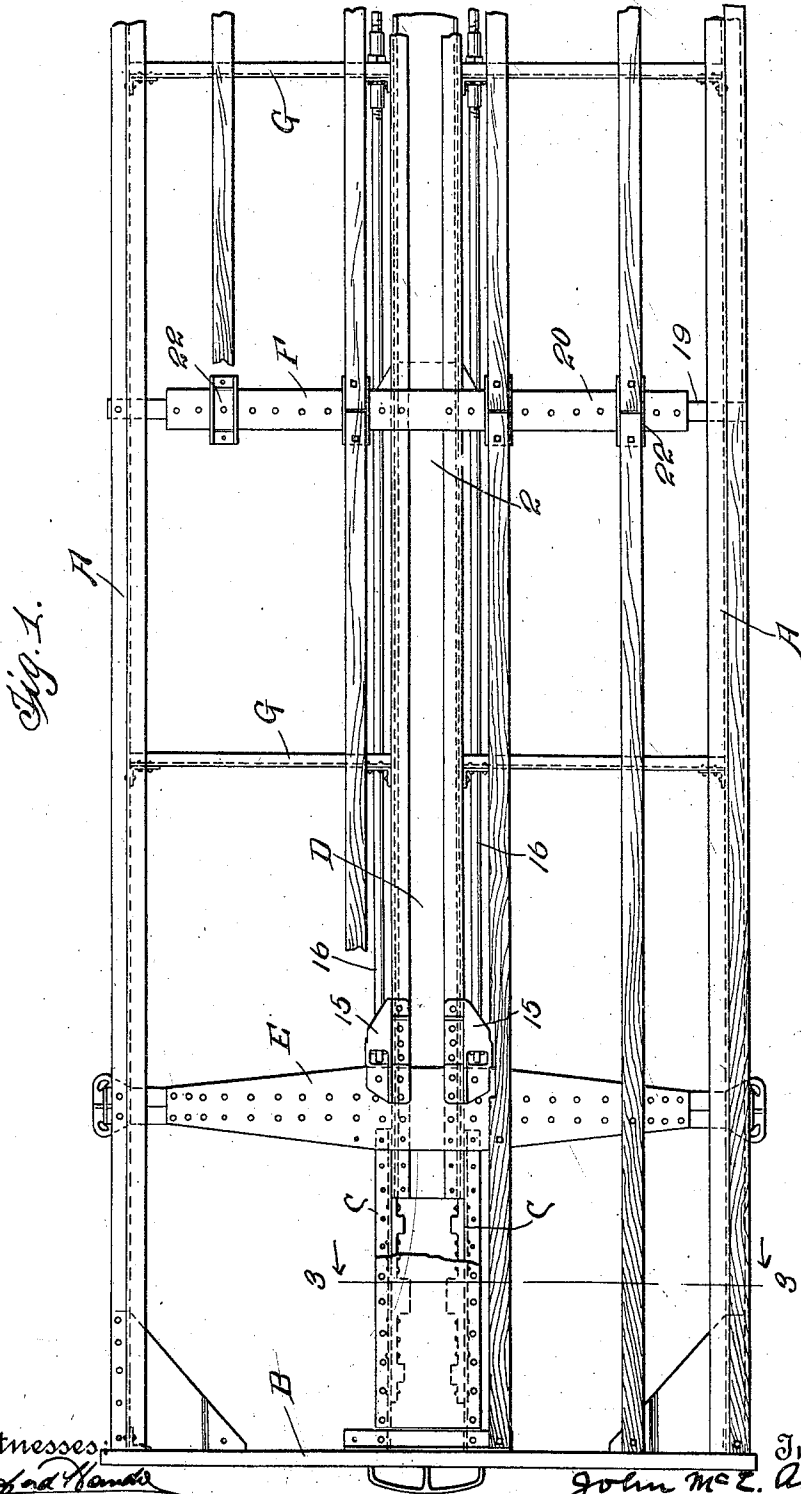


J. McE. AMES.
 UNDERFRAME FOR RAILWAY CARS.
 APPLICATION FILED JUNE 7, 1910.

1,052,639.

Patented Feb. 11, 1913.
 4 SHEETS—SHEET 1.



