

(No Model.)

D. C. CREGIER.

STREET RAILWAY.

No. 369,397.

Patented Sept. 6, 1887.

Fig. 1.

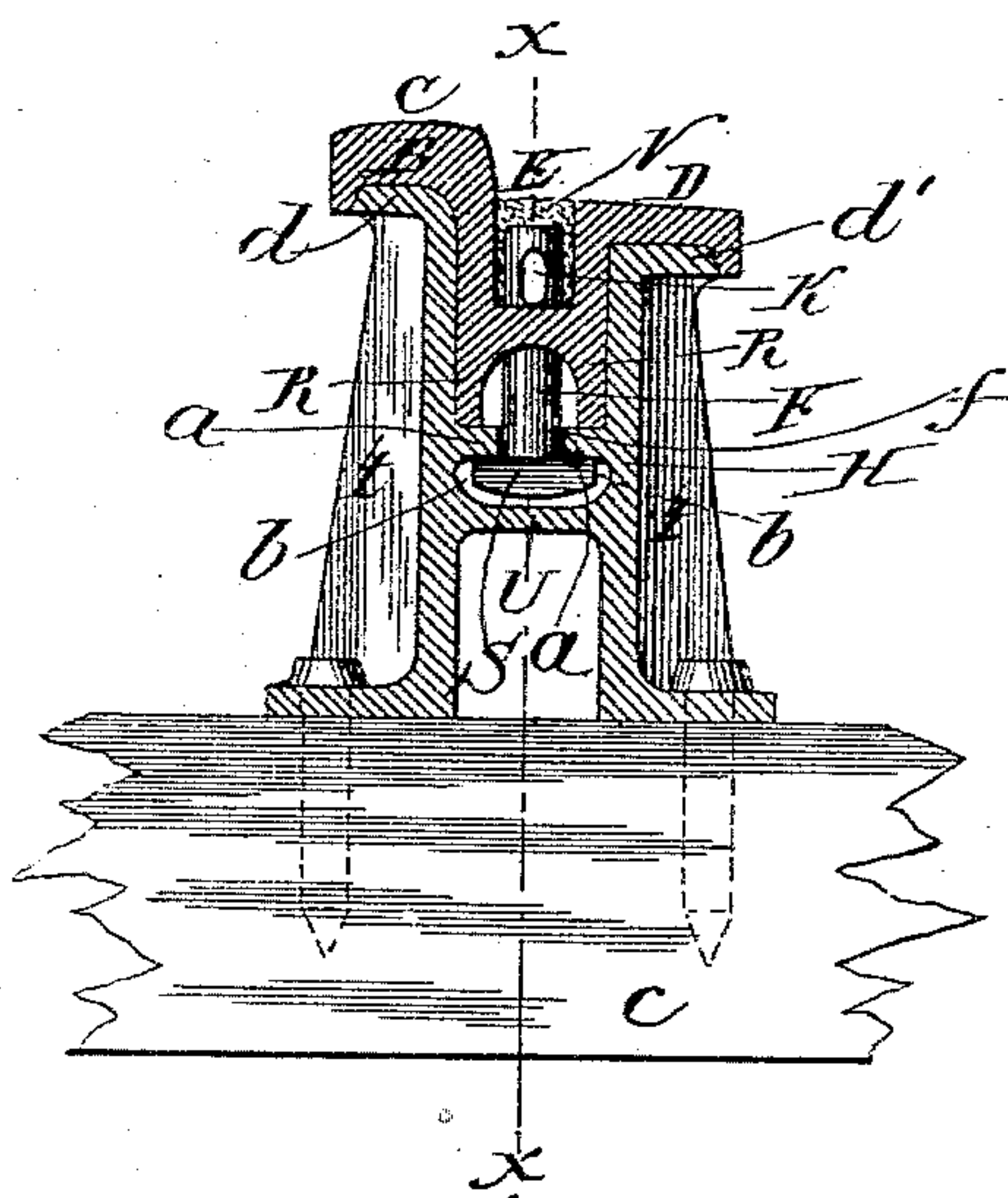
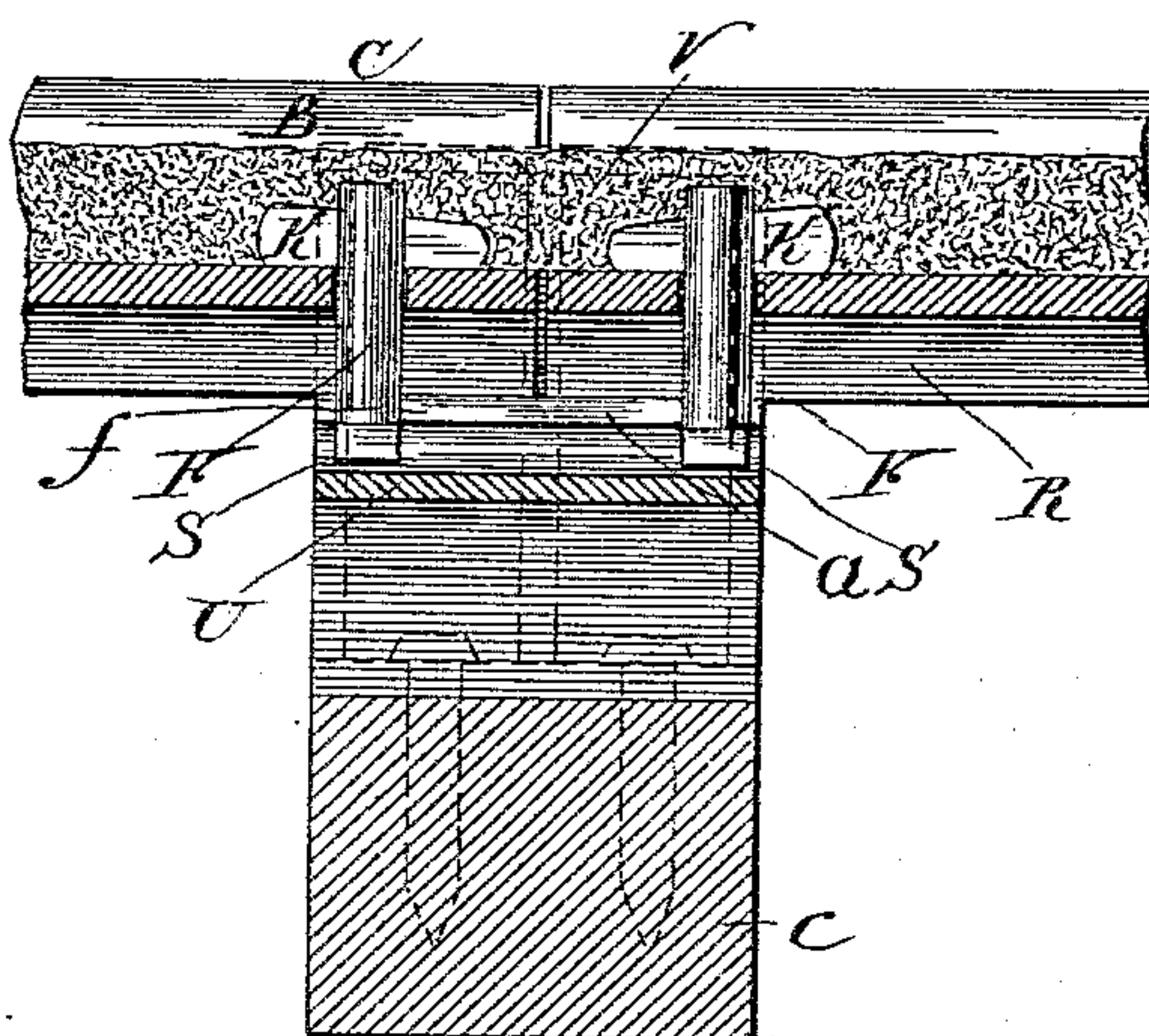


