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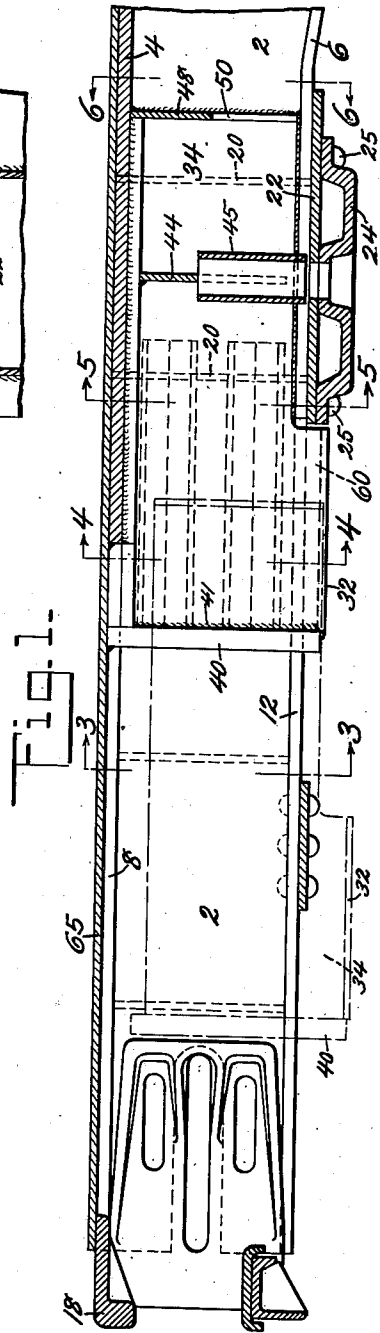
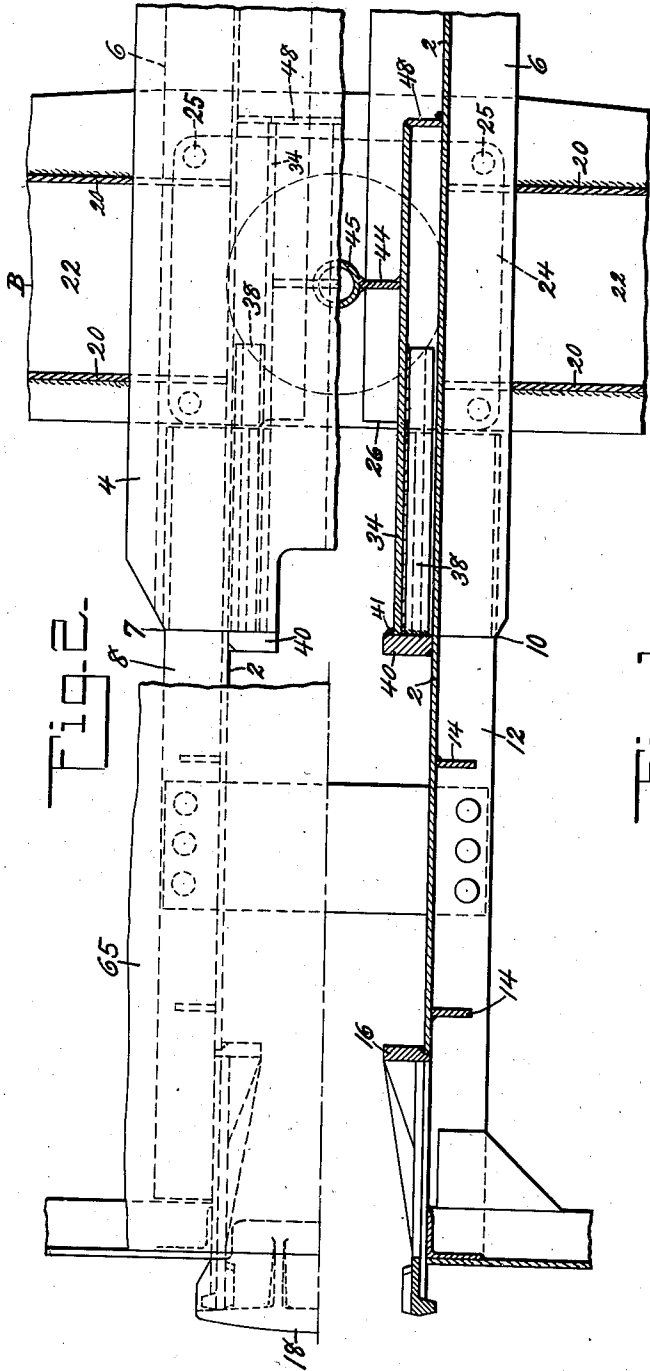
A. KASSLER

