June 10, 1941. K. R. HAMMERSTROM 2,245,272

CAR TRUCK BOLSTER

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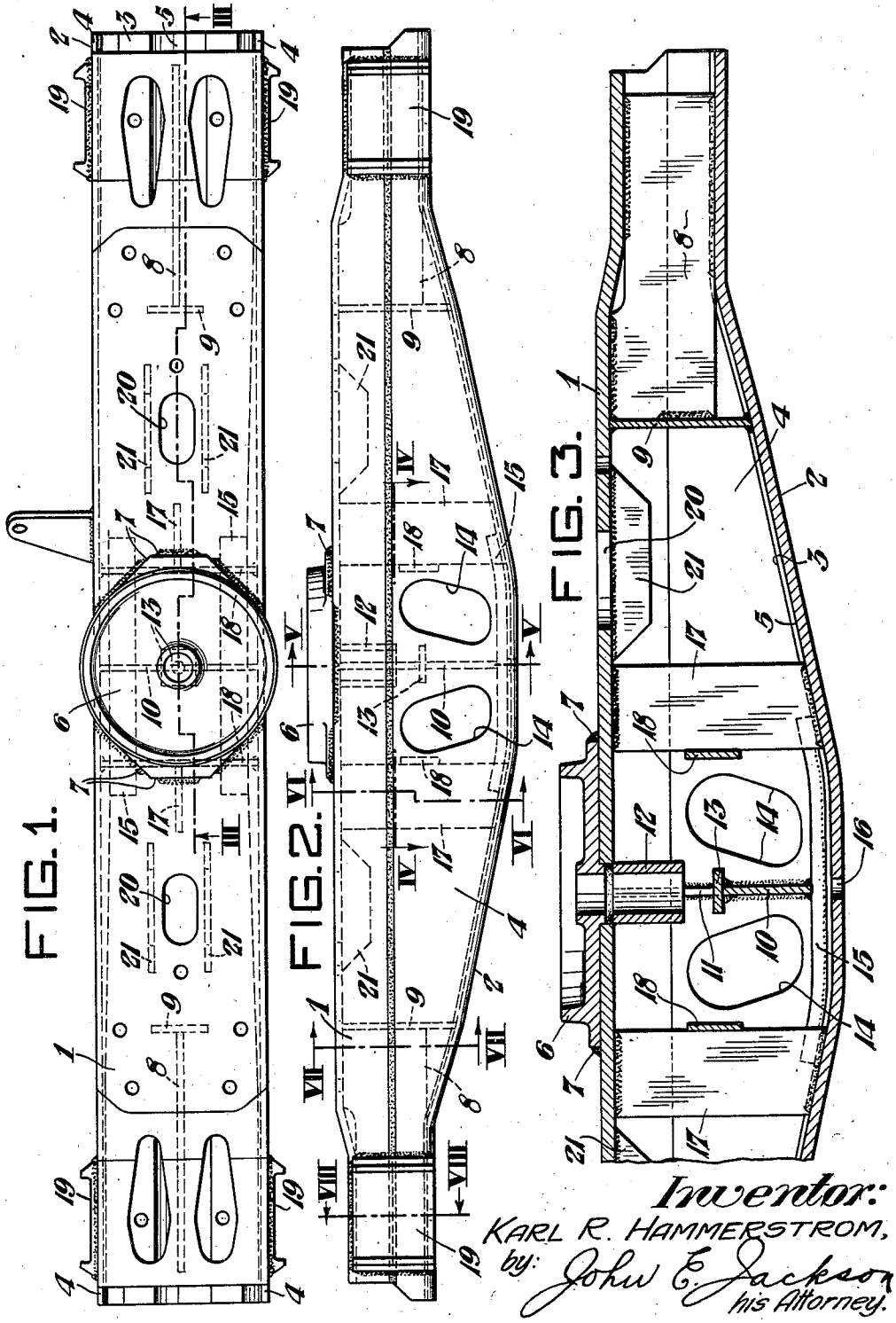


FIG. 1.

FIG. 2.

FIG. 3.

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FIG. 4.

