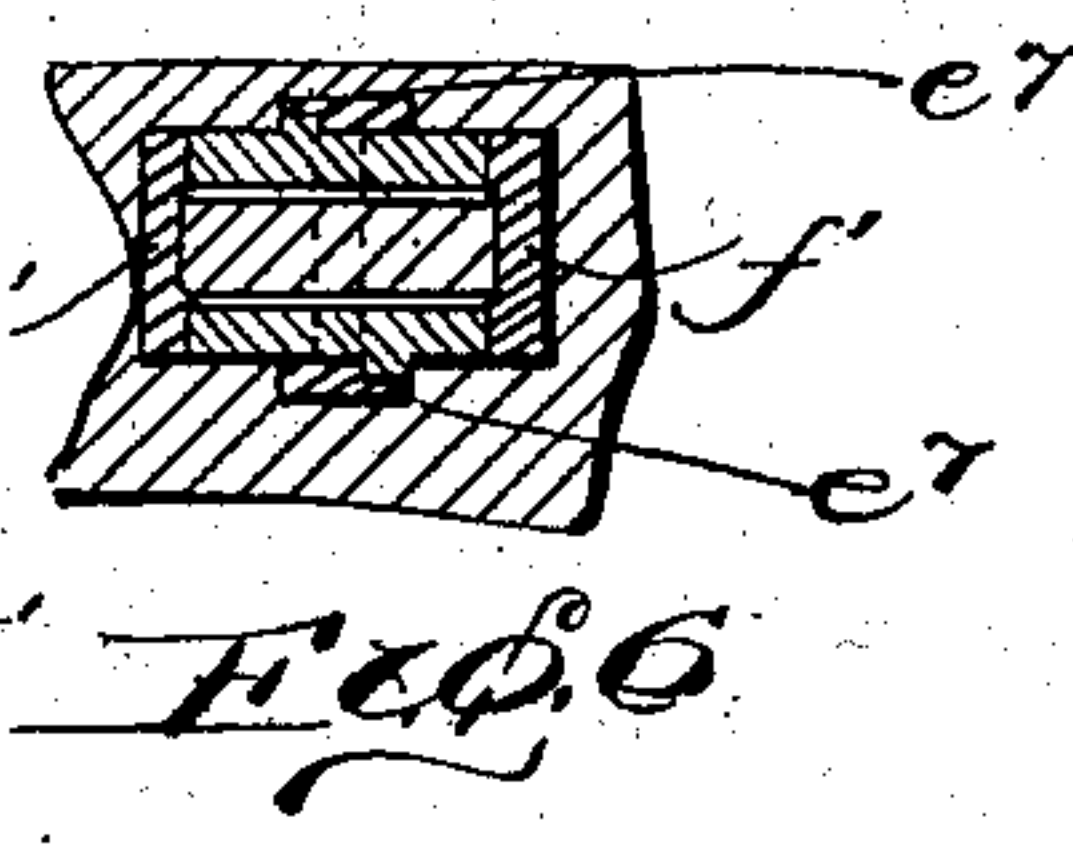
