

J. MACMARTIN.
INSULATED RAIL JOINT.
APPLICATION FILED FEB. 23, 1907.

910,558.

Patented Jan. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

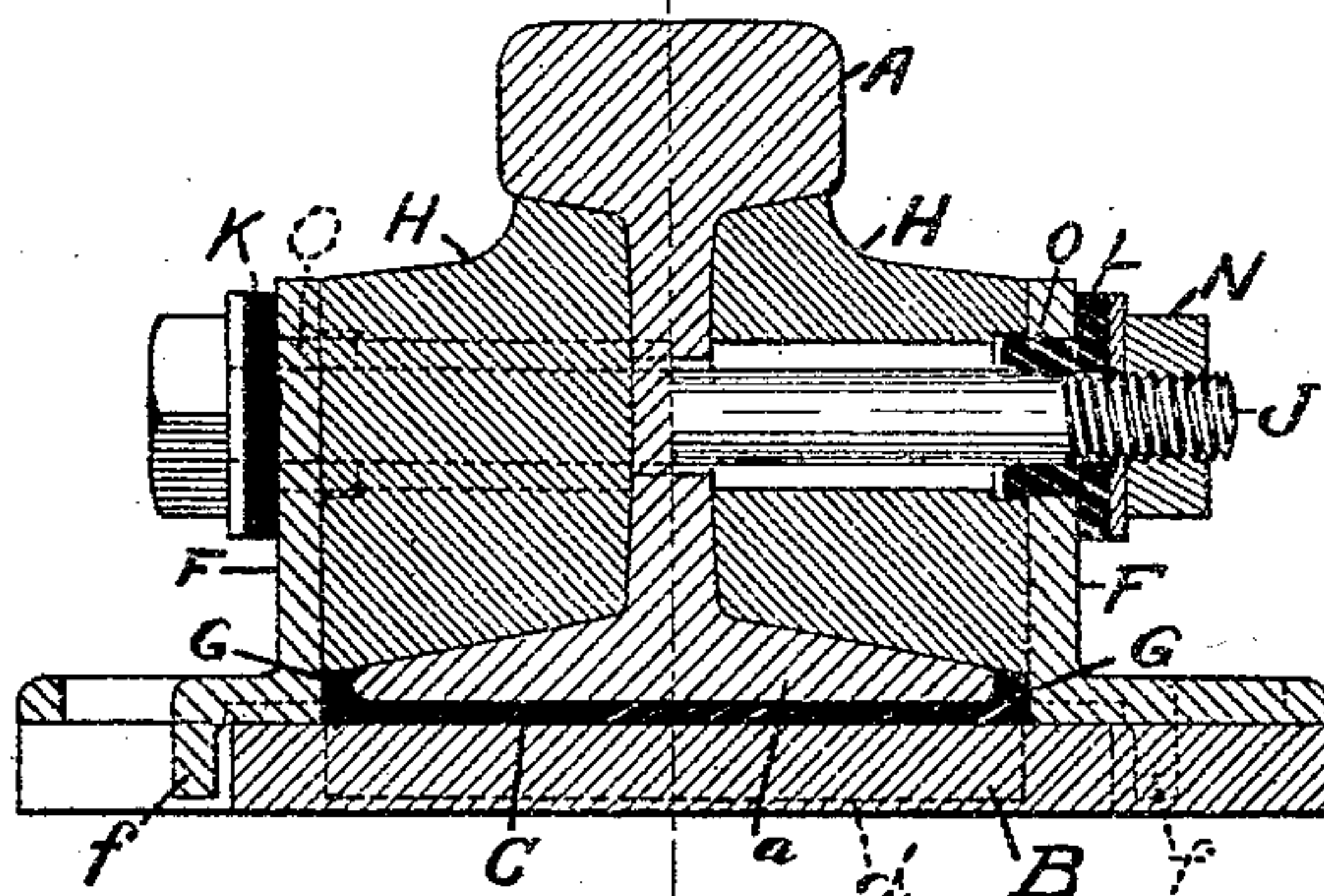
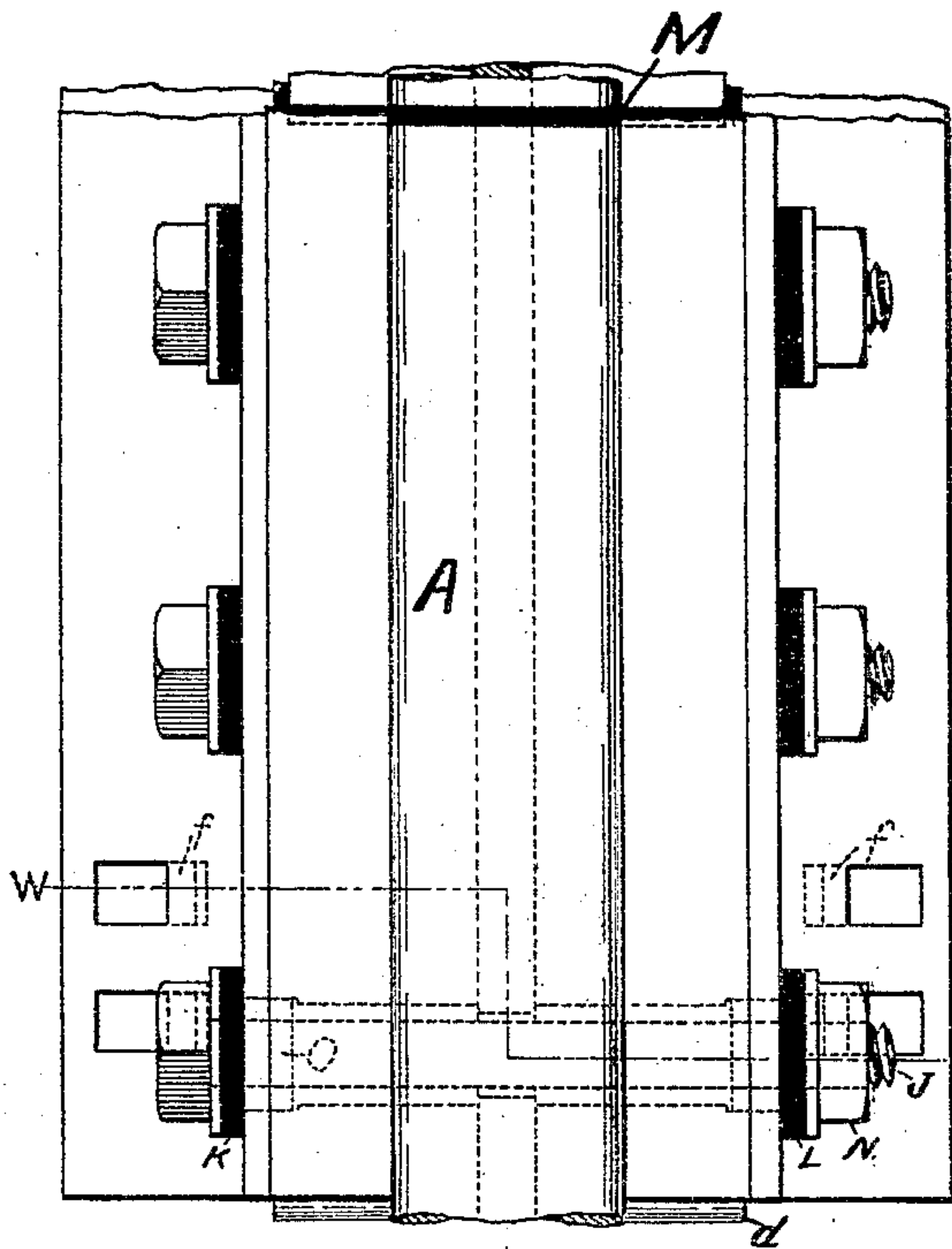


