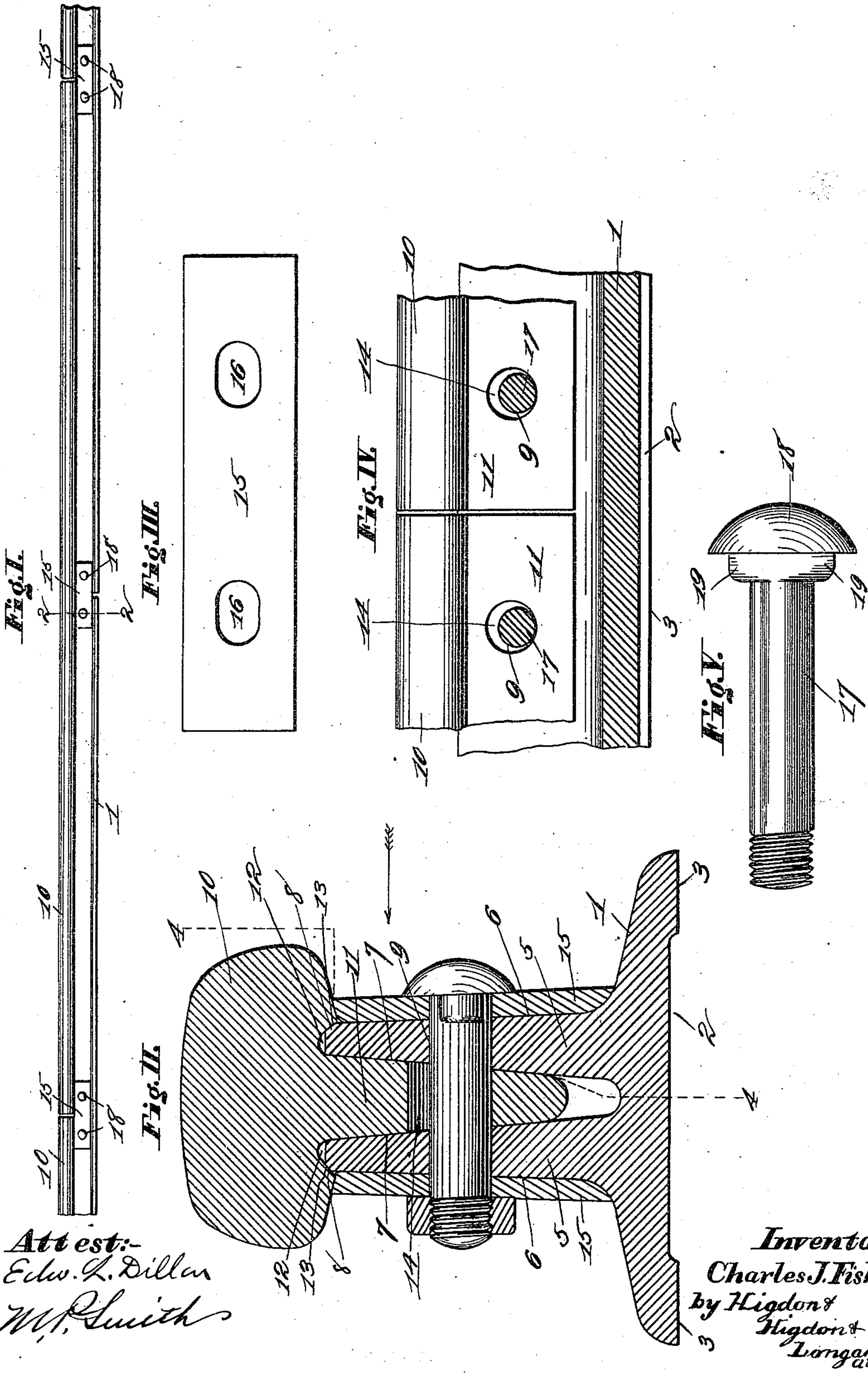


(No Model.)

C. J. FISHER.
SECTIONAL RAILROAD RAIL.

No. 560,487.

Patented May 19, 1896.



UNITED STATES PATENT OFFICE.

CHARLES J. FISHER, OF MURPHYSBOROUGH, ILLINOIS.

SECTIONAL RAILROAD-RAIL.

SPECIFICATION forming part of Letters Patent No. 560,487, dated May 19, 1896.

Application filed April 8, 1895. Serial No. 544,879. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. FISHER, of the city of Murphysborough, Jackson county, State of Illinois, have invented certain new and useful Improvements in Sectional Railway-Rails, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved sectional railway-rail; and it consists in the novel construction, combination, and arrangement of parts, hereinafter described and claimed.

In the drawings, Figure I is a side elevation of a sectional rail constructed in accordance with my invention. Fig. II is a cross-sectional view, enlarged, taken on the line 2 2 of Fig. I. Fig. III is a side elevation of a fish-plate such as I use in carrying out my invention. Fig. IV is a longitudinal sectional view, reduced, taken approximately on the indicated line 4 4 of Fig. II. Fig. V is a side elevation of the preferred form of bolt of which I make use in carrying out my invention.

Referring by numerals to the accompanying drawings, 1 indicates the base of my improved rail, the same being approximately in the form of the ordinary railway-rail bases, but having a recess or cut-away portion 2 extending the entire length of the lower half of the rail and in the under side thereof. By this construction longitudinally-extending faces 3 3 are formed that engage against or rest directly upon the ties.

Formed integral with and extending upwardly from the base 1 are flanges or walls 5, that perform the function of the usual web of a rail. The exterior faces 6 of these webs or walls 5 are approximately perpendicular, while the inner faces 7 are slightly inclined, thus making a wedge-shaped space between said webs or walls 5. The upper outer corners 8 of these webs or walls are beveled off for a purpose that will be presently shown. Formed in each end of these base portions of my improved rail are single circular apertures 9.

