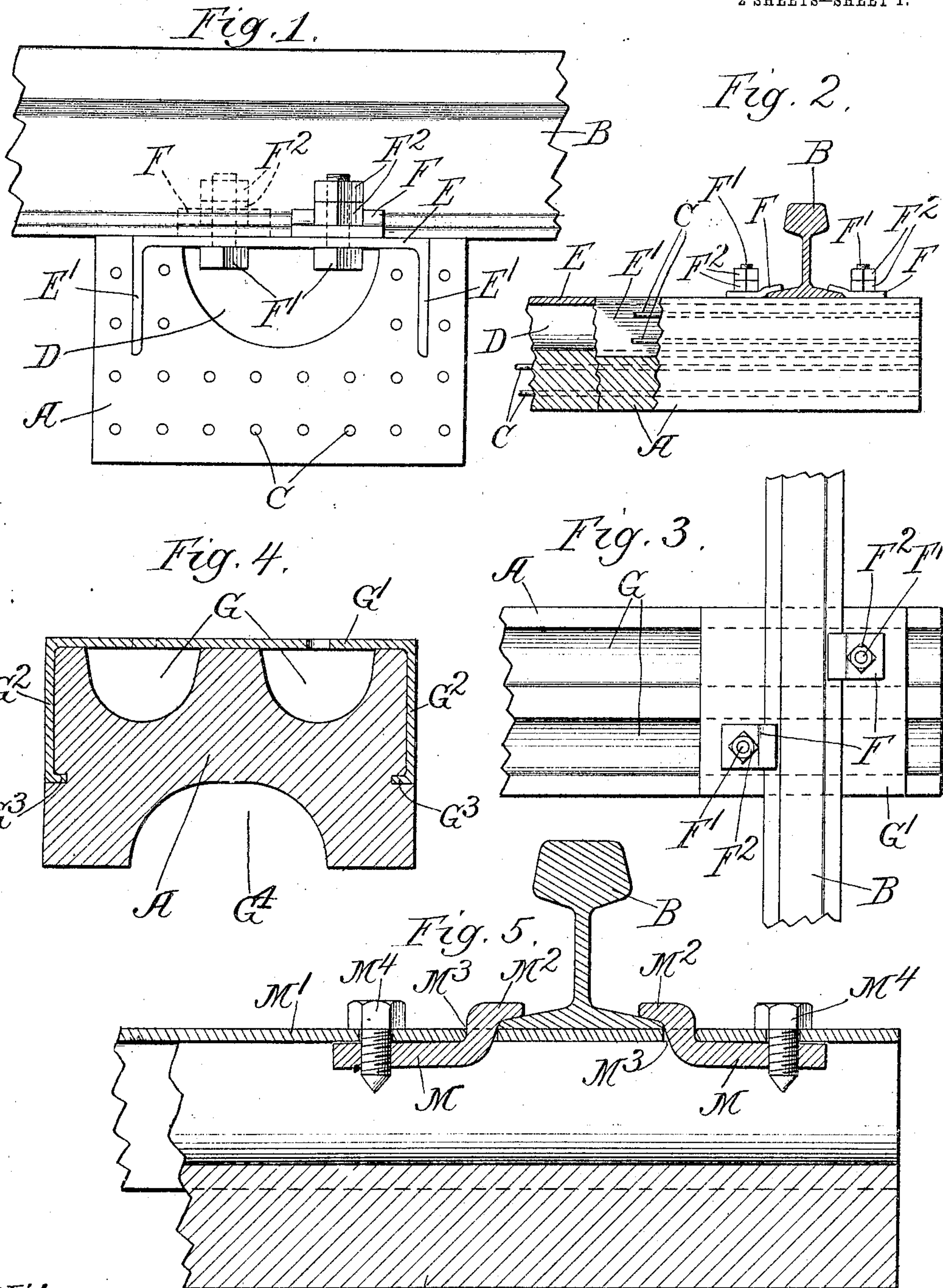


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PATENTED FEB. 13, 1906.