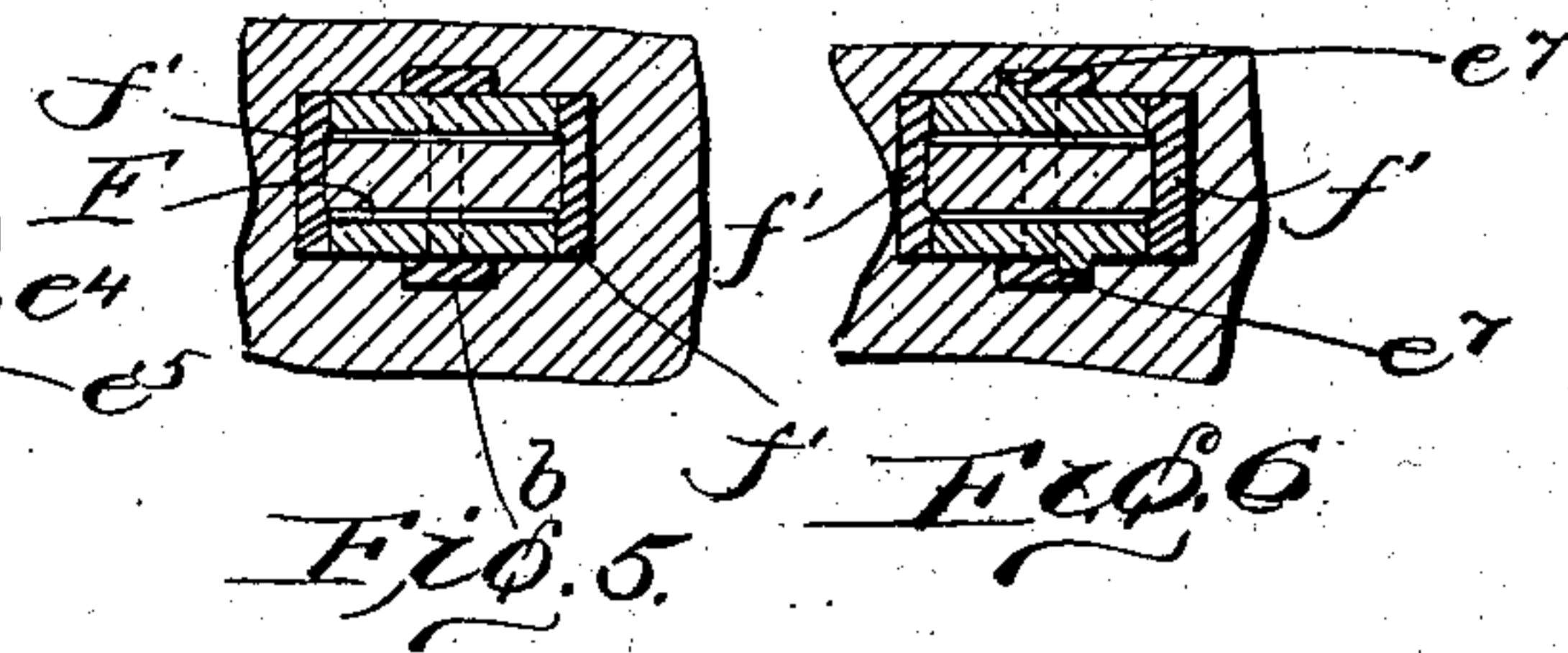
