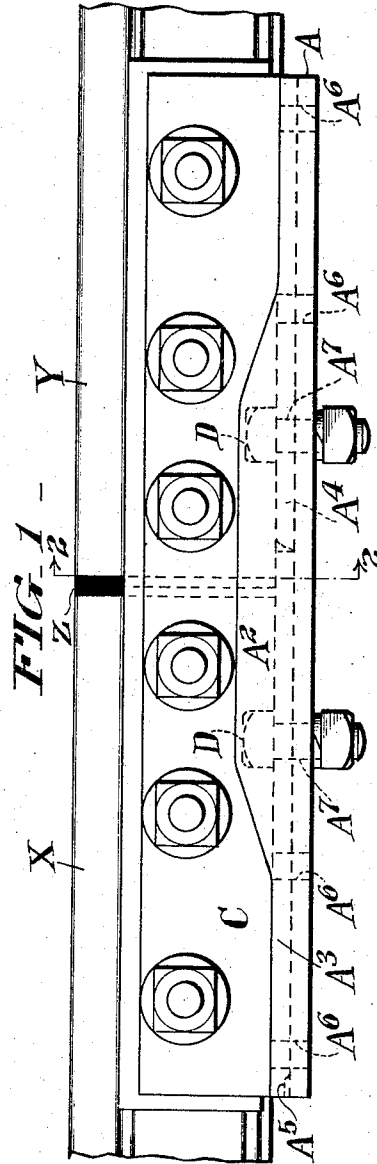
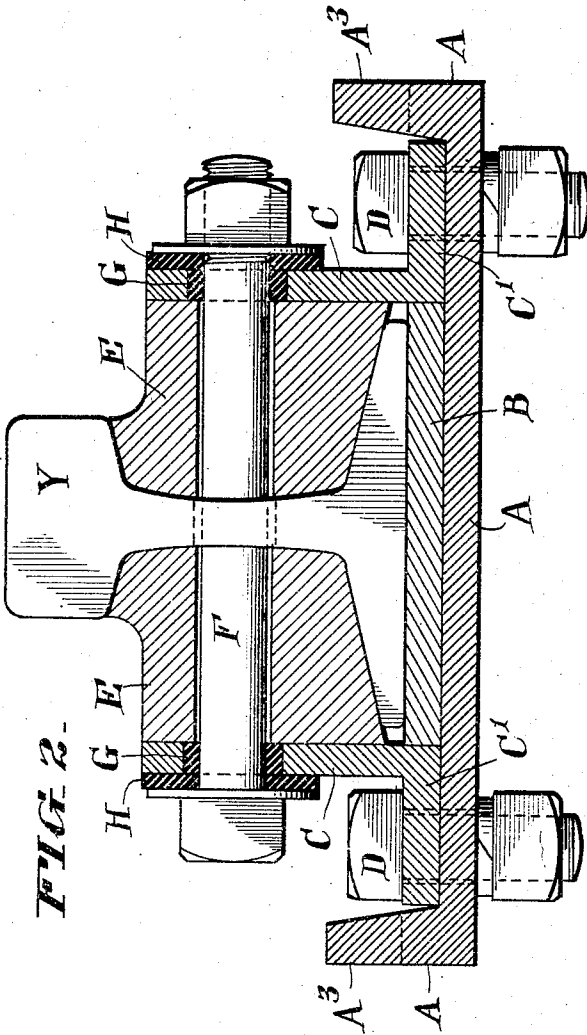


C. H. EWING.
INSULATED RAIL JOINT.
APPLICATION FILED APR. 14, 1911.

1,012,068.

Patented Dec. 19, 1911.

