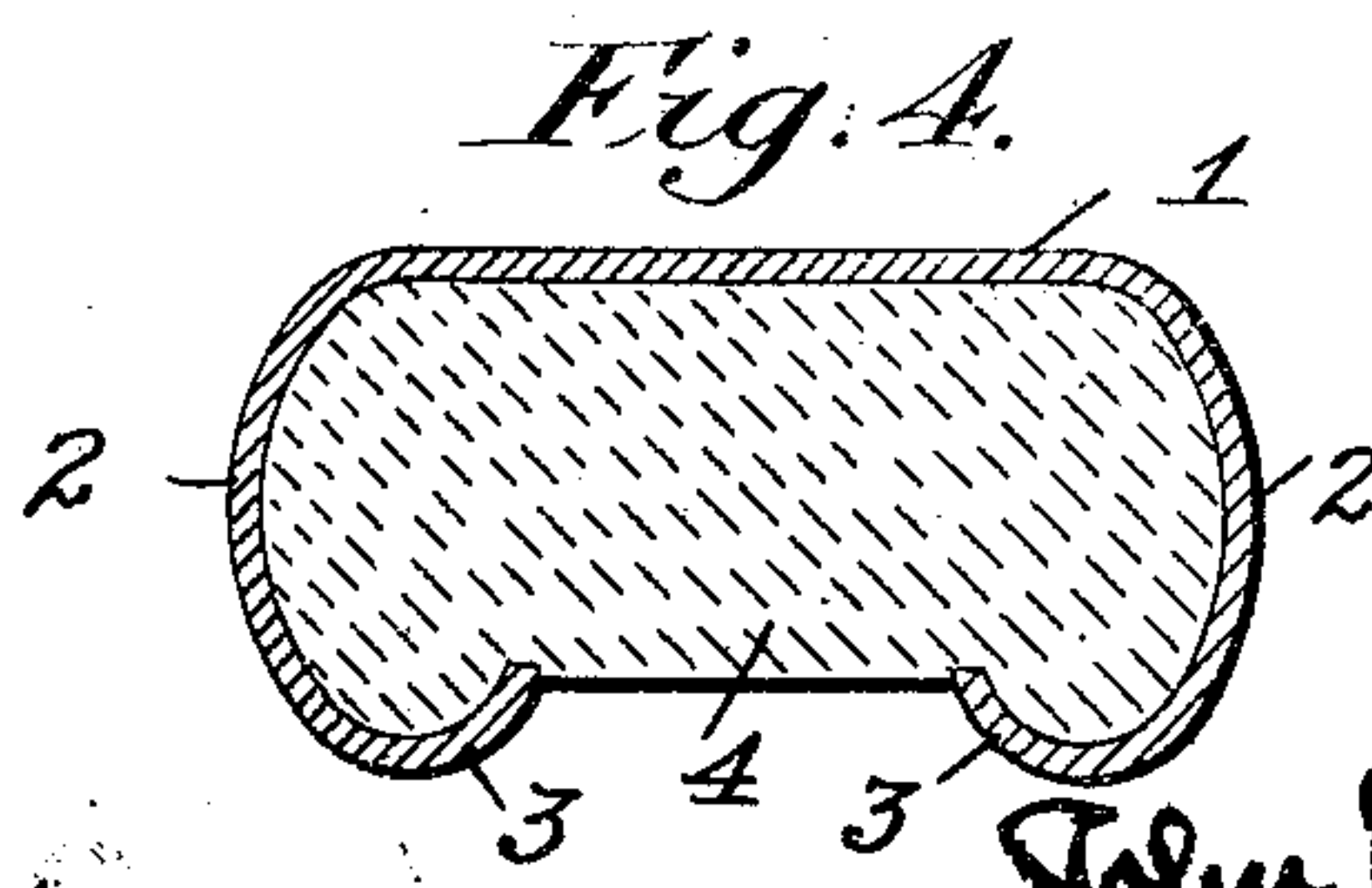