Witnesses:
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 Edgar M. Pitcher

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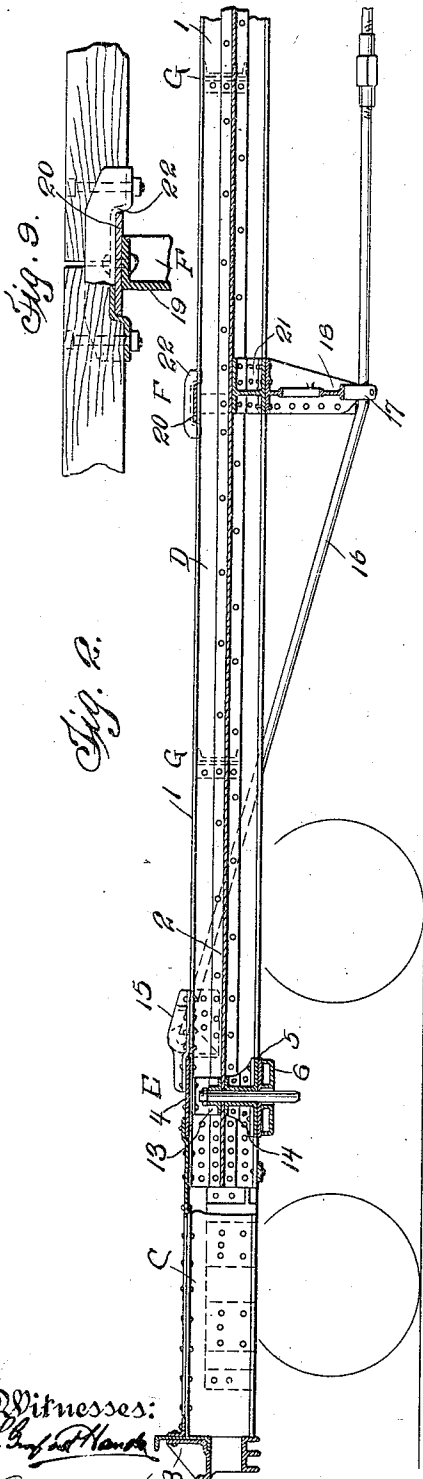


Fig. 3.

Fig. 2.

Fig. 3.

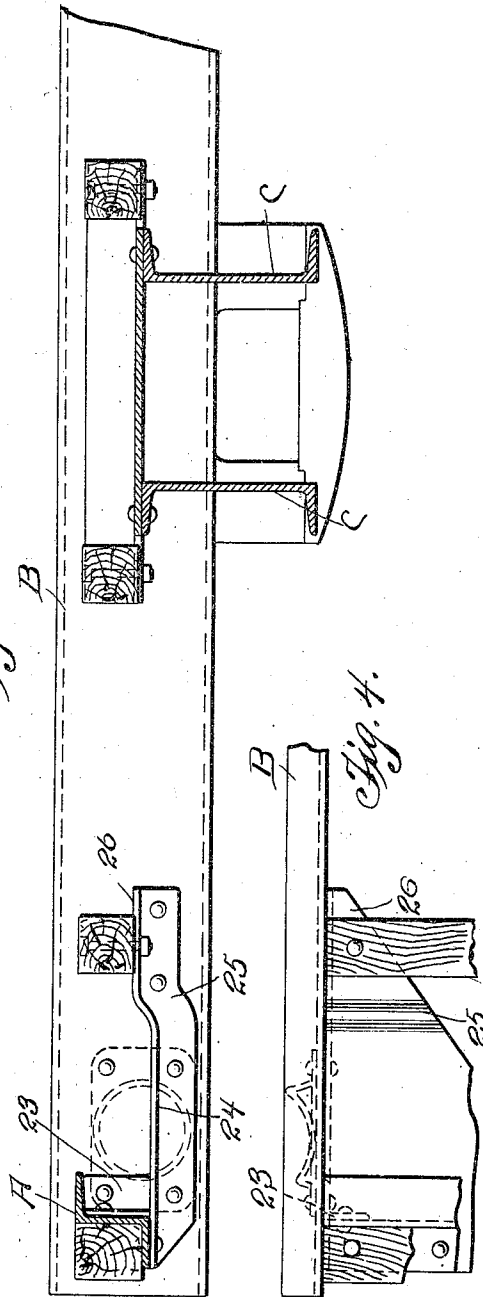


Fig. 4.

