

(No Model.)

3 Sheets—Sheet 1.

H. H. HEWITT.
SIDE FRAME FOR CAR TRUCKS.

No. 571,522.

Patented Nov. 17, 1896.

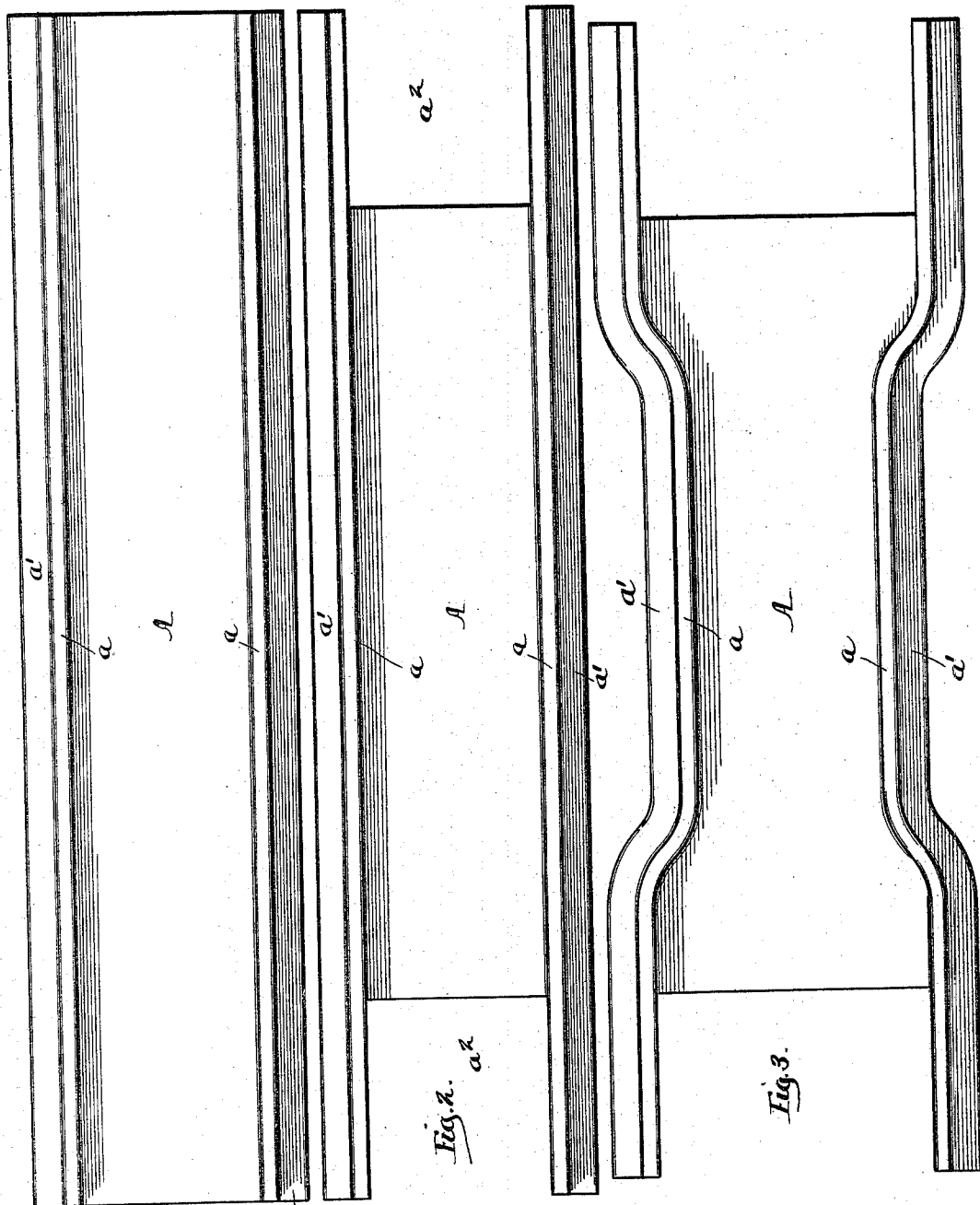


Fig. 1.