Fig. 2.

Fig. 3.

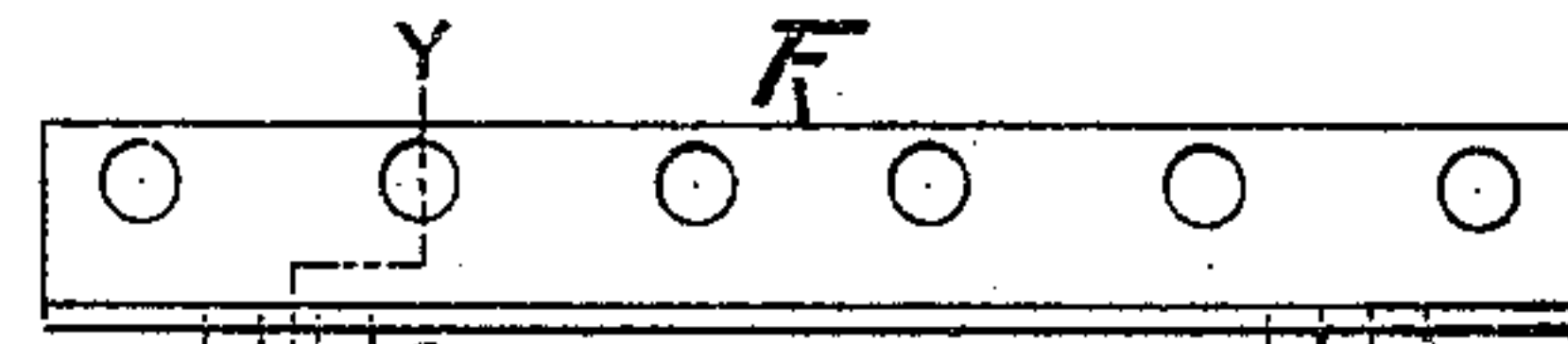
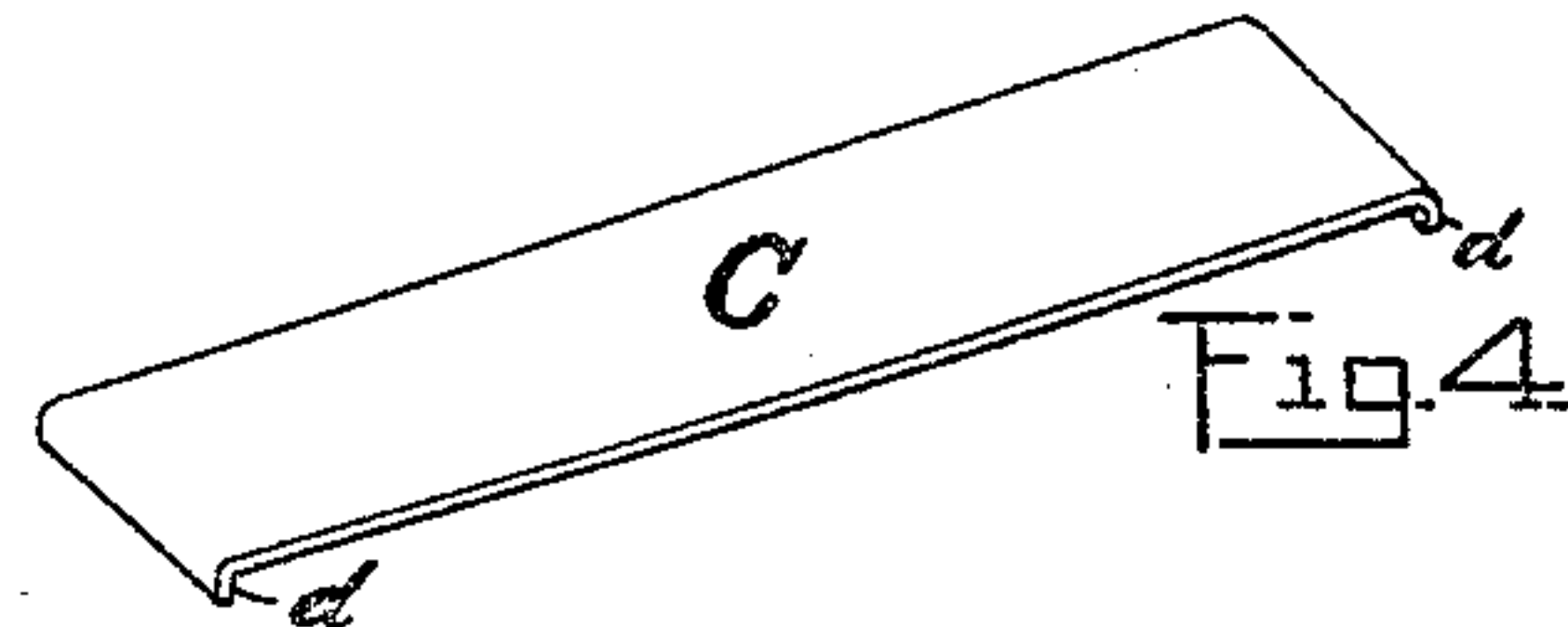
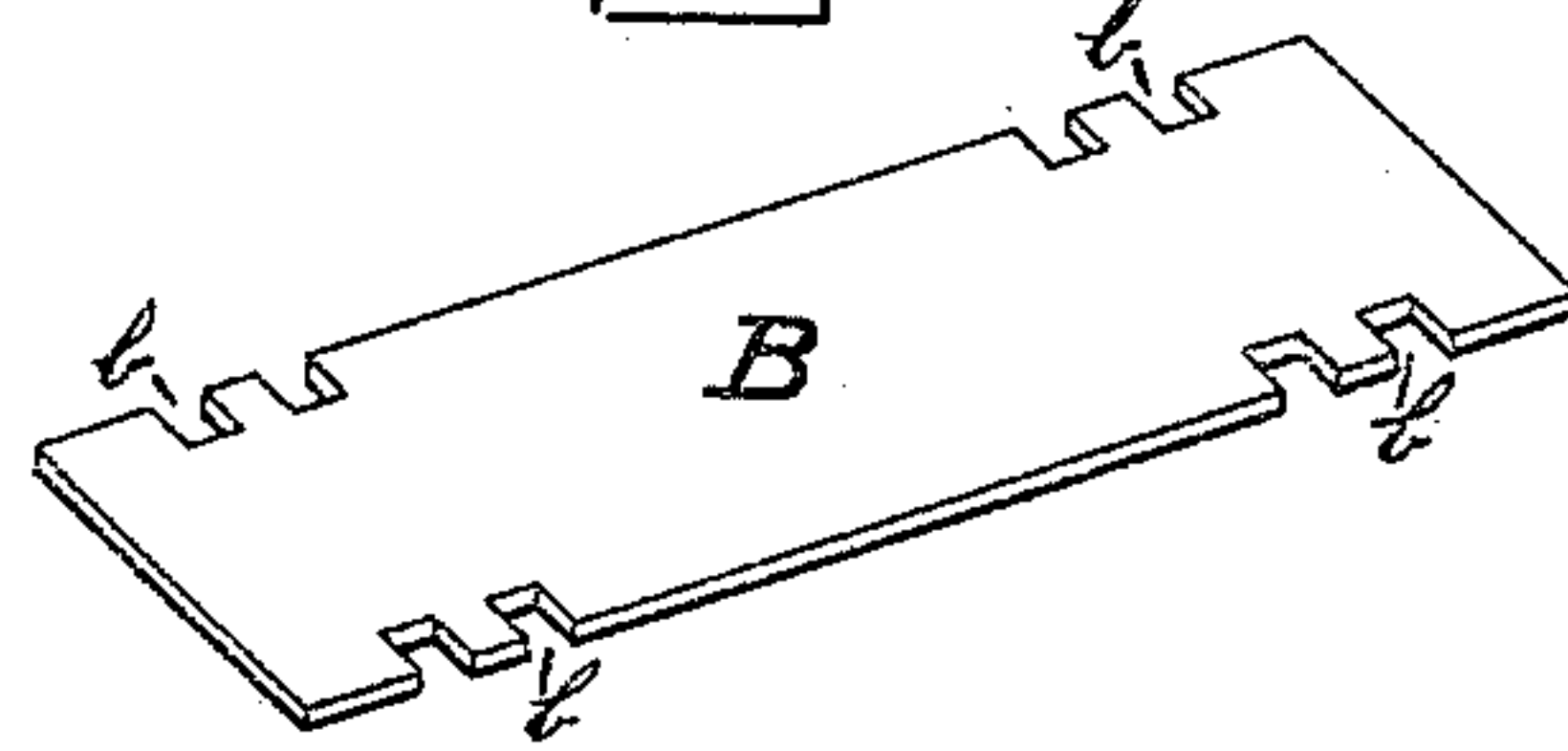


Fig. 5.

