Aug. 6, 1929. E. KALISCH 1,723,176

WELDED UNDERFRAME FOR RAILWAY CARS

Filed March 21, 1928

Fig. 1.

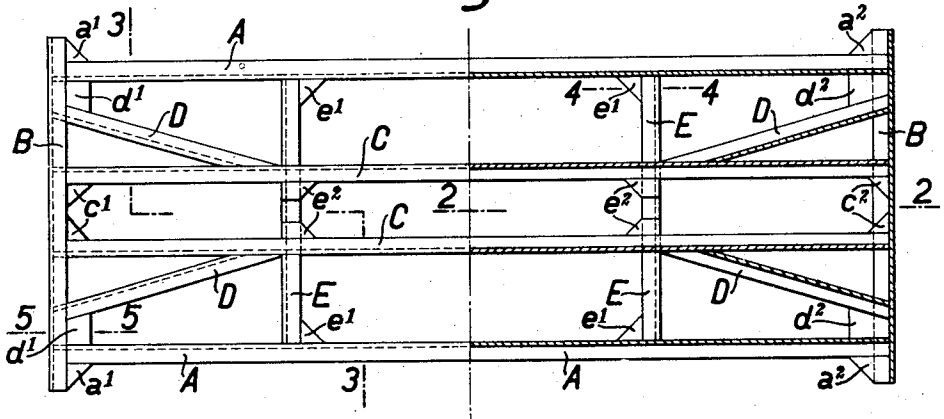


Fig. 2.

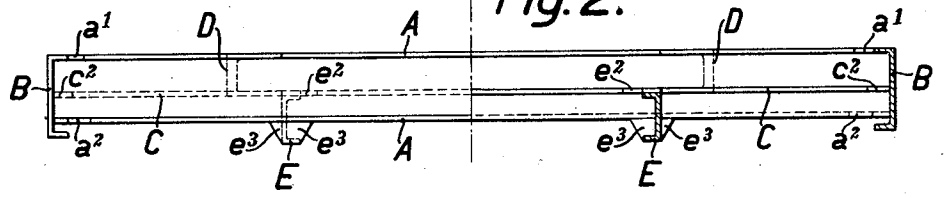


Fig. 3.

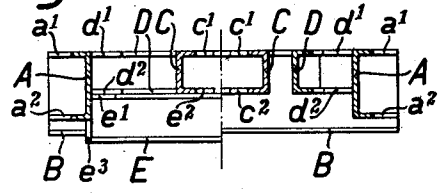


Fig. 4.

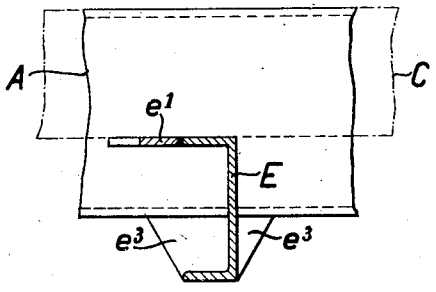
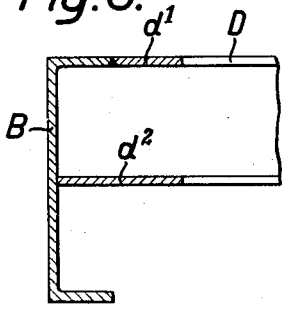


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WELDED UNDERFRAME FOR RAILWAY CARS.

Application filed March 21, 1928, Serial No. 263,500, and in Germany August 25, 1927.

The invention relates to welded underframes for railway cars and consists in so arranging the corner plates and gusset plates, that a particularly favorable transmission of the forces at the points of junction and a low expenditure of material is obtained.

In order to allow of my invention to be more easily understood, an embodiment of the improved underframe is illustrated by way of example in the drawing which accompanies and forms part of this specification. In this drawing:

Figure 1 is a top view, partly in section, of the underframe,

Figure 2 is the corresponding side view, partly in section on line 2—2 of Figure 1,

Figure 3 is a section on line 3—3 of Figure 1, seen from the right, while

Figures 4 and 5 show in enlarged scale sections on line 4—4 and 5—5, respectively, of Figure 1.

