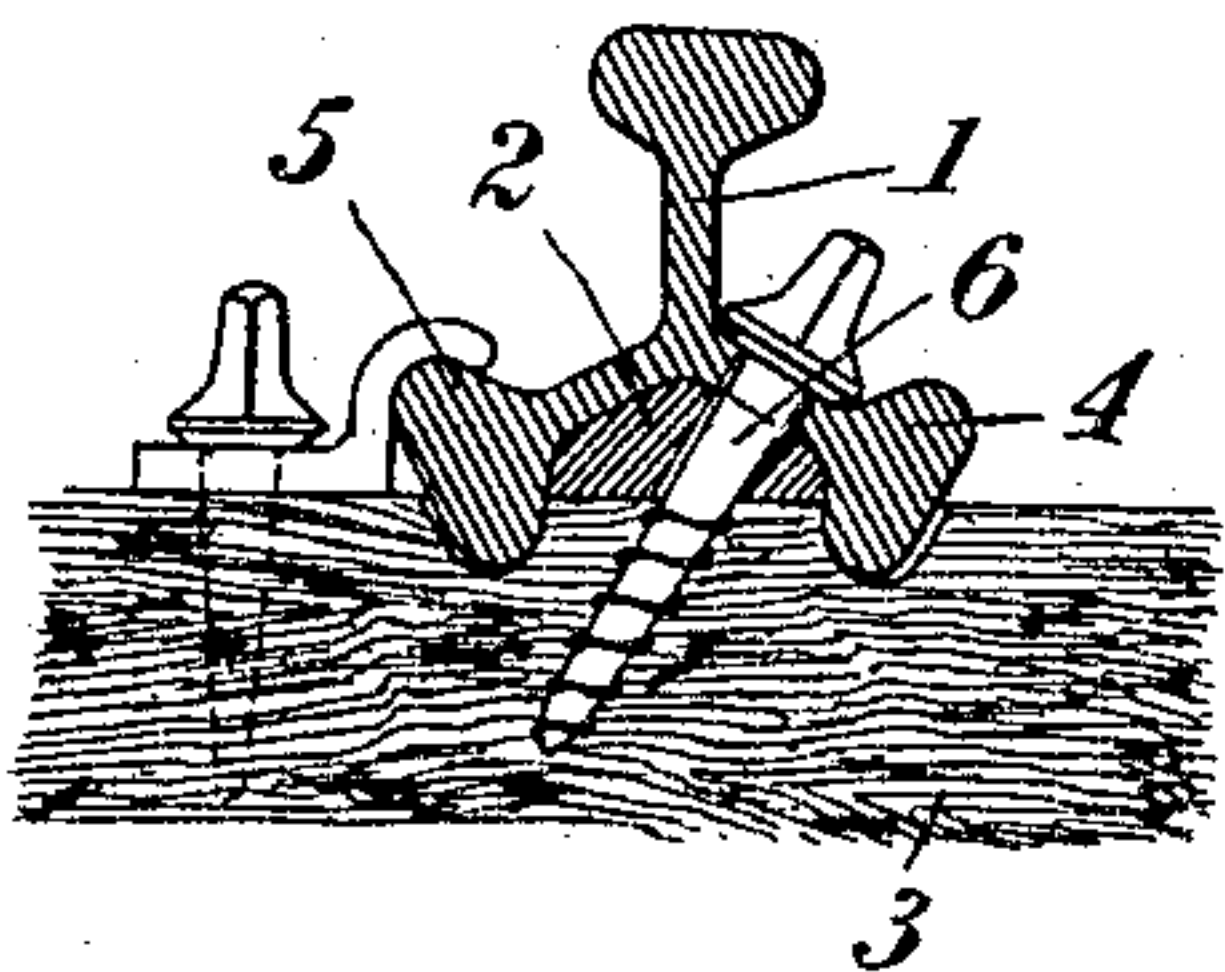


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