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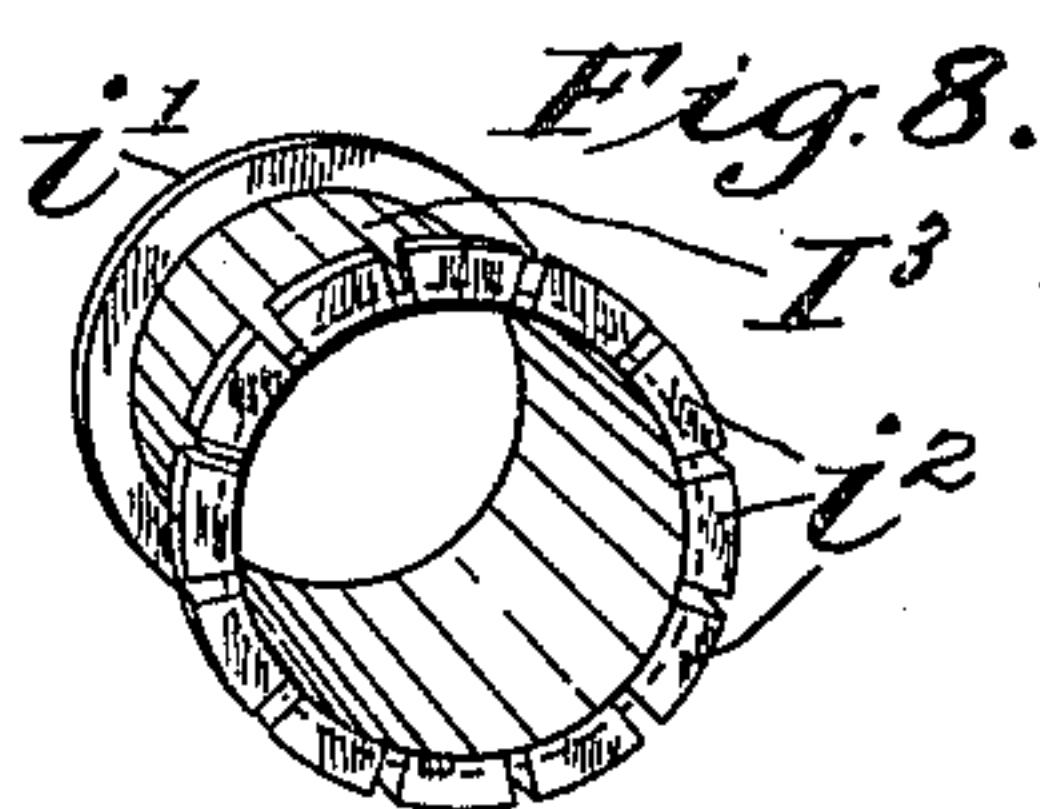
