Dec. 9, 1969 C. E. TACK 3,482,531

REINFORCED RAILWAY TRUCK BOLSTER

Filed Aug. 3, 1967 2 Sheets-Sheet 1

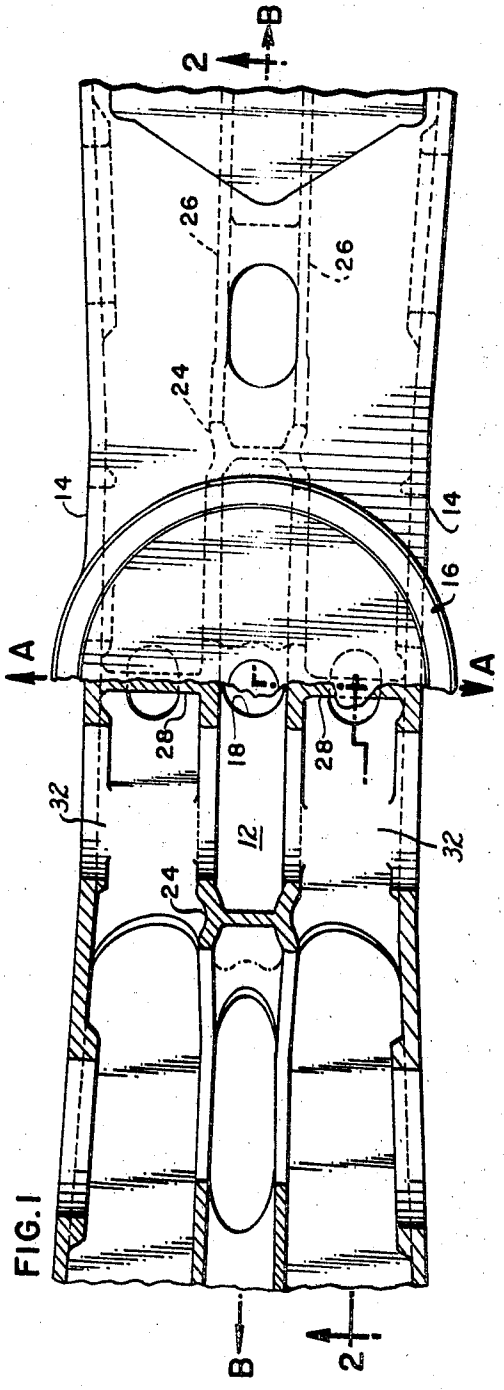


FIG. 1

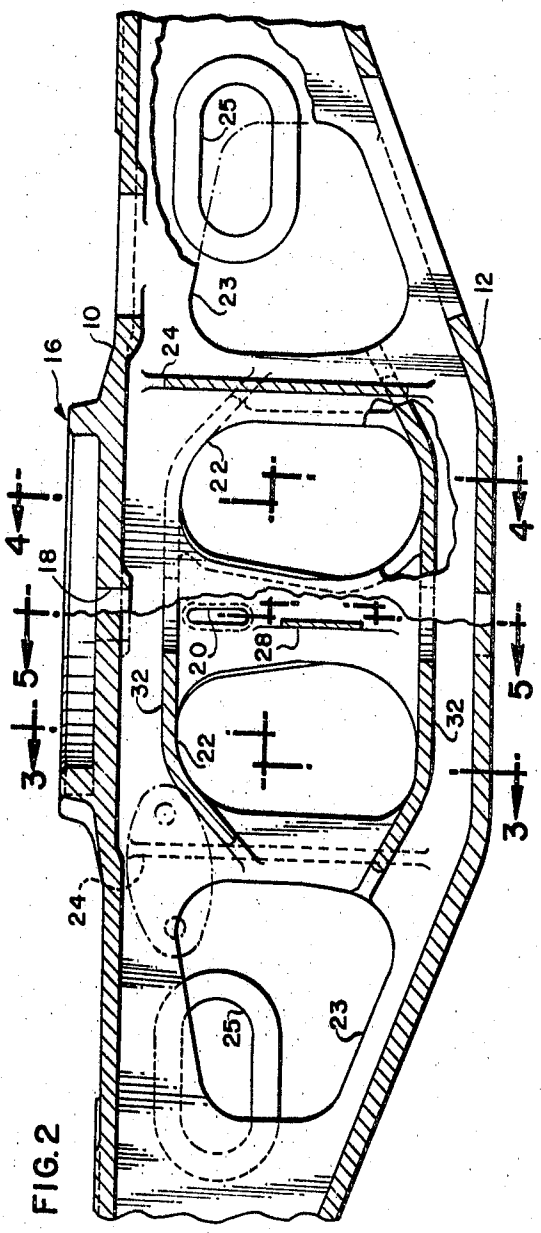


FIG. 2

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Dec. 9, 1969 C. E. TACK 3,482,531