Fig. 2. a'

Fig. 3.

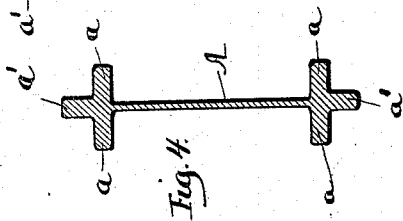


Fig. 4.

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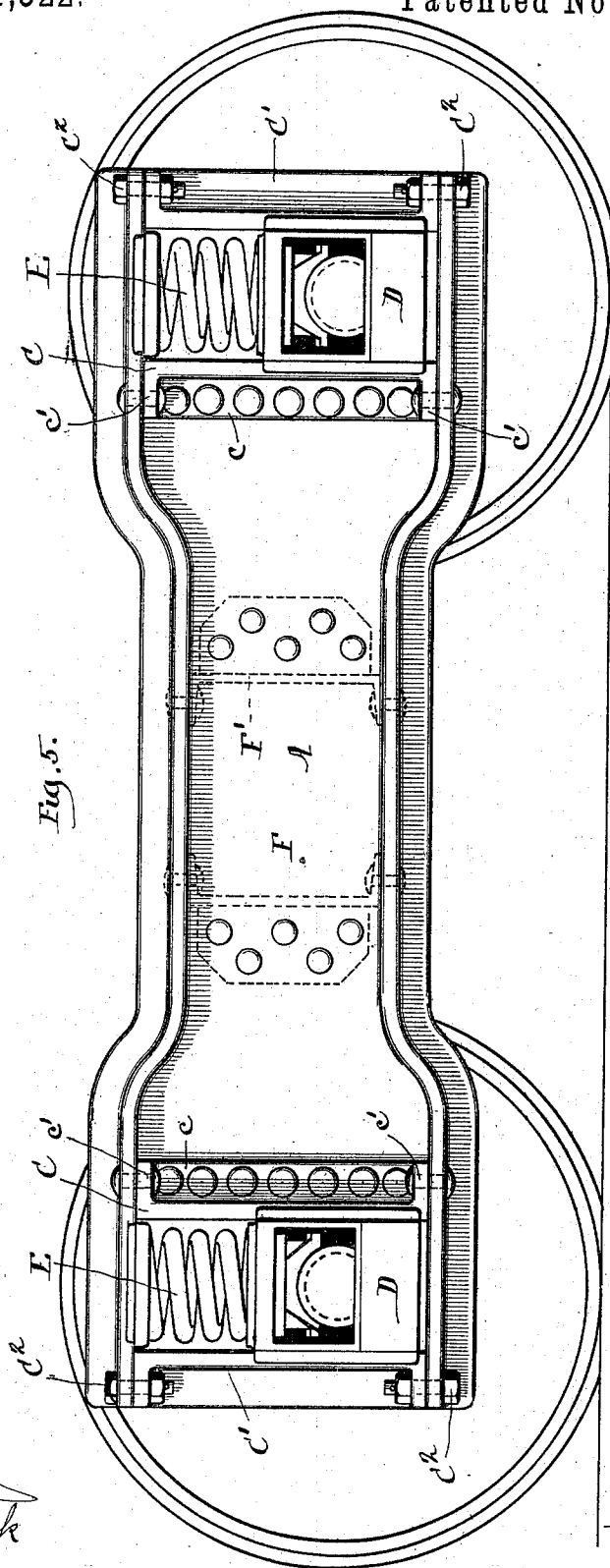
