J. M. ROHLFING.

CAR UNDERFRAME.

APPLICATION FILED NOV. 28, 1914.

1,164,019.

Patented Dec. 14, 1915.

2 SHEETS—SHEET 1.

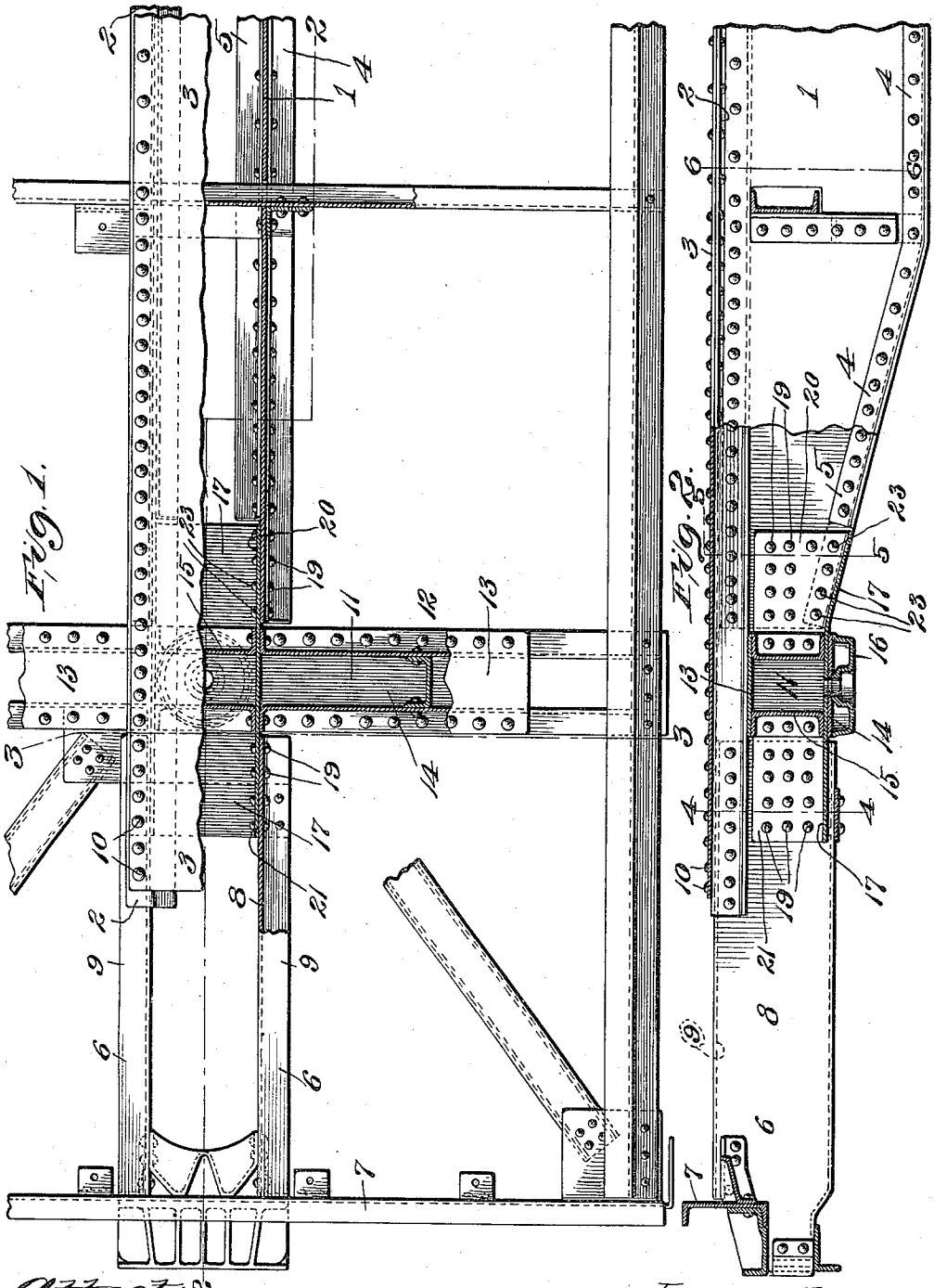


Fig. 1.

