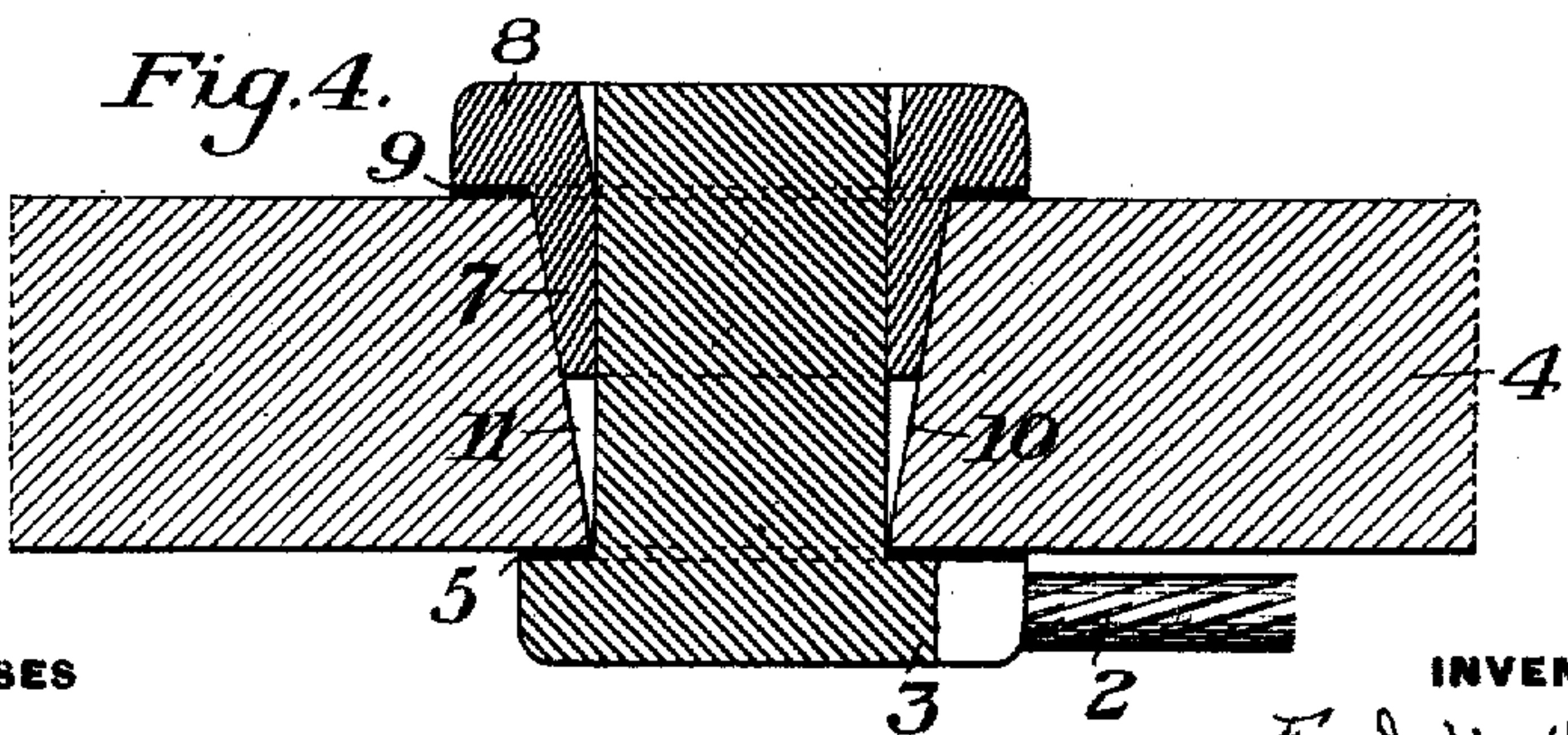
