

No. 658,541.

Patented Sept. 25, 1900.

W. A. DOWNING & J. T. McHUGH.
BOND TIE FOR ELECTRIC RAILWAYS.

(Application filed Feb. 21, 1900.)

(No Model.)

Fig. 1.

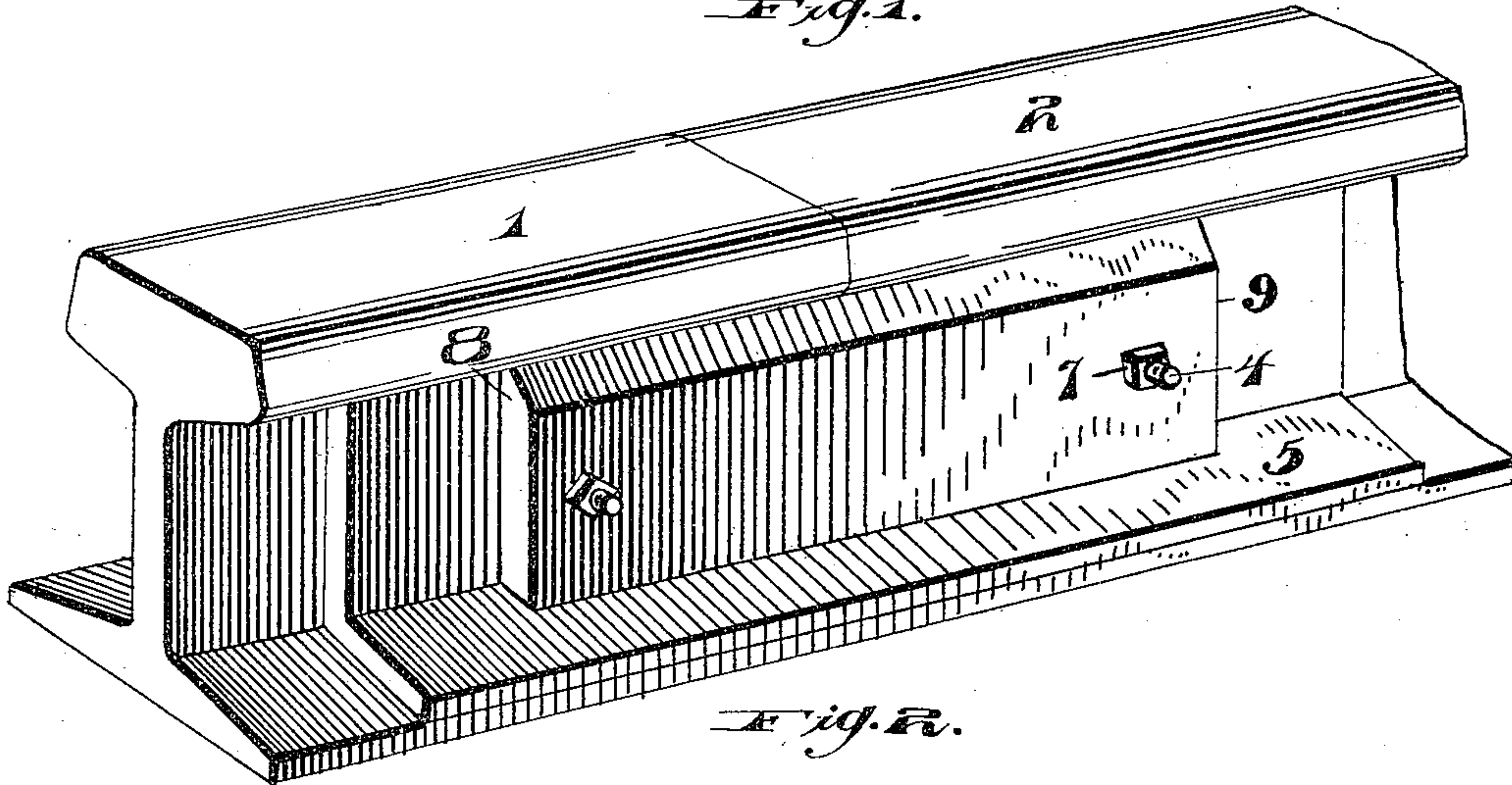


Fig. 2.