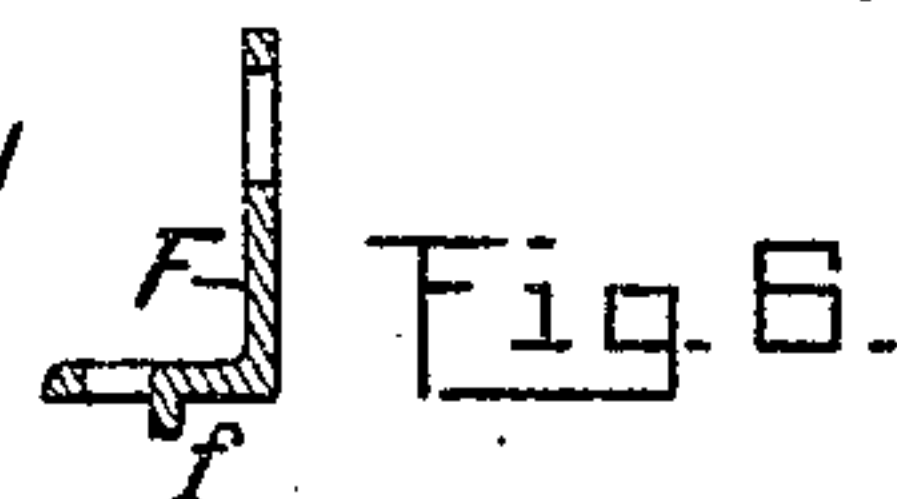


Fig. 6.

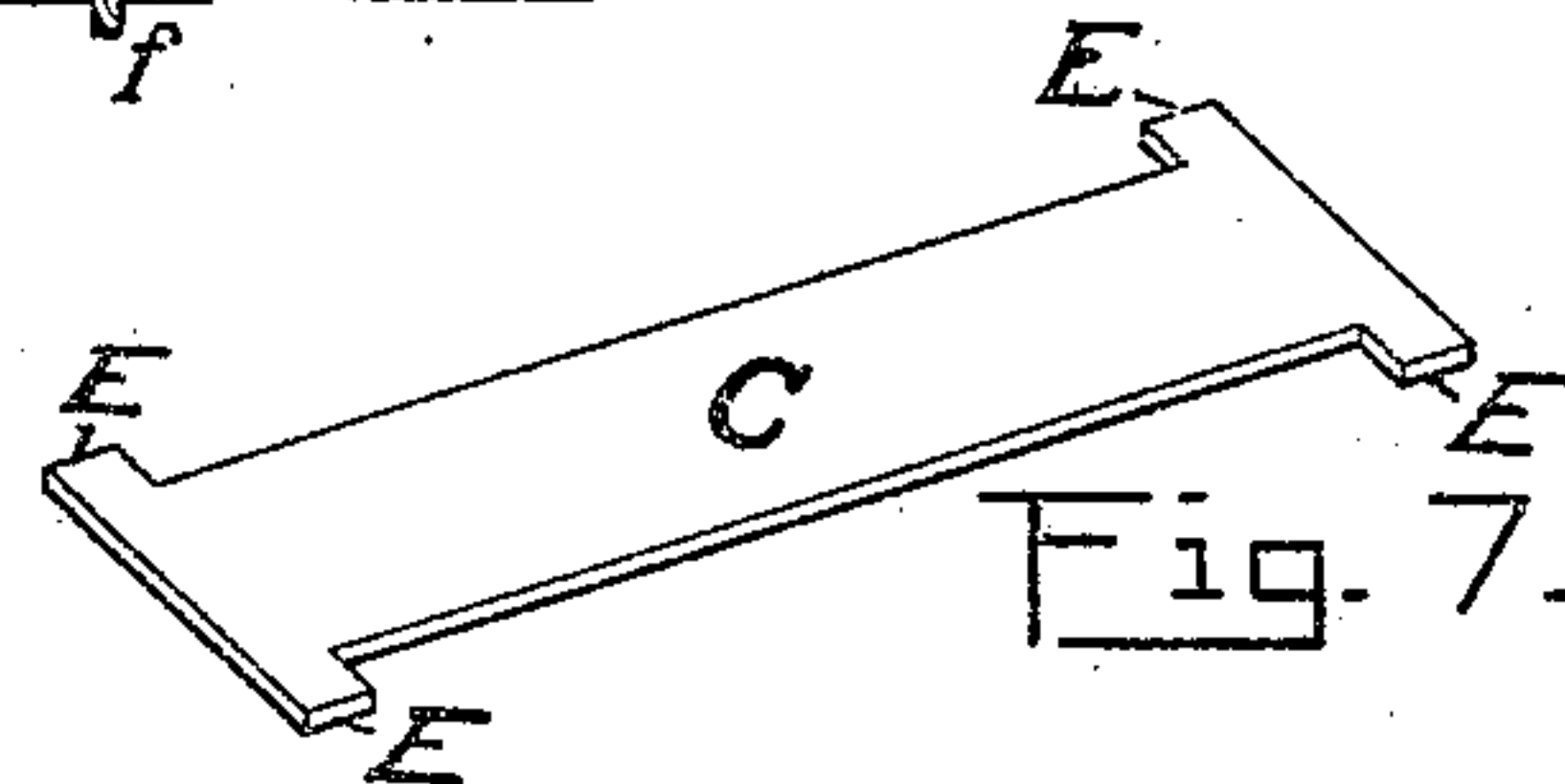


Fig. 7.

Witnesses

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Lottie Prior

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Ward Cameron.

