

(No Model.)

E. N. HIGLEY.

RAILWAY TIE.

No. 312,717.

Patented Feb. 24, 1885.

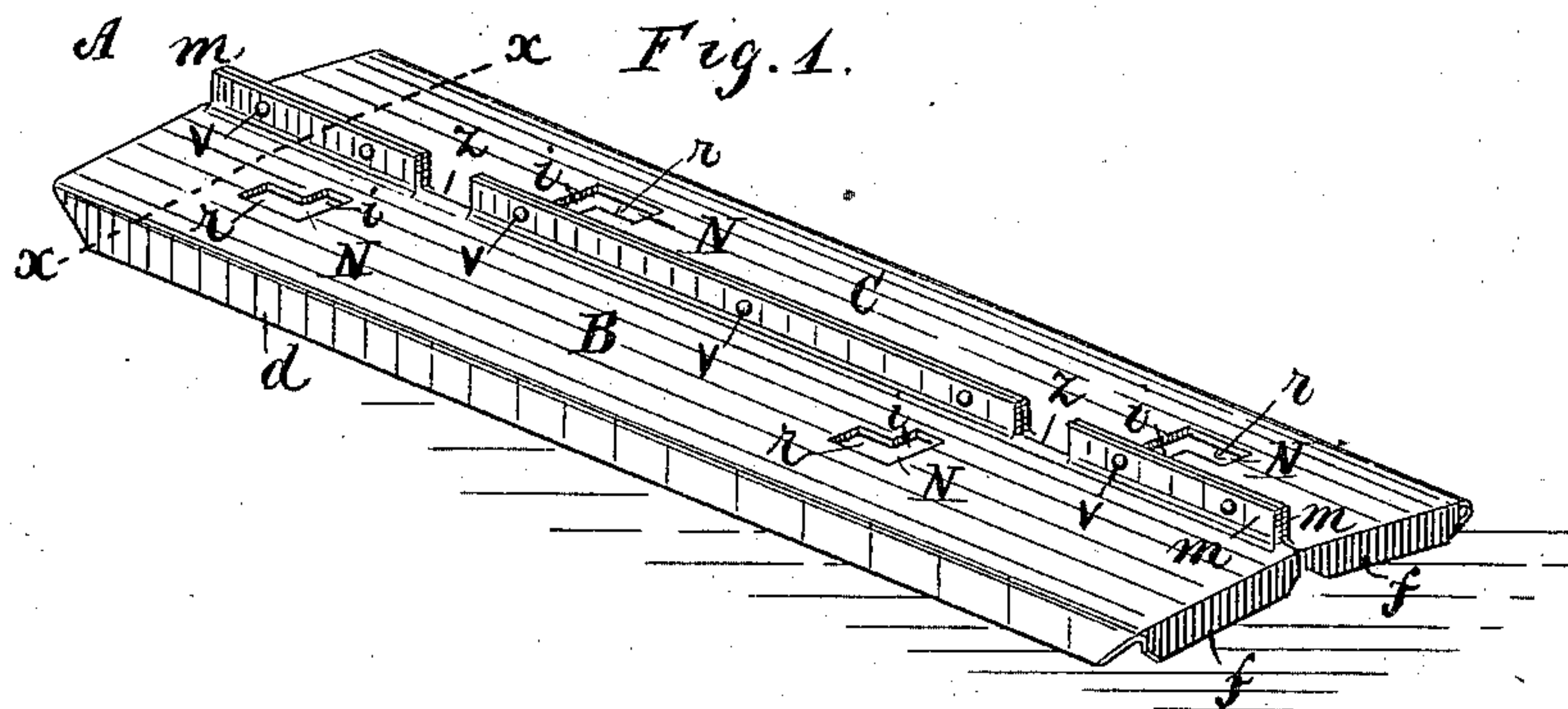


Fig. 2.

