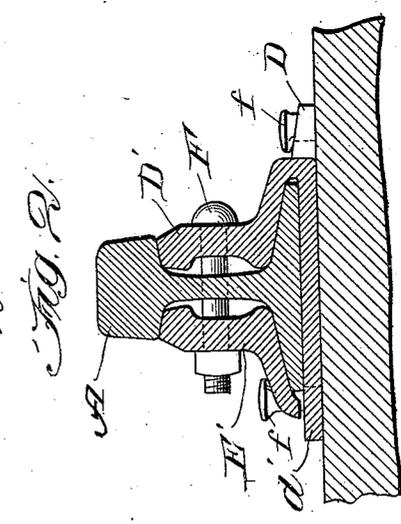
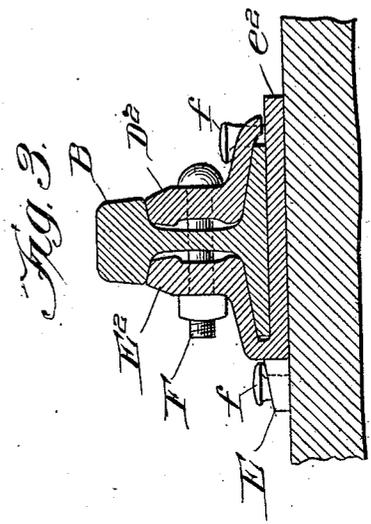
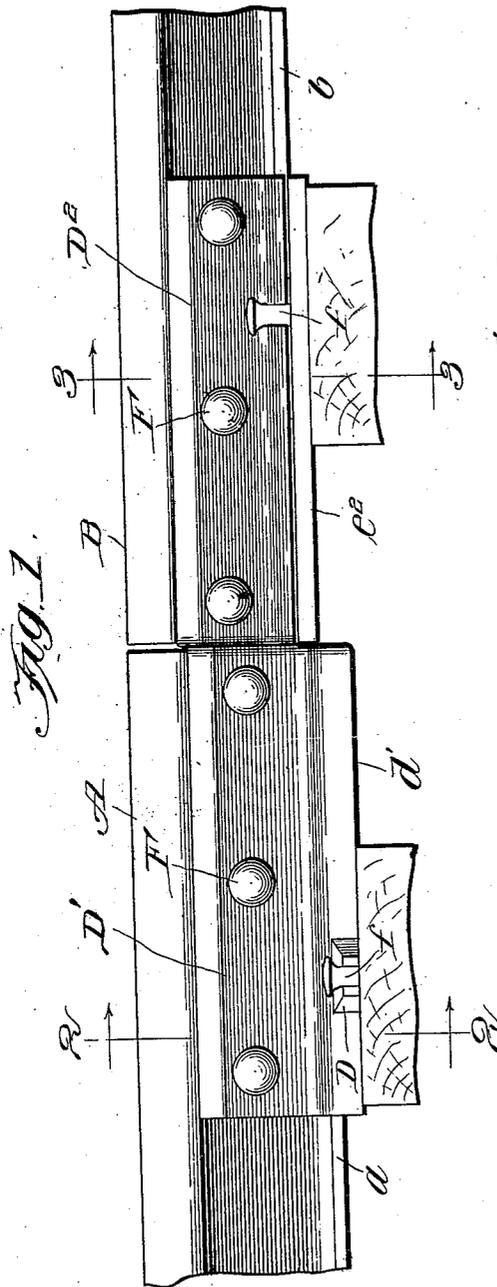


988,238.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.



