard, this being permissible for the reason that in a truck in which the spring plank is eliminated the increased depth will not cause any interference such as would take place if a plank were present. The bottom wall 11 is rather gently curved at the portion of maximum depth, as clearly shown. To provide strength and rigidity at the center where the weight is borne, I provide a spool-like construction involving an upright tubular thrust member 16 here disclosed as elliptical in cross section with its major axis lying along the longitudinal center line of the bolster. This thrust member merges into the top wall of the bolster within the confines of the ring 13 and merges at its lower end into the bottom of the bolster, it being preferable at the latter mentioned location to provide a plurality of triangular webs 17 which merge into the exterior of the thrust member and into the bottom of the bolster. There are also provided horizontal webs 18 which merge into the exterior of the member 16 and into the sides 12 of the bolster as clearly indicated in Figure 3. The member 16 is additionally strengthened by an internal transverse web 19 at the transverse edges of which are upstanding ribs 20 between which are webs 21. There is no necessity for the wall of the thrust member 16 to be solid and I have therefore shown it provided, above and below the transverse member 19, with openings 22 and 23 respectively which are judiciously proportioned so as to decrease the weight without sacrificing strength, this skeleton-like construction being really preferable to solid in accordance with sound principles of foundry practice.

Within the confines of the ring 13 which constitutes the center bearing the top wall of the bolster is formed with an opening 24 around which the metal is thickened upwardly and downwardly as at 25 and 26 for the sake of strength, the purpose of the opening being to receive the king pin, not shown, ordinarily provided at the middle of a center plate. While it may not be vitally necessary the partition member 19 is shown as provided with an opening 27 and the center of the bottom of the bolster is shown as formed with an opening 28 which will permit the escape of any water which might by any chance enter within the member 16 and cause rusting out thereof.

As the compressive strains on the bolster are highest at that area adjacent the ring or flange 13 where the latter approaches the sides of the bolster, I preferably provide the top wall 10 with upstanding ribs 29 located at this area, these ribs rising from the bolster top at some little distance from the ring, converging toward the interior thereof, and merging into its periphery, the purpose of the ribs being to divert the high compression strain which works down the top edge of the bolster and to deflect a part of this strain into the center plate ring 13.

In order to reduce the weight, I have shown the top of the bolster as provided near the ring 13 with an elongated opening 30 extending longitudinally, the metal on the underside of the top wall 10 being thickened at the edges of this opening to form a bead 31 acting as a reinforcement so that greater stiffness will be had. Likewise at the reduced end portion 15 the top wall is formed with an opening 32 here disclosed as of triangular shape with the metal thickened at the underside of the top and around this opening to provide a reinforcing bead 33 which is likewise continuous. For a similar reason the bottom of the bolster is shown as provided, substantially in line beneath the opening 30 with an opening 34, the metal at the inner surface of the bottom wall being thickened at the edge of the opening to define a stiffening bead 35.

For additionally decreasing the weight and also improving the structural characteristics of the bolster, the opposite sides are preferably formed at the center or opposite the openings 23 in the thrust member 16 with openings 36, and adjacent but outwardly of the thrust member 16 with other openings 37. The openings 36 and 37 extend downwardly fairly close to the bottom of the bolster but have their upper edges terminating considerably below the top thereof. The bottom is preferably of greater thickness than the sides, at least the major portion of the sides, and the material of the bottom is continued on up to form thickened portions 38, or ribs as they may be called, at the lower edges of the openings 36 and 37, it being noted that these ribs are continuous and that they merge at their ends into thickened portions or beads 39 which extend about the outer ends of the openings 37 and along the upper edges thereof, these beads 39 being continuous and extending across the center of the bolster, or in other words along the top of the openings 36. The portions of the material above the openings 37 will constitute compression members in the same sense as the top of the bolster and as it is known that compression members buckle if they are unduly long I reduce the length of these portions by increasing the depth of the side walls diagonally downward from the points 40 and 41, the downward prolongation of the material between the ribs 39 and

the thrust member 16 being indicated at 42. Furthermore as it is known that wherever a change in direction takes place in a tension or compression member secondary stresses are set up unless the member is braced against the adjacent members at the points of direction change, I provide curves 43 and 44 of relatively large radius at the inner ends of the openings 37. In other words at the lower inner corners of the openings 37 the side walls have extensions 45 functioning in the same manner as the above mentioned extensions 42, the extensions 42 and 45 both merging into the vertical side wall tie. The provision of these extensions 42 and 45 has the effect of shortening the beam length of the metal above the openings 37 so that compression strains at this locality will be more effectively counteracted or resisted, this being advisable as the point of tangency of the convex tension side with the upwardly inclined tension member is a considerable distance off-center with respect to the vertical axis of the bolster.

