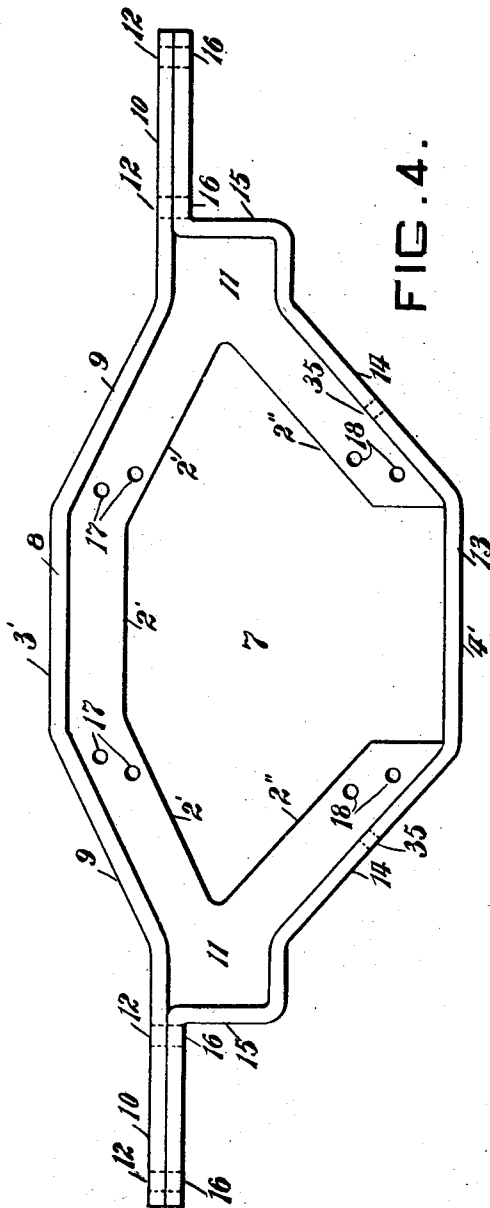
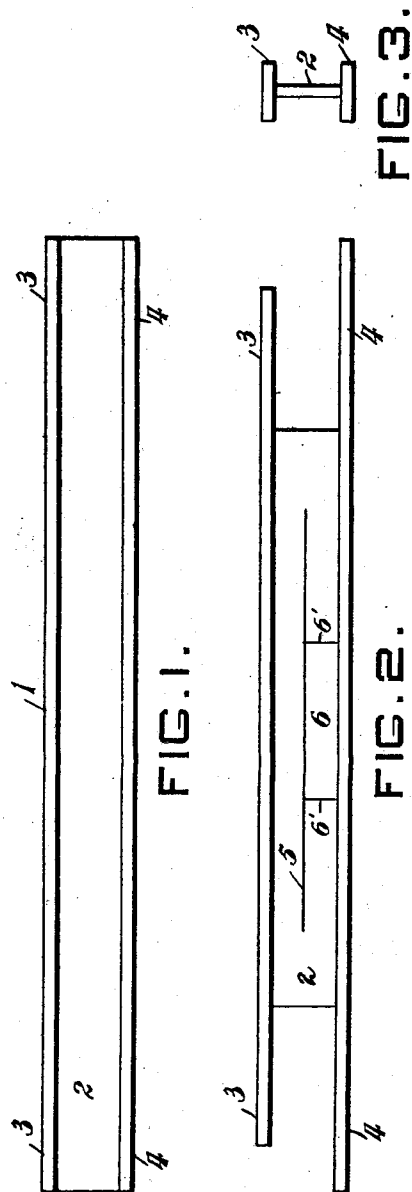


W. D. FORSYTH.
 FORGED CAR TRUCK SIDE FRAME.
 APPLICATION FILED JULY 31, 1912.

1,063,867.

Patented June 3, 1913.

