No. 887,542. PATENTED MAY 12, 1908.

V. M. SUMMA.

CAR UNDERFRAME.

APPLICATION FILED JAN. 18, 1908.

Fig. 1.

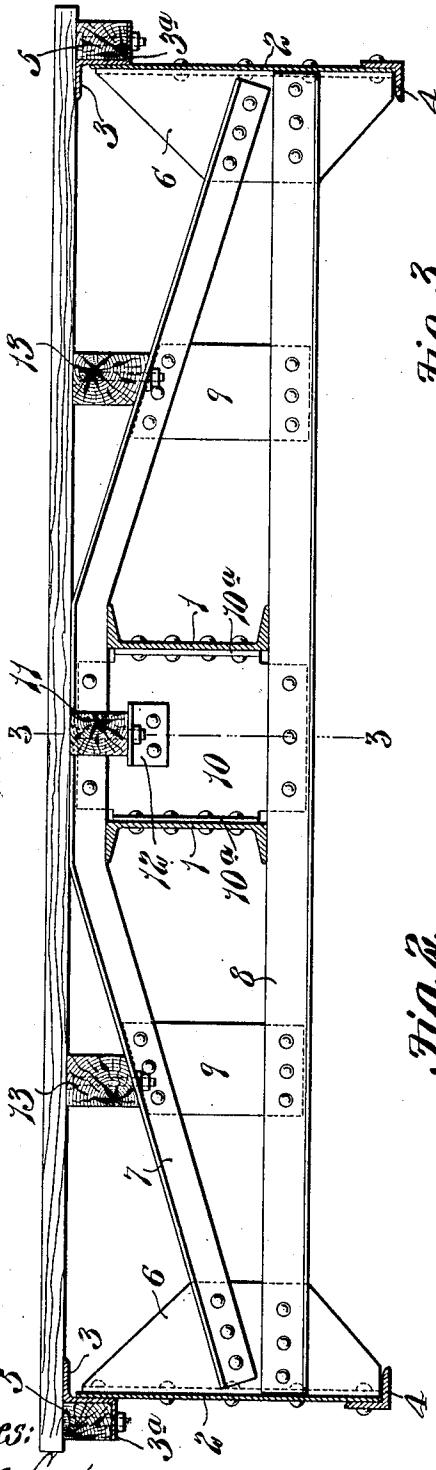


Fig. 3.

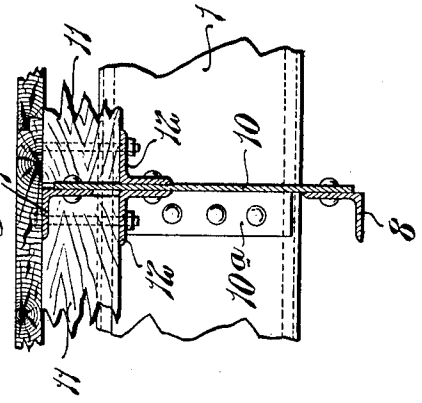
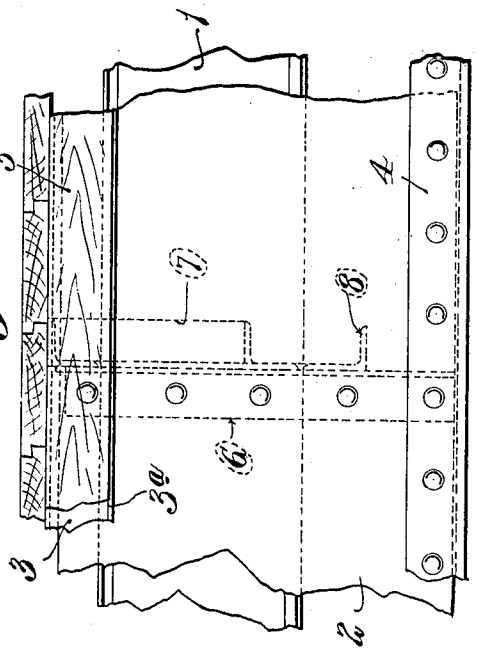


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

VICTOR M. SUMMA, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

CAR-UNDERFRAME.

No. 887,542. Specification of Letters Patent. Patented May 12, 1908.

Application filed January 18, 1908. Serial No. 411,449.

To all whom it may concern:

Be it known that I, VICTOR M. SUMMA, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Car-Underframes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a transverse sectional view of a car underframe constructed in accordance with my invention, the cross bearer being shown in elevation; Fig. 2 is a side elevation of a portion of the underframe; and Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

This invention relates to car underframes, and particularly to the cross bearers of such structures.

The main object of my invention is to provide a cross bearer that is strong and light and which can be manufactured at a low cost.

