(No Model.)

J. N. AKARMAN.

PREVENTING DISPLACEMENT IN SECTIONAL RAILWAY CHAIRS.

No. 458,210. Patented Aug. 25, 1891.

Fig. 1.

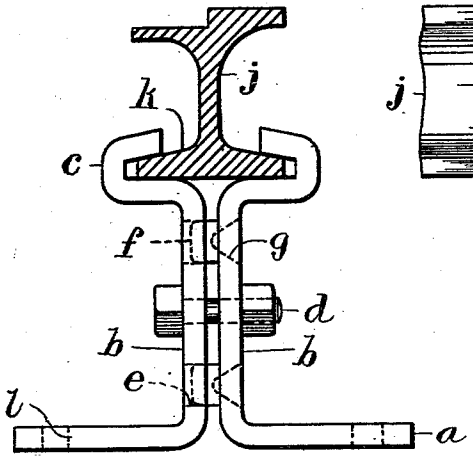


Fig. 2.

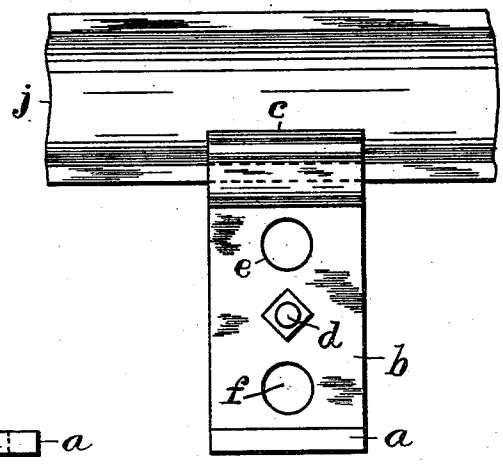


Fig. 3.

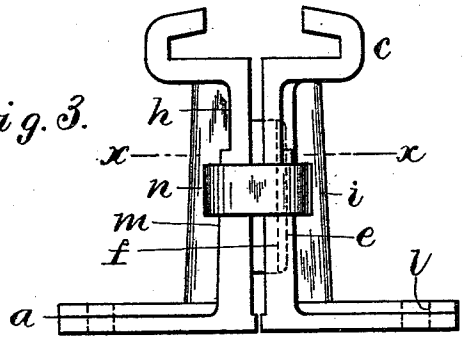


Fig. 5.

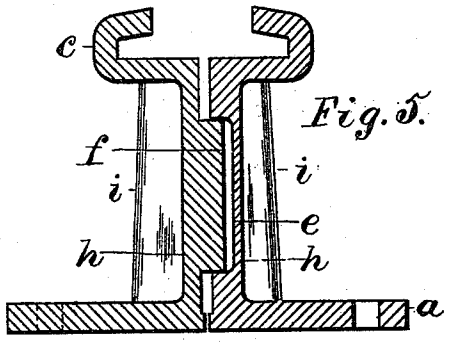


Fig. 4.

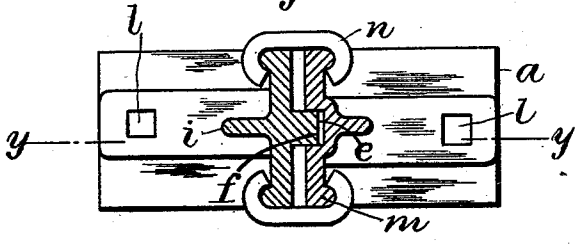
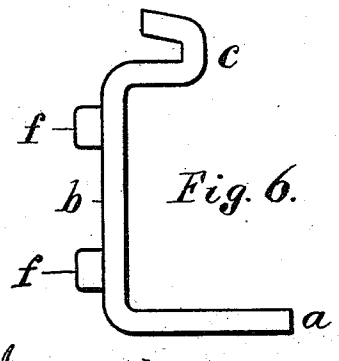


Fig. 6.



Attest:
L. Lee.
J. Van Kleef Jr.

Inventor.
John N. Akarman, per
Crane & Miller, attys.

THE MORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN N. AKARMAN, OF NEWARK, NEW JERSEY.

PREVENTING DISPLACEMENT IN SECTIONAL RAILWAY-CHAIRS.

SPECIFICATION forming part of Letters Patent No. 458,210, dated August 25, 1891.

Application filed June 12, 1891. Serial No. 396,060. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. AKARMAN, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Preventing Displacement in Sectional Railway-Chairs, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to such sectional railway-chairs as have each section formed at the bottom with a base to rest upon the tie or foundation, at the top with a rail, bearing to embrace the flange of the rail, and having an intermediate vertical web, by means of which the two sections are secured together.

The invention is intended to prevent the movement of one section upon the other either laterally or vertically, and to accomplish this object I form a closed socket or recess in one of the webs with parallel sides at right angles to one of the adjacent faces of the sections, and at right angles to the opposed face I form a projection or stud with parallel sides fitted to such recess, and thus adapted to prevent any movement of the sections upon one another, either laterally or vertically, while it permits their approximation toward one another when clamped upon the rail-flange.

In the cast-iron sectional chairs heretofore made interlocking projections have been formed upon the sections at an angle with the adjacent faces for the purpose of drawing the sections toward one another when moved laterally upon one another. Such projections thus serve as a means of clamping the chair-sections upon the base-flange of the rail; but as they require a lateral movement of the sections to perform their function, they differ essentially from the projections which I provide at right angles to the adjacent surfaces of the sections to prevent lateral and vertical movement.

The present improvement is adapted to chairs made of wrought or cast metal, provided they are formed in two independent sections, the form of the projections and recesses being varied with the material employed, as the shape of the projection may be more readily modified when the chair is formed of cast-iron.

