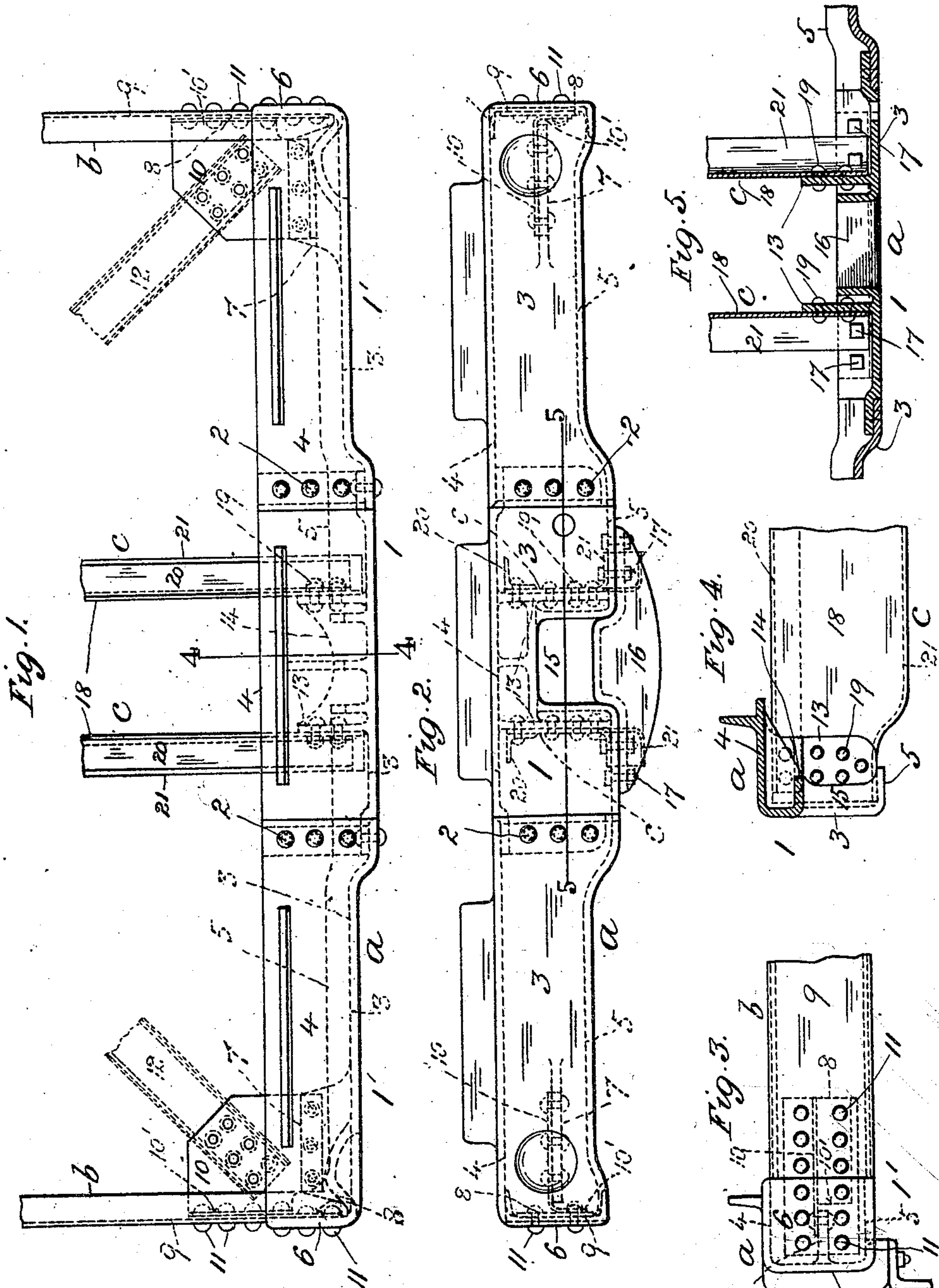


No. 886,063.

PATENTED APR. 28, 1908.

W. McINTOSH.
CAR UNDERFRAME.
APPLICATION FILED NOV. 22, 1907.



WITNESSES
O. T. Leaford
Frank B. Burke

INVENTOR
William McIntosh
By Edward W. Furell
His Atty

UNITED STATES PATENT OFFICE.