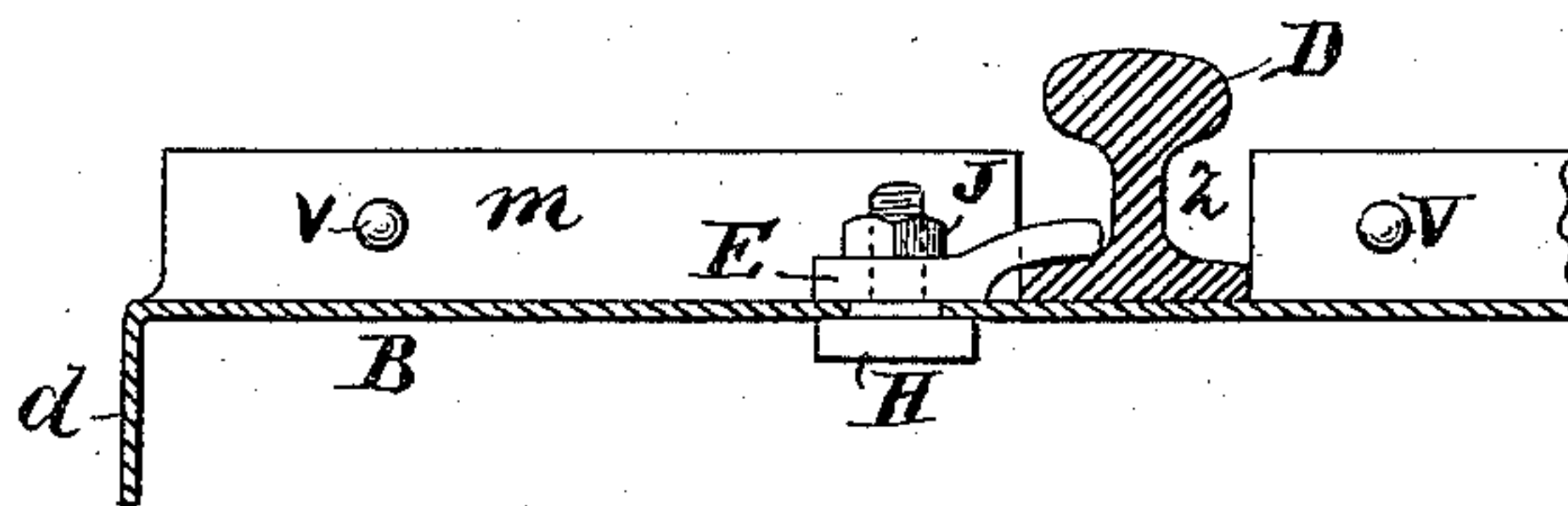


Fig. 4.

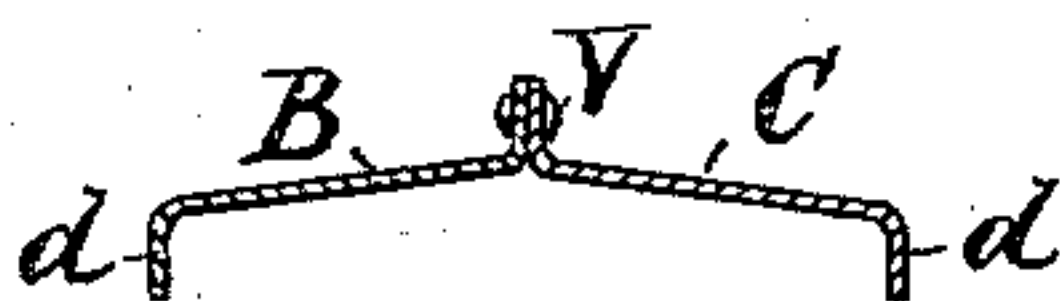


Fig. 3.

