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RAILWAY BRAKE BEAM STRUCTURE

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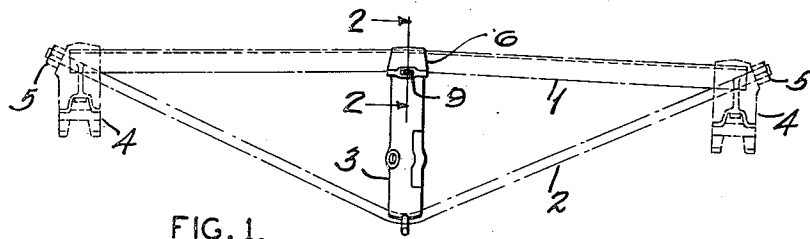


FIG. 1.

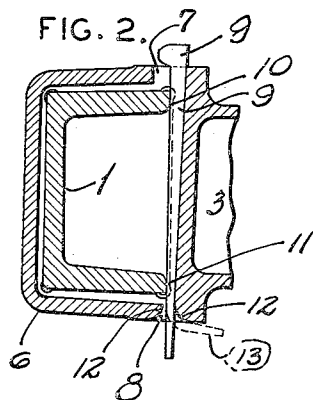


FIG. 2.

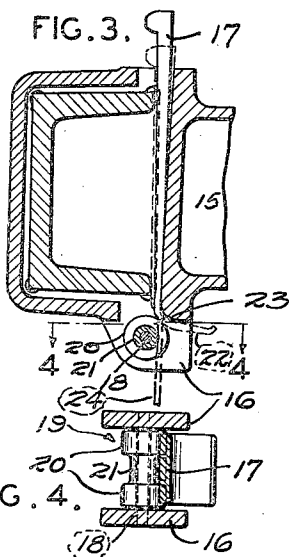


FIG. 3.

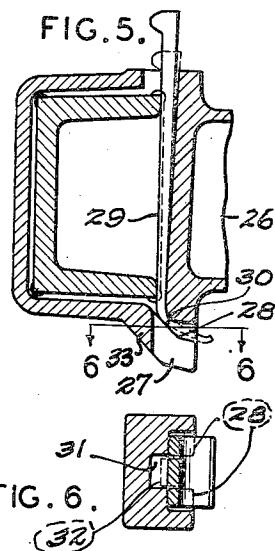


FIG. 5.

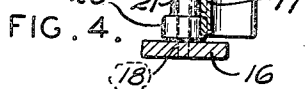


FIG. 4.

FIG. 6.

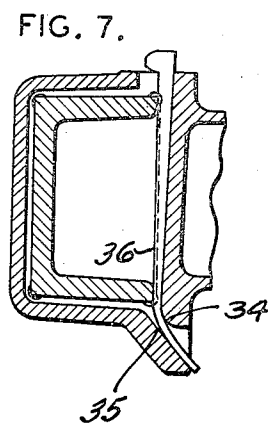


FIG. 7.

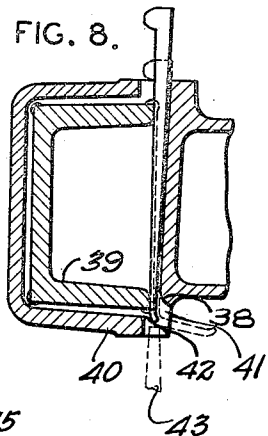


FIG. 8.

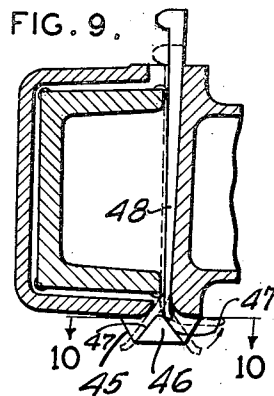


FIG. 9.

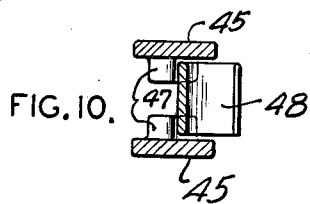


FIG. 10.