WILLIAM McINTOSH, OF NORTH PLAINFIELD, NEW JERSEY, ASSIGNOR TO LOCOMOTIVE
TENDER FRAME COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF DELAWARE.

CAR-UNDERFRAME.

No. 886,063.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed November 22, 1907. Serial No. 403,370.

To all whom it may concern:

Be it known that I, WILLIAM McINTOSH, a citizen of the United States, residing at North Plainfield, in the county of Somerset and State of New Jersey, have invented a new and useful Improvement in Car-Underframes, of which the following is a specification.

My invention relates particularly to the end sills of a metallic car underframe, and has for its object to provide a strong, rigid, and durable end sill specially adapted to reinforce and prevent lateral displacement of the middle and side longitudinal sills at the attachment of their end portions thereto, and to strengthen the end sill thereat.

It consists in features of novelty as herein-after described and claimed, reference being had to the accompanying drawing forming part of this specification, whereon,

Figure 1 is a top plan view of my improved end sill as applied to the end portions of the middle and side longitudinal sills of a metallic car underframe; Fig. 2 is a front elevation thereof; Fig. 3, an end view of the end sill with the end portion of the corresponding side longitudinal sill attached thereto, in side elevation; Fig. 4, a vertical transverse section through the end sill on line 4, 4, in Fig. 1, with the end portion of one of the middle longitudinal sills attached thereto, in side elevation, and Fig. 5, a horizontal section through the end sill and end portions of the middle longitudinal sills on line 5, 5, in Fig. 2.

Like letters and numerals of reference denote like parts in all the figures.

a represents my improved end sill which is preferably composed of cast steel channel-shaped in cross section, and in the present case is divided transversely into a middle part 1, and two end parts 1', fixed together at an equal distance from the longitudinal center of the car underframe, by splicing and rivets 2, as shown, or in any other suitable manner. Or the end sill may be integral throughout, its web 3 being arranged vertically outward and its top and bottom flanges 4 and 5, respectively, inward, the top flange 4 being preferably wider and extending rearward beyond the bottom flange 5, and the middle part 1 of the sill *a* projecting preferably forward beyond the end parts 1'. Or the sill *a* may be otherwise shaped in cross section having an upright member and top and bottom horizontal members projecting rearward therefrom.

The end sill *a* is closed at each end by an end piece 6, which is at right angles to and unites the web 3, and flanges 4 and 5, to each other thereat, and from the inside face of the web 3, between the flanges 4 and 5 adjacent to the end piece 6 projects a horizontal rib 7.

Riveted to the inner face of the end piece 6 between the top and bottom flanges 4, 5, and projecting rearwardly therefrom for a suitable distance, is a splice-plate 8, having its projecting portion bearing against the inner face of the upright web 9 of the corresponding side longitudinal sill *b*, which is preferably, channel-shaped in cross section, the web 9 preferably butting endwise against the rear edge of the end piece 6, and to the rib 7 of the end sill *a* is riveted a gusset-plate 10 having a lateral flange 10' bearing against the inner face of the splice-plate 8, the web 9 of the side sill *b*, splice-plate 8, and flange 10', being firmly fixed together by rivets 11, whereby the end portion of the side sill *b* is firmly secured to the end piece 6, and furthermore braced to the web 3 of the end sill *a*, by the gusset-plate 10, to which is also riveted the end of the diagonal brace 12 (indicated by dotted lines in Fig. 1) between the end sill *a* thereat and the body-bolster or equivalent member (not shown) of the underframe, the whole forming a strong and rigid reinforcement of the end and side sills *a* and *b* for resisting shock thereat. If desired the web 9 of the side sill *b*, in lieu of butting against the rear edge of the end piece 6 as described, may be extended and bear against the inside face thereof and the splice-plate 8 omitted, in which case the flange 10' of the gusset-plate 10 is riveted directly to the web 9 and end piece 6.

