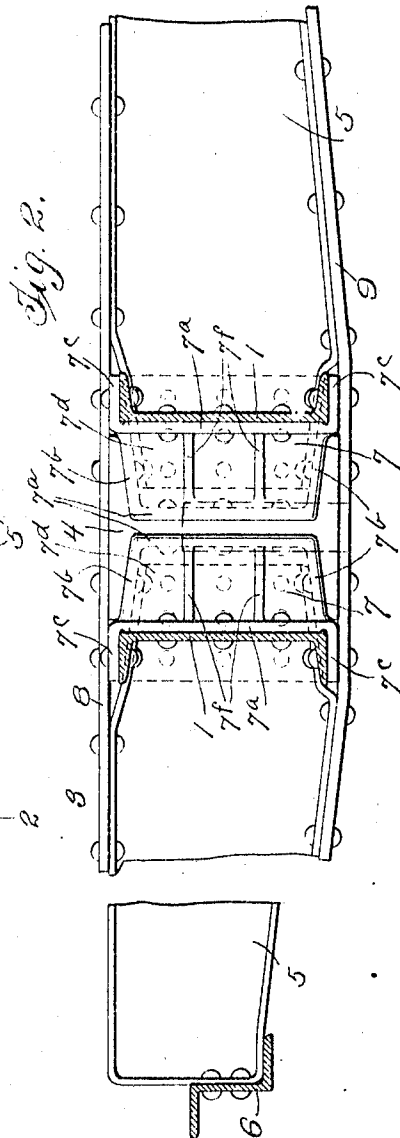
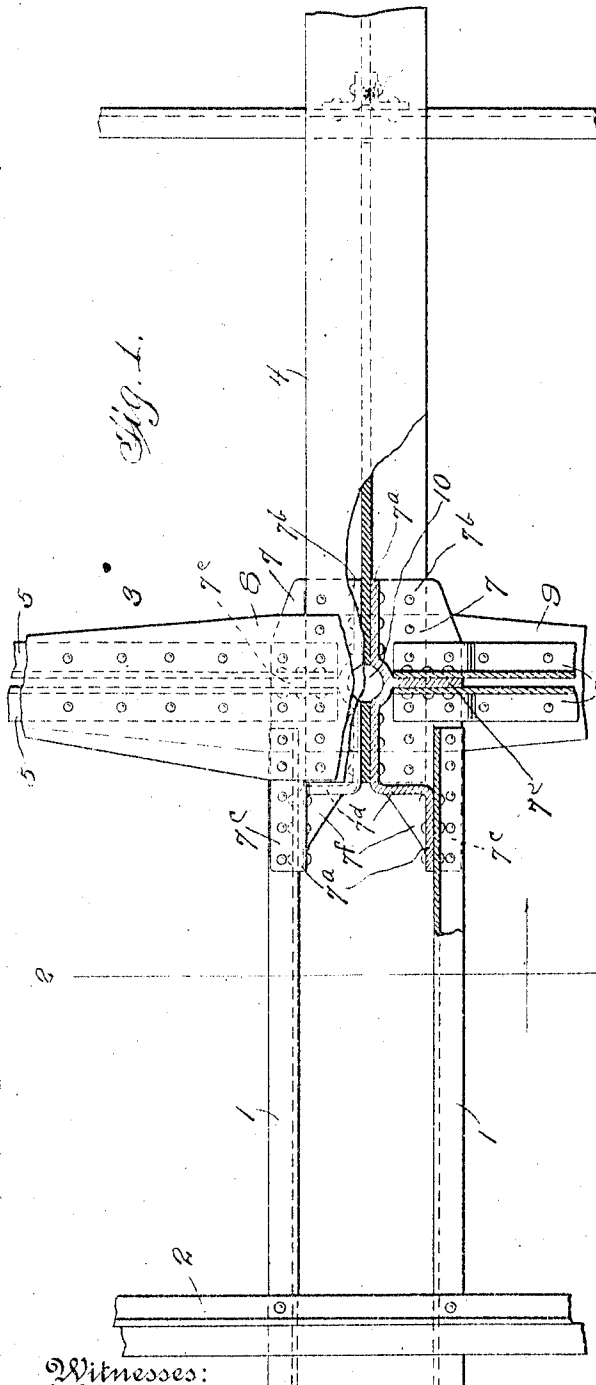


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CAR UNDERFRAME.
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CAR-UNDERFRAME.