Witnesses:
E. M. Kitchen

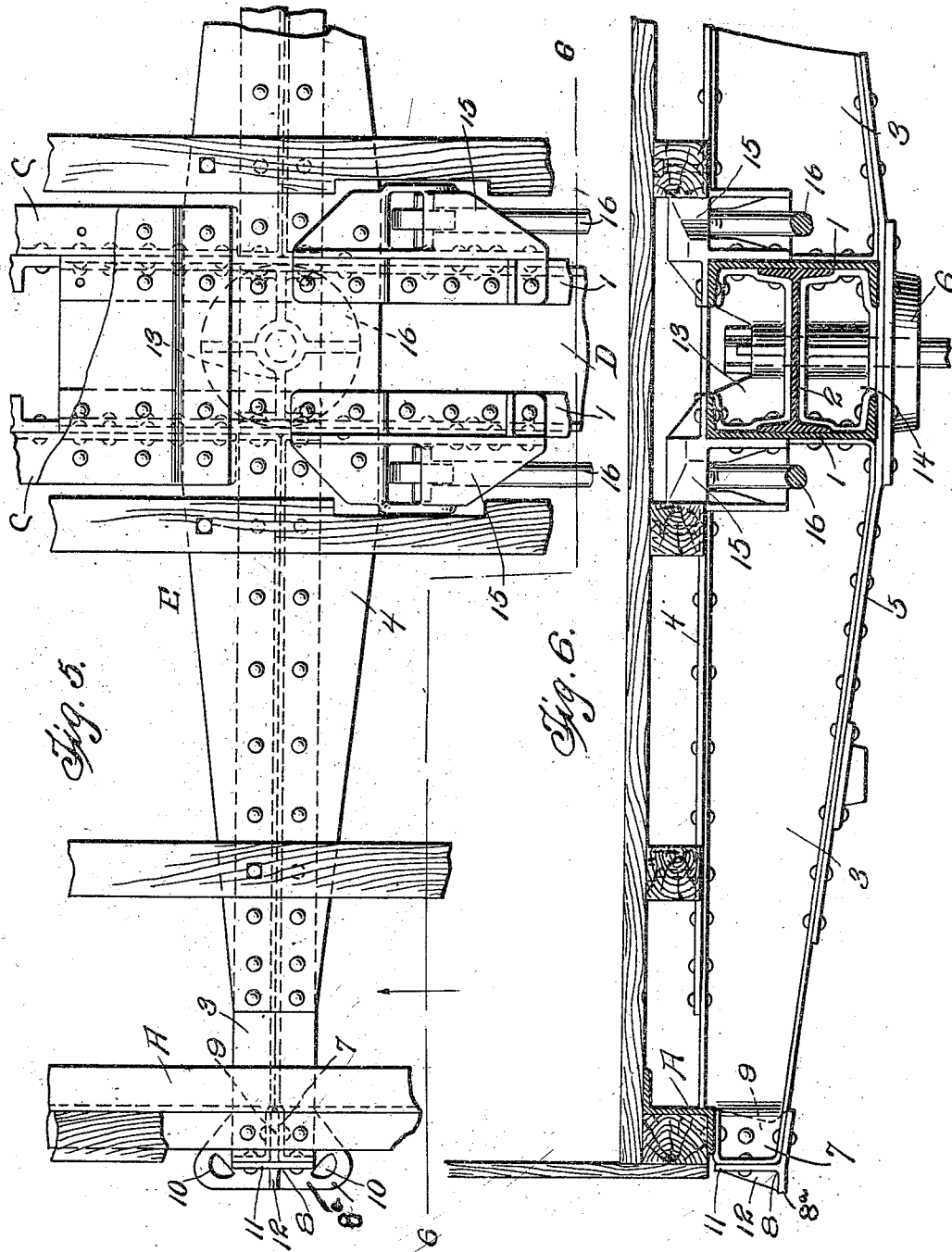
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