J. A. HYLE & J. W. HERMAN.

RAILWAY RAIL JOINT.

APPLICATION FILED DEC. 14, 1917.

1,257,708. **Patented Feb. 26, 1918.**

Fig. 1.

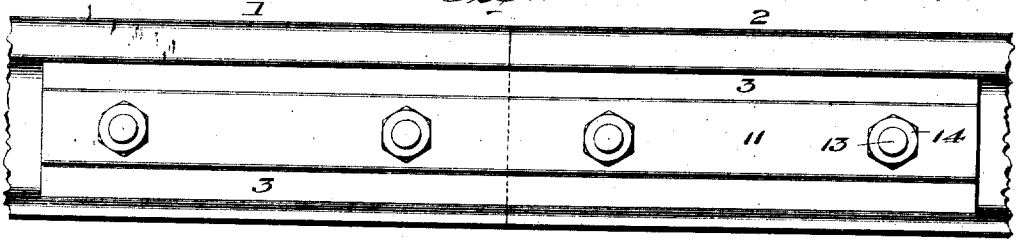


Fig. 2.

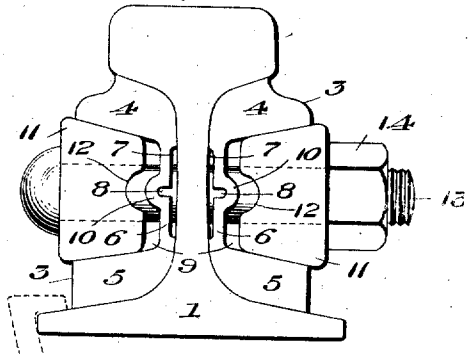
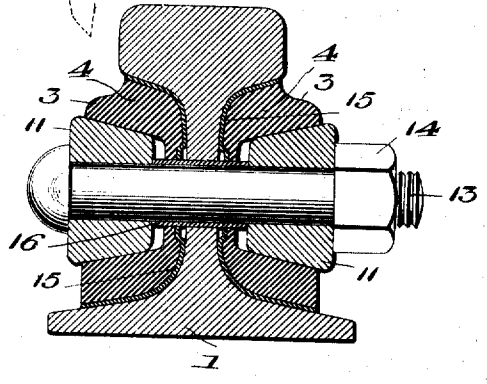


Fig. 3.



Witness

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RAILWAY-RAIL JOINT.

1,257,708. Specification of Letters Patent. Patented Feb. 26, 1918.

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To all whom it may concern:

Be it known that we, JACOB A. HYLE and JACOB W. HERMAN, citizens of the United States, residing at St. Louis, State of Missouri, and in the city and county of Philadelphia, State of Pennsylvania, respectively, have invented certain new and useful Improvements in Railway-Rail Joints, of which the following is a specification.

Our invention relates to railway rail joints, and has special reference to a novel and meritorious improvement in splice bars whereby the clamping effect against the track rails is practically improved and prolonged as wear takes place.

The prime object of the invention is to provide novel, simple, durable, economical and thoroughly efficient means for safely and reliably uniting the meeting ends of railroad track rails together.

A further object is to provide a safe, strong and reliable railway rail joint composed of few parts, with means for safely and firmly securing the parts together when properly assembled.

Another object of the invention is to so construct our improved rail joint that the meeting ends of the track rails will possess a maximum of vertical strength, together with a maximum of lateral strength to withstand the excessive strain to which the rails are subjected.

Still further objects of the invention are to provide a rail joint that will avoid all friction except the slight amount caused by expansion and contraction; to so construct each splice bar or fish plate that they will be caused by the proper manipulation of a wedge-shaped member fitted therein to firmly clamp the lower surface of the tread and the web of the rail slightly above its central portion, and also clamp against the surface of the lower part of the rail from a point slightly below the central portion of the web thereby avoiding all friction, except between the wedge-shaped member and the splice bar, and the splice bars will be forced to fit snugly against the web, tread and base at all times without friction by drawing the wedge member inward on both sides; to provide an insulated joint which will prevent wear and mutilation of the insulating fiber, and a joint in which the rails may be spiked to the tie in a correct and uniform line.

The foregoing and such other objects as may appear from the ensuing description are attained by the construction, combination, location and arrangement of the parts hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims appended hereto, it being understood that slight changes in the form, proportions and minor details of the construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings which form a part of the specification it will be seen that:—

Figure 1, is a side elevation of the improved rail joint embodying our invention.

