

G. W. SCOTT.
CAST END FRAME.
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1,078,312.

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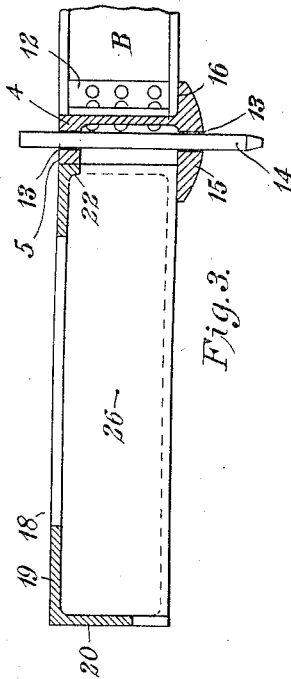


Fig. 3.

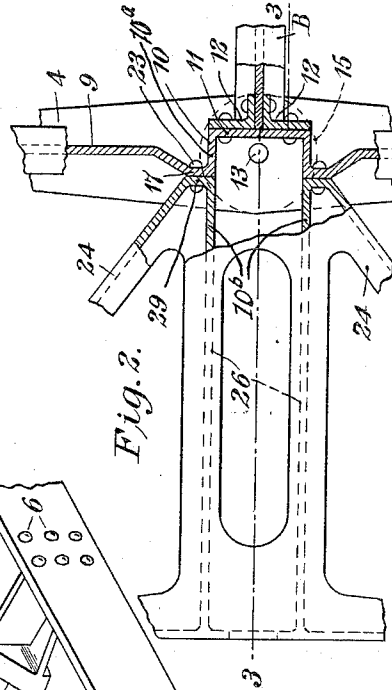


Fig. 2.

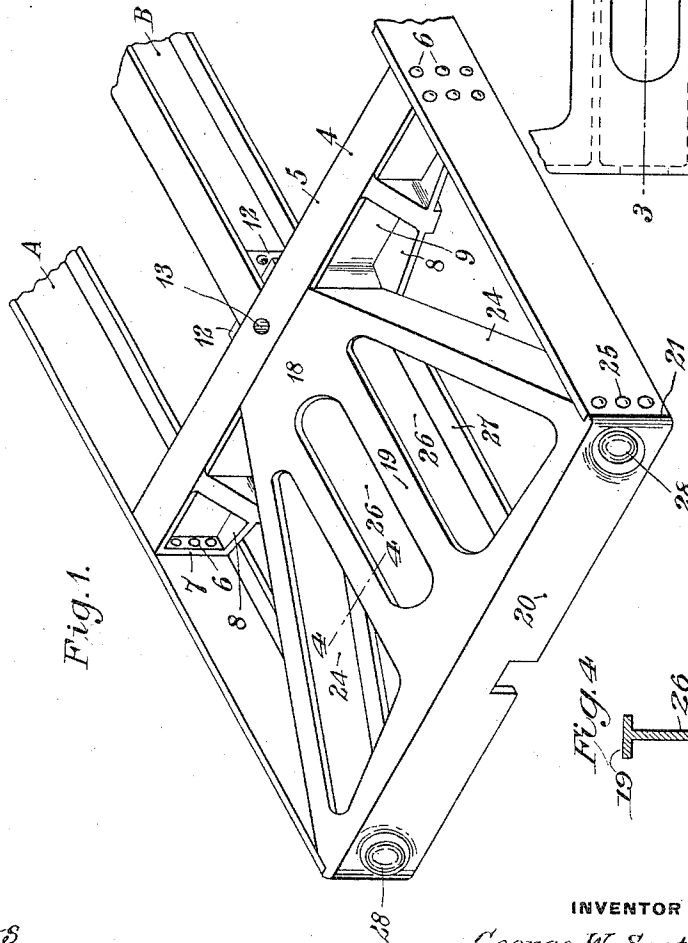


Fig. 1.

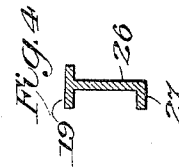


Fig. 4.

WITNESSES
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CAST END FRAME.

1,078,312.

Specification of Letters Patent.

Patented Nov. 11, 1913.