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To all whom it may concern:

Be it known that I, VICTOR M. SUMMA, 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 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 view partly in top plan and partly in horizontal section of a fragment of a car underframe embodying the features of the invention. Fig. 2 is a transverse, vertical section taken on the plane indicated by lines 2-2 of Fig. 1, and looking in the direction indicated by the arrow.

Referring to the drawing by numerals, channel draft sills 1 extend from end sill 2 to built-up bolster 3, through which latter extends the end of center sill 4.

Obviously the elements illustrated, while only embodying those appearing at one end of a car underframe, are, of course, duplicated at the other end thereof.

Center sill 4 consists preferably of a commercially rolled shape or I section with its web disposed vertically and its flanges outstanding horizontally, and each end thereof extends through and is framed into the respective bolster 3. Bolster 3 may be of any well known "built-up" type comprising separated extensions projecting laterally from the center sill, either of rolled or pressed shapes common in the art and provided with top and bottom cover plates, though as shown for purposes of illustration it comprises a pair of spaced diaphragms 5 at each side of the center sill extending to the respective side sill or side connecting member 6, cooperating blocks or bolster filler castings 7, and top and bottom cover plates 8 and 9. Each member 6 is formed of a Z section though it may be of any desired shape and preferably has its

lower flange lying beneath the outer ends of the respective diaphragms 5 and its web fixed to the end edge flange of each diaphragm.

Each cooperating block 7 is formed of two independent sections each comprising a vertical web 7^a and inclined webs 7^b which latter terminate at their outer edges in flanges 7^c. The web 7^a extends along and is riveted to the web of the I section forwardly and rearwardly of the bolster while the forward end portions of said web 7^a are directed laterally, that is, offset as at 7^d and then extend forwardly parallel with and connected with the web of the draft sills 1, which may be of any shape with vertical webs.

Filletts or diagonal ribs 7^e connect the offset sets 7^d with the outer portions of webs 7^a for bracing the parts, and transmitting stresses directly from the draft sills to the center sill. Flanges 7^c overlap and underlap the flanges of the respective draft sill 1 and are riveted thereto, and said flanges 7^c are also riveted to the upper and lower flanges of the respective diaphragms 5, the flanges of the draft sills being also riveted to the bolster cover plate. The webs 7^b are inclined, corresponding to and snugly fitting the inner surfaces of the respective flanges of I section 4, so that each section of the said blocks or castings 7 is restricted or tapered toward the web of the I section, and the inner ends of the respective diaphragms 5 are correspondingly restricted and extend into the corresponding section of the member 7, the flanges of said diaphragms being riveted to the respective webs 7^b, and each section of the member 7 being formed with a vertical cross web 7^f lying between and riveted to the respective diaphragms 5, said diaphragms being spaced to accommodate the web.

Obviously, the element herein referred to as a cooperating block or bolster filler casting is a formed filler, and the outstanding portions of the sections thereof serve as connectors between the draft sills, the bolster and the center sill.

The sections of the cooperating blocks 7 are formed with registering vertical recesses in their inner faces, and the lower part of the web of the I section is cut away between such recesses for forming the usual pin receiving opening 10 in the bolster.

In the construction shown the members 7 are stress members to relatively the same extent as are the other members of the underframe and cooperate with the bolsters, draft sills and center sill in sustaining the load imposed and in resisting buffing shocks.

What I claim is:

1. In a car underframe, a bolster, a single center sill of commercial shape, draft sills, and bolster filler blocks fixed to opposite sides of said center sill connecting the center sill and draft sills.

2. In a car underframe, a bolster, a single center sill of commercial shape, draft sills, and bolster filler blocks fixed to opposite sides of said center sill connecting the draft sills and the bolster to the center sill.

3. In a car underframe, a bolster, a single I section center sill extending through said bolster, draft sills, and means within the bolster connecting the center sill and draft sills.

4. In a car underframe, a bolster, draft sills, a single center sill extending through said bolster, and diagonal connectors between the center and draft sills.

5. In a car underframe, a bolster, a single center sill of commercial shape extending therethrough, and draft sills connected to the center sill independently of and within the bolster.

6. In a car underframe, a bolster, a single center sill extending through the bolster, draft sills, and a bolster filler block connected to the draft sills and to the center sill.

7. In a car underframe, a bolster having top and bottom cover plates, a single center sill of a commercial shape extending through said bolster, draft sills, and means between the planes of the bolster cover plates connecting the draft sills to the center sill.