Projecting rearwardly from and integral with the web 3 of the end sill *a*, between the flanges 4 and 5 and at right angles thereto, at a suitable and equal distance on each side of the longitudinal center of the underframe, is a rib or bracket 13 which is preferably integral with the middle part 1 of the end sill *a*, the ribs 13 being united to each other by a horizontal web 14, and the end sill *a* otherwise adapted intermediately to the ribs 13 beneath the web 14, for the passage and play therethrough of the coupler draw-bar (not shown), the recess 15 for the latter in the underside and body of the sill *a* being closed by the draw-bar carry-iron 16 which is preferably L-shaped in cross section and fixed to

the underside of the bottom flange 5 of the sill *a* adjacent to the recess 15 by bolts 17, the middle portion of the carry-iron 16 projecting upward into the recess 15 and strengthening the sill *a* thereat.

The middle longitudinal sills *c* of the underframe consist respectively, in the present case of an upright plate or web 18 which bears at its end portion against one side of the corresponding rib 13 to which it is fixed by rivets 19, the plate 18 having a top angle iron 20 riveted thereto, and a bottom flange 21 which is fixed to the bottom flange 5 of the sill *a* preferably, by one of the bolts 17 of the carry-iron 16 (or otherwise) whereby the middle longitudinal sills *c* are firmly secured to the end sill *a* and prevented by the ribs 13 from lateral displacement. In this construction the end sill is greatly strengthened at its weakest points by the extended attachments of the longitudinal sills thereto combined with the gusset bracings between its web or upright member and the side longitudinal sills, and with the diagonal bracing of these gusset braces to the intermediate transverse members, such as the body-bolsters or their equivalents, of the underframe.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a car underframe of the class described, the combination with the side longitudinal sills, of an end sill having an upright web, an upper horizontal flange and a lower horizontal flange, projecting rearward from the web, a member uniting the said web and flanges at each end of the end sill and adapted to bear against the end portion of the corresponding side sill, a rib projecting horizontally from, and integral with the web between the said flanges, adjacent to the said member, a gusset-plate fixed to the said rib and having a lateral flange, and means for fixing the said member, end portion of the side sill, and lateral flange together, substantially as described.

2. In a car underframe of the class described, the combination with the side longitudinal sills, of an end sill having an upright web, an upper horizontal flange and a lower horizontal flange, projecting rearward from the web, a member uniting the said web and flanges at each end of the end sill and adapted to bear against the end portion of the corresponding side sill, a rib projecting horizontally from, and integral with the web adja-

cent to the said member, a gusset-plate fixed to the said rib and having a lateral flange, a splice-plate between the said flanges adapted to bear laterally against the said member and end portion of the side sill, and means for fixing the said member, end portion, splice-plate, and lateral flange together, substantially as described.

3. In a car underframe of the class described, the combination with the middle and side longitudinal sills, of an end sill having an upright web, an upper horizontal flange and a lower horizontal flange, projecting rearward from the web, an upright rib integral with the body between the said flanges, at each side of, and parallel to the longitudinal center of the underframe, means for fixing the end portions of the middle longitudinal sills laterally to the said ribs, a member uniting the said web and flanges at each end of the end sill and adapted to bear against the end portion of the corresponding side sill, a rib projecting horizontally from, and integral with the web adjacent to the said member, a gusset-plate fixed to the said horizontal rib and having a lateral flange, and means for fixing the said member, end portion of the side sill, and lateral flange together, substantially as described.

4. In a car underframe of the class described, the combination with the side longitudinal sills, of an end sill having an upright web, an upper horizontal flange and a lower horizontal flange projecting rearward from the web, a member uniting the said web and flanges at each end of the end sill and adapted to bear against the end portion of the corresponding side sill, a rib projecting horizontally from, and integral with the web, adjacent to the said member, a gusset-plate fixed to the said rib and having a lateral flange, and means for fixing the said member, end portion of the side sill, and lateral flange together, the said plate being adapted for the attachment thereto of a diagonal brace between the said plate and a transverse member of the underframe to the end sills, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM McINTOSH.

Witnesses:

WINFIELD WAINWRIGHT,
JOSEPH T. VAIL.

It is hereby certified that in Letters Patent No. 886,063, granted April 28, 1908, upon the application of William McIntosh, of North Plainfield, New Jersey, for an improvement in "Car-Underframes," an error appears in the printed specification requiring correction, as follows: In line 103, page 2, after the word "underframe," the word *intermediate* should be inserted; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of May, A. D., 1908.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.