Oct. 11, 1932. M. H. MARTIN 1,881,797

CENTER SILL

Filed April 16, 1930

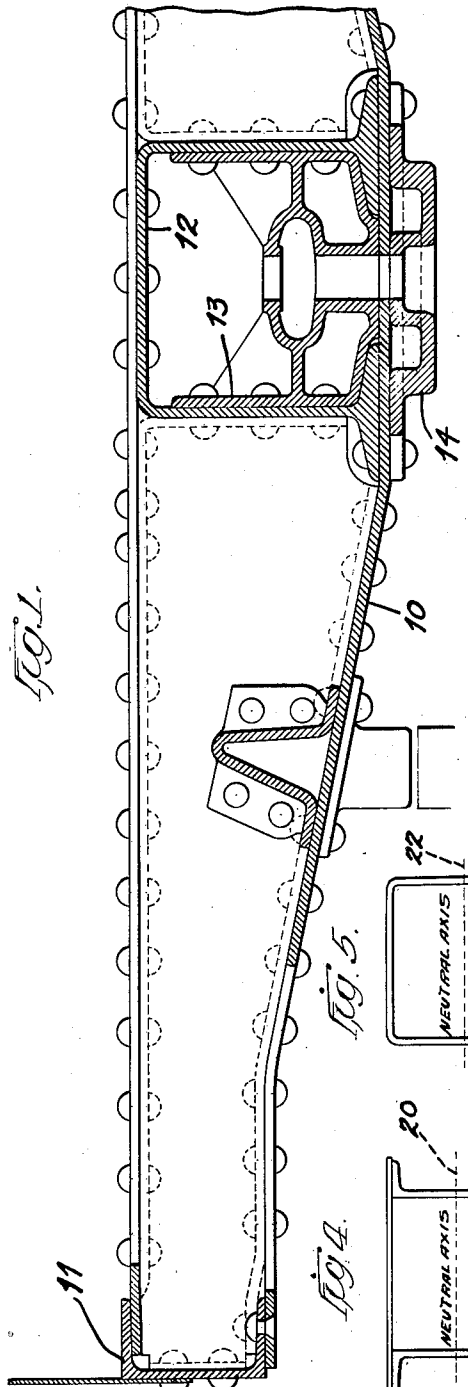


Fig. 1.

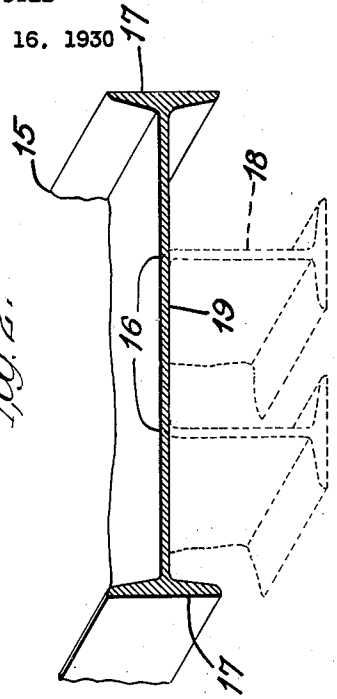


Fig. 2.

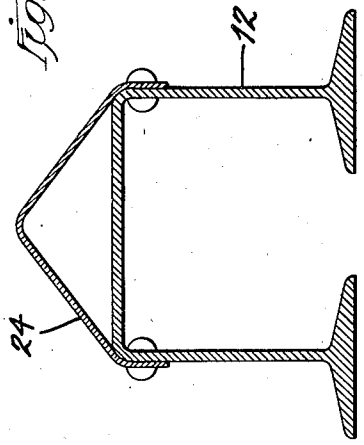


Fig. 3.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE

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CENTER SILL

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My invention relates to center sills for railway cars.

The principal object of my invention is to provide a center sill formed as a single piece which is readily adaptable for use under all operating conditions now found in railway cars, including the reception of either vertical or horizontal yoke draft attachments, combined coupler striking, carrier and front draft stop castings, and rear draft stop castings, and which is marked by superior strength arising from the closer disposition of its neutral axis to the center line of the draft than now obtains in the art.

A further object is to devise a method of making a center sill of the above type which is characterized by simplicity and the ability to form the sill from a simple rolled section.