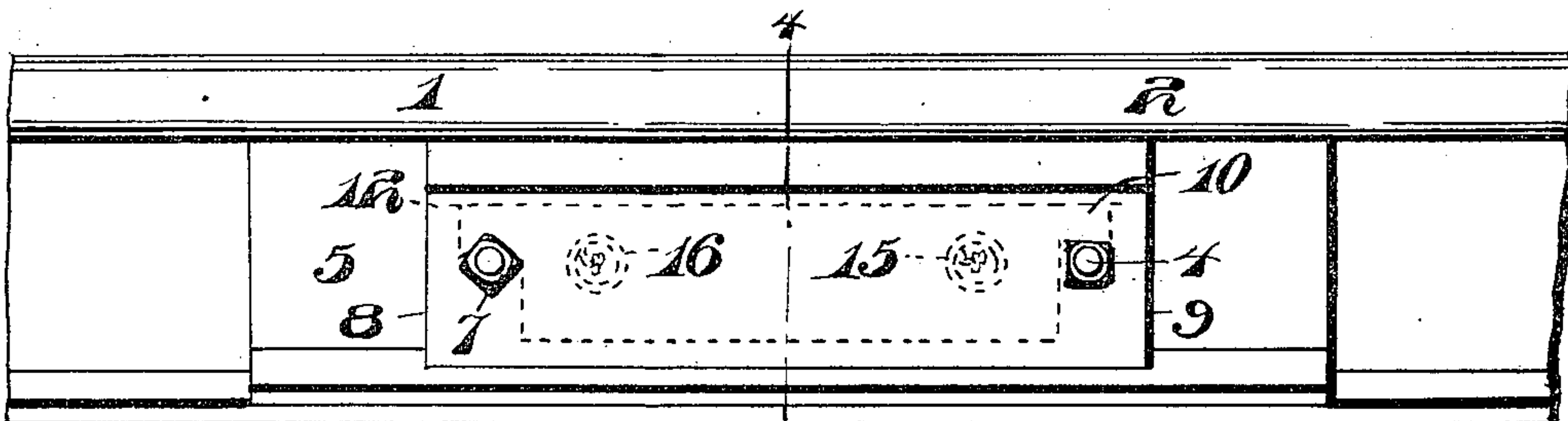


Fig. 3.