Fig. 2.

Witnesses:
Wm. A. Coats.
L. V. Joyce

Inventor:
John M. Rohlfing,
by T. H. Gibbs Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. M. ROHLFING.

CAR UNDERFRAME.

APPLICATION FILED NOV. 28, 1914.

1,164,019.

Patented Dec. 14, 1915.

2 SHEETS—SHEET 2.

Fig. 3.

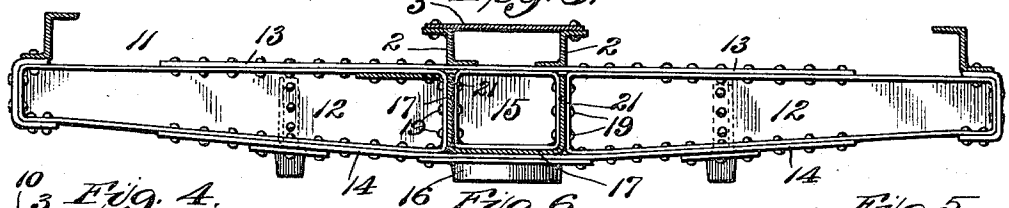


Fig. 4.

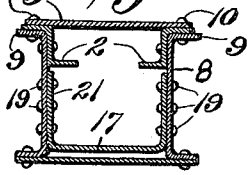


Fig. 6.

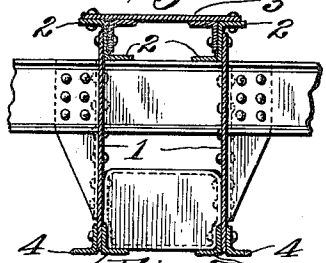


Fig. 5.

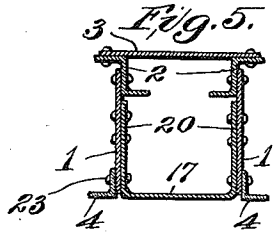


Fig. 7.

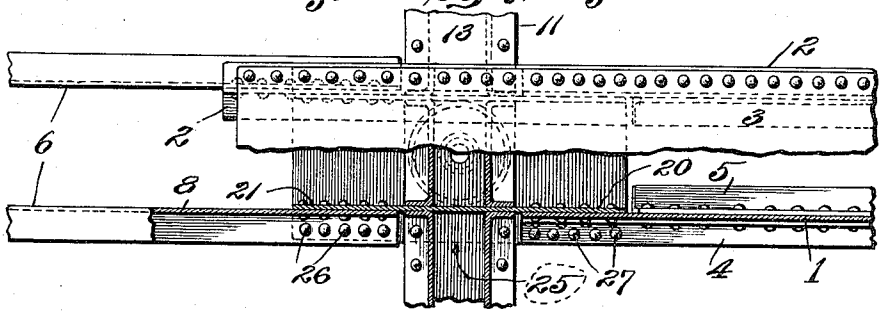


Fig. 8.

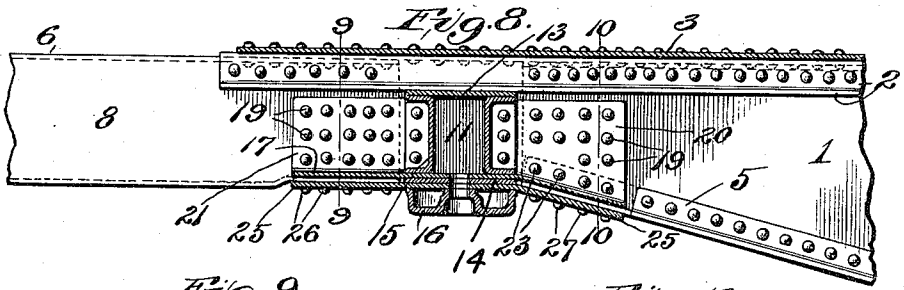


Fig. 9.

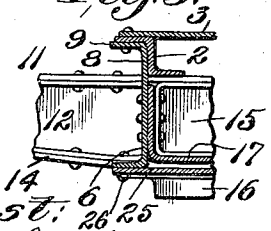
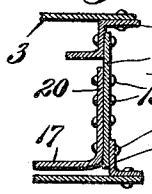


Fig. 10.



