Sept. 4, 1945. E. G. BUSSE 2,383,955

RAILWAY TRUCK BRAKE BEAM SUPPORT

Filed Sept. 27, 1943 2 Sheets-Sheet 1

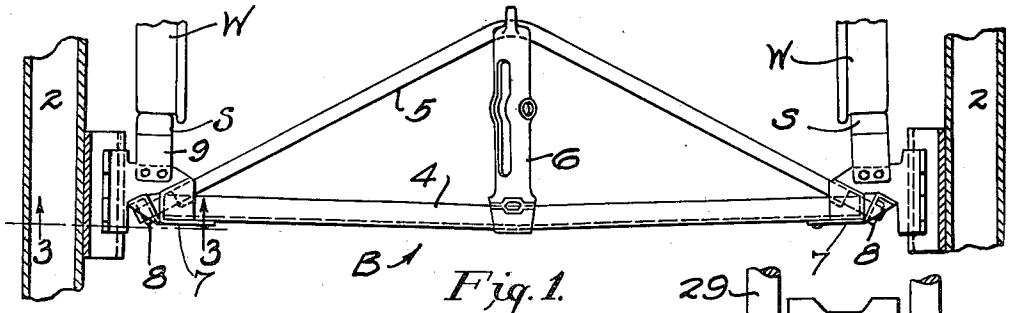



Fig. 1.

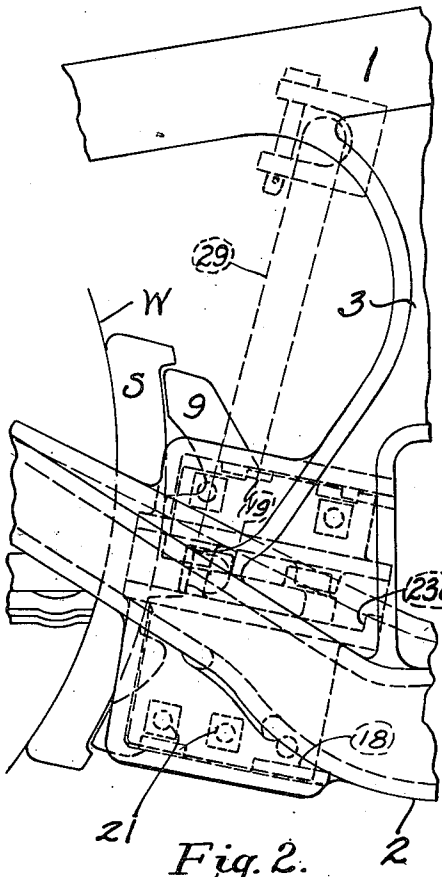



Fig. 2.

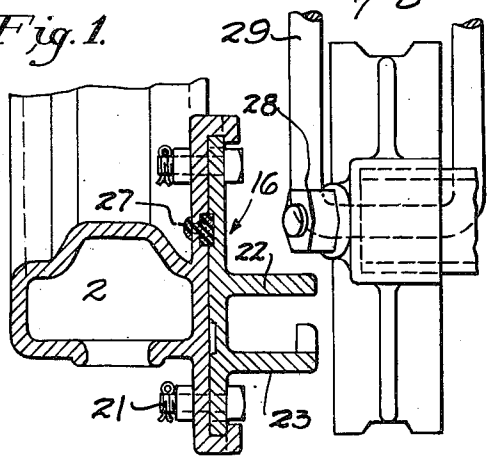



Fig. 5.