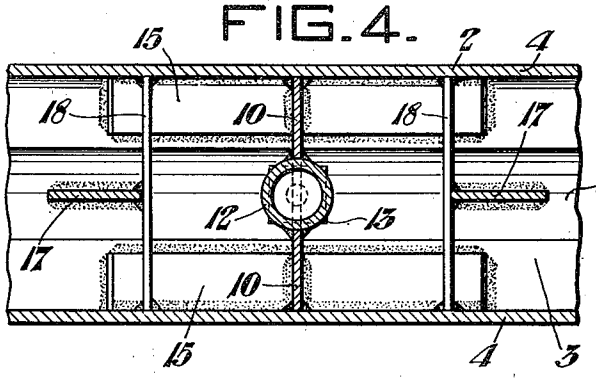


FIG. 5.

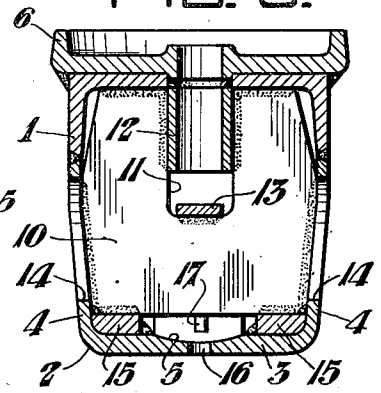


FIG. 6.

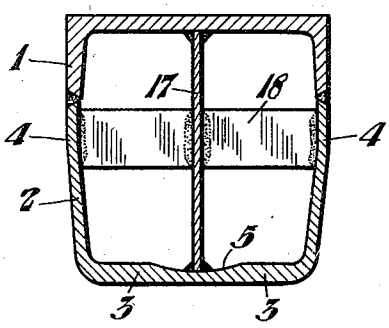


FIG. 7.

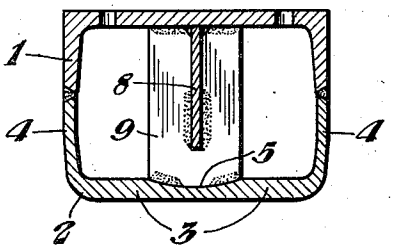


FIG. 8.

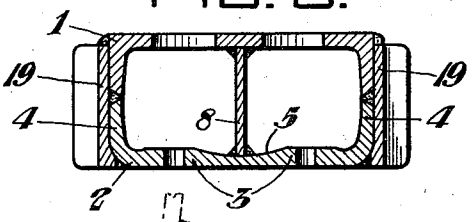
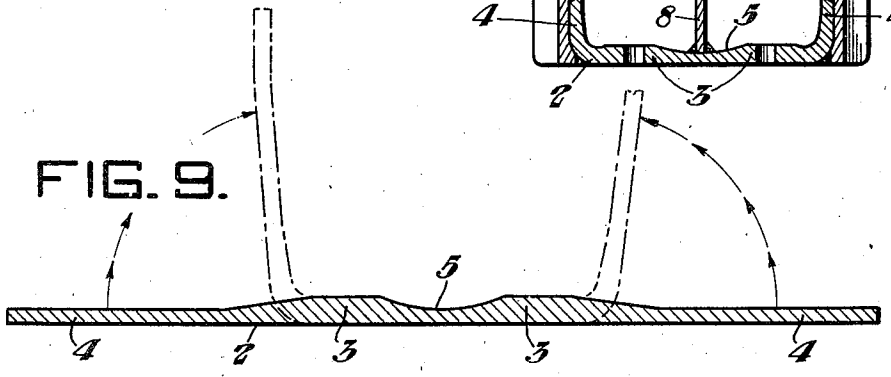


FIG. 9.



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FIG. 10.

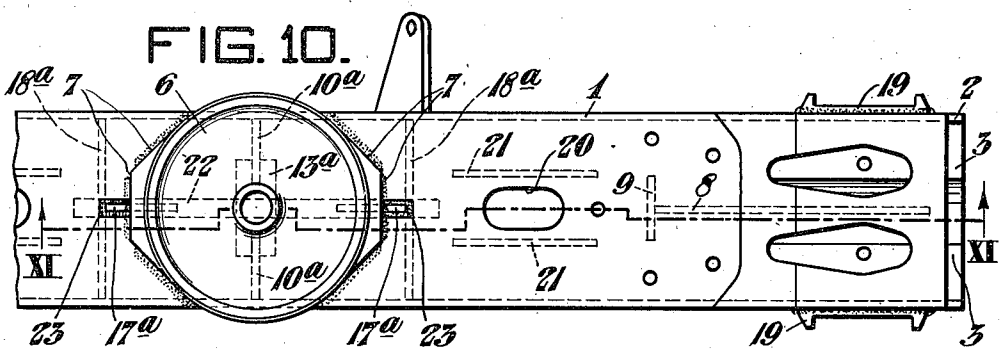


FIG. 11.