Attest:
Wm. A. Scott.
L. V. Joyce

Inventor:
John M. Rohlfing.
by T. H. Gibbs
Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN M. ROHLFING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

CAR-UNDERFRAME.

1,164,019. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed November 28, 1914. Serial No. 874,431.

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 Car-Underframes, of which the following is a full, clear, and exact description, such as will enable other 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 plan view partly in section. Fig. 2 is a central longitudinal sectional view of an underframe including my invention, partly in elevation. Fig. 3 is a transverse section on line 3—3 of Fig. 1. Fig. 4 is a transverse section on line 4—4 of Fig. 2, looking toward the bolster. Fig. 5 is a transverse section on line 5—5 of Fig. 2, looking toward the bolster. Fig. 6 is a section on line 6—6 of Fig. 2, also looking toward the bolster. Fig. 7 is a fragmentary plan view partly in section showing the connection of draft and center sills hereinafter described. Fig. 8 is a central longitudinal fragmentary section in the vicinity of the body bolster showing a slightly modified form of construction. Fig. 9 is a transverse sectional view, the section being taken on line 9—9 of Fig. 8, and Fig. 10 is a similar view, the section being taken on line 10—10 of Fig. 8.

Referring to the parts, 1 indicates the web of the plate-girder sills, which sills comprise the said web, with Z-shaped compression flanges 2, top cover plate 3, secured to said flanges, and tension flanges 4 and 5, the tension flanges 4 extending approximately to the body bolster, hereinafter described, and the tension flanges 5 extending to the trough-shaped member herein described.

The draft sills 6 are of channel form in cross section and extend from the end sills 7 near to but not in actual contact with the body bolster.

The compression members of the center sills in the present instance consist of Z-shaped sections which are riveted to the upper portions of the webs of the sills and, as noted in Fig. 6, the top flanges of said compression members extend over and outwardly beyond the webs of said center sills, which latter, as will be evident, are of plate-girder form.

The compression members 2 of the center sills are longer than the webs of the sills and extend over and beyond the body bolster toward the end sill, as shown in Figs. 1, 2 and 8, and the vertical webs of said compression members are riveted to the webs 8 of the draft sill 6. The draft sills are provided with upper flanges 9, which are secured by rivets 10 through the upper flanges of compression member 2 and top sill cover plate 3.

To facilitate application of the body bolster 11, the webs of the center sills and the webs of the draft sills are spaced apart longitudinally, whereby a space is provided into which the body bolsters 11 may be lifted in assembling the car.

The bolster itself is of peculiar construction, and comprises the wing portions 12, top cover plate 13, bottom cover plate 14, center filler 15, center bearing 16 and a trough-shaped member 17, which latter is of such form that it can be conveniently built into the body bolster while the body bolster parts are being assembled and may be conveniently secured in position by machine-driven rivets in contradistinction to rivets driven by hand-operated tools, thereby affording a convenient and ecomonical method of assembly.

When the sill parts are assembled the body bolster may be lifted from below and placed in position, as indicated in the drawings, whereupon rivets 19 may be driven through the longitudinally-extending wings 20 and 21 of the trough-shaped member 17, before referred to, thereby affording a rigid connection between the body bolster and the center and draft sills.

It will be observed from an inspection of Figs. 2 and 8 that the rivets 23 which secure the wing member 20 to the webs of the center sills, also pass through the vertical flanges of the tension members 4 of the center sills, while the tension members 5 terminate short of such wing portions.

To permit the particular method of connection thus indicated, the trough-shaped member 17 is formed deeper at its inner end, that is, at the end nearer the center of

the car, than it is at the outer end nearer the end sill, and this form of trough enables the builder to utilize the rivets 23, which secure the tension member 4 in position, to assist in connecting the center sill to said trough or U-shaped member, which latter is preferably of open channel form and extends a sufficient distance fore and aft of the bolster to provide a large area for suitable rivet connection with the webs of the center and draft sills.

