

No. 772,008.

PATENTED OCT. 11, 1904.

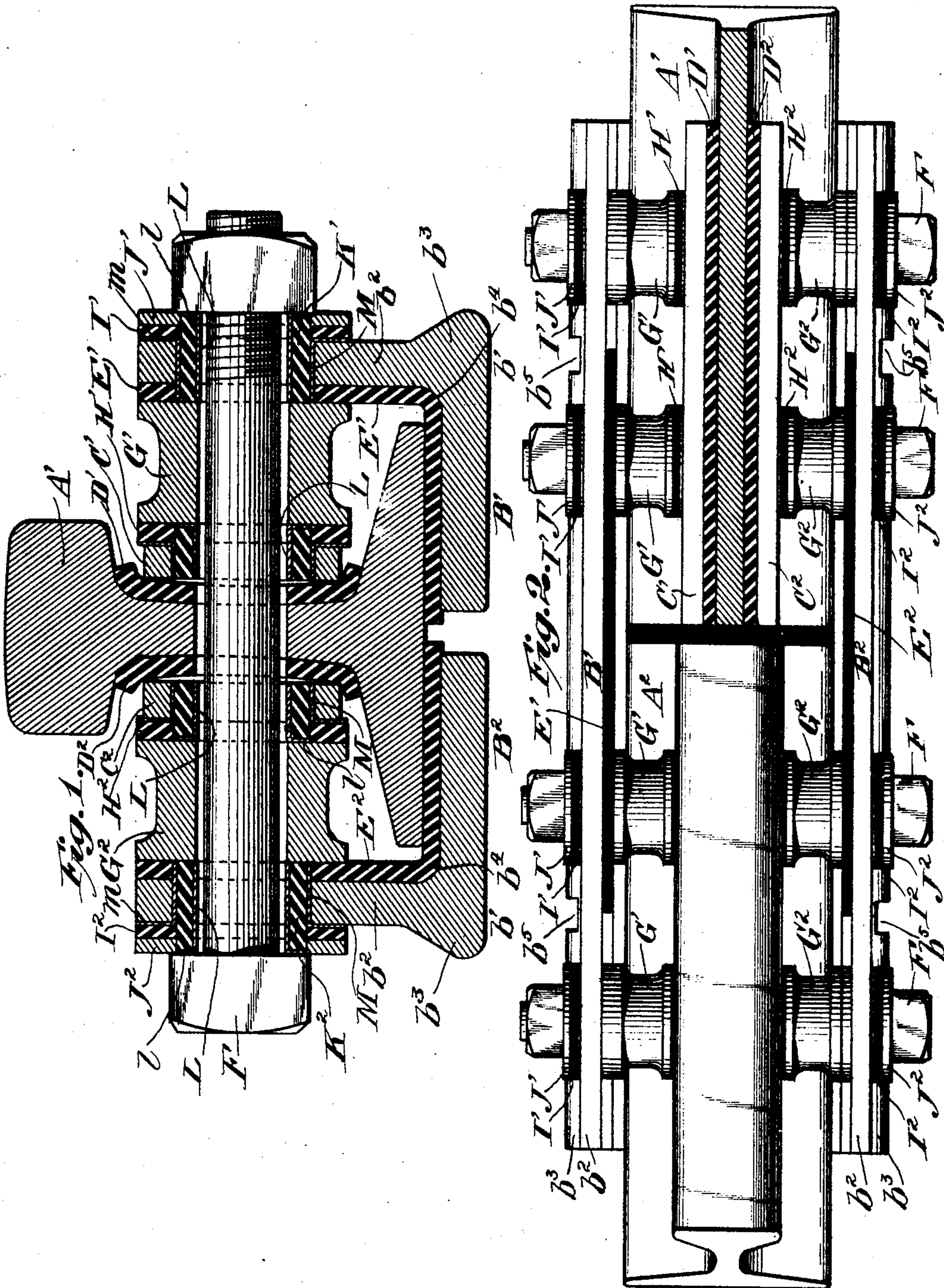
G. A. WEBER.

INSULATED JOINT FOR RAILROAD RAIL SECTIONS.

APPLICATION FILED JUNE 4, 1901.

NO MODEL.