As cast-iron chairs may be ribbed and flanged to increase their stiffness, they are preferable to wrought-metal chairs formed of bar-iron, and my improvement is especially adapted to cast-iron chairs, as the recesses and projections may be readily formed upon the patterns and drawn from the sand without obstruction, as they are at right angles to the surface of the pattern.

In the annexed drawings, Figure 1 is a section of a wrought-iron chair with portion of a rail clamped in the rail-bearing. Fig. 2 is a side view of the same parts. Fig 3 is a side elevation of a cast-iron sectional chair; Fig. 4, a section of the same intersected upon the line $x\ x$ in Fig. 3. Fig. 5 is a vertical section of the same on line $y\ y$ in Fig. 4, and Fig. 6 an edge view of one of the sections shown in Fig. 1, exhibiting the studs more plainly.

In Fig. 1 the chair-sections are formed of flat bar-iron bent to the desired shape, with flanged foot a, web b, and rail-bearing c, fitted to the flange k upon the rail j. The two sections of the chair are of similar shape, with flat faces opposed to one another, and a bolt d is inserted through the two webs to hold the sections of the chair together.

The construction thus far described is old, and it has been found in practice that the bolt d is not sufficient to prevent the settling of one of the chair-sections if the foundation is impaired, as the load imposed upon the rail j is capable of bending or stretching the bolt, and thus depressing one section of the chair below the other if they are unequally supported.

My improvement consists in forming one or more parallel holes or recesses e in one of the webs and a projection upon the opposite web adapted to fit such recess, and to thus restrain either web from movement independent of the other. The holes e, which are directly exposed in the web shown in Fig. 2, are shown round, as they may be conveniently formed of such shape by a punch, and the studs f are shown as cylindrical plugs, formed by forcing a portion of the metal in the opposite web outward. Such studs may be formed by laying the bar of iron when heated upon a suitable die and forcing a suitable punch into the metal upon the opposite side, leaving a recess, shown as a conical hole g in Fig. 1. The studs

are fitted to enter the holes *e* freely, but when the two sections of the chair are screwed together, as shown in Fig. 1, they wholly prevent the displacement of either section in a lateral or vertical direction. When the sections are made of cast-iron, the stud or projection may be made of any convenient shape, the improvement being shown in the drawings applied to a chair having vertical ribs *h*, with stiffening-flanges *i* upon the middle of the same, and tapering seats *m*, formed on the edges of the rib to fit a hooked clip *n*. The construction of the clip and seats *m* to hold the two sections of the chair together is claimed by me in a separate application.

The construction shown in Figs. 3 to 5, inclusive, represents the recess *e* as a rectangular socket of oblong shape, extended vertically by casting upon the inner face of one of the sections. The projection *f* is of similar shape and fits the hole or socket *e* upon both sides and at its top and bottom ends, so that the single projection prevents the wrenching or displacement of either section as effectively as the two studs *f*. (Shown in Fig. 1.) With all the constructions illustrated the stud *f* projects at right angles from the face of one section, and the recess is formed at right angles to the face of the adjacent section, and the recess is made of such depth that the sections may move readily toward one another when clamped upon the flange *k* of the rail, but are effectively prevented from lateral or vertical displacement.

The parallel form of the studs or projections *f* is clearly shown in Figs. 5 and 6, and the parallel form of the recess is shown in Fig. 5. In forming such studs and recesses by casting a very slight taper would be formed upon such parts of the pattern to facilitate their withdrawal from the mold; but such construction would not affect the operation of the parts, and they would still fit together in the manner described and prevent any material displacement of the sections.

Holes *l* are shown in the flanges of the feet *a* upon the two sections to spike the same to a tie or foundation, and it will be readily understood that where the rail-bearing is supported at a considerable distance above such foundation by vertical webs there is much more risk of displacement than where the rail is supported close to the foundation, or at least much greater injury by excessive canting or settling of the rail when a slight displacement occurs. It is to such chairs that my improvement is especially applicable.

I am aware that a tongue and groove have been used in railway-chairs to prevent the vertical displacement of the sections upon one another, but in such case additional means are required to prevent lateral displacement; but I am not aware that such tongue and groove have ever been applied to a chair of the class described herein having a base-plate at the foot to rest upon the tie or foundation, a rail-bearing at the top adapted to embrace the flange of the rail, and vertical webs connecting such base and rail-bearing. I hereby disclaim a tongue and groove, as such construction is not of my invention.

My invention is limited to chairs in which the sections are formed at the bottom with a flanged foot to rest upon the tie or foundation, at the top with a rail-bearing to embrace the flange of the rail and having an intermediate vertical web, by means of which the two sections are secured together, with a closed recess having parallel sides formed in the face of one of the webs, and a stud with parallel sides formed upon the contiguous face of the opposed web and fitted to such socket and adapted to slide therein. The two sections, being also provided with means for pressing the contiguous faces of the webs toward one another, are pressed toward one another in clamping them upon the rail, while the projection operates to prevent the displacement of the sections laterally and vertically after they are secured together. The projection and recess evidently require the co-operation of means for pressing the contiguous faces of the sections toward one another, which may be provided by the bolt shown in Fig. 1, the clip shown in Fig. 3, or any other suitable means.

Having thus set forth the nature of my invention, what is claimed herein is—

A railway-chair consisting of two sections having each the foot *a*, the rail-bearing *c*, and the vertical web *b*, intermediate to the same, with a closed socket having parallel sides formed at right angles to the surface of one of the webs and a stud with parallel sides formed upon the contiguous face of the adjacent web and fitted to such socket, and means for pressing the contiguous faces of the webs toward one another, as and for the purpose set forth.

JOHN N. AKARMAN.

In presence of—
THOS. S. CRANE,
JNO. F. COURTNEY.