

L. J. RIEGLER.  
RAILROAD TIE.  
APPLICATION FILED DEC. 23, 1907.

912,731.

Patented Feb. 16, 1909.

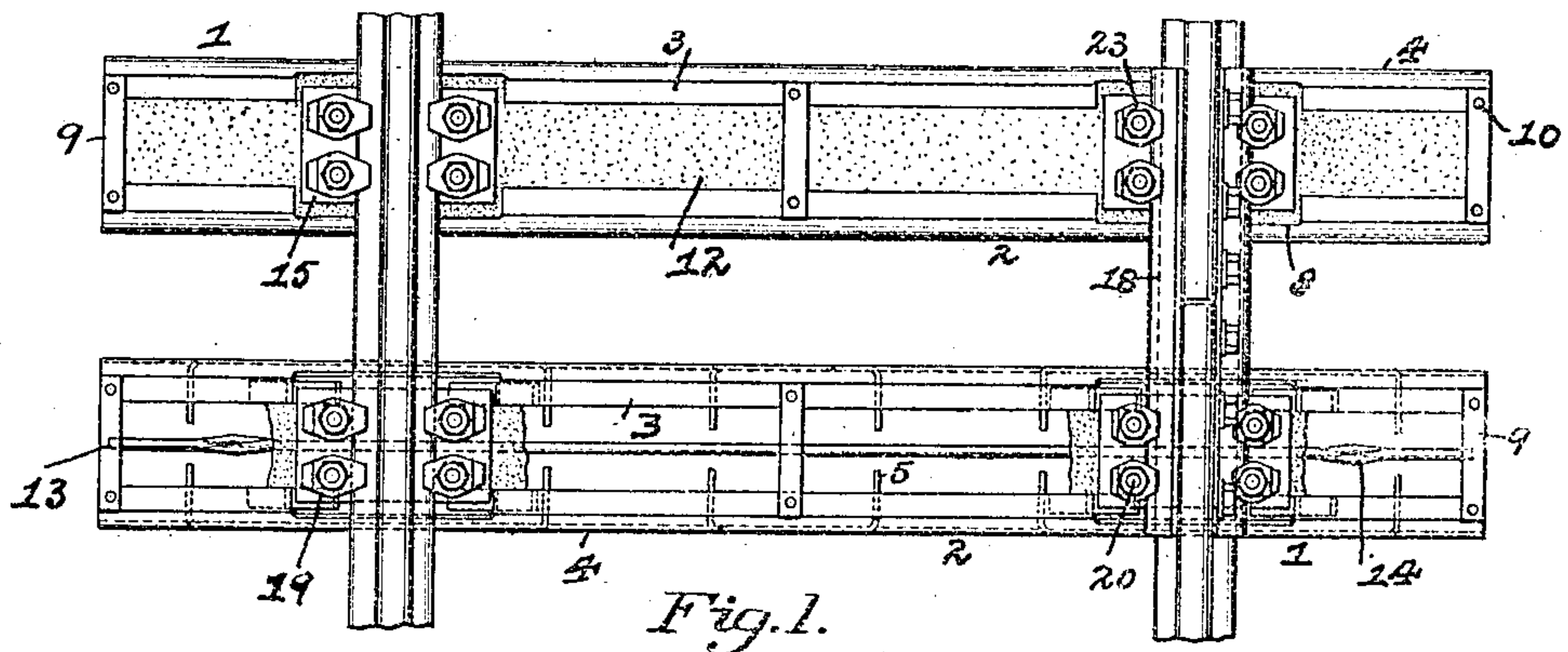


Fig. 1.