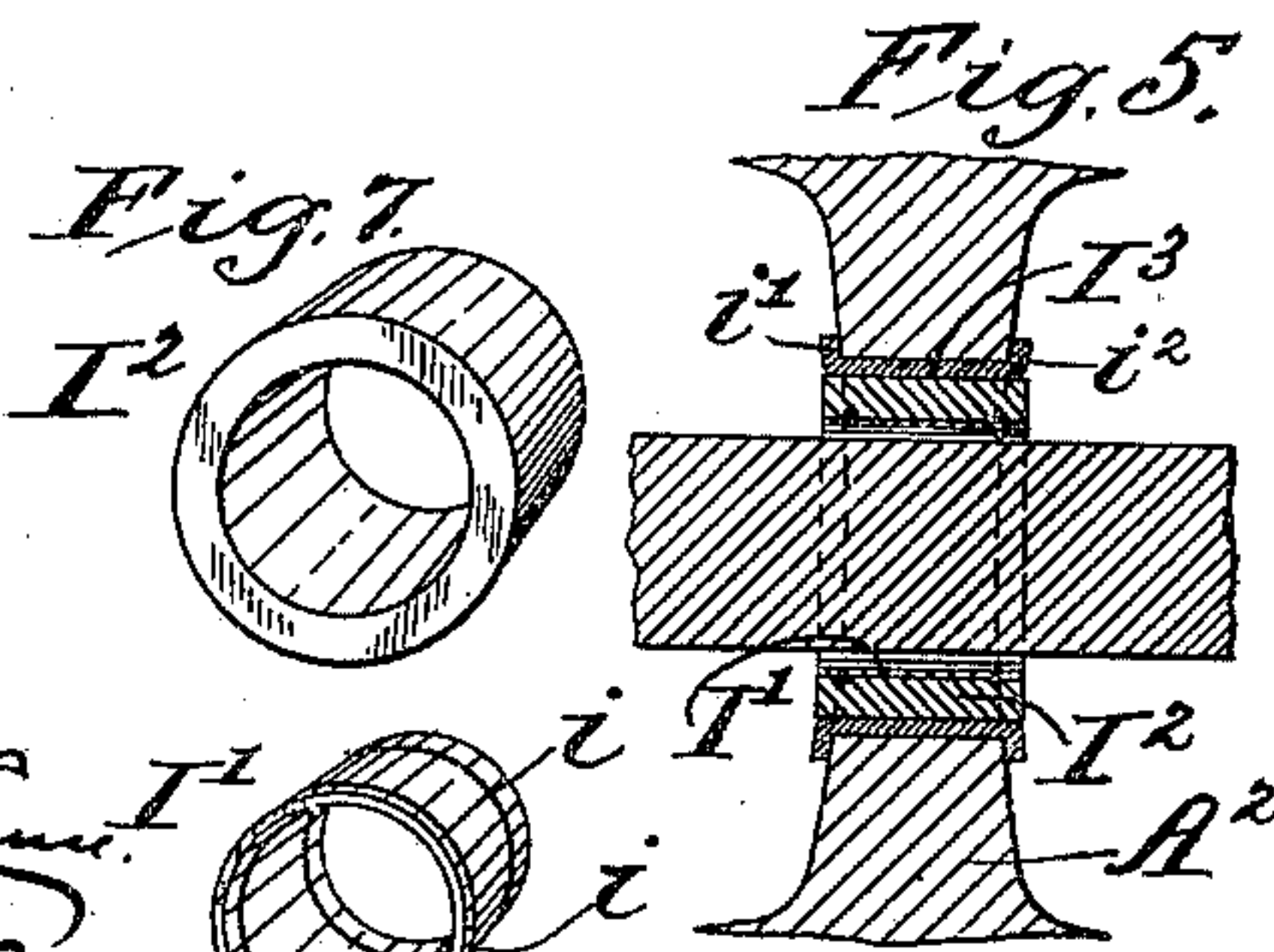
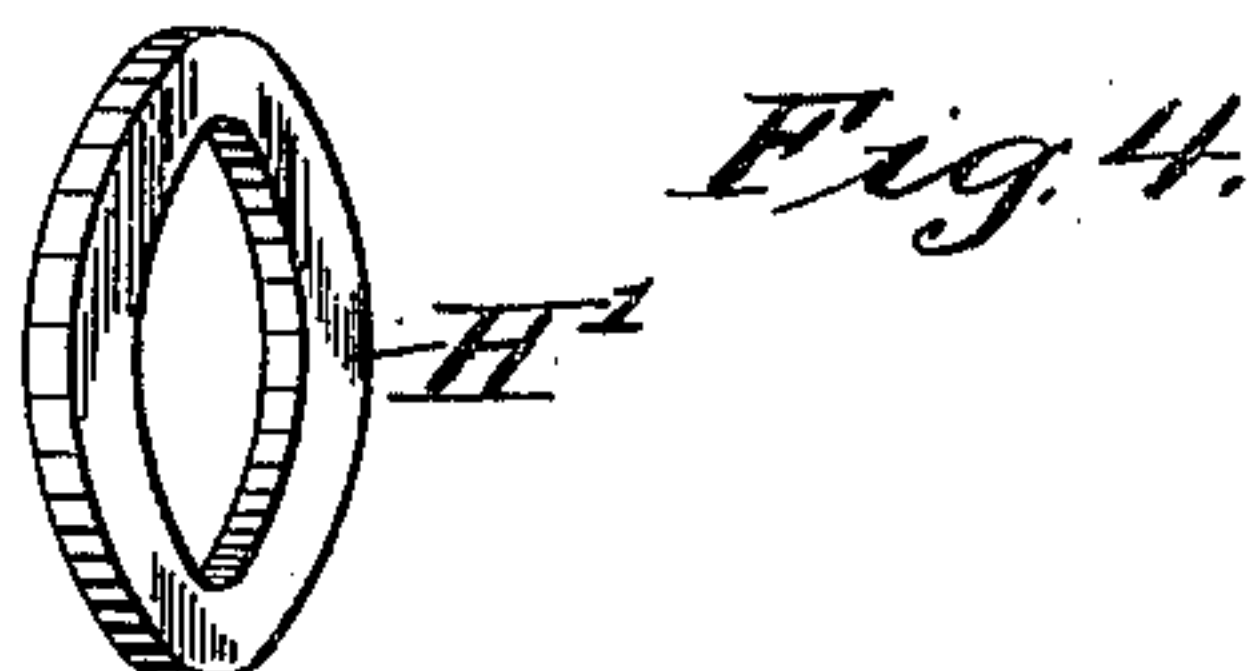