6 SHEETS—SHEET 1.



Witnesses
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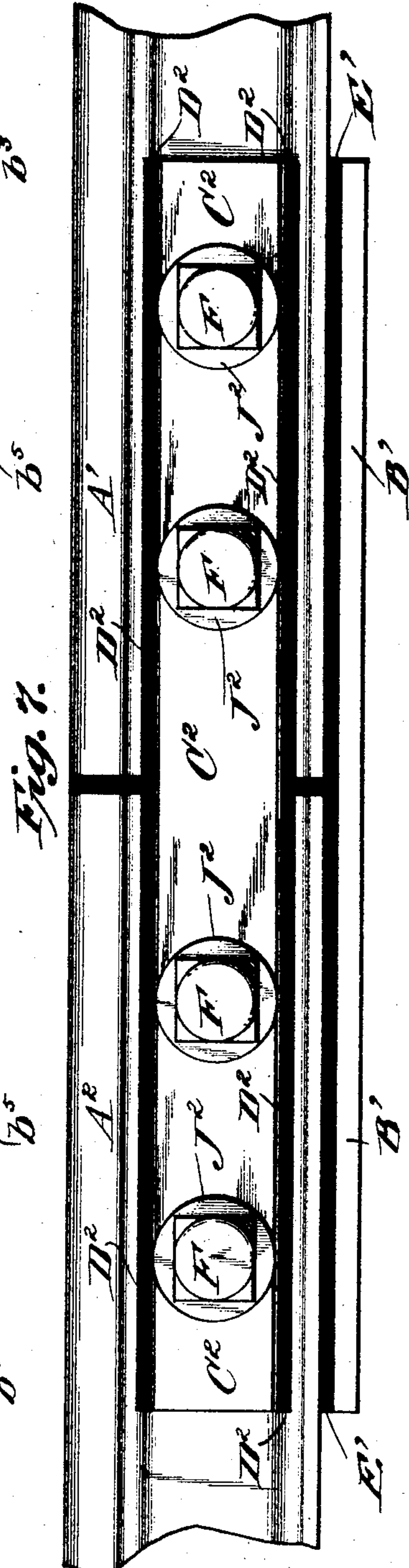
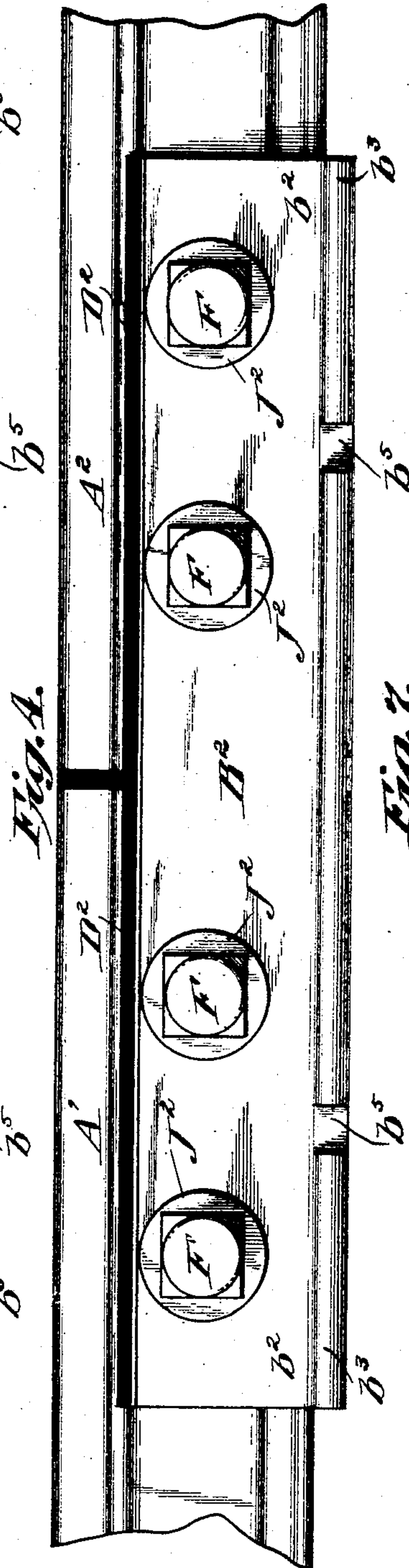
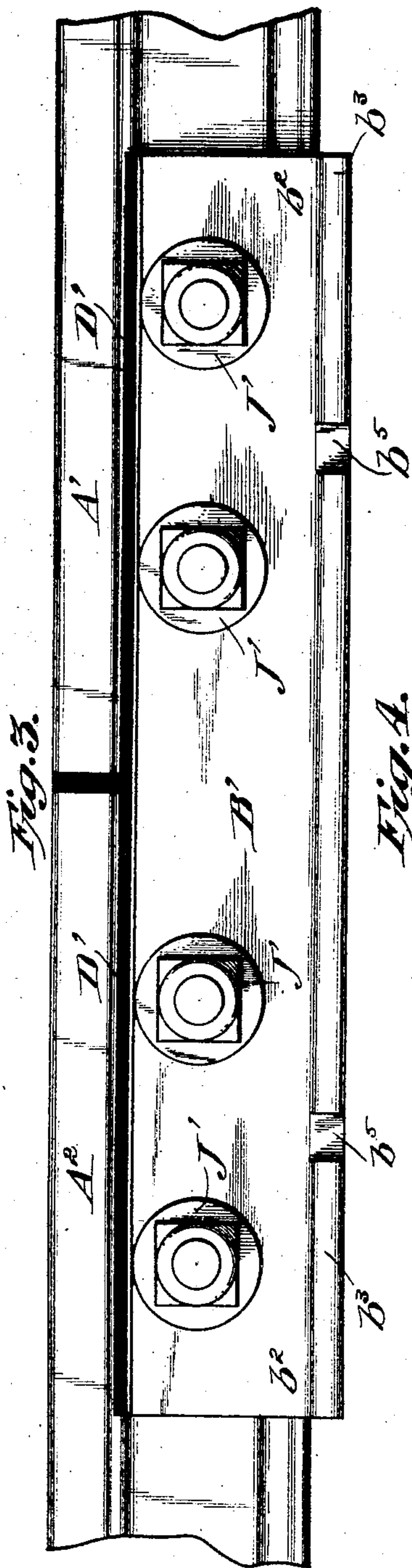
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APPLICATION FILED JUNE 4, 1901.

