

Nov. 19, 1929.

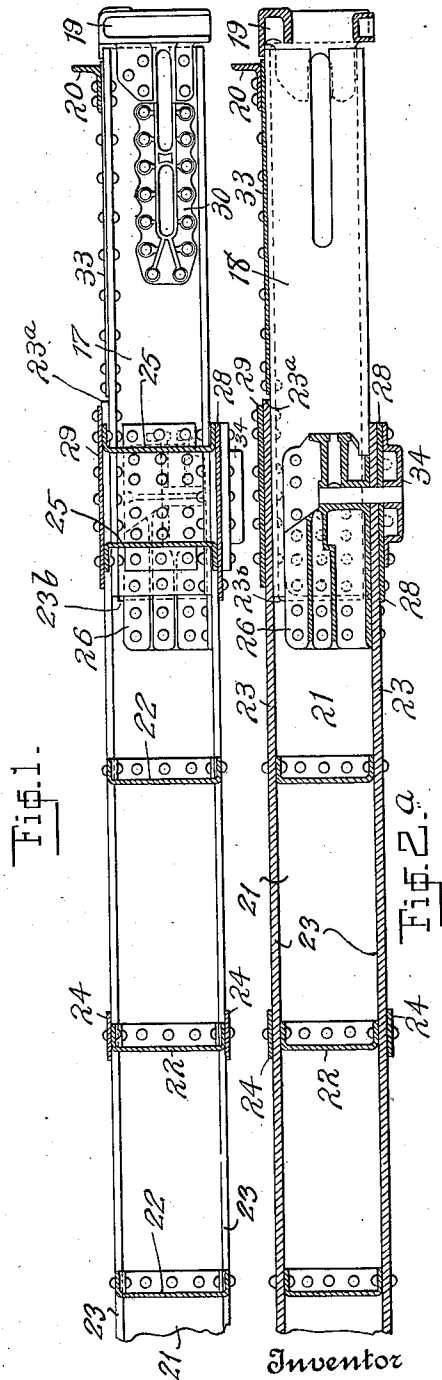
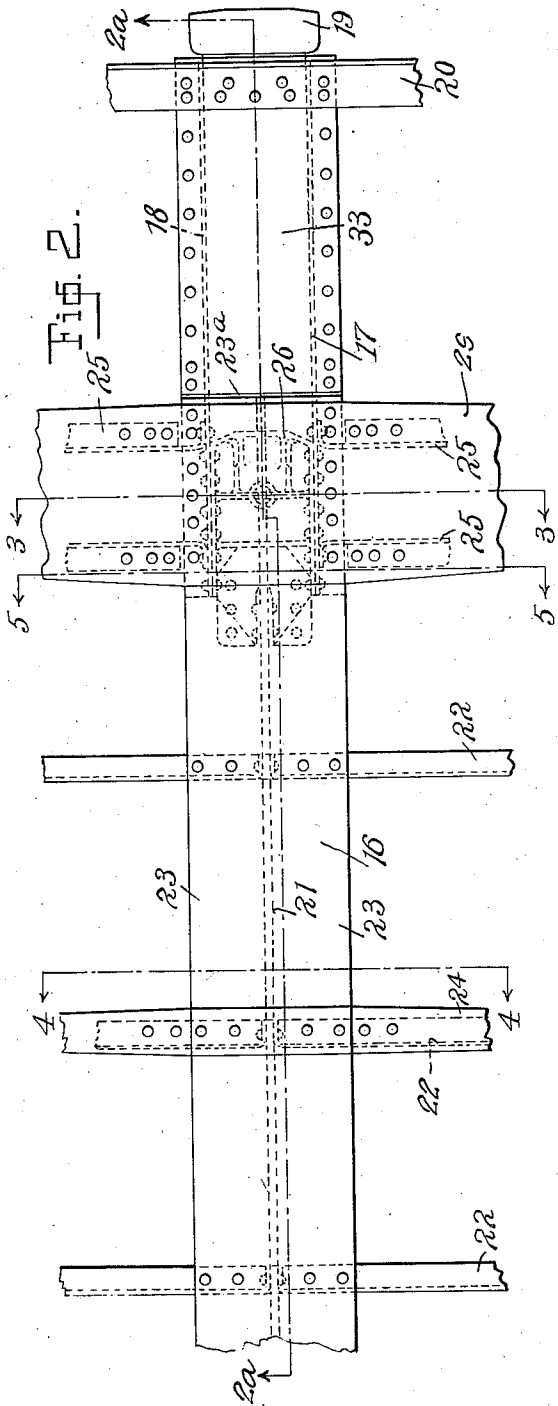
W. C. SLEEMAN

1,736,292

RAILWAY CAR CONSTRUCTION

Filed Jan. 11, 1928

6 Sheets-Sheet 1



Inventor
William C. Sleeman
By his Attorney
D. O. O'Connell

Nov. 19, 1929.

