

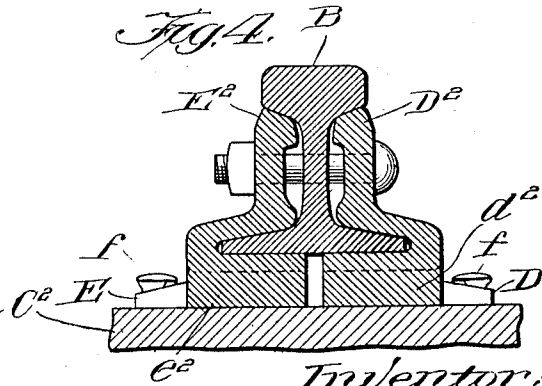
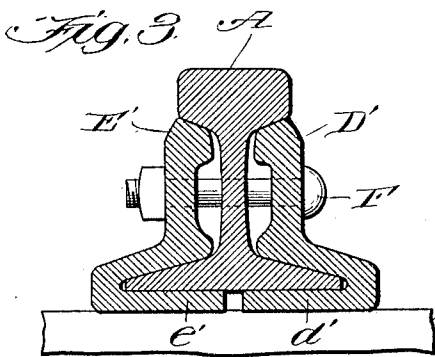
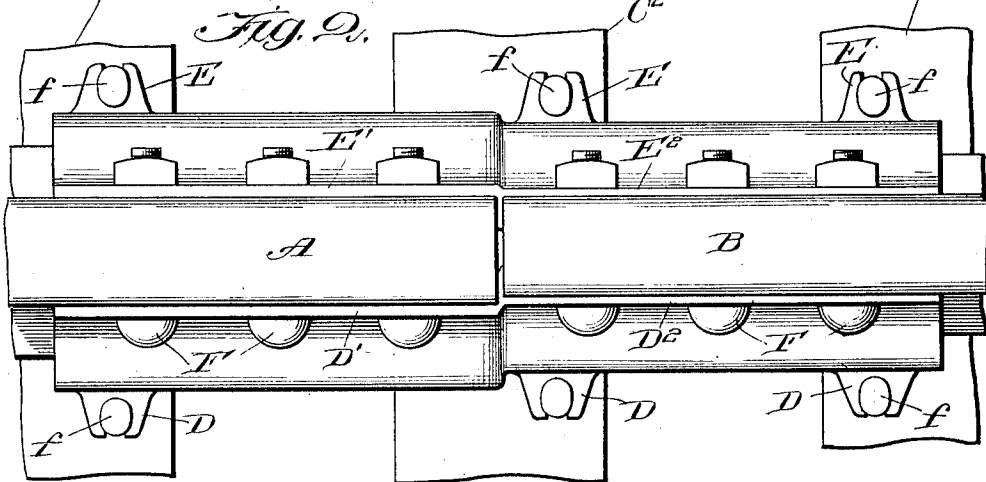
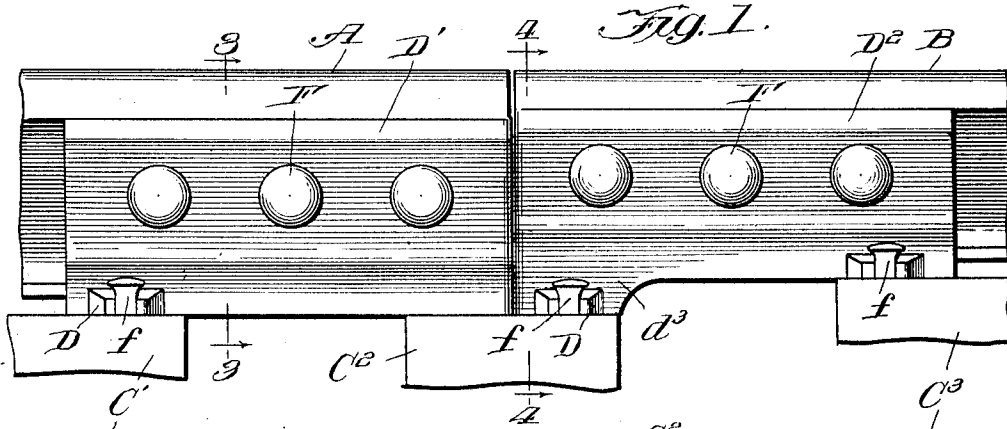
J. H. ALLEN.