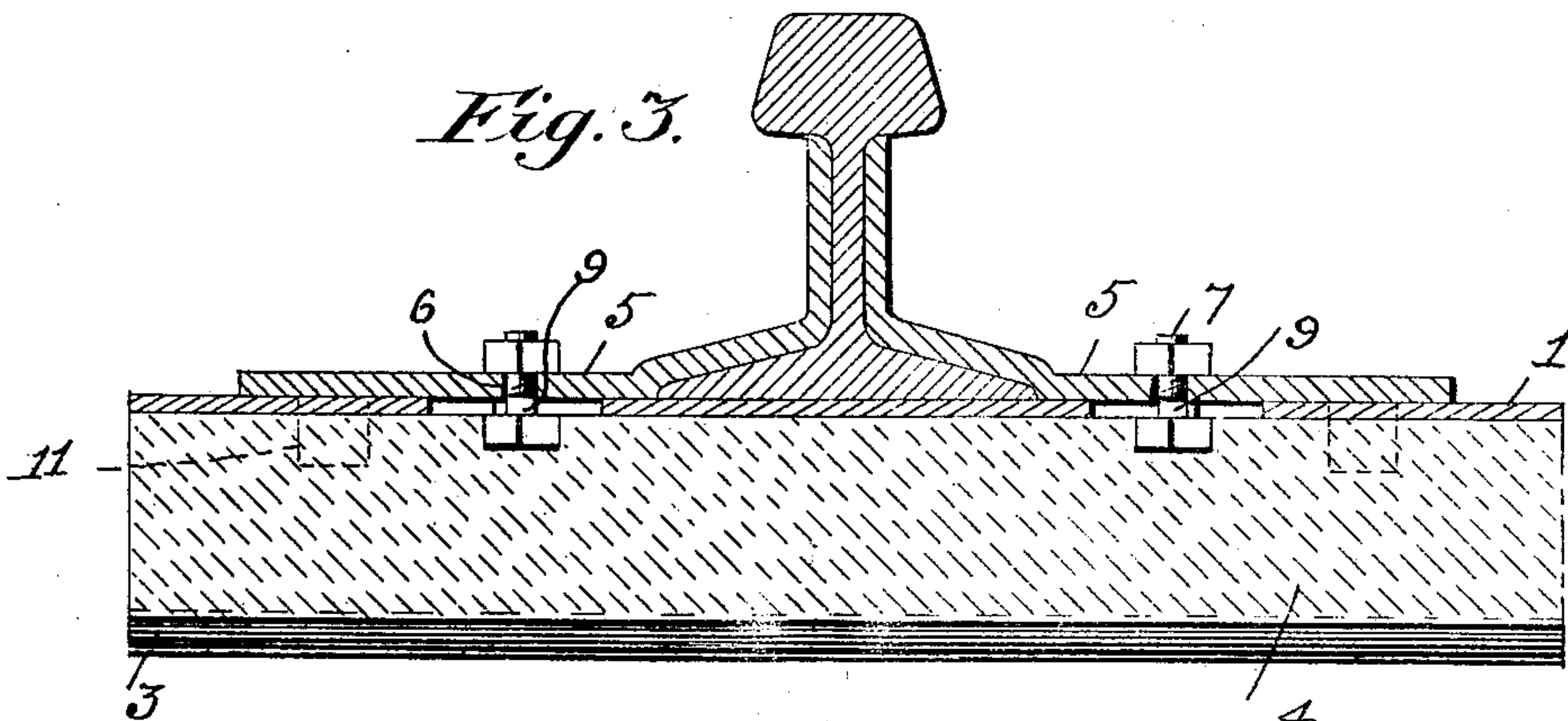
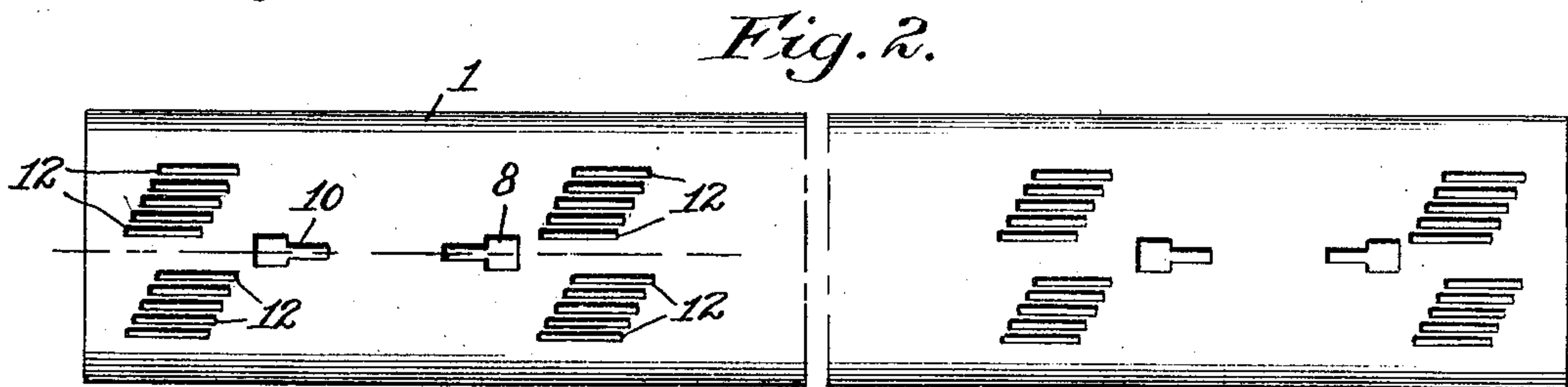
