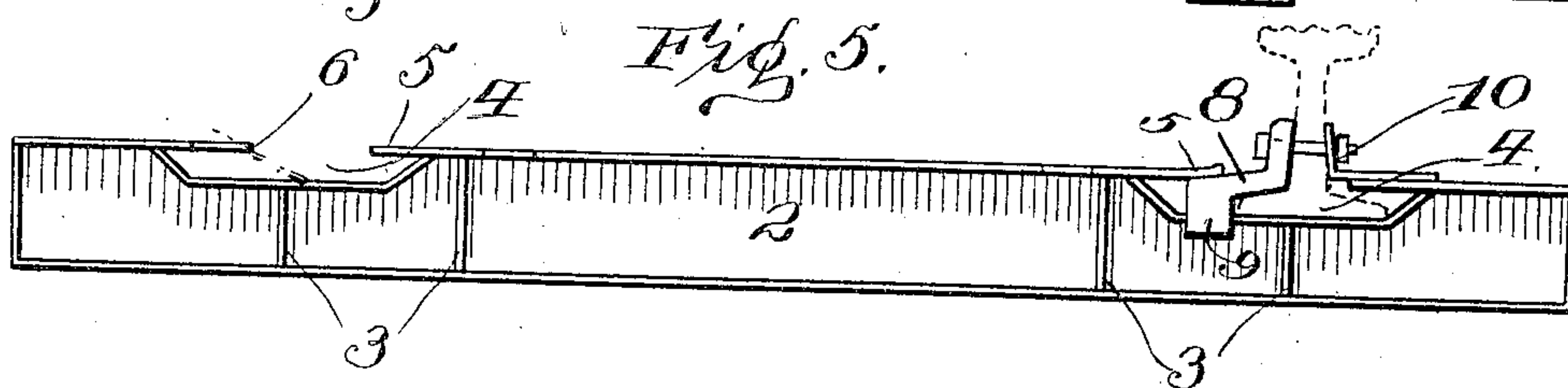
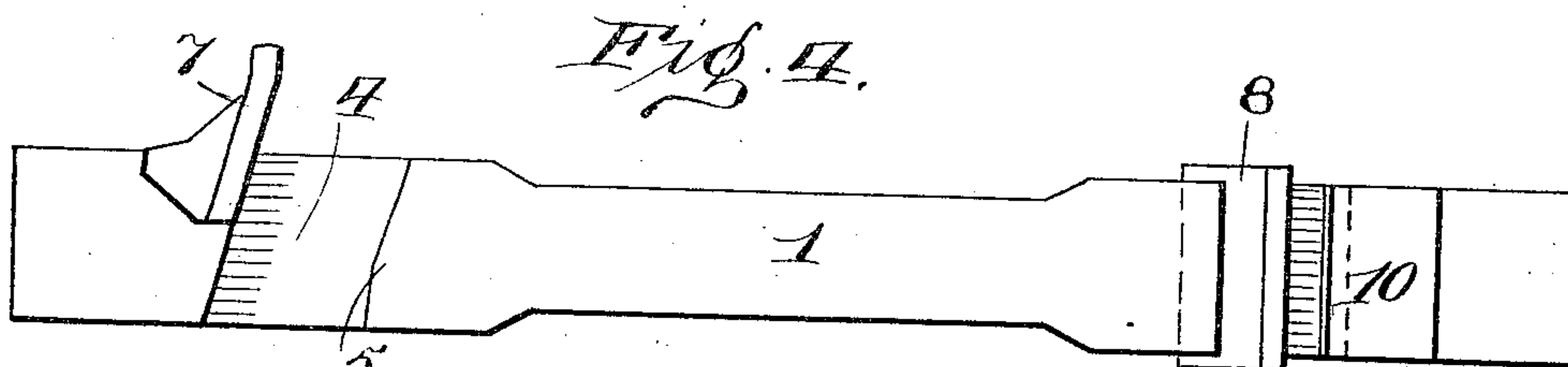
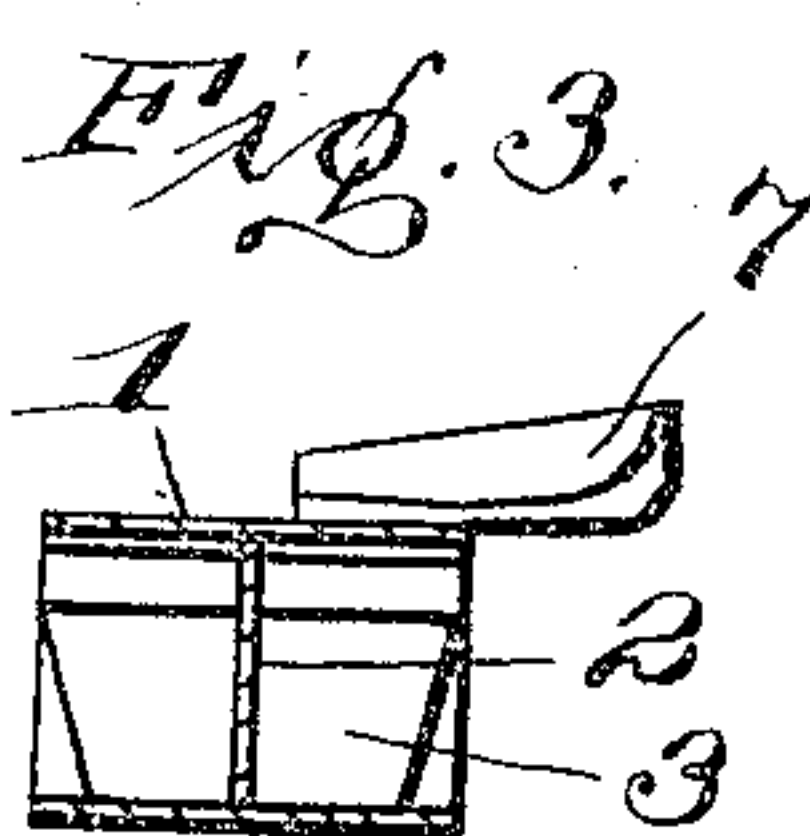