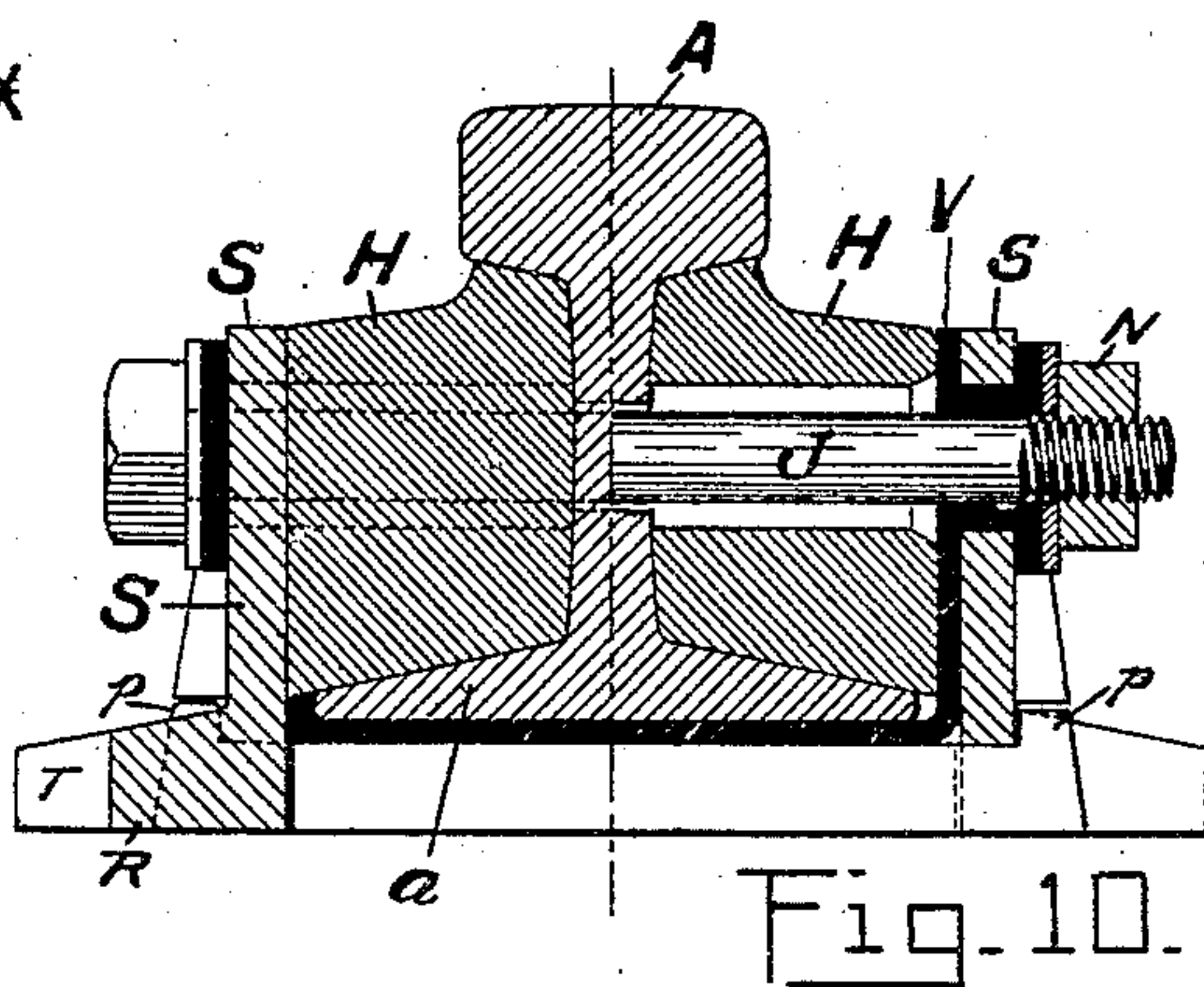