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Filed Aug. 3, 1967 2 Sheets-Sheet 2

FIG.3

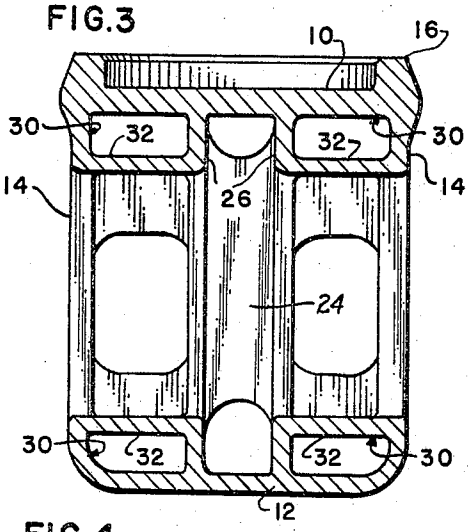


FIG.4

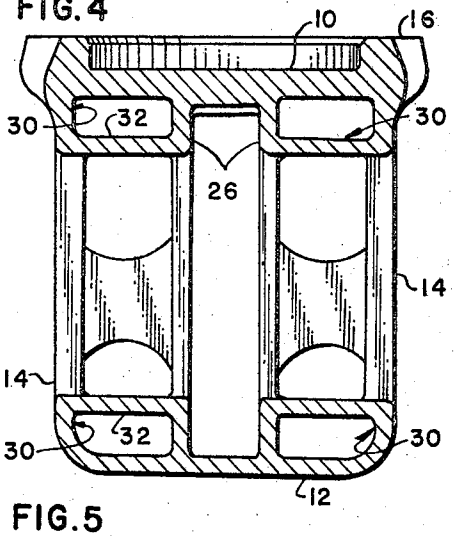


FIG.5

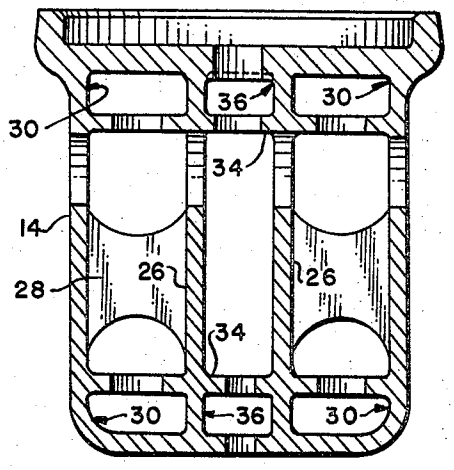


FIG.6

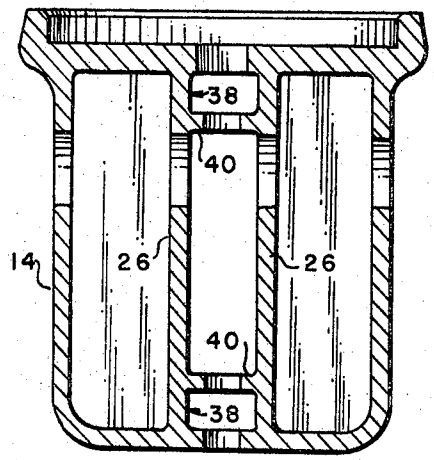
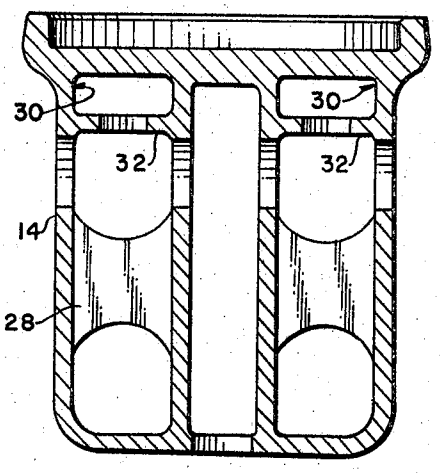


FIG.7



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REINFORCED RAILWAY TRUCK BOLSTER

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U.S. Cl. 105—226 13 Claims

ABSTRACT OF THE DISCLOSURE

In a railway truck bolster including elongated side walls interconnected by top and bottom walls, one or more box sections are provided in the internal structure of the bolster. The box sections preferably extend longitudinally at least beneath the center plate area of the bolster for improved strength qualities.