As the stress on the top of the bolster is greatest at the upper longitudinal edges I have found it preferable that these edges or corners be rounded off at a rather gentle curvature, at least at the intermediate portion of the bolster, as clearly indicated at 46 in Figure 4, this increase in curvature giving a greater surface area to resist the stress. Throughout the intermediate portion of the bolster, that is to say up to near the ends 15, the metal at these upper longitudinal edges or corners is appreciably thickened, as shown at 47, by the simple expedient of providing upwardly converging beveled surfaces 48 on the inner faces of the side walls merging into downwardly and outwardly beveled surfaces 49 on the underside of the top wall. The beveling on the underside of the top is shown as omitted at the lines of sections 3—3 and 5—5, as at these points the metal is thickened by bosses. Reinforcement of the lower edges of the bolster is effected by a bevel on the side wall providing increased thickness as at 48^a. This beveling inside the bolster reinforces it, particularly the end portions thereof, at its most critical points for deflection of the ends which usually deflect at the points 14 where the upwardly and outwardly tapering bottom portions merge into the vertically reduced end portions.

At a plurality of points the sides have small holes 50 therethrough and surrounding them the metal is thickened to provide bosses 51. Beneath the triangular openings 32 near the ends the bolster may be provided in its bottom with other small holes 52 for the reception of projections formed on the coacting face of spring nests.

It is intended that the bolster be equipped with side bearings of conventional design and though they are not illustrated, the bolster is shown as provided in its top with a plurality of holes 53 for the reception of whatever securing elements, generally rivets, are used for mounting the side bearings. About these holes the metal of the top is thickened at its underside to provide reinforcing beads 54 compensating for the reduction in metal caused by the provision of the holes. As it is quite obvious that considerable compression strain is exerted upon the top wall of the bolster at the areas beneath the side bearings, I have shown each end portion of the bolster as provided with an upstanding web 55 which traverses the space between the top and bottom walls and which merges into both thereof. The bolster is additionally reinforced at its interior by transversely extending webs 56 which are located within the reduced end portions 15 and which merge into the bottom wall and also into the sides. There is no necessity for continuing the beveled surfaces 48 and 49 beyond these webs 56.

The bolster is of course intended to traverse the space between the truck side frames with its ends 15 received within the usual window openings so as to be supported by the nests or clusters of springs. The opposite sides of the bolster are therefore formed with laterally projecting lugs 57 backed up by inclined brace webs 58 and adapted to cooperate with the inner faces of the side frames for the purpose of preventing the bolster from shifting longitudinally. As this bolster is intended primarily for use in a truck in which the ordinary spring plank is eliminated it is preferable that these lugs be of greater size than customary so as to increase the bearing area and consequently reduce the wear on the column guides and on the lugs themselves.

For assisting in taking the lateral or end thrust and also to insure the proper squared relation of the bolster with respect to the side frames, recourse may be had to the same scheme of construction and arrangement disclosed in said co-pending application but for the sake of clearness this feature is shown and described in this case. The bolster preferably has each end portion formed with openings 59 in its opposite sides, the top and bottom being partially cut away as indicated at 60 and 61 respectively, the material remaining between the side edges and these cut away portions 60 and 61 constituting flanges 62 which are connected by ties or webs 63 of reduced thickness, so as to be capable of bending for instance as the result of a blow from a sledge hammer. To avoid the use of additional cores in casting, these ties are preferably joined at their outer edges to the sides of the bolster. Extending transversely through the openings 59 is a retaining member 64 of channel shape in cross section having vertical webs 65 located outwardly of the bendable webs 63. When the bolster is assembled in a truck, to effect positive securing the member 64 is inserted through the openings 59 in each end of the bolster, subsequently to which the webs 63 are forced or bent inwardly as indicated by the full lines in Figure 2, these webs then projecting inwardly of the bolster in obstructing relation to the vertical webs 65 on the transverse member 64 so that the latter cannot move transversely of the bolster. Furthermore this inward bending of the webs 63 will tend to draw the flanges 62 toward each other into close gripping or clamping relation to the member 64, thereby holding the same against any looseness or rattling.