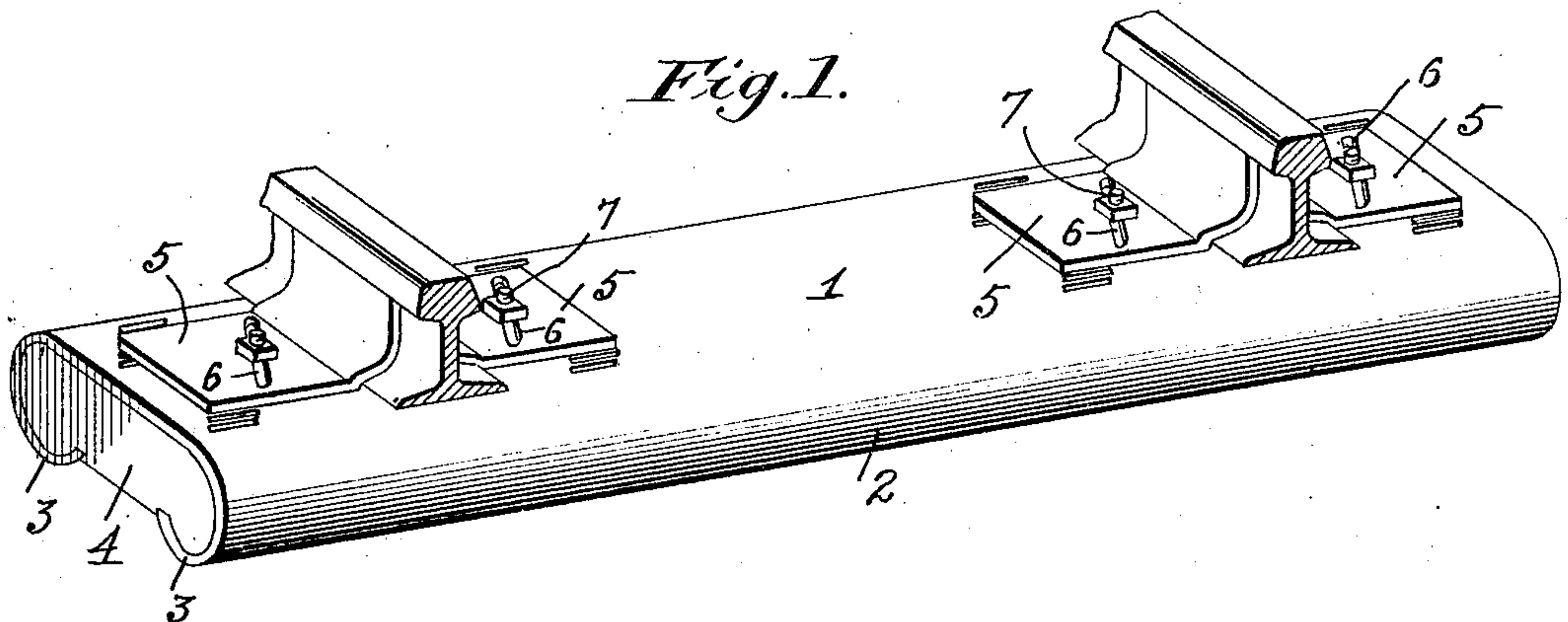