2 SHEETS-SHEET 1.



INVENTOR

Charles H. Ewing

BY

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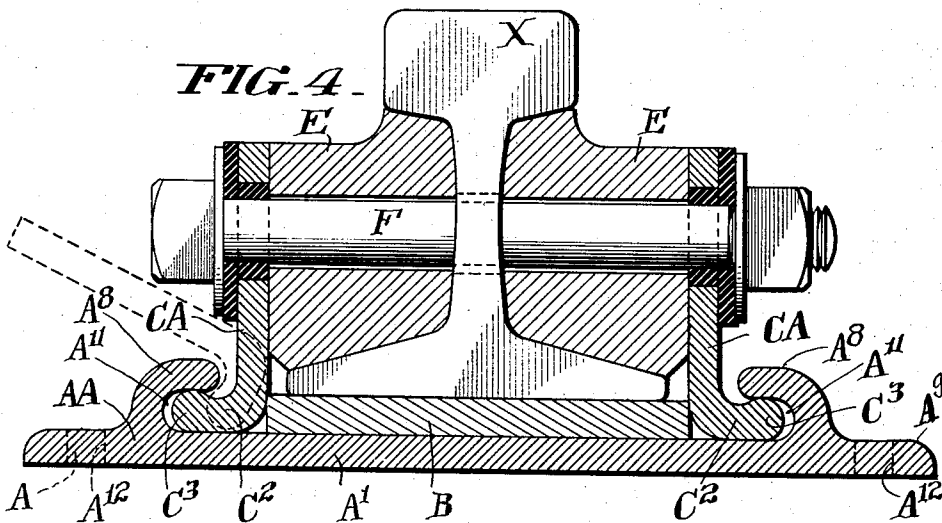
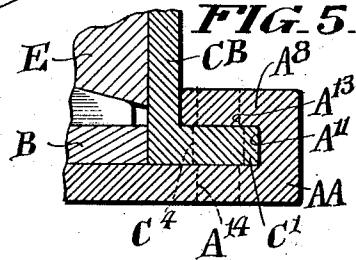
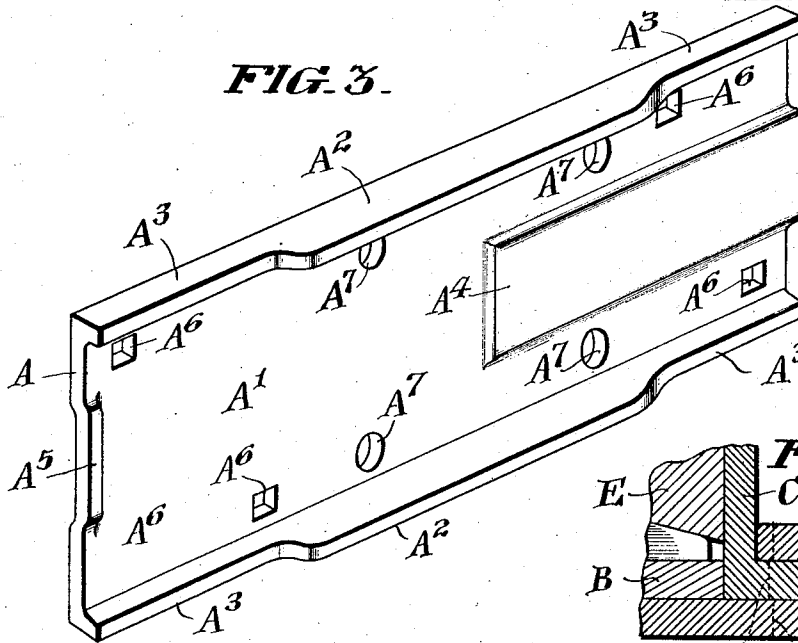
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Stewart

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UNITED STATES PATENT OFFICE.

CHARLES H. EWING, OF HADDON HEIGHTS, NEW JERSEY.

INSULATED RAIL-JOINT.

1,012,068.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that I, CHARLES H. EWING, a citizen of the United States of America, residing in Haddon Heights, county of Camden, in the State of New Jersey, have invented a certain new and useful Improvement in Insulated Rail-Joints, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My present invention consists in novel provisions for connecting and at the same time electrically insulating the adjacent ends of alined railway track rails, and has for its main object to provide a strong but simple construction for the purpose specified and one which will be durable in operation and comparatively inexpensive to manufacture and maintain.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it, reference may be had to the accompanying drawings and descriptive matter in which I have illustrated and described several of the forms in which the invention may be embodied.

Of the drawings, Figure 1 is a side elevation of an assembled rail joint. Fig. 2 is a section taken on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of one form of base plate which I employ. Fig. 4 is a section taken similarly to Fig. 2, but showing a modified construction, and, Fig. 5 is a partial section taken similarly to Figs. 2 and 4 and showing a third construction.

