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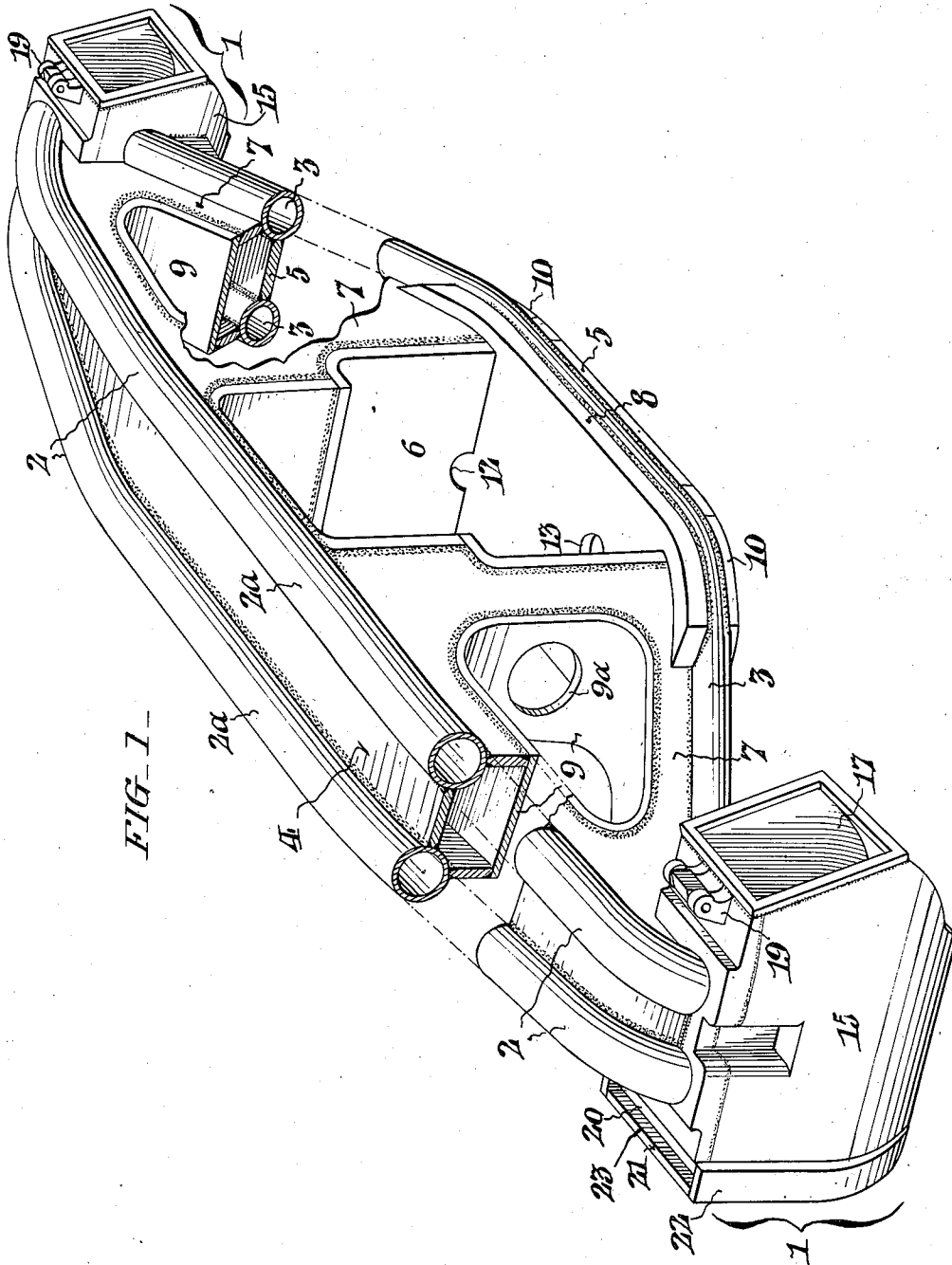
W. M. KELLER