W. C. SLEEMAN

1,736,292

RAILWAY CAR CONSTRUCTION

Filed Jan. 11, 1928

6 Sheets-Sheet 2

Fig. 3.

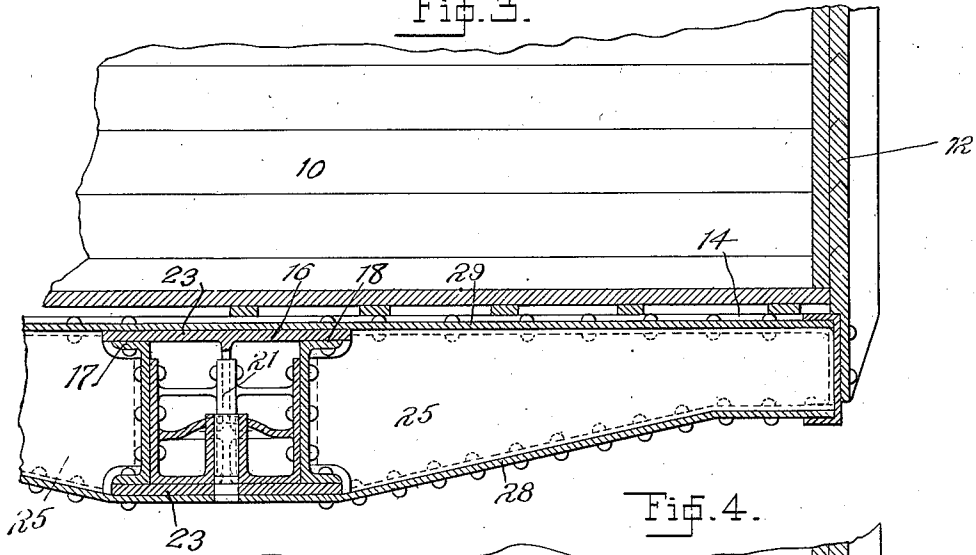


Fig. 4.

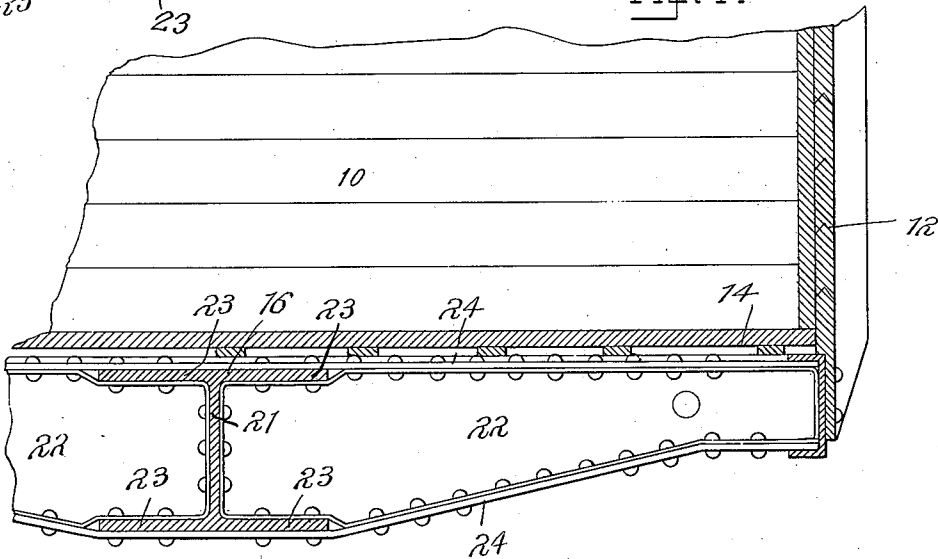
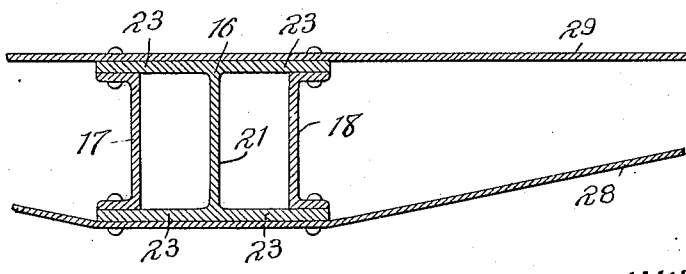


Fig. 5.



Inventor
William C. Sleeman
By his Attorney
D. Anthony Reina

Nov. 19, 1929.