W. H. PRUYN, JR.
CONCRETE RAILWAY TIE.
APPLICATION FILED FEB. 13, 1905.

2 SHEETS—SHEET 1.



Witnesses.
Edward T. Wray.
Permal H. Freeman

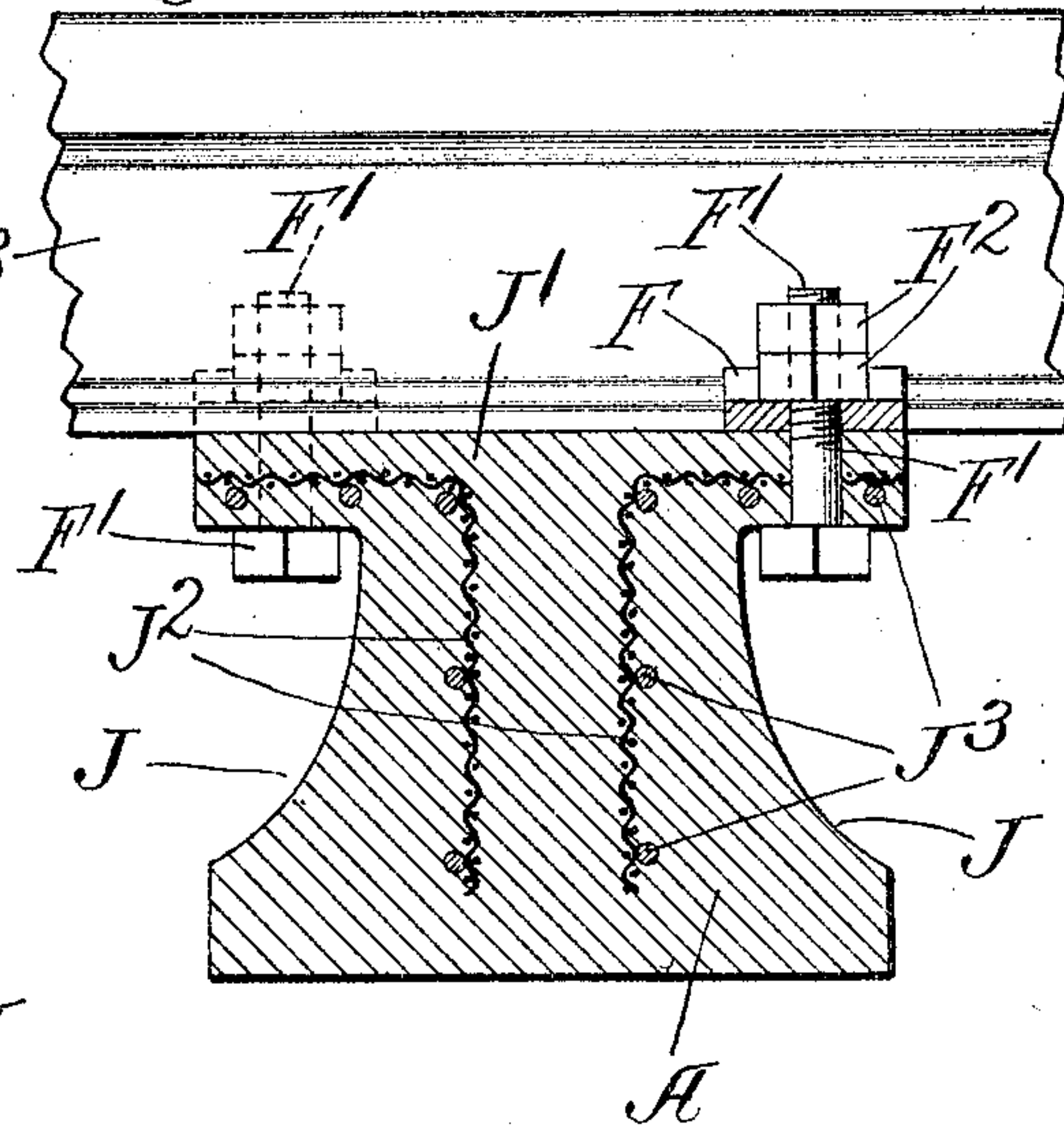
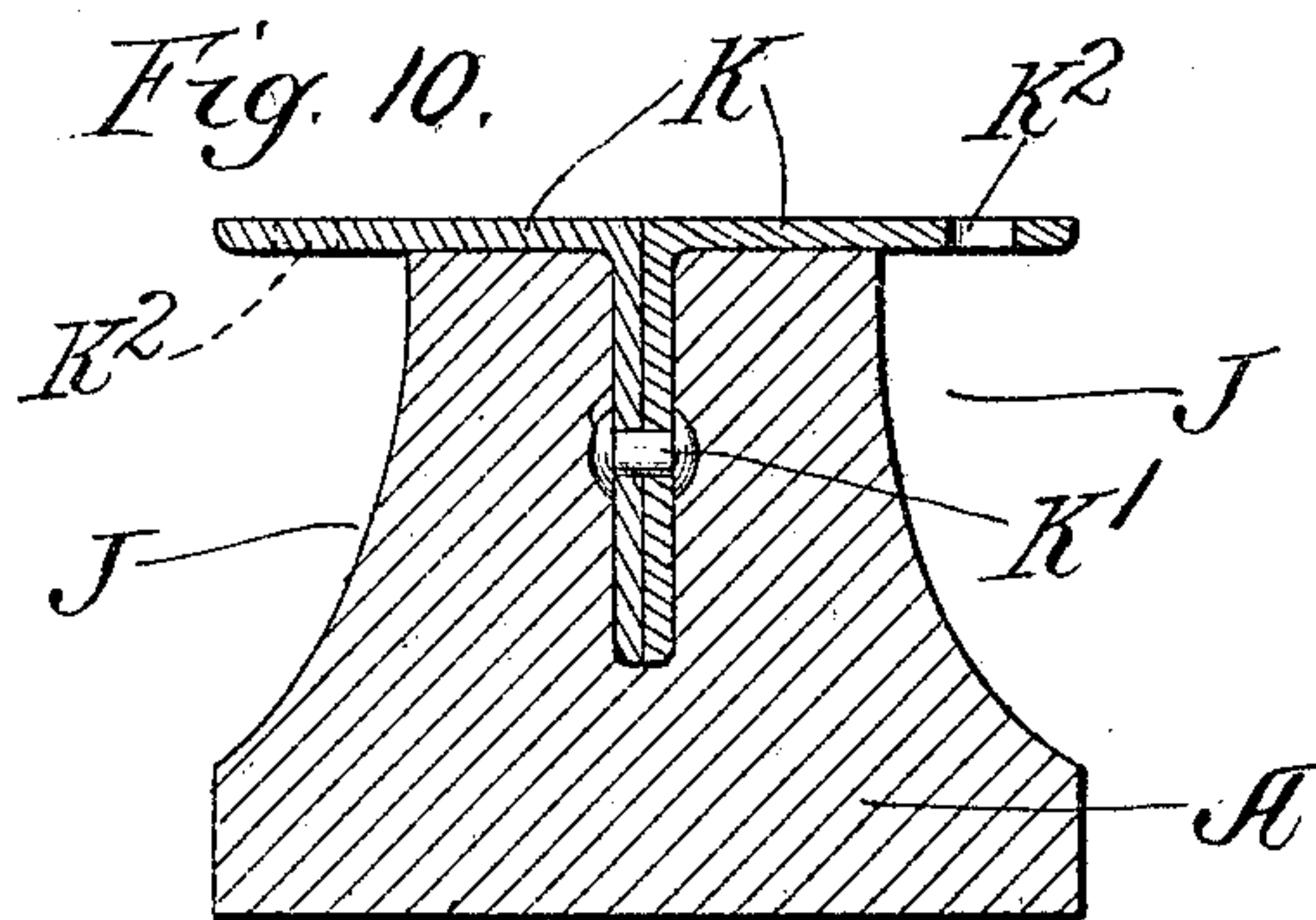