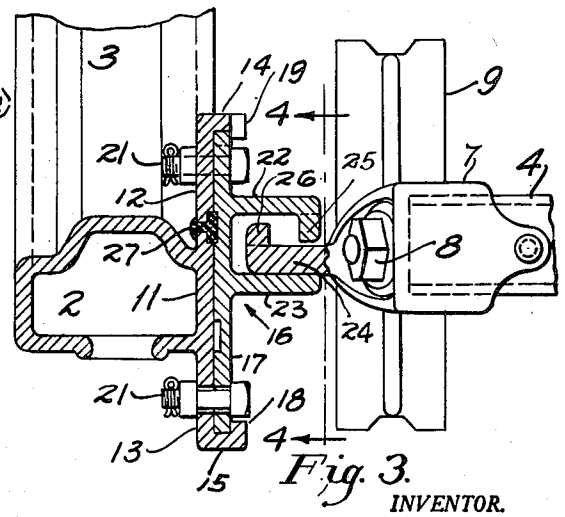



Fig. 3.

INVENTOR.
EDWIN G. BUSSE

BY Rodney Badell
ATTORNEY

Sept. 4, 1945. E. G. BUSSE 2,383,955

RAILWAY TRUCK BRAKE BEAM SUPPORT

Filed Sept. 27, 1943 2 Sheets-Sheet 2

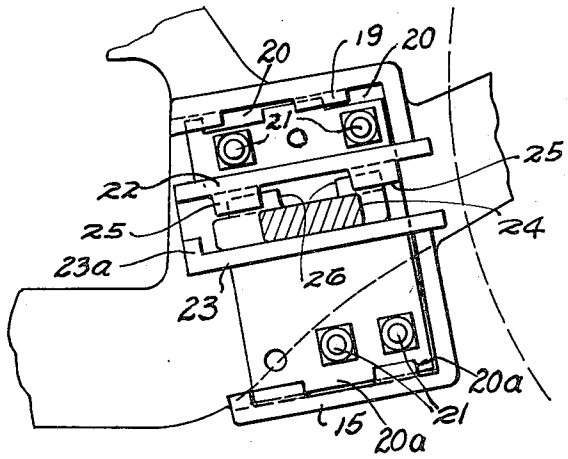



Fig. 4.

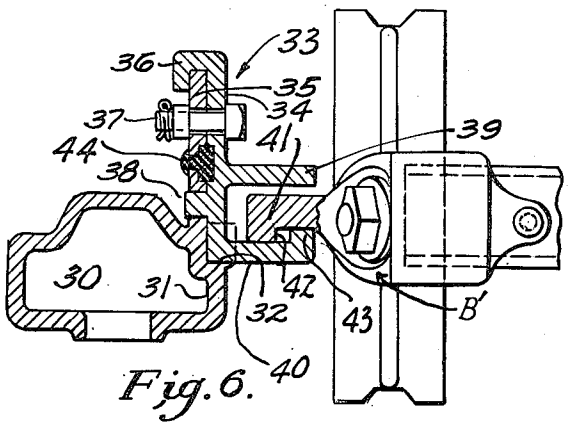



Fig. 6.

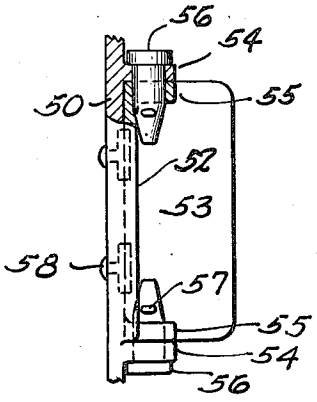



Fig. 8.

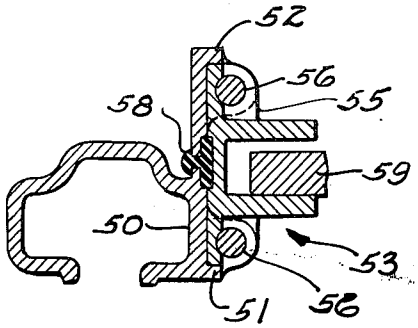



Fig. 7.