No. 861,547.

PATENTED JULY 30, 1907.

J. G. SNYDER.
METALLIC RAILWAY TIE.
APPLICATION FILED OCT. 24, 1906.

2 SHEETS—SHEET 1.



Witnesses:
Grant Burroughs
J. A. Connor.

Inventor:
John B. Snyder
By M. M. Davis
Att'y.

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2 SHEETS—SHEET 2.

Fig. 5.

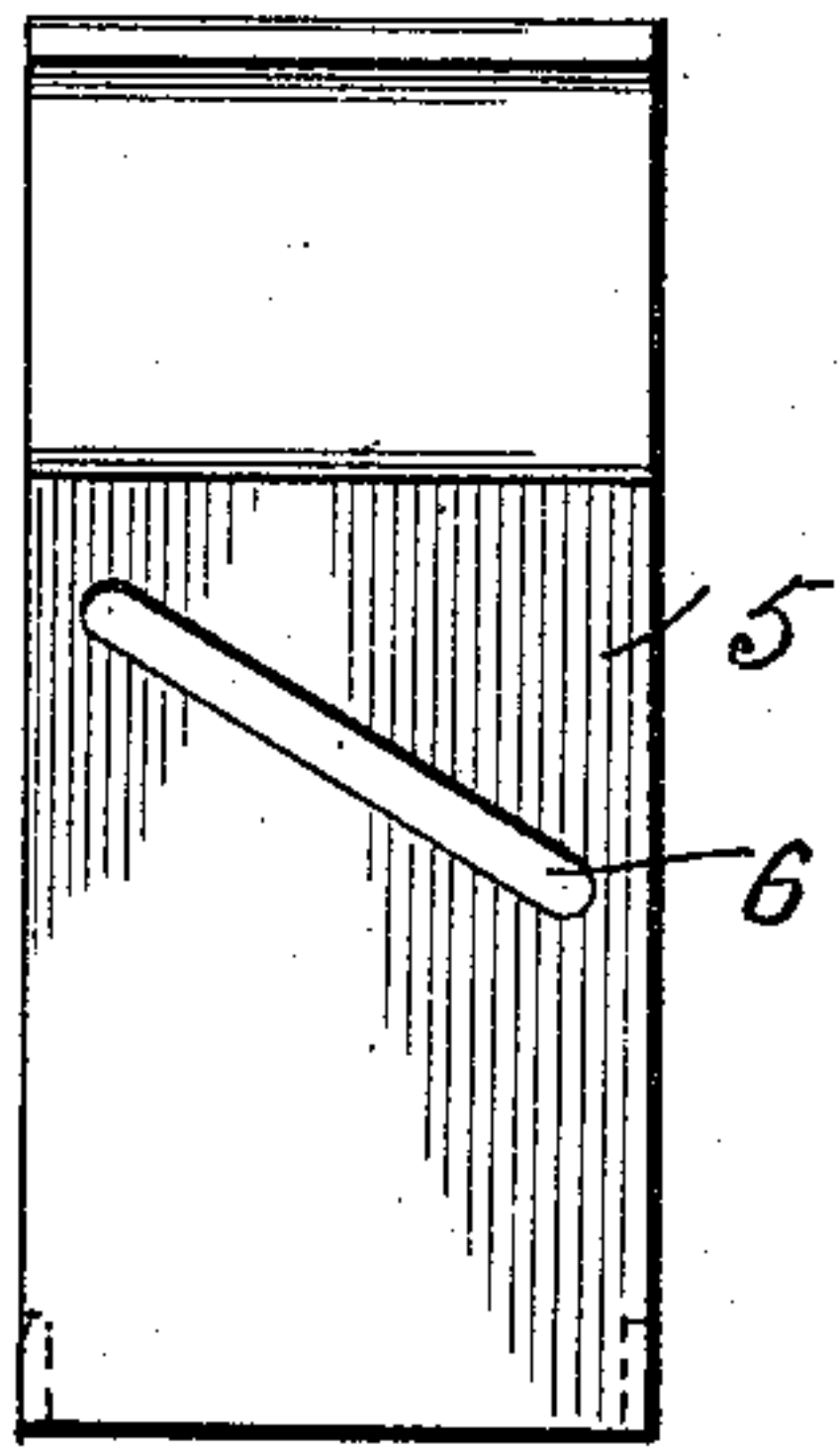


Fig. 6.