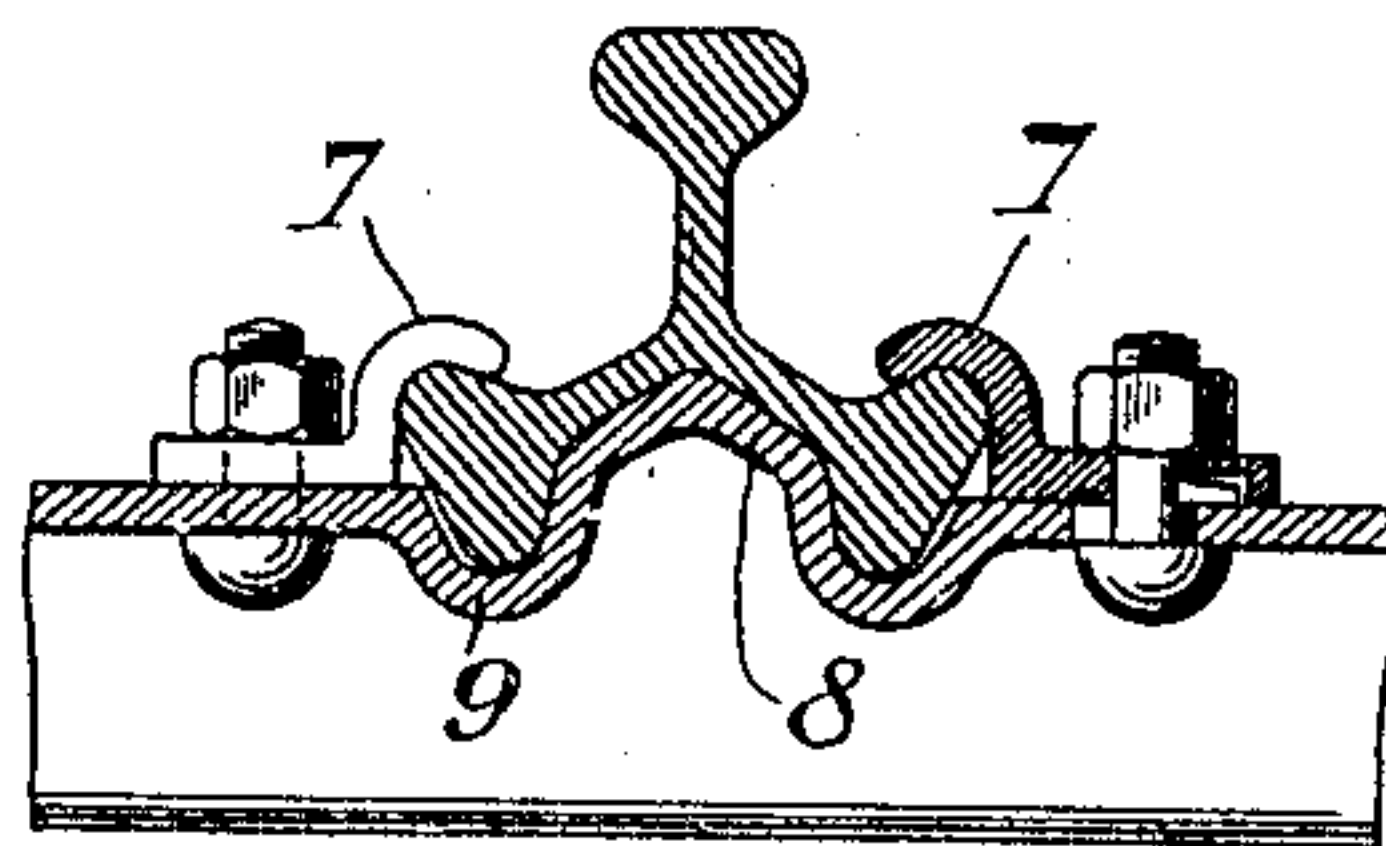
PATENTED NOV. 19, 1907.