The bolster is intended particularly for use in the type of truck shown in the above-mentioned co-pending application and it will be seen that the truck may be constructed simply of three parts, namely the two side frames and the bolster, the transverse members 64 being considered a part of the former. The advantages of eliminating the spring plank have been carefully pointed out in said co-pending application and need not be herein repeated. Omitting the spring plank makes it possible to use a bolster of much greater depth or height than is ordinarily the case and it is for this reason that I have shown my improved bolster as of much greater depth at its center, the depth being in fact so great that if a spring plank were used it would interfere with the bolster. Of course the height

might be reduced so that the bolster could be used in a truck in which the spring plank is present, as this single feature does not detract from the other advantages of my bolster construction. Squaring of the bolster with respect to the side frames is effected by means of the greater length of bearing of the vertical ends of the bolster coacting with the increased width of side frame column guides. Throughout every portion of the bolster it will be observed that the detailed formation is such as to insure maximum strength with minimum weight. This is particularly to be observed in connection with the corner formation, the beveling of the top and sides at the inner surfaces and the similar beveling of the sides at the bottom providing increased thickness of metal at these points of strain. The beveling and thickening arrangement is such that the thickest part of the metal will be where the bottom of the bolster merges into the reduced end portions, it being well known that the shear lines are concentrated at this locality. Provision has been made to eliminate undue length of the side compression members so that they will not buckle under the most severe strains. In fact it is believed that a bolster constructed in this manner will have the greatest possible durability in service.

From the foregoing description and a study of the drawings it is believed that the construction, operation and advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that the disclosure is merely an exemplification of the principles involved as the right is reserved to make all such changes in the details of construction as will widen the field of utility and increase the adaptability of the device provided such changes constitute no departure from the spirit of the invention or the scope of the claims hereunto appended.

Having thus described the invention, I claim:

1. A truck bolster comprising a single cast body including a top, a bottom and side walls, the sides and the top wall being inclined on their inner surfaces at their junctures to provide greater thickness than that of the top or the side walls for reinforcing purposes.

2. A truck bolster comprising top, bottom and side walls, and having both the side and top walls beveled to provide increased thickness.

3. A railway car truck bolster comprising top, bottom and side walls, the juncture of the top and side walls being rounded at the exterior along a curve of relatively large diameter, and the inner surfaces of the top and side walls being beveled at their juncture to increase the thickness of the metal at their junctures.

4. A railway car truck bolster comprising top, bottom and side walls, the latter converging downwardly, the inner faces of the side walls being beveled or angular and converging downwardly at the junctures of the side walls with the bottom to increase the thickness of metal at the lower longitudinal edges, the metal between the edges being of substantially uniform thickness.

5. A railway car truck bolster comprising a single cast body including a top, bottom and side walls, the latter converging downwardly, the bottom wall being convex at the center and inclined upwardly toward points spaced inwardly from the ends whereby said ends will be of reduced height for disposition upon spring nests in side frames, the bottom wall being of gradually reduced thickness from the ends of the inclined portion to the intermediate portions of said reduced ends, and webs formed on the sides and merging into the bottom at said intermediate portions.

6. A railway car truck bolster comprising a single cast body including a top, bottom and side walls, the latter converging downwardly, the bottom wall being convex at the center and inclined upwardly toward points spaced inwardly from the ends whereby said ends will be of reduced height for disposition upon spring nests in side frames, the bottom wall being of gradually reduced thickness from the ends of the inclined portion to the extremities, the inner surfaces of the top and sides being formed to increase the thickness at the longitudinal upper edges.

7. A railway car truck bolster comprising a single cast body including a top, bottom and side walls, the latter converging downwardly, the bottom wall being convex at the center and inclined upwardly toward points spaced inwardly from the ends whereby said ends will be of reduced height for disposition upon spring nests in side frames, the bottom wall being of gradually reduced thickness from the ends of the inclined portions to the extremities, the inner surfaces of the top and sides being formed to increase the thickness at the longitudinal upper edges, the maximum cross sectional thickness of metal in proportion to the cross sectional area of the bolster being at the junctures of the inclined portions of the bottom wall with said reduced end portions.

8. A truck bolster formed as a single cast body comprising a top, a bottom and side walls, the latter converging downwardly, an upright thrust member extending between and merging into the top and bottom at the center of the bolster, a center bearing formed on the center of the top, said thrust member being formed interiorly with transverse reinforcing webs, and a plurality of horizontally disposed webs merging into the exterior of said thrust member and into the sides.