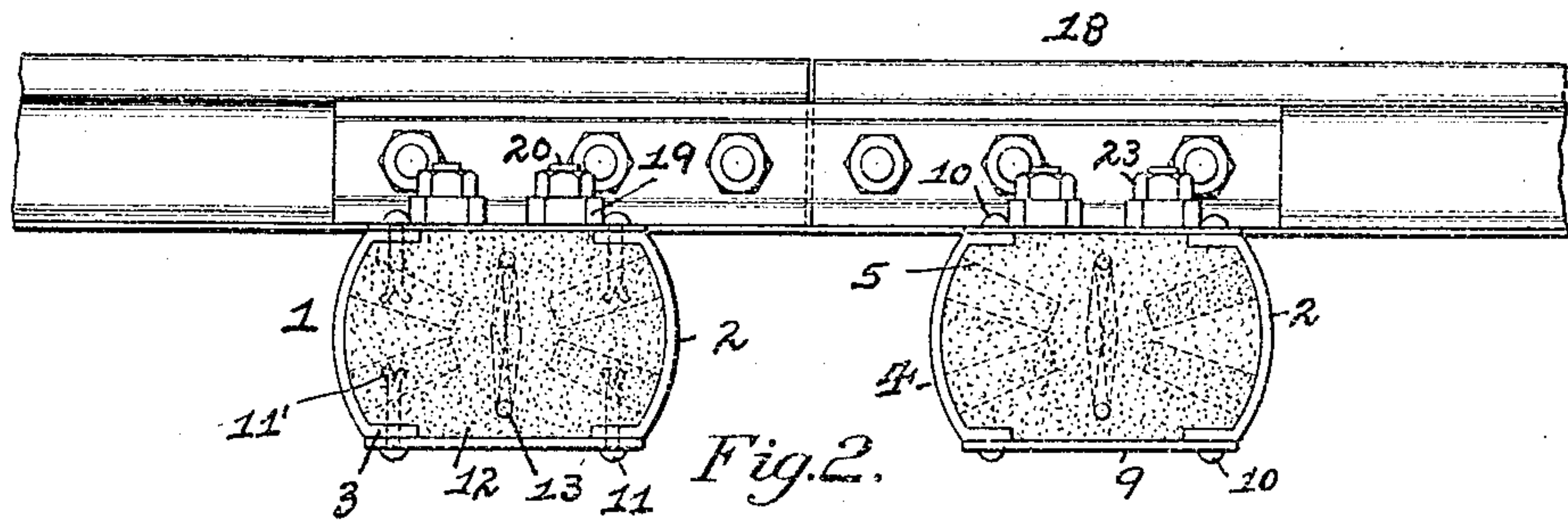


Fig. 2.

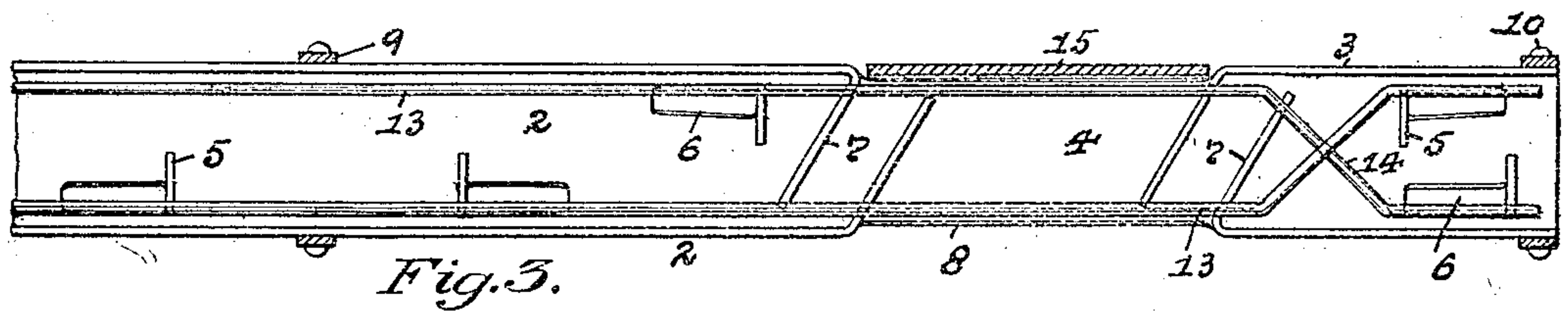


Fig. 3.