Fig. 8 illustrates a slightly modified form of construction in which a bottom bolster plate 25 is provided to supplement the U-shaped member 17 and is arranged between bolster bottom cover plate 14 and center bearing 16 as shown in Fig. 9. This plate extends forwardly sufficiently far to be connected by means of a plurality of rivets 26 to the bottom flanges of the draft sills and rearwardly lapping the center sills and the bottom flanges 4, to which it is connected by means of the rivets 27. Thus it will be noted that the spaced plate-girder center sills are alined with but spaced from the draft sills, except insofar as the compression members 2 and top cover plate 3 of the center sills extend over the body bolster and draft sills and the body bolster may be inserted from below, after which it may be secured in position, as before described. One advantage in the use of this U-shaped pressing 17 is that it materially contributes to the strength of the lower portion of the underframe, thereby materially assisting it to resist buffing stresses, and the additional material at the lower part of the pressing, adjacent the bottom cover plate of the body bolster, has a tendency to lower the center of gravity of the underframe at this point, bringing the neutral axis more in line with the line of buffing force, thereby reducing the eccentricity of the force and strengthening the underframe at this point.

A further advantage is that the bolster can be withdrawn without disturbing the center sill between the bolsters or the draft sills between the bolsters and end sills and, due to the reinforcement contributed to the underframe, the center sill webs may be of less length than heretofore, thus saving in the cost of material.

What I claim is:

1. In a car underframe, the combination of spaced plate-girder center sills including webs and compression flanges longer than said webs, spaced draft sills lapping said compression flanges and spaced from the webs of said center sills, body bolsters adapted to be inserted from below between said draft and center sills, and substantially U-shaped splice members built into said bolsters lapping and secured to said draft and center sill webs.

2. In a car underframe, the combination of plate-girder center sills spaced apart, said sills comprising webs and compression members, separately formed draft sills lapping the compression members of said center sills, and a body bolster comprising a U-shaped reinforcing splice plate secured to said draft sills and center sills below the compression members of said plate-girder center sills.

3. In a car underframe, the combination of longitudinally alined and spaced center sills and draft sills, each having a flange near its upper edge with the flange of one of said sills extending across the space between said sills and lapping and being secured to the web of the other sill, a body bolster which is adapted to be inserted from below into the space between said draft sills and center sills, and a trough-shaped member comprising a part of said bolster lapping and being secured to said draft sills and center sills.

4. In a car underframe, the combination of longitudinally alined spaced plate-girder center sills and draft sills, each having an upper flange with the upper flange of one of said sills extending across the space between said sills and lapping and being secured to the other sill, a body bolster which is adapted to be inserted into said space from below, said bolster comprising a channel-shaped member lapping and being secured directly to said draft and center sills, and tension members forming parts of said center sills secured to said channel-shaped member.

5. In a car underframe, alined and longitudinally spaced draft and center sill webs in combination with a bolster in the space between said webs, an open-topped channel-shaped reinforcing member forming part of said bolster and having forwardly and rearwardly extending vertical flanges secured to the webs of the center sill and draft sill webs, and a top chord connected to the web of the center sill lapping and secured directly to the web of the draft sill.

6. In combination in a car underframe, spaced plate-girder center sills including webs and having top chords of Z-shape in cross section secured to such webs, channel shaped draft sills spaced away from the webs of said center sills lapping and being secured directly to said top chords, a bolster interposed between the webs of the center sills and the webs of said draft sills said bolster including spaced diaphragms and connection means passing through said bolster to which said center and draft sills and said bolster diaphragms are directly connected.

7. In combination in a car underframe, spaced plate-girder center sills and flanged draft sills, the center sills having compression chords lapping and being secured directly to said draft sills, a body bolster in-

sertible from below interposed between webs of the center sills and draft sills, a separately formed connection member lapping and being secured directly to said webs of the center and draft sills and extending through said bolster, the bolster having diaphragms which are riveted directly to said connection member.

8. In combination, plate-girder center sills comprising webs, and top chords longer than said webs, flanged draft sills lapped by said top chords, a sill cover plate secured by direct rivet connection to flanges of said draft sills and said top chords, a body bolster insertible from below and interposed between webs of the center sills and webs of the draft sills, and means connecting said bolster to all of said webs.

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

JOHN M. ROHLFING.

Witnesses:
PAUL M. BEARD,
ROBERT J. SCHEIBLI, Jr.

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