

No. 805,954.

PATENTED NOV. 28, 1905.

H. HERDEN, S. E. FITCH & J. H. BURGOYNE, JR.

RAIL.

APPLICATION FILED AUG. 15, 1905.

Fig. 1

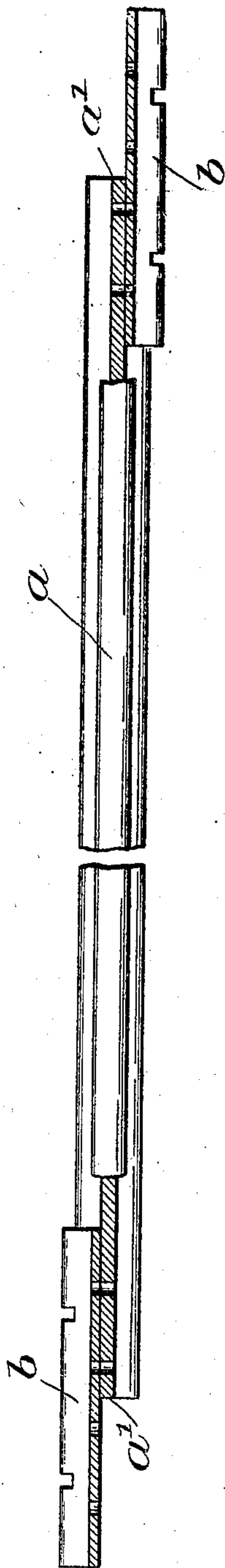


Fig. 2

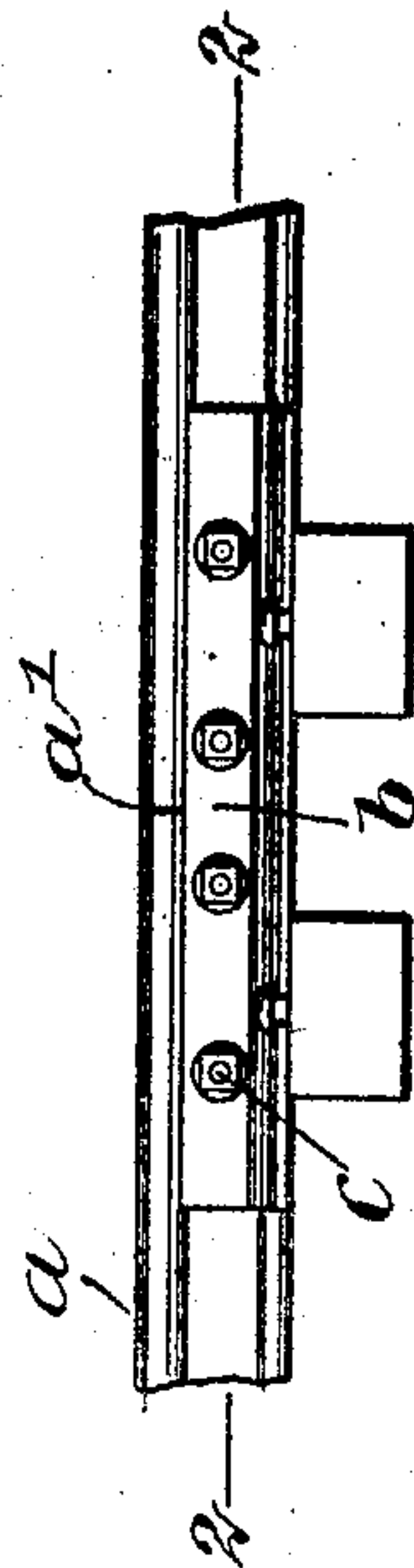