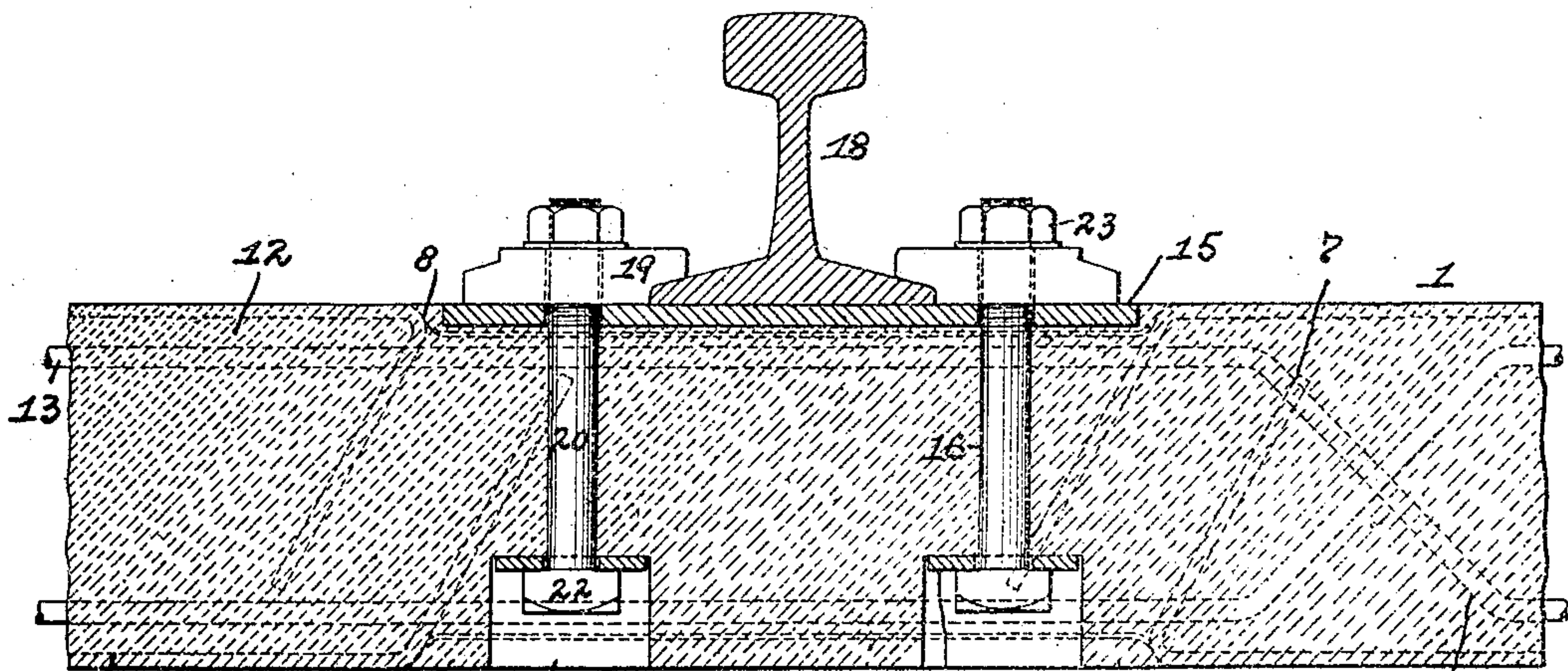


Fig. 4.

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# UNITED STATES PATENT OFFICE.

LOUIS J. RIEGLER, OF BEN AVON, PENNSYLVANIA.

## RAILROAD-TIE.

No. 912,731.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed December 23, 1907. Serial No. 407,611.

*To all whom it may concern:*

Be it known that I, LOUIS J. RIEGLER, a resident of Ben Avon, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railroad-Ties; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to rail-road ties and has special reference to a tie formed from cementitious material and metal.

The object of my invention is to provide a cheap, simple and efficient form of a rail-road tie which can be easily and quickly manufactured for shipment and for being built up at the place of installation, as well as one which will be strong and durable and will form a rigid and secure support for the rail, as well as the cement, or concrete or other filling material placed within the same.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described, and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved rail-road tie, I will describe the same more fully, referring to the accompanying drawing, in which:—