This invention relates to railway vehicles and more particularly to improvements in cast steel truck bolsters for such vehicles.

With the advent of larger railway vehicles and heavier loading of existing equipment, the need has arisen to structurally improve certain parts of the car truck that are subject to high stresses during actual service conditions. Various designs, such as the inclusion of large brake rod openings in the bolster may also require that additional reinforcement be added to other portions of the bolster.

Accordingly, an object of this invention is to provide an improved cast bolster design with considerably improved strength qualities that is capable of withstanding severe dynamic service loading notwithstanding the presence of large brake rod openings therein.

Other objects will become apparent from the following description and appended claims, taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is a top fragmentary view, partly in section, of a truck bolster that incorporates the features of the presently described invention;

FIGURE 2 is a side sectional view, taken substantially along section line 2—2 of FIGURE 1;

FIGURE 3 is a sectional view taken along section line 3—3 of FIGURE 2;

FIGURE 4 is a sectional view taken along section line 4—4 of FIGURE 2; and

FIGURES 5, 6 and 7 are sectional views showing several modifications of the present invention, said views being taken along a line corresponding to section line 5—5 of FIGURE 2.

With more particular reference to FIGURES 1–4, the bolster comprises a substantially horizontal top wall or compression element **10** and a bottom wall or tension element **12** that extends longitudinally upwardly from a central horizontal portion thereof. Elongated outer vertical side walls **14** extend between top and bottom walls **10** and **12**, respectively, along the length thereof to form an elongated box structure of greater vertical depth in the central portion of the bolster. A center plate **16** is centrally located on the top wall **10**, and a central aperture **18** is provided through the bolster for reception of a king pin (not shown). In addition, central aligned apertures **20** may be provided in each side wall **12** for reception of a king pin retainer (not shown). Brake rod openings **22** are provided through the side walls **14** on both sides proximate the central vertical axis thereof, and secondary openings **23** and **25** are provided on both sides distal from said axis, it being understood that the bolster is substantially symmetrical about its transverse vertical center plane A—A and longitudinal vertical center plane B—B (FIG. 1).

Within the bolster and slightly beyond the outer circumference of the center plate **16**, a pair of central vertical supports **24** are provided that extend between the top and bottom walls **10** and **12**, respectively. Vertical supports **24** are located between and interconnect a pair of spaced internal vertical walls **26** that extend for the entire length of the bolster substantially parallel to the longitudinal center plane B—B thereof. Transverse vertical webs **28** are provided between a central potrion of each side wall **14** and its adjacent internal vertical wall **26** along the transverse center plane A—A of the bolster.

In order to provide greater strength to the structure described above, one or more box sections, indicated generally at **30** (FIGS. 3 and 4), are provided in the internal structure of the bolster and extend longitudinally in said bolster from the transverse vertical center plane thereof, preferably beyond the diameter of the center plate. In the preferred embodiment shown, the box sections **30** are transversely spaced and adjoin the top or bottom and an adjacent side wall of the bolster and are formed by the addition of a transverse web **32** between an external side wall **14** and its adjacent internal vertical wall **26**, said web being spcaed from each of the top and bottom walls **10** and **12**, respectively. Especially where large brake rod openings **22** are to be provided, as shown in the present embodiment, it has been found preferable to include box sections **30** at both the top and bottom of the bolster, as shown.

As best shown in FIGURE 2, the transverse webs **32** forming the box sections **30** extend approximately between central vertical supports **24** and are curved to conform to the shape of the brake rod opening **22**. Thus, in the presently shown embodiment, the webs **32** curve inwardly around the openings **22** from a substantially horizontal central section thereof.