2 SHEETS—SHEET 1.



WITNESSES
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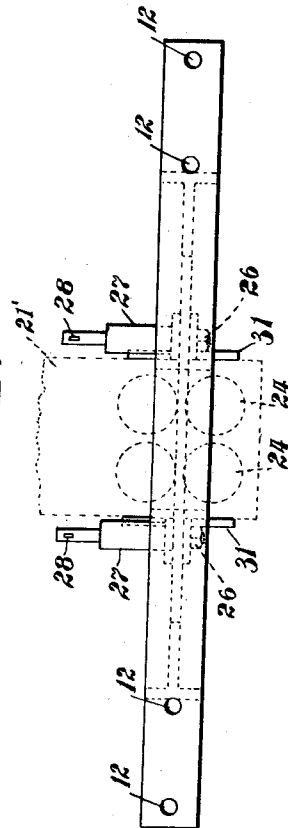
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2 SHEETS-SHEET 2.

FIG. 6.



WITNESSES

A. M. Goodwin
M. E. Thoniat.

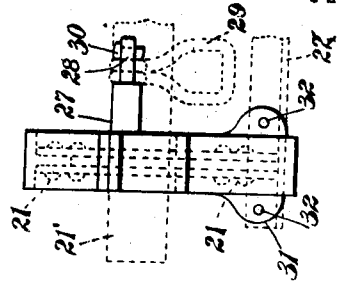


FIG. 7.

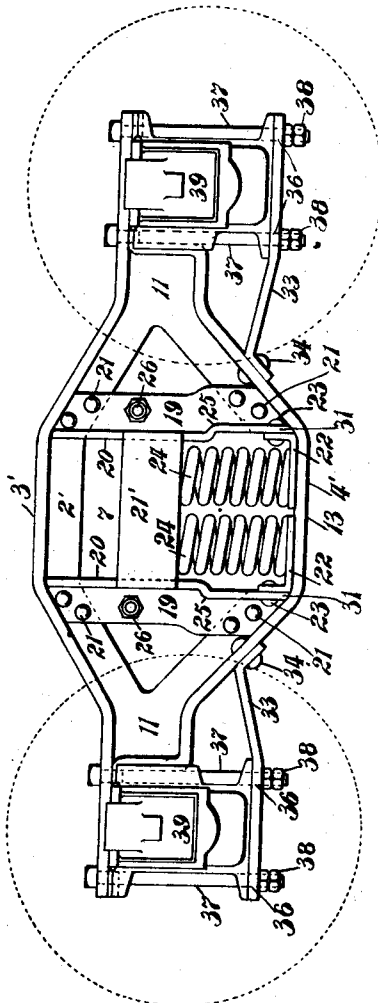


FIG. 5.

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UNITED STATES PATENT OFFICE.

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FORGED CAR-TRUCK SIDE FRAME.

1,063,867.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed July 31, 1912. Serial No. 712,434.

To all whom it may concern:

Be it known that I, WILLIAM D. FORSYTH, of the city of Youngstown, county of Mahoning, and State of Ohio, have invented new and useful Improvements in Forged Car-Truck Side Frames, of which the following is a specification.

This invention relates to forged car-truck side frames and the appurtenances thereto necessary to attach them to the trucks of the cars with which they are used.

The principal object of this invention is to provide a forged car-truck side frame in which the compression and tension members are integral with each other and the means of attaching said car-truck side frame to journal-boxes and trucks of the cars upon which they are to be used shall be forgings; also to provide a car-truck side frame, which when equipped with its attachments, can be affixed to different cars without dismantling the trucks and car-truck side frames and their respective attachments to the extent now necessary to make such changes; also to provide a frame with greater clearance between the bottom of the tension member and the top of the rail than is now afforded trucks in common use; also to afford a car-truck side frame consisting of a forging of greater strength, cheaper, quicker manufacture, and of more efficiency than cast-steel side car-truck frames and frames in which the tension members are separate distinct parts and not integral with each other, etc., etc.

This invention consists in a forged car-truck side frame and the appurtenances thereof, hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation of the metal shape from which a forged car-truck side frame is made. Fig. 2 shows the shape shown in elevation in Fig. 1, with parts thereof cut away and slit preparatory to the forging of the car-truck side frame. Fig. 3 is an end view of Fig. 2. Fig. 4 shows an elevation of the forging of which the forged car-truck side frame consists. Fig. 5 is a side elevation of the forged car-truck side frame as completed, with journal boxes, springs and bolster of a car shown in connection therewith, with the wheels of the car shown in dotted lines. Fig. 6 is a top plan view of Fig. 5 with the lines of the forged car-truck side frame

shown solidly, the other parts of Fig. 5, shown in Fig. 6, being in dotted lines. Fig. 7 is an end view of Fig. 5 showing the lines of the forged car-truck side frame solidly, the other parts of Fig. 5 in dotted lines and a brake-hanger in dotted lines also.