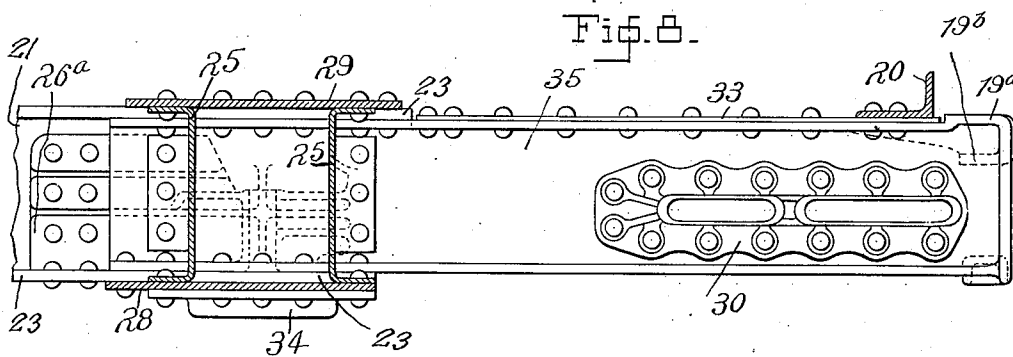
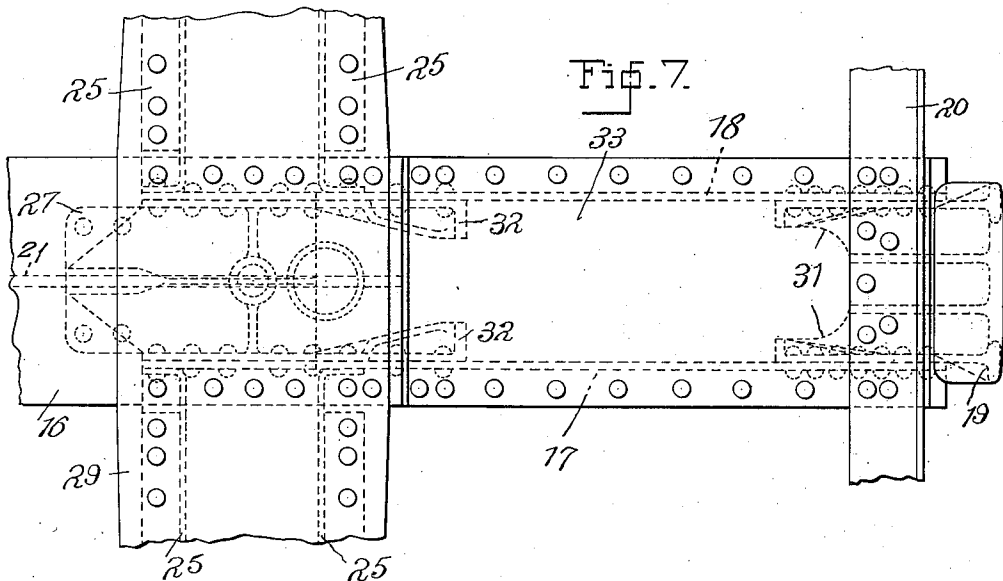
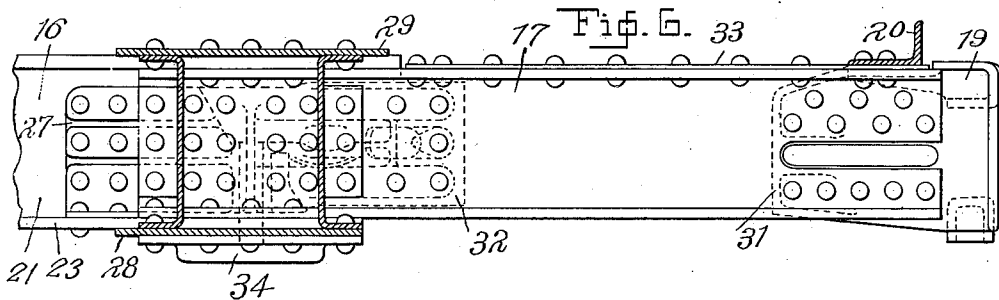
W. C. SLEEMAN

1,736,292

RAILWAY CAR CONSTRUCTION

Filed Jan. 11, 1928

6 Sheets-Sheet 3



Inventor

William C. Sleeman

By his Attorney

Anthony Reina

Nov. 19, 1929.