RAIL JOINT.

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1,020,941.

Patented Mar. 19, 1912.



Witnesses:
Harry S. Gaither
Ruby V. Nash

Inventor:
John H. Allen
 by *Lambert Williamson*
Attys

UNITED STATES PATENT OFFICE.

JOHN H. ALLEN, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO QUINCY, MANCHESTER, SARGENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

RAIL-JOINT.

1,020,941.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed April 1, 1907. Serial No. 365,825.

To all whom it may concern:

Be it known that I, JOHN H. ALLEN, a citizen of the United States, residing at East Orange, county of Essex, State of New Jersey, have invented a certain new and useful Improvement in Rail-Joints, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to rail joints, and more particularly to a joint for connecting rails of different heights.

In laying tracks it sometimes occurs that the adjoining rails are of different cross-section and consequently it is impossible to use the ordinary joint plates. Such an occurrence is incident to the replacing of portions of tracks by rails larger in cross-section than the old rails forming the portions of the tracks at each side of the renewed portion. In such event it is desirable that joint plates should be employed which will securely unite, and at the same time so support the adjoining ends of the rails, that their tread surfaces will accurately aline.

The primary object of my invention is to provide a rail joint for connecting the ends of rails of different cross-sections which will so support the rails that their tread surfaces will horizontally aline and that the inner surfaces of their heads will vertically aline, and which will also resist the downward strain at the joint through the medium of an underlying tie to which the joint is secured.

A further object of my invention is to provide a splice bar for uniting the ends of adjoining rails of different cross-sections, which will be simple in construction, inexpensive in manufacture, and efficient in use.

The embodiment of my invention herein disclosed may be generally described as consisting of a pair of splice bars, secured to the opposite sides of the rails, each bar comprising an upper chord or fish-plate stepped up intermediate of its ends so as to fit between the heads and bases of the united rails, an outwardly and downwardly projecting flange stepped up to conform to the shape of the bases of the rails, and a flange extending inwardly from the lower edge of the outwardly and downwardly projecting flange stepped up intermediate of its ends to sup-

port the bases of the rails at different levels so that their tread surfaces will aline horizontally, the inner end of the stepped up portion of the inwardly projecting flange being provided with a reinforcement to rest upon an underlying tie.

My invention will be more fully described hereinafter with reference to the accompanying drawing in which the same is illustrated as embodied in a convenient and practical form, and in which—

Figure 1 is a side elevation; Fig. 2 a plan; Fig. 3 a cross-section on line 3—3 Fig. 1; and Fig. 4 a cross-section on line 4—4 Fig. 1.

The same reference characters are used to designate the same parts in the several figures of the drawing.

Reference characters A and B designate the ends of adjoining rails which are connected to form a joint, the rail A being larger in cross-section than the rail B.

Reference characters D' and D² indicate the portions of a splice bar, the latter portion being stepped upwardly with relation to the first portion so as to fit between the head and base of the smaller rail B, the height of the portion D' being such as to fit between the head and base of the large rail A.

Reference characters d' and d² designate the portions of a flange extending inwardly from the lower edge of the outwardly and downwardly projecting flange of the splice bar which over-lies the bases of the rails. The portion d² of the inwardly projecting flange is stepped up with relation to the portion d' so that the base of the smaller rail will be supported at a higher level than the base of the larger rail, thereby bringing the treads of the rails into horizontal alinement. The vertical web of the splice bar is stepped inwardly intermediate of the portions D' and D² so that the side surfaces of the heads of the rails will be brought into vertical alinement at the inside of the track, as shown in Fig. 2.

Reference characters E' and E² designate the portions of a splice bar secured to the opposite side of the rails from the splice bar above described. The vertical web of the portion E² is stepped upwardly with respect to the vertical web of the portion E' so that the splice bar will fit between the heads and bases of the rails. The portions E' and E²

of the second splice bar are provided with flanges comprising portions e' and e^2 extending inwardly from the lower edge of the outwardly and downwardly projecting flange which overlies the bases of the rails at the side thereof to which said splice bar is secured. The portions e' and e^2 of the inwardly projecting flange are stepped in the same manner as are the flanges of the corresponding portions d' and d^2 of the inwardly projecting flange on the first splice bar.