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To all whom it may concern:

Be it known that I, GEORGE W. SCOTT, residing at Chicago, Illinois, and being a citizen of the United States, have invented certain new and useful Improvements in Cast End Frames, 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 perspective view of one end of a car frame disclosing a physical embodiment of my invention. Fig. 2 is a plan view of a fragment of the same, parts of the top broken away to show the attachment of the underframe to the end bolster and the bolster to the center sill, and to show the rear housing for the draft gear elements. Fig. 3 is a vertical longitudinal sectional view taken centrally through the underframe end and taken on a plane indicated by the line 3—3 of Fig. 2. Fig. 4 is a transverse section through one of the draft sills, the section being taken on line 4—4 of Fig. 1.

My invention relates to an underframe for a railroad car, and particularly relates to an improvement in the ends thereof including the bolsters.

It is an object of my invention to provide a device whereby end shocks are transmitted through solid members of relatively heavy masses to the trucks and center sill, and at the same time use these members as draft sills, bearing and bolster members.

A further object of my invention is to provide a device in which lading stresses are transmitted directly to the trucks through solid members forming part of the bolster.

A still further object of my invention is to provide an underframe of the least number of parts assembled to obtain a maximum efficiency with a minimum amount of riveting or fastening parts.

I attain the foregoing objects broadly by constructing the bolster of one casting, and

fastening to it in advance of the center sill and between the side sills a single member performing the functions of end and draft sills and diagonal end braces.

Described more in detail I have shown a conventional form of spaced side sills A, in this instance shown to be channel-irons, disposed between which and parallel to which and terminating short of the ends thereof, is the center sill B, in this instance shown to be a single I-beam.

As the construction of the underframe at opposite ends thereof is similar, the description of one will suffice, and for this purpose there is shown in Fig. 1, positioned between the side sills A and abutting an end of the center sill B, an integral member 4, preferably of cast metal, substantially in the form of an I-beam, and which will hereinafter be referred to as a bolster. This member has a top flange 5, preferably flush with the top flange of the center sill B and top edge of the side sills A, and is fastened to the side sills by means of rivets 6, which pass through vertical flanges 7, connecting the top flange 5 and lower flange 8. This lower flange 8 is wider than the flange 5, and, as shown in Fig. 2, is of greatest width at its middle portion, narrowing toward each end and formed integral with the said vertical flanges 7. The vertically extending web 9 has its central portion inset, as shown more particularly in Fig. 2, to form a housing 10 for the draft gear elements hereinafter referred to, and to form an inset transversely disposed bearing wall 11, abutting the center sill B and fastened thereto by the vertically extending angle-brackets 12 which angle-brackets are riveted to the web of the center sill and to the rear face of the bearing wall 11.

Centrally of the bolster 4 and within the housing 10 the upper and lower flanges of the bolster each have an alined king pin hole 13, this arrangement being such that the king pin 14 may be inserted into position from above the underframe, and when so positioned is substantially in line with the web of the bolster, thereby utilizing the transverse bracing effect of the vertical elements of the bolster.

Concentrically with the lower pin hole 13, the lower flange 8 of the bolster has a thickened circular portion 15, shown in section

lines in Fig. 3, which portion constitutes a center bearing integral with the bolster, and also affords a strong shoulder 16 adapted to support the end of the center sill B.

5 By this construction it is noted that the center sill directly abuts the bolster and is supported by the center bearing plate, which forms an integral part of the bolster, so that stresses on the center sill are transmitted
10 directly to the truck through a relatively heavy member, which in turn is also adapted to transmit the lading stresses usually imposed on this member.

Referring to Fig. 2, it is noted that the
15 web 9 of the bolster on opposite sides of the housing is set forward a short distance to form a bearing 17 for the end member hereinafter described, and also affords a means for forming a relatively broad bearing mem-
20 ber for transmitting end stresses from the end sills to the center sills.

The walls 10^a of the bolster housing 10, which extend longitudinally of the under-
25 frame, are disposed in alinement with the vertical webs 10^b of the draft sills, hereinafter particularly described. Said walls 10^a are cast integral with the top and bottom flanges of the bolster, thereby providing a
30 strongly reinforced abutment for the inner end of such draft sills, better adapted to resist buffing stresses than would be a single transverse wall or vertical bolster web abut-
35 ted by said draft sills against its face. The rear wall 11 of the housing is reinforced by the angle brackets 12, which are in turn riv-
40 eted to the web of the single center sill, and said brackets 12 extend outwardly far enough to come into alinement with said walls 10^a, so that buffing stresses are trans-
mitted practically through longitudinally
45 extending members of the underframe.