In the drawings, A, represents the base plate member, which comprises a bottom wall portion A', side flanges A², which may be cut away at the ends A³. In Figs. 1 and 3, the bottom wall A' of the base plate member is provided with a central longitudinal raised portion A⁴ at one end which serves as a seat for one of the rail ends to be connected together. The bottom wall portion is provided also at its other end with another raised portion A⁵, which, however, does not extend up from the bottom wall proper as high as does the portion A⁴. In the preferred construction illustrated, each of the raised portions A⁴ and A⁵ is formed integral with the base plate member proper by pressing up the body of the bottom wall

of the member. I make the base plate member of wrought steel which may be given its shape entirely by rolling in suitable apparatus or partly by rolling and partly by forging or pressing. The space between the raised portions A⁴ and A⁵ of the base plate member serves as a pocket to receive a block of insulating material B on which the second rail end is seated. In practice, I prefer that the block B of insulated material should extend beyond the end of the rail seated upon it for a slight distance under the end of the opposite rail and where the invention is used on double track railways, or wherever the conditions are such that the traffic is mainly or entirely in one direction along any particular pair of rails, I arrange the rail joint so that the rail X, supported by the insulating block is the leaving rail, while the rail Y, bearing directly on the raised metallic portion A⁴, is the receiving rail.

The two rails X and Y are connected to each other and the base plate member through fish plate members C provided with outturned flanges C' which rest upon the bottom wall of the bed plate and are secured thereto in the construction shown in Figs. 1, 2 and 3, by means of bolts D passing through suitable apertures A' in the base plate and registering apertures in the flanges C'. Interposed between the fish plate member and the rails X and Y proper are suitable heavy bodies E of insulating material. The rails X and Y, blocks of insulating material E and fish plates C are connected by suitable transverse bolts F, and these bolts are insulated from the fish plates C by the bushings G and washers H. The adjacent ends of the rails X and Y are insulated by interposed posts or plate like pieces of insulating material Z conforming in shape to the cross sections of the rails.

The insulated parts employed may be of any suitable material, for instance, the block B, as well as the blocks E may advantageously be made of wood, while the posts Z and bushings G and washers H may well be made of vulcanized fiber. It will be observed that the blocks E are of such thickness that the sides of the fish plate members C are separated from the edges of the base flanges of the rails X and Y by appreciable distances. Apertures A⁶ are formed in the base plate member and apertures registering therewith are formed in the base flanges of

the fish plate members C to receive the spikes by which the joints are secured to the track ties. It is for convenience in inserting and removing these spikes as well as to effect a slight economy in the weight of material employed that the side flanges may be cut away at A⁸.

Instead of securing the fish plate members to the base plate member by bolts, as in the construction shown in Figs. 1 and 2, I consider it advantageous in many cases, to form these members with interlocking surfaces which make bolts corresponding to the bolts D unnecessary. In the preferred construction illustrated in Fig. 4, the base member A A differs from the base plate member A in that the side flanges A⁸ are intumed to provide lateral channels A¹¹ opening toward each other. The base plate member A A in this construction is also provided with horizontal extensions or flanges A⁹ at the side edges formed with apertures or notches A¹² to receive the spikes for securing the structure to the track ties.

In the construction shown in Fig. 4 the fish plate members have their base flanges C² terminating in enlarged rounded ribs C³ of a diameter such that they fit snugly in the channels A¹¹ with a capacity for horizontal but not vertical movement therein. The flanges A⁸ and the flanges C² and ribs C³ are so proportioned that the ribs C³ may be inserted or removed from the channels when the bolts F are removed by rocking the fish plate members as indicated by dotted lines in Fig. 4 and moving them laterally without the necessity for any relative longitudinal movement between the fish plate members and the base plate member.

In the construction shown in Fig. 5 the base plate member A B is essentially the same in form as the base plate member A A of Fig. 4 except that as shown the extensions A⁹ are omitted. In this form the fish plate members C B are similar to the fish plate members C. In this construction the fish plate members C are ordinarily inserted and removed by sliding them longitudinally with respect to the base plate. Registering spike apertures A¹³, A¹⁴ and C⁴ are formed in the upper and lower walls of the channels A¹¹ and in the flanges C¹.

The claims herein made are limited either to constructions in which the base plate member is provided with projections which restrain endwise movements of the rail supporting insulation block or which provide a metallic seat for one of the connecting rails, or are limited on the provisions illustrated in Figs. 4 and 5, of overlapping flanges on the base plate and fish plate members. Other important and novel characteristic features of the constructions disclosed herein are claimed in my copending application, Serial No. 637,449, filed July 8, 1911, which while

later in date of filing than this case, is intended to broadly cover the novel features disclosed in common by the two cases except in the respects to which reference has just been made.

While in accordance with the provisions of the statutes I have illustrated and described the best form of my invention now known to me, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from the spirit of my invention, and that certain features of the invention may sometimes be used with advantage without a corresponding use of other features.