As now made, the standard A. R. A. center sill comprises a pair of spaced, inverted T-sections with inturned or outturned flanges along the upper edges of each section projecting towards or away from each other and a top plate bridged across these sections for securement to the flanges. This assembly requires three separate parts which must be riveted or otherwise secured together and in order to obviate this present necessity, the sill disclosed in the present application has been devised. Being formed in one piece, its manufacture is characterized by simplicity, and in use it possesses the ability of being readily tied in with the remainder of the car assembly, as well as possessing certain other strength attributes which are discussed more fully hereinafter.

These and further objects of my invention will be set forth in the following specification, reference being had to the accompanying drawing, and the novel means by which said objects are effectuated will be definitely pointed out in the claims.

In the drawing:

Fig. 1 is a sectional elevation of a body bolster showing my improved center sill in section.

Fig. 2 is a perspective view showing the successive steps in the making of the sill.

Fig. 3 is a sectional elevation of the center sill, as viewed in Fig. 1, showing its ready adaptability for use on hopper cars.

Figs. 4 and 5 are comparative, diagrammatic views of the present standard center sill and the center sill of the present application, showing, in each case, the position relation of the neutral axis of the section to the center line of the draft.

The number 10 designates a body bolster which is secured at each end to the usual side sill 11 and at the mid-portion thereof to my improved center sill 12. Between the sides of said sill, the usual casting 13 for receiving the king pin of the truck may be riveted and directly beneath said sill and attached to the bolster is the customary body center plate 14.

In forming the sill 12, an I-beam section is first rolled or otherwise formed, and at two points 16 intermediate the flanged sides 17 of the section, the latter is bent into a substantially U-shaped section, as shown in Fig. 2, comprising the sides 18 and connecting web 19, each side 18 having the flanged portion 17. The simplicity of forming this section is obvious, but this advantage does not detract from the capacity of the sill for being employed under all the operating conditions now found in freight cars, including the attachment thereto of the several parts of the draft gear, whether of the vertical or horizontal yoke type, and also the several parts employed for the coupler including the striking and carrier casting. A further advantage of this type of sill can be understood by referring to Figs. 4 and 5, the former illustrating in section the standard sill and the latter, the sill embodying my invention. In Fig. 4, the numeral 20 designates the neutral axis of the sill and the line 21 denotes the position of the center line of the draft, while in Fig. 5, the corresponding lines are denoted by the numerals 22 and 23, respectively. In the latter case, it will be noted that the center line of the draft is only about one-half of the distance from the neutral axis of the section when compared with the similar lines in Fig. 4, thus indicating that the sill embodying my invention more closely approximates the theoretical requirement of locating the neutral axis of the sill section substantially in align-

ment with the center line of the draft. This construction enables a sill of lighter weight to be used for any given draft requirement.

As indicating the adaptability of my improved sill, it will be noted by referring to Fig. 3 that the customary hood 24 employed in hopper car construction between the end slope sheets may be easily secured to the sides of the sill.

While I have shown one set of elements and combinations thereof for effectuating my improved center sill and the method of making the same, it will be understood that the same is intended for purpose of illustration and in nowise to restrict the device to the exact forms and structures shown, for many changes may be made therein without departing from the spirit of my invention.

I claim:

1. A center sill comprising a section of substantially I-shape bent in two locations intermediate its flanged sides to form a U-section.

2. A one piece center still consisting of depending sides having double flanged edges and a web remotely disposed from said flanges connecting said sides.

3. A one piece center sill consisting of depending sides having flanged edges extending toward each other and a web remotely disposed from said flanged edges connecting said sides.

4. A center sill of channel section having its open side facing downwardly and flanges on the side edges extending toward each other.

5. The method of making a center sill from a member having substantially an I-section consisting in simultaneously bending said member in two locations intermediate the flanged sides thereof to form a substantially U-shaped section.

6. The method of making a center sill from a simple rolled I-beam, consisting in bending said beam in two locations intermediate the flanged sides thereof to form a substantially U-shaped section.

7. A center sill of channel section having its open side facing downwardly and flanges on the side edges, the mean thickness of each flange being greater than that of the associated side of the sill.

8. A one-piece center sill consisting of depending sides having flanged edges and a web remotely disposed from said flanges connecting said sides, the mean thickness of each flanged edge being greater than that of the associated side.

In testimony whereof, I affix my signature.

MARK H. MARTIN.