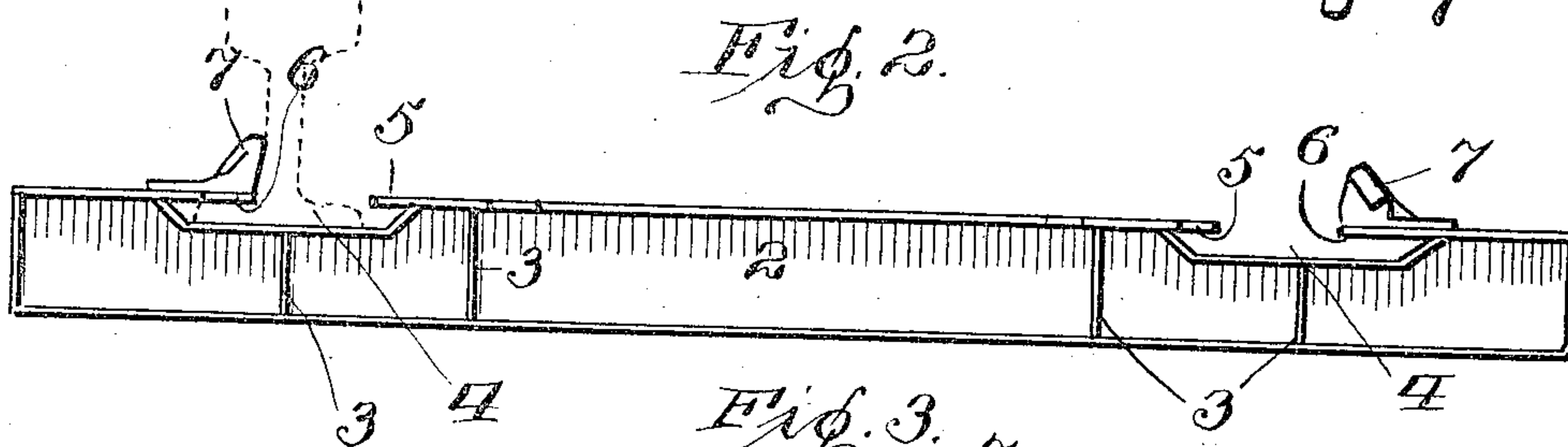
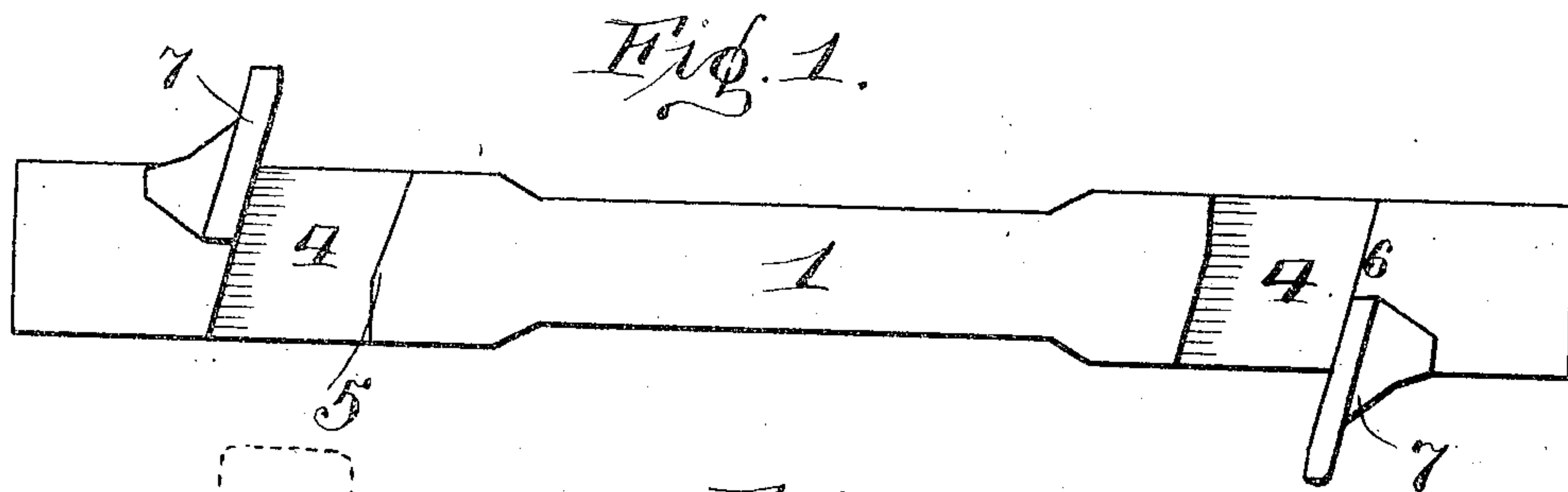


