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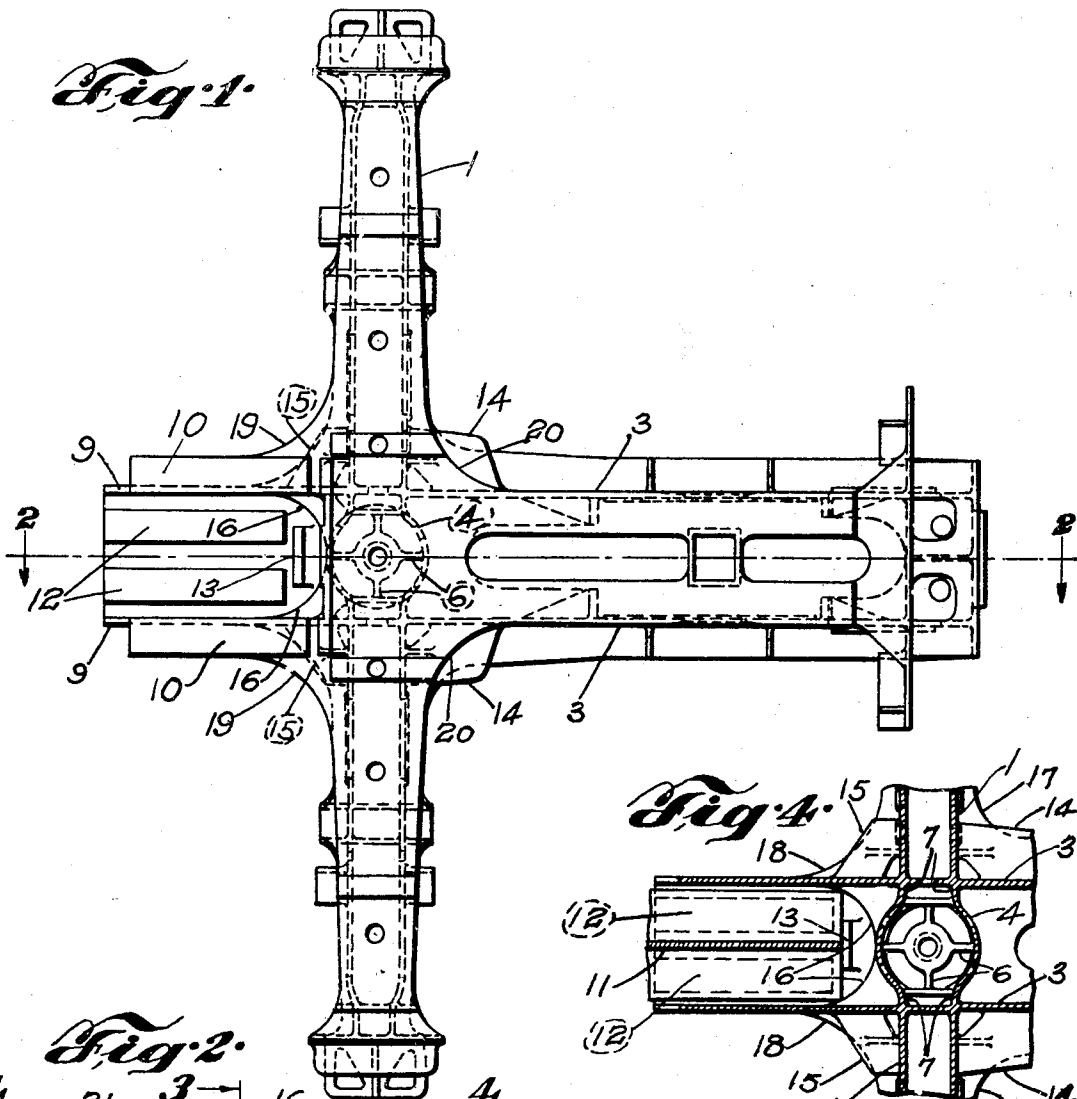
E. G. HALLQUIST

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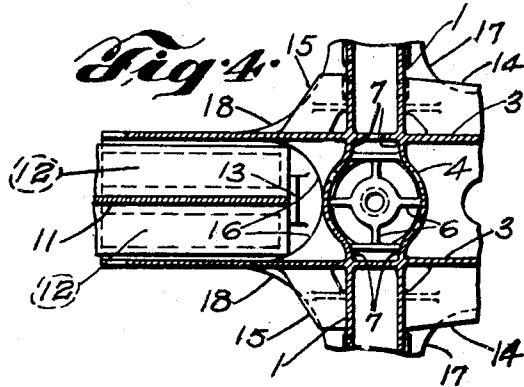
CAR UNDERFRAME STRUCTURE