2,352,718

DRAFT GEAR BACK STOP AND CENTER FILLER

Filed Jan. 8, 1942

2 Sheets-Sheet 1



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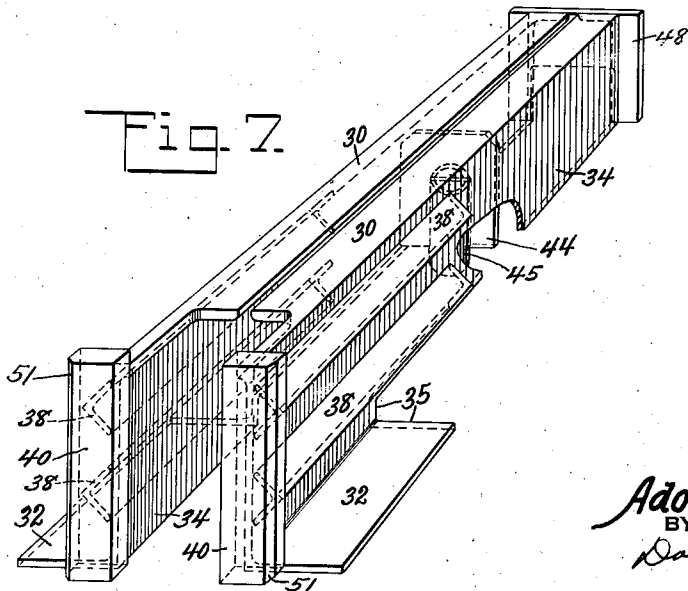
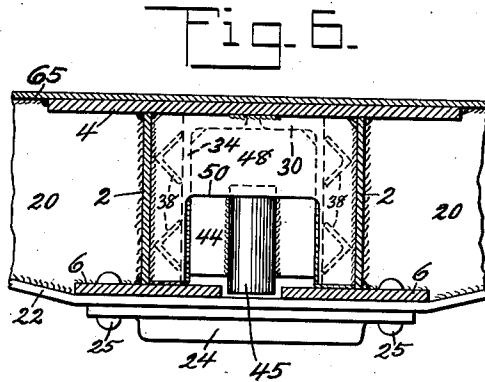
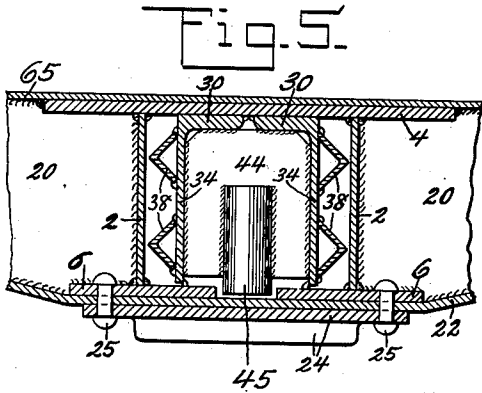
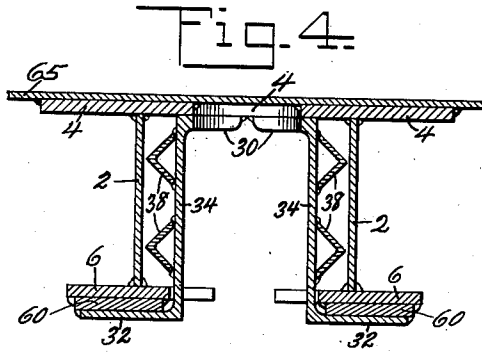
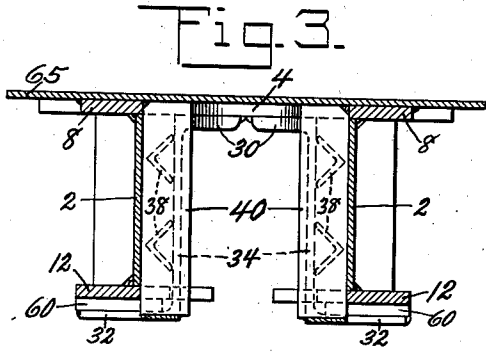
A. KASSLER

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DRAFT GEAR BACK STOP AND CENTER FILLER

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2 Sheets-Sheet 2



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DRAFT GEAR BACKSTOP AND CENTER FILLER

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Application January 8, 1942, Serial No. 426,039

8 Claims. (Cl. 105-420)

This invention relates to railway car underframes in general and in particular to that portion of the underframe immediately adjacent the body center bearings and support.

