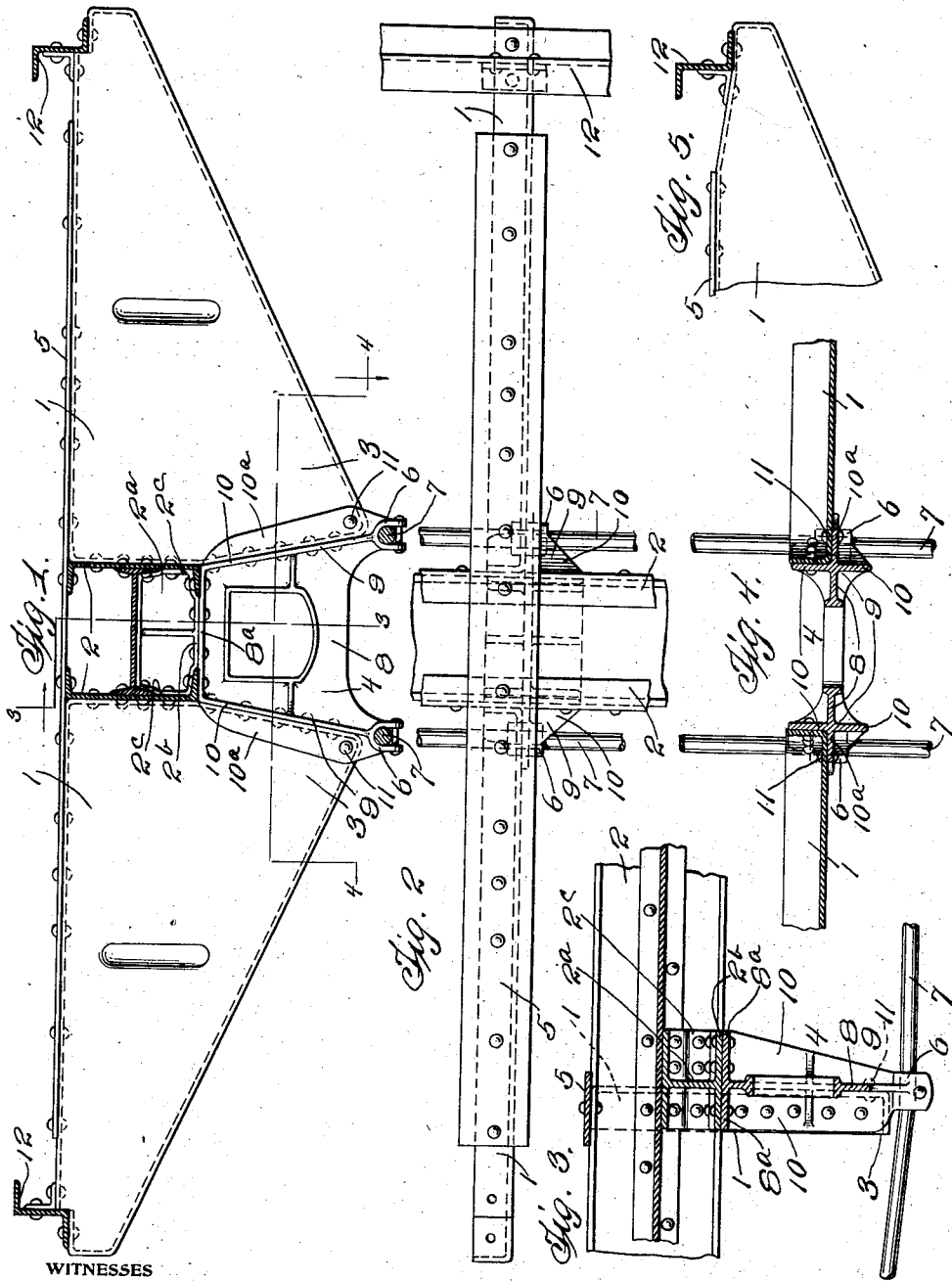


J. McE. AMES.
CROSS BEADER.
APPLICATION FILED AUG. 26, 1911.

1,021,909.

Patented Apr. 2, 1912.



WITNESSES

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CROSS-BEARER.

1,021,909.

Specification of Letters Patent.

Patented Apr. 2, 1912.

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To all whom it may concern:

Be it known that I, JOHN McE. AMES, residing at Dongan Hills, Richmond county, Staten Island, New York, and being a citizen of the United States, have invented certain new and useful Improvements in Cross-Bearers, 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, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings: Figure 1 is a transverse sectional view through a car underframe, such as is illustrated in my co-pending application Serial Numbers 550,243 and 565,653 in which this present application originated and illustrates in elevation the cross bearer construction forming the subject matter of this application. Fig. 2 is a top plan view of the cross bearer shown in Fig. 1. Fig. 3 is a transverse sectional view through the cross bearer taken on line 3—3 of Fig. 1 and illustrating adjacent portions of the car underframe in longitudinal section. Fig. 4 is a horizontal detail section taken on the plane of line 4—4 of Fig. 1 and, Fig. 5 is a detail view of a modification.

