J. M. ROHLFING.

CROSS BEARER.

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1,066,533.

Patented July 8, 1913.

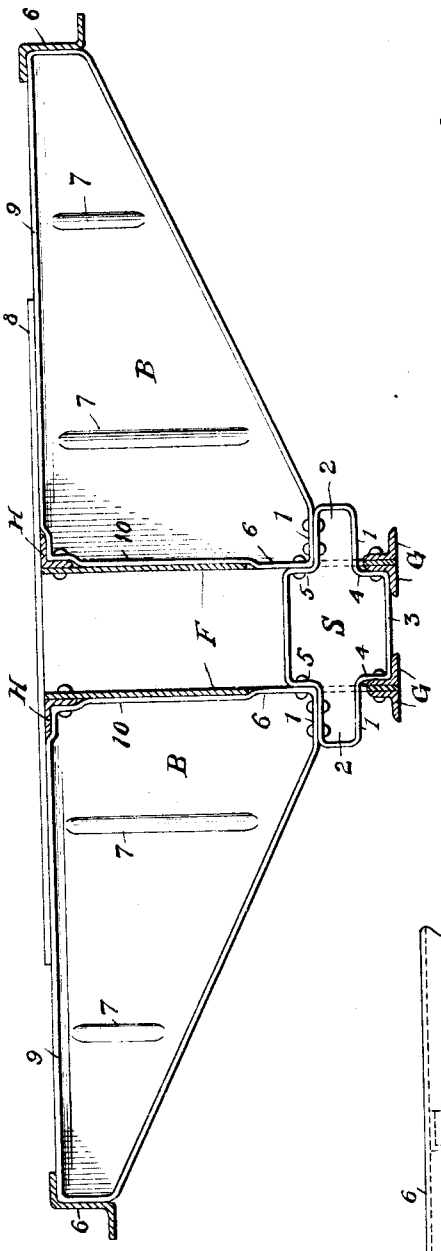

Fig. 1

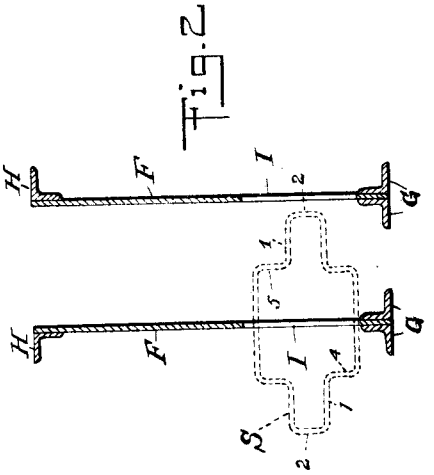

Fig. 2

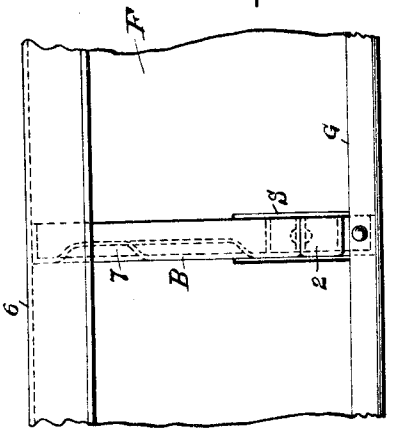

Fig. 3

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UNITED STATES PATENT OFFICE.

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CROSS-BEARER.

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To all whom it may concern:

Be it known that I, JOHN M. ROHLFING, residing at St. Louis, Missouri, 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 to 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 of a car underframe showing the improved cross-bearer in elevation with the longitudinal sills of the car in section. Fig. 2 is a view taken transversely of the center sills showing the manner of inserting the diaphragm chair hereinafter more fully described, and Fig. 3 is a side elevational view of the structure shown in Fig. 1.

The object of the invention is to permit the use of a very deep center sill in car construction with relatively shallow pressed diaphragms coöperating therewith, which pressed diaphragms are supported upon a suitable diaphragm chair carried above the bottom flanges of the center sills, which sills are slotted for the passage through the web thereof of such diaphragm chair, so that diaphragms of greater or less depth and diaphragm chairs of suitable size may be used with sills of the same depth.

Referring to the parts: F indicates the center sills, which are preferably spaced apart, as shown in Figs. 1 and 2, and are provided with the web portions shown in section in said figures, with top flanges H connected directly to the webs of said sills, and with bottom flanges G attached at opposite sides of each sill web and to such sill web by through rivets.