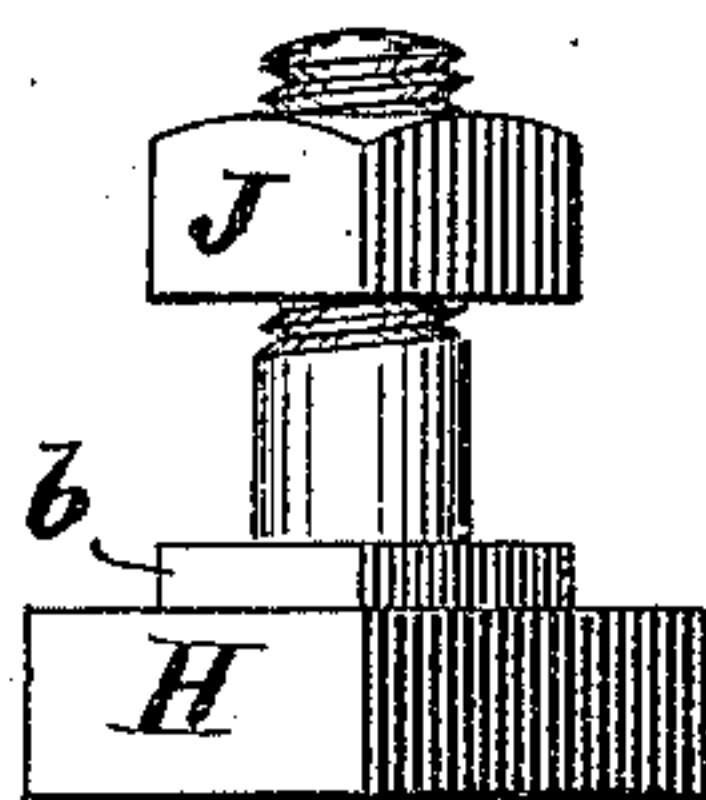


Fig. 5.

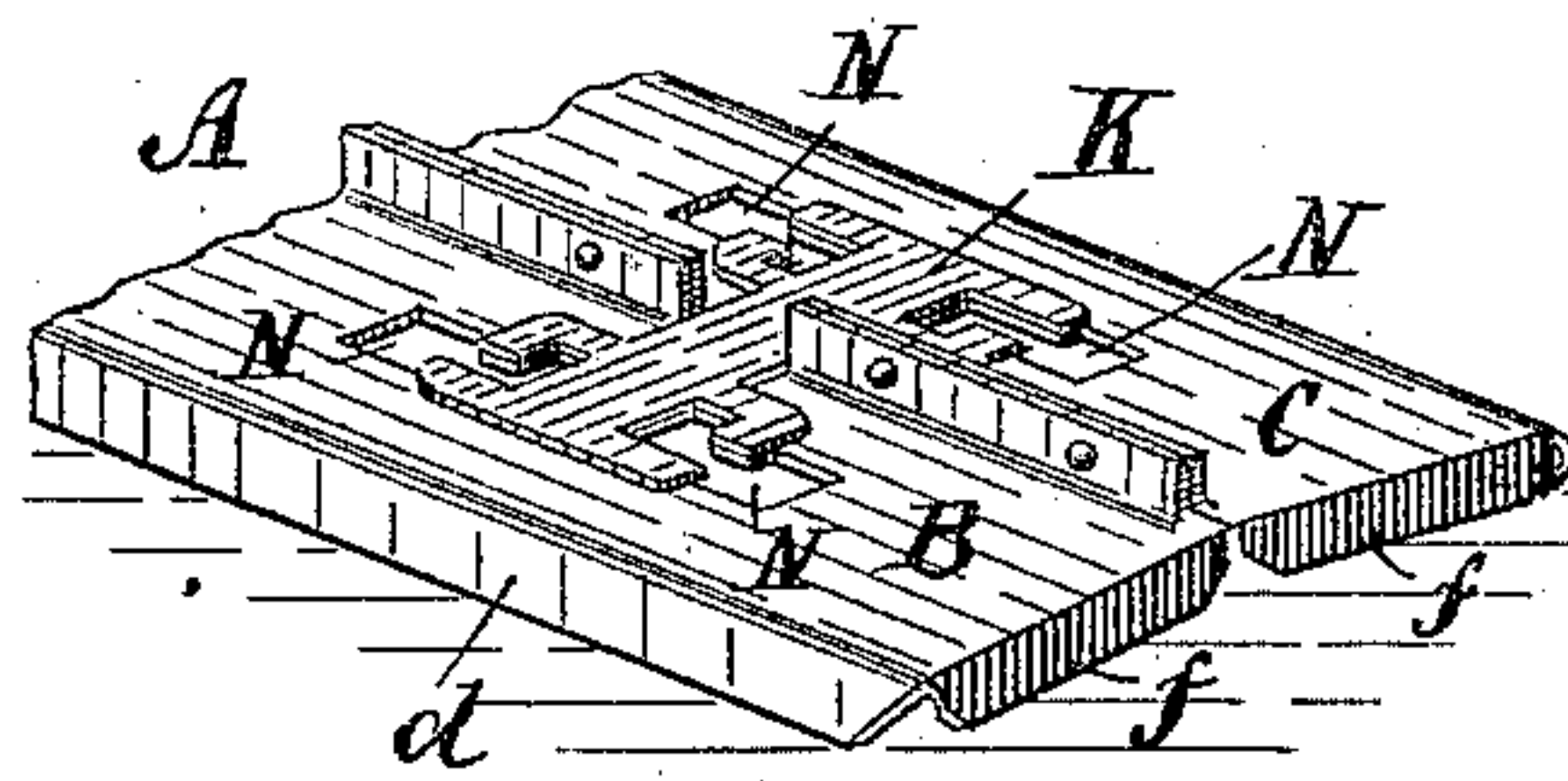
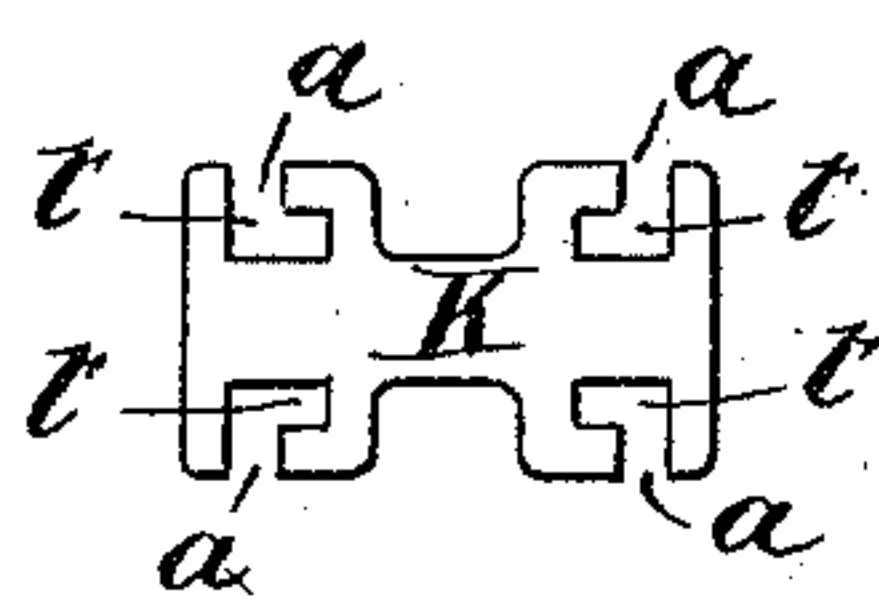