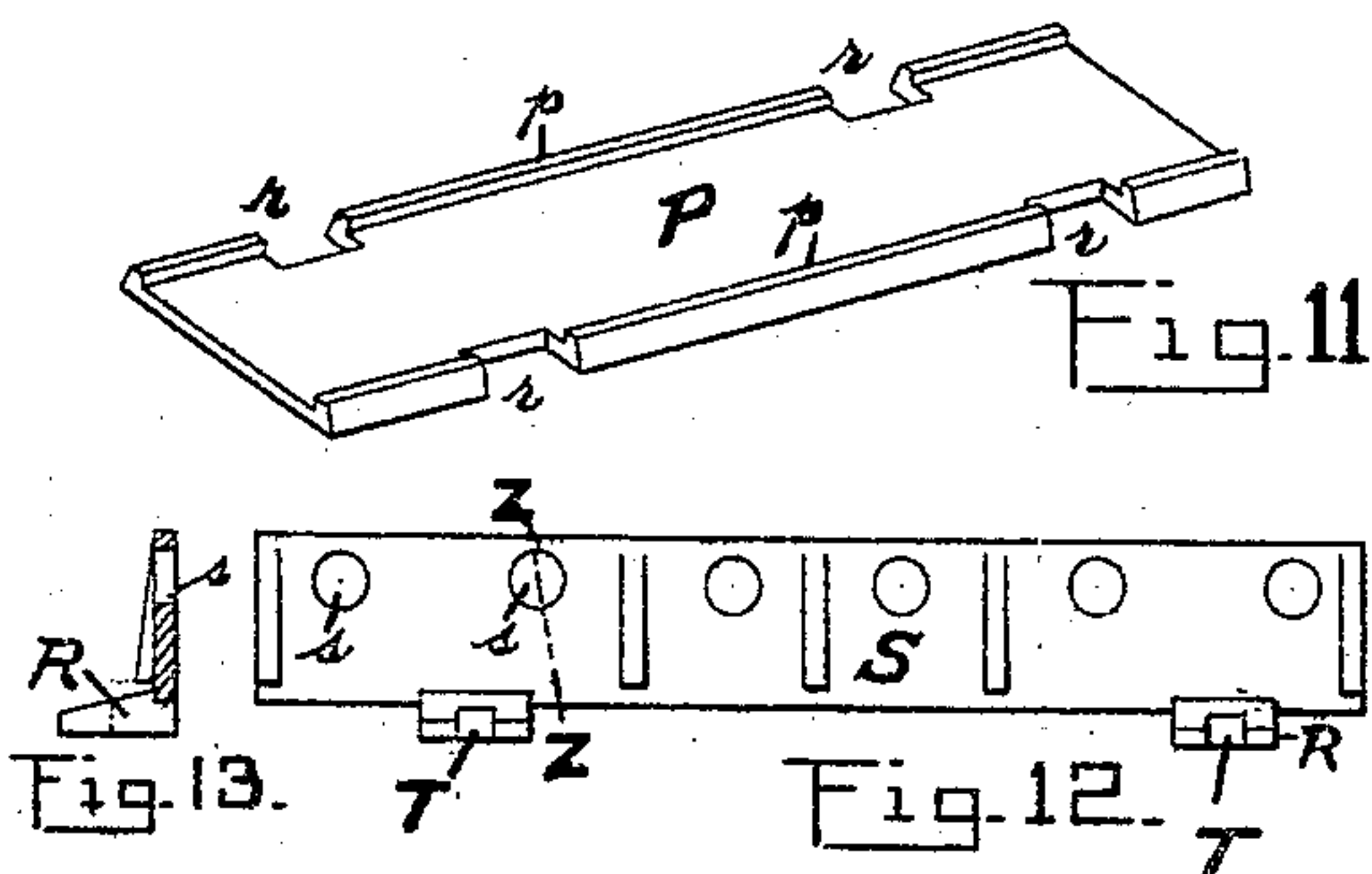
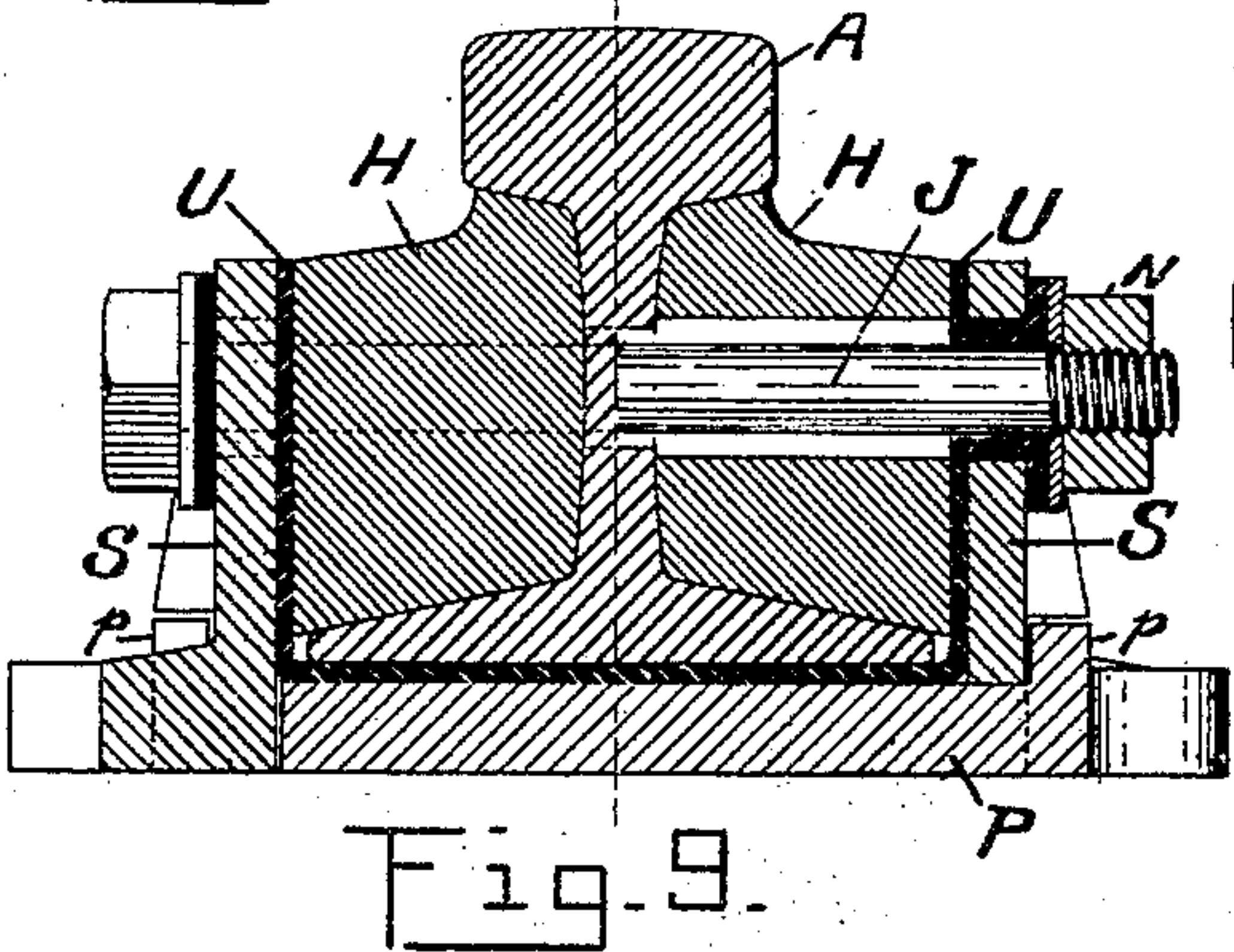