8. In a car underframe, a bolster, draft sills, a single beam center sill extending between the draft sills, and means connecting the draft sills to the center sill independently of and within the bolster.

9. In a car underframe, a bolster, an I section center sill extending through said bolster, draft sills, and means between the planes of the upper and lower surfaces of the bolster connecting the draft sills to the center sills.

10. In a car underframe, a bolster, draft sills, a single center sill extending through said bolster, and connectors between the center and draft sills, each connector comprising a flanged web, the flanges inclosing one of said sills.

11. In a car underframe, a bolster, draft sills, a single beam center sill extending through said bolster, and means within said bolster connecting said sills together intermediate their depth.

12. In a car underframe, a bolster, draft

sills comprising flanged members, a single center sill comprising a flanged member, extending through said bolster and bolster fillers connecting said sill members together between their flanges.

13. In a car underframe, a bolster draft sills, a single center sill comprising a flanged member extending through said bolster, and bolster fillers connecting the draft sills to the center sill member between the flanges thereof.

14. In a car underframe, a bolster, draft sills, a single I section center sill, and means connecting the draft sills to the web of the I section independently of and within the bolster.

15. In a car underframe, draft sills, a single I section center sill, and bolster filler castings connected to opposite sides of the web of the I section and to the draft sills.

16. In a car underframe, draft sills, a single I section center sill, and a bolster filler casting overlapping said sills and comprising sections disposed at the opposite sides of the I section and each conforming in transverse contour to the respective side of the I section, each of said filler casting sections extending to the respective contiguous draft sill and being fixed to the draft and center sills.

17. In a car underframe, draft sills, a single center sill member and connectors between the draft sills and center sill member, each connector comprising a web extending along and fixed to the center sill and offset laterally to and extending along and fixed to the respective draft sill.

18. In a car underframe, draft sills, a single I section center sill, and connectors between the draft sills and center sill, each connector comprising a web extending along and fixed to the web of the I section and offset laterally to and extending along and fixed to the respective draft sill.

19. In a car underframe, draft sills each comprising a member having a web, a single center sill member, and connectors between the center sill and draft sills, each connector comprising a web fixed to the center sill member, and offset and fixed to the web of the respective draft sill member.

20. In a car underframe, draft sills, a single center sill, and diagonal connectors fixed to inner surfaces of said draft sills and to said center sill for connecting the center and draft sills.

21. In a car underframe, a bolster, draft sills, a single center sill extending through said bolster, and connectors between the center and draft sills, each connector comprising a diagonally braced web.

22. In a car underframe, a bolster, draft sills, a single center sill extending through said bolster, and connectors between the center and draft sills, each connector com-

prising a web having an offset and a brace connecting the portions of the offset.

23. In a car underframe, a bolster, draft sills, a single center sill extending through said bolster, and connectors between the center and draft sills, each connector comprising a flanged web.

24. In a car underframe, a bolster, draft sills, a single center sill, connectors between the center and draft sills independent of said bolster, each connector comprising a flanged web, the flanges inclosing one of said sills.

25. In a car underframe, a bolster, draft sills, a single center sill, and connectors between the center and draft sills independent of said bolster, each connector comprising a web having upper and lower marginal flanges lapping the respective draft sill.

26. In a car underframe, a bolster, draft sills, each comprising a flanged member, a center sill, and connectors between the center sill and draft sills independent of said bolster, each connector comprising a flanged member having its flange connected to the flange of the respective draft sill member.

27. In a car underframe, channel draft sills, an I section center sill, and connectors between the center and draft sills, each connector comprising a flanged web fixed to the webs of the center sill and respective draft sill, the flanges of the connector web being fixed to the flanges of the respective draft sill channel.

28. In a car underframe, draft sills, an I section center sill, and connectors between said center and draft sills, each connector comprising a vertical web fixed to the web of the center sill and fixed to the respective draft sill, and webs outstanding from the vertical web and fixed to the flanges of the center sill section.

29. In a car underframe, the combination with a built-up bolster comprising outstanding diaphragms, of a center sill, draft sills, and connectors between the center and draft sill, each connector comprising a longitudinal web fixed to the center sill and respective draft sill, and a transverse web extending between and fixed to the respective diaphragms.

30. In a car underframe, the combination with a bolster, of draft sills, a center sill extending through said bolster, and connectors between the center and draft sills, each connector comprising a longitudinal and a cross member, the cross member engaging the bolster.