No. 810,698.

PATENTED JAN. 23, 1906.

J. BARRY.  
RAILWAY TIE.  
APPLICATION FILED JULY 28, 1905.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## RAILWAY-TIE.

No. 810,698.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed July 28, 1905. Serial No. 272,121.

*To all whom it may concern:*

Be it known that I, JAMES BARRY, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Railway-Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in railway-ties, and has particular reference to a metallic railway-tie in which the rail-flange is placed within the tie itself and is arranged to rest upon a depression forming a seat.

The object of my invention principally is to overcome the danger of spreading incident to the wooden ties now used and likewise to provide an economical metallic railway-tie which admirably accomplishes this purpose and relieves the rails of the enormous lateral strain occasioned by high speed, as well as the travel of trains around sharp curves.

With these and other objects in view my invention consists in the features and details of construction, as will be described in connection with the accompanying drawings and be then more specifically referred to in the claims.

In the drawings, Figure 1 is a top plan view. Fig. 2, a side elevation; Fig. 3, a transverse vertical section; Fig. 4, a top plan view of a joint tie-plate, showing a fish-plate; and Fig. 5 a side elevation of the same.

Referring more specifically to the drawings, 1 represents an angle-bar or I-beam having a web 2 centrally disposed thereof and a plurality of lateral reinforcing-webs 3 extending along the central web, which webs are arranged to support and strengthen the I-beam. A countersink 4 is provided on each upper side of the angle-bar, which countersink is arranged to support a rail-flange and to form a rigid seat therefor, which seat likewise forms a locking-flange for a plurality of plates or wedges which are arranged to fit between the flange and the rail and another flange 5, extending a short distance over the countersink and engaging the wedge or plate, which is forced therein between to make a

rigid seat for the rail-flanges. A similar flange 6, likewise extending a short distance over the countersink 4, is provided on the other side of the countersink, this flange forming locking means for securing the rail, the locking means consisting, essentially, in a protruding shoulder 7, extending away nearly at right angles from the angle-bar, a certain angle being necessary to be retained in order that when the rail-flanges have been placed within the countersink said protruding shoulder 7 will impinge and bear against the web of the rail. This shoulder 7 abuts closely against the rail and holds the same closely within the slots formed by the seat and overhanging flanges. It will be noted that the flange 5, extending partly over the countersink 4, is cut away at an angle at one portion thereof, while the other portion of the same is straight. The opposite countersink is exactly the same as the one just described, with the exception that the positioning of the protruding shoulder forming the flanges is reversed, whereby it will be seen that in order to place the rail upon the tie or the tie upon the flanges of the rail it is necessary to resort to an angular positioning of the tie before the horizontal lines of the rail-flanges correspond. When the rail has been inserted between the flanges and rests upon its seat, the tie is deprived of its angular position, and when the angle of the tie is removed—that is to say, when the tie is exactly at right angles to the line of the rail—the protruding shoulder 7 impinges against the web of the rail and holds the same in position, while the overhanging flange 5 coacts to lock the rail-flange upon its seat, thereby forming not only a tight joint, but a solid tie for railway-tracks and rendering it practically impossible for the rails to spread irrespective of any amount of strain, lateral or otherwise, which may be exerted upon said rails either on curves or on a straight run. In order to fill out the space formed between the flanges and to make the rail-flanges practically a unit, I place a plate 8 within the slot formed by said overhanging flange 5, which plate is forced against the web and flange of the rail and has a plurality of arms 9 arranged to be bent or forced around the lock-