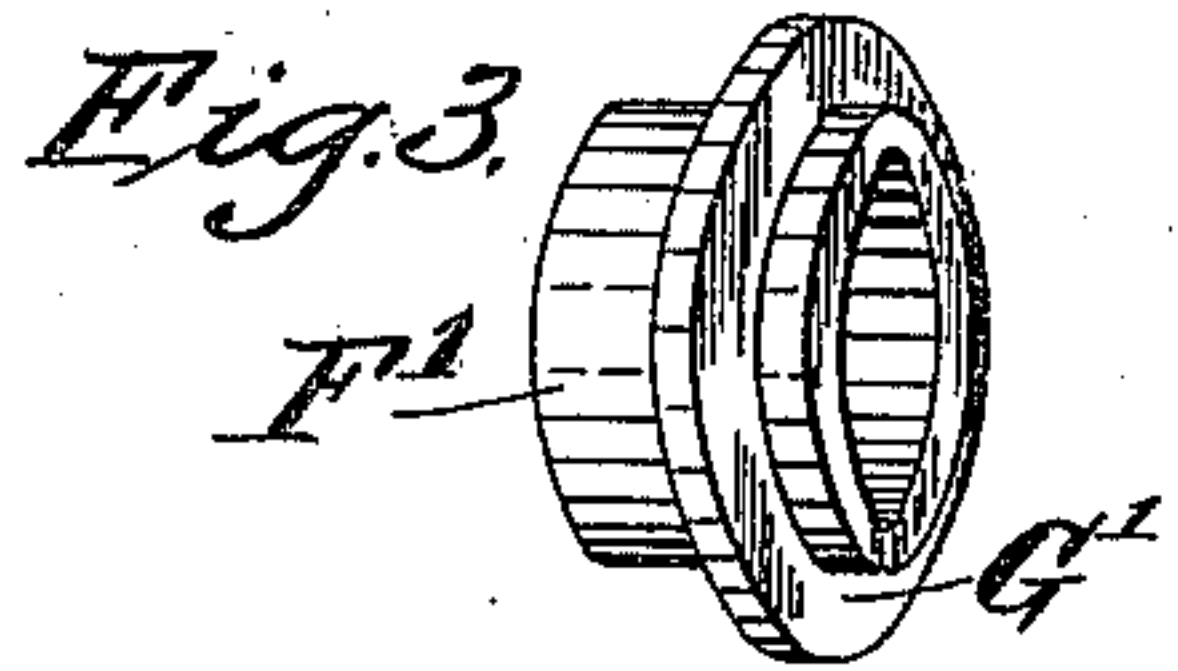
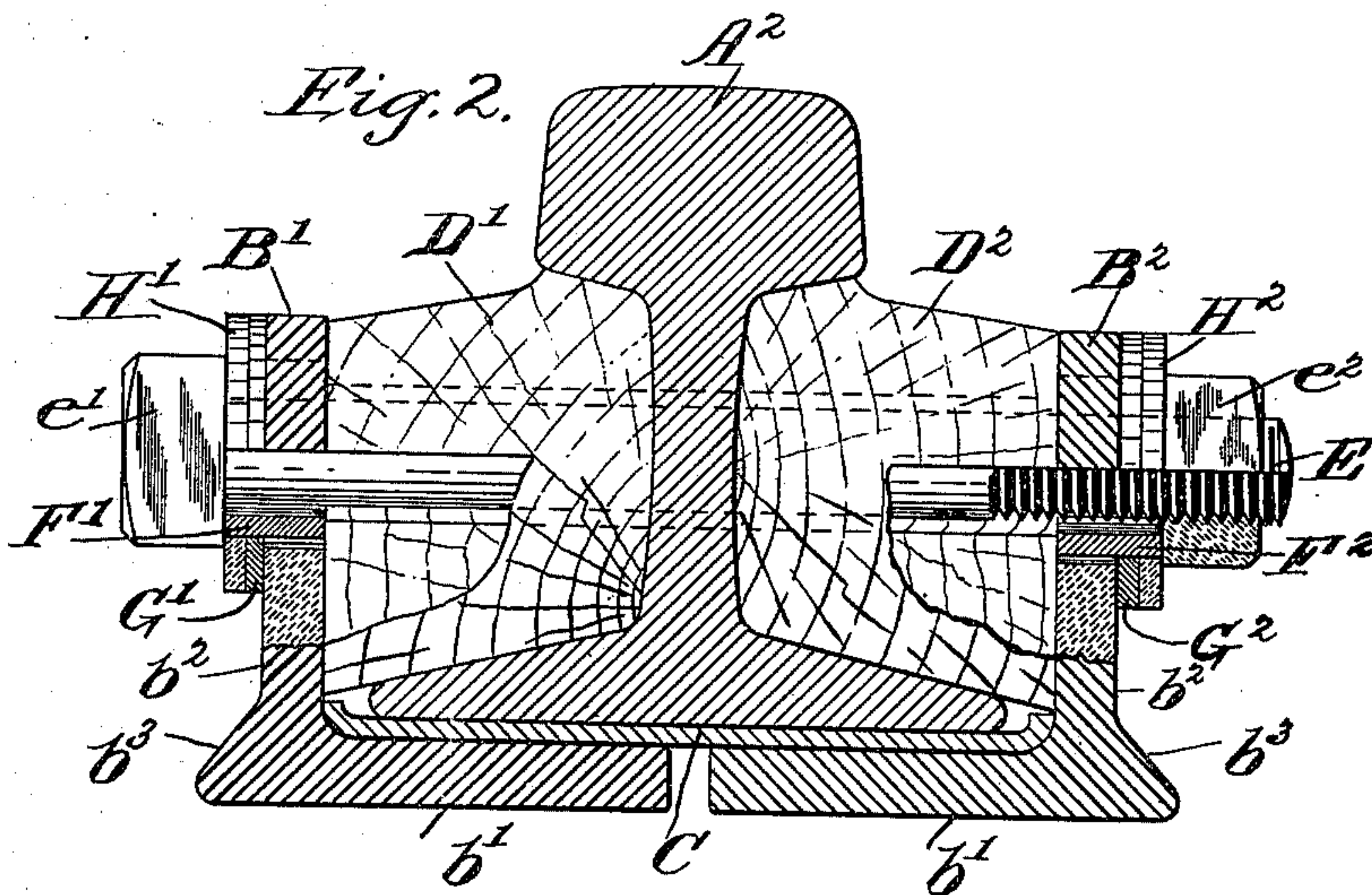