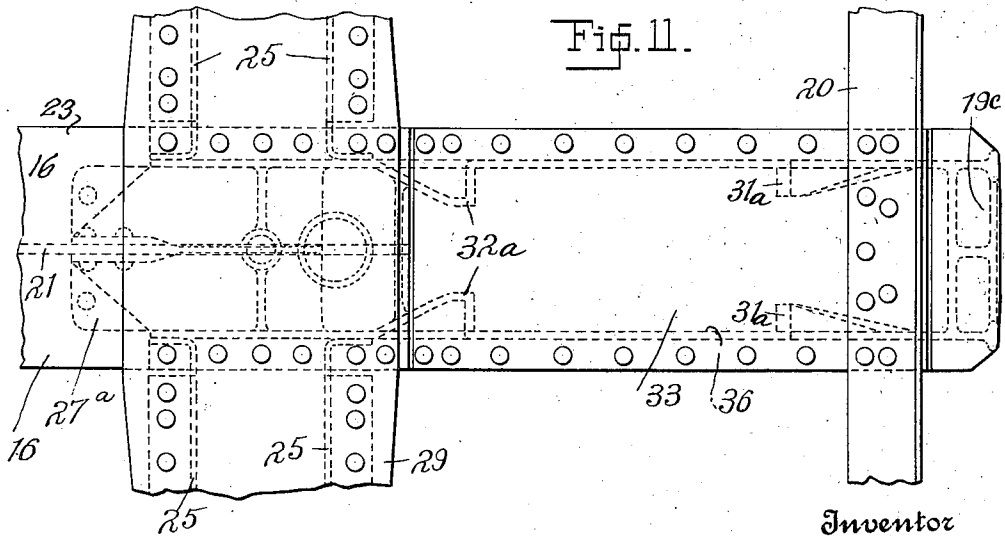
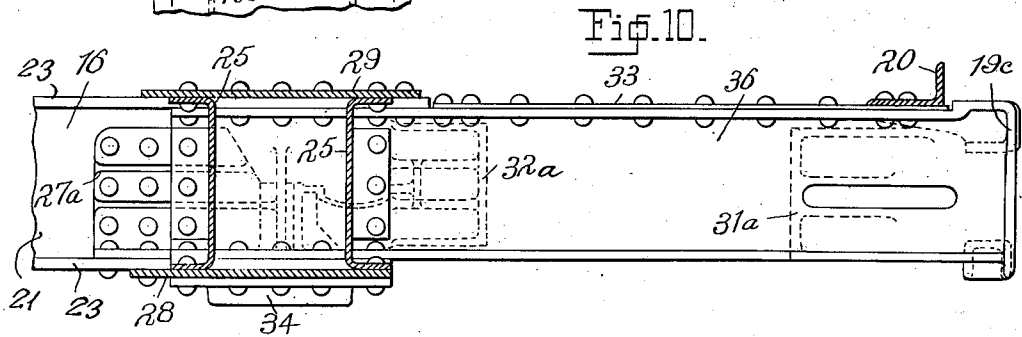
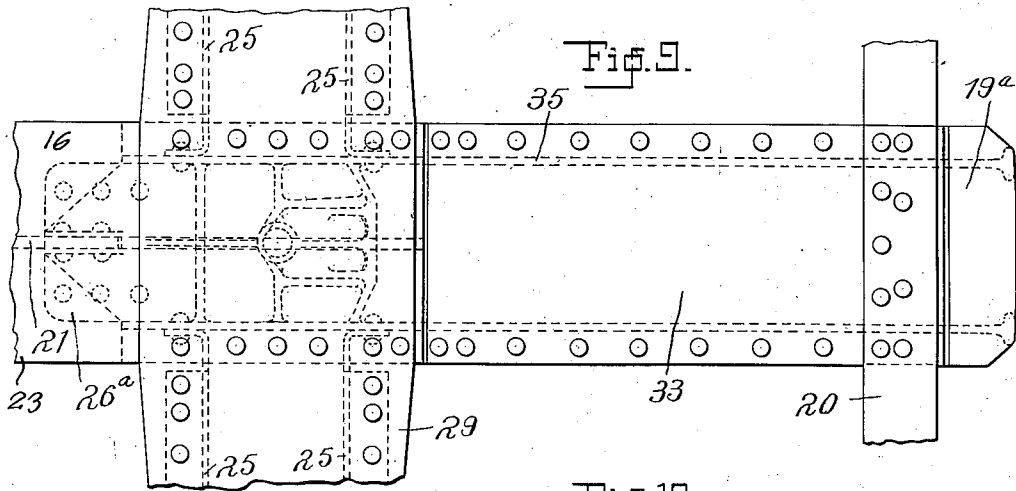
W. C. SLEEMAN

1,736,292

RAILWAY CAR CONSTRUCTION

Filed Jan. 11, 1928

6 Sheets-Sheet 4



Inventor

William C. Sleeman

By his Attorney

W. Anthony Reina

Nov. 19, 1929.

