(No Model.)

E. G. PATTERSON.

SUPPORTER FOR RAILROAD RAILS.

No. 472,071. Patented Apr. 5, 1892.

Fig. 3.

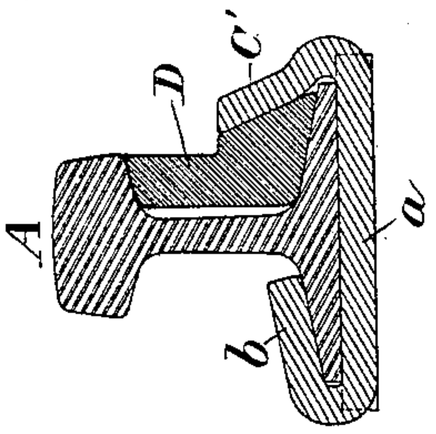


Fig. 1.

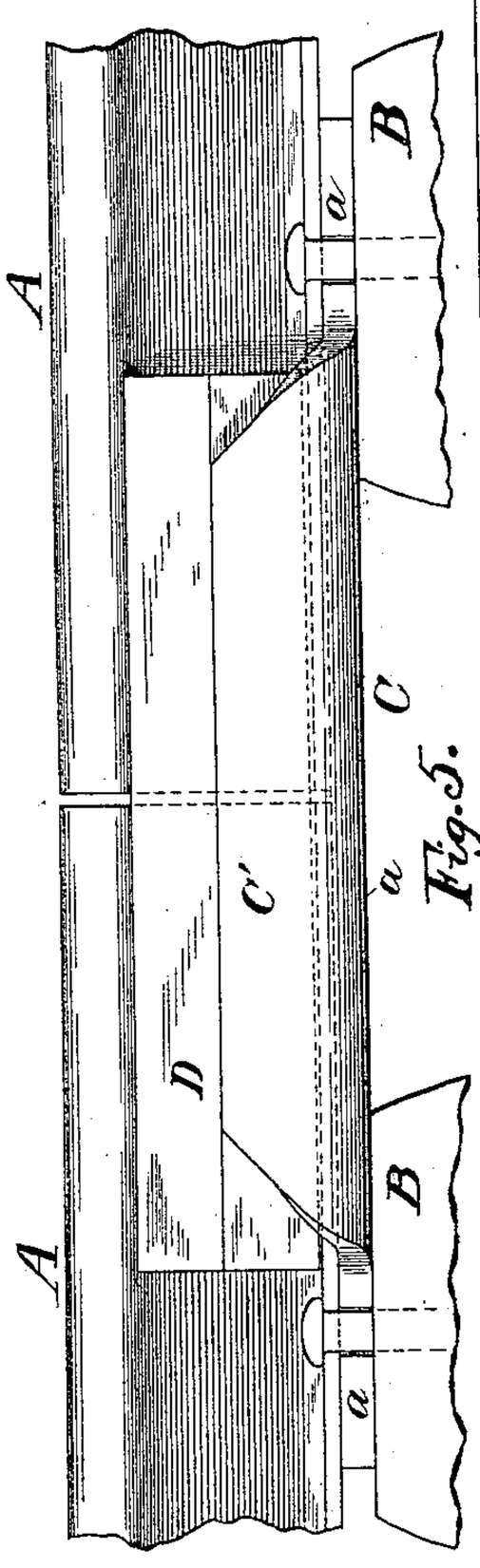


Fig. 5.

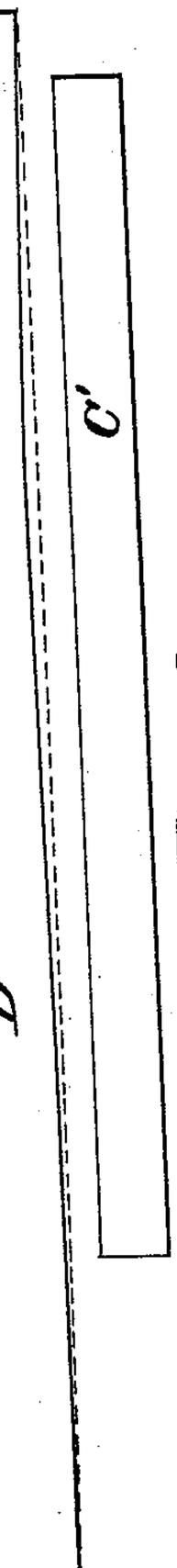


Fig. 4.

