My invention relates generally to railway rolling stock and particularly to brake beam equipment, and consists in the provision of means for preventing relative movement between a sliding chair and the beam member to which it is applied.

It is a common experience that the ordinary third or fourth point support chair, clamped to the bar or rod forming the tension member of the beam chair, rotates on the rod or shifts longitudinally of the same. To eliminate this undesirable movement, which obviously interferes with the proper functioning of the chair, car builders and railroads have spot welded the chair to the truss rods.

While this eliminates the difficulty referred to, it is not altogether desirable because it requires special equipment for securing the desired result and it results in a substantially permanent assembly with the beam making it difficult or impossible to adjust the chair; or to reverse it, to compensate for wear.

The object of my invention is to eliminate the above mentioned difficulties and I secure this object by providing a simple and efficient positive interengaging means between the beam element and the chair.

In the accompanying drawings which illustrate my invention—

Figure 1 is largely a diagrammatic illustration of a brake beam showing fourth point support chairs mounted on the beam and sliding on the supports.

Figure 2 is a vertical transverse section through the tension member of a beam and a portion of a chair mounted thereon and including a preferred form of my invention.

Figure 2 is taken approximately on the line 2—2 of Figure 3.

Figure 3 is a vertical section taken on the line 3—3 of Figure 2.

Figure 4 is an end view and Figure 5 is a side view of the chair insert element which is sectioned in Figures 2 and 3.

Figures 6 and 7, 8 and 9, 10 and 11, 12 and 13, and 14 and 15, are similar end and side views illustrating various forms of inserts which might be used in place of the insert illustrated in Figures 4 and 5.

Figure 16 is a section corresponding to Figure 3 and illustrating a modified arrangement of the chair and insert.

Figure 17 is a transverse section through the tension member of the beam and showing the application thereto of a modified form of chair in which the beam engaging element is formed integrally with the chair.

Figure 18 is a side elevation of the structure shown in Figure 17.

Figures 19 to 33 illustrate other modifications of my invention and will be referred to in detail hereafter.

The brake beam shown in Figure 1 comprises the usual compression member 1, tension member 2, and strut 3, the beam mounting the brake heads 4 and overlying the fourth point supports 5 which are carried by the truck spring plank 6. The tension member 2 of the beam may be of the usual round rod or of any other shape and is adapted to mount the sliding chairs 7. Each of these chairs is shown as consisting of a bearing portion 8 and a clamp, comprising two jaws 9 and a bolt 10 and nut 11, used to draw the jaws together to clamp them tightly on the beam tension member 2. The parts mentioned are well known in the art and in themselves do not constitute my invention.

I provide the body of the chair with a recess which is adapted to receive an insert 12 preferably formed of harder material than the tension member of the beam, and having a portion projecting beyond the face of the chair which engages the face of the beam member. Preferably, the surface of this projecting portion of the insert 12 will have one or more sharpened points P. When the clamp elements are tightened, the projecting portion of the insert will be thrust into the beam member to a greater or less extent so as to engage the beam member and positively prevent relative movement of the chair.

The insert may take any one of a large variety of forms and I illustrate a few variations in Figures 6 to 15, that shown in Figures 6 and 7 having a projecting portion comprising converging faces 13 forming a single edge 14 adapted to bite into the beam member. The insert shown in Figures 8 and 9 is in the form of a round element 15...
with a sharp thread 16 formed thereon. Figures 10 and 11 illustrate an ordinary bar 17 of square cross section and either one of four edges 18 of the bar may be turned to engage the surface of the beam member. Figures 12 and 13 illustrate a bar 19 with a triangular cross section and it will be noted that this bar is the most shallow of the forms illustrated.

Figures 14 and 15 illustrate a small insert 20 having a triangular-like projection 21 adapted to bite into the beam member. This insert is much shorter than the others, and Figure 16 illustrates a modified form of chair 22 adapted to receive insert 20.

In Figure 17 a somewhat different type of chair is shown, the same having a central downwardly bearing portion 23 at each side of which are the jaw elements 24 adapted to surround the beam member 25 and to be clamped thereon by the bolt 26 and nut 27. These jaw elements have formed integrally therewith the upward projections 29 which will be sharp enough to indent the surfaces of the beam member. Preferably the entire chair device in Figures 17 and 18 will be formed of spring material which will be harder than the material of the beam element 25.

In Figures 19, 20, and 21 I illustrate a modification of my invention which makes possible the use of the same with great many chairs already manufactured and installed. The chair 28 has no recess for receiving a hardened insert, the insert 29 being placed between the jaws of the chair and beneath the bolt 30. As the nut on bolt 30 is tightened to draw the jaws together, from the position shown in dot-and-dash lines, the insert 29 will be forced into the beam element 62.