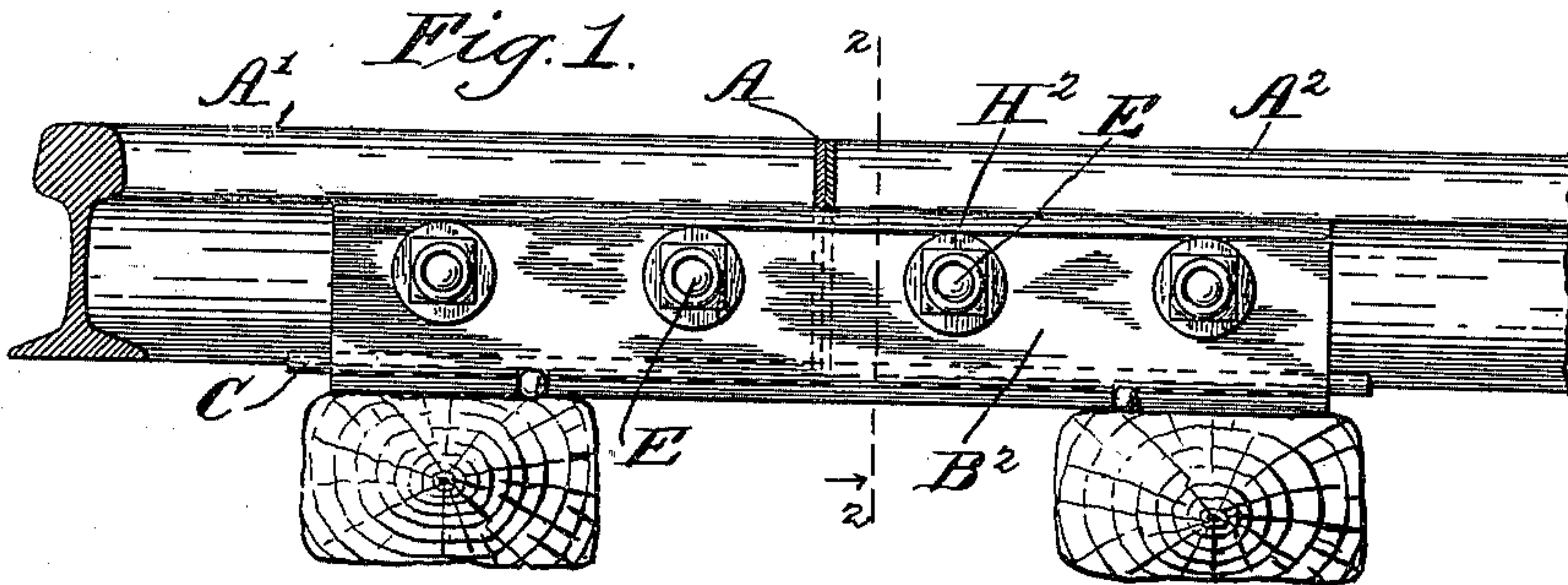
Patented Apr. 23, 1901.

