

No. 771,389.

PATENTED OCT. 4, 1904.

A. T. PALMER.
RAIL SPLICE.

APPLICATION FILED JULY 27, 1903.

NO MODEL.

Fig. 1

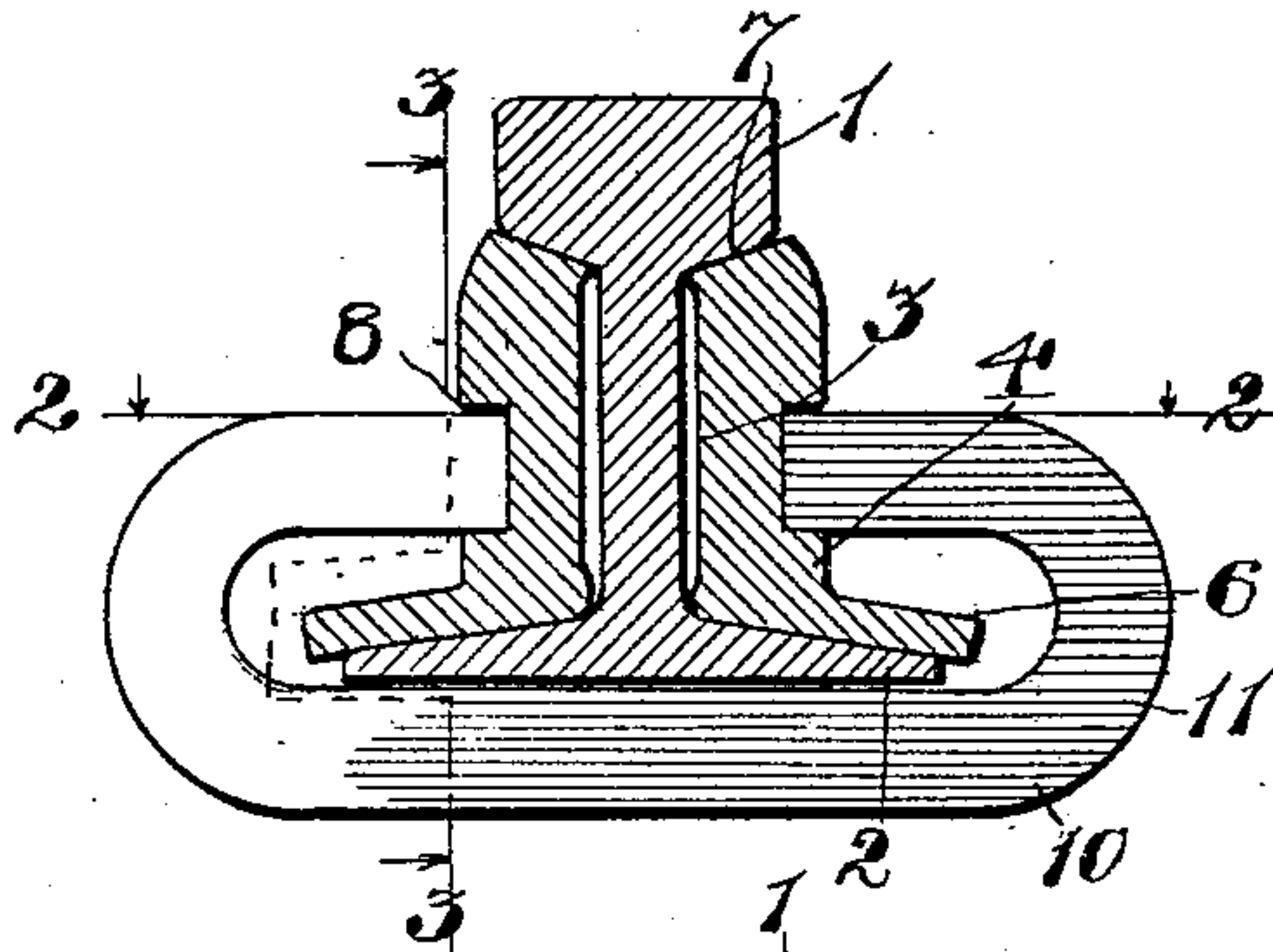


Fig. 2.