Witnesses:  
 Harry S. Gaither  
 Ruby V. Nash

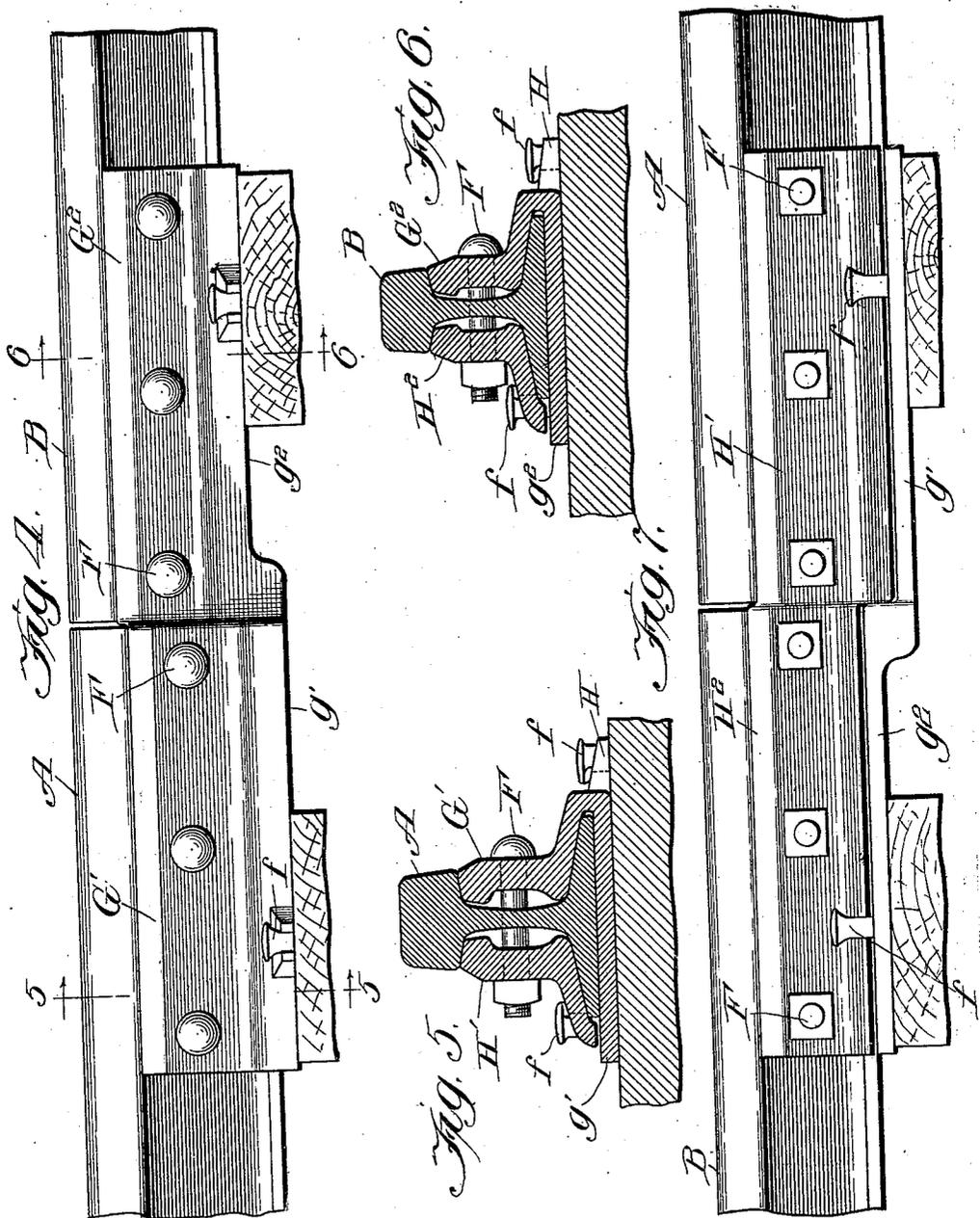
Inventor:  
 John H. Allen  
 by Lawrence Williamson  
 Attys

J. H. ALLEN.  
 COMPROMISE RAIL JOINT.  
 APPLICATION FILED APR. 1, 1907.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 2.

988,238.



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John H. Allen  
 by Chamberlain Mickelson  
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# UNITED STATES PATENT OFFICE.

JOHN H. ALLEN, OF EAST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO Q. & C. COMPANY, OF NEW YORK, N. Y., A CORPORATION OF MAINE.

## COMPROMISE RAIL-JOINT.

988,238.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed April 1, 1907. Serial No. 365,826.

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 Compromise 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 align.

The primary object of my invention is to provide a rail joint for connecting the ends of rails of different heights which will support the base of the smaller rail at a higher level than the base of the larger rail so that the tread surfaces will be in the same horizontal plane, and which will also resist the downward strain at the joint incident to the passage of trains.

A further object of my invention is to provide a rail joint plate for uniting the ends of adjoining rails of different heights, which will be simple in construction, inexpensive in manufacture, and will possess great structural strength.

The two embodiments of my invention herein disclosed may be generally described as consisting of a pair of splice bars, each comprising a vertical flange stepped up intermediate of its ends so as to fit snugly between the heads and bases of the united rails of different cross-sections, and an outwardly and downwardly projecting flange stepped up intermediate of its ends to closely engage the bases of the rails, and a flange on

one of the splice bars extending inwardly from the lower edge of the outwardly and downwardly projecting flange beneath the rail base and terminating beneath the lower edge of the outwardly and downwardly projecting flange on the opposite splice bar.

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

Figure 1 is a side elevation; Fig. 2 a cross-section on line 2—2 Fig. 1; Fig. 3 a cross-section on line 3—3 Fig. 1; Fig. 4 a side elevation of a modified form of my invention; Fig. 5 a cross-section on line 5—5 Fig. 4; Fig. 6 a cross-section on line 6—6 Fig. 4; and Fig. 7 an elevational view of the opposite side of the joint from that shown in Fig. 4.

Similar reference characters are used to designate similar parts in the several figures of the drawings.

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

Referring more particularly to Figs. 1, 2, and 3, reference characters D' and E' designate the portions of splice bars which are secured on the opposite sides of the rail A, while reference characters D<sup>2</sup> and E<sup>2</sup> indicate the portions of the splice bars which are secured on the opposite sides of the smaller rail B. The portions D<sup>2</sup> and E<sup>2</sup> of the splice bars are stepped upwardly with respect to the portions D' and E' so that the vertical flanges of the splice bars are of different heights to conform to the different cross-sections of the united rails.