Fig. 3

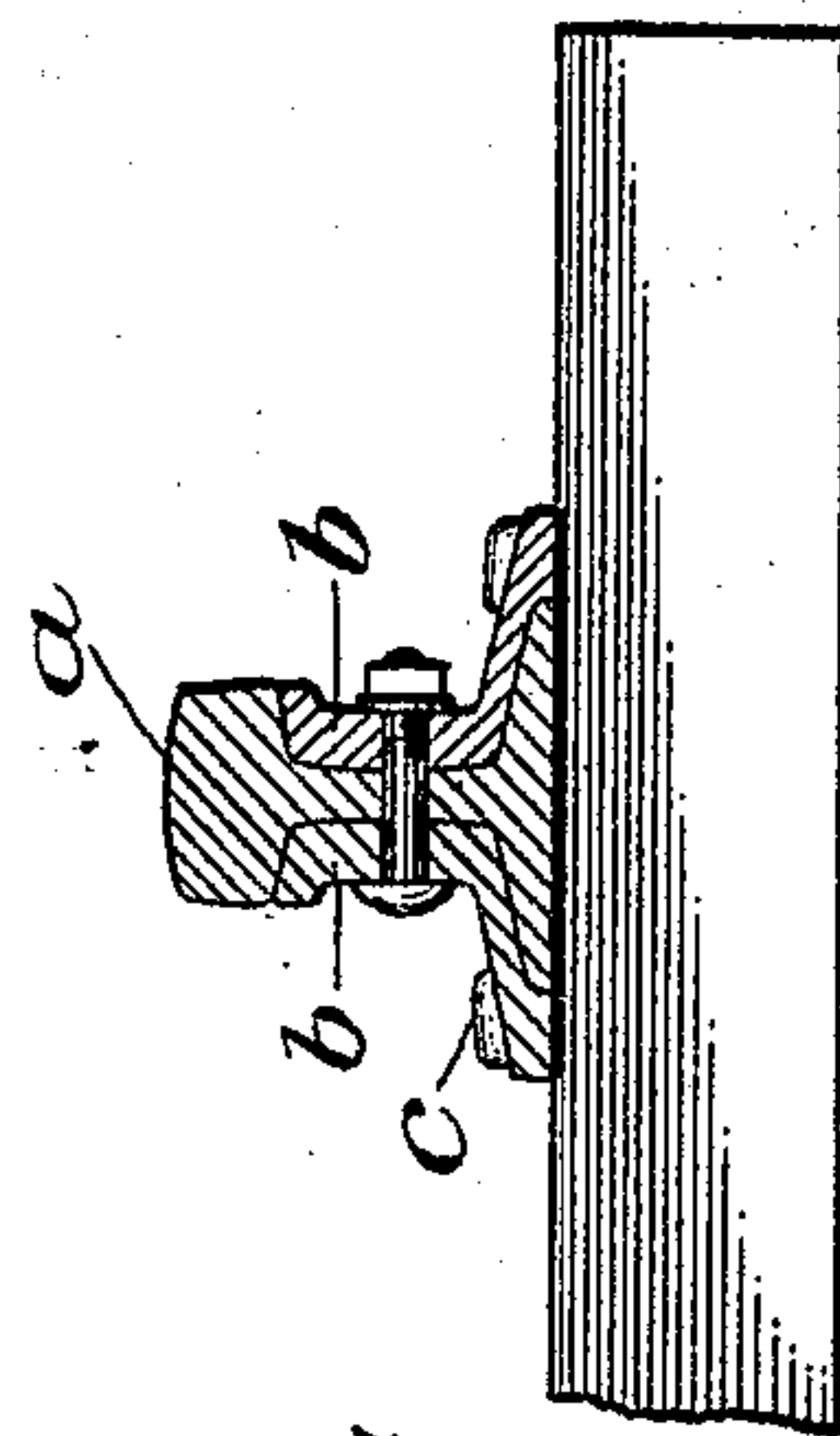
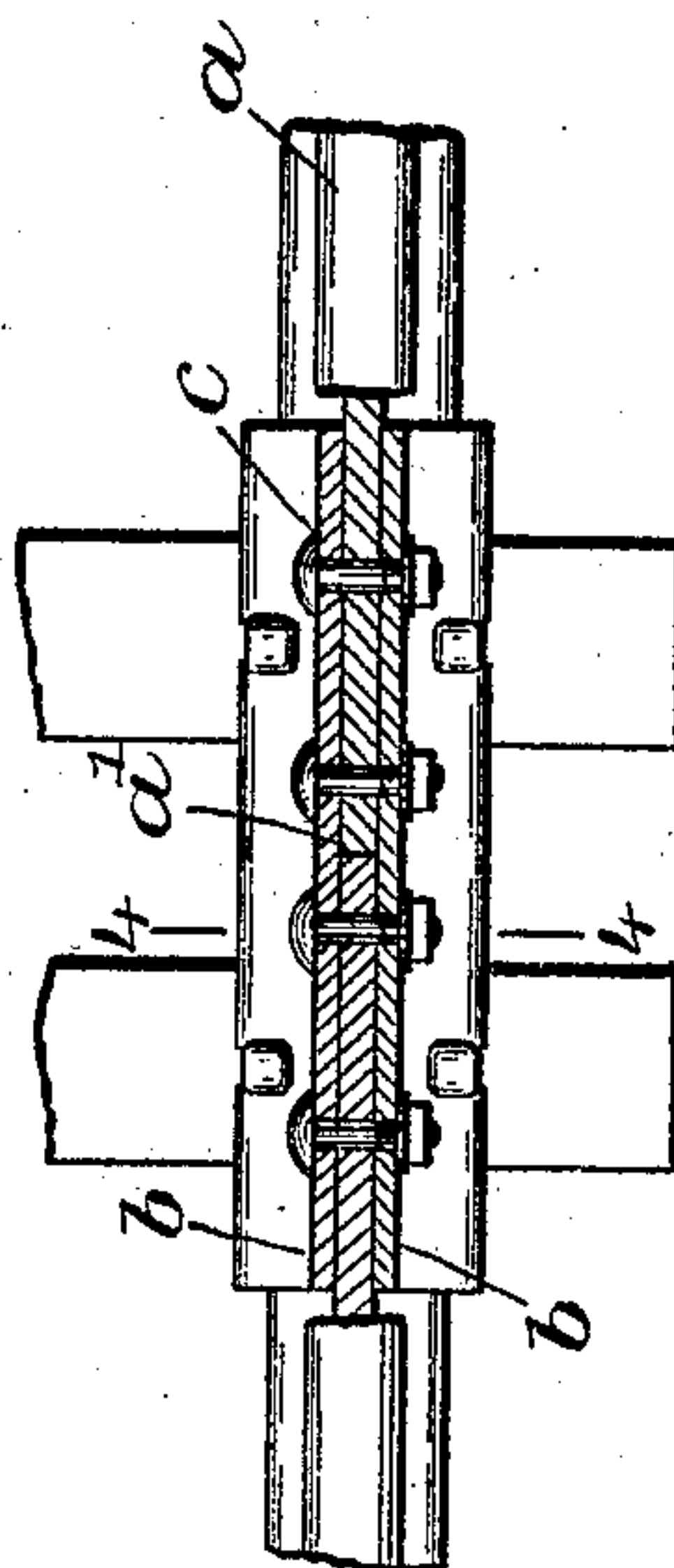