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RAILWAY BRAKE BEAM STRUCTURE

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12 Claims. (Cl. 188—231)

The invention relates to railway brake beams and more particularly to the assembly of a strut, or like part, with a brake beam member in which a positioning or retaining key is used. It is the general practice to bend over the end of the key so that it will not work out of its slot or groove and usually this bending over is effected by hammering the key around the forward edge of the slot or groove in which it is received. Frequently the key is broken by such hammering and is easily lost. Even if the key remains in position, if the end is broken off it is difficult to remove the key for repair purposes and it is frequently necessary to completely dismantle the beam in order to take out the broken key and substitute another. Sometimes the keys have been annealed and re-annealed to avoid the breakage referred to, and while this is of some help it does not eliminate the breakage. The main object of the invention is to avoid the above mentioned difficulties by making it impossible to bend the end of the key to form an angular bend therein whereby the fibers are likely to be stretched and the key fractured.

Another object of the invention is to facilitate the removal of the key when desired. These general objects and other detailed objects as will appear below are attained by the structures illustrated in the accompanying drawing in which—

Figure 1 is a top view of a truss type railway brake beam in which the strut is held against movement along the beam compression member by a key of the type referred to above.

Figure 2 is a vertical section taken on the line 2—2 of Figure 1 and illustrating one simple arrangement for obtaining the general objectives mentioned, the figure being drawn on a substantially enlarged scale from that shown in Figure 1.

Figures 3, 5, 7, 8 and 9 are similar sections illustrating different forms of the invention.

Figures 4, 6 and 10 are detail horizontal sections taken on the corresponding section lines of Figures 3, 5 and 9 respectively.

The beam shown in Figure 1 includes a channel compression member 1, a tension rod 2, a strut 3, heads 4, the assembly being maintained by nuts 5 on the ends of rod 2 in the usual manner. Strut 3 includes a stirrup portion 6 encircling compression member 1 and having apertures 7 and 8 in its upper and lower walls respectively for receiving a retaining key 9. Compression member 1 may be notched at 10 and 11 to receive a portion of the key but irrespective of such notching the key, when driven home, and when member 1 is cambered by the tightening of nuts

5, will be gripped tightly and will prevent movement of the strut along member 1.

The edges 12 of the key receiving lower aperture in the strut are each provided with an arcuate contour of substantial radius adjacent the face of the key so that as the latter is bent either to the right, as shown at 13 in broken lines or to the left, the curved surface will prevent the production of a corner angle in the key irrespective of the force or number of blows delivered to the key.

This very simple form of the invention leaves to the attention of the workman the matter of bending over the lower portion of the key to prevent is accidental removal.

Figures 3 and 4 illustrate an arrangement in which the strut 15 has depending ears 16 at the side edges of key 17. A pin 18 is seated in ears 16 and mounts a sleeve 19 having end portions 20 of substantially larger diameter than its intermediate portion 21.

As key 17 is driven home and reaches the position shown in full lines in Figure 3, its forward end contacts sleeve portions 20 and the key is automatically bent as indicated at 22 in broken lines. As the key is bent around the arcuate surface 23 at the forward edge of the aperture in the strut it cannot receive a right angle or other sharp corner-like bend and, obviously, when it is desired to remove the key the extreme end is hammered to straighten and be retracted, and when it has reached the position indicated in full lines in Figure 3 a bar-like tool 24 may be inserted in the space between enlarged end portions 20 of the sleeve 19 whereby direct upward thrust may be applied to the lower end of the key.

Figures 5 and 6 illustrate a form of the invention in which strut 26 has depending ears 27 similar to those shown in Figure 3 but including shoulders 28 projecting inwardly from the sides of the strut and forming cams or guides for engaging the forward end of key 29 and guiding it over the arcuate lower edge 30 of the key receiving aperture in the strut. The space 31 between shoulders 28 accommodates the application of the key removing bar 32, applied as previously described.

In Figure 7, one forward edge 34 of the key receiving aperture is rounded as previously described and the opposing element 35 on the strut is inclined downwardly to engage the forward end of key 36 and direct the same about edge 34 to prevent the withdrawal of the key.

In Figures 3, 5 and 7 the sleeve 19, the ledge 33 and the flange 35 respectively are so positioned in

front of the arcuate edges 23, 30 and 34 respectively that the corresponding adjacent portion of the key is shielded and it is difficult, if not impossible, to strike a hammer blow on the portion of the key which overlies the rounded lower edge of the aperture. This prevents thinning or fracture of the bended portion of the key due to unnecessarily heavy or repeated hammering of the same.

10 The construction shown in Figure 8 resembles that illustrated in Figure 6 but the lower rounded edge 38 of the strut is located above the level of the bottom of the beam compression member 39 and the lower flange of the channel compression member and the lower wall 40 of the stirrup shields the adjacent portion of the key and prevents the hammering of the same about the element 38. Depending ears 41 on the strut have shoulders 42 disposed to engage and bend the forward end of the key similarly to shoulders 23 in the structure shown in Figures 5 and 6. The space between shoulders 42 accommodates the application of a key removing tool 43 as previously described.