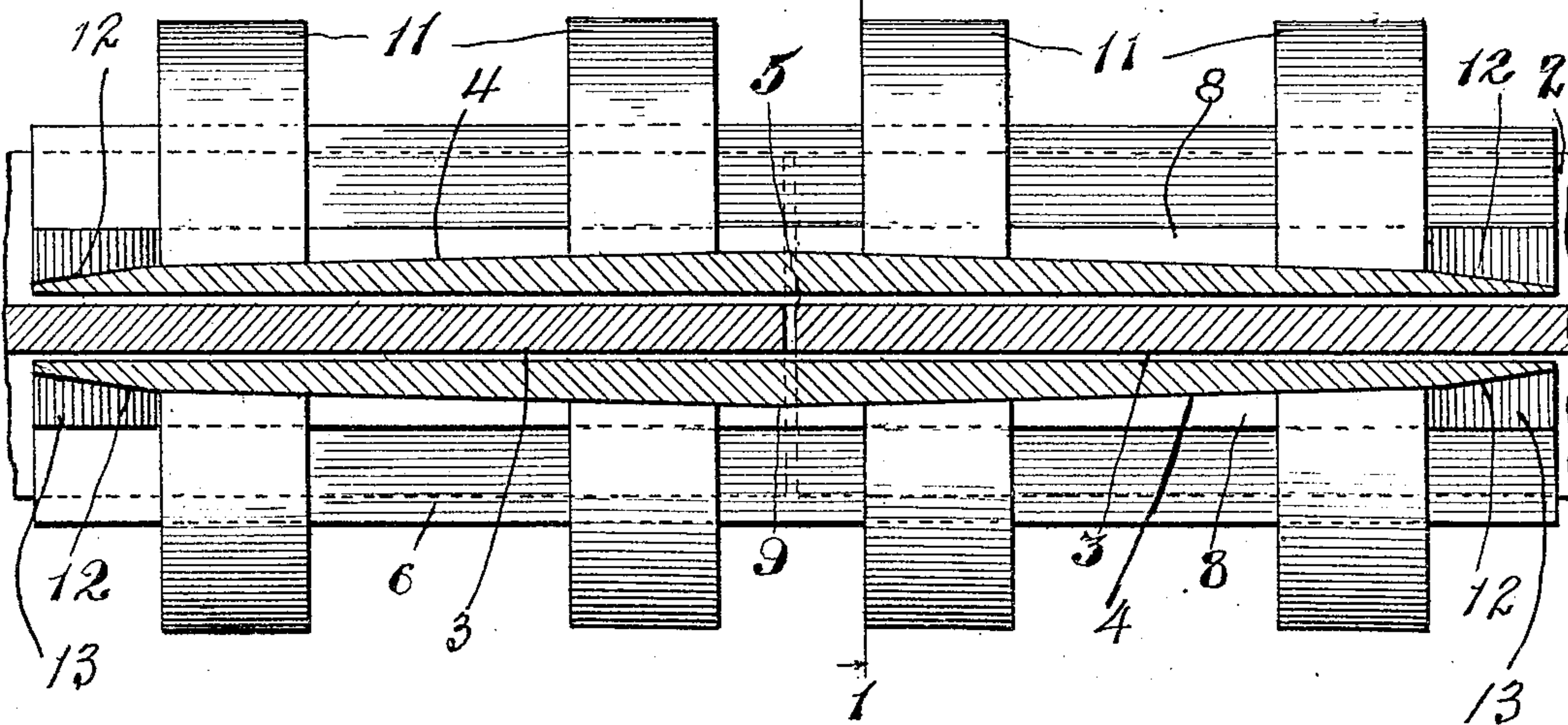
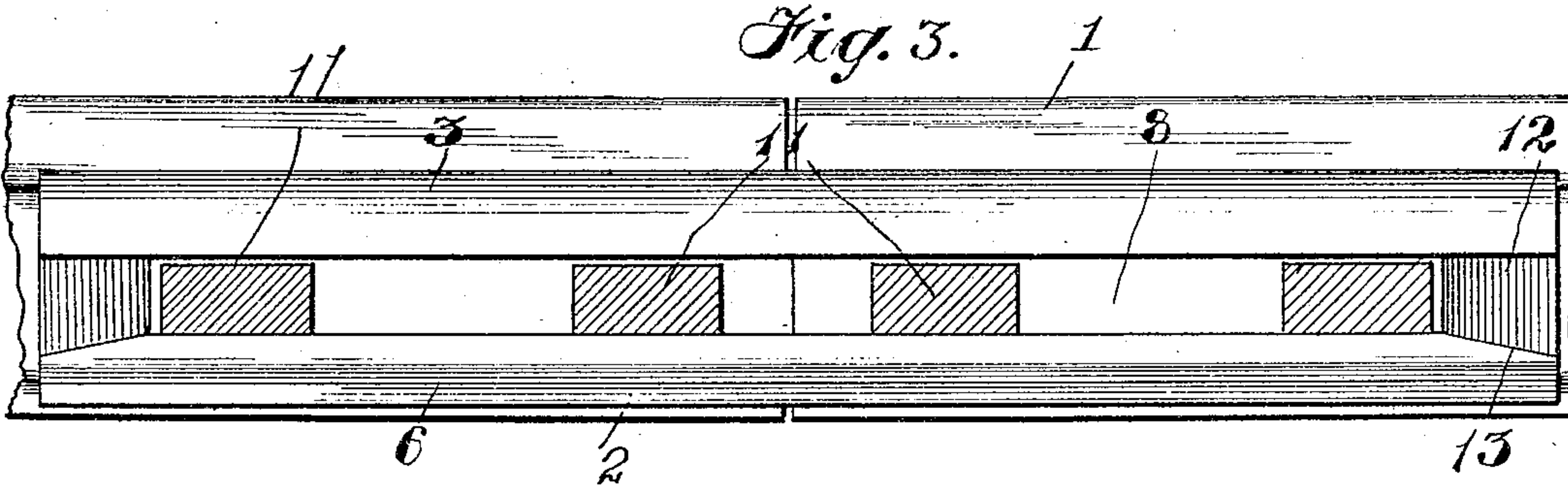


