V. M. SUMMA.

CAR UNDERFRAME.

APPLICATION FILED MAR. 31, 1910.

1,066,545. Patented July 8, 1913.

Fig. 1.

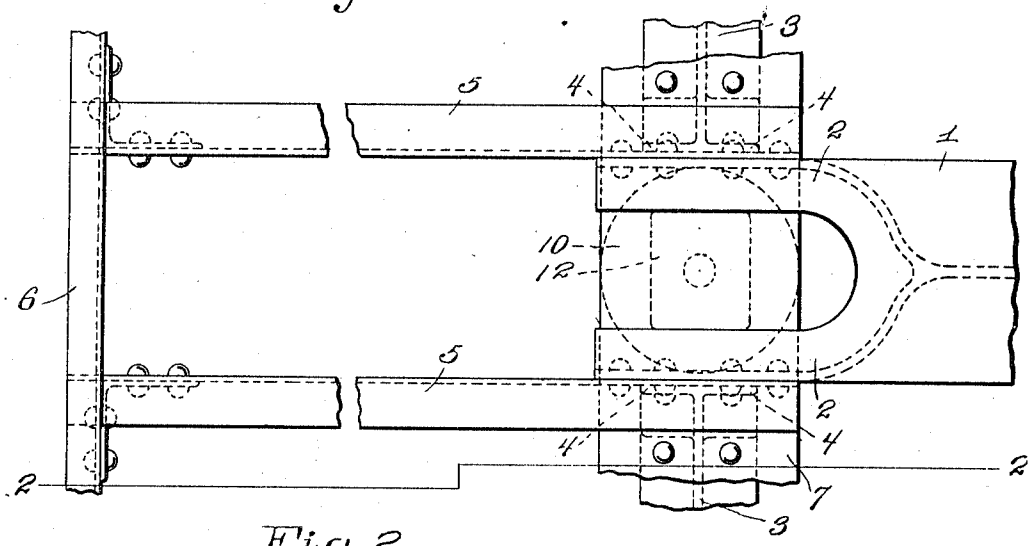


Fig. 2.

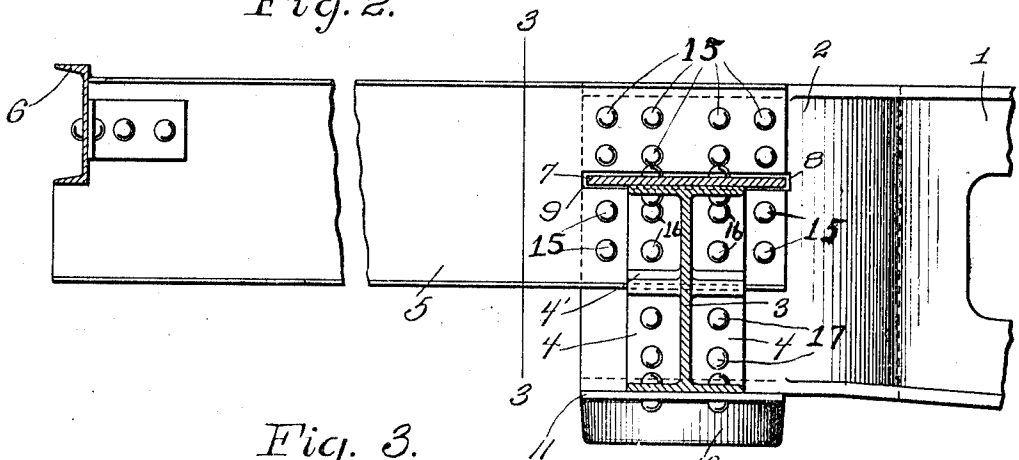
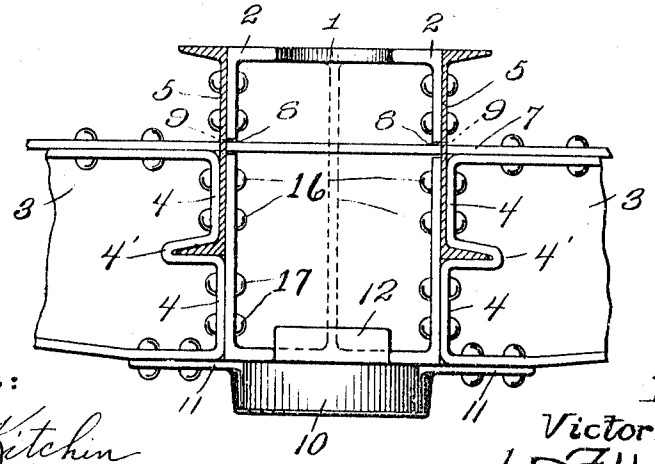


Fig. 3.



