V. M. SUMMA.

CAR UNDERFRAME.

APPLICATION FILED APR. 2, 1913.

1,066,550.

Patented July 8, 1913.

2 SHEETS—SHEET 1.

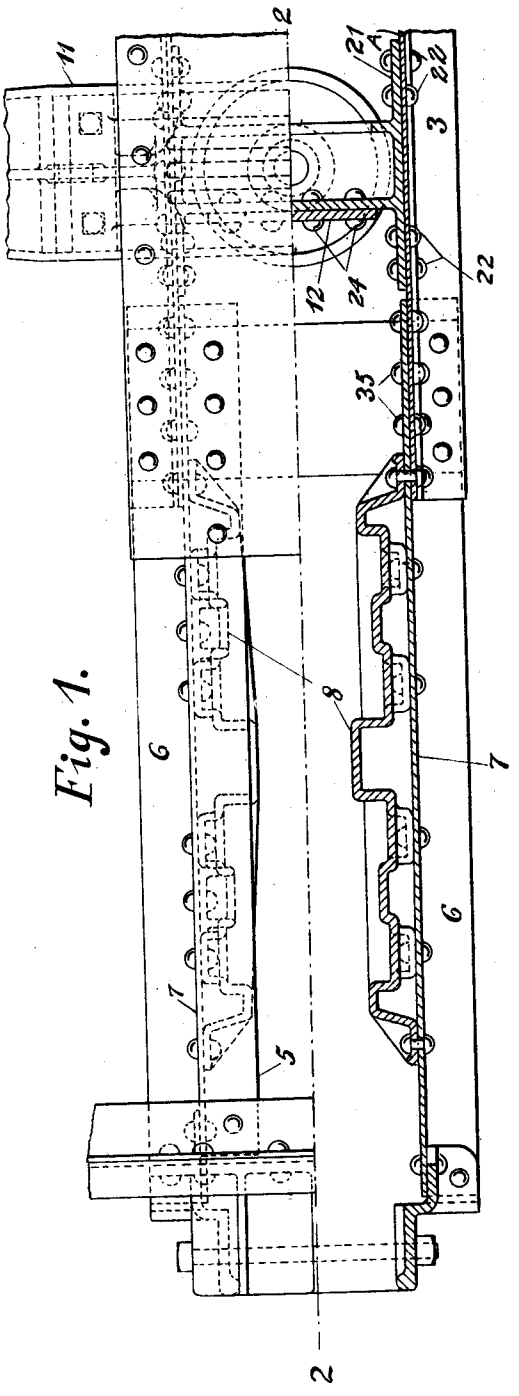


Fig. 1.

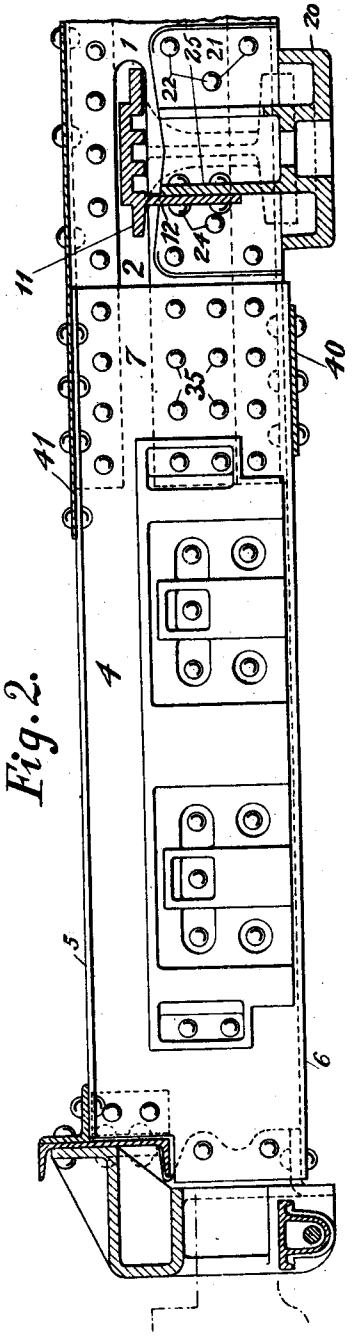


Fig. 2.