Referring to these Figures, A, A denote the two side sills of the underframe, which are interconnected by end sills B. The flanges which are the upper ones in the drawings, of the sills A and B, lie in one and the same plane. In order to make this possible the upper flanges of the side sills A are cut away at their ends a distance equal to the width of the upper flanges of the end sills B. The connection between the upper flanges of the sills A and B is established by corner plates a^1 located in the plane of these flanges and having the same thickness as the latter, these corner plates a^1 being butt-welded with the flanges. The lower flanges of the side sills A abut with their blunt ends on the webs of the sills B, see right-hand half of Figure 1 and Figure 2, and are welded with these webs both immediately and by means of further corner plates a^2. The latter are located likewise in the plane of the lower flanges of the sills A and have the same thickness as these flanges. Finally, all remaining points of contact of the sills A and B are welded with one another. In the same manner are welded the intermediate sills C with the end sills B both immediately and through the medium of corner plates c^1 and c^2. Furthermore, buffer struts D are provided between the sills A and C, which struts extend obliquely of the frame and have outer ends welded directly to end sills B and to the side sills A through gusset plates d^1 and d^2. The gusset plates d^1 are located in the plane of the upper flanges of the sills B and struts D, while their connection with the side sills A is established at the web side of the latter. The plates d^2 are located in the plane of the lower flange of the struts D and are welded with this flange and the webs of the sills A and B. At their ends remote from the sills B the buffer struts D are cut away obliquely and are welded there with the web sides of the intermediate sills C. Finally, cross bars E are provided transversely of the sills A and C, and underlie the intermediate sills C. The cross bars E abut with their blunt ends on the web side of the sills A and are welded with them both immediately and through the medium of corner plates e^1 arranged in the plane of their flanges. The connection of the bars E with the intermediate sills C is established immediately by welding at the crossings and by gusset plates e^2 located in the plane of the lower flanges of the intermediate sills C and on the upper flanges of the bars E. The bars E further project beyond the lower flanges of the sills A and are welded with the latter sills by gusset plates e^3, see particularly Figure 4, located in the plane of the web of the sills A.

By the described arrangement of the corner plates and gusset plates the advantage is obtained of the forces transmitted by these plates falling into the planes of parts of the elements of the underframe, whereby additional bending and shearing stresses, which arise with riveted corner and gusset plates, of these elements are obviated. In consequence of the lower stress these plates are subjected to, they may further have smaller dimensions.

What I claim, is:—

1. As a new article of manufacture a welded railway car underframe having corner plates arranged in the plane of a portion of at least one of the underframe elements to be connected by them.

2. As a new article of manufacture a welded railway car underframe having gusset plates arranged in the plane of a portion of at least one of the underframe elements to be connected by them.

3. As a new article of manufacture a welded railway car underframe having corner plates and gusset plates arranged in the plane of a portion of at least one of

the underframe elements to be connected by them.

4. As a new article of manufacture a welded railway car underframe having corner plates arranged in the plane of a flange of at least one of the underframe elements to be connected by them.

5. As a new article of manufacture a welded railway car underframe having gusset plates arranged in the plane of a flange of at least one of the underframe elements to be connected by them.

6. As a new article of manufacture a welded railway car underframe having gusset plates arranged in the plane of the web of at least one of the underframe elements to be connected by them.

7. As a new article of manufacture a welded railway car underframe having corner plates arranged in the plane of a flange of at least one of the underframe elements to be connected by them, said corner plates having the same thickness as said flange.

8. As a new article of manufacture a welded railway car underframe having gusset plates arranged in the plane of a flange of at least one of the underframe elements to be connected by them, said gusset plates having the same thickness as said flange.

9. As a new article of manufacture a welded railway car underframe having gusset plates arranged in the plane of the web of at least one of the underframe elements to be connected by them, said gusset plates having the same thickness as said web.

10. As a new article of manufacture a welded railway car underframe having corner plates and gusset plates arranged in the plane of a portion of at least one of the underframe elements to be connected by them, said plates having the same thickness as said portion.

The foregoing specification signed at Cologne this 7th day of March, 1928.

ERNST KALISCH.