360

C. WOOD.

Permanent Way of Railways.

No. 210,734. Patented Dec. 10, 1878.

FIG:1.

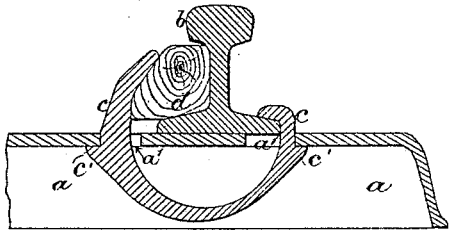


FIG:2.

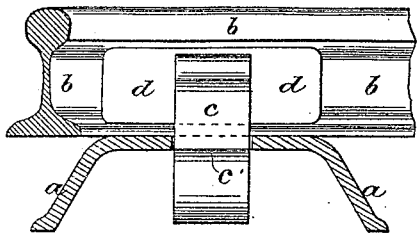


FIG:3.

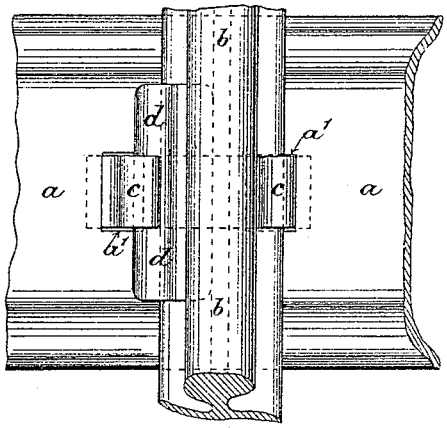


FIG:4.

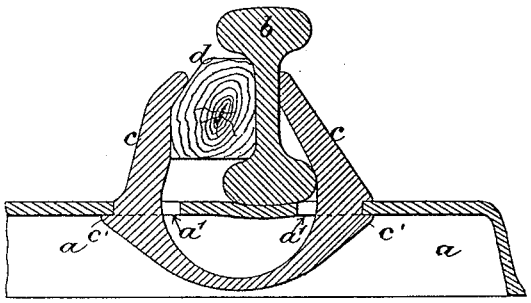


FIG:5.

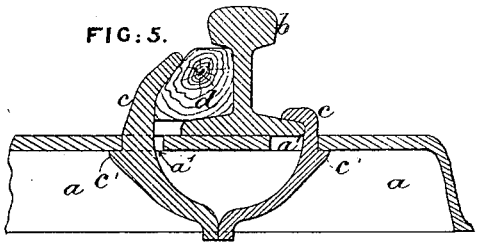
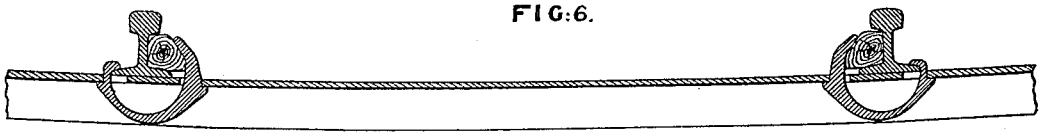


FIG:6.



Witnesses:
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E. L. Davidson.

Inventor: Charles Wood,
By His Attys
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UNITED STATES PATENT OFFICE.

CHARLES WOOD, OF MIDDLESBROUGH, ENGLAND.

IMPROVEMENT IN PERMANENT WAYS OF RAILWAYS.

Specification forming part of Letters Patent No. **210,734**, dated December 10, 1878; application filed September 12, 1878; patented in England, November 10, 1877.

To all whom it may concern:

Be it known that I, CHARLES WOOD, of Middlesbrough, England, engineer, have invented new and useful Improvements in Permanent Ways of Railways, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

This invention has for its object improvements in permanent ways of railways.

The sleepers which I employ by preference are of wrought iron or steel, of trough-like form, and laid transversely; but cast-iron sleepers, and sleepers laid longitudinally, may be employed.

I form holes in the sleeper, and into these holes I insert, preferably from the under side, the detachably-secured chairs or clips, which serve to connect the sleepers with the rails.

I produce the chairs or clips by rolling wrought iron or steel into a continuous bar of a suitable section, which I cut off in lengths and bend to a clip-like form, as is hereinafter more fully described.