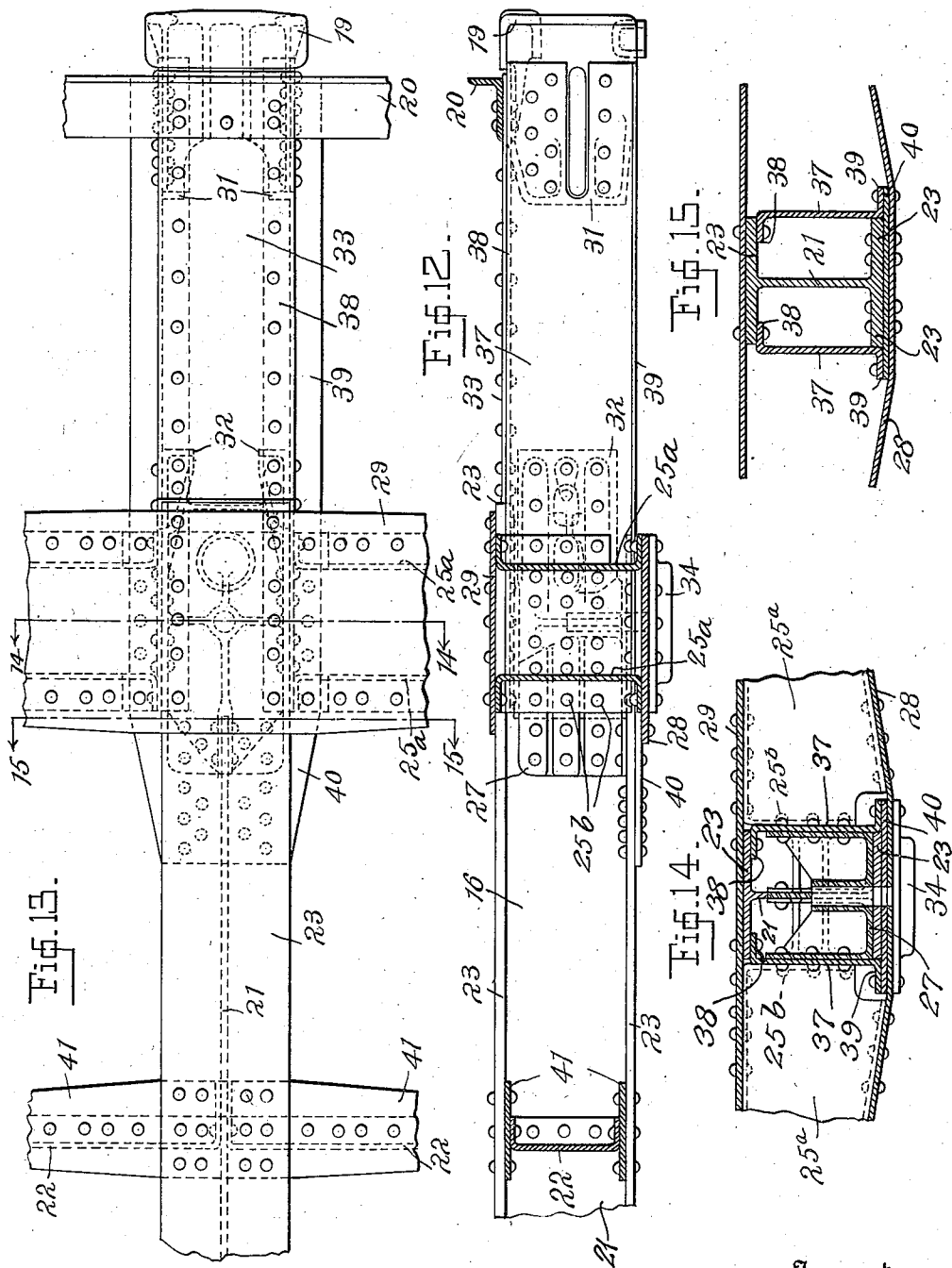
W. C. SLEEMAN

1,736,292

RAILWAY CAR CONSTRUCTION

Filed Jan. 11, 1928

6 Sheets-Sheet 5



Inventor
William C. Sleeman
By his Attorney
Anthony Reina

Nov. 19, 1929.