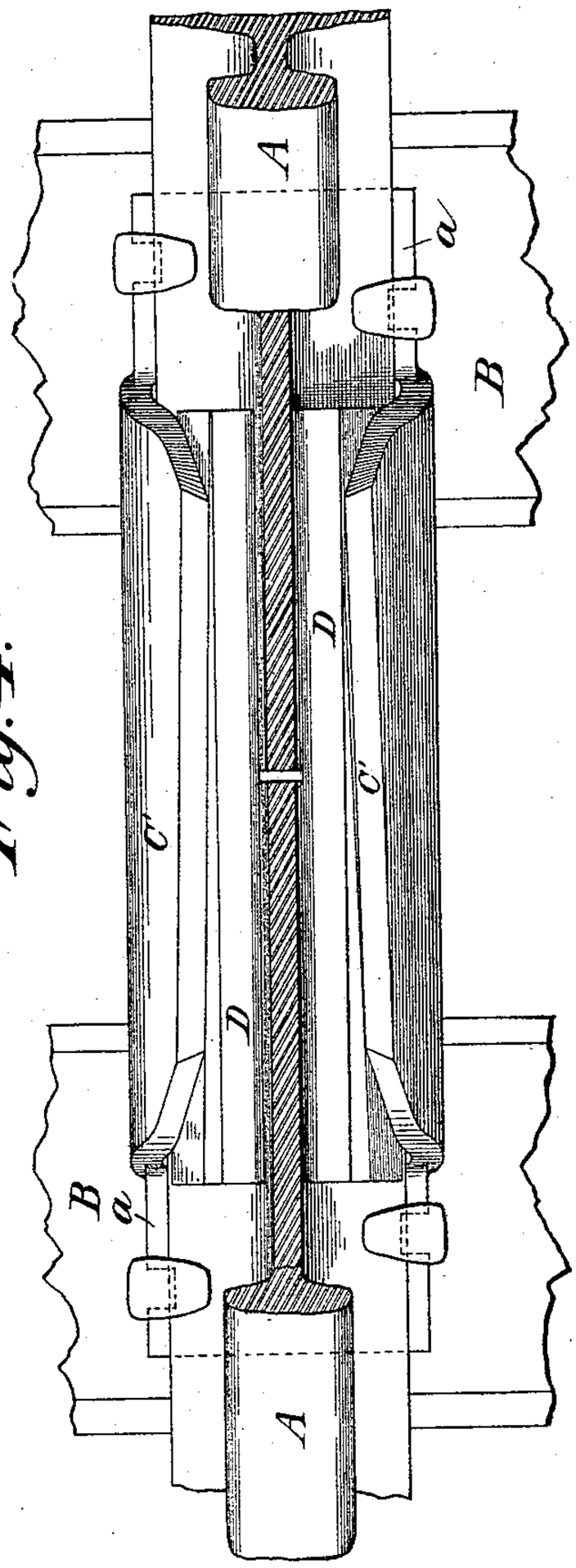
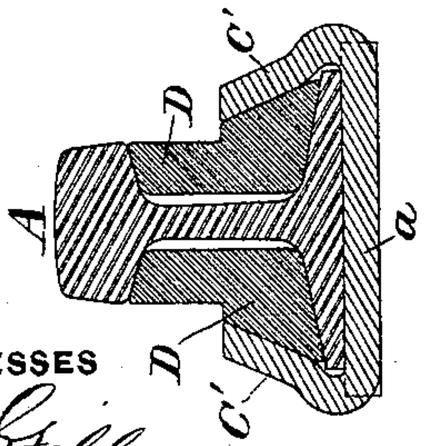


Fig. 2.