A. V. P. M. BERTHIER.  
RAIL WITH TRIPLE HEAD.  
APPLICATION FILED FEB. 24, 1906.

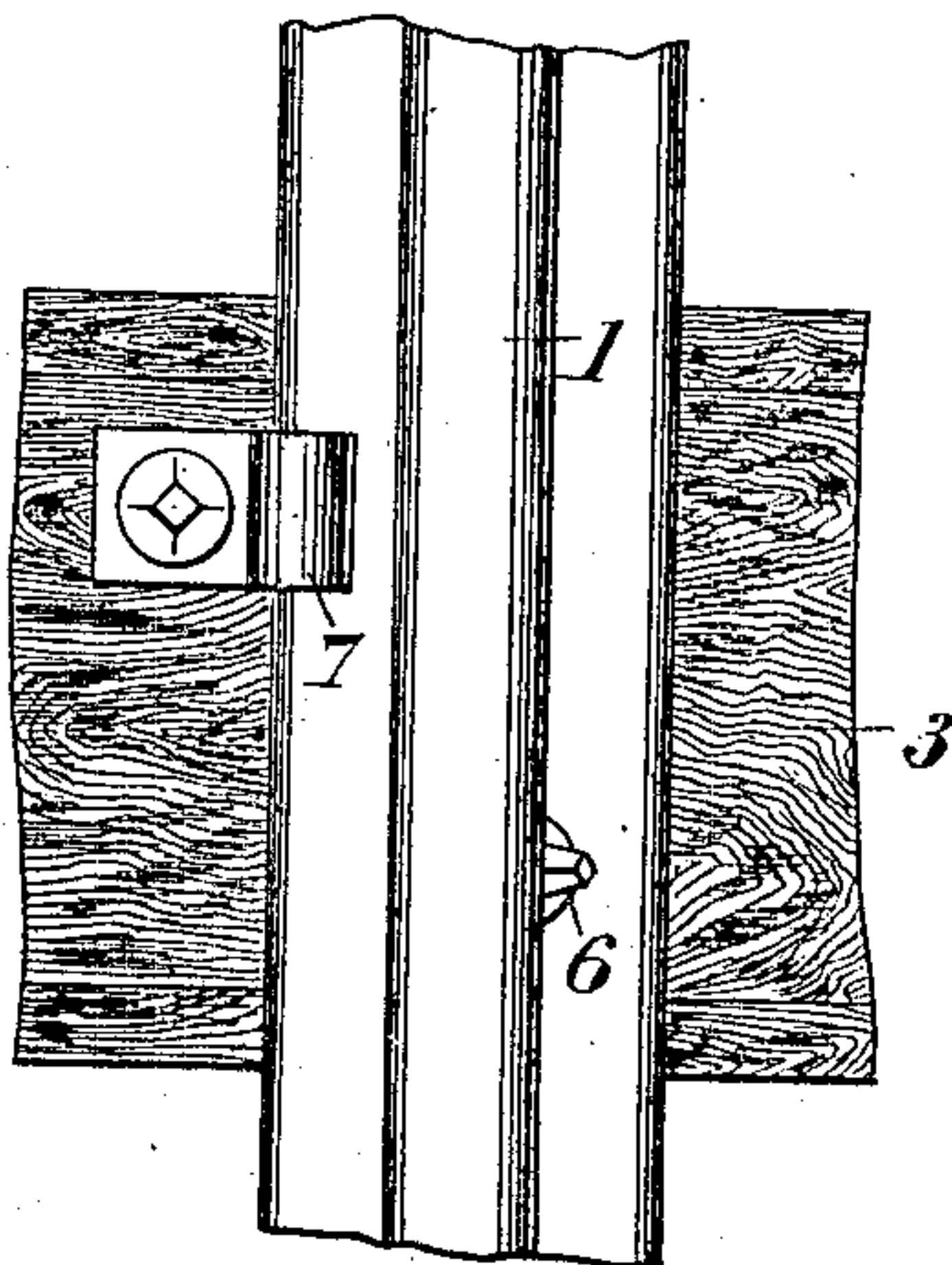