Fig. 6.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 312,717, dated February 24, 1885.

Application filed June 21, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, EBEN N. HIGLEY, of Somersworth, in the county of Strafford, State of New Hampshire, have invented a certain new and useful Improvement in Railway-Ties, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved railway-tie; Fig. 2, a sectional view, showing the method of securing the rail to the tie; Fig. 3, a side elevation of the bolt and nut detached; Fig. 4, a vertical transverse section taken on line *xx* in Fig. 1; Fig. 5, a perspective view showing the chair applied to the tie, and Fig. 6 a plan view of the chair detached.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of railway-ties which are composed of metal; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more desirable article of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the tie; D, the rail; E, the clamp; H, the bolt; J, the nut, and K the chair or bed-plate adapted to rest on the tie. The body of the tie is composed of stout sheet metal, preferably steel, and consists of two principal sections, B C, arranged side by side, and provided with upwardly-turned flanges *m*, the flanges being firmly connected by a series of rivets, *v*. Each section of the body is provided at its outer edge or side with a downwardly-projecting flange, *d*, and at either end with a downwardly-projecting flange, *f*. Two notches or apertures, *z*, are formed at proper distances apart in the flanges *m* for receiving the rails D and preventing them from spreading. The rails are secured to the tie by

means of clamps E, one of which is shown in Fig. 2, and nuts and bolts H J, a set of which is shown in Fig. 3. Each section of the tie is provided with four slots, N, disposed as shown in Fig. 5, or so that there will be two of the slots on either side of the rail when the rail is inserted in the aperture *z*. I do not, however, confine myself to the use of eight slots in each tie, as one-half this number is quite sufficient for all ties which are designed to be laid under the body of the rail as shown in Fig. 1, those with the greater number, as shown in Fig. 5, being used at the joints of the rails. Each of the slots consists, essentially, of two united slots, one extending longitudinally and the other transversely of the tie, the longitudinal slot *r* being wider than the transverse slot *i*.

