F. B. FREUDENBERG.

Mode of Fastening Rails to Metallic Sleepers.

No. 210,774. Patented Dec. 10, 1878.

FIG. 1.

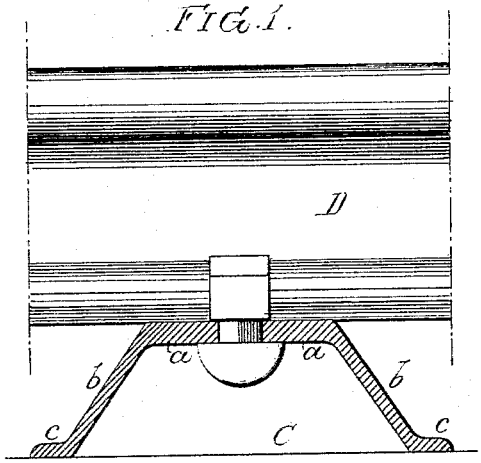


FIG. 2.

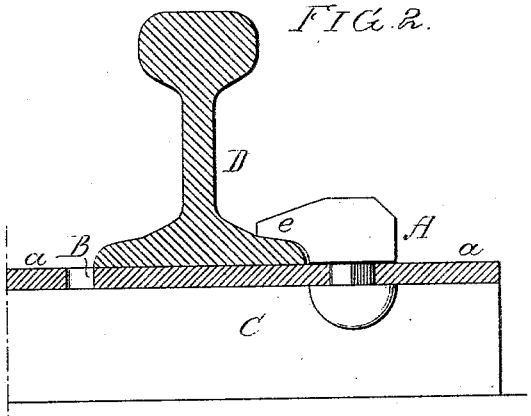


FIG. 3.

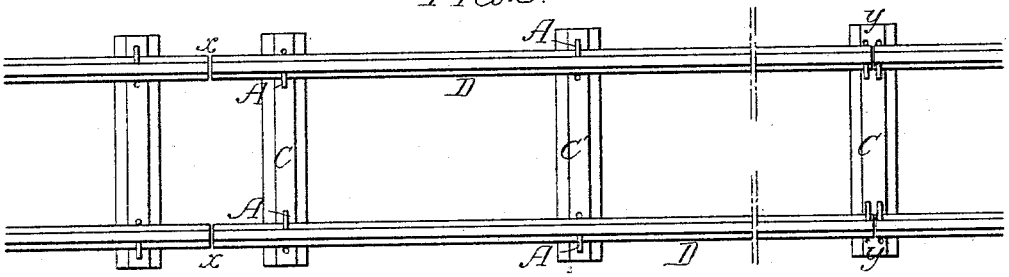
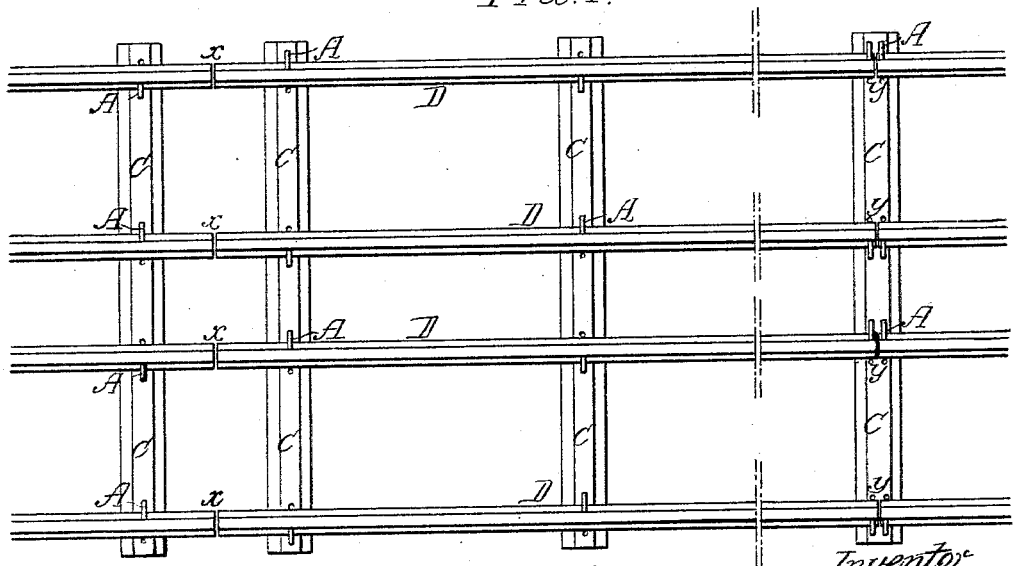


FIG. 4.