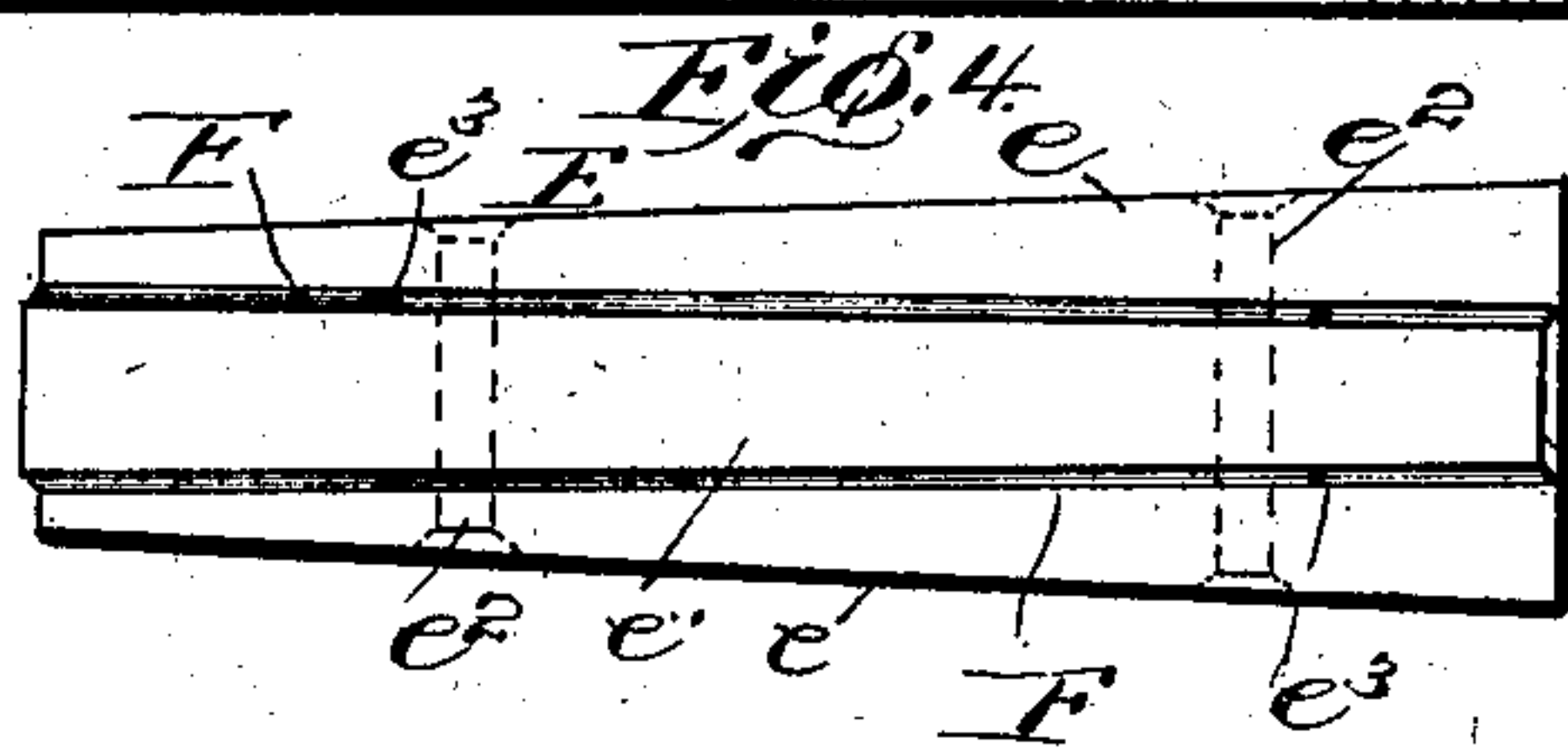
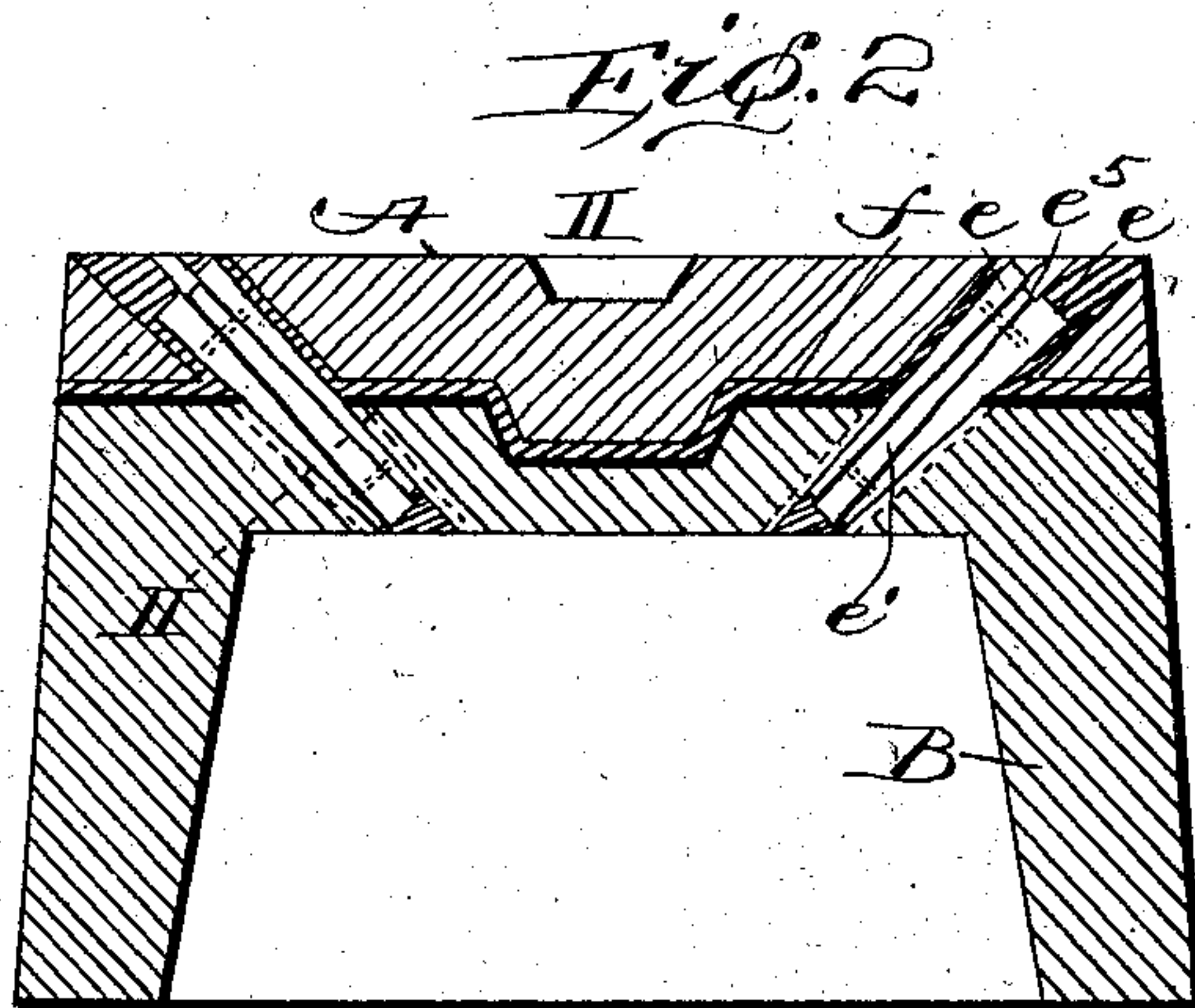