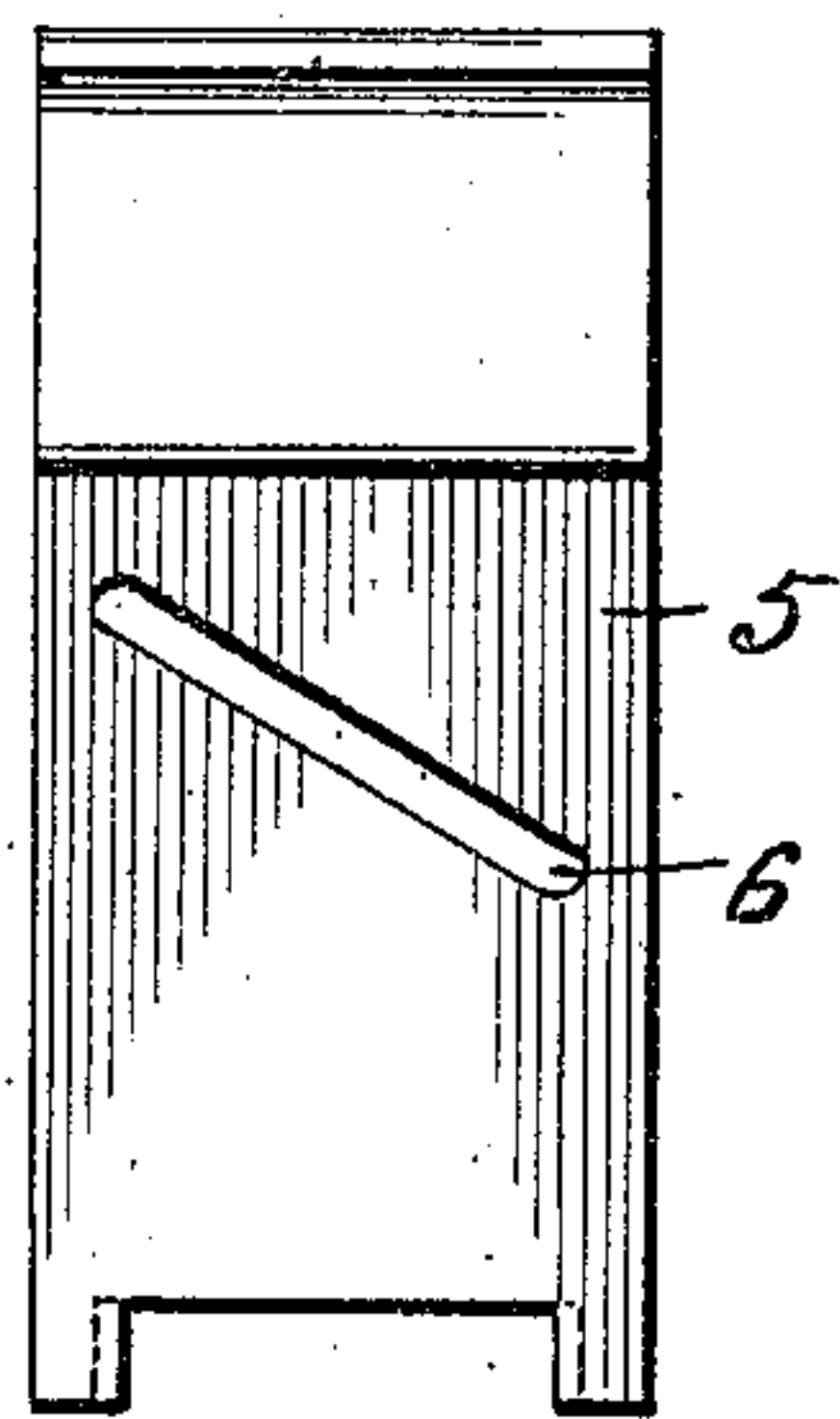


Fig. 7.

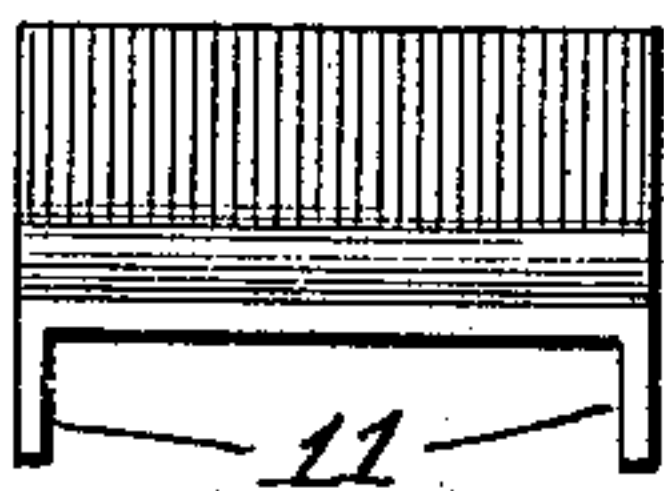


Fig. 8.

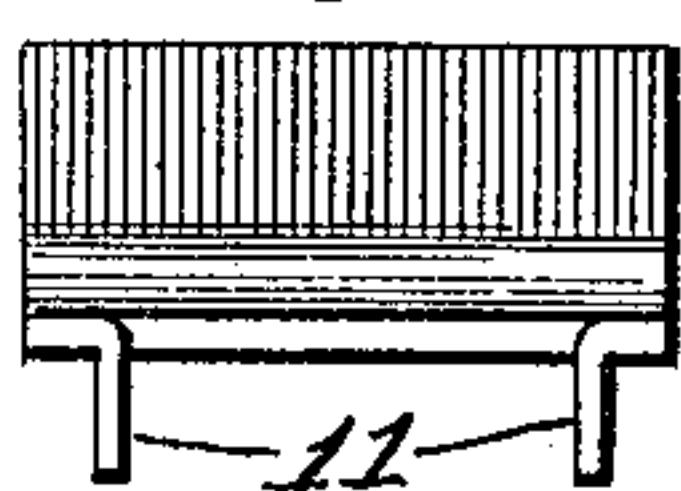


Fig. 9.