The object of this invention is to provide a cross bearer of simple and substantial construction and to this end it employs diaphragms as 1—1 placed upon opposite sides of the center sill members 2—2 of the car underframe, said diaphragms having portions 3—3 extending considerably below the horizontal plane of the under side of said center sill. It comprises also a filler as 4 disposed beneath the center sill and connecting the depending portions 3—3 of the diaphragms in such manner as to form a cross bearer with upper surfaces in the same plane with the upper surface of the center sill and with substantial portions, comprising the compression chord, extending continuously from side sill to side sill beneath the center sill.

A top cover plate or tension member 5

is fixed to the upper edges of the diaphragms 1—1 and extends across the center sill.

The intermediate member or filler 4 of the cross bearer is formed with a pair of saddles 6—6 designed to directly engage the truss rods 7—7, thus obviating the necessity for the struts which are commonly employed.

The center sill may comprise any desired form which will provide surfaces for the attachment of the diaphragms 1, and it is to be understood that it is not desired to restrict this invention to center sills of the specific form illustrated, and that the invention may be equally well applied a center sill comprising only a single beam if desired. In the construction shown a pair of flanged beams are employed, having their flanges turned inwardly, and a flanged filler or connector as 2^a is disposed between said inverted flanges, said connector having a bottom flange 2^b in the plane of the bottom flanges of the center sill beams.

Each of the diaphragms 1 comprise a web formed with inner marginal flanges fixed to the sides of the center sill, by rivets some of which engage vertical flanges 2^c of the connector 2^a, and fixed to portions of the filler 4. Each web is also formed with a top flange fixed to the under side of the cover plate 5.

The filler 4 comprises a web or body portion and a pair of legs 9—9, said legs extending substantially directly between the points of greatest stress from the center sill to the respective truss rods 7 and said web serving to strengthen said legs.

The legs comprise each a transversely projecting rib 10, to which the adjacent portions of the laterally projecting marginal flanges of the diaphragms are riveted, and a rib 10^a in alinement with the web 8. The rib 10^a is disposed so as to lap a portion of the web of the adjacent diaphragm and is riveted thereto as at 11.

A top flange 8^a is formed upon the web 8, said flange being fixed to the under side of the center sill and, in the structure illustrated, being fixed to the under side of the flange 2^b of the connector 2^a.

It will be observed that with this construction the legs 9 may be given any desired inclination from the vertical so as to

spread the truss rods to greater or lesser extent at the point of the cross bearer, said inclination serving also to more directly absorb the compression stresses set up in the cross bearer.

The outer ends of the diaphragms 1 may be given any desired shape for the attachment of the side sills 12—12 of the underframe, two of such shapes being illustrated in the drawings, Fig. 1 showing the upper flanges of the diaphragm to be cut and depressed to receive the side sills, and Fig. 5 showing said flange to be inclined downwardly for the same purpose. Obviously the form of the ends of the diaphragm is not material to this invention and may also be altered to adapt itself to a different style of side sill, if desired.

The cross bearer forming the subject matter of this application, is illustrated but not claimed in application filed by me March 18, 1910, Serial No. 550,243.

What I claim is:

1. In an underframe, the combination with a center sill comprising relatively shallow rolled sections and truss rods therefor, of a sectional cross bearer comprising pressed diaphragms, and an interposed casting below said sills having integrally formed truss rod saddles.

2. In an underframe, the combination with a center sill comprising relatively shallow rolled sections and truss rods therefor, of a sectional cross bearer comprising spaced diaphragms connected to the webs of said sills, and an interposed cast member formed with a pair of truss rod saddles.

3. In an underframe, the combination with a center sill comprising relatively shallow rolled sections and truss rods therefor, of a sectional cross bearer comprising a cast compression member bearing against said sills and formed with a truss rod saddle, and spaced diaphragms connected di-

rectly to said member and to the webs of said sills.

4. In an underframe, the combination, of a center sill, comprising relatively shallow rolled sections, diaphragms fixed to and outstanding therefrom and each having a portion depending below the center sill and tapering outwardly and downwardly therefrom, a cast flanged filler block fixed to and depending from the center sill between said diaphragms and flared to correspond with the taper of the depending portions of the diaphragms, there being integral truss rod saddles at the lower corners of the filler, and truss rods engaging said saddles.

5. In an underframe, the combination with a center sill comprising relatively shallow rolled sections, and side sills, of a sectional cross bearer comprising a central cast section fixed to and below said center sill and to said side sections, the latter sections being fixed to said side sills and said center sills, and truss rod saddles formed upon said central section.

6. In an underframe, the combination with a center sill, comprising relatively shallow rolled sections and side sills, of a sectional cross bearer comprising a central cast section fixed to the under side of said center sill and side sections fixed to said side sills and to said center section, said sections comprising the compression chord of said cross bearer, a plate fixed to the upper side of said center sill and to said side sections comprising the tension chord of said cross bearer, and truss rod saddles formed upon said central section.

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

JOHN McE. AMES.

Witnesses:

F. B. WELCHER,
A. E. OSTRANDER.