To provide the strongest possible section of metal for the purpose and, to facilitate the application of draft gears which are gen-
45 erally placed in position between draft sills from below, the draft sills are formed with top flanges, vertical webs which depend from the middle of such top flanges and with out-
50 standing horizontal bottom flanges, thus leaving a clear space between the bottom portions of the webs of the draft sills for the application of such draft rigging.

Disposed between the side sills A, and in advance of the bolster is a single hollow
55 member 18, preferably of cast metal, which member comprises in effect a top plate 19, substantially a trapezoid in plan, the broad base of which is outlined by a depending plate 20, overlapping the ends of the side
60 sills, as shown at 21, and performing all of the functions common to an end sill. The narrow base of the plate 19, together with a depending flange 22 abuts the top flange 5 of the bolster 4, and transversely spaced
65 end ribs 29 depending from opposite sides of

the flange 22 and integral with the draft sills and diagonal braces hereinafter described, contact with the bearings 17, and are fastened thereto by rivets 23.

Depending from opposite sides of the plate
70 19 are diagonal braces 24, which serve to transmit stresses on the end sill 20 to the part of the bolster adjacent its center bearing and adjacent the center sill. The mem-
75 ber 18 is fastened to the side sills by means of the rivet connections 25, which pass through the side sills adjacent their outer ends and through the integral braces 24. Formed integral with the end sill 20, top
80 plate 19, and, as shown in Fig. 2, with the adjacent rear plates 29, is a pair of transversely spaced longitudinally extending relatively J-bar-shaped members with two op-
85 positely disposed top flanges, a vertical web and a single outstanding bottom flange, constituting draft sills 26, the lower out-turned flanges 27 of which rest upon the front por-
90 tion of the center bearing portion 15 of the bolster 4. The sills 26 are disposed in a line with the inset portion of the web 9, so that at the bolster the inner portions of the sills
26, the inset portion of the flanges 9 and the top and bottom flanges of the bolster co-act
95 to form a rear housing for the draft gear elements disposed between the sills 26, and in longitudinal alinement with the center sill B.

While the member 18 has been described as a top plate having depending flanges or plates constituting end, draft sills and diago-
100 nal braces, it is to be understood that this member can be considered as a hollow casting cored for the purpose of making it as light as possible, but braced in all directions by angles adapted to absorb stresses inci-
105 dental to a device of this character.

As shown in Fig. 1, the end sill 20 may have a conventional form of push-pole-pocket 28, preferably disposed in such a po-
110 sition that stresses may be transmitted directly to the ends of the side sills A and to the diagonal brace 24.

What I claim is:—

1. The combination of a bolster, in the form of an I-beam, a single member consti-
115 tuting integrally combined draft sills connected to the web of said bolster and extending in alinement with a portion of the bolster web, and forming with the flanges and web of said bolster a rear housing for draft
120 gear elements.

2. The combination of a bolster, in the general form of an I-beam, including a ver-
tical web having a portion offset from the plane thereof to form a housing for a draft
125 gear member, a center sill abutting said housing, and a king pin extending through the flanges of said bolster and within said housing in advance of said center sill.

3. An integral car bolster comprising an
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I-beam having an offset web portion, with top and bottom flanges, the lower flange being wider than the upper flange, a side bearing bracket disposed in the angle between the web and lower flange, and draft sills in connected contact with said offset web portion.

4. In a car underframe, side sills and a center sill, two members disposed between said side sills and in advance of said center sill, one of said members being a combined end sill and draft sill, and the other, a bolster fastened to and disposed between said draft sills and center sill, portions of the web of the bolster being disposed in alignment with the draft sills.

5. In an underframe, a bolster formed with a web portion provided with an angular offset vertical portion and draft sills connected with said bolster, the draft sills extending in alignment with a portion of the bolster web.

6. In an underframe, side sills having vertical webs, a bolster having an offset web portion extending parallel with said side

sills, and draft sills in alignment with said offset web portions of the bolster.

7. In an underframe, rolled channel side sills, a cast bolster with top and bottom flanges extending between the flanges of said side sills, said bolster having an offset web portion extending at an angle to the median line of the bolster, and an integral casting comprising draft sills, diagonal braces, and an end sill lapping and in alignment with said side sills and connected to said offset web portion of the bolster.

8. In an underframe, a bolster provided with a web having offset vertical portions extending at an angle to its median line, a single casting comprising draft sills, and an end sill abutting and being secured to said offset portion of the bolster web.

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

GEORGE W. SCOTT.

Witnesses:

PHOEBE HARRIS,
MAC R. FITE.