2,393,046

SIDE FRAME FOR RAILWAY CAR TRUCKS AND THE LIKE

Filed Oct. 11, 1944

3 Sheets-Sheet 1



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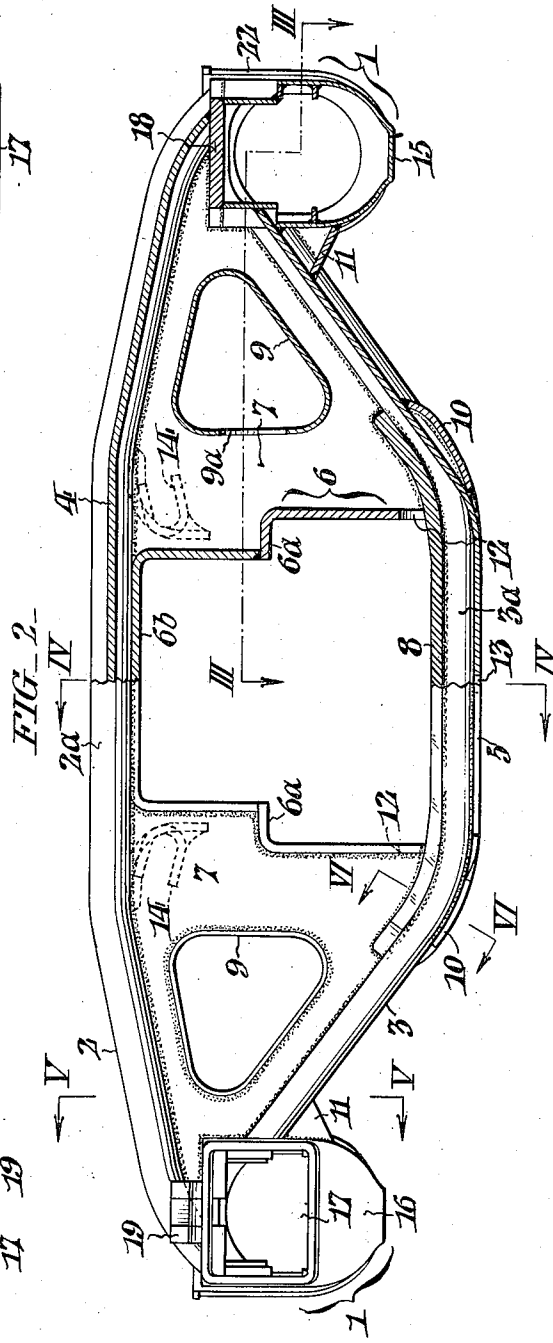
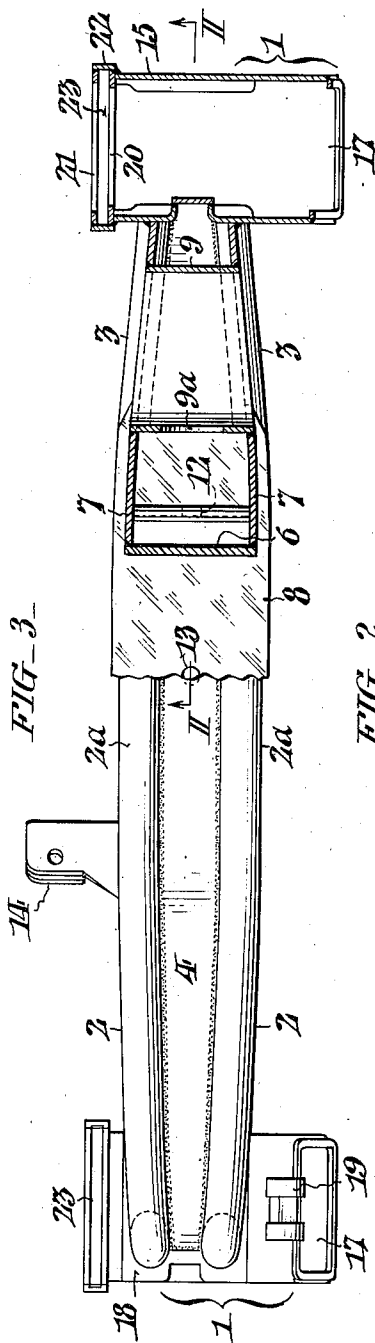
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3 Sheets-Sheet 3