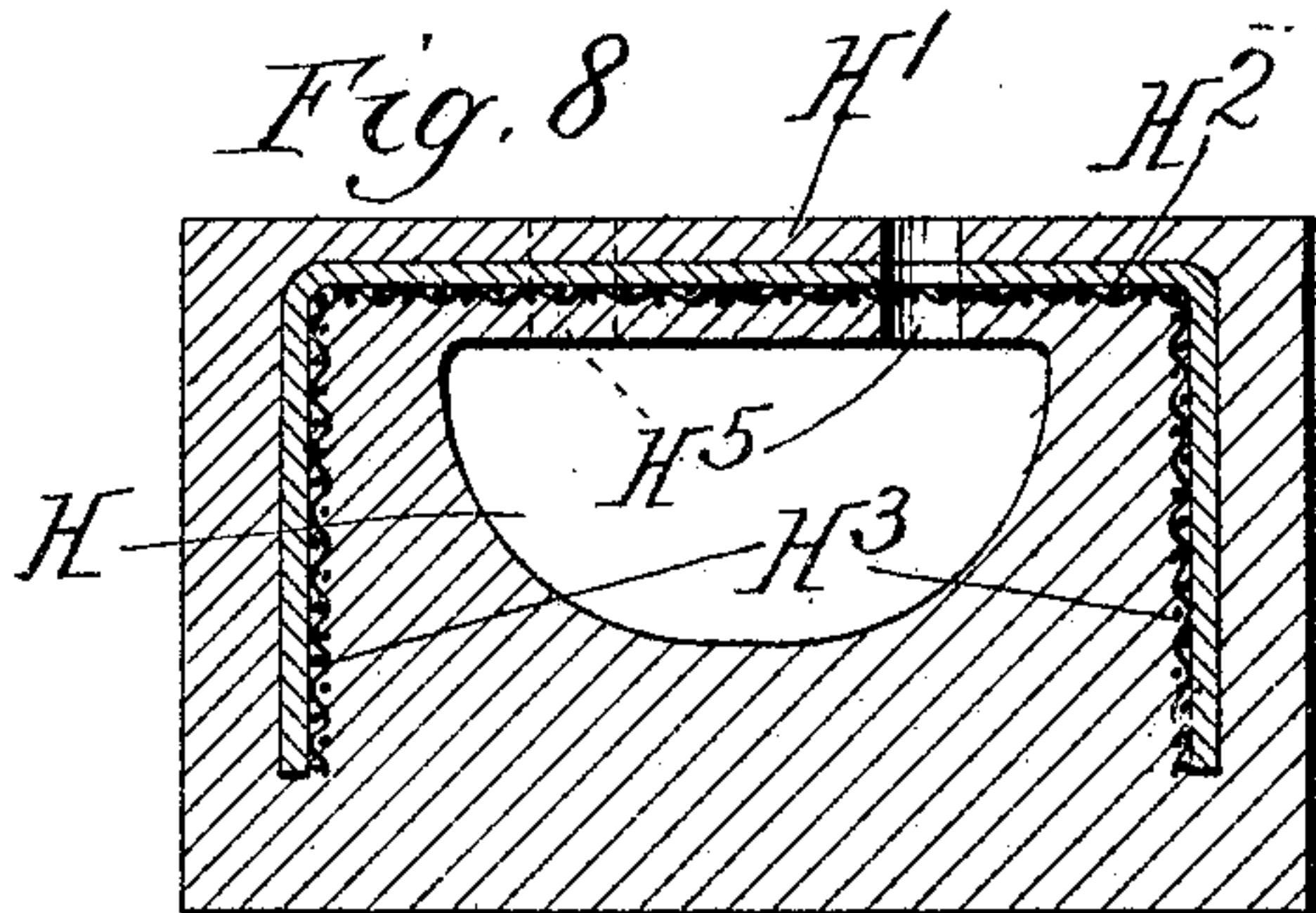
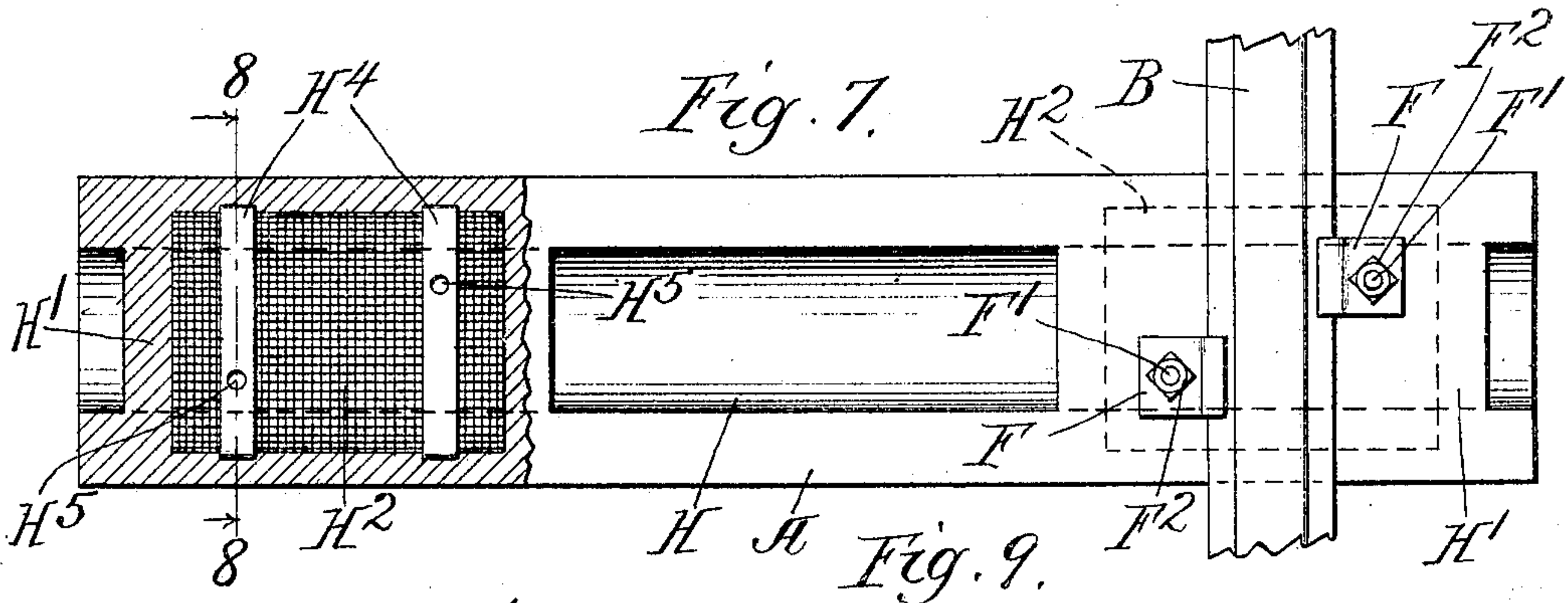
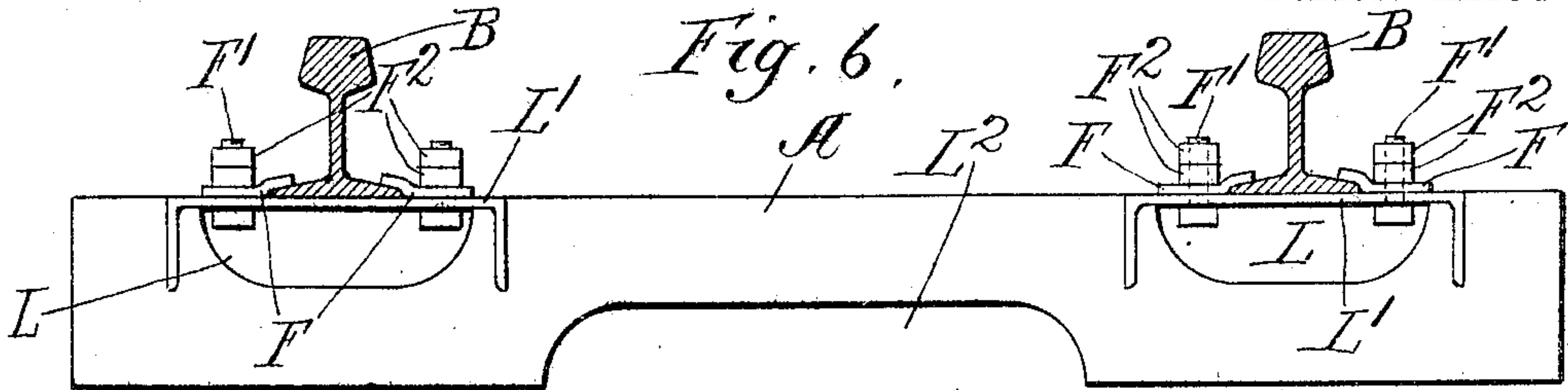
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. PRUYN, JR., OF CHICAGO, ILLINOIS.