WITNESSES:

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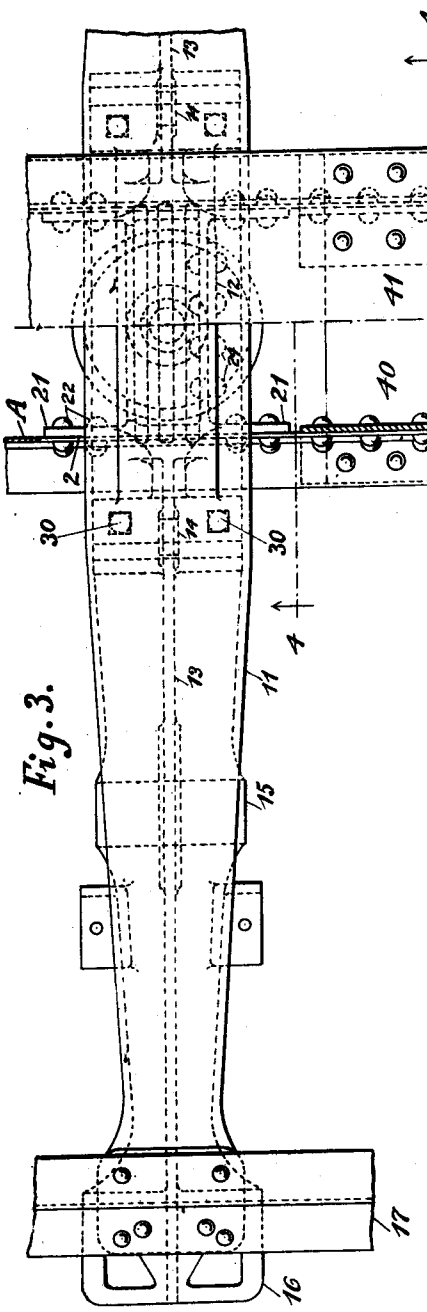


Fig. 3.

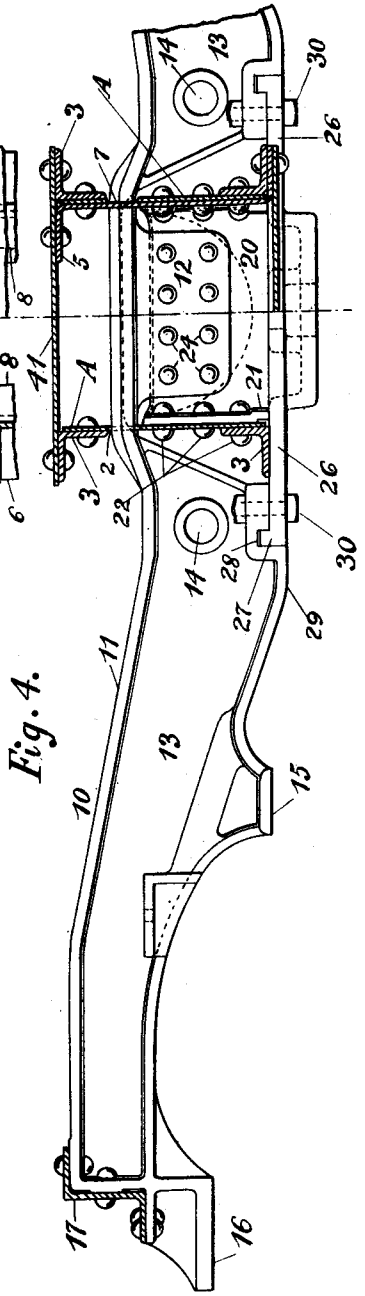


Fig. 4.

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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.

1,066,550. Specification of Letters Patent. Patented July 8, 1913.

Application filed April 2, 1913. Serial No. 758,392.

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 plan view partly in horizontal section of the end portion of an underframe, showing a bolster connected therewith, as hereinafter described. Fig. 2 is a central, longitudinal, sectional view of the structure shown in Fig. 1, the section being taken on line 2—2 of Fig. 1. Fig. 3 is a plan view somewhat similar to Fig. 1, with the exception that in Fig. 1 all of the draft sills hereinafter referred to are shown and only a part of the bolster, whereas in Fig. 3 the draft sills are cut off and one-half of a bolster is shown with a fragment of a side sill connected thereto, Fig. 4 is a transverse, sectional view, the section being taken on line 4—4 of Fig. 3.