WITNESSES

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ELISHA G. PATTERSON, OF TITUSVILLE, PENNSYLVANIA.

SUPPORTER FOR RAILROAD-RAILS.

SPECIFICATION forming part of Letters Patent No. 472,071, dated April 5, 1892.

Application filed October 13, 1891. Serial No. 408,605. (No model.)

To all whom it may concern:

Be it known that I, ELISHA G. PATTERSON, of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Rail-Supporters for Railroad-Rails, of which the following is a full, clear, and exact description.

It is the object of my invention to support the adjacent ends of railroad-rails and where desirable the rails in other parts of railroad-track mechanism in correct surface and alignment without the use of bolts and the consequent perforation of the rails and of the supporting device, and to this end I have devised the supporter represented in the accompanying drawings, in which—

Figure 1 is a side view of a bridge-form supporter; Fig. 2, a cross-section of a double-plate supporter; Fig. 3, a cross-section of a single-plate supporter; Fig. 4, a plan view of a double-plate supporter. Fig. 5 is a plan view of a wedge-plate with its outer face formed longitudinally concave.

A represents the rails; B, the cross-ties; C, the supporter, and D the wedge-plate.

The supporter is preferably made in one piece of wrought (preferably of rolled) iron or steel, and consists of an even or longitudinally slightly convex floor, upon which the rail-base rests. The width of this floor inside of the side pieces C′ is equal to or a little more than the width of the rail-base, so as to receive it easily. At the edge of the rail-base the side of the supporter made in the form of a truss is turned upward and inward over the rail-base and is then, as it rises, also given a substantially uniform decrease in the distance between the inner face of the side of the supporter and the web of the rail, thus forming a tapering aperture. That the resistant elasticity of the supporter may be promoted and the weight of the metals be reduced, I also, and preferably, bend the metal forming the truss over the rail-base, as shown in Figs. 2, 3, and 4, to the line of the desired longitudinal taper and then turn it upward and inward, forming a tapering aperture, but of smaller area than the one above described. Into this aperture is driven the wedge-plate D, which is made to bear upon the rail-base under the rail-head and against the inner face of the side of the supporter.

The supporter may be adapted for use suspended between ties or upon one or more ties; but the truss-bridge form shown in Fig. 1, with each end resting on a tie as an abutment, I have found to be the most effective arrangement.

The supporter may be formed for wedge-plates upon both sides of the rail, as shown in Figs. 2 and 4, and so that the plates may be driven in one or opposing directions, or one plate and one side of the supporter may be made with all lines parallel with the rails; or, as shown in Fig. 3, it may be made with but one upright side, the other being bent over to form a confining-clamp *b*, which binds the rail-base on that side to the supporting-floor *a*, or the sides of the supporter may be made parallel with the rails and the wedge-plate made in one or more pieces. If the truss side be made without longitudinal inclination with the taper I have used on the wedge-plates, (from one in forty to one in sixty-four,) the resistance of the metal of the supporter as effectively binds the wedge-plate as when made also longitudinally inclined; but the latter method is a convenience in the manufacturing process and the strain is equalized in use.

I am not unaware that almost continuously since the T-rail came into use attempts have been made to support rails and rail-joints by a wedge between the rail and a chair having a floor on which the rail rests, with an upright side inclined horizontally and longitudinally toward the rail, and that various additional devices have been tried in the effort to maintain the wedges or keys in the position to which they were driven; but I am not aware that a device of this description has before been given the elementary characteristics of a bridge, as shown in Fig. 1, nor formed with the metal overhanging the rail-base, nor the device formed of material designed by its resisting or conforming elasticity to secure the wedge or key against displacement by shock or vibration.

In my device, as shown in Figs. 2, 3, and 4, when the wedge-plates are driven into the ap-

erture between the rail and the side of the supporter to a bearing upon the base and head of the rail and the side of the supporter the elasticity of the side of the wrought or preferably rolled iron or steel supporter resistingly yields to the further passage of the wedge-plate to a point where that elasticity is sufficient to bind and retain all the adjacent parts together.