W. C. SLEEMAN
RAILWAY CAR CONSTRUCTION

1,736,292

Filed Jan. 11, 1928

6 Sheets—Sheet 6

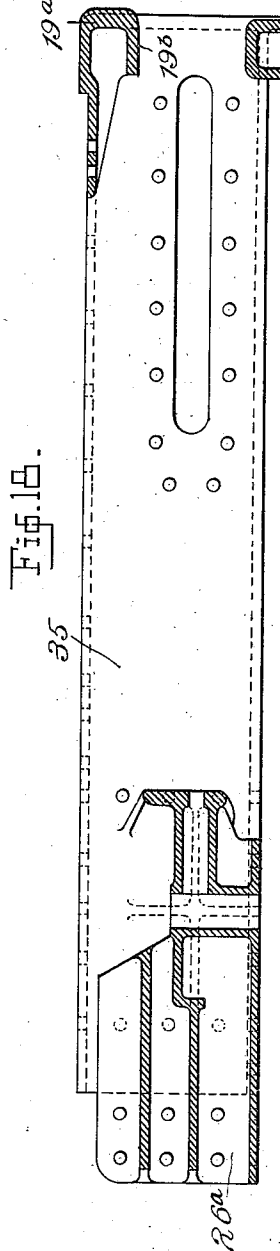
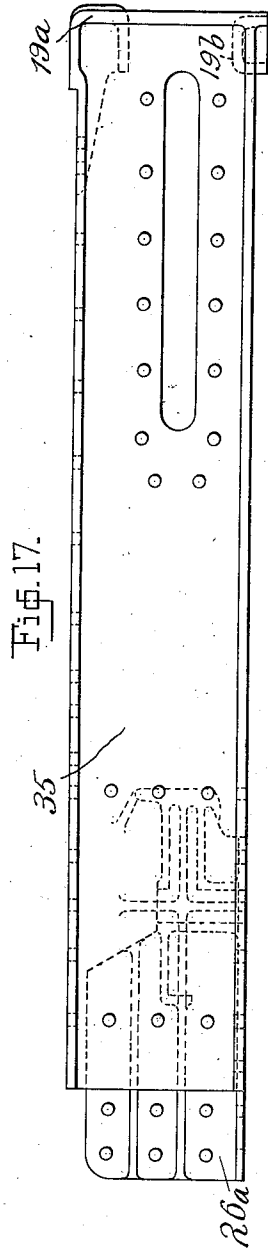
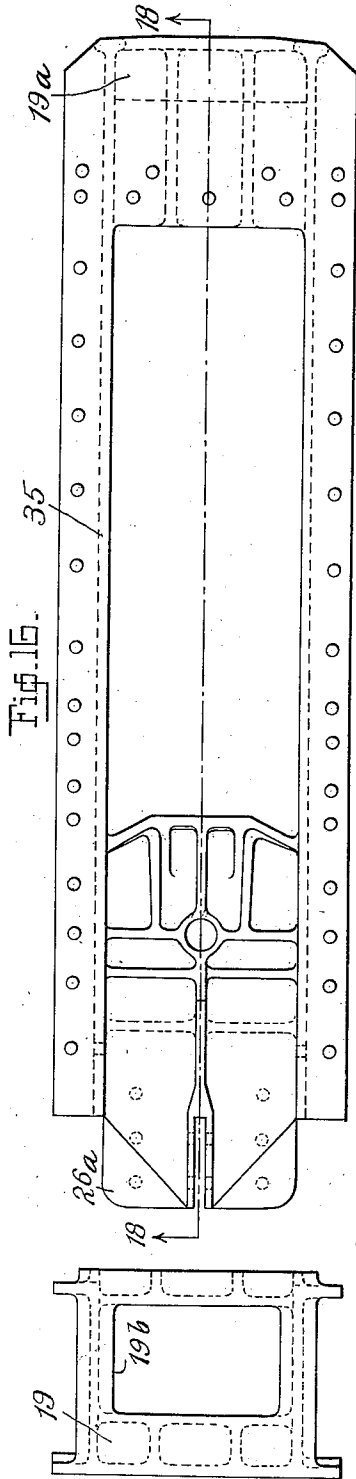


Fig. 19.

Inventor
William C. Sleeman
By his Attorney
O. Anthony Reina

UNITED STATES PATENT OFFICE

WILLIAM C. SLEEMAN, OF BIRMINGHAM, ALABAMA

RAILWAY-CAR CONSTRUCTION

Application filed January 11, 1928. Serial No. 245,898.

This invention relates to improvements in railway car construction and aims particularly to provide a novel design of longitudinal center sill having fewer parts than center sills heretofore used and yet being as strong or stronger than constructions of the prior art. The invention further aims to provide a sill construction in which the web of a single solid rolled member is located on the longitudinal center line of the car and in which integral flanges extend symmetrically on opposite sides of such center lines. A further aim is to provide a sturdy sill construction designed to eliminate numerous sill and diaphragm connections required in the sills of the prior art. Another aim is to provide a center sill having a central web and transversely extending flanges whose upper and lower faces are substantially parallel so as to facilitate fabrication and avoid the complexities of beam connections which result from the use of rolled sections heretofore used in railway car construction in which the flanges are tapered or inclined on the inner sides.