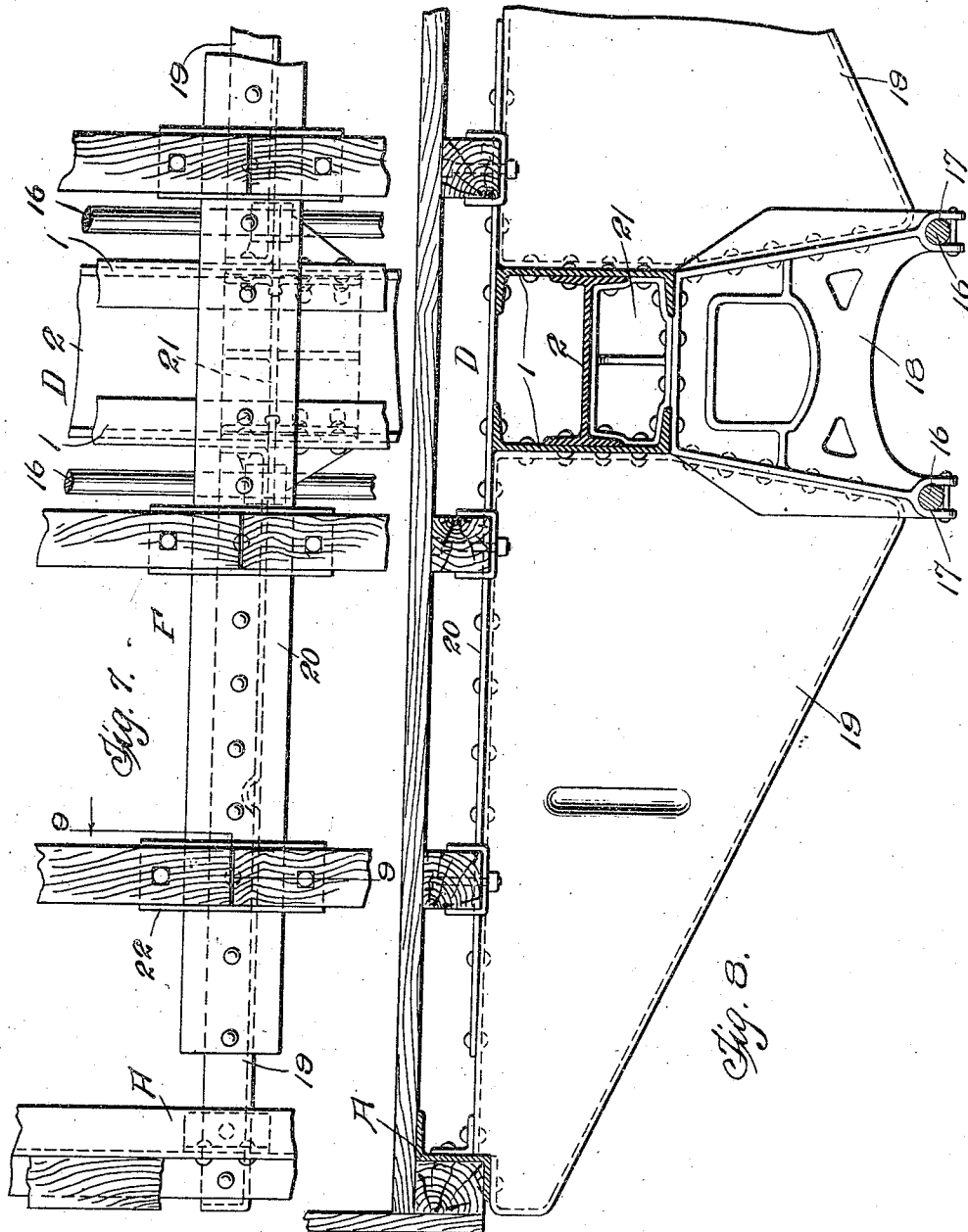
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