INVENTOR.
EDWIN G. BUSSE

BY Rodney Redell
ATTORNEY

Patented Sept. 4, 1945

2,383,955

# UNITED STATES PATENT OFFICE

2,383,955

## RAILWAY TRUCK BRAKE BEAM SUPPORT

Edwin G. Busse, Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a corporation of Illinois

Application September 27, 1943, Serial No. 503,865

17 Claims. (Cl. 188—207)

The invention relates to railway trucks, and more particularly to the support of the brake beam from the truck side frame.

It is a well known practice to carry the brake beam by swinging links pivotally suspended from brackets on the upper portion of the side frame and received in recesses in the brake head. Another arrangement of supporting the brake beam is to provide brackets on the side frame adjacent the end of the beam and to slidably support the end portions of the beam on such brackets. The present invention relates particularly to the latter type of support.

One object of the present invention is to provide a support of the type referred to which may be readily secured to the side frame or detached therefrom and with which the brake beam may be readily assembled and disassembled.

Another object is to avoid substantial or expensive departures from the usual truck side frame structure in providing for the sliding type of support.

Another object is to provide for quickly and easily substituting an ordinary hanger support in place of a sliding support, or vice versa, in case it is necessary to replace the beam and the same type of beam is not available.

Another object is to safeguard the bracket, beam and side frame from accidental disassembly from each other.

These and other detail objects are attained by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal section through the lower portions of the side frames of a railway truck adjacent to one of the brake beams, the brake beam and the adjacent portions of one pair of wheels being shown in elevation.

Figure 2 is a side elevation of the structure shown in Figure 1.

Figure 3 is a vertical transverse section taken on the line 3—3 of Figure 1.

Figure 4 is a detail vertical section and view taken on the line 4—4 of Figure 3.

Figure 5 is a section corresponding to Figure 3 but showing the bracket in a reversed position for the purpose described below.

Figures 6 and 7 correspond generally to Figure 3 but illustrate different forms of the invention.

Figure 8 is a horizontal section taken on the line 8—8 of Figure 7.

The truck side frame indicated in Figures 1–5 is of a familiar cast steel type having a compression member 1 and a tension member 2 preferably of hollow box section with spaced struts or bolster posts 3. The frame will be carried upon the usual journal boxes (not shown). The brake beam indicated generally at B is of built-up type with adjustable tension and camber and comprises a channel-shape compression member 4, a tension member 5, a strut 6, thrust blocks 7 seating the ends of the compression member, and the tensioning nuts 8 threaded on the ends of the tension member. Brake heads 9 are mounted on the thrust blocks and carry the brake shoes S which are applied to the wheels W.

This beam is disclosed and claimed in detail in another application filed January 31, 1944, Serial No. 520,459, but it will be understood that features of the present invention may be used in a truck equipped with a different form of brake beam.

The tension member of the side frame includes an upright web 11, a portion of which is extended upwardly and downwardly from the box section as indicated at 12 and 13, and these extensions terminate in vertically spaced ledges 14 and 15 respectively extending longitudinally of the truck and projecting inwardly of the truck from webs 12 and 13.

The brake beam supporting bracket 16 has an upright web 17 arranged to fit against web 11, 12, 13 and between ledges 14 and 15. Preferably, an upturned lip 18 on ledge 15 provides the latter with a groove receiving the lower edge of web 17, and one or more downturned lips 19 on ledge 14 provides the same with groove-like sections for receiving the upper edge of the bracket. Recesses 20 in the bracket may be aligned with lips 19 when the bracket is applied and removed, but when these elements are disaligned the bracket will be securely held against movement away from the side frame. Readily detachable bolts 21 hold the bracket in lip-engaging position. If desired, lips 18 and 19, and even ledge 14, may be eliminated and bolts 21 relied upon to hold the bracket assembled with the side frame but, preferably, the support will be afforded by an integral element on the side frame such as the ledge 15.

Vertically spaced bracket flanges 22 and 23 extend inwardly of the truck from web 17 and receive between them a member 24 projecting from the end of the brake beam, flange 23 supporting the beam and flange 22 serving to guide the beam in its movement towards and away from the wheels.