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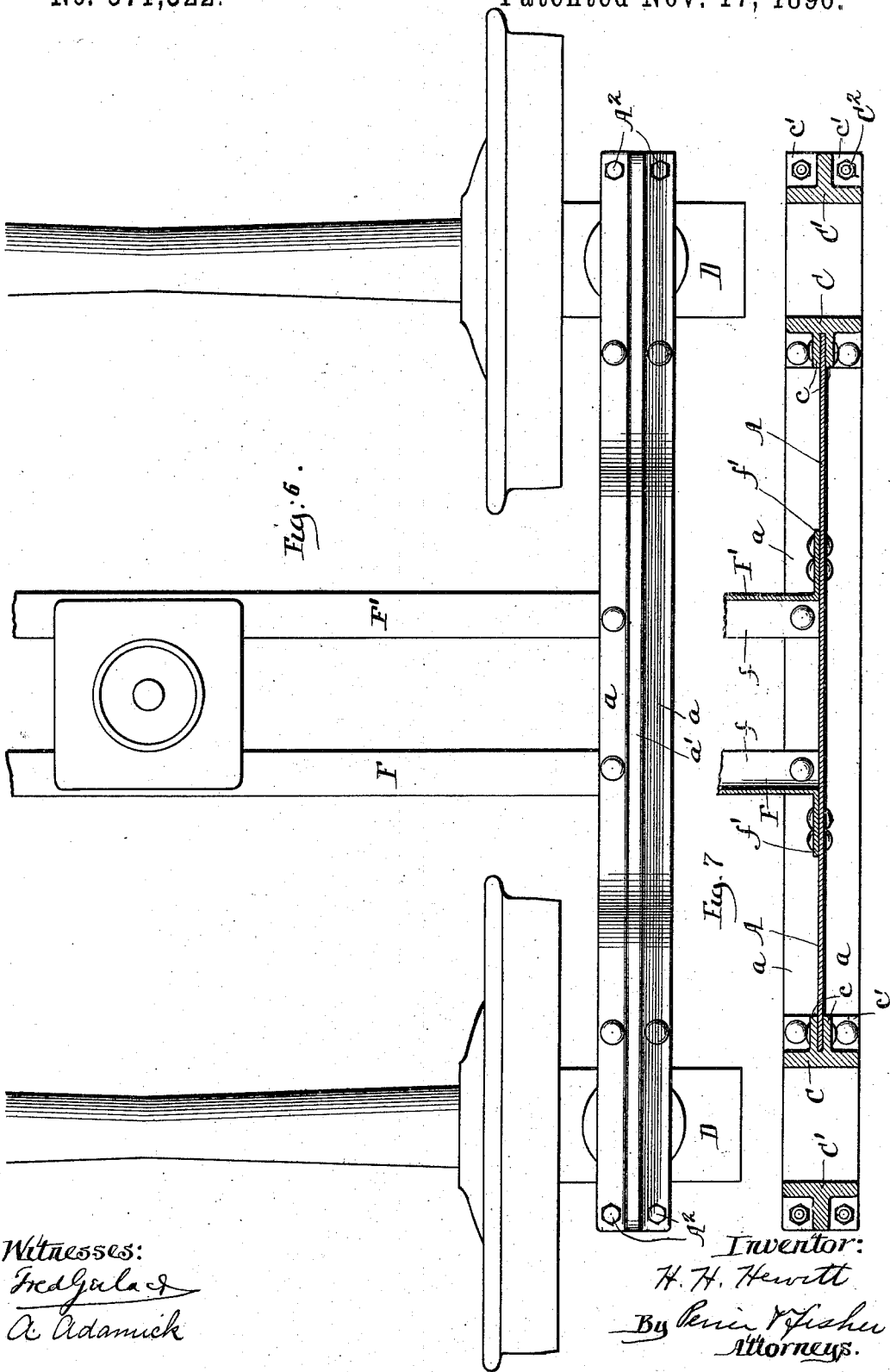
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UNITED STATES PATENT OFFICE.