9. A truck bolster formed as a single cast body comprising a top, a bottom and side walls, the latter converging downwardly, an upright thrust member extending between and merging into the top and bottom at the center of the bolster, a center bearing formed on the center of the top, said thrust member being formed interiorly with transverse reinforcing webs, a plurality of horizontally disposed webs merging into the exterior of said thrust member and into the sides, and a plurality of inclined reinforcing webs merging into the exterior of said thrust member at the lower portion thereof and into said bottom.

10. A railway truck bolster formed as a single casting and including a top, a bottom and sides connecting the same, a centrally located thrust member connecting the top and bottom and connected by horizontal pairs of webs with the sides, the top having an upstanding flange concentric with the center of said thrust member for receiving the center plate of a body bolster, and ribs formed on the top and extending from the side edges thereof in converging relation toward the vertical axis of the bolster and merging into said flange.

11. A bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a vertically extending hollow thrust member at the center connecting the top and bottom, the opposite sides being formed outwardly of but

adjacent said thrust member with openings having their upper and lower edges substantially parallel with the top and bottom, the metal between the openings and the top defining compression members, the metal between the openings and the top being prolonged downwardly at an angle at the inner ends of the openings to reduce the beam length of the compression members.

12. A bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a vertically extending hollow thrust member at the center connecting the top and bottom, the opposite sides being formed with openings at said thrust member and being also formed outwardly of but adjacent said thrust member with other openings provided at their upper edges with continuous beads common to both, the metal between the openings and the top defining compression members, the metal between the openings and the top being prolonged downwardly below the bead at the inner ends of the openings to reduce the beam length of the compression members.

13. A bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a vertically extending hollow thrust member at the center connecting the top and bottom, the opposite sides being formed outwardly of but adjacent said thrust member with openings whereby the metal between the openings and the top will define compression members, the metal between the openings and the top being prolonged downwardly at the inner ends of the openings to reduce the beam length of the compression members, the metal at the outer ends and upper edges of said openings being thickened to define reinforcing beads, and the lower corners of the bolster having thickened portions coinciding with the lower edges of the openings.

14. A bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a vertically extending hollow thrust member at the center connecting the top and bottom, the opposite sides being formed outwardly of but adjacent said thrust member with openings spaced downwardly from the top whereby the metal between the openings and the top will define compression members, the metal between the openings and the top being prolonged downwardly at the inner ends of the openings to reduce the beam length of the compression members, the metal at the ends and upper edges of said openings being thickened to define reinforcing ribs, said ribs extending across the vertical center of the inner faces of the side walls.

15. A bolster comprising a body formed as a single cast body including a top, a bottom and sides connecting the same, the top being formed as a center bearing, a vertical thrust member located at the center and connecting the top and bottom beneath said center bearing, said thrust member being spaced from the sides and connected thereto by intermediately located transverse webs, the sides being formed opposite the center with openings and being formed with other openings spaced outwardly from said first named openings, and a rib formed on the inner surface of each side and extending from the outer ends of the second named openings, along the upper edges thereof, and across the space intervening between said second named openings and across the top of the first named openings.

16. A bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a center bearing at the center of the top, a vertically extending thrust member connecting the top and bottom at the center, said thrust member being substantially elliptical in cross section with the major axis of the ellipse extending longitudinally of the bolster, said thrust member being spaced from said sides, and pairs of horizontal webs projecting laterally from the thrust member and merging into the sides.

17. A bolster comprising a single cast body including a top, a bottom and sides connecting the same, the top being formed centrally with a center bearing, a vertical thrust taking member connecting the top and bottom beneath said center bearing, ribs on the top merging into the center bearing for diverting a portion of the high compression strain to the center bearing, the top and sides being formed with a plurality of openings with the material at the edges thereof thickened to provide reinforcing ribs, the ribs at the openings in the sides extending continuously along the sides from one side of the vertical axis to the other.

18. A bolster comprising a single cast body including a top, a bottom and sides connecting the same, the top being formed centrally with a center bearing, a vertical thrust taking member connecting the top and bottom beneath said center bearing, ribs on the top merging into the center bearing for diverting a portion of the high compression strain to the center bearing, the top and sides being formed with a plurality of openings with the material at the edges thereof thickened to provide reinforcing ribs, the ribs at the openings in the sides extending continuously along the sides from one side of the vertical axis to the other, the material at the inner ends of the openings in the sides being prolonged downwardly below said last named ribs to shorten the effective beam length of the compression members defined between the openings in the sides and the top.