JOHN McE. AMES, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

UNDERFRAME FOR RAILWAY-CARS.

1,052,639.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed June 7, 1910. Serial No. 565,653.

To all whom it may concern:

Be it known that I, JOHN McE. AMES, residing at New York city, New York, and being a citizen of the United States, have invented certain new and useful Improvements in Underframes for Railway-Cars, 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 top plan view of an underframe embodying the features of the invention, parts being broken away. Fig. 2 is a longitudinal, vertical, central section therethrough. Fig. 3 is an enlarged detail fragmentary transverse, vertical section taken on the plane indicated by line 3—3 of Fig. 1, and looking in the direction indicated by the arrow. Fig. 4 is a plan view of a fragment of the parts seen in Fig. 3. Fig. 5 is a plan view of one of the bolsters, parts being broken away. Fig. 6 is a transverse vertical section taken on the plane indicated by the line 6—6 of Fig. 5, and looking toward the bolster. Figs. 7 and 8 are views similar respectively to Figs. 5 and 6 of one of the cross bearers. Fig. 9 is a detail vertical section taken on the plane indicated by line 9—9 of Fig. 7, parts being seen in elevation.

Referring to the details, A—A are the side sills, B the end sill, C—C the draft sills and D the center sill, the center sill being connected to the side sills by bolsters E, cross bearers F, and tie bars G, and the center sill lying within the horizontal planes of and having its ends extending through and framed into the bolsters. The center sill D comprises a trussed column made up of longitudinally disposed channels 1—1 spaced apart and facing inwardly, that is, each having its flanges directed toward the other. and a longitudinally disposed I section 2 having its web positioned horizontally, and its flanges riveted to the webs of the channels. I section 2 extends throughout the length of channels 1, and said channels extend through the bolsters E and between and

are riveted at their respective ends to the draft sills C, each of said draft sills comprising an outwardly opening channel with its web disposed flat against the web of the contiguous channel 1. Thus the member 2 has its ends abutting against the follower steps of the draft gear and takes the stress directly therefrom, relieving shearing stress on the connecting rivets between the draft sills and the channels 1.

Each bolster E is of the built-up type comprising a pair of diaphragms 3 at each side of and outstanding from the center sill channels, each of said diaphragms being flanged and the diaphragms at one side of the center sills being connected with those at the other by a top cover plate 4 and a bottom cover plate 5.

It is to be noted that the disposition of the channels 1 with their flanges extending inwardly or toward each other, leaves the flat unflanged surface of each exposed, that is, disposed toward the diaphragms, and hence the inner ends of the diaphragms are formed on straight lines, the necessity for the usual crimping for accommodating the flanges of the sill members being obviated. By the expression "unflanged surface" is meant that face or side of a sill member which is not provided with a flange or flanges, as distinguished from the opposite side or face which is flanged.

The diaphragms 3 at each side of the center sill are disposed with their flat faces contacting substantially throughout their length, but at their extreme outer ends the same are provided with transverse crimps producing a vertical pocket 7 between the diaphragms. A jacking casting 8 is disposed at each end of the bolster and comprises a plate 8^a having a vertical, inwardly extending flange 9 disposed between and snugly fitting within the respective pocket 7 and secured therein by rivets passing through the diaphragms and through the flange. The plate 8^a extends beneath and across the outer ends of the respective diaphragms, and outside of the same said plate is formed with pull cable receiving apertures 10—10, said casting being formed intermediate the apertures with an upstanding flange 11 riveted to the end flanges of the respective diaphragms and disposed preferably transversely of and formed integral with the flange 9. A bracing filler 12 is formed in-

tegral with the plate of casting 8 and extends upwardly therefrom intermediate the length of and formed integral with the flange 11.

The presence of the web of the I section 2 between the sill members 1 in the transverse planes of the underframe occupied by the respective bolster E, renders it impossible to utilize an ordinary bolster filler casting, and I therefore provide a divided casting consisting of an upper portion or section 13, and a lower portion or section 14. The section 13 comprises a flanged, substantially rectangular body fitting snugly between the upper face of the web of I section 2 and the surrounding parts of the sill members, and the lower section 14 comprises a downwardly flaring body conforming in edge contour to the contour of the lower face of I section 2, and the surrounding portions of the sill members, and flaring downwardly to a width at its base approximately equal to the width of the bottom cover plate 5, the width of the upper face of the said section being substantially equal to the width of section 13. Below the lower filler section 14 and the bottom cover plate 5 is the usual center bearing plate 6, which is secured to the plate 5, bottom sill flanges and the casting 14 by vertically disposed rivets connecting said parts, as shown in Fig. 6. The web of I section 2 is apertured substantially centrally of the sections 13 and 14, and said sections are formed with registering bores for the reception of a king pin.