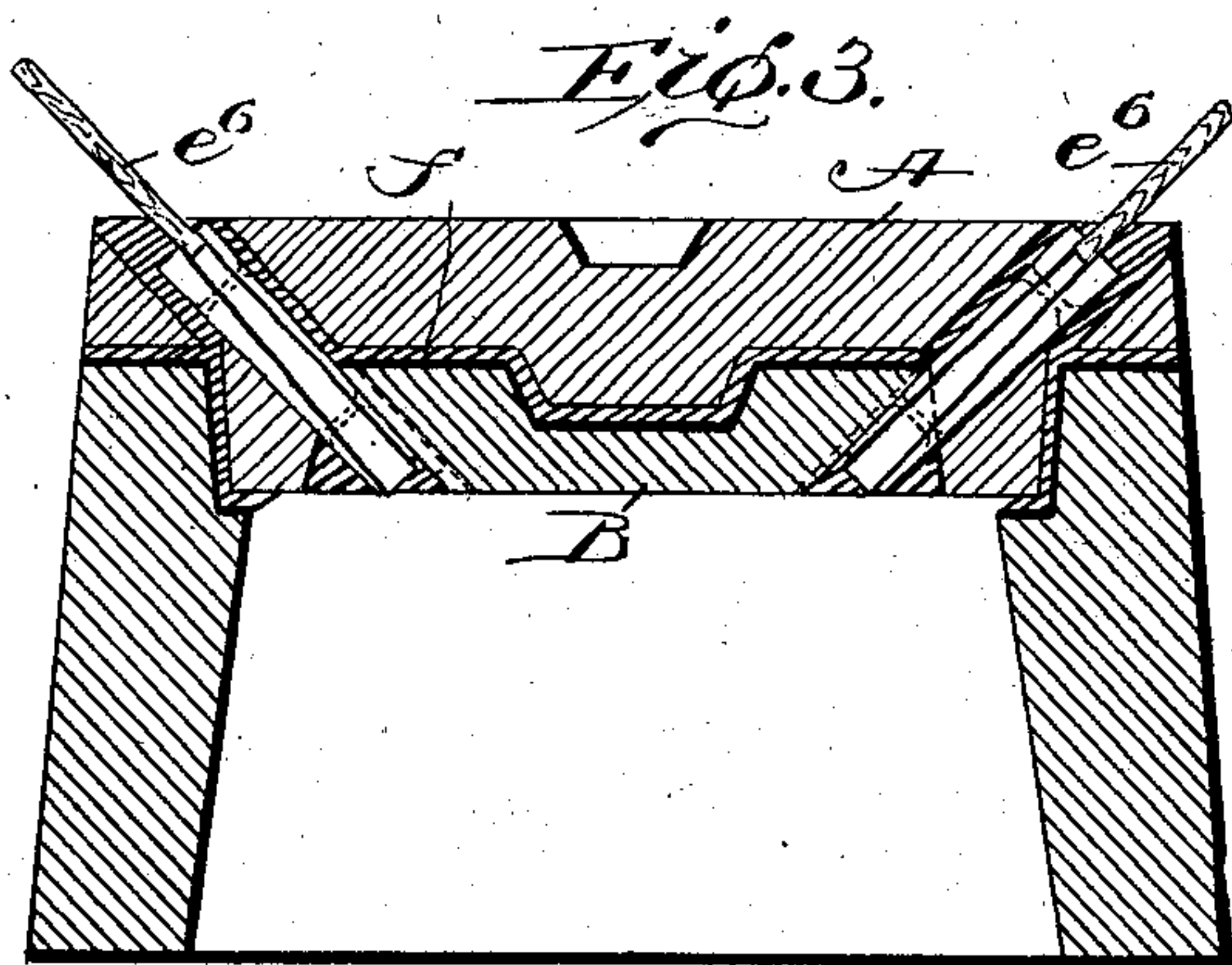