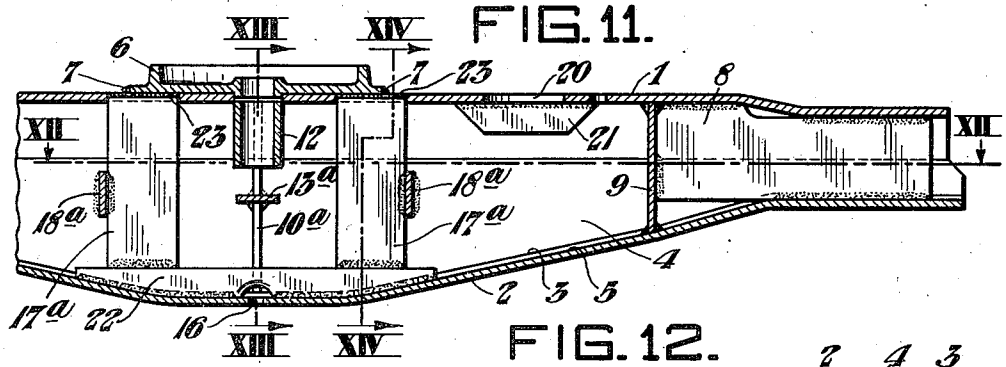


FIG. 12.

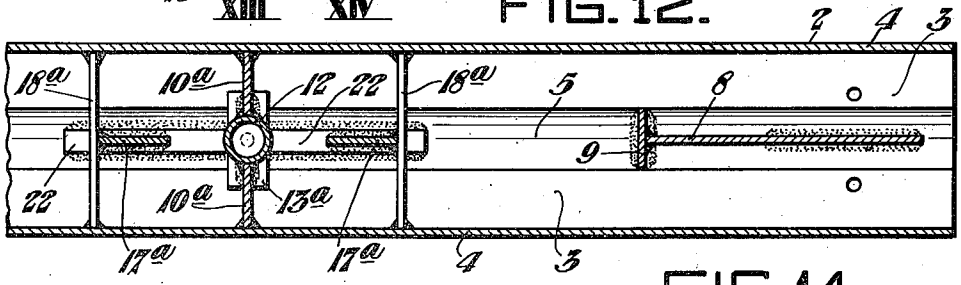


FIG. 13.

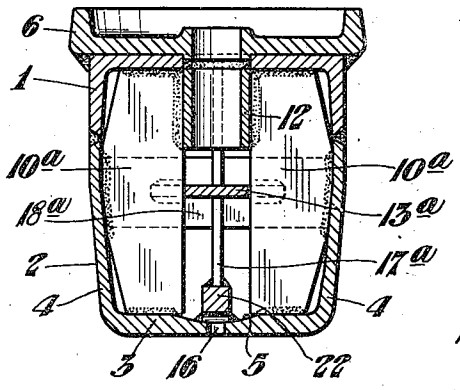
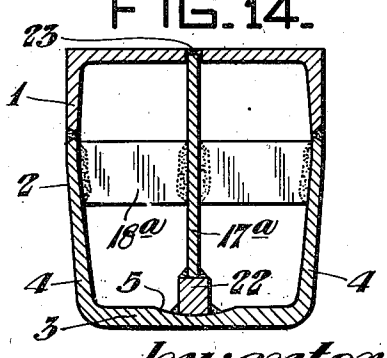


FIG. 14.