The chair or bed-plate K is preferably composed of wrought-iron or steel, and is provided on each side near either end with a slot, *t*, having a side opening, *a*, through which the bolt H is inserted. The body of the chair or plate K is slightly narrower than the slot *z*, to enable it to be readily inserted therein, and its length is such that when it is in position for use its slots *t* will register with the slots *i* in the body of the tie. A square or shoulder, *b*, projects upwardly from the head of the bolt H, the square being adapted to fit closely in the slot *i*, thereby preventing the bolt from revolving when the nut is turned on, and also from accidentally becoming loose from the jarring movements occasioned by passing trains. The sections B C are inclined slightly from the flanges *m* to their outer edges, as best seen in Fig. 4, so that when subjected to pressure the tie yields, and when the pressure is relieved expands, thereby acting as a spring to neutralize the shock produced by the locomotive and cars, and thereby prevent "hammering" of the rails; but this feature of the invention may be dispensed with, if desired, the sections when arranged horizontally performing their functions perfectly in most instances.

In the use of my improvement the ties are laid at proper distances apart with their flanges embedded in the ground. The heads of the bolts H are then passed downwardly through the large slots *r* and moved until the shoulders *b* enter the slots *i*, the chairs placed in position in the apertures *z*, the bodies of the bolts being inserted in the slots *t* of the chairs K,



after which the rails are placed on the chairs and secured by the clamps E and nuts J in a manner which will be readily obvious without a more explicit description.

5 It will be obvious that the flanges *d f* are adapted to engage the earth and hold the tie in proper position when in use; but I do not confine myself to using all of the flanges shown for this purpose. It will also be obvious that  
10 the bolt H, resting in the transverse slot *i*, will resist the lateral movements of the rail to better advantage than it would if said slot were arranged longitudinally of the tie.

The chairs may be dispensed with entirely,  
15 if desired, and the rails permitted to rest directly on the tie. Other means than those shown may also be employed for securing the rail to the tie without departing entirely from the spirit of my improvement.

20 Having thus explained my invention, what I claim is—

1. In a railway-tie substantially such as described, the slot N, having the enlarged section *r* and the smaller section *i*, the smaller  
25 section standing at an angle to the larger section, substantially as and for the purpose set forth.

2. The bed-plate or chair K, provided with the slots *t*, in combination with the tie A, substantially as described.  
30

3. As a new article of manufacture, the railway-chair or bed-plate K, provided with the slots *t* and side slots, *a*, substantially as set forth.

35 4. In a railway-tie, the bed-plate K, provided with the slots *t* and the side slots, *a*, in combination with the tie A, provided with

the slots N, having the sections *r i*, and the bolts H, having the shoulders *b*, substantially as described.

5. In a railway-tie, the bed-plate K, provided with the slots *t* and the side slots, *a*, in combination with the tie A, provided with the slots N, having the sections *r i*, the bolts H, having the shoulders *b*, the nuts J, the clamps  
40 E, and the rails, substantially as described. 45

6. The improved railway-tie herein described, the same consisting of the sections B C, provided with the flanges *m f d*, having the apertures *z*, and slots N, having the sections  
50 *r i*, substantially as described. 55

7. The improved railway-tie herein described, the same consisting of the sections B C, provided with the longitudinal flanges *m d* and the transverse flange *f*, said flange *m* being provided with the aperture *z*, and the slots  
N, substantially as set forth. 60

8. The improved railway-tie herein described, the same consisting of the sections B C, provided with the longitudinal flanges *m d* and the transverse flange *f*, said flange *m* being provided with the aperture *z*, and the slots  
N, having the sections *r i* at an angle to each other, substantially as set forth. 65

9. As a new article of manufacture, a sheet-metal railway-tie having its sides inclined to form a spring-rest for the rails, and provided with flanges adapted to engage the earth and hold the tie in position when in use, substantially as described.

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Witnesses:

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