Preferably, flange 22 and member 24 have

elements 25 and 26 opposing each other transversely of the truck and limiting movement of the beam away from the side frame, thus tending to maintain the assembly of these parts on rough track or if the truck is derailed. These elements may have their lips notched and staggered similarly to the arrangement between ledge 14 and the upper edge of the bracket web so that the brake beam may be readily applied and removed from the truck when disaligned from a normal operating position. Such disalignment is readily effected by first removing the shoe and pushing the beam towards the wheel until elements 25 and 26 are disaligned.

If desired, lug 23a may be provided at the end of flange 23 nearest the bolster spring window to limit the movement of the brake beam away from the wheels and prevent its contact with the side of the truck bolster (not shown).

This arrangement provides a substantial support directly between the end of the brake beam and the side frame and accommodating the ready application and removal of the beam to and from its support and avoiding expensive and otherwise undesirable additions to the side frame as would result from the casting therewith of integral brackets for supporting and guiding the brake beam. The elements for attaching the bracket to the side frame practically render it impossible for the bracket to be loosened and detached and drop the brake beam from the side frame, and this result is attained without placing shearing or tension strains in the holding bolts.

Preferably, flanges 22 and 23 are disposed asymmetrically between the top and bottom edges of the bracket and the lower edge of the bracket is notched (see 20a) like the top edge. By removing bolts 21, the bracket may be removed and turned upside down and positioned as shown in Figure 5 when the flanges will be at a lower level and will clear the projecting nut 28 on the end of an A. A. R. standard truss type beam suspended from the brake frame by the usual hanger 29. Hence the bracket is adapted for the ready interchange of different types of brake beams and without loss of the bracket in case the end supported beam is temporarily replaced by one suspended by the usual hanger.

Preferably, a rubber-like element 27, or other spring-like element, is applied to frame web 12 and bracket web 17. This element is distorted when the nuts on bolts 21 are tightened and prevents undesirable movement and wear of the parts.

Figure 6 illustrates another form of the invention in which the side frame tension member 30 has its inner upright wall 31 offset away from the center of the truck to form a ledge 32 for supporting the bracket 33, the upright leg 34 of which abuts an upward extension 35 of the side frame web 31 and the upper end of the bracket leg forms a hook 36 receiving the upper edge of extension 35. The bracket is held to the side frame by one or more bolts 37 and these bolts are relieved of all thrusts lengthwise or vertically of the side frame by one or more lugs 38 received in corresponding apertures in the side frame web 35. The bracket flanges 39 and 40 guide and support the brake beam B' which has an end member 41 corresponding generally to member 24 in the structure previously described, but the lug 42 on end member 41 extends downwardly and the opposing lug 43 extends upwardly from flange 40. This disposition of the lugs may be reversed to agree with that shown in Figure 3. The cushioning element 44 corresponds to element 27 previously described. This arrangement does not contemplate the reversal of bracket 33 and the side frame upright inner web is modified accordingly.

Figures 7 and 8 illustrate another arrangement similar to that shown in Figures 1–5 in that the side frame web 50 is provided with ledges 51 and 52 to receive and support the brake beam engaging bracket 53, but neither the bracket nor the side frame web has a groove or a hook receiving the other member. Instead, the web and the bracket have cooperating lugs 54 and 55 respectively opposing each other longitudinally of the side frame and the two parts are locked together by pins 56 each retained by a cotter 57. A single long bolt may be substituted for each aligned pair of short pins 56. The bracket shown in these figures can be readily demounted by removing pins 57, particularly as the ends of the bracket do not extend beyond the pin lugs attached to the side frame. Cushion element 58 corresponds to elements 27 and 44 previously described.

This arrangement eliminates the interlocking elements on the bracket and beam and the latter may be slid into and out of assembled relation with the bracket without aligning lugs and recesses as in the previous forms. In this arrangement the upper and lower portions of the bracket are symmetrical and the bracket may be reversed top for bottom in the event of wear of the beam supporting flange and thereby prolong the useful life of the bracket.