The bulk of railway cars have been built in the past years with cast center fillers and draft gear back stops, usually cast in one piece and extremely heavy. With improvements in welding technique in recent years the trend has been toward welded construction, thereby permitting the better distribution of metal and the use of high strength steels, thus effecting a saving both in weight and in cost. It is an object, therefore, of the present invention to provide a built-up draft gear back stop and center filler made of rolled members properly disposed to resist the strains and reduce the weight of the assembly, while increasing the strength thereof.

Another object of the invention is the provision of a fabricated draft gear back stop and center filler in which the back stops are securely anchored by parts of the car underframe.

A still further object of the invention is the provision of a fabricated draft gear back stop and center filler having webs spaced from the center sill webs and reinforced by angular reinforcements welded thereto.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view taken substantially on the longitudinal center line of the underframe;

Fig. 2 is a plan view of the improved underframe construction with parts shown in section to better disclose the construction;

Fig. 3 is a sectional view taken substantially on line 3-3 of Fig. 1 and looking toward the back stops;

Fig. 4 is a sectional view taken substantially on line 4-4 of Fig. 1 to better disclose the angular reinforcing means;

Fig. 5 is a sectional view taken substantially on line 5-5 of Fig. 1;

Fig. 6 is a sectional view taken substantially on line 6-6 of Fig. 1 and looking toward the fabricated center filler, and

Fig. 7 is a perspective view of the preassembled combined draft gear back stop and center filler.

Referring now to the drawings in detail, it will be seen that the fabricated draft gear back stop and center filler has been illustrated as applied to an all-welded center sill construction, but it is obvious that the fabricated unit may be read-

ily applied with but very slight modification to the various conventional center sill sections now used by the railroads and approved by the AAR. As shown, the center sill is made up of spaced vertically extending web plates 2 welded at their top edges to heavy and comparatively wide top cover plates 4 and at their bottom edges to spaced apart flat plates 6 forming the bottom flanges of the center sill. In this manner an extremely strong center sill is obtained which may be easily constructed as a straight type or a fish belly type. The upright webs of the center sills run continuous between the ends of the car, while the top cover plate, as clearly shown in Figs. 1 and 2, terminates as at 7 outwardly of the bolster structure B. Short plates 8 are welded to the upper edge of the center sill webs and to the ends of the top cover plates to produce an outwardly flanged section, as clearly shown in Fig. 3. The bottom flange plates 6 of the center sills extend continuously from and over substantially the same extent of sill as does the top cover plate. In other words, these lower sill flange plates terminate as at 10 (Fig. 2) substantially in alignment with the ends of the top cover plate. Short plates 12 are welded to the ends of the bottom sill flanges and to the webs of the sill and extend outwardly to the ends of the car thus forming a continuous bottom flange and producing a channel section, as more clearly shown in Fig. 3. It will, of course, be obvious that the short plates 8 and 12 could be made as continuous parts of the top and bottom sill plates but such an arrangement would be wasteful of metal and the arrangement shown is preferred. The center sill webs are stiffened adjacent the draft gear pocket, as clearly shown in Fig. 2, by means of vertical plate members 14 welded to the top and bottom flanges and to the webs of the center sills. Any suitable front draft lugs 16 and striker 18 may be attached to the sill webs. In the present instance these parts are formed as drop forgings welded in place. The body bolsters, as clearly shown, are formed by web plates 20 welded or otherwise secured to the webs of the center sill flanges and to the bolster bottom cover plate 22. The bottom cover plate has attached thereto the customary center bearing plate 24 held in place by rivets or other means 25 extending through the bolster cover plate and through the flanges of the center sill flange plates 6. As clearly shown in Figs. 1 and 2, the center sill lower flange plates are full width only up to substantially the outer edge of the bolster bottom cover plate, that is, the sill lower flange is clipped as at 26

and a part removed, thus giving a narrow flange for a purpose later to be referred to.