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Patented June 10, 1941 2,245,272

UNITED STATES PATENT OFFICE

2,245,272

CAR TRUCK BOLSTER

Karl R. Hammerstrom, Dormont, Pa., assignor to United States Steel Corporation, a corporation of New Jersey

Application May 23, 1939, Serial No. 275,276

6 Claims. (Cl. 105—226)

This invention relates to car truck bolsters of the box girder type and made primarily from rolled steel parts. Specific examples of the invention are illustrated by the accompanying drawings, in which:

Figure 1 is a top view of an example of a bolster embodying the features of this invention;

Figure 2 is a side view of the bolster shown by Figure 1;

Figure 3 is a section taken from the line III—III of Figure 1;

Figures 4 through 8 are sections taken from the lines IV—IV through VIII—VIII, respectively, of Figure 2;

Figure 9 shows a section of the plate from which a part of the bolster is formed;

Figure 10 is a top view of a second example of the bolster embodying the features of the invention;

Figure 11 is a section taken from the line XI—XI of Figure 10; and,

Figures 12 through 14 are sections taken from the lines XII—XII through XIV—XIV, respectively, of Figure 11.

In the case of the first example, the top portion of the bolster is an upright rolled channel section 1 and its bottom portion is an inverted channel section 2, the two channel sections having their flange edges abutting and interfastened by welding. The ends of the channel 1 are depressed by forming as required to fit them to the truck side frame, and the channel section 2 is formed from the plate section illustrated by Figure 9 so as to provide it with a deepened central portion connecting through diagonals with the end portions.

The plate section illustrated by Figure 9 is rolled and has a longitudinally extending central portion 3 and longitudinally extending side portions 4, the central portion being thicker than the side portions and being reduced in thickness along its center, as at 5. The reduced center 5 of the thickened central portion 3 is for the purpose of permitting the plate section under discussion to be commercially rolled. The channel section 2 is formed from this plate section so that its flanges are formed primarily from the side portions 4 of the section, while its web is formed primarily from the central portion 3, the reduced center 5 then becoming an advantage in that it lightens the bolster along its longitudinal center line.

As is usual, a center plate 6 is fixed to the bolster top at its center. The particular center plate illustrated, however, is distinguished from the conventional type in that its bolster top contacting portion provides straight sides 7 for facilitating attachment of the center plate to the bolster top by welding. Furthermore, major portions of these sides 7 extend diagonally of the bolster top, whereby to place the lines of welding more nearly in line with the stress than is possible when the welds follow the circular outline of a center plate.

At each end of the bolster a vertical plate 8 extends longitudinally of the bolster from the end portion to beneath the adjacent side bearing supporting portion, and from top to bottom of the bolster at the end portion. This plate 8 is welded to the top and bottom of the bolster wherever it engages the same, it being illustrated as engaging the top almost throughout its entirety and the bottom throughout the bolster end portion. A vertical plate 9 extends from top to bottom of the bolster at the inner end of the plate 8 at right angles to the same, the plates being welded together and the plate 9 being welded to both the bolster top and bottom. Preferably, the plate 9 is arranged directly in line with the center of the side bearing supporting portion of the bolster, this portion being located as required.

The center of the bolster is braced beneath the center plate 6 by a vertical plate 10 arranged inside the bolster beneath the king pin hole in the center plate, with its edges connecting with all walls of the bolster. This plate is downwardly recessed or slotted, as at 11, beneath the king pin opening, and a vertical cylinder 12, which is actually a piece of pipe of suitable diameter, is welded in the recess or slot 11 to form a king pin guide. The slot 11 is longer than this king pin guide, its bottom having a small plate 13 welded horizontally to the same, this providing a king pin rest.

Holes 14 are formed in the side walls of the bolster in the manner required for the passage of brake equipment, and bars 15 are welded in the inside bottom corners of the bolster beneath the holes 14, these bars functioning to replace the strength lost by formation of these holes. The bars 15 should be sufficiently long and have sufficient cross-section to perform their intended function. Since they are welded throughout their lengths to the bolster bottom and side walls, connection of the plate 10 can be established with the bottom by welding this plate to these bars. The other edges of the plate 10 are welded to the sides and top of the bolster and, of course, to the cylinder 12 forming the

king pin guide. This arrangement not only provides great strength, but provides clearance beneath the bottom of the plate 10, a hole being formed in the bolster bottom to permit condensate to drain and the just mentioned clearance preventing the plate 10 from acting as a water-tight bulkhead.

Intermediate posts 17 are spaced to either side of the center of the bolster and in substantial alignment with the lower ends of the bolster bottom diagonals. These posts 17 are in the form of vertical plates arranged parallel the bolster sides in line with the center line of the bolster. In each instance the plate forming the posts 17 is braced against buckling by a transverse plate 18 having its ends welded to the bolster side walls and one of its sides welded to the edge of the plate forming that one of the intermediate posts, adjacent the middle of the same. The plates 18 also function to brace the bolster side walls, these plates connecting with the side walls adjacent the holes 14 and between the latter and the bolster ends.