Fig. 2, is an enlarged end elevation of the same, and

Fig. 3, is an enlarged cross-sectional view showing the insulation of our improved railway joint.

Similar numerals of reference are employed to designate corresponding parts throughout the several figures of the drawings.

In carrying out our invention as illustrated and which shows a preferred construction, it will be observed by reference to Figs. 1 and 2, that the rails 1 and 2 are shown as being connected by the splice bars or fish plates 3, each having an upper or head member 4, and a foot or lower member 5, said members being connected by an integral yielding vertical web portion 6, provided on its inner surface with a longitudinal recess 7, and a central longitudinal U-shaped recess 8 extending throughout its length, while the outer face of each splice bar or plate 3, is provided with a wedge-shaped recess 9 throughout its length and a central longitudinal outward projecting rib 10, the recess 9 being formed for the reception of a wedge-shaped member 11 which is fitted into said recess, and extends throughout the length of the said splice bar,

the inner face of each web member being provided with a U-shaped recess 12 formed therein adapted to straddle or surround the projecting rib 10 formed on the outer face of the splice bar or plate 3.

Each splice bar 3, and wedge member 11, is provided with four central circular openings for the reception of the securing bolts 13, each bolt being passed through the track rail, the splice bar and the wedge member secured to either side of the track rail, with a securing nut 14, fastened on the threaded end of each bolt.

It will be seen that the upper head member 4 of each splice bar or fish plate 3 which is rolled in one piece, is formed of an excess of metal with its inner face so shaped as to fit closely against and clamp the under surface of the rail tread and a portion of the web, and that the foot or lower member 5 of said splice bar is also formed of an excess of metal and shaped so as to fit closely against and clamp the upper surface of the base of the rail and a portion of the web of the rail, the web portion of the splice bar being rolled comparatively thin with respect to its head and foot members and formed at its center with a U-shaped recess, so that when the wedge members 11 are drawn or forced inward into the recess 9, the splice bar will be forced to yield at its thin U-shaped central portion thereby causing its heavy head and foot portions to be flexed to clamp snugly and tightly against the tread portion, web and base of the track rail, respectively, thereby holding the splice bars tightly against the rails without friction at all times, and the head and foot portions of each splice bar with the heavy wedge members fitted within the recess 9 of each splice bar constitute sufficient material to form an unusually strong and durable joint, which may be easily and readily kept tight, and is easier to tighten than the ordinary rail joint.

It will also be observed that by this construction of rail joint the wear between the parts may be readily compensated for by adjusting the wedge-members 11 gradually inward within the recesses 9, until the U-shaped recess formed in the inner face of the said wedge-members straddles or surrounds the rib 10 formed on the splice bar whereby the clamping effect of the splice bars against the track rails is materially improved and the longevity of the joint increased, since the wedge-shaped members 11 are rolled from a single piece into the shape, such as shown, and are of the same length as the splice bars 3, and are fitted into the recesses 9 throughout their entire length, and are easily adjusted inward by the proper manipulation of the securing nuts 14.

By reference to Fig. 3 will be seen the manner of insulating our improved joint, which consists in placing a single sheet or plate of insulating fiber 15, between each inner face of the splice bars and the track rails extending throughout the length of each splice bar, and a sleeve 16 of fiber passed through each bolt opening in the track rails and surrounding each bolt, and since it is well known that the greatest wear upon the insulation occurs upon those portions of its upper edges which rest at and near the meeting ends of the track rails, owing to the severe pounding which those portions of the insulation are liable to receive, we so construct each sheet or plate 15 of our fiber, if desired, that they can be reversed edge for edge the entire length of the joint, thereby practically doubling the life of the insulation.

It will readily be perceived that the track rails are spiked to the tie at the joint by the use of the ordinary spikes such as shown by dotted lines in Fig. 2, and the base of each splice bar is kept on top of the base of the rail, which arrangement will permit the rail when tending to creep to slide from the ties without pulling the joint ties with it, and the joint ties stay solid on the track ballast that has been tamped up under them, and thus prevent the joint ties from being pushed off the solid tamped ballast onto soft untamped ballast, thereby causing the joint to pound and become loose, which is liable to occur when the splice bars or fish plates extend out from the base of the rail and the joint is spiked or otherwise secured to the tie.