The combined draft gear back stop and center filler unit, shown in perspective by Fig. 7, is formed, as clearly shown in the figures, of two Z section rolled elements having short flanges 30 directed toward each other and longer flanges 32 directed away from each other with the webs 34 located in a vertical position and substantially parallel to each other. Portions of the relatively wide flanges 32 and lower parts of the web are removed as at 35 (Fig. 7), thus giving a flanged channel section at one end and a straight channel section at the other end of the unit. The webs of the Z elements forming the unit have welded thereto on the outer sides thereof angles 38. The front ends of these angles are welded to the inner surface of back stop elements 40 which are also welded to the webs as at 41 (Figs. 1 and 2) and to the flange 32, thus the angles 38 securely back up the back stops and form substantially tubular reinforcements preventing buckling of the webs of the Z elements forming the fabricated unit. The two Z formed parts of the unit are attached together by means of a transversely extending plate 44 welded to the webs and to the short flanges 30. This plate, as clearly shown in Figs. 5, 6 and 7, has a notch cut therein to receive a short section of pipe 45 welded to the plate and forming a center pin guide. If the locking type of center pin is used the upper end of the pipe may be spaced slightly from the edge of the plate in order to receive the head of the locking center pin. The unit halves are also additionally joined together by means of a back plate 48 welded to the ends of flanges 30 and webs 34. This plate is cut with an opening 50 in the lower edge thereof for a purpose later to be referred to. As clearly shown in Fig. 7, the front outer corners of the back stops 40 are beveled as at 51 and the back stops extend upwardly above the plane of the flanges 30 for purposes later to be referred to.

After construction of the unit as shown in Fig. 7 and after construction of the center sill assembly with the bolster and other parts attached, the fabricated unit may be inserted by bringing it to the line and dash position shown in Fig. 1 then shoved back to the final position shown by full lines of this figure. With the unit in the final position it is securely welded in place by welding the edges of flanges 30 to the top cover plate 4, then the edges of plate 48 are welded to the center sill webs and to the top cover plate. Weld is also made between the webs 34 of the fabricated unit and the bottom flange plates, such welding being made possible by the opening 50 in plate 48 and by the space existing between the back stops forwardly of the center pin guide. Flanges 32 may then be welded or riveted in position, it being necessary in the present case to utilize a filler 60 (Fig. 4) located between the flange 32 and the bottom flange plates of the center sill structure. In certain assemblies these filler plates would not be necessary, their use or nonuse depending upon the depth of the car center sill structure. The back stops are welded to the webs of the center sills by placing weld metal in the beveled corners 51, thus giving substantially flush surfaces without the necessity for any machining. The upper projecting ends of the back stops are in direct abutment with the cut ends of the top cover plate, as clearly shown in Fig. 2, and if desired may be welded to this cover plate, such welding depending upon

whether or not the floor plates 65 of the car are applied before or after bringing the unit into position between the center sill webs. It will be seen accordingly that the combined draft gear back stop and center filler may be constructed in halves, then assembled as a unit, with the unit inserted into the preassembled center sills and securely welded in position. Shifting of the back stops is resisted not only by the welding of the unit to the center sills but also by the overlapping and abutment of the stops 40 with the cut ends of the top cover plate and with the cut ends of the bottom center sill flange plates 6. These lower center sill flange plates, being narrower at their ends due to the cutout portion, are located outwardly of the web units 34 and in position to abut the stops, as clearly shown in Figs. 1, 2 and 4.

While the invention has been described more or less in detail with particular reference to the figures illustrating one form, it will be obvious that various modifications will be possible and all such modifications are contemplated as fall within the scope of the appended claims defining my invention.

What is claimed is:

1. A car underframe including a center sill having spaced substantially parallel webs joined together by a top cover plate, laterally spaced bottom flanges secured to the webs and extending to either side thereof, bolster members secured to the sill inwardly of the ends thereof, draft gear back stops secured to the sill webs between the bolster and adjacent sill ends, said back stops overlapping and being secured to the ends of cut-out portions of said top cover plate and bottom flanges, back stop bracing means comprising spaced apart Z bars having the top flanges directed toward each other and secured to the under side of the center sill top cover plate and with the lower flanges partially underlying the sill bottom flanges, the webs and flanges of the Z bars being secured to said back stops to brace the same, said Z bars having rear portions of the bottom flanges removed whereby the webs thereof may rest upon and be attached to the top side of inwardly extending portions of the center sill bottom flanges.