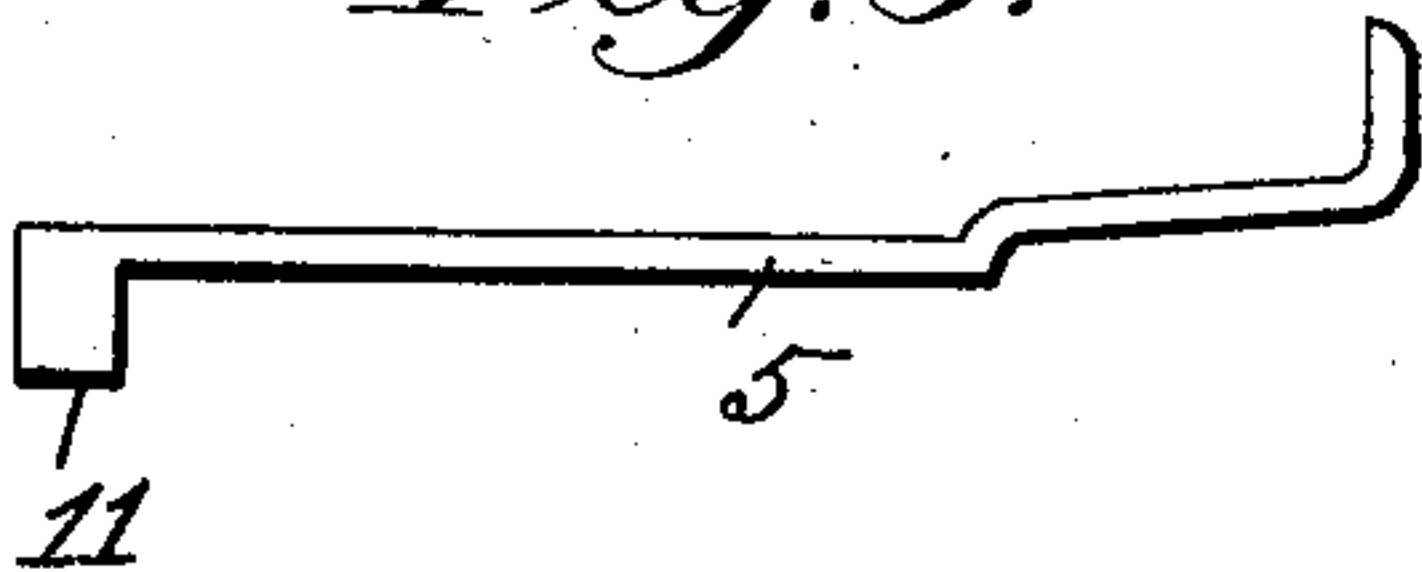


Fig. 10.