At each side of the center sill, each bolster E is engaged by a truss rod anchor casting 15 which is also riveted to the respective channel member of the center sill, and each of said anchor castings is engaged by the end of the respective truss rod 16, a truss rod 16 being disposed at each side of the center sill and said truss rods extending intermediate their length through saddles 17-17 formed at the lower portions of the casting 18, forming part of the respective cross bearer F, said cross bearer being completed by the outstanding diaphragms 19-19 riveted to the said casting and to the webs of the center sill members 1. The upper edges of diaphragms 19 are connected by top cover plate 20. A filler casting 21 is disposed between the sill members 1 immediately above and riveted to the upper edge of the casting 18, the casting 21 having an edge contour fitting snugly the under face of I section 2 and the surrounding portions of the sill members.

It is to be observed that the disposition of the channels 1 with their flat, unflanged faces exposed obviates the usual crimp in the diaphragms 19 as is necessary in instances of outstanding flanges from the sill members. It is of course understood that such crimps, which are commonly employed

for accommodating the outstanding flanges of sill members, are objectionable because of a tendency of the diaphragms to crack at the points of the crimps.

Mounted on the upper edge of each cross bearer F are nailing stringer brackets 22-22, each comprising an upwardly opening channel member having its web lying flat upon the cover plate 20 of the respective cross bearer, the said web being riveted to the cover plate and the flange of the respective diaphragms 19. The ends of the channel member 22 are depressed below the cover plate, forming pockets for the ends of the nailing stringers.

Each side sill A preferably comprises a Z section, the ends of which are connected to the respective end sills by a corner bracket 23 connected to the web of the respective side sill, and by a gusset plate 24 connected to the lower flange thereof. The edge of gusset 24 contacting with and extending along the end sill is formed with a downwardly extending flange 25 which is riveted to the end sill, and the inner corner of the bracket is extended and bent or offset upwardly, forming a nailing stringer supporting bracket 26.

What I claim is:

1. In a car underframe, the combination comprising flanged center sill members having flat unflanged exposed surfaces, a longitudinally extending member intermediate the width of and between said first mentioned members and connecting the same and a bolster having top and bottom cover plates connected with the flanges of said center sill members.

2. In a car underframe, the combination comprising flanged center sill members disposed with their flanges extending inwardly and with flat, unflanged exposed surfaces, a flanged member longitudinally disposed intermediate the width of and connecting said first mentioned members in combination with truss rod anchors secured to the unflanged surfaces of said sills.

3. In a car underframe, the combination comprising flanged center sill members disposed with their flanges extending inwardly and their flat unflanged surfaces exposed, a flanged, longitudinally extending member disposed intermediate the width of and between and connected to the webs of the first mentioned members and truss rod anchors secured to said inwardly extending flanges.

4. In a car underframe, the combination comprising channel center sill members having their flanges extending inwardly and their flat, unflanged surfaces exposed, a cross connector between said sills and a horizontally divided bolster center casting intersected by said connector.

5. In a car underframe, the combination comprising channel center sill members having their flanges disposed inwardly and their

flat, unflanged surfaces exposed, a longitudinally extending member disposed between and connecting the webs of said channel members and a horizontally divided bolster filler casting within said inwardly disposed flanges.

6. In a car underframe, the combination comprising channel center sill members having their flanges disposed inwardly and their flat, unflanged surfaces exposed, a connector disposed between said channel members and connected to the webs thereof and a filler casting between said connector and the flanges of said sills.

7. In a car underframe, the combination comprising channel center sill members having their flanges extending inwardly and their flat, unflanged surfaces exposed, an I section disposed longitudinally of and between the channel members and having its flanges connected to the webs of the channel members and fillers between said I section and said intumed sill flanges.

8. In a car underframe, the combination of channel center sill members having their flanges disposed inwardly and their flat, unflanged surfaces, exposed, a flanged connector comprising a rolled I-section between said sills, a cross member comprising flanged diaphragms having straight inner edges the flanges of which are fixed to the flat faces of the channel members, and to the flanges of said connector.

9. In a car underframe, the combination of spaced center sill members and an intermediate longitudinally disposed member connecting the first mentioned members, a cross member comprising diaphragms outstanding from the first mentioned sill members, and a filler block disposed between said first mentioned sill members and beneath the second mentioned sill member and having an edged contour conforming to the underface of the said second mentioned sill member and the surrounding surfaces of the said first mentioned sill members.

10. In a car underframe, the combination of center sill members having vertically disposed webs, a center sill member having a horizontally disposed web arranged between and connecting the first mentioned members, and a bolster center filler disposed between the first mentioned sill members, said filler being divided and having one portion above and the other portion below the second mentioned sill members.