G. A. WEBER.  
INSULATED RAILROAD RAIL JOINT.

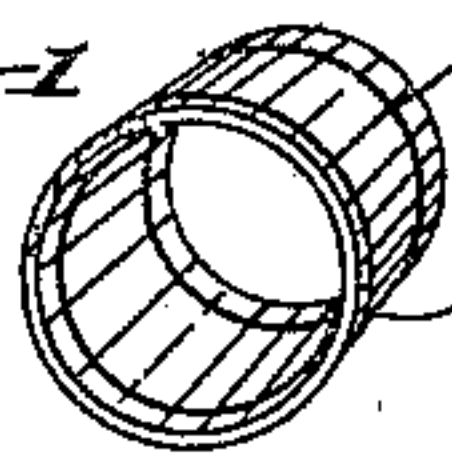
(Application filed Dec. 7, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:  
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*Fig. 6.*

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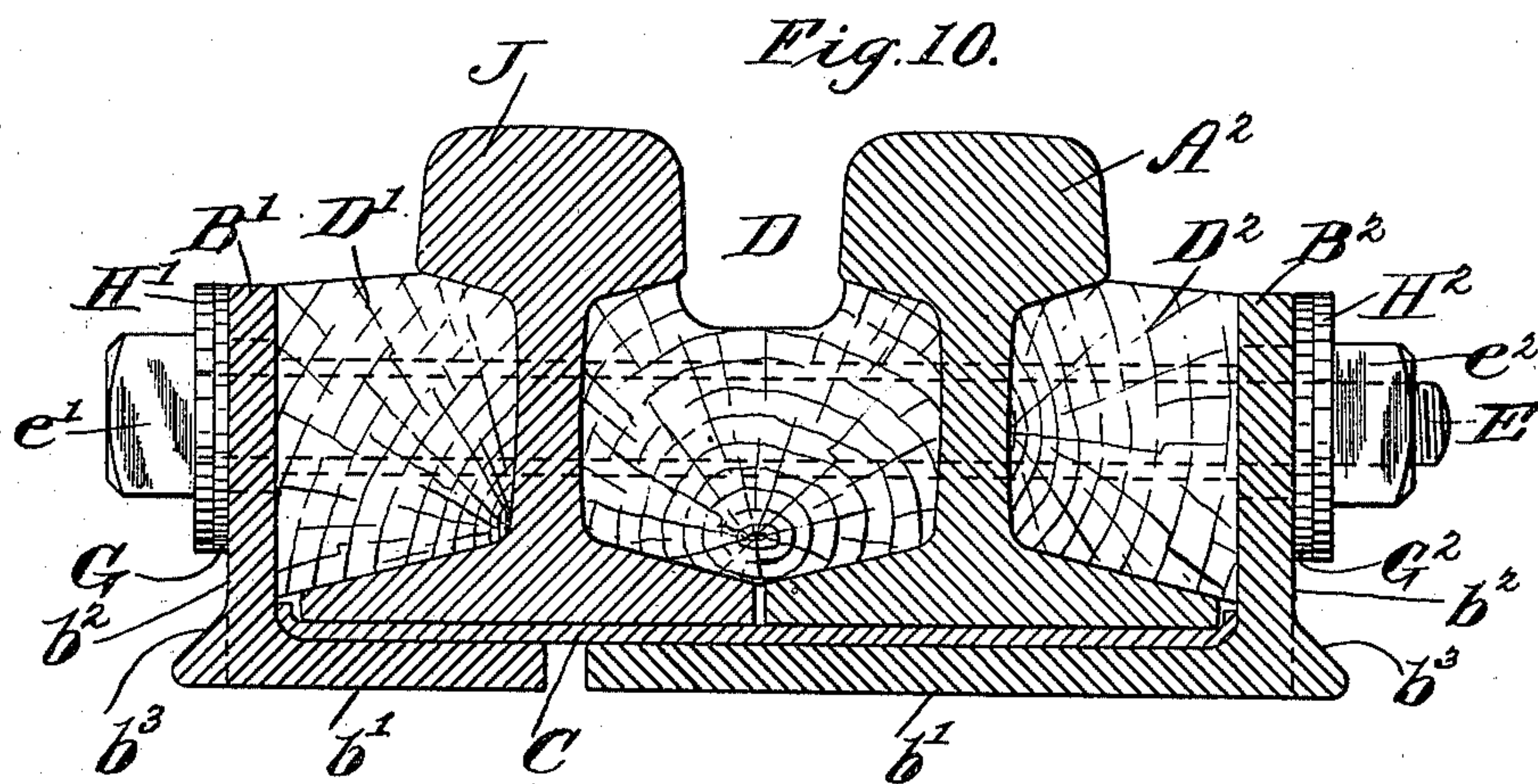
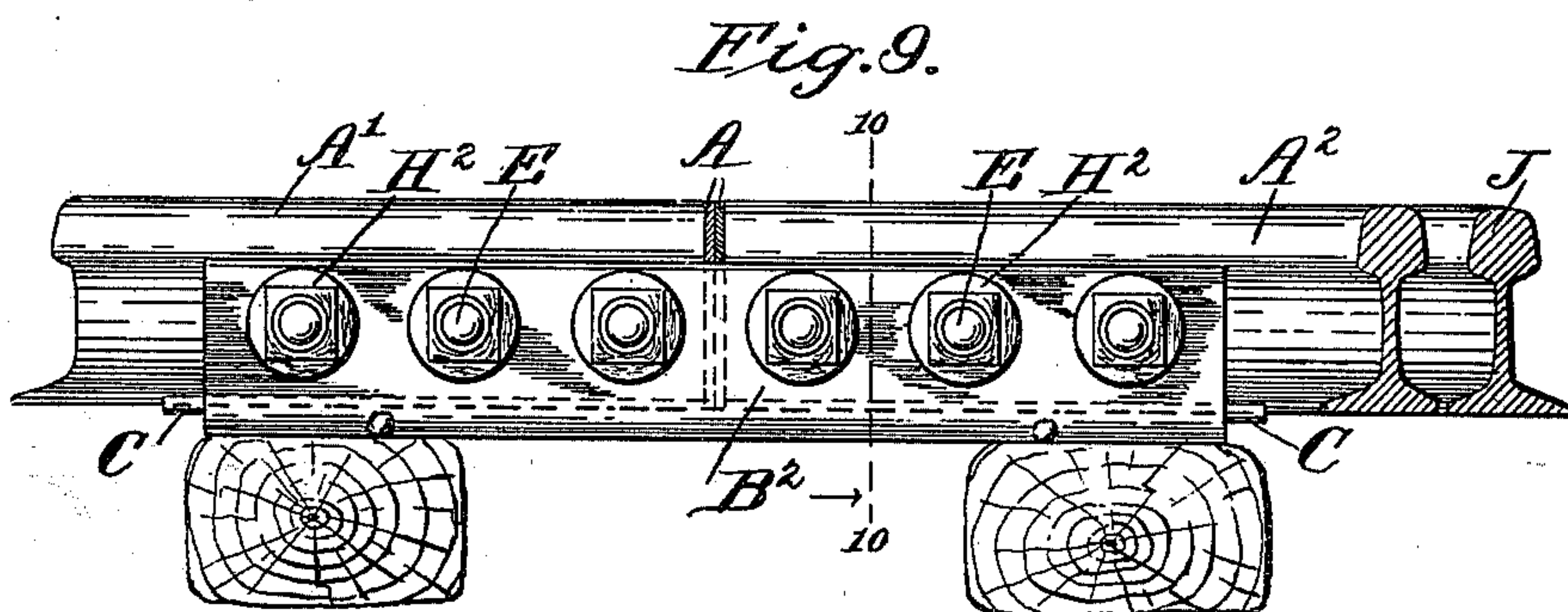
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G. A. WEBER.  
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(Application filed Dec. 7, 1900.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

GEORGE A. WEBER, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE WEBER RAILWAY JOINT MANUFACTURING COMPANY, OF NEW YORK, N. Y.