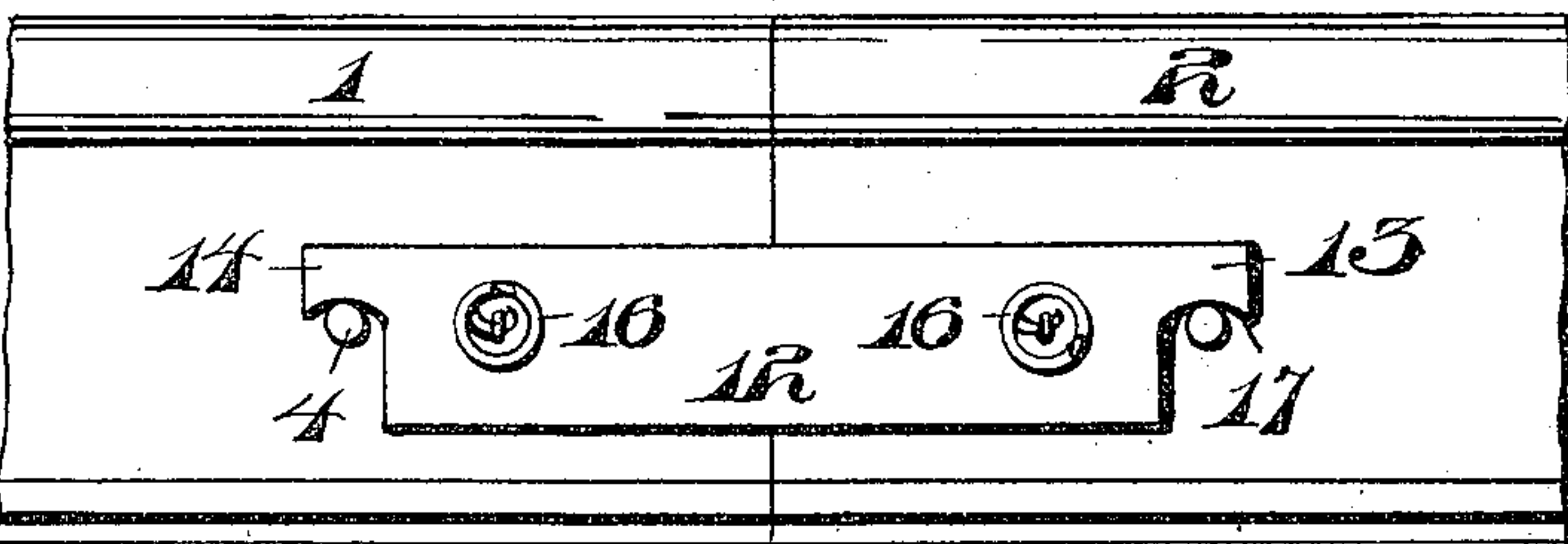


Fig. 4.