CONCRETE RAILWAY-TIE.

No. 812,524.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed February 13, 1905. Serial No. 245,353.

To all whom it may concern:

Be it known that I, WILLIAM H. PRUYN, Jr., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Concrete Railway-Ties, of which the following is a specification.

My invention relates to railway-ties, and has for its object to provide new and improved constructions for such ties, and particularly for those made of a composition such as concrete or the like.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a cross-section through one form of my tie, showing the rail in elevation; Fig. 2, an elevation of the tie of Fig. 1 with parts broken away and the rail in section; Fig. 3, a plan view of a different form of tie; Fig. 4, a cross-section of the same; Fig. 5, a longitudinal section showing a modified form of rail-clamping device; Fig. 6, an elevation of another form of tie; Fig. 7, a plan view, with parts broken away, of another modification; Fig. 8, a section on line 8 8 of Fig. 7; Fig. 9, a cross-section through a different form of tie embodying my invention, and Fig. 10 a like view of a modification with the rail removed.

Like letters of reference indicate like parts in all the drawings.

My tie consists in general of a body part A, which is preferably composed of some concrete-like material which may be reinforced in any ordinary manner, and of a rail-seating part which I prefer to make relatively thin and of some stronger material or composition. To this seating portion of the tie is clamped or otherwise secured the rail B. In order to facilitate this end and also to lighten the structure, the tie is channeled beneath the seating part, the latter being preferably embedded in the composition forming the tie, so that it acts as a reinforcement to the structure at that place.

Referring particularly to Figs. 1 and 2, the body portion A of the tie is shown as reinforced by a plurality of longitudinal rods C C, of steel or other material. The reinforcement of the concrete may, however, be of any preferred sort. The tie is here shown as having the channel D on its upper surface and running the length of the tie. The rail-seat is composed of the channel-iron E, which bridges over the aperture D, its flanges E' E' being embedded in the concrete. The rail

rests upon the upper surface of the part E and may be secured thereto in any desired manner. The channeling of the tie at D gives easy access to the lower surface of the part E, so that almost any form of device may be used for securing the rail in position. I have here shown a securing device consisting of the two plates F F, arranged staggered, one on each side of the rail, and which overlap the lower flange of the rail and are secured to the channel-iron E by means of the bolts F' F' and the nuts F² F². The channel-iron, it will be seen, therefore forms a bridge over the aperture D, and to this bridge the rail is secured. By being embedded in the cement the channel-iron strengthens the tie at the place where it is weakened by the channeling.

In Figs. 3 and 4 I have shown a modified form of tie. The upper surface of the tie is traversed by two longitudinal channels G G, and there is also a similar channel G⁴ on the under side of the tie. In the device of Figs. 1 and 2 the channel-iron E is represented as running the whole length of the tie. That of course is not essential, and in the form shown in Fig. 3 the rail-seat extends only a short distance each side of the rail. In this form of device I have shown the rail-seat as consisting of a channel-iron G', provided with flanges G³ G³. The rail may be fastened to the part G' in any desired manner—as, for example, by the plates F F, bolts F' F', and nuts F² F² in the same manner as is shown in Figs. 1 and 2.

It is not essential, of course, that the bridge to which the rail is clamped should be made of iron or steel, as described. This bridge or rail-seat may, on the contrary, be composed of the same material as the body of the tie and made integral therewith. I have shown this construction in Figs. 7 and 8. The tie has the longitudinal channel H, which is bridged at each end at the place where the rail rests by a relatively thin concrete structure H', which is built upon or around a metallic netting or other reinforcement H², the ends of the latter being preferably bent around and anchored deep in the body of the cement, as shown at H³ H³. This metallic netting is preferably reinforced by the metallic bands H⁴ H⁴. The bridge or rail-seat is perforated at H⁵ H⁵, by means of which the rail may be clamped thereto in the manner before described. A somewhat different structure, but embodying the same principles, is illustrated in Fig. 9. Here the body of the tie A has lon-

longitudinal channels J J on its sides, thus forming a rail-seat J', which is perforated for the bolts F', by means of which the rail may be fastened thereto, as described. In order to strengthen the relatively thin seating portion formed by the channels J J, I embed in cement the longitudinal reinforcements J² J², extending through such seating part and anchored in the body of the tie in the manner shown. I may also embed in the cement the longitudinal rods J³ J³. Fig. 10 shows a further modification in which the rail-seat consists of two oppositely-placed angle-irons K K, riveted together at K' and embedded in the concrete of the tie. The angle-irons K K are provided with the staggered perforations K² K².