The invention herein specifically shown and described is an amplification of the inventive idea disclosed in my application for Letters Patent, Serial No. 552,507, filed March 31, 1910, for car underframe, and includes the method of connecting with the sills of an underframe a bolster, as indicated in said application, details of construction differing, among other things, as follows:

In the earlier application a single cast center sill is disclosed, which single sill is bifurcated within the bolsters; that is, commencing at a portion of the sill before the sill reaches the bolsters, and connected with the bifurcated portion in the earlier application is a pair of channel-shaped draft sills, the bifurcated extensions of the center sill and the draft sill both lapping and being connected directly to a bolster.

The present invention is specific to spaced center sills A—A; that is, to center sill members comprising spaced sections, which may be either rolled or built up, as may be preferred, which sections are separately formed and preferably extend from between the draft sills at each end of the car continuously across the intervening space, to the ends of which sections are attached draft sills, the draft sills lapping the end portions of the center sills, which latter have their webs longitudinally slotted, in such manner as to close the slots in the center sills after a bolster has been inserted, as hereinafter described and as indicated in said earlier application.

In the specific embodiment of the invention disclosed in the drawings, the center sills comprise spaced built up channel-shaped sections comprising a plate or web portion 1, which is slotted longitudinally to its end, as indicated at 2 in Fig. 2 of the drawing, and connected with the web 1 are reinforcing angles 3—3, preferably rolled angles. The center sills A—A may be of uniform depth, or deeper at the middle, as may be desired, and it is evident that where the center sills are of uniform depth they may be formed from commercially rolled sections or from pressed sections, which may be either channel-shape, Z-shape, or of any other suitable form in cross section.

The draft sills 4 are shown as formed of Z-shape in cross section, and may be either rolled or pressed or built up, as may be desired, though for convenience of manufacture and to secure the desired width of flanges, a pressed section is preferred, said section having a top flange 5, bottom flange 6 and vertical web portion 7, to the latter of which there is shown attached a conventional form of draft lug 8 in Figs. 1 and 2, said lug being broken off in Fig. 3. The bolster used in this combination is preferably a cast member, indicated generally by the numeral 10, and comprises a continuous top portion which includes the flange 11, best shown in Fig. 4, which flange is continuous from end to end of the bolster. Between the center sills this top member is reinforced, as shown in section in Fig. 2, by longitudinally extending ribs or vertical flanges, and between the center sills there is connected with the middle portion of said top member 11 a depending apron-like extension 12, the object of which will be hereinafter explained.

Connected with the continuous top flange

11 and comprising the vertical portions of the bolster, are intermitted diaphragm portions 13—13, which are provided with the usual openings 14 for the passage therethrough of train pipes, etc., while formed integral with the top flange and diaphragms before referred to are side bearing extensions 15 and combined jacking casting and roping staple 16, to the latter of which and to the end face and top end portion of the outer end of the bolster diaphragms, there is shown connected Z-shaped side sill 17, which conforms to the contour of the outer end of the bolster, though it is evident that any form of side sill, either rolled, built up or plate girder may be used.

Between the spaced center sills A—A and lapping the apron 12, before referred to, is a compression member 20 of the bolster, which is provided with flanges 21. Extending longitudinally of the sills and through said flanges 21 rivets 22 are projected for connecting the member 20 to the spaced center sills below the bifurcation 2 therein, thereby forming a spacing member and a compression member between said sills which, in the preferred embodiment of the invention, serves as the only means for connecting the bolster to said center sills.

The filler portion 20 is lapped by the apron 12, before referred to, and rivets 24 are projected horizontally through the vertical apron 12 and an upwardly extending flange 25 of the bolster filler 20. The filler 20 is also provided with outwardly extending flanges 26, which are provided at their end portions with upwardly disposed extensions 27, which are seated in recesses 28, formed in the lower flanged portion 29 of the bolster diaphragms 13, and connecting the flanges 26 with the innermost extension of the flanges 29 are vertical bolts 30, best shown in Fig. 4.

As the bolster is continuous at its upper portion from end to end, and the center sills are continuous from points intermediate the bolsters and the end sills, the slots 2 in the center sills perform an important function in assembling the parts of the underframe, during which the flange 11 of the bolster is slipped into the ends of the slots 2 of the center sills and carried, as shown in Fig. 2, to the inner portion of said slots, after which the bottom filler member 20 of the bolster is slipped into position from below and carried forwardly, as shown in section in Fig. 2, so that its vertical flange 25 will lap the depending apron 12, projecting downwardly from the top flange 11 of the bolster. The flanges 25 and 12 being riveted together and the flanges 21 being connected to the webs 1 of the center sills, hold the bolster firmly in position. After the bolster has been slipped to its operative position, as just described, the draft sills are applied and riveted in the positions shown in the drawings; that is, with their web portions 7 lapping the outermost slotted portion of the webs 1 of the center sills, in which position the draft sills are secured by suitable connecting means, as rivets 35.