Witnesses:
J. Wilbristood,
Edgar M. Kitchin

Inventor:
Victor M. Summa
by F. H. Gibbs
Atty.

UNITED STATES PATENT OFFICE.

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

CAR-UNDERFRAME.

1,066,545. Specification of Letters Patent. Patented July 8, 1913.

Application filed March 31, 1910. Serial No. 552,507.

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 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 of a fragment of an underframe, showing one end of the center sill and fragments of contiguous parts. Fig. 2 is a longitudinal vertical section taken on the plane indicated by line 2—2 of Fig. 1. Fig. 3 is a transverse vertical section taken on the plane indicated by line 3—3 of Fig. 2.

Referring to the drawing by numerals: 1 indicates a center sill of the cast single beam type, bifurcated at its ends, forming the arms 2, 2, outstanding from the outer faces of whose webs are the bolster diaphragms 3, 3. Each of said diaphragms is formed at its inner end with laterally extending flanges 4, 4, the inner end of each diaphragm being formed with a notch for accommodating the lower flange of the respective draft sill 5, each flange 4 conforming to the contour of said notch as indicated at 4′. The draft sill 5 extends outwardly and is fixed to the end sill 6, the inner end of each sill 5 extending along the respective arm 2 for the full width of the bolster and being secured thereto by rivets passed through the web of the respective sill 5, and the web of the corresponding arm 2 and also by rivets extending through the flange 4 and the web of the corresponding arm 2, the respective diaphragms 3 being also connected to the given arm 2 by additional rivets extending through the web of said arm and through the flange 4 beneath the lower flange of the respective sill 5. A top cover plate 7 connects the diaphragms 3 and extends through horizontal slots 8, 8 in the webs of arms 2, and through similar slots 9 in sills 5, the cover plate 7 being riveted to the upper horizontal flanges of the diaphragms.

The bolster is completed by center bearing casting formed of the center bearing 10 with laterally extending flanges 11, 11 riveted to the lower horizontal flanges of the diaphragms 3. Upstanding centrally from the center bearing 10, is a retaining block or pillar 12, which snugly fits between the lower horizontal flanges of the arms 2, and in practice serve as a portion of the compression chord of the bolster, thus relieving the rivets engaging flanges 11 of the greater portion of the shearing stresses incident to this member. It will be noted that the bifurcated arms 2 fit between the bolster diaphragms 3, and that the lower portion of these arms together constitute the compression member of the bolster. The top plate 7 forms part of the tension member of the bolster and passes through the said compression member.

Owing to the peculiar construction of the arms 2 of the center sill and the co-incident slots 8—8 in said arms 2 and in the rearward extensions of the draft sills 5, I am able to assemble the parts of my improved underframe in very convenient manner. Thus, owing to said slots, it is possible to slip the draft sills into position after the bolster parts are assembled and the bolster, with connected top cover plate 7, is placed in position with reference to the center sill. Thus the bolster may be assembled as a unit before it is brought into juxtaposition to the center sill, after which the draft sills may be placed in position and the parts connected by through rivets 15, which connect the draft sills and the arms 2 of the center sill, and the rivets 16, which connect the bolster diaphragms with the draft sills and said center sills, may be driven, as likewise may be the rivets 17 which connect the bolster diaphragms with said arms 2 of the center sills, below the draft sills.

While the open slots in the draft sills and center sill permit of the ready assembling of the parts as noted, it might be found necessary in practice to provide closed slots as 8, in order to properly tie the bifurcated portions of the center sill, in which case the draft sills will first be applied to the center sill and riveted in position, then

the bolster diaphragms placed and riveted and, lastly, the bolster cover plate placed in position and riveted to the top flanges of the bolster diaphragms. In either event, the co-incident slots in the center sill and draft sills receiving the top cover plate of the bolster are a great advantage in assembling the structure.

What I claim is:

1. In a car underframe, the combination with a bolster, of a single beam center sill longitudinally slotted to its ends and the slotted portion lapping the bolster.