Fig. 2.



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STREET-RAILWAY.

SPECIFICATION forming part of Letters Patent No. 369,397, dated September 6, 1887.

Application filed December 21, 1886. Serial No. 222,142. (No model.)

To all whom it may concern:

Be it known that I, DEWITT C. CREGIER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Street-Railways, of which the following is a specification.

This invention relates to improvements in street-railways, in which the chair, stringers, or other rail-supports are of such a character that the commonly-used rail is not only subject to deflective strains, but is more or less injured thereby to such an extent that if not broken the deflection becomes more or less permanent.

The prime object of this invention is to strengthen any form of tramway-rail so that it will effectually resist strains tending to deflect it, and to do this without modifying the wearing-faces thereof or materially adding to the cost of manufacture of said rail. A more specific object is to strengthen, so as to resist deflection, a double tramway-rail having between its trams a longitudinal channel isolating the bolt, spikes, or other devices for securing the rail to its support from vehicles or car-wheels, and, finally, to combine the strengthened rail above referred to with a form of chair, stringer, or other device best adapted for supporting said rail and facilitating its removal from the road-bed when from any cause desirable. I attain these objects by devices illustrated in the accompanying drawings, in which—

Figure 1 represents a transverse section of my improved rail in its operative position upon a chair or stringer; Fig. 2, a detailed central longitudinal section of the same.

Similar letters of reference indicate the same parts in the figures of the drawings.

The rail B has a double tramway, one of which trams, C, is for car-wheels and the other, D, for the wheels of ordinary vehicles, which trams are in differing planes, and have between them a longitudinal channel having its bottom formed and the two trams made contiguous by a web, W, provided at intervals with bolt-holes *f*, said channel serving, as hereinafter described, to isolate the bolt or other device for locking the rail to the chair or stringer and from contact with car-wheels and wheels of other vehicles. This form of rail—

that is to say, the form so far described—is set forth and both broadly and specifically claimed in another application, Serial No. 122,143, filed by me December 21, 1886, and is therefore not claimed herein, but is shown and described for the purpose of illustrating my invention in connection with a preferred construction of rail, although, as will be understood farther on, my invention is also adapted for improvements in the commonly-used form of rail—that is to say, rails having double trams in differing planes, but without a longitudinal channel between said trams, and also rails having double trams in the same plane with a longitudinal channel between said trams.