Having thus described our invention what we claim and desire to secure by Letters Patent is:—

1. A rail joint including the rails, a splice bar having a thickened heavy upper and a lower member and an intermediate thin yielding web member with a recess formed within its inner face extending throughout its length, and means for causing the said splice bar to be flexed or forced against the tread, web and base portions of the rails.

2. A rail joint including the rails, a splice bar having a thickened heavy upper and a lower member and an integral intermediate thin yielding web member having a recess formed in its central portion within the inner face thereof, and a recess formed in its outer face extending throughout its length, and means for causing the said splice bar to be flexed against the tread, web and base portions of the rails.

3. A rail joint including the rails, a splice bar having an upper and a lower member and an integral intermediate yielding web member with a recess formed at its center on the inner face thereof, a recess formed in its outer face extending through its length, a wedge-member fitted in the last named recess, and means for flexing the said splice

bar against the tread, web and base portions of the rails.

4. A rail joint including the rails, a splice bar having an upper and a lower member and an integral intermediate yielding web member with a U-shaped recess formed in its central portion extending throughout its length, and a wedge-shaped recess formed in its outer face its entire length, a wedge member fitted in the recess on said outer face, and means for flexing said splice bar against the tread, web and base portions of the rails.

5. A rail joint including the rails, a splice bar having an upper and a lower member and an integral yielding web member provided with a longitudinal U-shaped recess its entire length, a central rib formed on its outer face, and a recess formed in its outer face throughout its length, a wedge member fitted into the last named recess its entire length, and means for flexing said splice bar against the tread, web and base portions of the rails.

6. A rail joint including the rails, a splice bar having an upper and a lower member and an integral yielding web member provided with a longitudinal recess at its center in its inner face extending the entire length of said bar forming a rib on its outer face, a wedge-shaped recess formed in its outer face throughout its length, a wedge member fitted into said wedge-shaped recess, and means for flexing said splice bar against the tread, web and base portions of the rails.

7. A rail joint including the rails, a splice bar having an upper and a lower member and an integral yielding web member provided with a longitudinal U-shaped recess at the center in its inner face its entire length forming a rib on its outer face, a wedge-shaped recess in its outer face throughout its length, a wedge member fitted into said wedge-shaped recess provided with a longitudinal U-shaped recess in its inner face adapted to straddle said rib, and means for flexing the said splice bar against the tread, web and base portions of the rails.

8. A rail joint including the rails, a splice bar having an upper and a lower member and an integral yielding web member with a U-shaped recess at the center in its inner face extending its entire length, a wedge-shaped recess in its outer face the entire length of said bar, a wedge member fitted into said wedge-shaped recess, a single insulating sheet clamped between said bar and rails its entire length, fastening bolts and nuts for securing the parts together, and an insulating sleeve surrounding a portion of each bolt.

9. A railway rail joint comprising track rails, a splice bar on each side of the rails having an upper and a lower member and an integral yielding web member provided with a recess in its inner face at the center thereof extending the entire length of the bar and forming a rib on its outer face, a wedge-shaped recess formed in its outer face the entire length of said bar, a wedge member fitted into said wedge-shaped recess the entire length of said bar, and means for flexing said splice bar tightly against the tread, web and base portions of the rails.

10. A railway rail joint comprising track rails, a splice bar on each side of the rails having a thickened heavy upper and a lower member, and a thin integral yielding web member formed with a longitudinal U-shaped recess at its center in its inner face, a wedge-shaped recess formed in the outer face throughout the length of each bar, a wedge member fitted into said wedge-shaped recess its entire length, said wedge member having a U-shaped recess in its inner face, and means for flexing said splice bar tightly against the tread, web and base portions of the rails.

11. A railway rail joint comprising track rails, a splice bar secured to each side of the rails having an upper and a lower member provided with an excess of metal and a thin yielding web member formed with a U-shaped recess at the center thereof in its inner face extending the entire length of the bar and forming a rib on the outer face its entire length, a wedge-shaped recess formed in the outer face of each bar its entire length, a wedge member fitted into said wedge-shaped recess its entire length and provided with a U-shaped recess in its inner face adapted to straddle said rib, and bolts and securing nuts for forcing said wedge members inward and flexing said splice bar tightly against the tread, web and base portions of the rails.

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