2. In a car underframe, the combination with a bolster, of a single beam center sill slotted to its ends and having the slotted portion extending across and between parts of the bolster.

3. In a car underframe, the combination with a bolster, of a center sill slotted longitudinally to its end and being connected at each side of its slotted portion directly to the bolster.

4. In a car underframe, the combination with a bolster, of a center sill longitudinally slotted to its ends, and having the parts thereof near the slot secured to and extending between parts of the bolster, and draft sills connected to the slotted portion of the center sill.

5. In a car underframe, the combination with a bolster, of a center sill terminating in spaced slotted portions at its end and having the spaced portions extending through and secured to the bolster, and draft sills connected to said spaced portions.

6. In a car underframe, the combination with a bolster of a single beam center sill, bifurcated at the end and having the arms of the bifurcation extending through and terminating substantially at the bolster, and draft sills extending through the bolster and fixed to the bolster and to the arms of the bifurcation.

7. In a car underframe, the combination of a single beam center sill longitudinally slotted at the ends, bolster diaphragms connected to and lapping the ends thereof, in combination with a continuous bolster cover plate connected with said slotted portion through said diaphragms.

8. In a car underframe, the combination of a center sill slotted at the end, bolster diaphragms fixed to the end portions of the sill in a plane below the slots, and a top cover plate connected with said diaphragms extending across and through said sill, and means extending within the sill connecting the lower edges of said diaphragms and spacing end portions of the sill.

9. In a car underframe, the combination of a single beam center sill, bifurcated at the end, diaphragms fixed to and outstanding from the arms of said bifurcation substantially at the ends of said arms, and a cover plate for said diaphragms extending through said arms.

10. In a car underframe, a center sill comprising spaced end portions which are slotted longitudinally to their ends and draft sills lapping the slotted end portions of said sill, in combination with a bolster having vertical portions spaced apart and connected by a continuous upper portion projected into and extending through said slotted spaced end portions of the center sill, and having an intermediate lower portion connected to the spaced end portions of the sills.

11. In a car underframe, the combination of a center sill having spaced end portions, said ends being longitudinally slotted, bolster diaphragms fixed to and outstanding from the slotted portion, a center bearing having flanges extending therefrom secured to the diaphragms, and a block upstanding from the center bearing and snugly fitting between the spaced ends of the sill.

12. In a car underframe, the combination with a bolster of a single beam center sill bifurcated at the end, the arms of the bifurcation being spaced apart and their flanges facing inwardly, channel draft sills having their flanges facing outwardly and their webs contacting with the respective webs of the bifurcation, and means for securing the webs of said arms to the webs of said draft sills.

13. In a car underframe, a pair of slotted draft sills, a slotted center sill, said center sill having its webs fixed to said draft sills, and the slotted portions of said sills lapping within a bolster, in combination with a bolster having a continuous member extending through said slots.

14. In a car underframe, the combination with a pair of draft sills, of a center sill lapping and fixed to said draft sills, one of said sills being slotted longitudinally to its end, and a bolster fixed to said center sill and a continuous member of said bolster extending through the slot, said bolster including a separately formed central flanged portion and side extensions secured thereto.

15. In a car underframe, the combination with a pair of longitudinally slotted draft sills, of a single center sill slotted to its end, said center sill having its web bifurcated and fixed to said draft sills, bolster diaphragms fixed to said center sill at the point of connection with said draft sills, and a center bearing plate connecting said bolster diaphragms.

16. In a car underframe, the combination with a pair of draft sills, of a single I-beam center sill, said center sill having its web bifurcated and fixed to said draft sills, bolster diaphragms fixed to said center sill at the point of connection with said draft sills and a cover plate connecting said bolster

diaphragms and extending through said center sill and through said draft sills.

17. In a car underframe, the combination with a pair of draft sills, of a single I-beam center sill, said center sill having its web bifurcated and fixed to said draft sills, bolster diaphragms fixed to said center sill at the point of connection with said draft sills, and a cover plate connecting said bolster diaphragms and extending through the connected portions of said draft and center sills.

18. In a car underframe, the combination of a single beam center sill bifurcated at the end, bolster diaphragms connected to the arms of the bifurcation, and draft sills connected to the arms of the bifurcation, said diaphragms having portions adapted to receive portions of said draft sills.