Another object of my invention is to provide a car underframe of novel construction.

Referring to the drawings which illustrate the preferred form of my invention, 1 designates channel-shaped center sills of an underframe arranged with their horizontal legs projecting outwardly. The side sills are designed to carry the major portion of the load and each of said sills consists of a plate girder comprising a vertically disposed web plate 2 provided at its upper edge with a top chord 3 of Z-shape in cross section and at its lower edge with a bottom chord 4 of L-shape in cross section, the top chord preferably consisting of a commercially rolled Z-bar and the bottom chord consisting of a commercially rolled angle. The web plate 2 is connected to the inside face of the vertical web of the Z-bar 3 and to the inside face of the vertical leg of the angle 4, the horizontal leg of said angle projecting inwardly and thus producing an approximately channel-shaped side sill provided adjacent its upper edge with an outwardly projecting flange 3^a to which one of the wooden floor supports or stringers 5 is connected, as shown in Fig. 1.

Gusset plates 6 project inwardly from the side sills and the members which form the cross bearer are connected to said gusset plates, said members consisting of a continuous compression member 7 that extends over the center sills 1 and has its ends bent downwardly and secured to the gusset plates 6 and a straight continuous tension member 8 that extends underneath the center sills. The compression and tension members 7 and 8 of the cross bearer preferably consist of commercially rolled angles arranged with their horizontal legs or flanges projecting in the same direction. Web plates 9 are secured to the vertical legs of the tension and compression members of the cross bearer intermediate the side sills and center sills, and a diaphragm 10 that is arranged between the center sills is also secured to said tension and compression members, said diaphragm being provided with side flanges 10^a that are connected to the webs of the center sills, as shown in Fig. 1.

The center floor support or stringer 11 is divided at the cross bearer and the ends of the sections which form said support rest on angle iron brackets 12 secured to the opposite sides of the diaphragm 10 between the center sills. The intermediate floor supports or stringers 13 rest upon the horizontal leg or flange of the compression member 7 of the cross bearer and are secured thereto by bolts or other suitable fastening devices.

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

1. In a car underframe, plate girder side sills, center sills, a continuous rolled member passing underneath the center sills and connected to the side sills above their lower edges, and a second continuous member passing over the center sills and having its ends deflected downwardly and secured to the side sills; substantially as described.

2. A car underframe provided with deep plate girder side sills and shallow center sills having their upper edges arranged in a lower horizontal plane than the upper edges of the side sills, a continuous flanged member passing underneath the center sills and connected to the side sills above their lower edges, a second continuous flanged member passing over the center sills and having its ends connected to the side sills adjacent the points where the member first referred to is connected to the side sills, and web plates connected to the vertical flanges of said continuous members; substantially as described.

3. A car underframe, comprising side sills

designed to carry the major portion of the load and provided with inwardly projecting gusset plates, comparatively shallow center sills, a straight continuous rolled member passing underneath the center sill and connected to said gusset plates above the lower edges of the side sills, and a second continuous rolled member passing over the center sills and having its ends deflected downwardly and connected to the side sills; substantially as described.

4. A car underframe, comprising side sills, center sills having their upper edges arranged in a lower horizontal plane than the upper edges of the side sills, gusset plates projecting inwardly from the side sills, a continuous member passing underneath the center sills and connected to said gusset plates above the lower edges of the side sills, and a second continuous member passing over the center sills and having its ends deflected downwardly and connected to said gusset plates; substantially as described.

5. A car underframe, comprising deep side sills, center sills, gusset plates projecting inwardly from the side sills, a straight continuous flanged member passing underneath the center sills and connected to said gusset plates, a second continuous flanged member passing over the center sills and having its ends deflected and connected to said gusset plates, web plates connected to the vertical legs of said members between the center sills and side sills, and a diaphragm arranged between the center sills and secured to the vertical legs of said members; substantially as described.

6. A car underframe provided with plate girder side sills each of which consists of a web plate provided at its lower edge with an angle and at its upper edge with a Z-bar, continuous members passing over and underneath the center sills and connected to the side sills, and floor supports carried by the outwardly projecting flanges of the Z-bars of the side sills; substantially as described.

7. A car underframe, comprising built-up plate girder side sills provided with top chords of Z-shape in cross section, center sills, a continuous member passing underneath the center sills and connected at its opposite ends to the side sills, a second continuous member passing over the center sills and connected to said side sills, a diaphragm arranged between the center sills and connected to said members, floor supports carried by the outwardly projecting flanges of the Z-shaped members of the side sills, and a center floor support connected to brackets on said diaphragm; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this fifteenth day of January, 1908.

VICTOR M. SUMMA.

Witnesses:
WELLS L. CHURCH,
GEORGE B. BAKEWELL.