*FIG. 4*

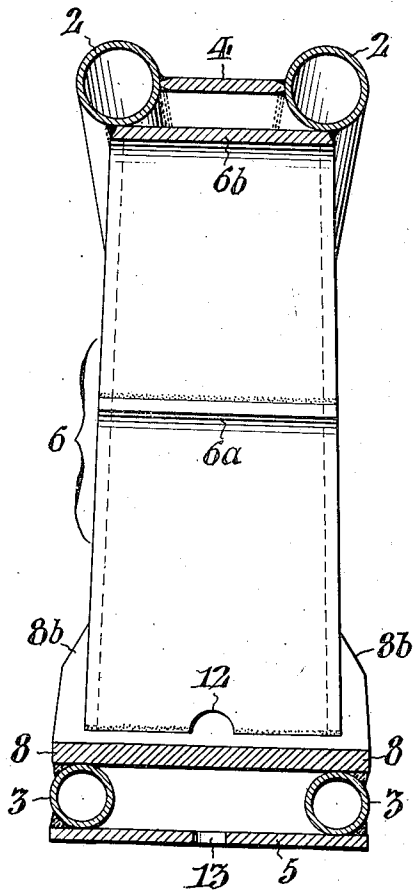


FIG. 5.

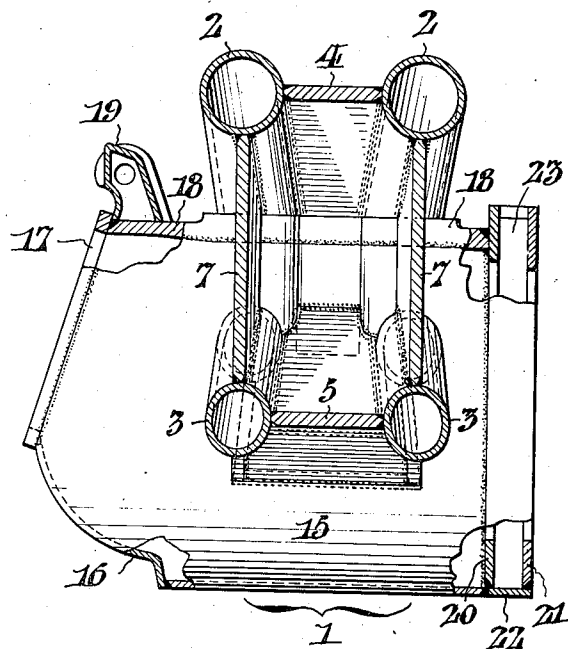
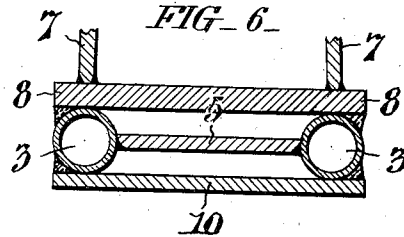


FIG. 6.



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## UNITED STATES PATENT OFFICE

2,393,046

SIDE FRAME FOR RAILWAY CAR TRUCKS  
AND THE LIKE

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Pa., a corporation of Pennsylvania

Application October 11, 1944, Serial No. 558,118

7 Claims. (Cl. 105—206)

This invention relates to side frames for the wheel trucks of railway cars and other vehicles. Such frames are ordinarily produced as castings, and are thicker than need be in certain portions due to the necessity for use of excess metal in the casting process. The trucks in which frames of this sort are used are accordingly heavier than necessary, resulting in undesirable unsprung weight.

The chief aim of my invention is to overcome the above mentioned drawbacks. This desideratum is realized in practice as hereafter more fully disclosed, by constructing truck frames from pre-fabricated metallic parts certain of which are tubular and others of which are fashioned from sheet stock, these parts being proportioned, arranged and welded together in such manner that the strains imposed incident to the use of the trucks are apportioned between them, with preclusion of any localized stresses likely to result in distortion or rupture.