Like figures of reference refer to like parts throughout.

In Fig. 1, 1 is a rolled metal shape, preferably of steel, having a web 2, a top flange 3 and a bottom flange 4. Web 2, of metal shape 1, is cut away at its ends, between top flange 3 and bottom flange 4, substantially as shown in Fig. 2; and top flange 3 is cut away at both of its ends so as to be shorter than bottom flange 4, substantially as shown in Fig. 2. Longitudinal slit 5, parallel to the flanges 3 and 4, is made in web 2 of Fig. 1, as shown in Fig. 2. Web 2 is punched out so as to make a hole 6 therein, extending about an equal distance on each side of medial line 1, its top being coincident with slit 5, its bottom coincident with the top of bottom flange 4, its sides with the lines 6', 6'.

After the metal shape 1 has undergone the operations necessary to bring it to the condition shown in Fig. 2, it is heated and by means of suitable apparatus the opening 6 therein is expanded in direction substantially at right angles to flanges 3 and 4 so as to take the form of bolster opening 7 shown in Fig. 4, and so that the flanges 3 and 4 respectively take the forms of compression member 3' and tension member 4' shown in Fig. 4. Bolster opening 7 is surrounded by parts of "web 2," Fig. 4. When the "web" of the side frame is hereinafter referred to and in the claims hereof, it is intended that "web 2," as shown in Figs. 1 and 2 shall be indicated. Indication herein of parts of "web 2" by reference figures 2', 2'', and 11 is purely for convenience and for designating the parts of tension member 4' and compression member 3'.

Tension member 3' comprises all of the upper flange 3 of the metal shape 1 formed by the forming and expanding operations above referred to, so as to have the following members: a central horizontal part 8; inclined parts 9, 9; and ends 10, 10; said ends 10, 10, being connected to horizontal part 8 by said inclined parts 9, 9, substantially as shown in Fig. 4. Said compression member 3' also has a continuous web, which consists of parts of the

original web 2 of part 1, which are marked 2', 2', in Fig. 4, which is peculiar to said compression member and webs 11, 11, (parts of web 2) which it has in common with tension member 4'. The compression member 3' has holes in its ends 10, 10, marked 12, 12.

Tension member 4' has the following parts: a horizontal part 13; webbed inclined parts 14, 14, which have disconnected webs 2'', 2'', (which are parts of web 2) peculiar to themselves and webs 11, 11, (which are parts of web 2) in common with compression member 3'; and end parts 15, 15, which have no webs, but which are bent from the end of web part 14 so as to conform to the edge of web 11 and to be parallel to end 10 of compression member 3'. Said end parts 15, 15, have holes 16, 16, 16, 16, which in connection with holes 12, 12, 12, 12, of the compression member 3' afford the means of the attachment to the frame of the bolts for affixing the journal boxes thereto as hereinafter described. Holes 17, 17, 17, 17 in web 2' of compression member 3' and holes 18, 18, 18, 18, in webs 2'', 2'', of tension member 4', afford the means for affixing bolts to said webs for holding the bolster standards as hereinafter described.

19, Fig. 5, represents a forging having a flange 20 and holes for the reception of rivets 21, 21, 21, 21, the rivet holes registering with holes 17, 17, and 18, 18, of the webs of the compression members 3' and 4'. Four of said forgings 19 are riveted to the webs of the compression member 3' and the tension member 4', as shown in Figs. 5, 6 and 7, and afford the means for the reception and retention of bolster 21' on the car-truck side frame hereinafter described and claimed.