Fig. 4

WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## RAIL.

No. 805,954.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed August 15, 1905. Serial No. 274,283.

*To all whom it may concern:*

Be it known that we, HENRY HERDEN, a resident of Wellsboro, in the county of Tioga, and SQUIRE E. FITCH and JOHN H. BURGoyNE, Jr., residents of Galeton, in the county of Potter, State of Pennsylvania, citizens of the United States, have invented a new and Improved Rail, of which the following is a full, clear, and exact description.

Our invention relates to certain improvements in rails, especially those for use upon railway-tracks, and includes a method of constructing a railway-track with such rails.

The principal objects of our invention are to provide for more rapidly and conveniently laying rails and for more efficiently securing them in position upon the track and to each other.

The invention also comprises several other advantages, which will appear below.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan of a rail made in accordance with the principle of our invention and shown partly in section. Fig. 2 is a horizontal sectional view of a rail-joint made between two rails, such as that shown in Fig. 1.

Fig. 3 is a side elevation of the joint shown in Fig. 2, and Fig. 4 is a sectional view on the line 4 4 of Fig. 2.

We employ an ordinary rail *a*, and to each of its ends on opposite sides we secure a splice or angle-bar *b*. We prefer to secure this bar to the rail by welding; but it may be made integral therewith in any other way and may, in fact, be originally constructed as a part of the rail. It is desirable that it be substantially integral with the rail in order that no fastening means need be supplied for securing it to the rail itself. We have shown it as having a form on its inner surface substantially complementary to the form of the outer surface of the web and base and under surface of the head of the rail. It will therefore be secured to the rail by welding along these surfaces and, as stated above, will not need to be otherwise fastened. It forms practically a continuation of the rail and extends beyond the normal end *a'* of the rail a sufficient distance to provide for securing it to the web of the next rail. The bars mounted on the two ends of each rail are located

upon opposite sides thereof, so that the rails can be turned end for end and so that adjacent rails will fit each other. When the rails are manufactured in this manner, they are supplied without any loose pieces for securing them to each other, except bolts. They are put in place with the bars *b* of each rail overlapping the ends of the adjacent rails and secured together by bolts *c* passing through properly-located perforations in the rails and bars. The simplicity with which the railroad can be constructed when the rails are furnished in this form will be readily obvious, and there are many other advantages, some of which we will explain. When laid in the track, each rail may be considered as a beam having its ends at the points *a'* and not at the ends of the bars *b*. The rails overlap each other and support each other not only at their ends, but beyond them. The ends of the bars *b* cannot be depressed if the bolts in the joints become loose, as these bars are supported by the flange of the adjacent rail from the end thereof to the end of the bar. For this reason the so-called "hammering" near the adjoining ends of the rails caused by the wheels passing over them and dropping from one elevated end to a lower one or jumping from a lower one to a higher one is entirely avoided. Rails and bars formed as described can be laid with at least one-half less loose parts at the joints than is now the case. On account of the fewer loose parts to hold in position and the support furnished by the flanges of the rail the strains on the bolts are greatly reduced. The bars are not so liable to fracture when permanently attached, as the distance between the suspended and supported points is only that between the end of the rail and the end of the bar secured thereto. The rails and bars must necessarily maintain a constant position with respect to each other, thus avoiding the hammering, as mentioned above, and also the loosening of the bolts. Bars attached in this manner admit of being made shorter, thereby saving material in the splice-bars and assisting in the so-called "wave motion" of the rail under loads. Track-laying with rails having bars permanently attached can be done much more quickly and the joints made much more perfectly and economically than is the case where loose bars are employed. Rails made in this way can be readily exchanged or moved from the track in



the most convenient manner, and they can be turned end for end, so as to use first one side for the gage side and then the other. The curvature of rails formed in this manner can be maintained more perfectly, as leverage of the splice-bars will insure a better alinement if the bolts fail to hold the parts firmly together. The compactness of a joint made in this manner insures a greater safety in the operation and there are fewer parts subject to derangement. The life of the rails is necessarily greatly prolonged.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A rail having a vertical bar of uniform height on the end integrally welded to the web thereof, and adapted to overlap and be secured to the web of an adjacent rail.

2. A rail having a vertical bar of uniform height on the end integrally welded to the web thereof, and adapted to overlap and be secured to the web of an adjacent rail, the inside surface of said bar being flush with the outside surface of the web of the rail upon which it is located.

3. A rail having two bars integrally welded thereto along the web portion thereof, said

bars being of uniform height and placed in vertical position on opposite ends and opposite sides of the rail and projecting beyond the ends in opposite directions, said bars being of such shape as to fit between the base and head of a normal rail placed adjacent to the one upon which they are mounted, and their inside surfaces being flush with the outside surface of the rail.

4. A railway composed of rails each having a straight uniform bar integrally mounted on its end before being laid, and extending from the web of the rail longitudinally, said bar fitting between the horizontal projections of an adjacent rail and constituting a portion of a beam for assisting in supporting any load applied to the rail, the web of each rail being uniform from end to end.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY HERDEN.  
SQUIRE E. FITCH.  
JOHN H. BURGOYNE, JR.

Witnesses:

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