HERBERT H. HEWITT, OF BUFFALO, NEW YORK.

SIDE FRAME FOR CAR-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 571,522, dated November 17, 1896.

Application filed September 3, 1896. Serial No. 604,812. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. HEWITT, a citizen of the United States, and a resident of the city of Buffalo, in the county of Erie, State of New York, have invented certain new and useful Improvements in Side Frames for Car-Trucks, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The present invention has for its object to provide a simple, strong, and durable construction of metallic side frame for the trucks of railway-cars; and with this object in view the invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

In carrying out the present invention while I prefer to form the plate girders or beams of the shape shown I do not wish my improved construction of side frame to be understood as restricted to the precise form or shape shown, since the details thereof may be varied by the skilled mechanic without departing from the spirit of the invention. I have therefore specifically set forth in the claims at the end of the specification the features that are essential to the invention.

Figure 1 is a side view of a beam from which my improved side frame will be formed. Fig. 2 is a side view of a beam after the web at the ends of the beam has been cut away to form the spaces to receive the axle-boxes, the pedestals, and the springs. Fig. 3 is a side view of the beam after its end portions have been expanded in order to give the desired height to the spaces wherein the axle-boxes, pedestals, and springs will be retained. Fig. 4 is a view in vertical cross-section on line 4 4 of Fig. 3. Fig. 5 is a view in side elevation, showing the completed side frame with the pedestals, the axle-boxes, the springs, &c., in place. Fig. 6 is a plan view of a portion of a truck embodying my invention. Fig. 7 is a view in central horizontal section through the side frame shown in Fig. 5, the axle boxes and springs being omitted.

In the manufacture of the preferred form of my improved side frame I first take a beam of metal, preferably steel, and roll it to the

shape shown in Fig. 1; that is to say, the beam is rolled with the central web A, having at its top and bottom the laterally-projecting flanges *a*, and preferably outside the lateral flanges *a* are formed in the process of rolling the vertical reinforce-ribs *a'*. By preference the vertical ribs *a'* will be formed thicker than the body of the web A, as seen in Fig. 4, in order to give the desired strength to the side frames and dispose the metal of the frames in the most effective position for resisting the thrusts and strains to which the side frames are subjected. After the metal beam has been rolled to the shape shown in Fig. 1 I cut out the end portions of the web A to form the spaces, preferably of the shape shown in Fig. 2 of the drawings; that is to say, at the ends of the plate girder or beam the web A is cut away completely between the top and bottom flanges *a*, thus forming the spaces *a''* to receive the pedestals, the axle-boxes, and springs. By thus completely cutting away the ends of the web A of the plate girder or beam the upper flanged edge of the beam, which constitutes the compressive member of the side frame, is brought as near as possible to the point of thrust and thus much more effectively serves to resist the strains and thrusts to which the side frame is subjected than would be possible if this compressive member were at a higher point. After the ends of the web of the plate girder or beam have been thus cut away the top and bottom flanged edges of the girder or beam are spread outward, as illustrated in Fig. 3, and at the same time that these flanged edges are spread outward the end portions of the web A are stretched, so that although the ends of the web A are by this stretching operation made somewhat thinner they still serve to effectively brace the top and bottom flanged portions of the girder or beam. It will be understood of course that the spreading of the flanged edges of the girder or beam and the stretching of the ends of the web A are effected while the metal is in sufficiently-heated condition to permit this to be accomplished, as will be readily understood by those familiar with the art.

My purpose in thus expanding the flanged ends of the plate girder or beam is to give the required height to the spaces that receive the

axle-boxes, the pedestals, and springs without the necessity of increasing the height of the central portion of the side frames. Each of the inner pedestals C is preferably formed with flanges c, that straddle the stretched ends of the web A and are riveted thereto, as shown in Fig. 5, and these inner pedestals are also formed with the top and bottom flanges c', as clearly shown in Figs. 5 and 7, these top and bottom flanges abutting against the flanges a of the side frame and being riveted thereto, as shown. At the outer ends of the flanged portions of the girder or beam are held the outer pedestals C', that are retained in position by suitable bolts C², that pass through the flanges of the pedestals and the lateral flanges of the girder or beam. Between the pedestals C and C' are placed the axle-boxes D, and above these boxes are mounted the usual coil-springs E, the upper ends of these springs bearing against suitable spring-plates attached to the flanges a of the side frame, while the lower ends of the springs rest upon the tops of the axle-boxes. It will be observed that the outer pedestals C' can be readily removed when the bolts C² are withdrawn, and the axle-boxes, springs, &c., can be easily repaired or replaced, it being simply necessary to slightly jack up the side frame to permit the withdrawal of the parts.