To strengthen any of the foregoing-referred-to forms of rails for resisting to a maximum degree strains tending to deflect them, and also to successfully support tramway rails at intervals of their length by means of chairs, said rails are provided with parallel girders R R, depending from the trams, which girders project from and support their respective trams at a point next their inner edges, at which point the faces of the trams are subjected to the greatest strain, for the reason that all car-wheels are more or less cone-shaped, so that their treads have contact with the rail principally at a point next the inner edges of the tram, and that vehicle-wheels have similar contact, because of their tendency to follow the inner vertical wall of the car-trams, and therefore direct the greater part of the weight of the vehicle to about the inner edge of the vehicle-tram.

The importance of and advantage gained in increasing the effectiveness and utilizing the girders to their fullest extent upon the rail by having said girders at the point indicated is not the only result of such location, but the strain upon the rail and girders is best resisted by such an arrangement of the girders with reference to the trams. These girders are preferably rolled, and therefore contiguous with the rail, and, owing to their form and location, may be so rolled or formed at a comparatively small expense, and require but little additional metal to materially strengthen tramway-rails of any form against deflection.

This improved rail may be supported upon cross-ties or the ordinary form of stringer; but in practice I prefer to use a metallic chair or

stringer of the form shown in cross-section in Fig. 1, which chair or stringer may, however, be in two parts—that is to say, divided on the line X X of Fig. 1—and when in use be bolted together in any suitable and convenient manner. The uprights of the chair are strengthened by flanges *t t*, and the upper edges of the uprights of the chair or stringer constitute, respectively, center bearings for each of the trams, and these upper edges are provided with flanges *d d'*, which project and additionally support said rail-trams.

Projecting inwardly from the opposing uprights of the chair or stringer are flanges or studs *a*, between the free ends of which is a space conforming to the diameter of the locking-bolt or other device employed for securing the rail to the chair or stringer, and below these flanges *a* is a space or chamber, *b*, forming a receptacle for the head of the locking device, which chamber is of such a depth that said bolt or locking device cannot, when released, drop below the flanges *a*. As a means for locking the rail to this chair a T-headed bolt, *F*, is employed, which said head may be passed between the flanges *a* of the stringer and locked against said flanges by giving said head a quarter-turn, and before placing the rail in its operative position on the stringer such bolts, which may correspond in number with the perforations in the rail, are first so placed between the flanges, after which the rail may be placed in its operative position as soon as the several bolts are made to register with the perforations therein. These bolts are of such length that when the heads thereof are elevated to contact with the under side of the flanges *a* their ends will not project above the plane of the vehicle-tram, and as means for tightening said bolts and the rail to the stringer they are perforated to receive a key, *K*, which in practice, though not so shown, should be split, so that after being tightened it can be locked against accidental detachment or loosening. When such keys are employed, the diameter of the bolt and the diameter of the rail-channel may be substantially the same; but if, instead of a key, a lock-nut is employed, such channel will have to be correspondingly wider.

While not absolutely essential, it is preferred to use a filling of some character in the grooves between the several bolts, which filling may be of a plastic nature, as shown at Fig. 2, or consist of strips of wood or metal driven into the rail-channel, for in either case such filling will not only promote a permanency of the locking device, whether a key or nut, but when the groove is of considerable width will prevent

the narrower class of vehicle-wheels from entering therein. After once setting and securing such chair or stringers in their operative positions upon cross-ties or other supports, and the inner and outer portions of the road-bed are paved, little or no skill is required to place the rails in their operative positions and secure them to the chairs or stringers, and this may be done after the road and its bed is otherwise finished, and so also a defective rail may at any time be removed and replaced with a perfect one without disturbing any portion of the road-bed or the chairs or stringers, or injuring or displacing locking devices, whether said locking devices are key-bolts or fastenings. By attaining these results the tearing up of the road-bed and the obstruction to passage on the road and in the streets is not only avoided, but a material saving of the expense and time in the laying of rails and in repairing of the road is effected.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A tramway-rail the trams of which are in differing planes, said rail having a channel between its trams and provided with downwardly-projecting girders, substantially as described.
2. A tramway-rail provided with trams in differing planes; a connecting-web, a channel between said tram, and girders contiguous with and projecting downwardly from said web, in combination with a rail-chair or other support, substantially as described.
3. A rail provided with downwardly-projecting girders parallel and contiguous with the rail, in combination with a chair or other support, and devices entering the channel between the trams for and securing it to said chair or support, substantially as described.
4. A rail provided with two trams connected by a web and having a channel between and parallel with said trams, in combination with girders projecting from and supporting said trams at a point next their inner edges, substantially as described.
5. A rail provided with two trams in differing planes and connected by a web and having a channel between and parallel with said trams, in combination with girders projecting from and supporting both trams at a point next their inner edges, substantially as described.

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Witnesses:

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