Fig. 3.



Witnesses:
J. T. Howman
Robert H. Weir

Inventor:
A. T. Palmer
by Elliott & Hooper Attys

UNITED STATES PATENT OFFICE.

ALPHONSO T. PALMER, OF CLYDE, ILLINOIS.

RAIL-SPLICE.

SPECIFICATION forming part of Letters Patent No. 771,389, dated October 4, 1904.

Application filed July 27, 1903. Serial No. 167,105. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSO T. PALMER, a citizen of the United States, residing at Clyde, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rail-Splices, of which the following is a full, clear, and exact specification.

My invention relates to that type of rail splices or joints in which one or more fish-plates are employed for holding the meeting ends of railway and other rails in alinement; and the invention has for its primary object to provide improved and simple clamping means for firmly binding the fish plate or plates between the ball and flange of the rail and automatically tighten the fish-plates as they wear or compress without the employment of bolts or otherwise requiring the rail or the fish-plate to be perforated.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said object and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a transverse section of my improved rail splice or joint, taken on the line 1 1, Fig. 2, showing the rail therein. Fig. 2 is a plan section on the line 2 2, Fig. 1; and Fig. 3 is a vertical longitudinal section on the line 3 3, Fig. 1.

1 is the ball or head, 2 the foot flange or base, and 3 the web, of an ordinary or standard railway-rail, two of which are illustrated in Fig. 2 in alinement with each other, with their meeting ends held in the position by my improved rail-splice in which they are arranged when in use.

4 is a fish-plate, two of which are preferably employed for each splice, one being used on each side of the two rails at their contiguous ends in such a manner as to bridge or lap the intersection of the rails, as shown at 5 in Fig. 2. These fish-plates have base-flanges 6, which are downwardly inclined, complementary in form to the top of the flange 2 of the

rail, while the upper ends of the fish-plates are inwardly inclined, complementary in form to the under side of the ball or head 1 of the rail, as shown at 7, the construction and proportions being such that the fish-plates will bind between the two converging surfaces of the ball and the flange of the rail before the plates reach a position in actual contact with the web 3, thus making the plates serve as wedges for holding the heads or balls of the rails in accurate alinement and supporting the same against both vertical and lateral movement. The outer face of each of the fish-plates is formed with a longitudinal groove 8, extending the full length thereof or at least from each extremity to points near the middle length of the fish-plate. The upper and lower sides of each of these grooves 8 may be substantially parallel with each other and with the surface of the rail substantially throughout their entire length; but the inner face or side of the groove—that is, the vertical wall of the groove—is tapered from both extremities outwardly away from the rail to an intermediate point 9, from which the vertical wall of the groove converges toward the web of the rail in both directions. These grooves 8 in the fish-plates on the opposite sides of the rails receive the opposed ends of a clamp, which is shaped like the letter C, and is of such a form that its body portion 10 will pass under the flange 2 of the rail and its curved extremities 11 will pass around the edges of such flange and flanges 6 and extend substantially horizontally into the grooves 8. With each joint or splice a plurality of these C-shaped clamps is employed. In the example of my invention shown in the drawings I employ four, two on each side of the point of intersection 5 of the rails. In employing these clamps the old form of fish-plates are first removed if the joint is to be applied to a track already laid and the rail then elevated, so that the clamp may be slipped over the flange 2 longitudinally, two of the clamps on each end of each rail. The rails are then lowered into position and the fish-plates 4 properly placed against them, whereupon the clamps may be slipped longitudinally over