*Fig. 1.*



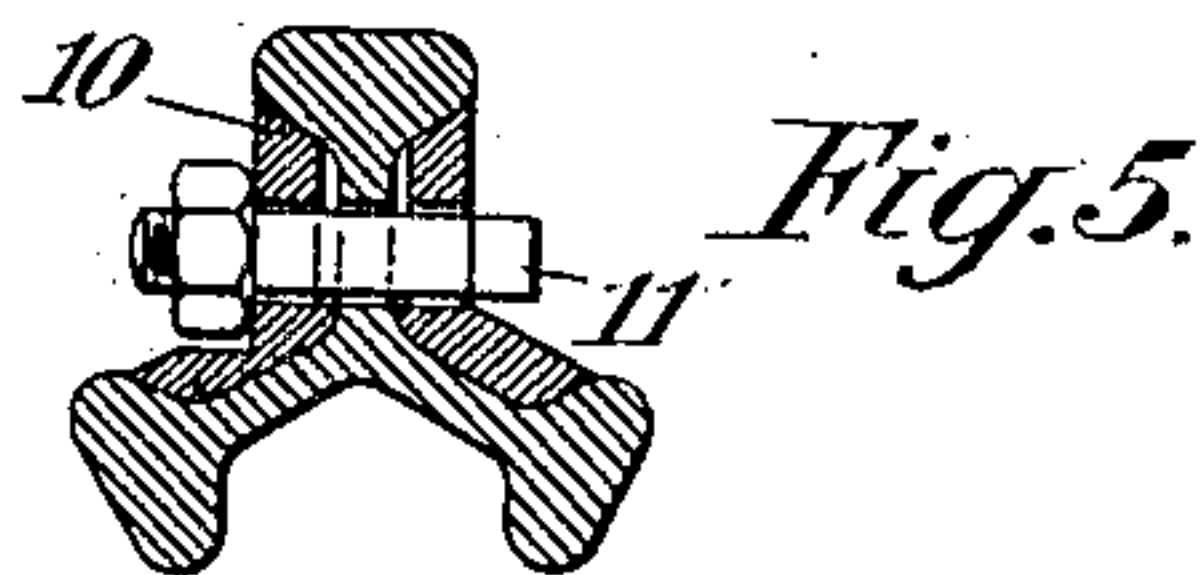
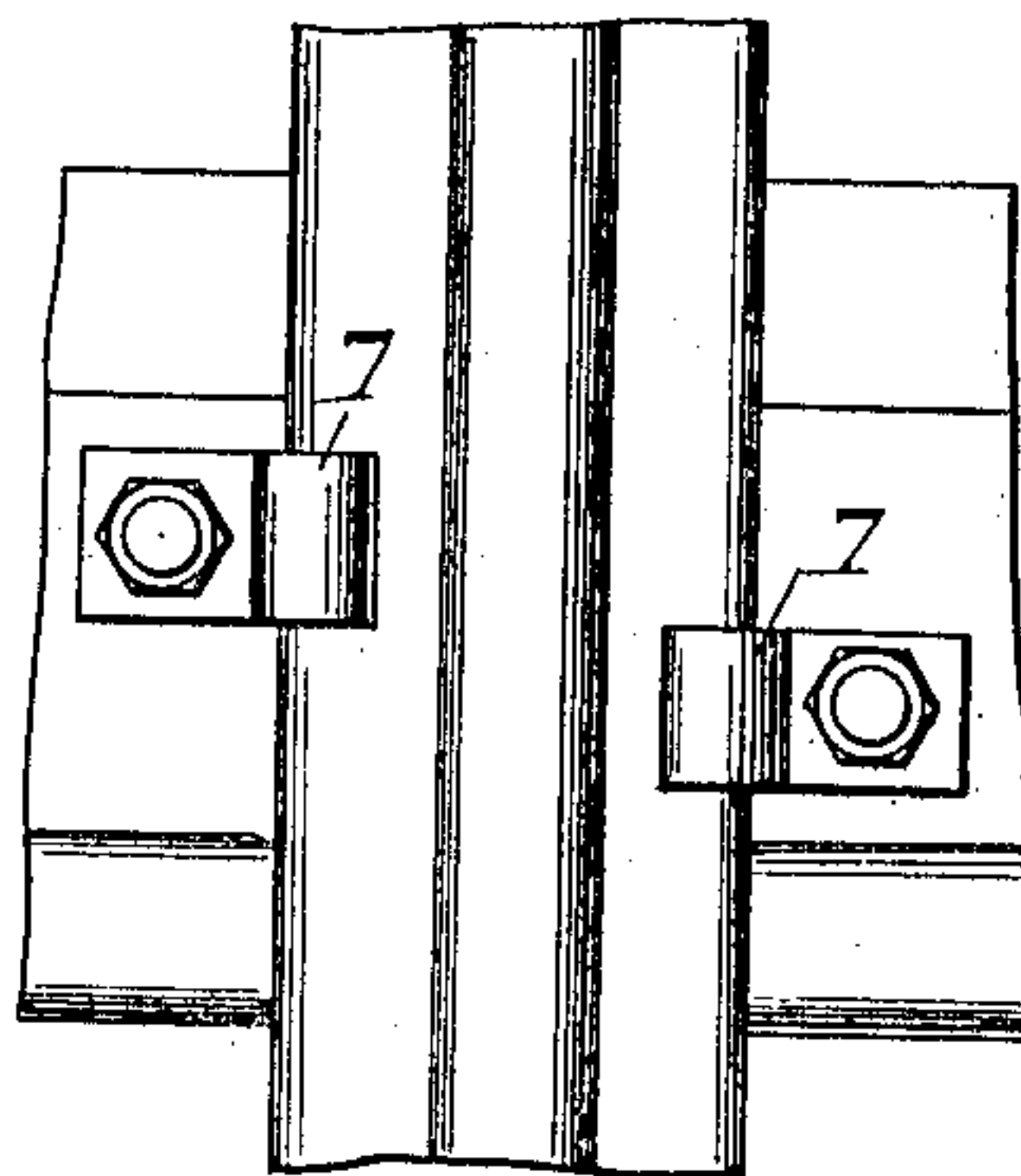
*Fig. 3.*