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

Each of the splice bars is provided with an outwardly and downwardly projecting flange adapted to closely engage the bases of the rails, such flanges being stepped up intermediate of their ends to conform to the different planes of the rail bases.

The portion D' of one splice bar is provided with an inwardly extending flange d'

extending from the lower edge of the outwardly and downwardly projecting flange thereof beneath the base of the rail A and terminating beneath the lower edge of the outwardly and downwardly projecting flange which forms part of the portion E' of the opposite splice bar. A similar inwardly extending flange e<sup>2</sup>, is provided at the lower edge of the outwardly and downwardly projecting flange on the portion E<sup>2</sup> of the opposite splice bar, such inwardly extending flange underlying the base of the rail B and also extending beneath the lower edge of the outwardly and downwardly projecting flange on the portion D<sup>2</sup> of the first splice bar. The inwardly extending flanges d' and e<sup>2</sup> are located in different horizontal planes so as to support the bases of the rails that their tread surfaces will horizontally aline.

Slotted lugs D and E project laterally from the bases of the portions D' and E<sup>2</sup> respectively of the splice bars. The usual spikes f are driven through the slots in such lugs into the ties. Other spikes f are driven through slots in the outwardly and downwardly projecting flanges on the portions E' and D<sup>2</sup> of the splice bars, and through underlying holes in the base flanges d' and e<sup>2</sup> respectively.

In Figs. 4 to 7 inclusive I have illustrated a modified form of my invention in which one of the splice bars is provided with an inwardly projecting flange along the entire length of the lower edge of the outwardly and downwardly projecting flange thereof, while the opposite splice bar is provided with no inwardly extending flange.

In Figs. 4 to 7 inclusive reference letters A and B indicate the end portions of adjoining rails of different cross-sections. Reference characters G' and G<sup>2</sup> designate the portions of a splice bar over-lapping and secured to the rails at one side thereof, while reference characters H' and H<sup>2</sup> indicate the portions of a splice bar over-lapping and secured to the opposite side of the rails. The usual bolts F extend through registering holes in the vertical webs of the splice bars and through holes in the interposed rail webs. The portions G<sup>2</sup> and H<sup>2</sup> are stepped upwardly with respect to the portions G' and H' of the splice bars in order that the vertical webs of the splice bars may conform to and fit between the heads and bases of the rails. g' and g<sup>2</sup> designate the portions of a flange extending inwardly from the splice bar G', G<sup>2</sup>; the portion g<sup>2</sup> of such flange being stepped upwardly with respect to the portion g' so as to occupy different horizontal planes and thereby support the rail bases at levels to horizontally aline their treads. The inwardly projecting flange underlies the bases of the rails and also the lower edge of the outwardly and downwardly project-

ing flange of the splice bar H' and H<sup>2</sup>. The usual spikes f extend through slots in the outwardly and downwardly extending flange of the splice bar H' and H<sup>2</sup> and through registering holes in the underlying portions of the flange g' and g<sup>2</sup>. Other spikes f extend through slots in lugs H projecting laterally from the splice bar G' and G<sup>2</sup>.

From the foregoing description it will be observed that I have invented an improved rail joint for securely uniting the ends of rails of different cross-sections comprising splice bars which may be conveniently made and which will possess the structural strength requisite to withstand the strain to which rail joints are subjected by reason of the passing of trains thereover.

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 adjacent rails of different heights, of a splice bar over-lapping the rails on one side thereof, and 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 beneath the base of a rail to the opposite side thereof, a second splice bar over-lapping the rails on the opposite side thereof, comprising a vertical web stepped up intermediate of its ends to fit between the heads and bases of the rails, and with an outwardly and downwardly projecting flange over-lying at its lower edge said inwardly extending flange on the first splice bar, said inwardly-extending flange being of different heights at opposite ends so as to engage with the bases of both rail ends.

2. In a rail step joint, the combination with the end portions of adjacent rails of different heights, of a splice bar over-lapping the rails on one side thereof, and 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 beneath the base of a rail to the opposite side thereof, a second splice bar over-lapping the rails on the opposite side thereof, 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 over-lying at its lower edge said inwardly extending flange on the first splice bar, and spikes extending through holes in said inwardly extending flange and engaging the over-lying flange on the opposite splice bar, said inwardly-extending flange

being of different heights at opposite ends so as to engage with the bases of both rail ends.

3. 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 the rails on opposite sides thereof, each comprising a vertical web stepped up intermediate of its ends to fit between the heads and bases of the rails, and an outwardly and downwardly projecting flange stepped up intermediate of its ends to engage the rail bases, a flange on one of said splice bars extending inwardly beneath the base of one rail and beneath the edge of the

outwardly and downwardly extending flange on the opposite splice bar, and a flange on the other of said splice bars extending inwardly beneath the base of the other rail and beneath the edge of the outwardly and downwardly projecting flange on the first splice bar, said inwardly extending flanges being in different planes to support the treads of the rails in horizontal alinement.

In testimony whereof, I sign this specification in the presence of two witnesses.

JOHN H. ALLEN.

Witnesses:

THOS. P. HEATH,  
HARRY S. GAITHER.

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

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