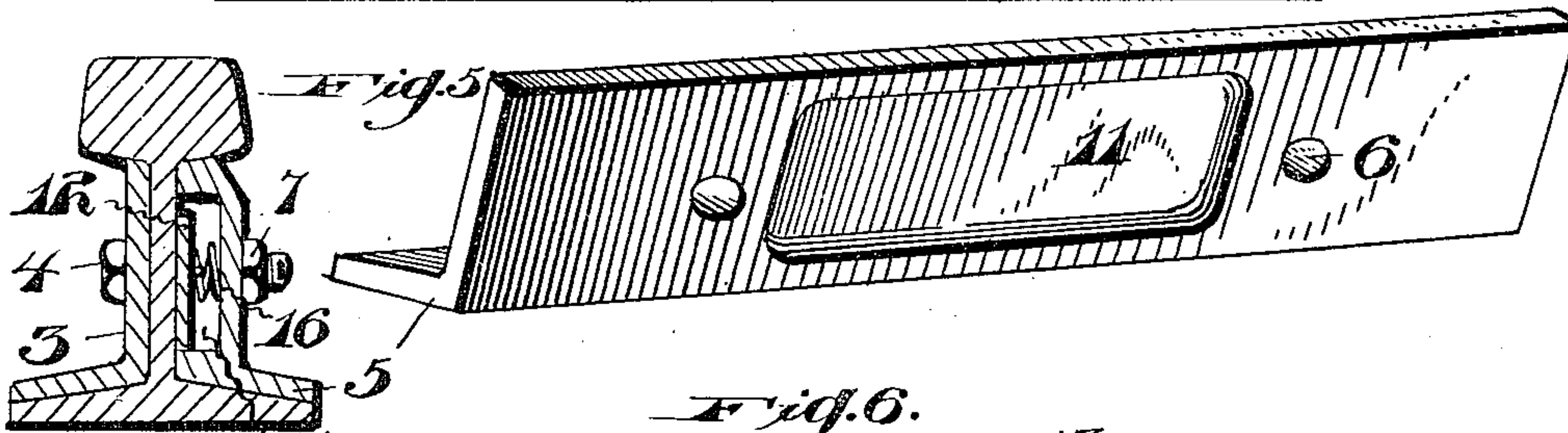
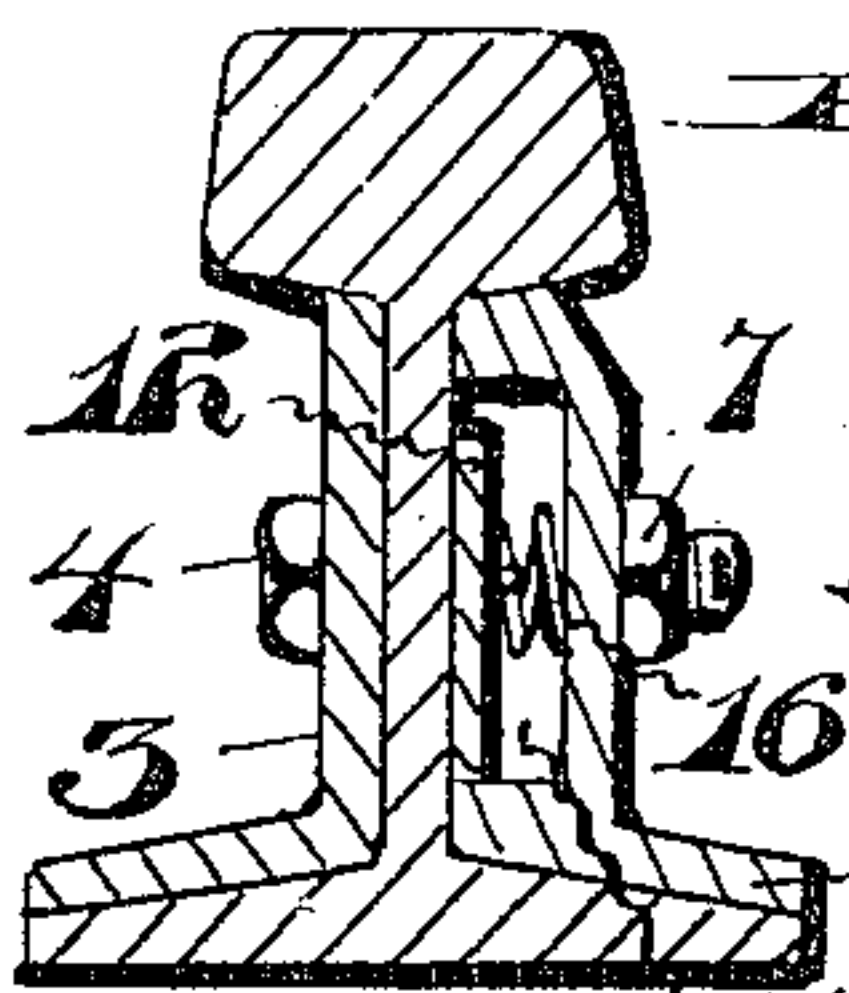