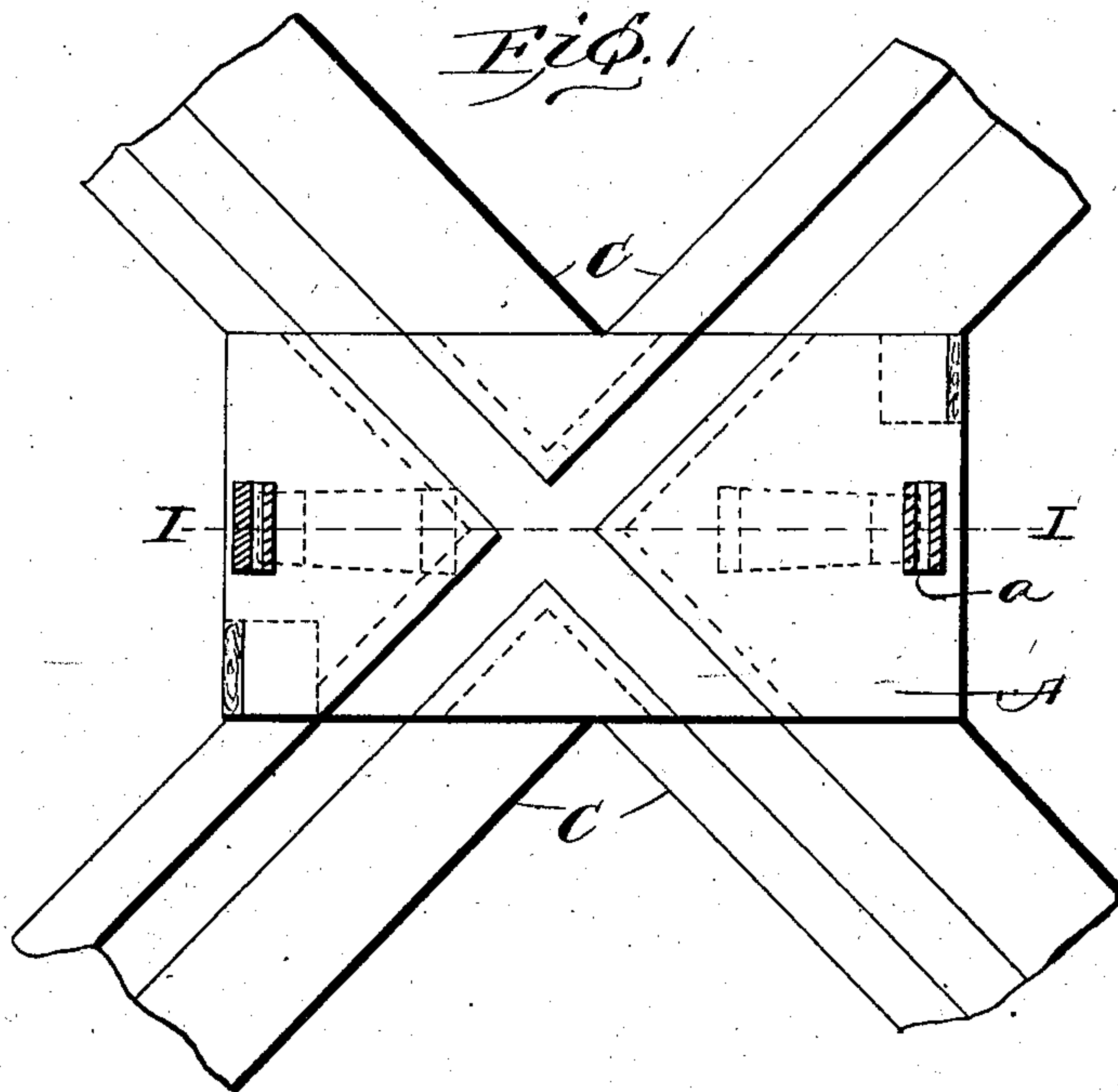