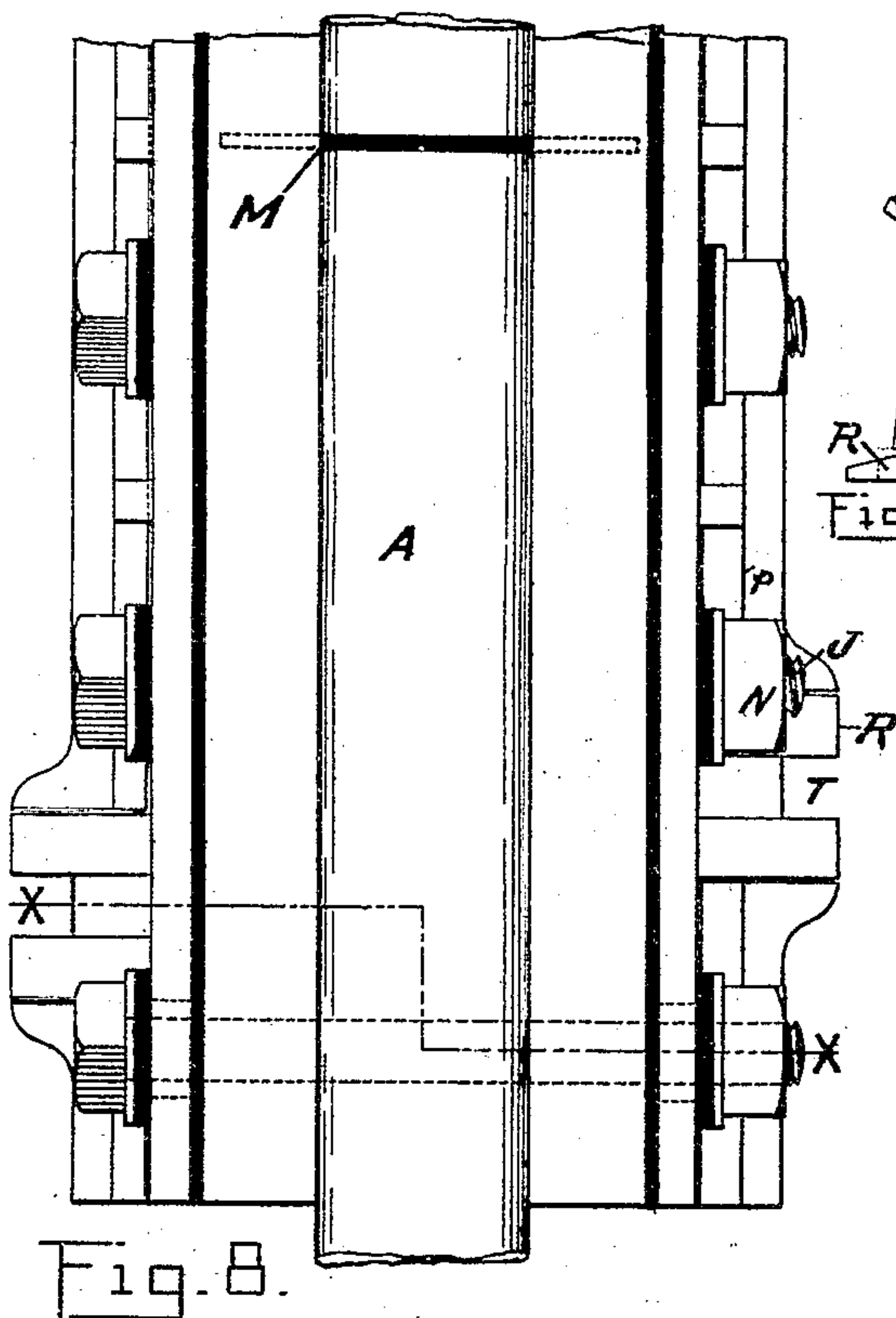
Atty