Other features of my improvement will appear from the following specification when read in connection with the accompanying drawings and the invention will be defined with particularity in the appended claims. In the drawings—

Fig. 1 is a longitudinal section through one end of a railway car showing a side view of a center sill embodying my invention;

Fig. 2 is a skeleton-top plan of the sill construction illustrated in Fig. 1;

Fig. 2^a is a longitudinal section on line 2^a—2^a of Fig. 2;

Fig. 3 is a cross-section on line 3—3 of Fig. 2;

Fig. 4 is a cross-section on line 4—4 of Fig. 2, Figs. 3 and 4 illustrating also a portion of a conventional form of car body;

Fig. 5 is a cross-section on line 5—5 of Fig. 2 with the center brace omitted;

Fig. 6 is a side elevation of a sill construction similar to that illustrated in the foregoing figures but equipped with members for coacting with a draft rigging employing a vertical yoke;

Fig. 7 is a plan view of the construction shown in Fig. 6;

Fig. 8 is a side elevation of a sill construction equipped with parts for coacting with another type of draft rigging;

Fig. 9 is a plan view of parts shown in Fig. 8;

Fig. 10 is a side elevation of a sill construction equipped with parts arranged for coacting with the draft riggings having the so-called vertical yoke attachments;

Fig. 11 is a plan of Fig. 10;

Fig. 12 is a side elevation illustrating a modification in which the sill is equipped with Z-shaped draft sills arranged for coacting with the so-called vertical yoke attachments;

Fig. 13 is a plan of Fig. 12;

Fig. 14 is a cross-section on line 14—14 of Fig. 13;

Fig. 15 is a section on line 15—15 of Fig. 13;

Fig. 16 is a plan view of a cast draft member indicated in Figs. 8 and 9;

Fig. 17 is a side elevation thereof;

Fig. 18 is a longitudinal section on line 18—18 of Fig. 16;

Fig. 19 is an end view of Fig. 18.

Referring in detail to the drawings, 10 represents a conventional form of car body having side walls 12 and suitable flooring 14. The car illustrated is of the box-car type but it is to be understood that the invention may be applied to various types of freight or passenger cars.

Regardless of the type of car I provide a one-piece center sill indicated as a whole at 16 which is located on the center line of the car. At each end of the improved center sill I rivet or otherwise secure draft sills 17 and 18 which in the embodiment of Figs. 1 to 5 inclusive are in the form of rolled or cast steel channel members. The ends of these draft sills are tied together by a striking head 19, the same being riveted to the webs of the draft sills 17 and 18. Near the extremity of the draft sills I rivet or otherwise secure a transverse end sill angle member as indicated at 20.

My improved center sill includes a solid rolled substantially H-shaped section comprising a web 21 with oppositely extending

integral flanges 23—23. The upper and lower faces of the flanges 23 are substantially parallel with one another. In other words, the flanges are of uniform thickness and not tapered on their undersides like structural rolled members heretofore used in car building. The size and shape of the center sill 16 is such that the car body supporting structure may be readily secured thereto without the use of numerous beam connections required in former constructions. The width of the center sill as measured across the flanges is greater than the depth of the sill yet the sill is amply strong to withstand the buffing stresses to which this class of structure is subjected.

Extending laterally from each side of the central web of the draft sill and at spaced intervals along the length of the sill, I provide laterally extending supporting diaphragms 22 which are riveted directly to the web and flanges of the sill 16 as clearly shown in Fig. 4. The wide flanged sill provides ample room for accommodation of rivets. In some cases, I also provide connecting plates 24 serving as an additional tie between the diaphragms 22 and the center sill.

As shown best in Figs. 2 and 5, the draft sills 17 and 18 are fitted between the upper and lower flanges 23 of the sill. Transversely extending body bolster members 25 are riveted to the draft sills and to a suitable center brace member 26 and these members are all secured together by bolster tie plates 28 and 29. The end 23^a of the top flange of the center sill extends slightly beyond the body bolster members 25, but if desired the sill 16 may extend the full length of the car by merely coping out (cutting away) the web of the sill to accommodate the draft rigging.

The bolster center brace 26 as shown in Fig. 2 is made in one piece and the web (Fig. 1) of the sill is cut away from point 23^a to the point 23^b (Fig. 2^a) to accommodate the center brace. But it will be understood that if desired the bolster brace 26 might be made in two separate halves each riveted to an opposite face of the web.

In the construction of Figs. 1 to 7, the striking plate 19 and cheek plate 30 and suitable draft gear abutments are secured to the draft sills 17 and 18. These parts are similar to the American Railway Association standards and may be varied to suit requirement of the different types of draft gear without materially modifying my new sill construction.

Figs. 6 and 7 illustrate a sill construction slightly differing from Figs. 1 to 5 for coaction with a different standard type of draft gear. The arrangement of Figs. 6 and 7 is adapted to co-operate with a draft gear of known construction having a vertical yoke. For this type, I provide striking lugs 31 and 32 riveted to the draft sills 17 and 18.

Figs. 8 and 9, 16, 17, 18 and 19 illustrate a

center sill having secured to the end thereof draft sills 35 cast integrally with a bolster center brace 26^a. In this construction the striking plate 19^a is formed with a coupler carrier opening 19^b to accommodate the shank of a standard coupler.