In some instances it is desirable to construct the tie upon which the rail will rest more elastically than is possible when the pressure is immediately upon the mass of concrete. In Fig. 6 I have shown an arrangement for securing such elastic seating of the rail. The upper surface of the tie is provided at each end with a transverse channel L, which is bridged by a transversely-placed channel-iron L' or some like structure, and upon this is clamped the rail B in any desired manner. The support of the rail will therefore be somewhat elastic. In order to decrease the weight of the structure, the tie may be cut away on the under side, as shown at L².

In the other figures I have shown the rail as bolted to the bridge or rail-seat. The rail, however, may be secured to the tie in any desired manner. In Fig. 5 I have shown a device which is particularly adapted to be used in connection with the tie of my invention. It consists of a clamping device having two parts, one of which, M, extends under the rail-seat M' and the other, M², which is integral therewith and passes up through the aperture M³ in such rail-seat and overlaps the flange of the rail. A screw-bolt M⁴, taking into the part M, presses the part M² down upon the rail-flange. The form of securing device is of course not an essential part of my invention.

I have described with some particularity several structures embodying my invention; but it will be understood that there might be other modifications made in details of form and construction without departing from the spirit and purpose of my invention. Therefore I do not wish to limit myself to the particular forms and devices herein shown, but desire that the drawings be taken as in a sense diagrammatic and illustrative of my invention as disclosed in a few of its various embodiments.

The use and operation of my invention will perhaps have been made sufficiently clear by the foregoing. It is sufficient to say that I secure by constructing my tie in the manner shown a cheap comparatively light tie, to which the rails may be very easily and very permanently secured. The channeling of the

concrete structure decreases its weight and at the same time gives access to the under side of the rail-seat. The latter is arranged to reinforce the tie at the places where it is weakened by being cut away.

I claim—

1. In a railway-tie, the combination of a body part of concrete-like material with a rail-seating part to which the rail is secured, the body part being cut away giving access to the under side of the rail-seating part.
2. In a railway-tie, the combination of a body part of concrete-like material, with a relatively thin rail-seating part to which the rail is secured, the body part being channeled giving access to the under side of the rail-seating part.
3. In a railway-tie, the combination of a body part of concrete-like material with a rail-seating part which is relatively thin and of tougher structure, the body part being channeled in proximity to the rail-seating part.
4. In a railway-tie, the combination of a body part of concrete-like material with a seating part to which the rail is secured, the body part being channeled in proximity to the seating part, and means for securing the rail to such tie.
5. In a railway-tie, the combination of a body part of concrete-like material with a rail-seating part to which the rail is secured, the body part being channeled in proximity to such rail-seating part, perforations through such seating part, and securing devices extending through the perforations.
6. In a railway-tie, the combination of a body part of concrete-like material with a rail-seating part comprising a metallic member, a part of which is embedded in the concrete of the body, the body part of such tie being channeled beneath said seating part.
7. In a railway-tie, the combination of a body part of concrete-like material, such body part being channeled, with a rail-seating part extending over such channel comprising a metallic member embedded in the concrete so as to reinforce the structure about such channeling.
8. In a railway-tie, the combination of a body part of concrete-like material with a seating part to which the rail is secured, the body part being channeled beneath the seating part, and means for securing the rail to such tie comprising a clamping device engaging the rail-flange and a bolt to secure such clamping device to the rail-seat.
9. In a railway-tie the combination of a body part with a relatively thin rail-seating part to which the rail is secured, the seating part disposed with reference to the body part so that the under side of the seating part is readily accessible for fastening the rail.
10. In a railway-tie the combination of a body part apertured so as to form a rela-

tively thin rail-seating part with its under side accessible, and metal reinforcements for such seating part.

11. In a railway-tie the combination of a
5 body part apertured so as to form a relatively thin rail-seating part with its under side accessible, and metal reinforcements for such seating part embedded in the concrete forming the tie.

10 12. In a railway-tie the combination of a body part apertured so as to form a relatively thin rail-seating part with its under side accessible, and metal reinforcements for such seating part embedded in the concrete
15 and extending about such aperture.

13. In a railway-tie the combination of a

body part apertured so as to form a relatively thin rail-seating part with its under side accessible, and metal reinforcements for such seating part extending through the seating part and anchored in the body part at each side of the aperture. 20

14. In a railway-tie the combination of a body part of concrete-like material with a rail-seating part to which the rail-securing
25 devices are fastened, and a thin reinforcing portion for the seating part entirely embedded in the concrete thereof.

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