*Fig. 2.*



*Fig. 4.*



Witnesses:  
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J. E. Lawson

Inventor:  
André Virgile Paul Marie Berthier.

by Frank S. Appelman Attorney.



# UNITED STATES PATENT OFFICE.

ANDRÉ VIRGILE PAUL MARIE BERTHIER, OF CONSTANTINOPLE, TURKEY.

## RAIL WITH TRIPLE HEAD.

No. 871,563.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed February 24, 1906. Serial No. 302,809.

*To all whom it may concern:*

Be it known that I, ANDRÉ VIRGILE PAUL MARIE BERTHIER, pasha, a citizen of the French Republic, and resident of Constantinople, Turkey, have invented a certain new and useful Rail with Triple Head, of which the following is a specification.

This invention relates to rails for railway tracks and its object is to provide a rail having a triple head so that it may be turned over twice at its place so as to allow successively the use of the three heads for rolling purposes. Consequently this rail must give strictly speaking, the triple use of a rail with a single head.

The section of the rail presents three heads and three webs connected in their center, the three heads as well as the hollows separating them being strictly symmetrical; the form of the hollows is such that the rolling operation may be carried out without difficulty.

The rail with three heads which forms the object of this invention may be secured to metallic or wooden sleepers.

In the accompanying drawings: Figures 1 and 2 show a cross section and a plan view of a rail portion secured to a wooden sleeper. Figs. 3 and 4 show in a similar manner a rail portion secured to a metallic sleeper. Fig. 5 is a cross section of a fish-plate connection.

1°—*Rail secured to a wooden sleeper.* The rail 1 Figs. 1 and 2, reposes exclusively on a ground plate 2 made of metal, wood or any other suitable material; this ground plate exactly fits into the hollow of the rail applied on it, it receives and transmits to the sleeper 3 all compression strain.