In the several designs illustrated the usual standard design of bolster centering plate 34 is riveted to the bolster bottom tie plate 28 and coacts with a suitable member carried by the usual car truck. In the constructions of Figs. 8 and 9, a top cover plate 33 is shown riveted to the draft sill members 35, but, if desired, the sills may be tied together by a top wall which is integral with the other parts of the sill member 35. In the design illustrated in Figures 1 to 8, standard A. R. A. cheek plates 30 are shown but it is understood that other draft rigging attachments may be substituted therefor.

In the construction of Figs. 10 and 11, I have illustrated a draft sill member indicated as a whole at 36 which is cast integrally with the center brace member 27^a and this casting 36 also has integral draft gear lugs 31^a and 32^a and an integral striking plate and coupler carrier iron 19^c. In this construction the top cover plate 33 is riveted to the casting 36 but if desired the top wall may be integral therewith as will be understood.

Figs. 12 to 15 inclusive illustrate a further alternative construction in which I provide Z-shaped draft sills 37 having oppositely extending flanges 38 and 39, the former being riveted to the upper flanges 23 of the center sill and the flanges 39 being riveted to a draft sill connecting plate 40 which in turn is riveted to a bolster tie plate 28 secured to the underside of transversely extending bolster diaphragms 25^a which are riveted as indicated at 25^b to the webs of the draft sills 37. In this construction I employ a bolster center brace 27 having integral lugs 32 for coaction with the standard draft gear having a vertical yoke. I also provide suitable lugs 31 for coaction with such standard draft gear.

From the foregoing it is apparent that the car construction described includes a simplified center sill formed of a sturdy one-piece solid rolled section having draft sills secured to the end thereof for accommodating various standard types of draft rigging. While not limited thereto I prefer to build the center sill of a standard Carnegie wide flanged beam section because such a section possesses remarkable strength per unit of weight. Such a beam is peculiarly well adapted for freight car construction because of the great strength which accompanies its comparatively shallow depth. By using a substantially shallower beam than heretofore in general use, the center of gravity of the freight car can be somewhat lower yet the strength of the sill is not decreased. A solid rolled beam of the type referred to has a further advantage

that flanges are of substantially uniform thickness, hence, their upper and lower faces are substantially parallel. This eliminates the necessity of making angular fits such as heretofore required when prior standard forms of structural members were utilized in the car building art. The use of a single integral sturdy structural member in place of the built-up sill also provides a construction in which certain weaving and other strains to which freight car bodies are subjected will be reduced very materially. The single integral sill member may in the language of the layman be said to provide a sort of rigid "backbone" for the entire car structure capable of better resisting peculiar strains to which car bodies are subjected than the built-up and somewhat yielding structures of the prior art.

The width of the sill as measured across the flanges is greater than the vertical depth of the web. Such a wide flanged section provides ample room for double lines of widely spaced rivets and gives widely separated generous areas for attachment of straight draft sills which need not be bent or offset to accommodate standard widths of draft gears.

While I have described certain specific characteristics of the constructions illustrated in minute detail, it is not to be construed that I am limited thereto since various modifications may be made by those skilled in the art without departing from the invention as defined in the appended claims.

What I claim is:—

1. A railway car having a center sill comprising a single solid rolled section, said section having a central vertically disposed web and laterally extending flanges at the top and bottom thereof, and draft sills secured to said flanges between said flanges at the ends of said section.

2. A railway car having a center sill comprising a single solid rolled section, said section having a central vertically disposed web and laterally extending flanges at the top and bottom thereof, and draft sills secured to said flanges between said flanges at the ends of said section and a center brace secured to the draft sills and center sill.

3. A railway car center sill comprising a solid rolled section having a single vertical web with symmetrical top and bottom flanges, the width of said sill measured across said flanges being at least equal to the vertical depth of said web whereby widely spaced bearing surfaces are provided to accommodate straight parallel draft sills.

4. A railway car center sill comprising a solid rolled section having a single vertical web with symmetrical top and bottom flanges, the width of said sill measured across said flanges being greater than the vertical depth of the sill and unbent draft sills secured between the flanges of the sill and extending in

substantial parallelism with the projected center line of the center sill.

5. A railway car center sill comprising a solid rolled section having a single vertical web with symmetrical top and bottom flanges, a center brace secured between said flanges, a body bolster secured to the latter and to said flanges, draft sills secured to said flanges and transverse supporting members secured to the web and flanges of the center sill.

6. A railway car having a center sill comprising a single section having a central vertical web and integral oppositely extending top and bottom flanges of substantially uniform thickness, straight substantially parallel draft members having outwardly extending flanges secured between the flanges of said center sill.

7. A railway car center sill comprising a solid rolled section having a vertical web with symmetrical top and bottom flanges, and unbent draft sills secured between the flanges of the sill and extending in substantial parallelism with the projected center line of the center sill.

In witness whereof, I have hereunto signed my name.

WILLIAM C. SLEEMAN.