A further aim of my invention is to make it possible to produce, in the way just briefly explained, truck side frames of varying load-carrying capacities without necessitating the use of different dies and setting-up jigs. This objective I attain, as also more fully set forth hereinafter, simply by employing tubing and sheet metal of different thicknesses and avoiding changes in the outside dimensions of certain of the component parts.

Other objects and attendant advantages will appear from the following description of the attached drawings, wherein Fig. 1 is a broken-out perspective view of a truck frame conveniently embodying my invention.

Fig. 2 shows the frame partly in side elevation and partly in central longitudinal section.

Fig. 3 shows the frame partly in top plan and partly in horizontal section which latter is taken as indicated by the angled arrows III—III in Fig. 2.

Figs. 4 and 5 are cross sectional views taken as indicated respectively between angled arrows IV—IV and V—V; and

Fig. 6 is a fragmentary detailed cross sectional view taken as indicated by the angled arrows VI—VI in Fig. 2.

As herein illustrated, my improved truck frame has two wheel axle journaled boxes 1, and laterally-spaced pairs of upwardly and downwardly bowed hollow compression and tension members 2 and 3 which are preferably formed from seamless tubing, and which, at their opposite ends, are welded respectively to the top and inner sides

of said journal boxes. It is to be noted that the compression and tension members 2 and 3 are relatively widely spaced throughout the length of their horizontal central portions 2a, 3a and that they approach each other toward the journal boxes 1. Extending longitudinally of the frame is a top web 4, the side edges of which radially abut the compression members whereto they are welded and the ends of which are welded to the tops of the journal boxes 1. A longitudinally extending bottom web 5 has its side edges radially abutting and welded to the upwardly sloping end portions of the tension members 3 adjacent the journal boxes, see Fig. 5, and is formed with a broadened mid-portion, see Fig. 4, which is welded to the bottoms of the horizontal portions 3a of said tension members in the central region of the frame. Extending crosswise of the frame at the center is a two-part sheet metal insert 6, which, generally speaking, is of U-shaped cross sectional configuration and invertedly positioned, and which defines a window for the end of the truck bolster (not shown), the lower portion of such window being widened through offsetting of the sides of said insert at 6a. If desired or found more convenient, the insert 6 may, of course, be made in one piece. The horizontal top 6b of the insert 6 bears against and is welded to the undersides of the horizontal portions 2a of the compression members 2. Conformative with the intervals between the journal boxes 1 and the bolster window defining insert 6 and disposed in the planes of the vertically-aligned pairs of the compression and tension members 2 and 3, are sheet metal filler webs 7 whereof the top and bottom edges are welded to said compression and tension members. As further shown, the opposite ends of the filler webs 7 are likewise permanently secured to the journal boxes 1 and to the window defining insert 6 respectively.

The frame is longitudinally reinforced at the bottom of its central region by a relatively heavy stiffening member 8. As shown in Figs. 4 and 6 this reinforcing member 8 overlies and is welded to the tension members 3; and from Figs. 1 and 2 it will be observed that said reinforcing member is also welded to the filler webs 7 and to the window-defining insert 6. The truck frame is also reinforced transversely by hollow inserts 9 of triangular cross-sectional configuration which are passed through correspondingly-shaped openings in the filler webs 7 whereto their ends are permanently welded. Each insert 9 is

preferably provided with an opening 9a in its vertical wall as shown in Figs. 1-3.

In addition to the above reinforcements, the frame is further strengthened by curved brace plates 10 immediately beyond the insert 8 below the end regions of the member 8, said plates being welded fast to the tension members 3, and to the bottom longitudinal webs 5; and also by weldedly-attached inclined strut braces 11 which extend crosswise of the angular crotches between the bottom longitudinal webs 5 and the journal boxes 1, all as best shown in Fig. 2.

In order to allow for water drainage from the interior of the frame, the side portions of the window-defining insert 6 are notched centrally of their bottom edges as at 12 (Figs. 1, 2 and 4), and the bottom longitudinal web 5 is provided with an aperture 13 centrally of the frame.

The lugs indicated at 14 are intended for suspension of the hangers of suitable brake rigging (not illustrated), and like the other parts of the frame, are built up from sheet metal parts which are welded to each other and to the filler webs at one side of the frame.