2. A car underframe including a center sill having spaced substantially parallel webs joined together by a top cover plate, laterally spaced bottom flanges secured to the webs and extending to either side thereof, bolster members secured to the sill inwardly of the ends thereof, draft gear back stops secured to the sill webs between the bolster and adjacent sill ends, said back stops overlapping and being secured to the ends of cut-out portions of said top cover plate and bottom flanges, back stop bracing means comprising spaced apart Z bars having the top flanges directed toward each other and secured to the under side of the center sill top cover plate and with the lower flanges partially underlying the sill bottom flanges, the webs and flanges of the Z bars being secured to said back stops to brace the same, said Z bars having rear portions of the bottom flanges removed whereby the webs thereof may rest upon and be attached to the top side of inwardly extending portions of the center sill bottom flanges, and a bolster bottom cover plate joining said center sill bottom flanges together thereby preventing spreading of said center sills and back stop bracing means.

3. A car underframe including a center sill having spaced substantially parallel webs joined

together by a top cover plate, laterally spaced bottom flanges secured to the webs and extending to either side thereof, draft gear back stops secured to the sill webs and overlapping and being secured to the ends of cut-out portions of said top cover plate and bottom flanges, back stop bracing means secured to the back stops and to the sill top cover plate and bottom flanges, said bracing means being formed by spaced apart Z bars having portions of the lower flanges and webs cut away whereby portions of the webs overlie and are attached to the top side of the sill bottom flanges and the uncut portions of the lower flanges underlie and are attached to the under side of the sill bottom flanges.

4. A car underframe including a center sill having spaced substantially parallel webs joined together by a top cover plate, laterally spaced bottom flanges secured to the webs and extending to either side thereof, draft gear back stops secured to the sill webs and overlapping and being secured to the ends of cut-out portions of said top cover plate and bottom flanges, back stop bracing means secured to the back stops and to the sill top cover plate and bottom flanges, reinforcing angles secured to said back stops and back stop bracing means and cooperating therewith to form tubular reinforcements for the bracing means, said bracing means being formed by spaced apart Z bars having portions of the lower flanges and webs cut away whereby portions of the webs overlie and are attached to the top side of the sill bottom flanges and the uncut portions of the lower flanges underlie and are attached to the under side of the sill bottom flanges.

5. As an article of manufacture a combined draft gear back stop and center filler for car center sills having spaced apart substantially vertical webs, comprising short unsymmetrical Z bars secured together to form an inverted flanged channel having the Z bar webs spaced apart a distance substantially less than the spacing between the center sill webs, angle form stiffeners having the legs thereof each secured to the outer sides of the webs of the Z bars to form therewith tubular reinforcements preventing buckling of the webs, and draft gear back stops overlapping an end of the Z bar webs and capping the ends of said tubular reinforcements and being secured thereto and to the Z bar webs and extending laterally of the webs a sufficient distance to contact the inner side of the center sill webs.

6. As an article of manufacture a combined draft gear back stop and center filler for car

center sills having spaced apart substantially vertical webs joined by a top cover plate provided with bottom flanges, comprising unsymmetrical Z bars secured together to form an inverted channel having webs spaced apart a distance substantially less than the spacing between the center sill webs, and draft gear back stops overlapping an end of the Z bar webs and flanges and extending laterally of the webs a sufficient distance to contact the inner side of the center sill top cover plate and bottom flanges.

7. As an article of manufacture a combined draft gear back stop and center filler for car center sills having spaced apart substantially vertical webs joined by a top cover plate and provided with bottom flanges, comprising unsymmetrical Z bars secured together to form an inverted channel having webs spaced apart a distance substantially less than the spacing between the center sill webs, draft gear back stops overlapping an end of the Z bar webs and flanges and extending laterally of the webs a sufficient distance to contact the inner side of the center sill webs and also extending laterally of the Z bar flanges to overlap portions of the center sill top cover plate and bottom flanges, and angle form stiffeners having the legs thereof each secured to the outer portions of the webs of the Z bars and to the back stops to form therewith capped tubular reinforcements preventing buckling of the web and back stops.

8. As an article of manufacture a combined draft gear back stop and center filler for car center sills having spaced apart substantially vertical webs joined by a top cover plate and provided with bottom flanges, comprising unsymmetrical Z bars having part of their flanges removed and being secured together to form an inverted channel at one end adapted to rest upon and be secured to the top side of the center sill bottom flanges and forming at the other end an externally flanged inverted channel having the external flanges adapted to underlie the lower surface of the center sill bottom flanges, and draft gear back stops overlapping an end of the Z bar webs and flanges and being secured thereto and extending laterally of the Z bar webs and adapted to contact the center sill webs and also extending laterally of the Z bar upper flange and adapted to overlap a portion of the center sill top cover plate.

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