It will be noted that the center sills are slotted at I, and at each side of the center sills are diaphragms B B, which rest upon the diaphragm chair S, as shown in Figs. 1 and 3, the diaphragm chair S having the form of a Greek cross and filling space between the bottom horizontal portion 1 of the diaphragms B and the tops of the bottom sill flanges G, so that the outstanding lateral extensions 2 of the diaphragm chair have a firm support below the horizontal portion 1 of the diaphragms B. It will be noted that below the tops of the sill flanges G, and between the vertical legs of the inner of such flanges, the diaphragm chair S extends downwardly, so that its bottom flange 3 may rest upon the inwardly projecting horizontal legs of the angles G, while through rivets connect the vertical flange 4 of the diaphragm chair with the web and bottom angles of the center sill.

Extending upwardly, relatively between the center sills and between the lower inner corner portions of the diaphragms B, the diaphragm chair extends, and is provided with offsets or shoulders flanged at 5, through which flanges 5 and through the inner flanges 6 of the diaphragms B, rivets extend to connect the diaphragm chair and said diaphragms.

It is to be noted that while the structure illustrated is that of a conventional cross-bearer of a car underframe, the device may be applied to any transversely extending supporting member of a car underframe, one of the principal objects sought being to permit the use of diaphragm chairs of different heights with sills of uniform depth, thereby permitting proper support for cross-bearer diaphragms, as B, coöperating with such sills, which diaphragms may be of a height suitable when coöperating with the diaphragm chair, to fill the space between the top and bottom center sill flanges at the middle portion.

By using the construction illustrated in the drawings, it will be observed that there is provided a rigid spacing block or filler, interposed between the lower portions of the center sills, which spacing block or filler also serves as a supporting member for the cross-bearer diaphragm, and by reason of the upward extension of the said filler, provides a shoulder for the lower inner corner of such diaphragms, to prevent inward compression under stress of lading.

I have illustrated side sills 6 of Z form in cross section, which are especially adapted to the other features of construction shown and described, and I have also shown embossments 7 to provide vertical stiffening means for the diaphragms B, which dia-

phragms B are tied together at the top by means of the top cover plate 8, which is riveted to the outstanding flanges 9 of the diaphragms B. The diaphragms B may be flanged entirely around their perimeter, or such flanges may be provided only at the top at the inner edge 10 and the horizontal portion before referred to, as may be desired.

What I claim is:—

1. In a device of the character described, spaced longitudinal sills with perforated webs, a diaphragm chair extending through and beyond said sills and connected thereto and diaphragms resting on said chair and connected with said sills.

2. In a device of the character described, spaced longitudinal sills with perforated webs, a diaphragm chair extending through and beyond said sills, said chair serving as a filler between said sills and diaphragms resting on said chair and connected with said sills.

3. In a device of the character described, spaced longitudinal sills with perforated webs, a diaphragm chair extending through and beyond said sills and diaphragms resting on said chair and connected with said sills, said chair serving as a filler between said diaphragms and between said sills.

4. As an article of manufacture, a diaphragm chair adapted to serve as a filler between cross bearing diaphragms and adapted to be supported by plate girder car sills and provided with lateral extensions adapted to project through the webs of said sills and serve as supports for said cross bearing diaphragms.

5. In a device of the character described, spaced longitudinal sills with perforated webs, a diaphragm chair extending through and beyond said sills, said chair serving as a filler between said sills and diaphragms resting on said chair.

6. As an article of manufacture, a diaphragm chair having a portion adapted to serve as a filler between spaced center sills and carried by said sills, and having portions adapted to support spaced diaphragms.

7. As an article of manufacture, a diaphragm chair having a portion adapted to serve as a filler between cross bearing diaphragms within the outlines of spaced center sills, and having a portion adapted to serve as a filler between said spaced center sill.

8. In a car underframe, a sill, including webs and a plurality of tension members, a diaphragm chair resting on said tension members and extending through the webs of said sills and diaphragms resting on said chair, portions of said chair spacing said diaphragms and other portions spacing said members.

9. In a car underframe, a sill having a web and a tension portion and means carried by said portion adapted to project through said web and to fit between and support cross-bearing members.

10. In a car underframe, a sill comprising a tension member and a vertical web, a diaphragm chair resting above said tension member and projecting through said web, and a diaphragm resting on said chair and engaging the outer face of said web.

11. In a car underframe, spaced sills, each sill comprising a tension member and a perforated vertical web, filling means disposed between and supported above said tension members and adapted to project through said web to support cross-bearing members on the outside of said vertical webs.

12. As an article of manufacture, a chair having a portion adapted to serve as a compression member between spaced center sills and having another portion forming seats above the bottom of said center sills and adapted to support spaced diaphragms.

13. As an article of manufacture, a chair having the form of a Greek cross, portions thereof adapted to serve as a compression member between spaced center sills and other portions thereof forming seats adapted to support spaced diaphragms, and another portion thereof adapted to serve as the filler between said diaphragms.

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

JOHN M. ROHLFING.

Witnesses:

E. DONADON,

AUG. H. WOBBE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."