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2 SHEETS—SHEET 2.



Witnesses
W. L. S. W. S.
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UNITED STATES PATENT OFFICE.

JAMES MacMARTIN, OF ALBANY, NEW YORK.

INSULATED RAIL-JOINT.

No. 910,558.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed February 23, 1907. Serial No. 358,789.

To all whom it may concern:

Be it known that I, JAMES MacMARTIN, a citizen of the United States, residing at the city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Insulated Rail-Joints, of which the following is a specification.

My invention relates to improvements in railway joints, and the object of my invention is to provide an insulated railway joint which is simple, economical and positive in its construction and operation, and in which commercial fittings may be used, together with such other elements and combinations as are hereinafter more particularly set forth. I attain these objects by means of the mechanism illustrated in the accompanying drawing, in which:

Figure 1 is a plan. Fig. 2 is a cross section along the lines W—W on Fig. 1. Fig. 3 is a perspective view of a base plate. Fig. 4 is a perspective view of a fiber plate. Fig. 5 is a plan of a fish plate. Fig. 6 is a section along the lines Y—Y on Fig. 5. Fig. 7 is a perspective view of a modified form of fiber plate. Fig. 8 is a plan of a modified form of my invention. Fig. 9 is a section along the lines X—X on Fig. 8. Fig. 10 is a section of a further modified form of my invention. Fig. 11 is a perspective view of the bottom plate of the modified form shown in Figs. 9 and 10. Fig. 12 is an elevation of the side plate. Fig. 13 is a section along the lines Z—Z on Fig. 12.

Similar letters refer to similar parts throughout the several views.

For the purpose of arranging for the electrical operation of signals, switches and other apparatus, it is necessary to provide a means for insulating various sections of a railway track from adjoining sections and therefore to provide insulated rail joints. It is desirable to construct, so far as possible, the portions of the rail joint so that they may be readily repaired and that the parts may be supplied without great expense or delay.

In my insulated rail joint, shown in Figs. 1 to 7, inclusive, I have used substantially commercial fittings in all the parts. I provide a thoroughly insulated rail joint, easily put together, positively maintained, and when desired readily separated for repair.