Thus far the invention has been described with the parts being assembled in such relation that the bolster is projected into slots formed in the center sills, but it is evident that if the draft sills are extended rearwardly of the bolster, as in said earlier application, and the center sills are connected to extensions of the draft sills, which project between the bolsters, it will not be necessary to slot said center sills, though additional reinforcement would probably be required if the parts are arranged with slotted draft sills and unslotted center sills.

To reinforce the center girder, comprising the spaced center sills, I have provided a bottom tie plate 40 and a top tie plate or cover plate 41, and it is evident that the top cover plate may be continuous, if desired, from end to end of the center sills.

What I claim is:

1. In combination, a pair of spaced center sills and a pair of spaced draft sills connected therewith to form extensions thereof, one pair of said sills being provided with longitudinally extending slots, and the other pair of said sills being arranged to cover one end of said slots, in combination with a bolster brought into assembled relation to said sills by movement longitudinally of the sills.

2. In combination a pair of spaced center sills having vertical web plates and a pair of spaced draft sills having vertical web plates, the plates of one pair of said sills being slotted and the other of said pair of sills being connected with the webs of the slotted sills at two sides of said slots, in combination with a bolster having a continuous portion spanning and projecting beyond said sills and another portion interposed between a pair of said sills.

3. In combination, a pair of spaced center sills and a pair of spaced draft sills connected therewith and forming continuations thereof, one pair of said sills being slotted and the other of said sills lapping the slotted sills at two sides of said slots, in combination with a bolster having a continuous portion spanning said sills and projecting through and beyond the same, and having another portion interposed between said sills.

4. In a car underframe, spaced center sills the webs of which are longitudinally slotted, a bolster having continuous top portion projected into said slot, spaced draft sills connected with the webs of said center sills above and below said slots and thereby closing the outer ends of the slots, and a portion

of said bolster serving as a compression member between said center sills.

5. In combination, spaced flanged center sills and spaced flanged draft sills, the center sills having webs slotted to their ends and the draft sills being connected to said webs to form closures for parts of said slots, in combination with a bolster having a continuous portion extending through said slots and being seated therein by movement longitudinally of the sills, and having a portion disposed between said sills.

6. In combination, spaced flanged center sills and spaced flanged draft sills, the center sills having webs slotted to their ends and the draft sills being connected to said webs to form closures for parts of said slots, in combination with a bolster having a continuous portion extending through said slots and being seated therein by movement longitudinally of the sills and having a portion disposed between said sills, and a tie plate connected to flanges of both pairs of said sills.

7. In combination, spaced channel shaped center sills slotted longitudinally from their ends, a bolster having a continuous top portion and intermitted flanged diaphragms cooperating with said sills, the top portion occupying the slots of the sills and the diaphragms extending away from the sills, said bolster comprising a central portion connecting the diaphragms with the sills.

8. In combination, spaced channel shaped center sills slotted longitudinally from their ends, a bolster having a continuous top portion and intermitted flanged diaphragms cooperating with said sills, the top portion occupying the slots of the sills and the diaphragms extending away from the sills, said bolster comprising a central portion serving as the sole means for connecting the diaphragms with the sills.

9. In combination, spaced channel shaped center sills slotted longitudinally from their ends, a bolster having a continuous top portion and intermitted flanged diaphragms cooperating with said sills, the top portion occupying the slots of the sills and the diaphragms extending away from the sills, said bolster comprising a central portion connecting the diaphragms with the sills, and Z-shaped draft sills lapping the slotted portion of the center sills.

10. In combination, shaped channel shaped center sills slotted longitudinally from their ends, a bolster comprising a single continuous recessed casting and a filler for said recess and having a continuous top portion and intermitted flanged diaphragms coöperating with said sills, the top portion occupying the slots of the sills and the diaphragms extending away from the sills, said bolster filler portion connecting the diaphragms with the sills.

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

VICTOR M. SUMMA.

Witnesses:
OSCAR HOCHBERG,
WILLIAM V. MORRISON.

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