

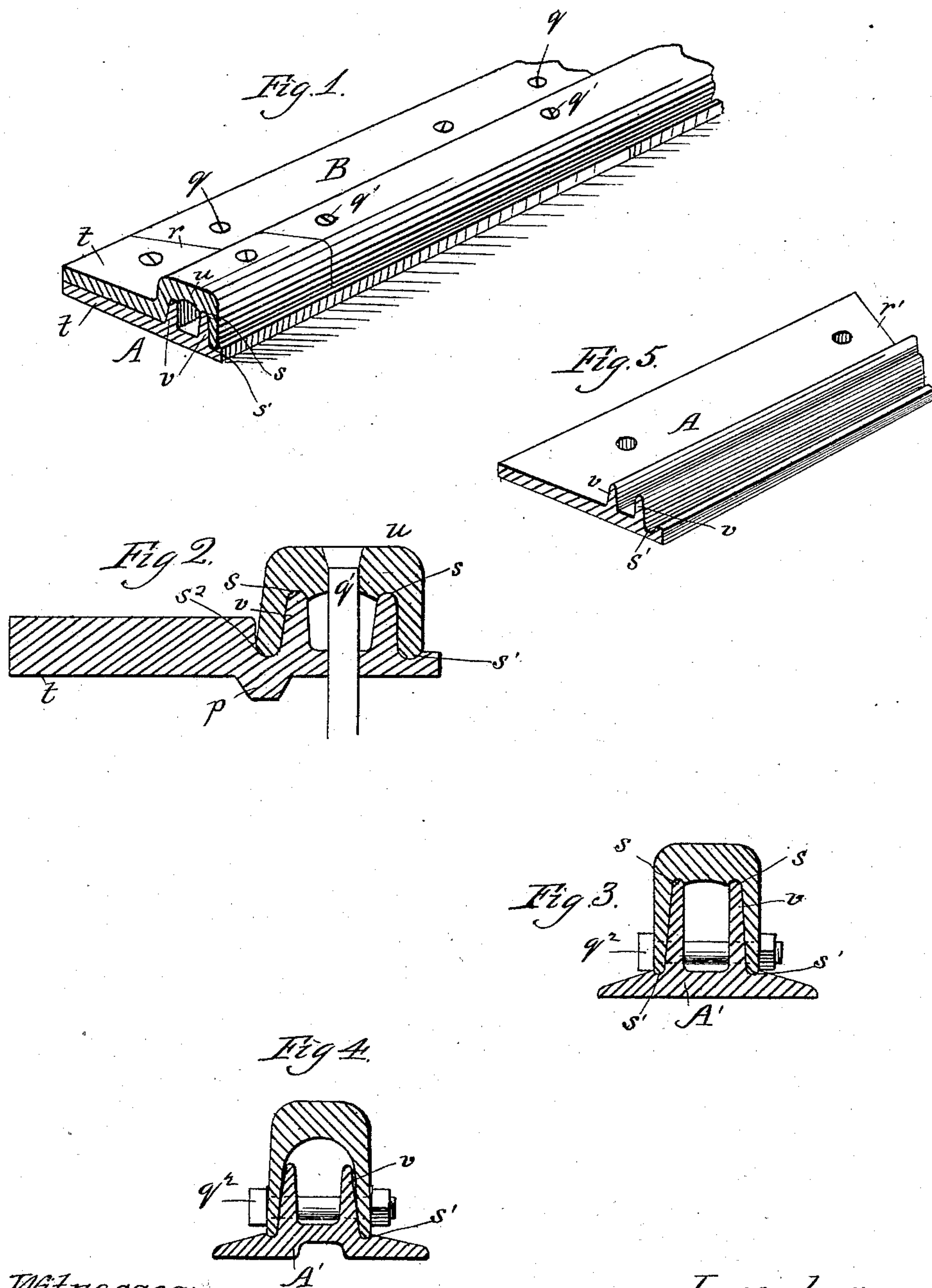
(No Model.)

A. McKENNEY.

RAILWAY RAIL.

No. 277,766.

Patented May 15, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALMERON MCKENNEY, OF CHICAGO, ILLINOIS.

RAILWAY-RAIL.

SPECIFICATION forming part of Letters Patent No. 277,766, dated May 15, 1883.

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To all whom it may concern:

Be it known that I, ALMERON MCKENNEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Rails; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view of a street-railway rail constructed in accordance with my invention; Fig. 2, a transverse section of such a rail, showing a modification; Figs. 3 and 4, transverse sections of T-rails for general railways provided with my improvement in two forms, and Fig. 5 a perspective view of the under part of the rail shown in Fig. 1.

My invention relates to two-part continuous rails, or such as are formed of an upper and a lower part arranged to overlap each other and form a break-joint.

The objects which I aim to accomplish by means of my present invention are essentially those sought in my former invention in this same direction, for which Letters Patent of the United States, No. 116,975, were granted to me July 11, 1871, and reissued March 4, 1873. My said former invention comprised two arches, an upper and a lower one, the upper one fitting closely over the lower, and sitting within grooves formed in the T-flanges thereof, the parts being secured together by bolts. My present object is not necessarily to make a better rail than the aforesaid double-arch rail would be if perfectly rolled and put together, but rather to simplify, cheapen, and facilitate the manufacture and to adapt it to purposes not contemplated in my said former invention, for the arched base is not only a difficult piece to roll, but it is also a difficult matter to keep it straight and to get all the bearing-surfaces to fit evenly together. A further object of my present invention is to cause the wheels, when passing any joint, always to bear upon both the adjacent sections at the same time.