19. A bolster formed as a single cast body comprising a top, a botttom and sides connecting the same, a vertically extending hollow thrust member at the center between the sides and connecting the top and bottom, the sides having openings spaced downwardly from the top, whereby the metal at the top of said opening forms the compression member and the metal below said opening forms the tension member, the metal between the openings and the top being prolonged downwardly at the inner ends of the openings to reduce the beam length of the compression members, the metal at the ends and upper edges of said openings being thickened to define reinforcing ribs, said ribs extending across the vertical center of the inner faces of the side walls.

20. A railway car truck bolster comprising a top, botttom and side walls, the junctures of the top and bottom with the side walls being rounded at the exterior along a curve of relatively large diameter, the inner surfaces of the top and side walls being bevelled to increase the thickness of the metal at their juncture, the inner surfaces of the bottom and side walls being bevelled near the ends of the bolster at their juncture to increase the thickness of the metal at this junction point.

21. A truck bolster comprising top, bottom and side walls, and having the inner faces of its side and top and bottom walls bevelled at their respective junctures to provide increased thickness.

22. A truck bolster formed as a single cast body comprising a top, a bottom and sides connecting the same, a vertically extending hollow thrust member at the center connecting the

top and bottom, the opposite sides being formed outwardly of but adjacent said thrust member with openings spaced farther downwardly from the top than upwardly from the bottom, the sides being formed with beads at the upper edges of said openings, said openings having their upper and lower edges parallel with the top and bottom of the bolster.

23. A truck bolster formed as a single cast body including top, bottom and side walls, the top being formed centrally with an upstanding flange constituting a center bearing, a vertical thrust member connecting the top and bottom beneath said center bearing, webs formed on the bottom wall and merging into the thrust member, transverse ties connecting the thrust member with the sides of the bolster, and a horizontal brace member extending across the interior of said thrust member and having at its transverse center line spaced webs merging into its bottom and into the sides of the thrust member.

24. A bolster comprising a single cast body including a top, bottom and sides connecting the same, the top being formed centrally with a center bearing, a vertical thrust member connecting the top and bottom beneath said center bearing, said thrust member being formed at an intermediate point with a horizontal tie trough shaped in cross section and being formed above and below the same with weight reducing openings, horizontal webs connecting the intermediate portion of the thrust member with the sides, diagonal webs merging into the sides and the lower portion of the thrust member at the exterior thereof, and vertical webs located within the thrust member and merging into the sides thereof and into said tie.

25. A bolster comprising a single cast body including a top, a bottom and sides connecting the same, the top being formed centrally with a center bearing, a vertical thrust member connecting the top and bottom beneath said center bearing and spaced from the sides thereof, the sides being formed beyond said thrust member with elongated openings, the sides being each formed with a continuous bead extending from the outer ends of said openings, along the upper edges thereof and across the intermediate portion of the bolster.

26. A bolster comprising a single cast body including a top, a bottom and sides connecting the same, the top being formed centrally with a center bearing, a vertical thrust member connecting the top and bottom beneath said center bearing and spaced from the sides thereof, the sides being formed beyond said thrust member with elongated openings, the sides being each formed with a continuous bead extending from the outer ends of said openings, along the upper edges thereof and across the intermediate portion of the bolster, said side walls being further provided each with a thickened portion below said openings extending continuously from the outer ends thereof across the intermediate portion of the bolster.

27. A truck bolster comprising a single cast body including a top, a bottom and sides connecting the same, the bolster being of greatest depth at its center and having its bottom inclined upwardly toward the ends and continued substantially horizontally to the ends defining an angle, the side walls being each formed with a beveled inner surface adjacent its juncture with the top to provide the maximum cross sectional thickness of material at said angle, said beveled surfaces extending part way of the length of the substantially horizontal end portions.

28. A truck bolster comprising a single cast body including a top, a bottom and sides connecting the same, the bolster being of greatest depth at its center and having its bottom inclined upwardly toward the ends and continued substantially horizontally to the ends defining an angle, the side walls being each formed with a beveled inner surface adjacent its juncture with the top to provide the maximum cross sectional thickness of material at said angle, said beveled surfaces extending part way of the length of the substantially horizontal end portions, and a vertically extending web connecting the top and bottom adjacent said angle.

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