Nov. 22, 1932. E. WOODINGS 1,888,648

ELECTRICAL CONNECTION FOR RAIL JOINTS

Filed Sept. 4, 1931

Fig. 1.

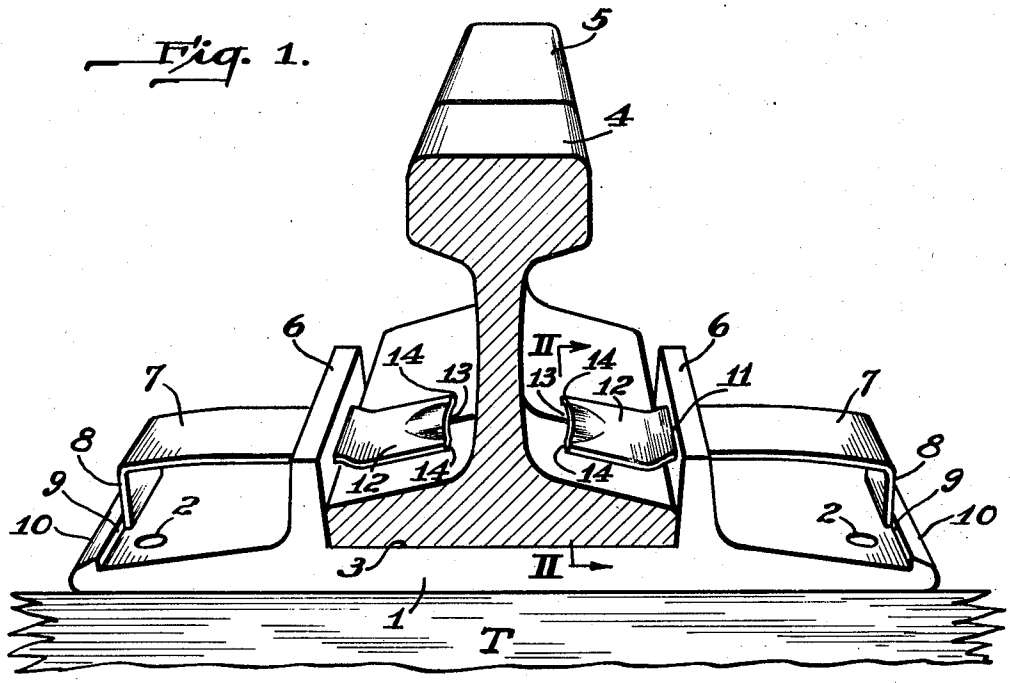
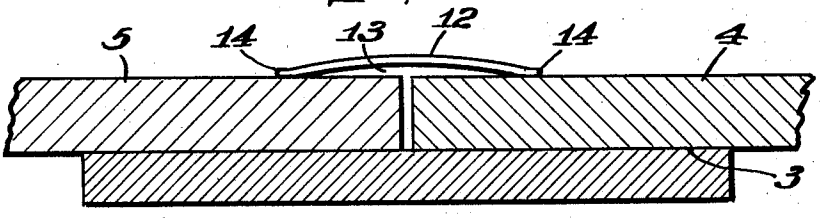


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE

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ELECTRICAL CONNECTION FOR RAIL JOINTS

Application filed September 4, 1931. Serial No. 561,139.

This invention relates to rail-retaining devices serving also as electrical connectors between the ends of adjacent rails.

A pending application Serial No. 505,241, filed December 29, 1930, describes a combination tie plate and rail-retaining device. The present invention is a modification and improvement of the invention described and claimed in said prior application.

The use of automatic electric signals on railroads necessitates electrical connectors bridging the gaps at rail joints since the current passes through the rails themselves. Connection between adjacent rail ends is usually made by wires fastened to the rails. Also connectors have been used heretofore in the form of springs placed beneath the spice bars and bearing on the rail ends. Such connectors have advantages over wires, but it is very difficult to locate breaks in them. When such springs are clamped down by screwing the splice bars down on them, they sometimes break, resulting in an open circuit. This can only be located by removing the splice bar. By modifying the spring members described in said pending application, they may be made to serve also as a very satisfactory electrical connector, thus performing an additional function without additional expense or material.

It is an object of this invention to provide a rail-retaining device serving also as an electrical rail connector.

Another object is to provide an exposed spring connector, thereby eliminating the difficulty of discovering breaks.

A particular construction embodying my invention is shown in the accompanying drawing in which Fig. 1 is a perspective view of a tie plate supporting conductor springs at a rail joint; and Fig. 2 a section along line II—II of Fig. 1, showing the transverse arch in the spring member.

Referring to the drawing, a tie plate 1 is seated on a cross tie T and secured thereto by screws or spikes driven into the tie through holes 2 in the tie plate. The tie plate has a flat middle portion 3 on which the ends of rails 4 and 5 rest, and upwardly extending integral ribs 6 which engage the sides of the rail bases and prevent their lateral movement. The ordinary splice bars connecting the webs of the two rails are not shown.

To hold the rails firmly upon the tie plate between the ribs, spring plates or clips 7 are provided. These springs have downwardly extending portions 8 which rest upon the outer portions of the tie plate and abut against faces 9 of shallow ribs 10 projecting from the tie plate. Ribs 6 are provided with horizontal slots 11 through which springs 7 extend.

The forward ends 12 of the springs are bent downwardly in such manner that with ribs 6 acting as fulcrums, ends 12 are forced into gripping contact with the rail flanges.

A positive contact of the spring on the rail flanges is provided at all times by transversely arching the forward or rail-engaging ends 12 of the springs, as best shown in Fig. 2 at 13. This raises the central end-portions of the springs above the rail flanges and produces depending edges or corners 14. There is thus a concentration of pressure at these latter points which are forced into firm contact with the base of each rail by the fulcrums and the resiliency of the springs. Such construction of the springs insures that they will always contact with both rails when the spring is applied at the rail joint, thereby making a good electrical connection as well as firmly holding the rails in place.

This type of connection adapts itself to the wave motion of the rails produced when a train passes over them. Due to the constant spring pressure exerted by and through the bridging members, concentrated at definite points on each of the adjacent rail bases, the electrical contact at the joint is not affected by the alternate vertical movement of the rails resulting from their relative movement under the impact of wheels. The electrical connection formed by the bridging spring is readily checked by observation without removal of parts. It is positive, and adds little or no expense to the device as provided for anchoring purposes alone.

According to the provisions of the patent statutes, I have explained the construction and mode of operation of my invention, and

have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. In railway track construction, the combination with a rail joint, of a rail-retaining and electrical-connecting device comprising a tie plate, a spring member engaging the rail base flanges at one end and the tie plate at the other end, the rail-engaging end of the spring member being transversely arched to insure firm contact of the edges of the spring with the ends of the rails, respectively, and a fulcrum member engaging the top of the spring to hold it in gripping contact with the rail flanges and tie plate.

2. A rail-retaining and electrical-connection device for use at rail joints, comprising a tie plate, ribs on the plate parallel to the rails and embracing the rail bases, spring members passed through horizontal slots in the ribs and transversely arched at the inner ends to form contact points on adjacent rail ends, and means for exerting pressure through the ribs to force the contact points into springing engagement with the adjoining rail flanges.

In testimony whereof, I sign my name.

EMANUEL WOODINGS.