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

1. An insulated rail joint construction comprising in combination a metal base plate formed with uprising side flanges having its bottom wall provided with a longitudinal raised portion adjacent one end thereof, whereby one of a pair of rail ends to be coupled together may be seated on said raised portion while the other alined rail end is supported on a block of insulation mounted on the bottom wall at one end of said raised portion, metal fish plate members formed with flanges seating on the bottom wall of said base plate between said side flanges, and means for securing said base plate and fish plate members together.

2. An insulated rail joint construction comprising in combination a metal base plate formed with uprising side flanges and having its bottom wall provided with a central longitudinal raised portion adjacent one end thereof, whereby one of a pair of rail ends to be coupled together may be seated on said raised portion, a block of insulation mounted on said bottom at one end of said raised portion and on which the other alined rail end is supported, metal fish plate members formed with flanges seating on the bottom wall of said base plate between said side flanges, means for securing said base plate and fish plate members together, blocks of insulation interposed between said fish plate members and said rails, and means for securing said last mentioned blocks and the rails and fish plate members together.

3. An insulated rail joint construction comprising in combination a metal base plate formed with uprising side flanges intumed to provide longitudinal channels opening toward each other and comprising a metal bottom wall portion at one end rising above the bottom wall proper of the base plate, and provisions for securing an insulated block on the base plate adjacent its opposite end whereby one of a pair of rail ends to be coupled together may be seated

on said metal portion and the other on said block of insulating material and fish plate members provided with outturned flanges at their lower edges each adapted to enter the channel in the corresponding side flange.

4. A base plate, for an insulated rail joint, in the form of a wrought steel structure having uprising side flanges and having its bottom wall provided with a raised portion between said flanges adjacent one end of the plate and adapted to form a seat for one of a pair of rail ends to be coupled together and provided with another raised portion adjacent its opposite end but of smaller height than the first mentioned raised portion, whereby a block of insulation adapted to form a seat for the other rail end may be held between said raised portions.

5. A base plate for an insulated rail joint, in the form of a wrought steel structure having uprising side flanges and having its bottom wall provided with a raised portion between said flanges adjacent one end of the plate adapted to form a seat for one of a pair of rail ends to be coupled together and provided with another raised portion adjacent its opposite end but of smaller height than the first mentioned raised portion whereby a block of insulation adapted to form a seat for the other rail end may be held between said raised portions, said flanges being inturned to provide channels adapted to receive outturned bottom flanges provided on metallic fish plate members.

6. A base plate for an insulated rail joint, in the form of a wrought steel structure having uprising side flanges and having its bottom wall provided between said flanges and adjacent one end of the plate with an integral raised portion adapted to form a seat for one of a pair of rail ends to be coupled together and provided also with another integral raised portion adjacent its opposite end but of smaller height than the first mentioned raised portion whereby a block of insulation adapted to form a seat for the other rail end may be held between said raised portions.

7. In a rail joint construction, the combination of a metal base plate formed with uprising side flanges inturned to provide inwardly opening channels and fish plate members formed with outturned bottom flanges terminating at their outer edges in rounded ribs entering said channels and laterally but not vertically movable therein and adapted

to be inserted in and removed from said channels by a combined movement of the fish plate members in a lateral direction and angularly about a horizontal axis.

8. In an insulated rail joint construction, the combination with the connected rails of a metal base plate formed with uprising side flanges inturned to provide inwardly opening channels and fish plate members formed with outturned bottom flanges entering said channels and laterally but not vertically movable therein, a rail supporting block of insulation mounted on the bottom wall of said base plate between said fish plate members, blocks of insulation interposed between the fish plates and the connected rails above the base flanges of the latter and means for securing said fish plates, rails and last mentioned insulation blocks together.

9. An insulated rail joint construction comprising in combination a metal base plate formed with uprising side flanges, metal fish plate members formed with flanges seating on the bottom wall of said base member between said side flanges, a rail supporting block of insulation mounted on the bottom wall of said base plate member between said fish plate members and means for securing said base plate and fish plate members together, said base member being provided with projections on its bottom wall at the ends of said block restraining endwise displacement of the latter.

10. An insulated rail joint construction comprising in combination a metal base plate formed with uprising side flanges, metal fish plate members formed with flanges seating on the bottom wall of said base member between said side flanges, a rail supporting block of insulation mounted on the bottom wall of said base plate member between said fish plate members and means for securing said base plate and fish plate members together, said base member being provided with projections on its bottom wall at the ends of said block, restraining endwise displacement of the latter, one of said projections being of a height substantially equal to the thickness of said block and being elongated to provide a metallic seat for one of the rail ends coupled together.

CHARLES H. EWING.

Witnesses:

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D. STEWART.