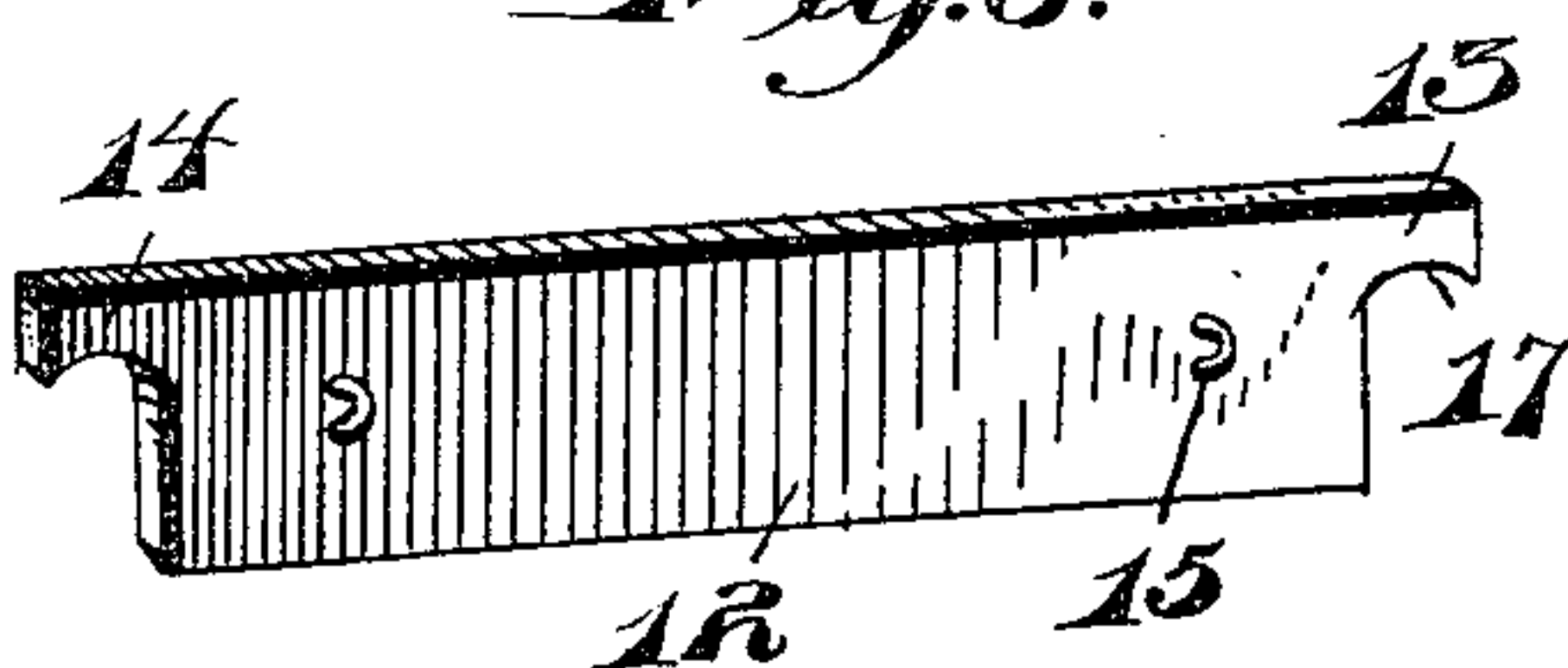
Fig. 5.



WITNESSES:

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Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM A. DOWNING AND JAMES T. MCHUGH, OF PITTSBURG,
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BOND-TIE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 658,541, dated September 25, 1900.

Application filed February 21, 1900. Serial No. 6,053. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. DOWNING and JAMES T. MCHUGH, citizens of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Bond-Ties for Electric Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in rail-bonds or fish-plate connections for electrically-operated railways, and has for its main object to make such a connection at the intersection of one rail with another as will absolutely protect the rail-bond and prevent the tampering therewith by unauthorized persons and at the same time effect a perfect joint.

The efficiency of electrically-operated railways is oftentimes impaired by persons tampering with the rail-bond, often removing the same, with connection with the rails, and causing serious delays in the running of the cars, which we entirely obviate by inclosing the rail-bond within the fish-plate; furthermore, to construct a rail-joint of this character which will be extremely simple in construction, strong, durable, efficient in its use, and comparatively inexpensive to manufacture.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a perspective view of a portion of rail-sections, showing my improved bond in position. Fig. 2 is a side plan view thereof. Fig. 3 is a side view thereof with the fish-plate removed. Fig. 4 is a cross-sectional view thereof, taken on the line 4 4 of Fig. 2. Fig. 5 is an inverted perspective view of the fish-plate. Fig. 6 is a perspective view of the bond.

Referring to the drawings by reference-numerals, 1 and 2 indicate the two abutting rail-sections, on the one side of which is placed the ordinary fish-plate 3, provided with suitable openings, through which extend the securing-bolts 4. On the opposite side