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H. B. NICHOLS.  
RAILWAY TRACK STRUCTURE.  
APPLICATION FILED DEC. 6, 1902.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY B. NICHOLS, OF PHILADELPHIA, PENNSYLVANIA.

## RAILWAY-TRACK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 721,382, dated February 24, 1903.

Application filed December 6, 1902. Serial No. 134,173. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY B. NICHOLS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Track Structures, of which the following is a specification.

My invention relates to those portions of railway-track structures which, owing to the passage of rolling-stock and street traffic thereover, are particularly liable to wear and damage, and hence must be repaired or replaced at more frequent intervals than the remainder of the roadway. In these portions—such, for example, as crossings, frogs, switches, &c.—it has become the practice to supply a wear-plate of harder material than the remainder of the structure and formed with its upper surface in continuation of the rails, and as even this hardened plate soon wears out it is usually made removable from the body portion of the structure, so that it may be replaced without disturbing said body portion, to which the rail ends are attached. Unless this wear-plate is securely fastened to the body portion or base-piece it speedily becomes loosened by the passage of rolling-stock and traffic thereover, resulting at once in trouble, and hence rigid and reliable securing means are necessary; also, as the wear-plate must be replaced from time to time it should be readily removable at will and that preferably without disturbing the adjacent pavement.

My invention therefore has for its principal object the improvement of means for readily securing the wear-plate to and removing it from a track structure.

A further object is to provide means for securing a wear-plate to the base-piece of a railway-track structure, which means may be placed in position and be accessible from the ground-level and which may be removed or disabled without chipping or digging away a part of the structure or the surrounding pavement.

A further object is to provide a new and efficient securing member for structural units.

These and other objects will more fully appear hereinafter.

An embodiment of the invention is described

in the following specification, taken in connection with the accompanying drawings, in which like letters of reference indicate corresponding parts throughout the various figures, and in the drawings—

Figure 1 is a plan view of a railway-track crossing embodying my invention. Fig. 2 is a sectional view of the same, taken on line I I of Fig. 1. Fig. 3 is a similar view of a slightly-modified form. Fig. 4 is an enlarged view in elevation of the securing means. Fig. 5 is an enlarged view in cross-section taken on the line II II of Fig. 2 and showing the securing means in position, and Fig. 6 is a similar view showing a slight modification.

Referring to the drawings, A represents a wear-plate or a railway-track crossing formed with its upper surface in continuation of the rails and seated upon or in a suitable recess formed within a base piece or casting B. The rail ends C are, as usual, cast in the base-piece or are stub-rails to which the rail ends of the meeting tracks may be secured. Wear-plate A is provided with openings or channels  $a$ , which are preferably located at each end and sloping to converge toward the center of the base-piece in which similar channels are formed in continuation of these for the reception of securing members E. These securing members, as shown more in detail in Fig. 4, are composed of two outer parts  $e$  and one central or inner part  $e'$ , made of hard steel or other suitable material and fastened together, preferably, by rivets  $e^2$  of softer metal, such as copper or brass. Before riveting, however, distance-pieces  $e^3$ , shown as short lengths of wire, are placed between the parts, so that spaces are there provided, into which a liner or filler may be introduced. Two of the outer opposite sides or faces of the locking member are preferably at an oblique angle to each other, so that its form as a whole is that of a wedge. The inner part  $e'$  is wedge-shaped and arranged with its apex  $e^5$  toward the back  $e^4$  of the securing member or wedge E. The parts, it will thus be seen, have oblique adjacent surfaces. The apex  $e^5$  of the part  $e'$  is slightly short of the back  $e^4$  of the securing member, so that a blow struck by a broad tool upon the back  $e^4$  to drive the said member into place in the structure will not fall upon the part  $e'$ . The securing member thus



formed is completed by the introduction of a liner or filler F, of zinc or other suitable metal in a molten state, between its parts, as shown in Fig. 4. Instead of using rivets  $e^2$  for first fastening the parts together these may, if desired, be omitted and the parts otherwise held in position while the liner F is introduced, the liner then flowing through the rivet-holes and into their countersunk terminals, thus constituting the fastening means to hold the parts securely together.

In forming the structure the wear-plate A is placed in position upon the base-piece B and the securing members E driven into the openings or channels above described. A suitable liner or filler  $f$ —such as zinc, type-metal, or Babbitt metal—is then poured in a molten state through openings  $a$  and flows into and fills the space between the wear-plate and base-piece and also in contact with the securing members. As the liner expands slightly upon hardening, a perfect support for the wear-plate is thus formed and the securing members are held in position.