In accordance with my invention, each of the journal boxes is also constructed wholly of sheet metal parts which are likewise united by welding and which include a round-bottomed main body member 15, an outer end wall member 16 with a square access opening 17, and a top wall member 18 with a hinge ear 19 for connection of a cover (not shown) for said opening. A pair of spaced apertured members 20, 21 and a U-shaped strap-like piece 22 jointly form a pocket 23 at the inner end of each journal box 1 for insertion of a standard form of dust guard (not shown). The boxes 1 are otherwise constructed and arranged, as illustrated, to properly accommodate and retain the "brasses" or bearing plates as well as other standard parts essential to the journaling of the wheel axles.

From the foregoing it will be seen that through my invention it is possible to economically and expeditiously produce from tubular and plate stock, car truck frames which are considerably lighter in weight than ordinary cast frames, and which, by reason of being constructed in the manner described are capable of withstanding all the strains whereto they are likely to be subjected in use under the load for which they are designed.

An important advantage inherent to my improved construction is that the frames of different load-carrying capacities can be produced by using tubular compression and tension members of the same outside diameter but of heavier gauge, without necessitating any material changes in the shapes or sizes of the other component parts, and without requiring different dies and setting-up jigs.

Having thus described my invention, I claim:

1. A side frame for railway car trucks and the like comprising axle journal boxes; a built-up arched compression member composed of a pair of laterally spaced tubes with a coextensive cross-connecting web, with the ends of said tubes and web welded to the tops of the journal boxes; and a similarly constructed downwardly bowed tension member with the ends of its tubes and web welded to the inner sides of said journal boxes.

2. A side frame for railway car trucks and the

like comprising axle journal boxes; and built-up compression and tension members each formed from a pair of laterally-spaced tubes with welded on webs extending crosswise between them and with the ends of the tubes and the webs welded to the journal boxes.

3. A side frame for railway car trucks and the like comprising a pair of axle journal boxes; pairs of laterally-spaced connecting tubular compression and tension members welded at their ends to said journal boxes; a longitudinal crosswise web of sheet metal welded at the sides and at the ends respectively to the compression members and to the tops of the journal boxes; another longitudinal web similarly welded to the tension members and to the journal boxes; and vertically-disposed sheet metal filler webs with their top and bottom edges welded to corresponding compression and tension members and with their ends welded to the journal boxes.

4. A side frame for railway car trucks according to claim 3, in which the side edges of the upper longitudinal web radially abut the inner sides of the compression members; in which the side edges of the lower longitudinal web radially abut the inner sides of the tension members adjacent the journal boxes only; and in which the mid portion of said lower longitudinal web is broadened to underlap the tension members in the central region of the frame.

5. A side frame for railway car trucks according to claim 3, in which the side edges of the upper longitudinal web radially abut the inner sides of the compression members; in which the side edges of the lower longitudinal web radially abut the inner sides of the tension members only adjacent the journal boxes; in which the mid portion of said lower longitudinal web is broadened to underlap the tension members in the central region of the frame; in which a longitudinal reinforcing member is overlaid upon and welded to the tops of the tension members in the central region of the frame; and in which the corresponding bottom edge portions of the vertical webs are welded to said reinforcing member.

6. A side frame for railway car trucks and the like comprising a pair of axle journal boxes; pairs of laterally-spaced tubular compression and tension members extending between and welded at the ends thereof to said journal boxes; a bolster window centrally of the frame formed by an invertedly-positioned sheet metal insert with top and side portions, whereof the top portion bears against and is welded to the under sides of the compression members; and in which vertical fillers of sheet metal are disposed in the end spaces between the journal boxes and the window-defining insert, each of said fillers having its top and bottom edges welded to corresponding pairs of compression and tension members and its opposite end edges respectively welded to a journal box and to the corresponding side portion of the window-defining insert.

7. A side frame for railway car trucks according to claim 6, in which the filler webs are formed with openings; and in which hollow inserts of corresponding cross sectional configuration are passed through transversely-aligned pairs of said openings and are welded at their ends to said filler webs.

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