31. In a car underframe, the combination, with a bolster, of a filler casting therefor, draft sills, and a center sill, said filler casting comprising sections, each section consisting of a longitudinal member connecting the center sill to the respective draft sill, and a transverse member connected to the bolster.

32. In a car underframe, draft sills comprising flanged members, a center sill, and a bolster filler between the center sill and the draft sills, said bolster filler comprising a flanged member having its flange connected to a flange of one of the draft sill members.

33. In a car underframe, a bolster, draft sills comprising flanged members, a center sill extending through said bolster, and connectors between the center sill and draft sills, said connectors comprising flanged members having their flanges connected with the flanges of the draft sill members.

34. In a car underframe, a bolster, a single I section center sill extending through said bolster, bolster fillers upon opposite sides of said center sill, separately formed draft sills, and a bolster cover plate connecting the center sill and draft sills.

35. In a car underframe, a bolster, a single I section center sill extending through said bolster, draft sills, means within the bolster connecting the center sill and draft sills, and a bolster cover plate fixed to said connecting means laterally of the center sill, and connecting the center sill and draft sills.

36. In a car underframe, a bolster, draft sills, a center sill lapping said draft sills, hollow connectors between said draft sills and center sill, and bolster diaphragms extending into the hollow of said connectors.

37. In a car underframe, a bolster, draft sills, a flanged center sill, hollow connectors between said draft sills and center sill, and bolster diaphragms extending into the hollow of said connectors between the flanges of said center sill.

38. In a car underframe, a bolster, draft sills, a center sill, hollow connectors between said draft sills and center sill, bolster diaphragms extending into the hollows of said connectors, and a bolster cover plate fixed to said diaphragms within the hollows of said connectors.

39. In a car underframe, a bolster, draft sills, a flanged center sill, a hollow connector between said draft sills and center sill, a bolster diaphragm extending into the hollow of said connector between the flanges of said center sill, and a bolster cover plate fixed to said diaphragm by rivets extending through a flange of said center sill and engaging said diaphragm within the hollow of said connector.

40. In a car underframe, a single center sill, spaced and separately formed draft sills, and a bolster comprising discontinuous diaphragms, in combination with a bolster center casting comprising flanges connected with said sills and with said bolster diaphragms.

41. In a car underframe, a single center sill, spaced and separately formed draft sills, and a bolster comprising discontinuous

diaphragms, in combination with a bolster center casting overlapping said sills and bolster diaphragms.

42. In a car underframe, a single center sill, spaced and separately formed draft sills, and a bolster comprising discontinuous diaphragms, in combination with a bolster center casting comprising a plurality of parts vertically divided.

43. In a car underframe, the combination comprising draft sills and a vertically divided bolster center casting extending between said draft sills forwardly of the bolster.

44. In a car underframe, the combination comprising a vertically divided bolster center casting and a single center sill embraced thereby.

45. In a car underframe, the combination comprising a vertically divided bolster center casting having extensions adapted for connection with spaced draft sills.

46. In a car underframe, the combination comprising a vertically divided bolster center casting having flanges adapted for connection with spaced bolster diaphragms.

47. In a car underframe, the combination comprising a vertically divided bolster center casting having flanges adapted for connection with a bolster cover plate and flanges extending forwardly and adapted for connection with draft sills.

48. In a car underframe, the combination comprising a vertically divided bolster center casting having flanges adapted for connection with a single center sill and a bolster cover plate.

49. In a car underframe, the combination comprising a vertically divided bolster cen-

ter casting having flanges adapted for connection with the web of a single center sill and with the webs of spaced draft sills.

50. In a car underframe, the combination comprising a vertically divided bolster center casting having flanges adapted for connection with spaced bolster elements and with continuous bolster elements.

51. In a car underframe, the combination comprising a vertically divided bolster center casting having flanges adapted for connection with a single center sill and with continuous bolster elements.

52. In a car underframe, the combination comprising a vertically divided bolster center casting having means for partly embracing a single center sill and adapted to overlap spaced bolster elements and being adapted for connection with continuous bolster elements.

53. In a car underframe, the combination comprising a vertically divided bolster center casting having extensions adapted for connection with spaced draft sills and with a single center sill projecting between portions of said draft sills.

54. In a car underframe, the combination comprising a vertically divided bolster center casting having extensions adapted for connection with a built up bolster comprising continuous cover plate and intermitted diaphragms.

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

VICTOR M. SUMMA.

Witnesses:

CHARLOTTE MITZE,
J. H. BRUEGGEMAN.