In order to reduce the height of the rail over the sleeper the two lower heads 4, 5 project into two grooves arranged in the sleeper; the dimensions of these grooves are slightly larger than those of the heads which are thus prevented from coming into contact with the sleeper; the grooves have a certain inclination towards the outside in order to insure the escape of the water. The grooves are not indispensable and the rail may simply be placed on the sleeper without however touching it; the height of the ground plate has been chosen in accordance as well as that of the attaching means.

The above described arrangements do away with any contact between the lower rail heads and the metallic pieces, whereby

they are protected against the mutilations and deformations which occur with double headed rails; furthermore the lower heads being free, the strain is supported by their two webs without it being possible that deformations occur in the transverse direction.

Fastening the rail on the sleeper is effected as follows: The ground plate is first placed on the sleeper and according to the attaching means used for the rail, it carries either a stay bolt, screwed or riveted in its center or projections arranged under the ground plate during manufacture; the ground plate may also be fixed by means of a wood screw with a countersunk head, a screw or a simple nail driven in the sleeper and whereupon the ground plate is fixed a passage hole having been arranged in it to this effect. One only of these accessories is necessary in the case where the sleeper is united with the rail by means of two clips. When the rail is fixed at least by means of one wood screw crossing one of the lower webs and the ground plate, the latter is at the same time kept in place. The rail is secured to the wood sleeper either by a wood screw 6 and a clip 7, or by two wood screws or by two clips.

2°—*Rail secured to metallic sleeper.*—One may for instance use sleepers made of rolled and stamped soft steel (Figs. 3 and 4); a projection 8 replaces the ground plate 2 used with the rail on wood sleeper and depressions 9, allowing of the lower heads being lodged, are provided in the sleeper by stamping. The hollows 9 may be dispensed with; in this case the projection being used as ground plate as well as the attaching means are in this case heightened so as to insure the position of the rail without the lower heads into contact with the sleeper.

The rail is secured to the sleeper either by means of two clips 7 or by only one clip and a bolt, or by two bolts: the latter ordinarily cross the lower webs and the ground plate like the wood screw 6, Fig. 1.

It is advisable to provide with a catch the bolts intended to keep the clips or to traverse the webs; when the bolt is introduced from below the catch traverses a suitable mortised groove provided in the sleeper for allowing the catch to pass; then the bolt is caused to rotate about half a revolution and in this position the catch prevents any tendency of the bolt to fall under the sleeper; the clip carries beneath a hollow which covers



and incloses the catch and when the nut is in place, the bolt is prevented from rotating which facilitates the tightening operation.

When the bolts connect the rail to the sleeper without the help of clips, a washer is interposed under the nut; it is provided with a mortised hollow intended to receive the catch of the bolt.

Whether rails are used on wooden sleepers or on metallic sleepers the connection between the rail ends is effected by means of fish-plates 10 having the section shown in Fig. 5. These fish-plates are secured in place by bolts having rectangular heads 11; this form of head being necessary by reason of the necessity of leaving between it and the upper part of the rail a sufficient space for the passage of the wheel flanges. The base of the bolt is preferably square.

It is also possible to use three fish-plates kept in place by six alternating bolts and in this case the rail may be rotated without separating all the rails.

Having now fully described my said invention, what I claim and desire to secure by Letters Patent is:

1. The combination with the three headed

rail of a sleeper intended to support the rail of a ground piece constituting the intermediary between the rail and the sleeper and having such a form as to fit the outlines of the hollow of the rail which bears upon the ground plate, of two grooves provided in the sleeper and adapted to receive the two lower heads of the rail, the ground plate preventing the contact between these two heads and the sleeper, substantially as and for the purpose set forth.

2. The combination with the three headed rail and a sleeper, of a ground plate and grooves provided in the sleeper, of attaching means between the ground plate and the sleeper.

3. The combination with the three headed rail, the sleeper provided with grooves, the ground plate of attaching means between the rail and the sleeper, these means traversing one of the lower webs of the rail.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

ANDRÉ VIRGILE PAUL MARIE BERTHIER.

Witnesses:

C. H. W. TUCKER,

T. O. MORTON.