The bolster column guides 19 are welded to the ends of the bolster in their proper positions, although they may be fastened by other means if desired. To aid in assembling the bolster, hand holes 20 are formed in its top on either side of the center plate, and the bolster top is braced at these points by short plates 21 welded to the bolster top inside on either side of each hole, these plates depending and functioning to prevent buckling of the top adjacent the holes 20.

The second example embodies many of the parts used in the case of the first example, the primary difference being that the side walls of this second example are not provided with the holes 14, it being understood that these holes are not necessary in all instances.

Because of the absence of these holes, it is not necessary to use the bars 15 of the first example. A further difference is that the plate 10 of the previously described example is substituted by two parallel plates 10^a which extend vertically of the bolster from top to bottom and with their outer edges engaging the bolster side walls. The adjacent edges of the plates 10^a are spaced, the king pin guide 12 being welded in its proper position between these edges, the king pin rest in this case being in the form of a plate 13^a arranged horizontally and having slotted ends with the plates 10^a positioned in the slots of the same. The slotted ends of this rest are welded to the adjacent surfaces of the plates 10^a, the side edges and bottom edges of the latter being respectively welded to the bolster side and bottom walls, while the top of the king pin guide 12 is welded to the bolster top. This completes a rigid assembly, it being remembered that the king pin guide 12 is welded to the two plates 10^a so as to rigidly join them adjacent their tops.

Another difference between this example and the first one is that the intermediate posts 17^a have straight bottom edges which are welded to the top of a bar 22 which extends longitudinally of the bolster along its center line between the plates 10^a, the top of this bar providing a straight edge for association with the bottom edges of the posts, and its bottom edge being shaped to fit the bolster bottom. This bottom edge of the bar 22 is welded to the bolster bottom and serves to centrally reenforce the latter beneath the center plate and intermediate posts. Since the absence of the holes 14 prevents internal welding of the tops of the intermediate posts to the bolster top, the latter is provided with slots 23 through which the tops of the plates forming the center posts 17^a extend, the tops of these posts being welded to the bolster top by way of the portions thus exposed.

I claim:

1. A box section car truck bolster including a vertical plate inside the bolster beneath the king pin hole and with its edges connecting with all walls of the bolster, the plate being downwardly recessed or slotted beneath the king pin opening, and a long vertical cylinder fixed in the recess or slot in said plate to form a king pin guide.

2. A box section car truck bolster including a vertical plate inside the bolster beneath the king pin hole and with its edges connecting with all walls of the bolster, the plate being downwardly recessed or slotted beneath the king pin opening, and a long vertical cylinder fixed in the recess or slot in said plate to form a king pin guide, a king pin rest being fastened to the edge of said recess or slot beneath said cylinder.

3. A box section car truck bolster fabricated from rolled metal and having holes formed in its side walls for the passage of equipment through the bolster, said bolster including separate bars respectively welded in its inside bottom corners beneath said holes and functioning to replace strength lost by formation of said holes, said bars being relatively narrow so their adjacent edges do not approach the bolster center.

4. A box section car truck bolster including intermediate posts spaced to either side of its center, said posts being in the form of vertical plates parallel the bolster sides, and transverse plates fastened to the bolster side walls and the first named plates at positions stiffening the latter, said bolster having a deepened center and the first named plates resting on a bar extending longitudinally of the bolster, the top edge of said bar being straight and the bottom edge being shaped to fit the bottom wall of the deepened center of the bolster.

5. A box section car truck bolster including vertical, coplanar plates arranged transversely inside the bolster beneath the king pin hole, the adjacent edges of said plates being spaced and a king pin guide being fixed therebetween, other edges of said plates connecting with the bolster sides and bottom.

6. A box section car truck bolster including vertical, coplanar plates arranged transversely inside the bolster beneath the king pin hole, the adjacent edges of said plates being spaced and a king pin guide being fixed therebetween, other edges of said plates connecting with the bolster sides and bottom, a horizontal plate, having slotted ends receiving portions of said vertical plates and fixed thereto, serving as a king pin support beneath said guide.

KARL R. HAMMERSTROM.