22, 22, are two angles which are riveted to forgings 19 by rivets 23, 23, or fastened thereto by equivalent means, proper means being affixed to bolster 21' at said angles 22, 22, to accommodate springs 24, 24. It will be noted that the opening between forgings 19, 19, is wider from the top of part 13 of tension member 4' to angles 25, 25, in said forgings, than it is from angle 25, 25, to web 2' of tension member 3' at the top of the opening between said forgings in Fig. 5. The wide opening below said angles 25 permits bolster 21' to be passed between said forgings and when supported above angles 25 by springs 24 said bolster is retained between said forgings 19, 19, because the end of the bolster is wider than the opening 7 above said angles 25, 25, of said forgings 19, 19. See Fig. 6. Holes are made through said forgings 19 for the reception of ends 26 of brake-hanger pins 27; said brake-hanger pins having slots 28, 28, for the reception of brake-hanger 29, see Fig. 7 and its key 30. Forging 19 has a lug 31 in which hole 32 is made to accommodate rivet 23 by which

angle 22 is fastened to said forging 19. See Fig. 7.

A bracket arm 33 is fastened by rivet 34 through hole 35 in inclined part 14 of tension member 4', and is furnished with holes 36, 36, through which extend journal box bolts 37, 37, having nuts 38, 38. 39, 39 are journal boxes affixed between the ends of the car truck side frame and its bracket arm 33, substantially as shown in Fig. 5.

What I claim as my invention is:

1. A new article of manufacture, a forging for a car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges, said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange.

2. A new article of manufacture, a forging for a car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges; said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange; and two brackets or arms affixed to one of said flanges, one at each end of said forging formed and extended so that the ends thereof are substantially parallel to the extended ends of said flanges.

3. A car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges; said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange; and means for the reception and retention of a bolster affixed to said web in substantially

vertical position so as to provide guides for said bolster.

4. A car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges, said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange; means for the reception and retention of a bolster affixed to said web in substantially vertical position so as to provide guides for said bolster; and means at each end of said frame for affixing journal boxes thereto.

5. A new article of manufacture, a forging for a car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges, said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange; and two brackets or arms affixed to the under side of the long flange, one at each end of said forging and formed and extended so that the ends thereof shall be substantially parallel to the extended ends of said flanges.

6. A car truck side frame made from a single piece of metal, having a web integral with two parallel flanges of different lengths and shorter than both flanges, said web having an opening therein formed by cutting away a part of the same about midway between the ends of the longer flange and substantially along its top surface and under and along a line about midway between said flanges; said web being expanded in direction substantially at right angles to said flanges, said longer flange being bent at both ends so as to contact with and conform to the free edges of said web and the under sides of the ends of the short flange; means for the reception and retention of a bolster affixed to said web in substantially vertical position so as to provide guides for said bolster; two brackets or arms affixed to the underside of the long flange, one at each end of said frame, and formed and extended so that the ends thereof shall be substan-

tially parallel to the extended ends of said flanges; and means at each end of said frame for affixing journal boxes thereto.

7. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides of said bolster opening.

8. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member.

9. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member; and two brackets or arms affixed to one of said members, one at each end of said forging formed and extended so that the ends thereof are substantially parallel to the extended ends of said flanges.

10. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and

points in the sides of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member; and means for the reception and retention of a bolster affixed to said web in substantially vertical position so as to provide guides for said bolster.

11. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member; means for the reception and retention of a bolster affixed to said web in substantially vertical position so as to provide guides for said bolster; and means at each end of said frame for affixing journal boxes thereto.

12. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides

of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member; and two brackets or arms affixed to the under side of the tension member, one at each end of said forging and formed and extended so that the ends thereof shall be substantially parallel to the extended ends of said members.

13. A car truck side frame made from a single piece of metal, having a compression member, a tension member longer than said compression member, said members being connected by a web having a bolster opening made therein by expanding said web in direction substantially at right angles to said members; said web extending continuously along said compression member between points distant from its ends and in two parts along said tension member between points distant from its ends and points in the sides of said bolster opening, both ends of the compression member being bent to contact with the outer edges of said web and the ends of the compression member; means for the reception and retention of a bolster affixed to said web in substantially vertical position so as to provide guides for said bolster; two brackets or arms affixed to the underside of the tension member one at each end of said frame, and formed and extended so that the ends thereof shall be substantially parallel to the extended ends of said members; and means at each end of said frame for affixing journal boxes thereto.

In witness whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM D. FORSYTH.

Witnesses:

M. E. THOMAS,

A. M. NEEPER.