Filed Sept. 4, 1931

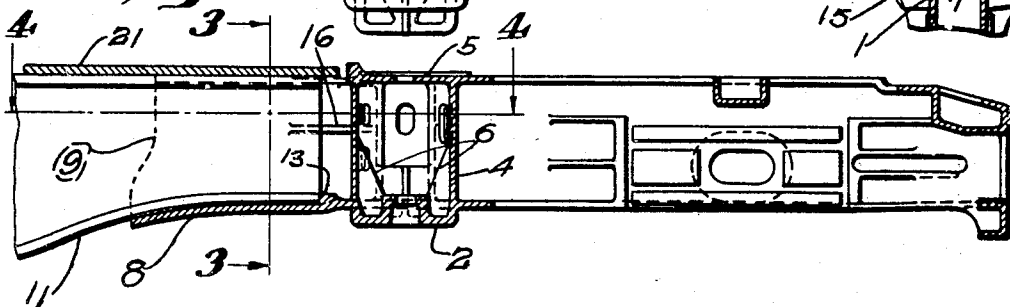
*Fig. 1.*



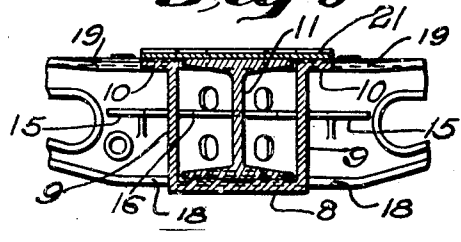
*Fig. 4.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE

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## CAR UNDERFRAME STRUCTURE

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5 Claims. (Cl. 105—415)

This invention relates to railway rolling stock and consists particularly in a novel car underframe end structure including a bolster and draft sills and elements for attaching the structure to the center sill or sills.

The main object of the invention is to provide means for connecting the end structure and center sill in such a manner as to relieve the securing rivets of vertical stresses. This object and other more detailed objects are attained in the structure illustrated in the accompanying drawing in which—

Figure 1 is a top view of the structure.

Figure 2 is a vertical longitudinal section taken on the line 2—2 of Figure 1.

Figure 3 is a vertical transverse section taken on line 3—3 of Figure 2.

Figure 4 is a detail horizontal section taken on the line 4—4 of Figure 2.

The underframe end member illustrated comprises an integral casting including a box-shaped bolster 1 having the usual center plate 2, and draft sills 3 extending forwardly therefrom. Center plate 2 is reinforced by upright arcuate walls 4 extending between the center plate and the top web 5 of the bolster and having interior reinforcing ribs 6 and merging with the vertical side walls of the bolster at 7.

Extending from the left side of the bolster (Figure 1) is a U-shaped center sill attaching structure including bottom plate 8 and vertical webs 9 which pass through the bolster and form extensions of the draft sills 3, and which have outwardly facing top flanges 10. The rear portion of bottom plate 8 curves downwardly away from the bolster, to conform with the contour of the bottom flange of an I-beam center sill 11, and is provided with finished pads 12, for mounting the center sill and with a shoulder 13 forming an abutment for the end of the center sill.

Reinforcing ribs 14, 15, and 16 are disposed substantially in a common horizontal plane intermediate the top and bottom webs of the casting and serve to brace the intersection of the bolster, draft sills, and attaching structure. Curved gussets 17 and 18 merge with the bottom webs of the respective members and similar gussets 19 and 20 merge with the top wall of the bolster, the top flanges of the draft sills, and flanges 10 on the attaching structure.

A splice plate 21 rests on the top web of the center sill and on flanges 10 and is riveted or otherwise secured to these elements. Rivets may also be inserted through the bottom plate and the lower web of the center sill.

The vertical loads on the center sill will be transmitted to the attaching structure and bolster through plate 8 and flanges 10 and the securing rivets will be relieved of these vertical

loads. Most of the horizontal stresses in one direction will be taken by the shoulder 13.

The end casting is particularly adapted for use in connection with a single I-beam center sill, as shown, but it will be understood that the casting could be readily used in connection with spaced center sills and these could be of any suitable shape.

Moreover, the draft sills might be formed separately and secured to the bolster by suitable means and it would be within the spirit of the invention to form the center sill attaching structure of box or I-section in which case the center sill or sills could be supported on the bottom web of flanges of the structure.

Obviously, many of the structural details of the bolster and draft sills illustrated are not essential and these and other details might be varied without departing from the spirit of the invention and the exclusive use of all such modifications as come within the scope of the appended claims is contemplated.

What is claimed is:

1. In a railway vehicle underframe, a center sill, an integral end structure comprising a bolster, a draft member on one side thereof, and a member on the other side thereof having a horizontal web disposed beneath the end of said center sill and spaced vertical webs on each side thereof having top flanges, and a splice plate secured to the top of said center sill and to said flanges.

2. In a railway vehicle underframe, a center sill, a bolster, a U-shaped member projecting from said bolster and having a bottom plate supporting the end of said center sill, said U-shaped member being open at the top, and a splice plate secured to the tops of said center sill and said U-shaped member.

3. An integral underframe structure for a railway vehicle and including a bolster, and a U-shaped member for attachment to a center sill, the transverse web of said member being located at the bottom thereof and having elements on its upper surface for mounting the center sill.

4. An integral underframe structure for a railway vehicle and including a bolster, a draft sill, and a U-shaped member for attachment to a center sill, the legs of said member being in line with said draft sill and the transverse web of said member having elements on the upper surface thereof and between said legs for mounting the center sill.

5. In a railway vehicle underframe, a bolster, draft sills projecting from one side thereof, a U-shaped member projecting from the other side thereof and having upright legs in alignment with said sills and a bottom web, and a center sill supported on said web and between said legs.