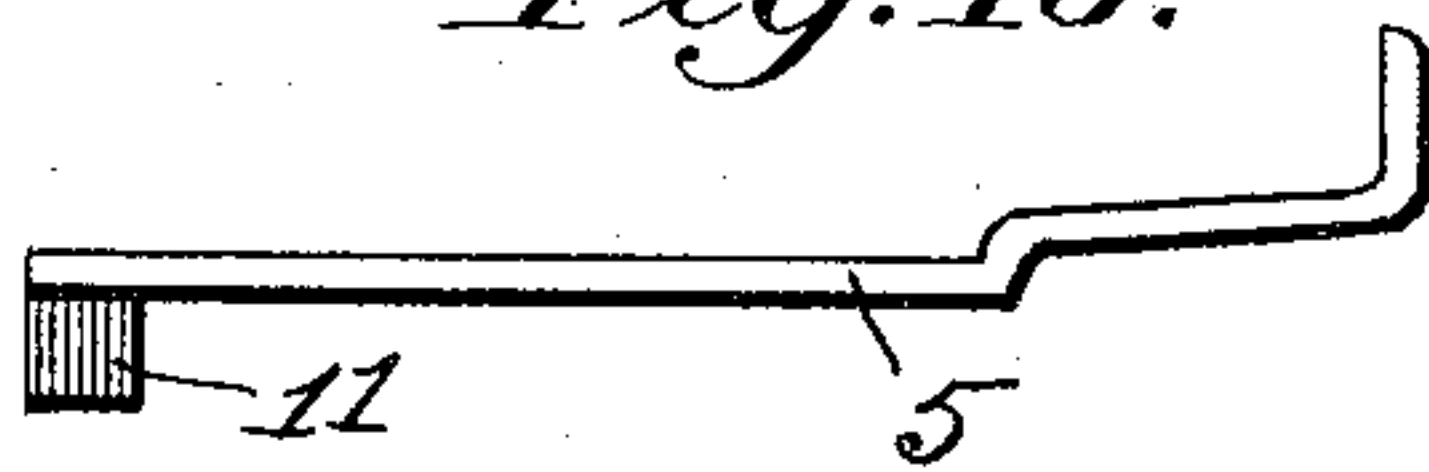
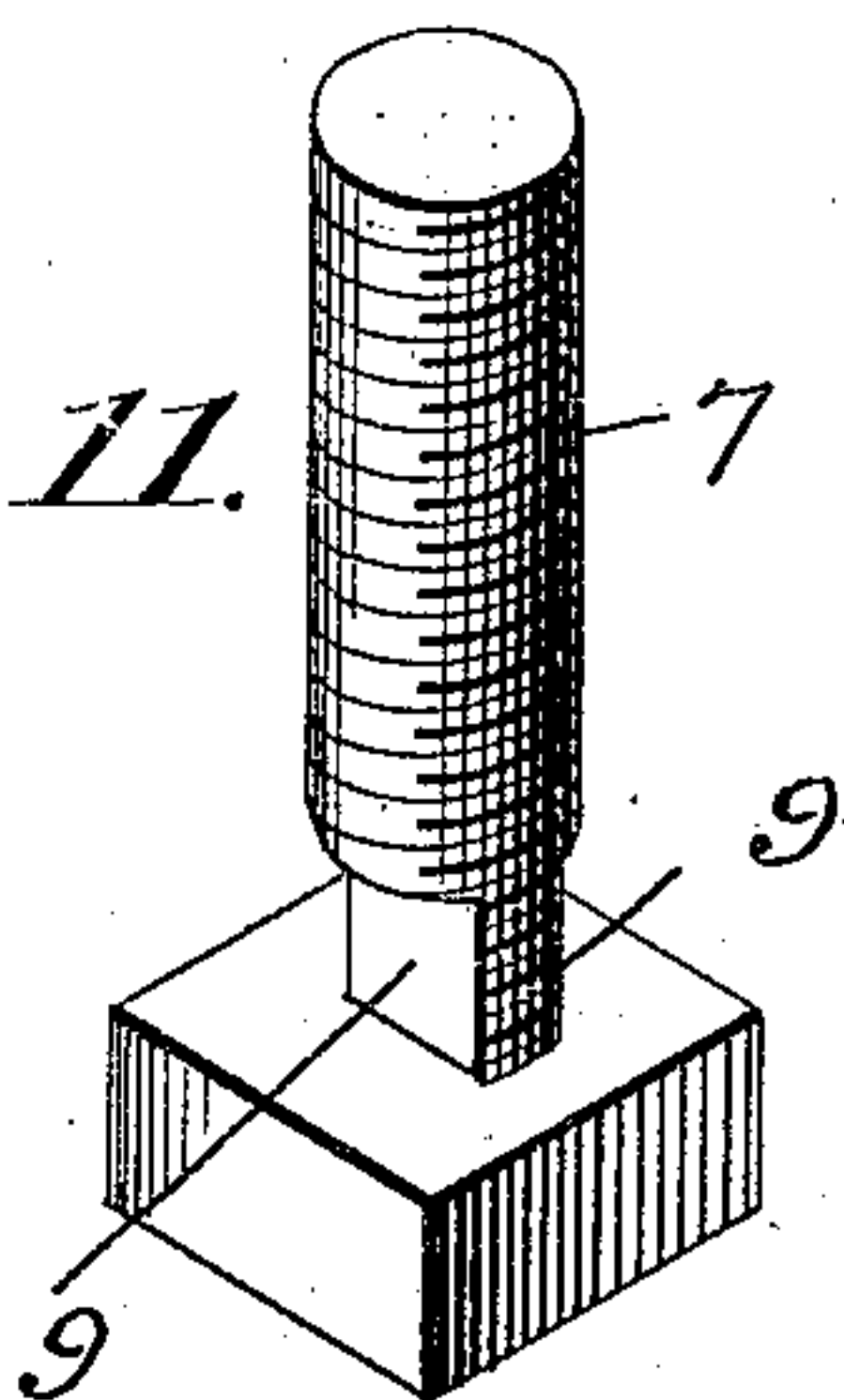


Fig. 11.



Witnesses:
Grant Burroughs
J. A. Connor.

Inventor
John G. Snyder
By M. M. Davis
Att'y.

UNITED STATES PATENT OFFICE.

JOHN G. SNYDER, OF ALTOONA, PENNSYLVANIA.

METALLIC RAILWAY-TIE.

No. 861,547.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed October 24, 1906. Serial No. 340,301.

To all whom it may concern:

Be it known that I, JOHN G. SNYDER, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

The invention relates to improvements in metal railway ties and it has for its object the provision of such a device that will not only have sufficient stability to withstand the wear and tear of traffic, but which will also have sufficient elasticity as to give the rails the resilient support necessary to permit an easy movement of the rolling-stock.

It also has for its object the provision of means for adjusting the clamps so that the rail can be easily positioned and secured in place.

The invention consists in the novel construction, combination and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the drawings, in which similar reference characters designate corresponding parts, Figure 1 is a perspective view of a tie embodying the invention. Fig. 2 is a plan view of the casing or shell forming the tie with the rails and clamps removed. Fig. 3 is a longitudinal sectional view of one end of the tie with the rail and clamp in position. Fig. 4 is a cross sectional view showing the shell and elastic filling. Figs. 5, 7 and 9 are, respectively, plan, end, and side views of the clamp. Figs. 6, 8, and 10, are, respectively, plan, end, and side views of a modified form of the clamp. Fig. 11, is an enlarged detail perspective view showing the bolt.