## INSULATED RAILROAD-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 672,608, dated April 23, 1901.

Application filed December 7, 1900. Serial No. 39,005. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. WEBER, of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Insulated Railroad-Rail Joints, of which the following is a specification.

The present invention relates to joints between adjacent sections of insulated railroad-rails, and the object is to secure a firm joint with thorough insulation between the connected rail-sections.

I will describe a joint embodying my improvement and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a side elevation of two adjacent rail-sections and the parts used therewith to form an insulated joint between them. Fig. 2 is a vertical transverse section taken at the plane of the dotted line 2 2, Fig. 1, but on a larger scale. Fig. 3 is a perspective view of certain parts shown in Fig. 2. Fig. 4 is a perspective view of another part shown in Fig. 2. Fig. 5 is a vertical transverse section, upon a larger scale than Fig. 2, of the web of a rail-section, together with the base and head of the rail-section, a portion of the bolt, and certain devices intermediate of the bolt and web of the rail-section. Figs. 6, 7, and 8 are perspective views of parts shown in Fig. 5. Fig. 9 is a side elevation of two adjacent service-rail sections and a guard-rail and parts forming an insulated joint between sections of the service-rail. Fig. 10 is a vertical transverse section taken at the plane of the dotted line 10 10, Fig. 9.

Similar letters of reference designate corresponding parts in all the figures.

I will first explain my invention in connection with Figs. 1, 2, 3, and 4.  $A' A^2$  designate two adjacent rail-sections which are to be joined to form a portion of track and so as to insulate the one from the other. Between their ends insulating material  $A$  is interposed. Preferably it will be made of vulcanized fiber, and as here shown consists of two pieces of that material laid face to face and bearing against the ends of the rail-section.  $B' B^2$  designate two rail-chairs ar-

ranged on opposite sides of the end portions of the rail-sections. It will be seen that each chair has a base  $b'$ , an upright  $b^2$ , and an angle-brace  $b^3$ , all the parts being made in one integral structure of iron or steel, preferably the latter. Upon the bases  $b'$  of the rail-chairs a strip of insulating material  $C$ —as, for instance, vegetable fiber—is placed. Upon this strip of insulating material  $C$  rest the bases of the rail-sections  $A' A^2$ . Preferably the side edges of the strip of insulating material  $C$  are turned upwardly to prevent any possibility of contact between the bases of the rail-sections and the rail-chairs. Intermediate of the webs of the rail-sections and the uprights  $b^2$  of the rail-chairs blocks  $D' D^2$ , of packing material, consisting, preferably, of wood, are arranged, they preferably having been so shaped as to conform to the surfaces with which they are to contact. Bolts  $E$ , of which there may be any suitable number, pass through the uprights of the chair-rails  $B' B^2$ , the blocks  $D' D^2$ , and the rail-sections  $A' A^2$ . Intermediate of the circumferences of the bolts and the holes formed for their reception through the uprights of the chair-rails are bushings  $F' F^2$ , of insulating material. Immediately outside of the uprights of the chair-rails are washers  $G' G^2$ , of insulating material. Preferably these bushings and washers will be made of vegetable fiber. Outside the washers  $G' G^2$  are metal washers  $H' H^2$  to prevent the chafing of the insulating-washers by the bolts. Each of the bolts  $E$  preferably has a polygonal head  $e'$ , capable of being grasped with a wrench, and a polygonal nut  $e^2$ , which also may be grasped by a wrench. It must be understood that the rail-chairs  $B' B^2$ , the insulating material  $C$ , and the blocks of wood  $D' D^2$  are long enough to extend across the ends of the adjacent rail-sections  $A' A^2$  for the purpose of forming a joint between them. Preferably the strip  $C$ , of insulating material, will be made somewhat longer than the chairs, so that by slackening the bolts and loosening the various parts it may be removed and another similar strip may be inserted in its place. Its prolongation beyond the rail-chairs will preferably be perforated, so that it may be engaged



by some suitable instrument to facilitate its withdrawal.

In Figs. 5, 6, 7, and 8 I have shown a bushing I', which may be of any suitable soft metal—as, for instance, brass. I have shown it as cylindrical in shape, with two outwardly-projecting circumferential ribs  $i$  near the ends. Outside this bushing I' is a bushing I<sup>2</sup>, of insulating material, preferably vegetable fiber. It is of cylindrical form, and the ribs  $i$  of the bushing I' engage with it sufficiently to prevent any independent longitudinal movement of either. Outside the bushing I<sup>2</sup> is a bushing or sleeve I<sup>3</sup>, also of cylindrical form and made of metal, preferably soft steel. It has at one end a flange  $i'$ , which will preferably be formed in the course of manufacture, and at the other end a flange  $i''$ , which is intended to be turned up with a hammer or other suitable tool at the time of forming a joint. To facilitate the turning up of this flange  $i''$ , a number of slots or notches are formed in the end of the cylindrical body of this bushing I<sup>3</sup>. If each of the bolts E has combined with it the bushings I', I<sup>2</sup>, and I<sup>3</sup>, as described, the insulating bushings and washers F' F<sup>2</sup> G' G<sup>2</sup> and the metal washers H' H<sup>2</sup> may be omitted.