To the above ends, my invention consists, first, in forming the lower part of the rail with flanges projecting upward, (instead of with the arch described in my said former Letters Patent,) and with a groove along the outside of

the base of either or both of the said flanges, and the upper part or head in the form of an arch adapted to fit over the flanges and enter the groove or grooves in the base, the parts being secured together by means of bolts; secondly, in fitting together the sections of either or both parts of the above rail by means of diagonal joints; and, furthermore, in the specific construction which I prefer for street-railways, all as hereinafter more fully set forth.

In the drawings, A B represent a street-railway rail, the part A having two flanges, *v*, projecting upward from its upper surface, and the part B lying upon the part A, and being arched, as shown at *u*, to fit over the flanges *v*. Each part is provided with an inward lateral extension, *t*, the two being adapted to coincide with each other, and forming the tram for wagons, usual in street-car rails. The arch *u* is provided with longitudinal grooves *s* along its interior surface to receive the tops of the flanges *v*, which should be curved at their tops, and the part A with a similar groove, *s'*, just beyond the outer flange, to receive the outer lower edge of the arch. The parts are secured together and to the stringer by means of bolts *q*, passing through the lateral extensions *t*, and also by bolts or screws *q'*, passing vertically through the arch. If preferred, however, the latter may pass laterally through the arch and flanges, as in Figs. 3 and 4. To make the rail continuous I have the upper and lower parts overlap each other in half-lengths, so that one part supports the other at the points where the ends meet, there being at every half-length a half-joint, alternately above and below. Instead, however, of having the parts cut straight across at the ends, forming a transverse joint, I much prefer to cut them beveled, whereby a diagonal joint is formed, as shown at *r* in Fig. 1 and at *r'* in Fig. 5. By this means the transition of the vehicle or car wheel from one section to another is rendered gradual instead of abrupt, thus not only affording more than ordinary smoothness to the track, but also, as a natural incident to such smoothness, enhancing its durability. This diagonal joint is more important in the upper than in the lower part of the rail; but if made in both I prefer to have them formed in contrary directions with respect to each other.

The base above described—viz., with flanges instead of with an arch—is an easy piece to roll, being easily kept straight, and requiring a smaller number of passes through the rolls than the arched base requires, since it may be completed without turning over.

The modification shown in Fig. 2 is in all respects like the device already described, except that the inward lateral extension, t , is omitted from the arch and made of double thickness upon the under part or base, with a groove, s^2 , to receive the inner lower edge of the arch, as shown. To strengthen the weak point necessarily produced by the groove s^2 , I provide the base along its lower surface, immediately beneath the said groove, with a longitudinal wedge-shaped flange, p , to receive which the stringer must be correspondingly recessed.

Figs. 3 and 4 show the adaptation of my invention to rails for general railways. In each of these a T-base, A' , is provided with flanges v , in all respects like those above described, and similarly surmounted by an arch, u , sitting in grooves and secured together by lateral bolts q^2 . The only material difference between the devices represented in these two figures is that in the one the flanges v sit within grooves formed along the inner surface of the arch, whereas in the other they do not do so, and fall short of the top of the arch.

It is highly essential to the successful operation of my rail that the sides of the upper part be made slightly spreading, as shown, in order to form a brace against the lateral thrust of the train.

By the foregoing construction two-part tubular rails are formed possessing every possible requirement—viz., practicability in the matter of manufacturing, together with symmetry, lightness, strength, and durability; and by no other construction than the one comprehended in all the figures shown—of an upper part arched over flanges projecting upward from the base and sitting within grooves in the said base—could all these results be attained.

I am aware that heretofore a rail has been patented in which flanges project upward from the base; but in that rail the supports of the head, instead of passing down outside those flanges, as in mine, pass down inside the same into grooves in the base along the inner edges of the base-flanges, said flanges in turn fitting into grooves formed in the head, which is extended outward laterally for this purpose. The

defects of this construction are, among others, that the very points which should be strongest and least subject to wear are necessarily weak. This is notably the case where the head projects laterally beyond the base-flanges, and is grooved to receive them, rendering weak and thin the part which receives the immediate impact of the wheels, and which is most subject to flange-wear. Moreover, the head stands upon a base narrower than itself, producing a tendency to weakness and instability. For the above reasons, in order to render this rail sufficiently strong and secure to be at all practicable, the utmost nicety in the matter of fitting is required, thus making it difficult and expensive to roll. All these difficulties are overcome by my construction above described.

What I claim as new, and desire to secure by Letters Patent, is—

1. A railway-rail consisting of two parts, one lying upon the other, and secured together by bolts or screws, the under part being provided with flanges projecting upward, and with a groove along the base of one or both of said flanges, outside the same, and the upper part being arched over the said flanges and fitting into said groove or grooves, substantially as described.

2. A railway-rail consisting of two parts secured together one above the other by means of bolts or screws, and each formed in sections, the sections of the upper part overlapping those of the lower to form a break-joint, and the under part being provided with flanges projecting upward, and with a groove along the base of one or both of said flanges, outside the same, and the upper part being arched over the said flanges and fitting into said groove or grooves, and the ends of the sections of either or both the said parts being beveled, whereby diagonal joints are formed, substantially as described.

3. In a street-railway rail, the combination of the part A, having the flanges v , projecting upward, lateral extension t , and groove s' , and the part B, having the lateral extension t and arch u , with its outer edge sitting in the groove s' , said parts being secured together by means of bolts or screws, substantially as described.

ALMERON McKENNEY.

In presence of—

P. C. DYRENFORTH,
WM. H. DYRENFORTH.