The splice bars are secured to the opposite sides of the rails in the usual manner by means of bolts F passing through registering holes in the webs of the splice bars and interposed webs of the rails.

C' and C^2 and C^3 designate ties underlying the splice bars and to which the splice bars are secured by means of spikes f extending through openings in lugs D and E projecting outwardly from the lower edges of the respective splice bars.

The stepped up portions of the inwardly extending flanges on the splice bars are provided with reinforcements extending downwardly and alining horizontally with the undersurface of the lower portions of such flanges so as to form a bearing surface to rest upon the under-lying intermediate tie C^2 .

Reference character d^3 in Fig. 1 designates the reinforcement of the splice bar D' , D^2 .

From the foregoing description it will be observed that by means of my improved step joint the adjoining ends of rails of different cross-sections are securely united and are so located relatively that their tread surfaces aline horizontally and that the inner surfaces of the heads of the rails aline vertically. It will also be observed that my improved rail joint resists the downward strain at the ends of the adjoining rails, inasmuch as the splice bars are secured immediately below the ends of the rails to an underlying tie.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents, as circumstances may suggest or render expedient without departing from the spirit of my invention.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a rail step-joint, the combination with the end portions of adjoining rails of different heights, of a pair of splice bars over-lapping and secured to the opposite sides of the rails, each bar comprising a vertical web stepped up intermediate of its ends to fit between the heads and bases of the rails, an outwardly and downwardly projecting flange stepped up intermediate of its ends to engage the bases of the rails and

a flange extending inwardly from the lower edge of said outwardly and downwardly projecting flange stepped up intermediate of its ends to support the bases of the rails at different levels to bring their treads into alinement, and laterally projecting feet near the ends and at the center of each of said splice bars.

2. In a rail step joint, the combination with the adjacent end portions of rails of different cross-sections, of a pair of splice bars over-lapping and secured to the opposite sides of the rails, each bar comprising a vertical web stepped up intermediate of its ends to fit between the heads and the bases of the rails, an outwardly and downwardly projecting flange stepped up intermediate of its ends to engage the bases of the rails, the one of said flanges on the outer bar being also stepped inwardly to bring the inner sides of the rail treads into alinement, and a flange extending inwardly from the lower edge of said downwardly and outwardly projecting flange stepped up intermediate of its ends to support the bases of the rails at different levels to bring their treads into horizontal alinement, and laterally projecting feet near the ends and at the center of each of said splice bars.

3. In a rail step joint, the combination with the end portions of adjoining rails of different heights, and the underlying supporting ties, of a pair of splice bars over-lapping the opposite sides of the rails and over-lying three ties, each bar comprising a vertical web stepped up intermediate of its ends to fit between the heads and bases of the rails, an outwardly and downwardly projecting flange stepped up intermediate of its ends to engage the bases of the rails and a flange extending inwardly from the lower edge of said outwardly and downwardly projecting flange stepped up intermediate of its ends and above the tie immediately below the ends of the rails to support the bases of the rails at different levels to horizontally aline their treads, the stepped up portion of said inwardly extending flange being formed with a reinforcement beneath the end thereof alining with the under-surface of the adjoining lower portion of said flange to form a seat resting upon the intermediate tie.

4. In a rail step joint, the combination with the end portions of rails of different cross-sections and the underlying supporting ties, of a pair of splice bars over-lapping the opposite sides of the rails and over-lying three ties, each bar comprising a vertical web stepped up intermediate of its ends to fit between the heads and bases of the rails, an outwardly and downwardly projecting flange stepped up intermediate of its ends to engage the bases of the rails, the one of said flanges on the outer bar being also

stepped inwardly to bring the inner sides of
the rail heads into vertical alinement and a
flange extending inwardly from the lower
edges of said outwardly and downwardly
5 projecting flange stepped up intermediate of
its ends and above the intermediate tie to
support the bases of the rails at different
levels to horizontally aline their treads, the
stepped up portion of said inwardly extend-
10 ing flange being formed with a reinforce-

ment beneath its inner end alining with the
under-surface of the adjacent portion of
said flange to form a seat resting upon the
intermediate tie.

In testimony whereof, I sign this specifi- 15
cation in the presence of two witnesses.

JOHN H. ALLEN.

Witnesses:

GEO. L. WILKINSON,
HARRY S. GAITHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."