19. In a car underframe, the combination with a bolster, of a center sill longitudinally slotted at its ends, the end of the sill having spaced portions, a continuous bolster member extending through the slotted parts of the sill, a center bearing, and means formed upon said center bearing projecting between the spaced parts of said sill and constituting a portion of the compression chord of the bolster.

20. In a car underframe, a center sill, a bolster comprising spaced diaphragms secured thereto, a center-bearing and means formed upon said center-bearing projecting between said diaphragms and constituting a portion of the compression chord of the bolster, and a tension member for said bolster extending through said center sill.

21. In an underframe for cars, the combination comprising a single center sill with bifurcated end portion, and draft sills lapping said bifurcated portion, the lapping portions having co-incident slots, some of which are open to their end, and a built up bolster intersecting said lapping members.

22. In a car underframe, a bolster comprising spaced diaphragms and a compression member forming part of the center sill connecting said diaphragms, and a bolster tension member extending through said compression member.

23. In an underframe for cars, the combination comprising lapping center sill and draft sill provided with co-incident slots extending throughout the major portion of the lapping portion of both members, and a built-up bolster connected directly with said lapping portions and having a cover plate projecting through said co-incident slots.

24. In a car underframe the combination of longitudinally slotted and longitudinally separable center sill and spaced draft sills, having slots co-incident with the slots in the center sills, and a built up bolster connecting said separable center and draft sills.

25. In a car underframe the combination of longitudinally slotted and longitudinally separable center sill and spaced draft sills, having slots co-incident with the slots in the center sill, and a built up bolster connecting said separable center and draft sills, a part of said bolster occupying said co-incident slots.

26. In a car underframe, a single center sill with bifurcated end portions, spaced draft sills lapping the bifurcated ends of said center sill, and a built up bolster secured to said draft sills by rivets which connect the draft and center sills, said bolsters serving as draft sill chairs.

27. In a car underframe, a center sill, a bolster, and draft sills of less depth than said center sill, the bolster comprising spaced diaphragms which diaphragms are provided with pockets intermediate the top and bottom thereof adapted to contain parts of said draft sills.

28. In a car underframe, a center sill, a bolster, and draft sills of less depth than said center sill, the bolster comprising spaced diaphragms which diaphragms are provided with pockets intermediate the top and bottom thereof adapted to serve as supports for said draft sills, in combination with means for connecting said spaced bolster diaphragms.

29. In a car underframe, a center sill, a bolster, and draft sills of less depth than said center sill, the bolster comprising spaced diaphragms which diaphragms are provided with seats or pockets intermediate their height adapted to serve as supports for said draft sills, in combination with means extending through some of said sills for connecting said spaced bolster diaphragms.

30. In a car underframe, a center sill, a bolster, and draft sills of less depth than said center sill, the bolster comprising spaced diaphragms provided with seats or pockets adapted to serve as supports for said draft sills, said bolster diaphragms being connected directly to said center sills below said draft sills.

31. In a car underframe, the combination comprising center sill, a bolster including spaced diaphragms in contact with said center sill and secured thereto, and spaced draft sills connected with said center sill both forwardly and rearwardly of said bolster.

32. In a car underframe, the combination comprising center sill, spaced draft sills secured directly to said center sill and spaced bolster diaphragms secured directly to said center sill in different planes, and means for connecting lapping portions of the draft sills and bolster diaphragms with said center sill.

33. In a car underframe, the combination comprising center sill, and spaced bolster diaphragms adapted to serve as sill chairs to receive and support spaced draft sills in-

termediate the height of said diaphragm, and means for connecting said spaced diaphragms.

34. In a car underframe, the combination comprising center sill, and spaced bolster diaphragms adapted to serve as sill chairs to receive and support spaced draft sills of less depth than said center sill, and a bolster cover plate extending through said draft sills and connecting said diaphragms.

35. In a car underframe, a built-up bolster comprising spaced diaphragms, a filler for said bolster constituting part of the compression member of the same, and a tension part of the bolster passing through a part of said compression member.

36. In a car underframe, a bolster, a center sill constituting part of the compression member of the bolster and a bolster tension member passing through said compression member.

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

VICTOR M. SUMMA.

Witnesses:
OSCAR HOCHBERG,
CHARLOTTE MITZE,

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