When it is desired to remove the wear-plate, a narrow tool is placed through an opening previously formed in the liner by the insertion of a wooden piece  $e^6$  when casting the liner upon the end  $e^5$  of the inner part  $e'$  and struck with sufficient force to drive the part  $e'$  down and into the cavity beneath the base-piece B, shearing off the rivets  $e^2$  or their equivalents. Owing to the previous cooling of the liner F of the securing member a thin film of oxid formed upon the exposed edges of this liner prevents its fluxing with or adhering to the liner  $f$ , so that when the inner part  $e'$  has dropped out the remainder of the securing member collapses and the wear-plate may be pried up in the usual way.

In the modification shown in Fig. 3 it will be seen that the securing members pass through openings in lugs depending from the wear-plate instead of merely through openings provided in the wear-plate proper, as seen in Fig. 2.

As shown in Fig. 5, the liner  $f$  is guided down the outer surfaces of the securing members E by ways  $b$ , a space  $f'$  at each side being also filled by said liner. In order to position the securing member E accurately in its channel when driving in, its outer inclined faces may be provided with ridges  $e^7$ , as shown in Fig. 6, to engage the sides or a side of the ways  $b$ , the liner being then flowed in as before.

I wish it to be understood that although I have described a specific embodiment of my invention I do not desire to limit thereby its scope or application. For instance, it is applicable to frogs, mates, switches, &c., and other track structures, as well as to crossings. The securing member is also suitable for fastening other structural units besides wear-plates and base-pieces of railway-track structures. Also while I have described the se-

curing member as completed by the introduction of a liner before the general casting operation, this is not absolutely essential, although desirable, as the securing member having its parts held together by rivets and separated by the distance-pieces may be driven into the structure in that condition and have its interpart spaces filled by the liner in the general casting operation.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a railway-track structure, the combination with a base-piece and a wear-plate, of a securing member composed of three parts fastened together and driven as a whole into engagement with said base-piece and wear-plate, the central part being wedge-shaped and having its apex toward the outer end or back of the securing member.

2. In a railway-track structure, the combination with a base-piece and a wear-plate, of a wedge-shaped securing member comprising three parts secured together and driven as a whole into engagement with said base-piece and wear-plate, the central part being wedge-shaped and having its apex toward the outer end or back of the securing member.

3. In a railway-track structure, the combination with a base-piece and a wear-plate, of a securing member comprising three parts separated by distance-pieces and fastened together, the central part being wedge-shaped and having its apex toward the outer end or back of the securing member.

4. In a railway-track structure, the combination with a base-piece and a wear-plate, of a securing member comprising three parts fastened together, the central part being wedge-shaped and having its apex toward the outer end or back of the securing member, and a liner or filler interposed in a molten state between said base-piece and wear-plate and in contact with said securing member.

5. In a railway-track structure, the combination with a base-piece and a wear-plate, of a securing member comprising three parts fastened together and separated by distance-pieces, the central part being wedge-shaped and having its apex toward the outer end or back of the securing member, and a liner or filler interposed in a molten state between said base-piece and wear-plate and between the component parts of said securing member.

6. A securing member for structural units comprising three parts fastened together, the central part being wedge-shaped.

7. A securing-wedge for structural units comprising three parts fastened together, the central part being wedge-shaped and having its apex toward the back of the securing-wedge.

8. A securing member for structural units comprising three parts fastened together, the central part being wedge-shaped and having



its apex toward but inset with respect to the back of the securing member.

5 9. A securing member for structural units comprising three parts fastened together but separated by distance-pieces, the central part being wedge-shaped.

10 10. A securing member for structural units comprising three parts separated by distance-pieces, the central part being wedge-shaped, and a liner or filler interposed in a molten state between the parts.

11. A securing member for structural units comprising three parts fastened together, the central part being wedge-shaped, and a liner

or filler interposed in a molten state between 15 the parts.

12. A securing-wedge for structural units comprising three parts fastened together, the central part being wedge-shaped and having its apex toward the back of the securing- 20 wedge, and a liner or filler interposed in a molten state between said parts.

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

HENRY B. NICHOLS.

Witnesses:

ALMA B. EICHELBERGER,  
C. P. WEAVER.