Referring to the drawings, the rail, A, is insulated from the base plate, B, by suitable insulating fiber, C, being arranged in, prefer-

ably, the form of a thin sheet, and having at its ends means for engaging either the ends of the base plate, B, as shown in Figs. 2 and 4, in which the downwardly extending portions, *d, d*, overlap the ends of the base plate, B, or the sheet may be cut in the form illustrated in Fig. 7, in which there are lateral projections, E, E, at each end, which engage and overlap the ends of the fish plates, F. It is apparent that it is necessary to in some way secure the sheet of fiber to prevent its creeping, which would naturally take place under the jar and vibration to which it is subjected by the rail resting thereon.

The base plate, B, is preferably provided along each side and near each end with the grooves or openings, *b*, which may be cut out of the plate, B, and which are made to receive the spurs, *f*, projecting from the under surface of the horizontal portion of the fish plate, F, when placed in position to make the rail joint. The fish plates, F, are each constructed in the usual way, having when placed in operative position a vertical and a horizontal portion.

For the purpose of securing the fish plate to the base plate I cut out of the horizontal portion and bend downward, extending below the under surface thereof, the spur, *f*, before referred to. While I do not wish to limit myself to this particular method of constructing the interlocking mechanism, this is a simple and inexpensive manner of making a very acceptable and durable connection.

Between each side of the foot, *a*, of the rail and the fish plates, F, F, I place a strip of fiber, G, G, and between the web of the rail and each of the fish plates, F, F, I place the blocks, H, H, preferably of wood, which are held in position on each side by the fish plates, and at the top by the under surface of the rail-tread with which they come in contact.

The bolt, J, passes through each fish plate and each block, H, H, and is provided with a suitable nut, N, suitable insulation between the bolt and the fish plates being provided, which may be in the form of the washers, L and K, and the sleeves O. The rail, A, is insulated at each end from the adjoining rail section as at M.

As thus described my invention provides for the use of the well known fish plates, which may be readily arranged to form connection with the base plate, B, and can be

completely insulated from the adjoining rail sections in a very inexpensive manner.

In use the insulation about the bolt, J, wears fast and when it is necessary as, in all rail joints with which I am familiar, to remove the same for the purpose of repairing, it is necessary to take out the bolt, J, in doing which the insulation about the bolt falls away, and generally is not replaced, resulting in great damage, because of the inefficiency of the joint. I can raise the rail joint by lifting the same so as to release the projection, *f*, from contact with the base plate, B, and permit the fiber sheet, C, to be removed from beneath the foot, *a*, of the rail, without disturbing the bolt, J, and, therefore, without breaking the insulation formed by the sleeve O and washer L, or its equivalent. This is an important part of my invention, and in the practical operation of a road provided with insulated sections is valuable.

I have shown on page 2 of the drawings, Figs. 8 to 13, inclusive, a modified form of my invention, in which the parts are cast and which are arranged and connected up in such a manner that when desired the rail may be raised and a base plate substituted without removing the bolts passing through the fish plates.

In Fig. 9 the rail, A, rests upon a sheet of fiber, C, as shown in Figs. 2 and 4. The base plate, P, in Fig. 9 is constructed as shown in Fig. 11, having parallel extending ridges, *p*, on each side thereof, and having openings, *r*, in each side to receive the projecting lugs, R, on the bottom of the fish plates, S, S. The fish plates, S, S, are provided with the holes, *s*, for the bolts, J, and carry the lugs, R, through which are openings, T, for the passage of spikes or other fastening device, by means of which the fish plates are secured to the ties, not shown. I place blocks of wood, H, H, between the web of the rail and the fish plates, as in the form illustrated in Fig. 2, but I place the sheet of fiber, U, between each block, H, and its adjacent fish plate. It is understood that the bolt, J, is insulated by suitable bushing of insulated material from the fish plate, as is shown in Fig. 2.

In Fig. 10 I show a further modified form constructed as is described in reference to that illustrated in Fig. 9, except that instead of placing a sheet of insulated material between both the blocks, H, I place, in Fig. 10, a sheet V on one side in connection with one of the blocks only and between the foot, *a*, of the rail, A, and the fish plate, S, on the side on which the sheet of fiber is omitted.

Of course in the modified form of rail joint I show, as in Fig. 8, insulation, M, between the ends of the rail section, A.

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

1. An insulated rail joint, comprising a rail; base plate; fish plates; projections formed on said fish plates adapted to engage said base plate; a sheet of insulating material adapted to be placed on the base plate; a means for preventing said insulating material from creeping; strips of insulating material placed between the foot of the rail and the fish plates, respectively; insulating blocks placed between the web of the rail and the fish plates; a bolt securing said fish plates, blocks and rail; insulating bushings separating said bolts from said fish plates, substantially as described.

2. An insulated rail joint, comprising a rail; a base plate; ridges projecting above the surface along the sides of said base plate; a series of openings through said base-plate extending from the outer edge toward the center line of the base plate; fish plates provided with lugs having openings there-through for the passage of spikes; said fish plates seated on said base plate, engaged by said ridges thereon; said lugs projecting through said openings in the sides of the base plates; insulating material between said rail and said base plate and between the said rail and said fish plates; insulating blocks between the web of the rail and each fish plate; bolts passing through said fish plates, block and rail, substantially as described.

In testimony whereof I have hereto affixed my signature in presence of two witnesses.

JAMES MacMARTIN.

Witnesses:

FREDERICK W. CAMERON,
LOTTIE PRIOR.

790,886 Deemer 239-5
764,397 Thompson " -6
764,169 Weber " -5-
847,057 Dalton " "
833,020 Borsett " "