Figure 1 is a plan view of a portion of a rail-road track showing two of my improved ties applied thereto and with one only partly filled with the supporting material. Fig. 2 is a side view of the track. Fig. 3 is a longitudinal section of the tie with the cementitious material removed. Fig. 4 is an enlarged longitudinal section of a portion of the tie in its completed form with the rail in cross-section.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing 1 represents my improved rail-road tie which comprises the two side inclosing members 2 formed of thin sheet metal, such as steel, and bent to form the channel shape or section having the flanges 3 thereon and the main or body portion 4, which is preferably rounded or curved from said flanges. The main portions 4 of the side members 2 have portions within the same punched therefrom and bent inward at a right angle to said main portions to form the side supporting arms 5 and the openings 6 within said main portions and opposite to

each other in said members, said arms acting to hold the said members together. The flanges 3 on said members 2 have also portions within the same punched therefrom and bent inward at an angle thereto to form the upper and lower supporting arms 7 and at each end of the openings 8 formed thereby. The metal for the arms 7 and as punched from each of said openings 8 is severed centrally within each opening in forming said arms and the openings 8 formed by the same are opposite to each other in the flanges 3; so that when the two portions of metal within said openings are bent inwardly to form said arms, each pair of arms of an opening are placed on the same angle with the pair of the opposite opening and thereby allow the arms at each end of a set of openings to be parallel with each other. This allows one of the arms 7 in an opening 8 to be extended away from its opening and the other to be extended toward the same, and by reason of the curved or rounded form of the main body portion 4 of the members 2 the arms 5 are projected toward the center of the tie. The openings 6 for the arms 5 at the ends of the tie 1 are opposite to each other and each member 2 has two openings at each end, one above the other, while the other openings 6 for the arms 5 throughout each member are placed at different points therein and staggered on each side of the tie. The arms 5 can also be tapered when punched with the wide ends thereof connecting the metal of the main portions 4 in the members 2, and the arms 5 on each side of the central portion of the tie are preferably formed at the ends of their openings so as to be away from each other.

The two members 2 of the tie 1 are connected together by straps 9 extending across and between the same and secured to the flanges 3 by rivets 10, such straps being placed at each end and at the center of said tie, and after the said members 2 are thus formed and connected together, the parts are ready for the placing of the cement, concrete or other filling material within the same to complete the tie, which work can be performed at the place where such tie is to be used.

The cement, concrete or other filling material 12 is placed within said tie 1 in any suitable manner and during the placing of the same therein two reinforcing rods 13 to



form trusses are placed in a vertical line through said tie and these rods have an angular portion 14 at each end of the same which is bent out at the center of the same so that they pass each other. Bearing plates 15 are also placed in position on the tie 1 during the placing of the filling material 12 within said tie, so that such plates will rest upon the said filling material and within the openings 8 opposite to each other in the upper flanges 3 and during this formation of the tie by the filling material the bolt holes 16 and recesses 17 can be formed in said filling material in any suitable manner. When the tie 1 is thus in its completed shape, the rails 18 are placed on the plates 15 in their usual positions, and the clamping pieces 19 are placed on these plates 15 for engaging with and fitting over each side of the base of said rails and such pieces have the bolts 20 passing through the same and through the bolt holes 16 in the cement or concrete 12, as well as through washer plates 21 located in and seated against the recesses 17 in the bottom face of said cement, concrete or other filling material. The heads 22 on said bolts 20 fit against the washer plates 21 and the nuts 23 engage with the threaded upper end on said bolts and bear against the clamping pieces 19.

As the cement, concrete or other filling material 12 is placed and built up within the tie 1 it surrounds the arms 5 and 7 and rods 13 and is supported thereby, and it also enters into the openings 6 and 8 and fills up the same, and thereby assists in supporting the same. The filling material 12 is also built up around the flanges 3, straps 9, plates 15 and bolts 20, and when the tie 1 is thus built up the said filling material 12 is completely supported throughout the tie and there will be no liability of the abrasion or breaking of the same.

If desired, the connections for the flanges 3 on the members 2 and the straps 9 can be formed of the bolts or rivets 11 which can extend into the filling material 12 for some distance and be provided with the split and flared ends, as at 11', in Fig. 2, in order to allow for the automatic drawing in of the said members in case of any shrinkage of said filling material.