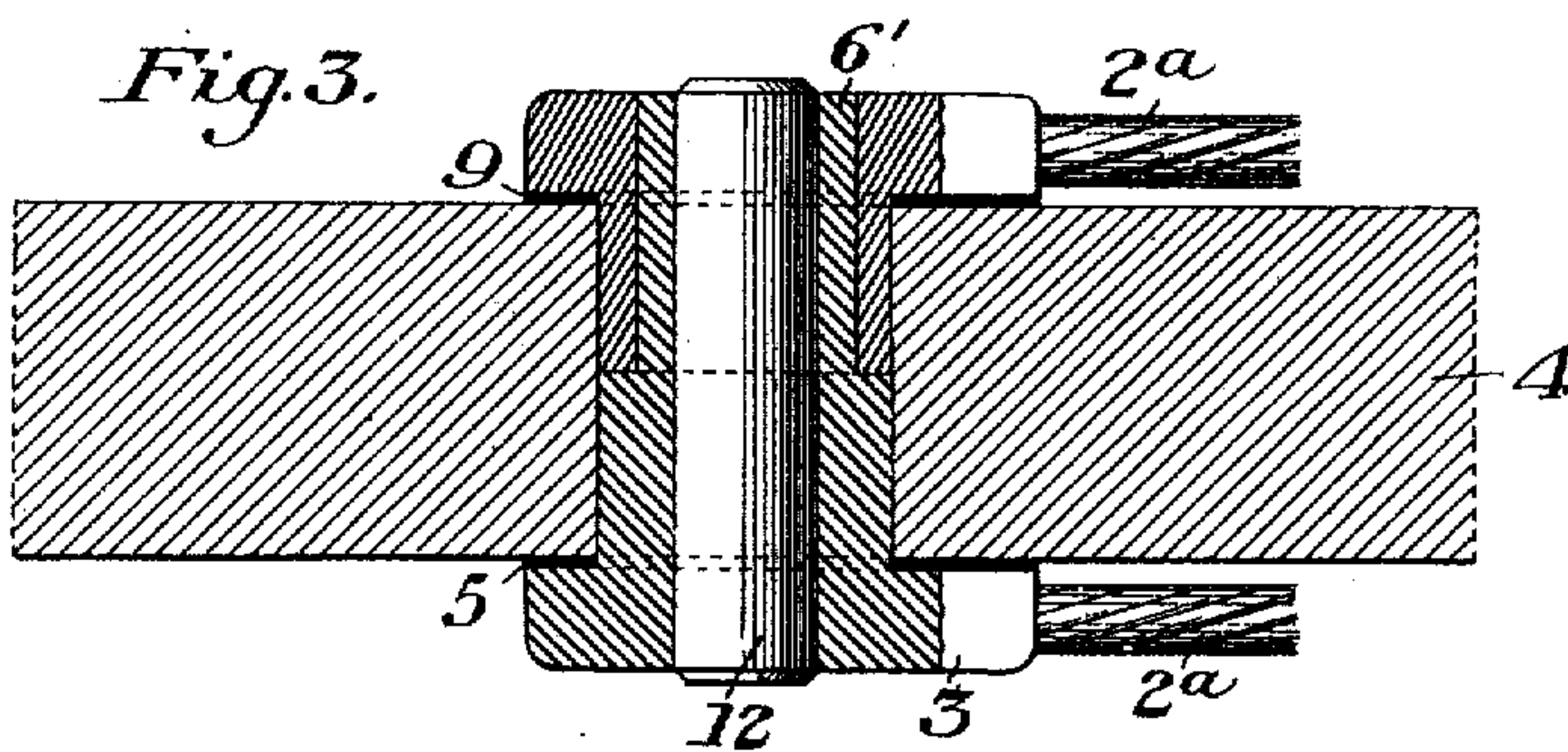
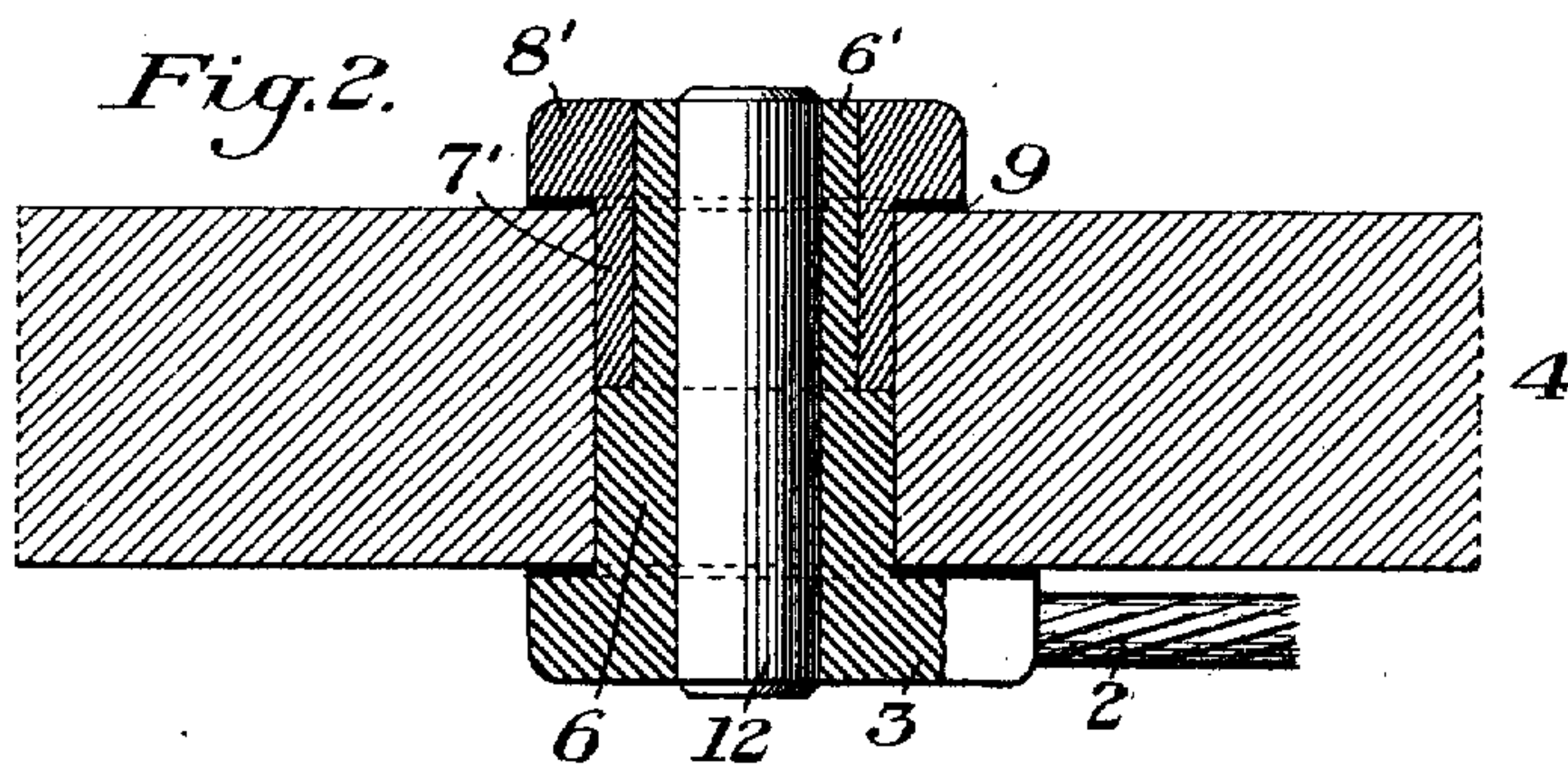