Each of the arrangements described above embodies one or more novel features by which are attained the objects set forth in the preliminary portion of the specification. Some of the details may be varied in accordance with the disclosures of other figures and some of the features may be omitted without affecting the functioning of other features. For example, the interlocking of the side frame and bracket in each instance may correspond to that shown in either of Figures 3, 6 or 7 and the interlocking of the bracket and beam may be as shown in Figures 3 or 6 or may be omitted as in Figure 7. These structures may be varied in detail otherwise than as shown without departing from the spirit of the invention, and the exclusive use of those modifications coming within the scope of the claims is contemplated.

What is claimed is:

1. In a railway truck, a truss type side frame, the inner side of the lower portion of the tension member of the frame having extensions projecting downwardly and upwardly from the member proper and being provided with an upwardly facing element, and a bracket seated on said element and detachably secured to the extension above said element and including vertically spaced parts projecting away from the side frame to support and guide the end of a brake beam abreast of the side frame.

2. In a railway truck, a truss type side frame having a lower member with extensions projecting downwardly and upwardly from the member proper and including an upwardly facing supporting element offset inwardly of the truck from the downwardly projecting extension, a bracket carried on said element and having vertically spaced flanges projecting away from the frame to engage downwardly and upwardly facing elements on a brake beam to support and guide the same in its movement during application and release of the brake, and means spaced from the supporting element and cooperating with the upwardly pro-

jecting extension to hold the bracket against movement laterally of the frame.

3. In a railway truck, a side frame including a box section member provided with an upright web at its inner side and of substantially greater vertical extent than the box section member facing inwardly of the truck and having vertically spaced projecting ledges extending longitudinally of the truck and facing each other, and a bracket comprising an upright leg adapted to abut the side frame web and to extend between said ledges and thereby be positioned on the side frame, there being detachable means passing through said web and bracket above and below the box section to hold the bracket against the web, the bracket having vertically spaced flanges extending away from said leg and adapted to receive between them the projecting end of a brake beam and to support and guide the same during application and release of the brakes.

4. In a railway truck, a truss type side frame including a chord of hollow section having a portion of a side wall extended vertically to form a web of greater depth than the section and provided with a ledge extending longitudinally of the truck and projecting inwardly of the truck frame, and a bracket comprising an upright web in abutting relation with said side frame web and supported on said ledge and having a laterally extending arm for supporting the end of a brake beam, one of said webs having a vertically facing hook fitting over a vertically facing edge of the other web to hold the bracket against movement away from the side frame.

5. In a railway truck, a truss type side frame including a chord of hollow section having a portion of a side wall extended vertically to form a web of greater depth than the section and provided with vertically spaced ledges extending longitudinally of the truck and projecting inwardly of the truck frame, at least one of said ledges having a vertical lip parallel with and spaced from a web, and a bracket comprising an upright leg inserted between said ledges and behind said lip in abutting relation with said web, there being a detachable element for holding the bracket against movement from behind said lip, said bracket including an arm extending laterally from said leg for supporting the end of a brake beam.

6. In a railway truck, a truss type side frame including a chord of hollow section having a portion of a side wall extended vertically to form a web of greater depth than the section and provided with vertically spaced ledges extending longitudinally of the truck and projecting inwardly of the truck frame, the lower of said ledges having an upwardly facing groove, and a bracket comprising an upright leg seated in said groove, there being a vertical lip on the upper ledge paralleling and spaced from the web, said leg being movable in said groove longitudinally of the truck into position behind said lip to be held in assembled relation with the web, and an arm on said bracket extending inwardly of the truck to support the end of a brake beam.