Witnesses
Harry Smith
J. M. Turner

Inventor,
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UNITED STATES PATENT OFFICE.

FRANZ B. FREUDENBERG, OF LAAR, NEAR RUHRORT, GERMANY, ASSIGNOR TO CHARLES JAMES ADOLPH DICK, OF PHILADELPHIA, PA.

IMPROVEMENT IN MODES OF FASTENING RAILS TO METALLIC SLEEPERS.

Specification forming part of Letters Patent No. **210,774**, dated December 10, 1878; application filed October 28, 1878; patented in Germany, January 18, 1878.

To all whom it may concern:

Be it known that I, FRANZ BERNHARDT FREUDENBERG, of Laar, near Ruhrort, Germany, have invented a new and useful Improvement in the Modes of Fastening Rails to Metallic Sleepers, and for which a German patent was granted to me on the 18th day of January, A. D. 1878, No. 2,601, of which the following is a specification:

The object of my invention is to facilitate the laying of railroad-tracks of a substantial character and uniform gage, by securing the rails to metallic ties in the peculiar manner fully described hereinafter.

In the accompanying drawing, Figure 1 is side view of part of a rail and transverse section of the tie, showing the mode of fastening the former to the latter; Fig. 2, a transverse section of the rail and longitudinal section of part of the tie, and Figs. 3 and 4 represent plan views of a single and double track.

The cross-tie C, which I prefer to use, consists of a wrought-iron channel-bar, having a flat top, *a*, and opposite flaring sides *b b*, terminating in flanges *c c*.

To these cross-ties are riveted, or otherwise permanently secured, studs A, the head of each of which has on one side a projection, *e*, forming a hook, which overlaps one flange of the rail D, as shown in Fig. 2, that part of the hooked stud which passes through the tie being preferably made square, or of some other form calculated to prevent the said stud from turning.

In laying the track the ties and hooked studs are so arranged that the hooks of one tie shall point inward toward the center of the track, and those of the next tie outward from the center of the track, the studs of one tie overlapping the inner flanges of the two rails, and those of the next tie overlapping the outer flanges. Thus in the single track, Fig. 3, the studs A A of the tie C overlap the inner flanges of the two rails, and the studs A A of the next tie, C′, overlap the outer flanges of the rails, and this alternating arrangement is continued throughout the entire track.

In applying the rails to the ties the former possess sufficient elasticity to permit them to be sprung laterally, so that their flanges can be introduced beneath the projections of the studs, and the tendency of the rails to recoil and assume and retain their normal condition after being thus sprung assures the maintenance of the flanges beneath the projections of the studs.

In each cross-tie, and opposite each stud, there is a hole, B, situated as shown in Fig. 2, in respect to the flange of the rail, so as to receive a wedge, if an abrupt curve in the track should demand it, for maintaining the rail in place, the rails when the track is straight or on a moderate curve requiring no such aid.

The rails may meet at a point between two sleepers, as shown at *x*, Fig. 3, or they may meet on a sleeper, as shown at *y*, proper splices being used, if desired, to connect the meeting rails together and insure their proper coincidence.

The manner of laying the double track, Fig. 4, in accordance with my invention will be understood without explanation.

I claim as my invention—

A railroad-track in which the rails are combined with ties having permanent hooked studs, those of one tie overlapping the outer flanges of the rails, and those of the next tie overlapping the inner flanges, and so on throughout the track, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANZ BERNHARDT FREUDENBERG.

Witnesses:

FRANK W. BERNARD,

H. DOERENKANY.