In Figures 22 and 23, I illustrate a beam engaging element 31 which is pivotally mounted upon the bolt 32 which clamps the chair 33 to the beam 34. This insert 31 may be hammered edgewise into the beam engaging position shown and then held in such position by bending the lip 35 into a slot formed in one of the jaws 33.

In Figure 24 I show a chair 36 having a slot adapted to receive a tapered key 37 which will have a sharpened edge 38 and will be thrust into the beam member 39 either by the clamping bolt 40 or by hammering the end of the insert.

Figure 25 shows a similar structure in which the insert is a screw-threaded element 41 extending through an opening in the chair 42.

In Figure 26 I illustrate a small insert 43 seated in a pocket in the chair 44 and having a shank adapted to extend through the wall of the pocket and be riveted over as indicated at 45. This will maintain the assembly of the chair and insert before the chair is applied to a beam, or when it is removed from a beam.

Figures 27 and 31 show an insert 46 which is not only retained by the clamping bolt 47 but has its beam engaging portion 48 enlarged so as to be forced against the beam member 49 when the bolt 47 is tightened.

In Figures 28, 29, 30 and 35, I show an insert 50 having lips 51 adapted to be bent around the upstanding ears 52 of the chair jaws 53. The lower edge 54 of element 60 is sharpened as indicated and this element will maintain its assembly with the chair irrespective of the assembly with the beam or the presence of the clamping bolt.

Figure 32 illustrates an application of an insert 55 which is merely a bar of triangular cross section similar to that shown in Figure 12, the same being driven into a corresponding recess formed in the wall of the chair 56.

In Figures 33 and 34 I illustrate my invention as applied to a rectangular tension bar 57 of a brake beam. The jaws 58 and 59 of the chair 60 will be clamped together by a suitable bolt passing through their upper ends. The righthand jaw 59 is provided with a pocket 61 for receiving the insert 62 which will bite into the bar 57 when the chair jaws are clamped against the bar. While there is no possibility of a chair of this type rotating on the bar, as frequently occurs with chairs applied to round bars, nevertheless it is possible for the ordinary chair to slide lengthwise of the bar and the use of my invention will prevent such undesirable relative movement of the chair and bar.

Obviously many other modifications in the details of my invention and in its application to various brake beams may be made without departing from the spirit of my invention, and I contemplate the exclusive use of such variations as come within the scope of my claims.

I claim:

1. In combination, a brake beam member having a smooth surface, and a third or fourth point support chair adapted to be clamped to said member and having a sharpened projection on its beam-engaging face.

2. In combination, a brake beam member, a third or fourth point support chair, an element having a sharp projection, means for immovably positioning said element on said support chair, and means for forcing said projection into said member.

3. In a brake beam third or fourth point support chair, a device for clamping the chair against a brake beam member, and a separate element seated in said chair and adapted to be forced into the surface of said member when said device is tightened.

4. In a brake beam third or fourth point support chair, a separate element adapted to be clamped between said chair and a brake.
beam member, there being a sharp hardened projection on the beam-engaging face of said element.

5. In a brake beam third or fourth point support chair, a jaw adapted to be clamped against a beam member, and an element of relatively hard material inserted in said jaw so as to be forced into the surface of a beam member when said jaw is clamped to said member.

6. In a brake beam third or fourth point support chair, a jaw adapted to be clamped against a beam member, and an element of relatively hard material inserted in said jaw and having a sharp projection adapted to be forced into the surface of a beam member when said jaw is clamped to said member.

7. In a brake beam third or fourth point support chair, a clamp device having a recess in its beam-engaging surface, and a separately formed element of relatively hard material seated in said recess and having a short projection extending above said surface.

8. A third or fourth point support chair for brake beams including a clamping portion adapted to encircle a brake beam part and provided with a hardened projection adapted to embed itself in said brake beam part.

9. In a brake beam third or fourth point support chair, beam clamping jaws, means for drawing said jaws together, and an element positioned in said chair and including a projecting portion adapted to be forced into said member when said means are tightened, thereby positively preventing movement of said chair on said member.

10. In a brake beam third or fourth point support chair, a body having a pocket, and an insert of hardened material inserted in said pocket and having a face projecting above the edge of said pocket and provided with a series of sharp corrugations adapted to bite into the surface of a brake beam member to which the chair is applied.

11. In combination, a brake beam member, a clamp about said member, a third or fourth point support chair carried by said clamp, and a separate tooth-like element positively held in engagement with said member by said clamp to hold the same and said chair against relative movement.

12. In combination, a brake beam member, and a third or fourth point support chair including clamping jaws about said member, and a separate tooth-like element between the contacting faces of said member and jaws for positively holding said member and chair against relative movement.

In testimony whereof I hereunto affix my signature this 16th day of March, 1928.

HERBERT W. EKHOLM.