25 In Figures 9 and 10 the depending ears 45 on the strut have wedge-like lugs 46 providing oppositely inclined shoulders 47 functioning similarly to shoulders 42 and 27 but disposed to bend the key 42 either forwardly or rearwardly as indicated by the broken lines. This arrangement may be desirable if there is much variation in the fit between the strut stirrup and the compression member and particularly where compression members of different contours are used which would fail to guide the key so close to the bottom of its aperture in the strut.

All forms of the invention includes the large radius edge in the strut about which the key bends. Preferably the structure includes elements automatically guiding the key about its edge as the key is driven home and, preferably, the construction includes elements shielding the key from being hammered into position when bending elements are used.

45 It will be clear to those skilled in the art that the details of the construction may be varied otherwise than as indicated and the exclusive use of such modifications as come within the scope of the claims is contemplated.

50 What is claimed is:

1. A railway brake beam strut having an aperture for receiving the end portion of a key for retaining the strut in position upon a brake beam member, there being means at the edge of said aperture for preventing a sharp bending of the end portion of the key when its end is deformed to hold the key against withdrawal there being means adjacent the edge of the aperture for shielding the adjacent portion of the key overlying said edge against direct pounding by a hammer or similar tool.

2. A railway brake beam strut having a stirrup for receiving a beam member, there being an aperture in a wall of said stirrup for receiving a key for retaining the strut in position upon the beam member, the forward edge of said aperture being curved about a substantial radius where the key is bent over to prevent its withdrawal, to avoid the formation of an angular corner in the key there being means adjacent the edge of the aperture for shielding the adjacent portion of the key overlying said edge against direct pounding by a hammer or similar tool.

3. A railway brake beam strut having a slot for receiving the end portion of a key for retaining

the strut in position upon the brake beam member, the opposite edges of said slot having curved contours of substantial radii about which edges the corresponding part of the key may be bent in an arc without producing an angular corner there being means spaced from the edges of the slot and intermediate the planes of said edges for shielding the portion of the key overlying either of said edges against direct pounding by a hammer or similar tool.

4. A railway brake beam strut having an aperture for receiving a key for retaining the strut in position upon the brake beam member, there being means adjacent the forward edge of said aperture for bending the end portion of the key relative to the remainder of the key as the key is driven home.

5. A strut as described in claim 4 in which the key bending means also forms a shield to prevent direct hammering on the portion of the key overlying the edge of the aperture.

6. A strut as described in claim 4 in which the key bending means comprises a lug spaced from the edge of the aperture and positioned in the path of the key to direct the forward end of the key about said edge.

7. A strut as described in claim 4 in which the key bending means is spaced from the edge of the aperture and positioned in the path of the key but opposes the end of the key for a part of its width only, whereby a key removing tool aligned with the body of the key may be inserted into said aperture.

8. In a railway brake beam strut, a stirrup for receiving a beam member, there being an aperture in the wall of said stirrup for receiving a retaining key, spaced ears at the sides of said aperture, and an element extending between said ears in the path of movement of a key inserted in said aperture for bending the key around the adjacent edge of said aperture.

9. In a railway brake beam strut, a stirrup for receiving a beam member, there being an aperture in the wall of said stirrup for receiving a retaining key, spaced ears at the sides of said aperture, a pin extending through said ears, a sleeve surrounding said pin and having a peripheral portion disposed in the path of movement of a key inserted in the aperture for bending the key around the adjacent edge of the aperture.

10. A device as specified in claim 9 in which the sleeve includes a peripheral portion clearing the end of the aperture sufficiently to permit the insertion of a key removing tool into the aperture.

11. In a railway brake beam strut, a stirrup for receiving a beam member, there being an aperture in the wall of said stirrup for receiving a retaining key, spaced ears at the sides of said aperture, lugs on said ears projecting towards each other to lie in the path of movement of a key inserted through the aperture, there being space between said lugs to accommodate the passage of a tool, narrower than the key, into the adjacent end of said aperture.

12. In a railway brake beam strut, a stirrup for receiving a beam member, there being an aperture in said stirrup for a retaining key which may be bent around the edge of the aperture to hold the key against withdrawal, and means adjacent the edge of the aperture for shielding the adjacent portion of the key overlying said edge against direct pounding by a hammer or similar tool.