the ends of the fish-plates, with their ends engaging in the grooves 8, and driven home along the fish-plates until the tapering formation of the inner walls of the grooves 8 effects the desired wedging and clamping action of the fish-plates against the opposite sides of the rails. Inasmuch as the distance between the vertical walls of the grooves 8 at the mid-length of the fish-plates is considerably greater than it is at the extremities, it is desirable that the inner clamps be somewhat wider than the outer ones or ones used on the extremities, so that they may slip into place ready for driving without having to be driven to make room for the end clamps, and in order that the end clamps may be readily inserted over the fish-plates and at the same time be tight after reaching a position well on such ends the extreme ends of the inner or vertical walls of the grooves 8 are still further beveled or tapered inwardly toward the web of the rail, as shown at 12, and to allow for any irregularities in the parts and insure the entrance of the clamps into the grooves in case the lower side of the groove should be a little too high such lower side at each extremity of the fish-plate is beveled or inclined downwardly, as shown at 13.

The grooves 8 in cross-section are preferably rectangular, as shown in Fig. 1, so as to guard against any possibility of the extremities of the clamp springing out of the grooves during the driving action or while in use and, furthermore, to provide a friction-surface of maximum area which will be effective in preventing the clamp from working off after it is driven on. These clamps are composed of steel or other like material, and consequently possess a considerable degree of elasticity, and being very powerful they continually compress the fish-plates laterally or transversely, and hence the slack which would otherwise occur in the joint from the compression and wear of the fish-plates and the loosening of the fastening devices is entirely taken up automatically by this elasticity of the clamp and the security and tightness of the splice or joint thereby maintained.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a rail-splice, the combination with the rail, of a fish-plate inserted between the head and flange thereof, and having a longitudinal angular groove whose inner or vertical wall is tapered toward the web of the rail, and a clamp passing under the rail and having its

end supported against the opposite sides thereof with one of its ends engaging in said groove.

2. In a rail-splice, the combination with the rail, of a fish-plate inserted between the head and flange thereof, and having a rectangular groove extending longitudinally of and parallel with the head of the rail, the inner or vertical wall of said groove being inclined toward the rail, and a clamp passing under the rail and having its ends supported against the opposite sides thereof with one end engaging in said groove against said vertical wall.

3. In a rail-splice, the combination with the rail, of fish-plates inserted between the ball and flange of the rail on opposite sides thereof, and each having an angular groove provided with a longitudinally-wedging surface at its outer side and one or more clamps passing under the rail and having their ends engaging against said wedging-surfaces respectively.

4. In a rail-splice, the combination with the rail, of fish-plates inserted between the ball and flange thereof on opposite sides and each having a longitudinal groove comprising a vertical wall inclined lengthwise of the groove toward the rail-web, and one or more C-shaped clamps inserted under the rail with its ends engaging in said grooves respectively.

5. In a rail-splice, the combination with the rail, of a fish-plate inserted between the ball and flange thereof and having a longitudinal groove whose inner or vertical wall is tapered longitudinally of the groove toward the rail and whose lower wall at the extremity is tapered downwardly, and a clamp inserted around the rail with its ends engaging in said groove respectively.

6. In a rail-splice, the combination with the rail, of fish-plates inserted between the ball and flange of the rail on opposite sides thereof and having longitudinal grooves comprising inner or vertical walls tapered longitudinally of the fish-plates from an intermediate point in the length thereof toward each end, and two clamps inserted around the under side of the rail with their ends engaging in said groove on each side of said intermediate point, the space between the opposed ends of the inner clamps being wider than that between the closed ends of the outer clamps.

ALPHONSO T. PALMER.

Witnesses:

F. A. HOPKINS,
E. SHASBERGER.