ing-flange 4, by means of which the rail is positively secured against movement. These plates are in the nature of wedges, with the exception that they are provided with a series of arms by means of which they are arranged to engage the locking-flange for the purpose of firmly securing the rail in its seat.

Since the structure above described will not answer the purpose of securing the abutting ends of two rails together, I have devised an arrangement by means of which the railway-tie comprises not only a seat for the rail, but likewise a fish-plate for two adjoining rails. This device is illustrated in Fig. 5, wherefrom it will be seen that the flange 10, extending part way over the countersink, is of extended formation and bent upward at nearly right angles, so as to correspond with the conformation of the adjoining rail, against which it rests. On the other side of the rail a plate 8 is inserted in the space formed by the countersink and the overhanging flange, which plate is secured to the fish-plate 10 by nuts and bolts extending through the web portions of the abutting rails. In this manner it will be seen that the tie in this instance comprises not only the angle-bar, but comprises likewise a fish-plate which is made integral with the upper portion of the railway-tie.

Since this tie is made of steel and the use of spikes and connecting rods and bars are dispensed with, it is impossible, in view of the fact that the tie is made of a single piece and in one casing, for the tracks to spread or to get out of gage. Where this tie is used, the rail is sunk in the body of the tie and by means of the pointed shoulder held there against accidental displacement. This shoulder likewise has a tendency to raise the tie after a train has traversed the tracks, a fact which makes it a self-tamping tie. The outside braces are all cast solid on the tie; but the inside plate is preferably made removable, and by bending the wings away from the locking-flange it can be removed, so as to permit of the removal of the tie itself, which can be disconnected from the rail-flanges without interfering with the rails. When it is desired to remove the rail without disturbing the ties, a task which is coupled with no small amount of labor, it is only necessary to release the wedges or wings on the inside of the rail. The rail can then be turned over on its side leaning outward, and its inner flange will thus pass by the wedges or wings on all the ties upon which it has rested, and the same can be removed and another rail inserted by reversing the process.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent of the United States, is—

1. A railway-tie comprising an I-beam, having a rail-receiving countersink, and flanges for engaging the rail-flanges.

2. A railway-tie comprising an I-beam having a rail-receiving countersink forming a seat for the flange of the rail, and locking means for engaging the rail.

3. A railway-tie comprising an I-beam, having rail-receiving depressions forming seats, flanges partly overhanging the depressions, plates engaging the rail and held by said flanges, and locking means engaging the rails.

4. A railway-tie comprising a metallic I-beam, having rail-receiving depressions forming seats for the flanges of the rails, flanges overhanging the depressions, wedge-plates between said overhanging flanges, arranged to impinge against the rail-web, and locking means engaging the rail.

5. A railway-tie comprising an I-beam, having rail-receiving depressions, said depressions forming seats for the rail-flanges, an elongated shoulder projecting away from the plane of the beam and engaging the rail, said shoulder located on the outside of the rail, and made integral with the I-beam, and means on the inside of the tie cooperating with the shoulder on the outside of the tie for locking the rail in position, and plates interposed between the rail and flange for securing the rail to its seat.

6. A railway-tie comprising an I-beam having rail-receiving depressions forming seats for the flanges of a rail, flanges partly overhanging the depressions and arranged to clamp the rail, one of said flanges being extended and bent upward to form a fish-plate for rail-joints, and means for securing the same to the rails.

7. A railway-tie comprising a metallic I-beam having rail-receiving depressions, forming seats for the flanges of a rail, a shoulder extending away from the plane of the tie arranged on the outer side of the rails, and engaging the rails, flanges on the inside of the rail cooperating with the outside flanges, wedges between the flanges and seat, and an integral plate on the outside of the rail arranged to be bent upward and secured to the abutting rails.

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

JAMES BARRY.

Witnesses:

G. WARD KEMP,  
A. H. SCHUTT.