It will thus be seen that all the parts of my improved rail-road tie are of such form and shape as to be made from commercial stock, and the main inclosing members can be constructed and assembled together and shipped for final completion to form the tie at the work or place of use. All the parts can be formed of rolled material, such as steel, and when in use with the cementitious or other filling material and connected to the rails, the tie so formed, will provide for great wearing surfaces and supporting qualities, and will not be liable to fracture or become worn through usage. The cement, concrete

or other filling material will be firmly supported and protected from abrasion within the tie and throughout the same through the arms and openings in the inclosing members and the reinforcing bars therein, and there will be no liability of any of the parts getting out of order, separated, or need repairing at any time. It will also be evident that the cementitious or other filling material will reinforce the metal plates and that such plates will protect said material from abrasion or other injury through the ballast striking or being against the same, and the cementitious material is also reinforced by the long rods embedded within and through the same. The plates under the rails and resting on the cementitious or other filling material of the tie will take up the wear on the tie from the traffic on the rails and they will prevent said rails from engaging with the tie or metal thereof, so that there will be no metal connections between the fastenings for the rails and thereby obviate the necessity for any further insulation. It will also be obvious that the tie can be made from plates formed of other shapes, and that various other modifications and changes in the design and construction of my improved tie may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as my invention, and desire to secure by Letters Patent, is:—

1. In a tie for rails, the combination with a filler body, of curved inclosing metallic side members, and inwardly extending projections on said members and embodied in said body for holding said members together.

2. In a tie for rails, the combination with a filler body, of curved inclosing metallic side members, and inwardly extending arms formed integral with said members and embodied in said body for holding said members together.

3. In a tie for rails, the combination with a filler body, of curved inclosing metallic side members, and inwardly extending arms formed integral with and punched from said members for being embodied in said body to hold said members together.

4. In a tie for rails, the combination with a filler body, of curved inclosing metallic side members formed in channel shape, and inwardly projecting portions on the body portion of said members and embodied in said body for holding said members together.

5. In a tie for rails, the combination with a filler body, of curved inclosing metallic side members formed in channel shape, and inwardly extending arms formed integral with the body portion of said members and embodied in said body for holding said members together.

6. In a tie for rails, the combination with a filler body, of curved inclosing metallic side



members formed in channel shape, and inwardly extending arms formed integral and punched from the body portion of said members for being imbedded in said body to hold said members together.

7. In a tie for rails, the combination with a filler body, of inclosing metallic members formed in channel shape, and projections on the flanges of said members and imbedded in said body for supporting the same.

8. In a tie for rails, the combination with a filler body, of inclosing metallic members formed in channel shape, and arms formed integral with the flanges of said members and imbedded in said body for supporting the same.

9. In a tie for rails, the combination with a filler body, of inclosing metallic members formed in channel shape, and arms formed integral with and punched from the flanges of said members for being imbedded in said body to support the same.

10. In a tie for rails, the combination with a filler body, of inclosing metallic members, and rods extending through said body and one above the other, in the same vertical plane and crossing each other to form trusses within the same.

11. In a tie for rails, the combination with a filler body, of inclosing metallic members, and rods extending through said body and one above the other in the same vertical plane and provided with angular portions for crossing each other to form trusses within the same.

12. In a tie for rails, the combination with

a filler body, of inclosing metallic members and rods extending through said body and one above the other in the same vertical plane and provided with angular bent out portions for crossing each other to form trusses within the same.

13. In a tie for rails, the combination with a filler body, of inclosing metallic members, straps connecting said members, and bolts connecting said straps and members and imbedded in said body to support the same.

14. In a tie for rails, the combination with a filler body, of inclosing metallic members, straps connecting said members, and bolts connecting said straps and members and having their ends imbedded in said body to support the same and said ends being split and flared.

15. In a tie for rails, the combination with a filler body, of inclosing metallic members formed in channel-shape and having openings in its flanges, and plates on said body and fitting within said openings for supporting the rails.

16. In a tie for rails, the combination with a filler body, of inclosing metallic members formed in channel-shape and having openings in its flanges, and plates on said body and fitting within said openings to support the rails and their fastenings.

In testimony whereof, I, the said LOUIS J. RIEGLER, have hereunto set my hand.

LOUIS J. RIEGLER.

Witnesses:

J. N. COOKE,

JAMES L. WEHN.