10 indicates the ball of my improved rail, the same being approximately of the same size and form as is the ball of an ordinary railway-rail. Formed integral with and de-

pending from this ball is a wedge-shaped flange or web 11, the same being of such a size as that it will fit snugly within the wedge-shaped space between the webs or walls 5 of the lower portion of my improved rail. Said web 11 is of such a size as that it does not extend all the way to the lower end of the space between the webs or walls 5. Formed in the lower face of the ball 10 adjacent the side faces of the web 11 are longitudinally-extending grooves 12, the outer sides of which are inclined, as indicated by 13, and said inclined sides 13 are adapted to fit and engage against the beveled edges 8 on the upper outer corners of the webs 5. The ball 10, together with the web 11, comprises the upper portion of my improved rail, and formed in each end of the web 11 of this upper portion of the rail is a circular aperture, such as 14, somewhat larger in diameter than are the apertures 9 in the webs or walls 5, and said circular apertures 14 are so located as that their lower ends coincide with the lower ends of the circular apertures 9. Formed in the longitudinal centers of both the upper and lower portions of my improved rail are apertures similar to the apertures just described.

15 indicates the fish-plate I make use of in carrying out my invention, the same being an ordinary metallic plate and provided in each end with an elongated aperture or slot 16.

17 indicates the bolt, such as I use in carrying out my invention, the same being provided with an ordinary head 18, and formed integral on the inner face of said head 18 and on opposite sides of the body of the bolt 17 are semicircular lugs 19 of such a thickness and size as that they will fit within the elongated apertures 16 in the fish-plate 15.

The upper and lower portions of my improved rail are rolled or constructed in lengths identical with the lengths of the ordinary rails now constructed. In laying my improved rails the lower portions thereof are located directly upon the ties and spiked thereto in the usual manner. The upper portions of said rails are now located directly upon the lower portions and the webs 11 of said upper portions are located in the space between the webs or walls 5 of the lower portions. Said upper portions are so located as that their meeting ends are located at points midway in

the length of the lower portions, and the larger apertures 14 in the webs 11 of the upper portions will coincide with the smaller apertures 9 formed in the meeting ends of the webs or walls 5 of the lower portions. This will necessarily bring the larger apertures 14 in the ends of the upper portions of the rails in alinement with the smaller apertures 9 formed in the webs or walls 5 of the lower portions of the rails and at the centers thereof. Thus the joints of the rails will be broken alternately between the ends of the upper and lower portions of said rails, which is a very desirable feature, inasmuch as said joints are always supported and sustained, and the ends of the rails at said joints will not settle or splinter, which would otherwise cause a rough track.

When the top portions of the rails are properly positioned, the fish-plates, such as 15, are located upon the exterior sides of the webs or walls 5 in such a manner as that the apertures 16 in said fish-plates 15 will register with the coinciding apertures 14 and 9. The bolts 17 are now passed through said coinciding apertures until the lugs 19 on said bolts 17 are located in the elongated apertures 16 in the fish-plates. Ordinary nuts are now located and tightened upon the screw-threaded ends of the bolts 17 in the usual manner, and the laying of the rail is completed.

By the peculiar location of the apertures 14 relative to the apertures 9 and by making said apertures 14 of a larger diameter than are the bolts 17 allowance is made for the expansion and contraction of the upper and lower portions of the rail. Said portions of the rail may move longitudinally a slight distance relative to one another, and the same may move toward each other; but in no wise can said portions move vertically away from one another. The weight of a train through the car-wheels comes directly upon the ball 10, and said weight thus being applied directly to said ball will cause the inclined faces 13 to engage directly against the beveled edges 8, and in so doing the upper ends of the webs or walls 5 will clamp the downwardly-pending web 11 of the upper portion of said rail. To assist this clamping of the upper portion of the rail, the under side of the lower portions of the rails are recessed or cut away, as

indicated by the numeral 2. This allows the longitudinal centers of the lower portions of the rail to move downwardly a slight distance, and this downward movement, however slight, tends to bring the webs or walls 5 together and to clamp very firmly the downwardly-pending web 11 of the upper portion of the rail.

The two portions of my improved rail may be rolled in the same manner as are ordinary railway-rails, and my improved rail when properly laid is very substantial and possesses superior advantages in point of simplicity, durability, and general efficiency.

I am aware that railway-rails have been made with removable balls; but the old devices are rigid when in use and possess no advantage over the one-piece rail beyond the fact that the ball may be removed when it is broken or worn out and a new one substituted. To this extent my rail is not new; but I go further and make a rail that is elastic under the weight of the locomotive or car.

What I claim is—

An elastic railway-rail, comprising the base 1, having the recess 2 in its under side thus forming the longitudinally-extending faces 3 to rest directly upon the ties, the flanges 5 formed integral with said base and extending upwardly, the outer faces of said flanges being approximately perpendicular while the inner faces thereof are slightly inclined thus making a wedge-shaped space between said flanges, the upper outer corners of said flanges being beveled, the ball 10 having the longitudinally-extending grooves 12 formed in its lower face, the outer sides of said grooves being inclined to fit against the beveled edges of the flanges 5, the web 11 formed integral with the lower side of said ball 10 and between the said grooves 12 to fit against the inner inclined faces of the flanges 5 in such a way that there will be a space between said flanges below said web and a space above said flanges in said grooves 12, substantially as and for the purposes stated.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES J. FISHER.

Witnesses:

JOHN C. HIGDON,
PAUL B. DAVIS.