7. In a railway truck, a truss type side frame including a chord of hollow section having a portion of a side wall extended vertically to form a web of greater depth than the section and provided with vertically spaced ledges extending longitudinally of the truck and projecting inwardly of the truck frame, said ledges having vertical lips paralleling and spaced from the web, and a bracket comprising an upright leg inserted between said lips and the web and held thereby against movement away from the web, and detachable means securing the bracket leg against movement along the web, there being an arm on said bracket extending inwardly from said web to support the end of the brake beam.

8. In a railway truck, a side frame including an upright web having vertically spaced ledges extending longitudinally of the truck and projecting inwardly of the truck, one of said ledges having a series of lugs spaced from the web and spaced from each other longitudinally of the truck, and a bracket having an upright leg slidable lengthwise of the truck behind said lugs with spaced recesses corresponding to said lugs and adapted to be aligned therewith to permit the bracket to be applied to and removed from the side frame or to be disaligned therewith to hold the bracket against movement away from the web, there being an arm on said bracket projecting laterally of the web to support the end of a brake beam.

9. Structure as described in claim 1 in which the beam supporting part of the bracket is positioned asymmetrically of the top and bottom edges of the bracket so that its vertical relation to the side frame may be varied by turning the bracket upside down.

10. Structure as described in claim 2 in which at least one of the beam-engaging flanges is positioned asymmetrically of the top and bottom edges of the bracket so that its vertical relation to the side frame may be varied by turning the bracket upside down.

11. Structure as described in claim 1 in which the beam-engaging part on the bracket is positioned asymmetrically of the top and bottom edges of the bracket and is adapted, when the bracket is in one position, to support the adjacent end of a brake beam provided with a cooperating projection and is adapted, when the bracket is in the other position, to clear a brake beam having a link suspension from a brake hanger bracket.

12. In a railway truck, a side frame provided with a bracket extending inwardly of the truck and comprising vertically spaced flanges one of which terminates in a vertical lip extending towards the other flange, a brake beam having a member projecting from its end and extending into said bracket between said flanges and supported by the lower flange and having a vertical lip opposing said bracket lip but normally spaced therefrom and limiting the movement of the brake beam away from the side frame.

13. In a railway truck, a side frame including an upright web having a ledge extending longitudinally of the truck and projecting inwardly of the truck, a bracket comprising an upright web in abutting relation with said side frame web and supported on said ledge and having a laterally extending arm, a brake beam with an extension at its end supported on said arm, one of said webs having a down-turned hook fitting over an upwardly facing edge of the other web to hold the bracket against movement away from the side frame, and said arm and brake beam extension having elements opposing each other transversely of the truck and limiting the movement of the brake beam away from the side frame.

14. A structure as described in claim 12 in which at least one of the lips on the bracket and beam member is notched and the opposing lip is restricted in length so as to pass through the notch when the beam and bracket are disaligned

from their normal position and moved relative to each other transversely of the truck, whereby assembly and disassembly of the beam and side frame are facilitated.

15. Structure as described in claim 1 in which the bracket is reversible top for bottom to interchange the position of the vertically spaced parts.

16. A railway truck truss type side frame structure having a chord of hollow section with a portion of a side wall extending vertically to form a web of greater depth than the section and provided with vertically spaced ledges opposing each other and extending longitudinally of the frame to form a recess for receiving a brake beam supporting bracket having an upright portion seated against said web, at least one of said ledges having a vertical lip spaced from the inner face of the recess to overlap an upright portion of the bracket and hold it against movement away from the web.

17. A railway truck side frame structure comprising an upright web with vertically spaced ledges opposing each other and extending longitudinally of the frame to form a recess for receiving a brake beam supporting bracket having an upright portion seated against said web, at least one of said ledges having a vertical groove to receive one edge of a bracket and the other of said ledges having lugs spaced from the inner face of the recess and spaced apart longitudinally of the frame, and cooperating extensions on the bracket passed between and behind them to cooperate with the groove to hold the bracket against movement away from the web.

EDWIN G. BUSSE.