Obviously this joint is exceedingly strong and firm. A rail-section united by means of it to another rail-section will be secured against any relative displacement under heavy weight. The two uprights or guards of the rail-sections when secured in place in the joint in effect form constituent parts of a bridge at the adjacent ends of the rail-sections. The two rail-chairs effectively oppose any tendency to oscillation and very much more effectively oppose it than could possibly be done with a single rail-chair, even if the parts were indefinitely prolonged, because in the present joint both sides of the rail-joint are connected to the base of the joint. Moreover, the tensile strength of the joint is the same on both sides of the joint, and this is of great importance to prevent breakage on one side, for this would be much more liable to occur if the joint on one side consisted solely of a block of wood F' F<sup>2</sup>. Expansion and contraction will be the same on both sides of the joint, and this will prevent injury such as is frequently occasioned upon one of the blocks of packing material where but a single chair is used. It will be obvious that the tensile strength of the rail-joint as a whole is also much augmented. As both sides of the two rail-sections to be united are combined with similar parts, the alinement of the rail-sections is likely to be better than it would be otherwise.

In Figs. 9 and 10 in addition to the service-rail comprising sections A' A<sup>2</sup> there is a guard-rail J. Here packing material, preferably consisting of a block of wood D, is arranged intermediate of the service-rail sec-

tions A' A<sup>2</sup> and the guard-rail J. One of the rail-chairs has been shown as having a longer base than the other, so that the opposite edges of the two bases will be substantially under the guard-rail; but this is not essential. The block of packing material D is wide enough to keep the bases of the service-rail sections separate from the base of the guard-rail. If the bushings F' F<sup>2</sup> and washers G' G<sup>2</sup> and H' H<sup>2</sup> are to be dispensed with, bushings will have to be used in the guard-rail, as well as in the service-rail; otherwise the combination of parts is substantially the same as already described.

What I claim as new, and desire to secure by Letters Patent, is—

1. An insulated rail-joint comprising two opposite rail-chairs, having their bases in the same plane, and each having an upright and serving to support adjacent ends of two rail-sections forming parts of a track, insulating material intermediate of the bases of the rail-sections and the bases of the chairs, blocks of packing material intermediate of the rail-sections and the uprights of the chairs, bolts passing through the uprights of the chairs and the webs of the rail-sections, and crossing the packing material, and washers for insulating the bolts.

2. An insulated rail-joint comprising two opposite rail-chairs each having a base and an upright extending directly upward from the base, and having a union with the base where it rises therefrom, and said chairs serving to support adjacent ends of two rail-sections forming part of a track, insulating material intermediate of the bases of the rail-sections and the bases of the chairs, blocks of packing material intermediate of the rail-sections and the uprights of the rail-chairs, bolts passing through the uprights of the rail-chairs, and the webs of the rail-sections, and crossing the packing material, and washers for insulating the bolts.

3. An insulated rail-joint comprising two opposite rail-chairs, each having bases in the same plane, and each having an upright and serving to support adjacent ends of two rail-sections forming part of a track, insulating material intermediate of the bases of the rail-sections and the bases of the chairs, blocks of packing material intermediate of the rail-sections and the uprights of the chairs, bolts passing through the uprights of the chairs, and the webs of the rail-sections, and crossing the packing material, and insulating material intermediate the webs of the rail-sections and the bolts.

4. An insulated rail-joint comprising two opposite rail-chairs each having a base and an upright for supporting adjacent ends of two service-rail sections, and a guard-rail, insulating material intermediate of the bases of the rail-sections and the bases of the chairs, blocks of packing material intermediate of



the rail-sections and the uprights of the rail-chairs and intermediate the service-rail sections and the guard-rail, bolts passing through the uprights of the rail-chairs, the webs of  
5 the rail-sections and crossing the packing material, and washers for insulating the bolts.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

GEORGE A. WEBER.

Witnesses:

GEO. E. CRUSE,  
K. G. LE ARD.