11. In a car underframe, the combination of center sill members having vertically disposed webs, a center sill member having a horizontally disposed web arranged between and connecting the first mentioned members, and a bolster center filler disposed between the first mentioned sill members, said filler being divided and having one portion above and the other portion below the second mem-

tioned sill members, the said lower portion of the filler flaring downwardly.

12. In a car underframe, the combination with center sill members having vertical webs and a longitudinally disposed member having a horizontal web connecting the webs of the first mentioned members, of a bolster comprising diaphragms outstanding from the first mentioned center sill members, top and bottom cover plates for the said diaphragms, and a bolster center filler between the first mentioned sill members, said filler being divided and having one portion above and the other portion below the web of the second mentioned center sill member, and the lower portion of said filler having substantially the same width at its top as the width of the bottom of the upper portion of the filler, and flaring downwardly to a width substantially equal to the width of the bottom cover plate.

13. In a car underframe, the combination with a cross member, of a nailing stringer bracket, comprising a channel mounted upon and extending transversely of said cross member and having its end portions depressed at each side of the cross member.

14. In a car underframe, the combination with a cross member, of a nailing stringer bracket comprising a channel extending across and fixed to said cross member said bracket being secured to and depending below the top surface of said cross member.

15. In a car underframe, the combination with a cross bearer, of a nailing stringer bracket comprising a channel extending transversely of and having its web resting upon said cross bearer and its end portions depressed and forming pockets.

16. In a car underframe, the combination of a built up bolster having longitudinally contacting diaphragms formed at the outer end with a pocket between the diaphragms, of a plate extending beneath the diaphragms and having a flange extending into and secured within the pocket, and a flange extending across the ends of the diaphragms and secured thereto.

17. In a car underframe, the combination of a built up bolster having longitudinally contacting diaphragms formed at the outer end with a pocket between the diaphragms, of a plate extending beneath the diaphragms and having a flange extending into and secured within the pocket, and a flange extending across the ends of the diaphragms and secured thereto, said plate being formed with an eye.

18. In a car underframe, the combination with end and side sills, wood nailing strips on said side sills of a gusset connecting a side sill to the end sill, and extending below said side sill, said gusset being formed with a relatively raised portion positioned for serving as a nailing stringer bracket.

19. In a car underframe, the combination with an end sill and flanged side sills, nailing strips on said side sills, of a gusset for each side sill connected to the flange thereof, each gusset having a depending flange along its edge contacting with the end sill, said flange being secured to the end sill, and a portion of the gusset being elevated in position for serving as a bracket for a relatively thin nailing stringer.
20. In a car underframe, the combination of draft sills and a center sill lapping the draft sills, and comprising a channel and an I section fixed between said center sills and connected with said center sills and the draft sills to stiffen said draft and center sills where they are connected.
21. In a car underframe, the combination comprising bolsters and a center sill comprising spaced sill members in the horizontal planes of said bolsters, a horizontally divided bolster center casting and a longitudinally disposed member fixed to the spaced sill members intermediate their width, and extending between the parts of said divided bolster center casting.
22. In a car underframe, the combination comprising bolsters and a center sill lying between and having its end portions framed into the bolsters, said sill comprising spaced sill members and an interposed longitudinal member, a divided bolster center casting connecting the spaced members intermediate their width, and said longitudinal member extending between the parts of said divided bolster center casting.
23. In a car underframe, the combination comprising bolsters and a center sill in the horizontal planes therewith, said sill comprising spaced sill members, and a divided bolster center casting, and a flanged longitudinally disposed member having its flanges fixed to the webs of the spaced sill members intermediate their width, and extending between the parts of said divided bolster center casting.
24. In a car underframe, a center sill construction comprising spaced vertical members, a horizontal member and a horizontally divided bolster filler casting connected to all of said sill members.
25. In a car underframe, a center sill construction comprising spaced flanged members, a flanged member horizontally disposed between said flanged members and a horizontally divided bolster filler casting connected to said spaced flanged members.
26. In a car underframe center sill construction, spaced channel sills, a horizontally divided filler casting between said sills and a connector for said sills extending between parts of said filler casting.
- In witness whereof I have hereunto set my hand in the presence of two witnesses.
- JOHN McE. AMES.
- Witnesses:
F. H. GIBBS,
FRANK V. COOPER.

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