of the rail-sections, however, we employ our especially-constructed fish-plate, which has the rail-web-engaging portion of the same height as the ordinary fish-plate and a base of the ordinary construction. This plate is indicated by the reference-numeral 5 and is provided with an opening 6 to receive the nuts of the securing-bolts 4, upon which is mounted nuts 7 for securing the plate in position. This plate 5 we term the "bond fish-plate" and has each end cut away, as at 8 9, forming an offset 10 upon the outer face thereof, and the inner face is provided centrally with a recess 11, adapted to surround the rail-bond 12 when placed in position. The rail-bond 12 consists of a rectangular plate of suitable metallic material having each lower corner cut away, forming supporting-lugs 13 14, which are mounted upon the bolts 4 for connecting the bond to each rail-section. This will be evident, as seen in Fig. 3 of the drawings. The outer face of the bond 12 has suitably connected thereto a pair of eyes 15, in which is secured the one end of the compression or retaining springs 16, the opposite end of these springs abutting against the wall of the recess, as will be seen in Fig. 4 of the drawings.

The openings in the fish-plate and bond-plate 5 to receive the bolts are preferably constructed in an oblong manner, the length thereof extending longitudinally of the rail-sections in the plates, so as to permit of the expansion and contraction of the rails, and also by forming the lower face of the supporting-lugs 13 in a curvilinear manner, as at 17, allows for the expansion and contraction of the rails as well, the curvilinear lower face being of greater width than the bolts.

By reason of the recess formed in the plate 5, which surrounds the bond 12 when the plate 5 is secured in position, it is impossible to obtain access to the bond without removing the fish-plate and an efficient device for the protection of the rail-bond thus provided without adding to the cost of the connection at the rail-joint, as the plates can be readily manufactured with the recess without any additional cost to the same.

The device is set up in the following manner: The plate 3 is placed against the inner

face of the web of the rail, the bolts inserted through the plate 3 in the web, the bond mounted upon the bolts, as shown in Fig. 4, and the bond-plate then placed in position, as shown in Fig. 1, the spring abutting against the wall of the recess. The nuts are then screwed upon the bolts and retain the plates in position, compressing the spring 16, which retains the bond in position.

It is thought that the many advantages of our improved device can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will be noted that various changes may be made in the details of construction without departing from the general spirit of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a rail-joint, the combination with the rails, of a fish-plate mounted on one side thereof and adapted to be secured in position by means of bolts extending through the same and rail-sections, a rail-bond mounted upon said bolts, a bond fish-plate provided with a recess and adapted to be mounted at the opposite side of said rail-sections and surrounding said bond, and a pair of compression-springs arranged in said recess and adapted to retain said rail-bond in position when said bond-plate is secured to the rail-sections.

2. The combination with a pair of rail-sections having a fish-plate secured to one side thereof by means of bolts extending through the same and said rail-sections, of a rail-bond arranged at the opposite side of said rail-sections and mounted upon said bolts, a pair of eyes connected to said bond, a compression-spring connected to each of said eyes, a bond

fish-plate adapted to be mounted upon said bolts at the opposite side of said sections and formed on its inner face with a recess surrounding said rail-bond, and means mounted upon said bolts for securing the said bond-plate in position.

3. In a device of the character described, the combination of a fish-plate 3 secured to one side of the rail-sections, a rail-bond formed of a rectangular plate and adapted to be mounted to the opposite side of said sections, a bond-plate surrounding said rail-bond and adapted to be secured to said rail-sections, and means arranged in said bond-plate for retaining said bond in position.

4. The combination with a pair of fish-plates suitably connected to the rail-sections of a railway-track, of a rail-bond consisting of a rectangular piece of suitable metallic material and suitably mounted to the side of said rail-sections and within one of said fish-plates, and means for retaining said bond in position.

5. The combination with a pair of fish-plates suitably connected to the rail-sections of a railway-track, of a rail-bond consisting of a rectangular piece of suitable metallic material and suitably mounted to the side of said rail-sections and within one of said fish-plates, a pair of eyes secured to said rail-bond, and means connected to said eyes and adapted to be engaged by one of the fish-plates for securing said bond in position.

In testimony whereof we affix our signatures in the presence of two witnesses.

WILLIAM A. DOWNING.
JAMES T. MCHUGH.

Witnesses:

JOHN NOLAND,
E. W. ARTHUR.