It should be understood that many other combinations of box sections may be advantageously used to provide a benefit similar to that provided with the preferred embodiment described above. For example, as shown in FIGURE 5, an additional transverse web **34** may interconnect the two internal vertical walls **26**, resulting in an additional, central box section, generally indicated at **36**, interconnecting the otherwise transversely spaced box sections **30**.

Another embodiment is shown in FIGURE 6. Here, a single box section, indicated generally at **38**, is formed by the provision of a single transverse web **40** between the internal vertical walls **26**, with the other transverse webs **32** being omitted.

Still another embodiment is shown in FIGURE 7, wherein the aforementioned box sections **30** are provided in the top of the bolster only, with the transverse webs **32** being omitted at the bottom. It should now be obvious that any combination of the above box sections, including one, two or three box sections at the top or bottom only, as well as one, two or three box sections at the top and bottom or any combination thereof would be feasible in the practice of the presently described invention.

Having thus described the invention, what is claimed is:

1. In a railway truck bolster including a top wall having a centrally disposed center plate, a bottom wall, and a pair of spaced side walls connected between said top and bottom walls, the improvement comprising a pair of spaced internal vertical walls connected between said top and bottom walls, and a horizontal web connected between said internal vertical walls and spaced from said top and bottom walls along its entire length, said horizontal web extending longitudinally within said bolster at least substantially the breadth of said center plate.

2. The invention according to claim 1 wherein a second horizontal web is connected between said internal ver-

tical walls and is spaced from said top and bottom walls and said first horizontal web, said second horizontal web extending longitudinally within said bolster at least substantially beneath said center plate.

3. The invention according to claim 2 wherein a horizontal web is connected between each of said internal vertical walls and its respective adjacent side wall, said last-mentioned web extending longitudinally within said bolster beneath said center plate.

4. The invention according to claim 1 wherein a horizontal web is connected between each of said internal vertical walls and its responsive adjacent side wall, said last-mentioned web extending longitudinally within said bolster beneath said center plate.

5. In a railway truck bolster including a top wall having a centrally disposed center plate, a bottom wall, and a pair of spaced side walls connected between said top and bottom walls, the improvement comprising a pair of spaced internal vertical walls connected between said top and bottom walls and spaced from said side walls, a pair of substantially vertical support members extending between said top and bottom walls and between said internal vertical walls, said vertical support members being spaced longitudinally in said bolster from the transverse vertical center plane thereof, and at least one horizontal web connected between said internal vertical walls and extending between said vertical support members, said horizontal web being entirely spaced along its entire length from said top and bottom walls.

6. In a railway truck bolster including a top wall having a centrally disposed center plate, a bottom wall, and a pair of spaced side walls connected between said top and bottom walls, the improvement in said structure comprising a pair of internal vertical walls spaced from said side walls and connected between said top and bottom walls, and a horizontal web connected between each of said internal vertical walls and its respective adjacent side wall, said horizontal webs extending longitudinally within said bolster at least substantially beneath the length of said center plate.

7. The invention according to claim 6 wherein a pair of said horizontal webs is provided in both the upper and lower portions of the bolster.

8. The invention according to claim 7 wherein a third horizontal web is connected between said internal vertical walls and extends longitudinally in said bolster beneath said center plate.

9. The invention according to claim 6 wherein a vertical web interconnects each of said side walls and its adjacent internal vertical wall along the transverse vertical center plane of said bolster.

10. The invention according to claim 6 wherein openings are provided in the side walls of said bolster, and wherein said horizontal webs curve around a portion of said openings.

11. The invention according to claim 6 wherein a pair of vertical support members are spaced longitudinally in said bolster from the transverse vertical center plane thereof and are connected between said top and bottom walls, and wherein said horizontal webs are connected between said vertical support members.

12. The invention according to claim 6 wherein a third horizontal web is connected between said internal vertical walls and extends longitudinally in said bolster beneath said center plate.

13. In a railway truck bolster including a bottom wall, a top wall having a centrally disposed center plate, and a pair of spaced side walls interconnecting said top and bottom walls, the improvement comprising a pair of internal vertical walls spaced from said side walls, a pair of vertical support members connected between said internal vertical walls and spaced longitudinally in said bolster from the transverse vertical center plane thereof, a vertical web connected between at least a portion of each internal vertical wall and its respective adjacent side wall, and at least one horizontal web connected between each side wall and its adjacent internal vertical wall, said horizontal web extending longitudinally in said bolster substantially beneath said center plate.

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105—229