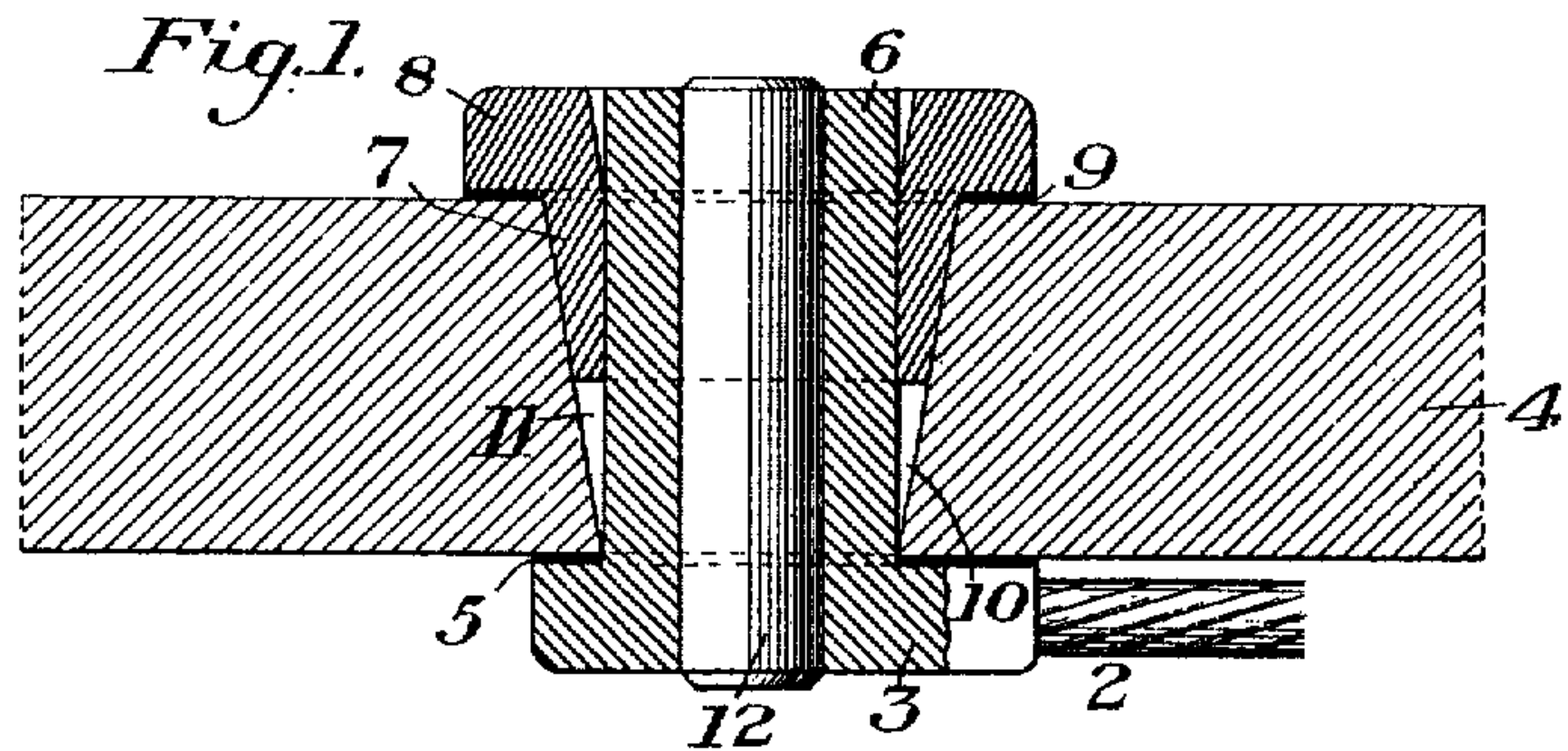