I make the chairs or clips with shoulders or projections to bear against the under sides of the sleepers, and by the same key which binds the rail down to the sleeper the shoulder or projection upon the chair or clip is held firmly up to the under side of the sleeper. The sleepers, unlike those heretofore most commonly employed, have no lugs or lips formed with or permanently connected to them, and have no ribs, ledges, or projecting parts whatever upon their surfaces. The rails bear directly upon the sleepers, and are removably secured by the separable clips and keys or wedges, a single key or wedge only being used in connection with each clip or chair.

When using the transverse trough-like sleepers which I prefer, I give the requisite tilt to the rail by curving the sleeper downward in the center, as shown at Fig. 6.

In order that my said invention may be most fully understood and readily carried into effect, I will proceed to describe the drawings hereunto annexed.

Figure 1 is a section representing a flat-bottomed rail secured to a transverse trough-sleeper by a clip-chair and key; Fig. 2 shows an elevation of the same with the sleeper in section, and Fig. 3 a plan.

a is the rolled sleeper. It is cut off to the length required, holes are formed in it at *a' a'*, and it is curved so that when the foot of the rail stands flat upon the sleeper the rail may have the slight tilt which is generally thought desirable. *b* is the rail of the ordinary flat-footed section. *c* is the clip inserted through the holes *a'* in the sleeper from the under side. *d* is a wooden key or wedge driven in between the jaw of the clip chair and the rail, and fastening the parts *a*, *b*, and *c* firmly together. Although I prefer to employ wooden keys or wedges, metal keys or wedges, which are sometimes used for fastening railway-rails, may be employed.

Clip-chairs, such as the drawing represents, may be made of cast metal; but, as before mentioned, I prefer to roll them as bars and cut them off to the lengths required. The metal is rolled out nearly flat to the section represented, and having the ribs, shoulders, or projections *c' c'*, and the shape of the jaw perfect. The flat bars are cut off to the width of the chair required, and the pieces are bent into the horseshoe or bow shape by tools, which also press the jaw exactly to the width required, and give the taper suitable for the wooden key.

The clips may be bent by hand, but I prefer pressing them in a die. The clips may be made flat at the bottom, but I prefer the bow form, as represented by the drawing.

Fig. 4 is a section representing a similar clip-chair applied to secure a double-headed rail to its sleeper. In this form, on the side opposite to the key, it is advisable to form the clip with double projections, embracing the end of the hole *a'* in the sleeper, both on the upper and the under side.

The clip-chair may be made in two parts, as is represented in Fig. 5, in which case the parts can be introduced into the holes in the sleeper from the upper side. This arrangement is, however, not so advantageous as that previously described, where the clip-chair is made in a single piece.

Fig. 6 shows the whole tie with both rails attached.

Having thus described the nature of my said invention and the manner of performing the same, I would have it understood that I claim—

1. The combination of the wholly-detachable chair or clip, inserted through the sleeper, (the sleeper being unprovided with a permanent lug, lip, ledge, or fixedly-secured rib or projection of any sort,) crossing beneath or spanning that portion of it upon which the rail directly rests, and projecting above the sleeper at both sides of the foot or base of the rail, and a single key or wedge above the sleeper to removably secure the clip or chair, and serving also, without other means, to retain the rail in the chair, substantially as hereinbefore set forth.

2. The chair or clip wholly detachable from the sleeper, and provided with a projection upon it held securely up to the under side of the sleeper by the same key or wedge which alone serves to bind the rail down to the sleeper, unprovided with a projection of any sort, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of the trough-like sleeper, provided with openings, and the chair or clip, shouldered or ribbed beneath the sleeper, and wholly detached therefrom, whereby the rail, sleeper, and clip may be secured together by the single wedge or key acting directly against the rail, at one side, above the sleeper, which is without any permanent lug or projection, as set forth.

4. The hereinbefore-described clip or chair, having the bent or bow shape, the shoulders c' c', and the upwardly-projecting inwardly-inclined arm or jaw, whereby it is adapted, in combination with a key or wedge, above and at one side of the base or foot of the rail, to secure the rail, essentially as shown in the drawings.

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Witnesses:

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