In the manufacture of a supporter of this design from wrought or rolled iron or steel overheating the metal results in a perceptible convexity of the inner face of its side, believed to be due to the longer remaining heat at the center of the mass while cooling, although the machinery be intended to form a straight surface. In such instances, if the wedge-plate be formed slightly concave on its outer face, when it is driven to place the yield of the elastic side of the supporter permits the end of the wedge-plate to pass until the concave face of the wedge-plate and the convex side of the supporter are in juxtaposition and are thereby self-interlocked. It is practicable to make the inner face of the side of the supporter of such convex form, but it is not necessary, for if the inner face of the side of the supporter in manufacture develops in a straight line its elasticity substantially conforms it to the concavity of the wedge-plate and the parts are self-interlocking. Especially is this the fact when the maximum of the concavity of the wedge-plate is, as shown in Fig. 5, fixed at a point distant from its forward end substantially equal to its possible projection beyond the forward end of the side of the supporter, such maximum concavity being preferably equal to or slightly in excess of the taper given to the inner face of the side of the supporter for the same distance.

It will be noticed that in the construction of rail-supporters which I have described I secure the following important features:

First. By making the supporter with inwardly-inclined side or sides of truss form and supporting the whole structure at each end on a tie or other suitable support I secure the effect of a truss-bridge, the wedge-plate acting as a part of the truss and also as an equalizing-bar, distributing the shock received in the transfer of the load from rail end to rail end over the whole body of the supporter.

Second. The wedge-plate also fills the place of the usual "fishing" device for the support of the rails, and being free from perforations is of consequent greater strength in this last service than the usual forms of fish-bar support.

Third. I secure a frictional binding and securing together of all the adjacent parts, which is developed and maintained by the elasticity of the body of the supporter.

Fourth. I secure by the longitudinally-curved form of the outer face of a wedge-plate, in combination with the elastic and conforming quality of the body of the supporter, a self-interlocking spring action, additionally securing the wedge-plate against loosening or displacement.

Fifth. I secure by the overhanging trusses a great reduction of metal in supporter and wedge bars and concentrate its vertical strength.

If provision has not been otherwise made to check the tendency of the rails to "creep" or move longitudinally, the base of the rail may be bored or slotted for the insertion of spikes near each end of the supporter. The spikes passing through the rail-base and the floor of the supporter into the ties secure the rail in its position in the supporter, the spike behind the wider end of the wedge-plate securing it against forcible removal.

I claim as my invention—

1. The combination of a rail-supporter consisting of a supporting-floor, with its side or sides made in truss form and vertically or vertically and longitudinally inclining inward toward the rail and over its base and secured thereto by wedge-plates driven longitudinally to a bearing upon the base and under the head of the rail and against the inner face of the side of the supporter, and two abutments placed on the road-bed and so arranged that the ends of the supporter shall rest upon the abutments, substantially as and for the purposes described.

2. A rail-supporter consisting of a supporting-floor, with its side or sides curved or bent over the rail base and vertically or vertically and longitudinally inclined toward the rail and secured thereto by wedge-plates driven longitudinally to a bearing upon the base and under the head of the rail and against the inner face of the side of the supporter, substantially as and for the purposes described.

3. A rail-supporter consisting of a supporting-floor, with its side or sides vertically or vertically and longitudinally inclining inward over the base of the rail, with spring-pressure toward the medial line, induced by wedge-plates inserted between the side of the supporter and the rail or rails so as to receive and retain the lateral spring bearing of the supporter and communicate such spring-pressure to the base and head of the rail or rails, substantially as and for the purposes described.

4. A wedge-plate in one or more pieces bearing upon the base and under the head of the rail and with its outer face bearing against the inner face of the vertically or vertically and longitudinally inwardly inclined side of a rail-supporter, such outer face being formed longitudinally concave, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 3d day of October, A. D. 1891.

ELISHA G. PATTERSON.

Witnesses:
H. M. CORWIN,
W. B. CORWIN.