F. H. DANIELS.
RAIL BOND.
APPLICATION FILED OCT. 18, 1908.

914,808.

Patented Mar. 9, 1909.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRED H. DANIELS, OF WORCESTER, MASSACHUSETTS.

RAIL-BOND.

No. 914,808.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed October 16, 1906. Serial No. 339,148.

To all whom it may concern:

Be it known that I, FRED H. DANIELS, of Worcester, Worcester county, Massachusetts, have invented a new and useful Improvement in Rail-Bonds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figures 1, 2, 3 and 4 are horizontal sections taken through a rail and showing different forms of my invention.

This invention has relation to the class of rail bonds, its object being to secure the very best possible contact between the heads of the rail bond terminals and the rail, in order to prevent the entrance of moisture between the joint of the copper and steel, to thereby prevent galvanic action, which in any case destroys the efficiency of the electrical contact.

With this object in view, the invention consists in the novel construction, arrangement and combination of parts all substantially as hereinafter described and pointed out in the appended claims.

In the drawings, the numeral 2 designates a rail bond having the terminal head 3, which is soldered to one face of the rail 4, as indicated at 5. This head is formed with a tubular sleeve 6, which extends entirely through the rail and projects a short distance at the opposite side. Fitted telescopically around the tubular sleeve 6 is a sleeve 7 having a head 8, which is soldered to the opposite side of the rail as indicated at 9. The opening 10 through the rail is of tapered or conical form, the exterior of the sleeve 7 having a corresponding taper, and an initial space 11 being left at the inner end of said sleeve and around the sleeve 6.

12 designates a pin, preferably of steel, which is driven through the sleeve 6, thereby expanding the parts and filling or substantially filling the space 11. In this manner the electrical contact is not made to depend wholly upon the soldered terminals.

The form shown in Fig. 2 is similar to that in Fig. 1, with the exception that the sleeve 6 has a portion 6' of reduced diameter to receive the telescoping sleeve 7' of the head or

flange 8'. In this case also the taper of the hole through the rail and of the outer sleeve is not employed.

The form shown in Fig. 3 is similar to that shown in Fig. 2, except that it illustrates a double bonding, both heads or terminals being carried by a bond 2^a, as shown.

The form shown in Fig. 4 is similar to that shown in Fig. 1, except that the sleeve 6 is made solid, the pin 12 being omitted. In this case the sleeves are expanded by means of a suitable tool or compressor. This solid construction of the inner sleeve may be applied to all the forms shown.

The advantages of my invention consist in the efficient electrical contact which is secured by the expansion of the telescoping sleeve members against the rail, combined with the feature of the double flanges, which effectually exclude the entrance of moisture between the copper and steel surfaces.

What I claim is:—

1. A rail bond comprising two telescopic members engaging the rail from opposite sides and having each a flanged head whose inner face is soldered to the rail; substantially as described.

2. A rail bond comprising two telescoping members inserted through an opening in the rail from the opposite sides thereof and expanded in said opening, said members having flanged heads soldered to the rail on opposite sides of its web to form moisture-excluding joints of high electrical conductivity; substantially as described.

3. A rail bond terminal, consisting of two terminal members telescoped with each other from opposite sides of the rail and within its web, said members being expanded into engagement with the walls of the opening in the web through which they pass, and each member having a surrounding flange at its outer end whose inner surface is soldered to the web; substantially as described.

In testimony whereof, I have hereunto set my hand.

FRED H. DANIELS.

Witnesses:

G. LAMPSON,
M. F. SHEEHAN.