The tie is formed of a casing or shell of sheet steel or other suitable metal and in general shape and dimensions resembles the ordinary wooden tie. It has the flat upper surface or crown 1 and the rounded sides 2; and it is open at both ends and at the bottom. The edges of the sides, as at 3, are curved inwardly and upwardly to form semi-elliptical springs, on the rounded part of which the tie rests. These springs, together with the curved sides, give to the tie the required elasticity to meet the traffic conditions of the road. In the casing is the elastic filling 4 of such a nature as to give to the tie the stability required and also which will permit the tie to yield to take up the shock of the passing load. The filling is preferably comprised of a mixture of asphalt, bitumen and fiber, which latter may be either mineral or vegetable. The asphalt and bitumen give the required body and cohesion to the filling and the fiber acts as a binder to hold the mass together. The fiber also serves to render the filling elastic so that it can yield to the movement of the tie

under the stress of a load. The curved edges 3 not only form springs, but also serve to hold the filling within the casing. Owing to their formation the inwardly turned edges 3 cannot spread apart under the weight of a passing load, but will have a tendency to move inwardly, which would be opposed by the filling.

Owing to their formation, the inwardly and upwardly turned edges 3 of the tie penetrate the material of the road-bed to a considerable extent; also the comparatively wide opening in the bottom of the tie permits road-bed material to enter the tie and adhere to the filling. In this way the tie is held against movement.

The rails are held in place on the tie by the clamps 5. Each clamp at its inner end is shaped to fit the base and web of the rail and to abut against the under side of the crown. In the outer end of the clamp is the oblique slot 6 through which passes the bolt 7 mounted in the tie. When the bolt is placed in position its head is inserted in the opening 8 in the tie and its shank, which is flattened, as at 9, is moved into the recess 10 extending towards the rail. When in this position the head of the bolt projects beneath the edges of the tie and is thereby held in place. By means of the oblique slot 6 the clamp can be moved from one side to the other to move it toward or from the rail so that a proper adjustment of the rail and the tie can be secured. The flattened part 9 of the bolt prevents the turning of the latter when the nut is applied. The purpose of the bolt is to hold the clamp down upon the tie.

Longitudinal movement of the clamp 5 is prevented by the lugs 11 which project from the under side of the outer end of the clamp at its corners. These lugs are adapted to register with the slots 12 in the tie. The slots are parallel with the longitudinal axis of the tie and are arranged in groups on opposite sides of the median longitudinal line of the top of the tie. As shown in the drawing there are four slots in each group, but the number may vary. The slots are of the same length and accurately fit the lugs on the clamps. They are arranged so that the lines passing through their ends are parallel with the groove 6 in the clamp when the latter is in place. Consequently the ends of the slots approach and recede from the rail by very shallow steps. By moving the clamp from one side to the other a very close adjustment relative to the rail can be secured. When the clamp is in position the lugs engaging with the slots hold the clamp against the end thrust exerted by the rail. The bolt, when it is secured, holds the clamp in place and also holds the rail down on the tie. By loosening the bolt the clamp can be very easily moved from one side to the other to secure a change in the adjustment.

In the modification shown in Figs. 6, 8 and 10, the lugs 11 are formed by slitting the end of the clamp

longitudinally and then transversely so that the strips of metal can be turned down to form the lugs inside of the edges of the clamp. The clamp in this instance is adjusted in the same way as in the former instance.

5 Other modifications of the device are obvious.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A metallic railway tie comprising a casing or shell open at the bottom with the edges of the sides turned inwardly and upwardly to form springs, and means for securing the rail to said tie.

10 2. A metallic railway tie comprising a casing or shell open at the bottom with the edges of the sides turned inwardly and upwardly to form springs, an elastic filling for the casing, and means for securing the rail to the tie.

15 3. A metallic railway tie comprising a casing or shell provided with a plurality of slots parallel with the longitudinal axis of the tie and said slots arranged so that their ends meet a line extending obliquely around the tie, and a rail-clamp provided with lugs adapted to register with said slots.

20

4. A metallic railway tie comprising a casing or shell provided with a plurality of parallel slots extending longitudinally of the tie and arranged to extend obliquely around the tie, a rail-clamp having lugs adapted to register with said slots and provided with a groove extending parallel with the oblique line running through the ends of said slots, and a bolt mounted in said casing and engaging with said groove in the rail clamp.

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

JOHN G. SNYDER.

Witnesses:

A. W. ENGEL,

J. MADDEN.