From the foregoing construction it will be seen that by completely cutting away the ends of the web A of the girder or beam the upper compressive member is brought in much more effective position for resisting the strains and thrusts to which the side frame is subjected than would be possible if the ends of the web A were extended between the pedestal-jaws C and C'.

Between the side frames of the truck extends the bolster, that is preferably formed of the angle bars or plates F F'. The bolster plates or bars F F' are preferably U shaped or channelled, and their inwardly-turned portions f rest upon and are riveted to the flanges a of the side frame. Preferably, also, the ends of the bolster-plates F F' are formed with the angular flanges f', (see Fig. 7 and dotted lines, Fig. 5,) that are riveted, as shown, to the web A of the side frame.

By forming the side frame in the manner shown I am enabled to distribute the metal of which the side frame is composed in a manner adapted to most effectively resist the strains and thrusts to which this frame is subjected, and by providing the side frame with the vertical reinforce-ribs a' above and below the lateral flanges a great strength and rigidity is given to the frames. The upper rib a' and flanges that extend along the top of the frames and comprise the compression member of the frame effectively resist any compressive strains incident to the downward thrust of the bolster, while the lower vertical rib a' and lateral flanges a, that extend along the bottom of the side frame, serve to effectively resist the tensile strains incident to the

weight of the load upon the bolster. By forming the side bars of the truck-frame from a rolled beam I am, moreover, enabled to give any desired thickness to the ribs a' without necessarily increasing the thickness of the web A, and by expanding or spreading the ends of the bar or beam from which the side frame is formed the desired space for the pedestal-jaws, axle-box, and spring can be readily obtained.

It is manifest that the precise details of structure above set out may be varied by the skilled mechanic without departing from the spirit of the invention. Thus, for example, it is not essential that both the upper and lower projecting ends of the side frame should be bent or expanded, although I regard this as preferable. Inasmuch, also, as my invention presents the first instance of a side frame for car-trucks formed from a single plate girder or beam rolled with its edges flanged, or thicker than its web or body, the thick edges projecting beyond the cut-away ends of the web or body, I do not wish the invention to be understood as restricted to the precise shape of the lateral extension of edge metal or flanges whereby the edges of the plate-beam are thickened.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A side frame for car-trucks formed from a single rolled-plate girder or beam having a thin web or body and having edges rolled with flanges or thicker than said web or body, the ends of said web or body being cut away, leaving the thick edges or flanges projecting beyond said ends, substantially as described.

2. A side frame for car-trucks formed from a single rolled-plate girder or beam having flanges at its edges, the ends of the web of said plate girder or beam being completely cut away between its edge flanges, and said edge flanges being bent to form the spaces for the journal-box, &c., substantially as described.

3. A side frame for car-trucks formed of an integral plate girder or beam comprising a central web having at top and bottom lateral flanges and having at top and bottom outside of said lateral flanges the vertical reinforce-ribs, substantially as described.

4. A side frame for car-trucks comprising a central web having at top and bottom lateral flanges and having at top and bottom outside of said lateral flanges the vertical reinforce-ribs, said vertical ribs being formed of metal thicker than the central web, substantially as described.

5. A side frame for car-trucks formed from a single-plate girder or beam rolled with top and bottom lateral flanges a and with top and bottom vertical ribs a' outside the lateral flanges, the ends of the lateral flanges and vertical ribs extending beyond the web of the beam and being suitably bent to form spaces

for the axle-boxes, &c., substantially as described.

6. A side frame for car-trucks rolled from a single-plate girder or beam with top and bottom lateral flanges and with top and bottom reinforce-ribs extending in vertical direction and having the lateral flanges and vertical ribs extending beyond the body of the web of the beam and bent outwardly therefrom, the end portions of said web being stretched or expanded adjacent said bent flanges, substantially as described.

7. A side frame for car-trucks formed from

a single rolled-plate girder or beam having a thin web or body and having edges rolled 15 thicker than said web or body, the end of said web or body being cut away so as to leave the thickened edges projecting beyond said ends, said projecting thickened edges being bent outwardly and the end portions of said web 20 or body being stretched or expanded adjacent said bent edges, substantially as described.

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