NO MODEL.

6 SHEETS—SHEET 2.



Witnesses
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No. 772,008.

PATENTED OCT. 11, 1904.

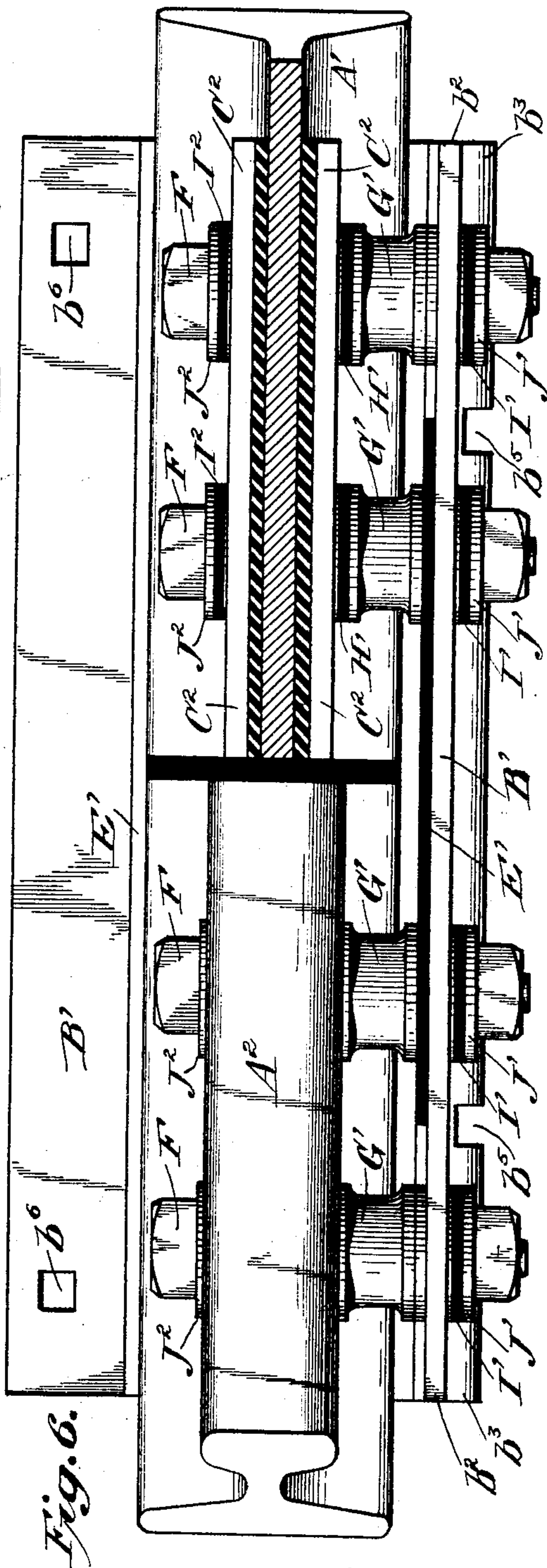
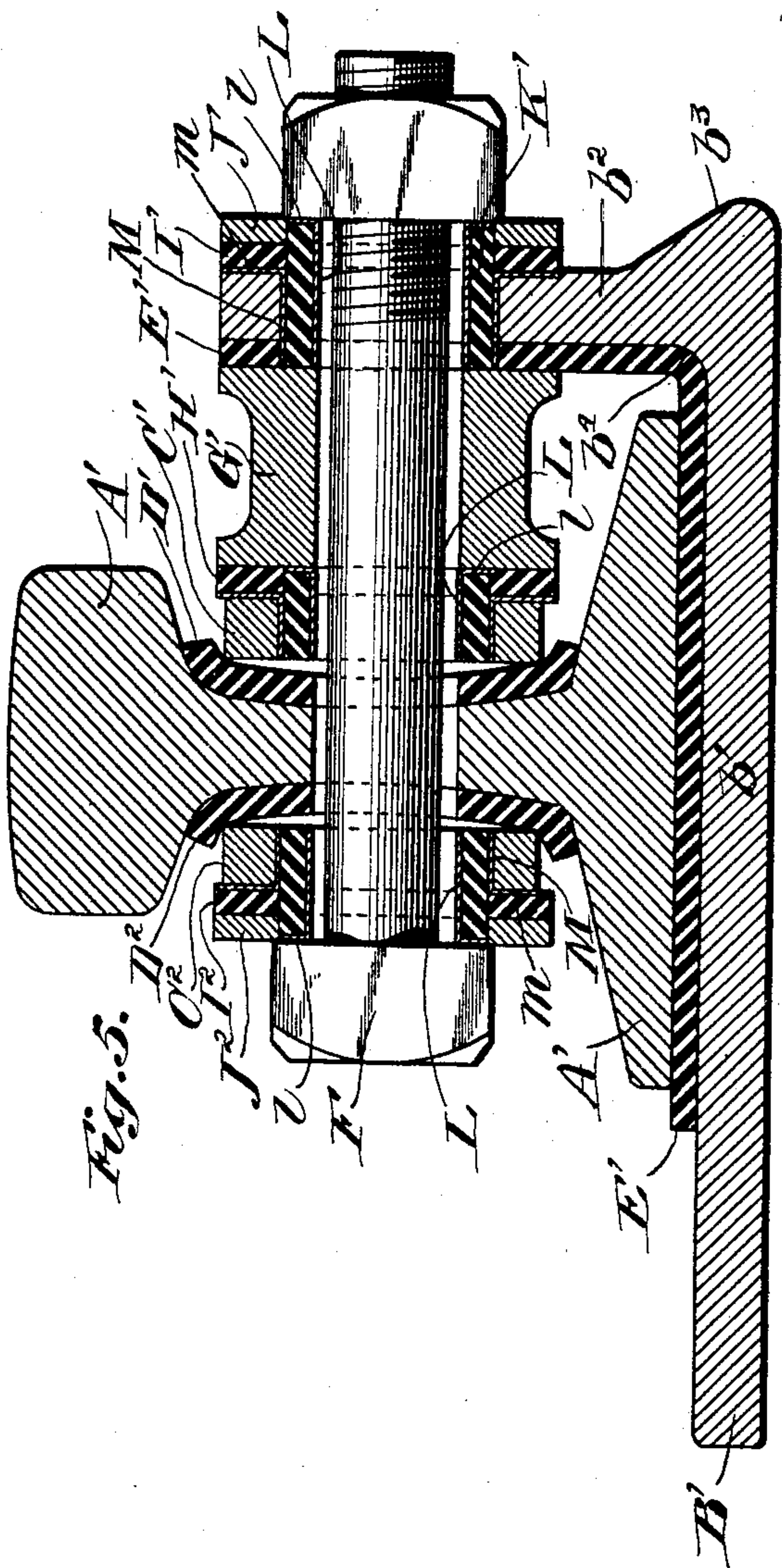
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INSULATED JOINT FOR RAILROAD RAIL SECTIONS.

APPLICATION FILED JUNE 4, 1901.

NO MODEL.

6 SHEETS—SHEET 3.



Witnesses
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No. 772,008.

PATENTED OCT. 11, 1904.

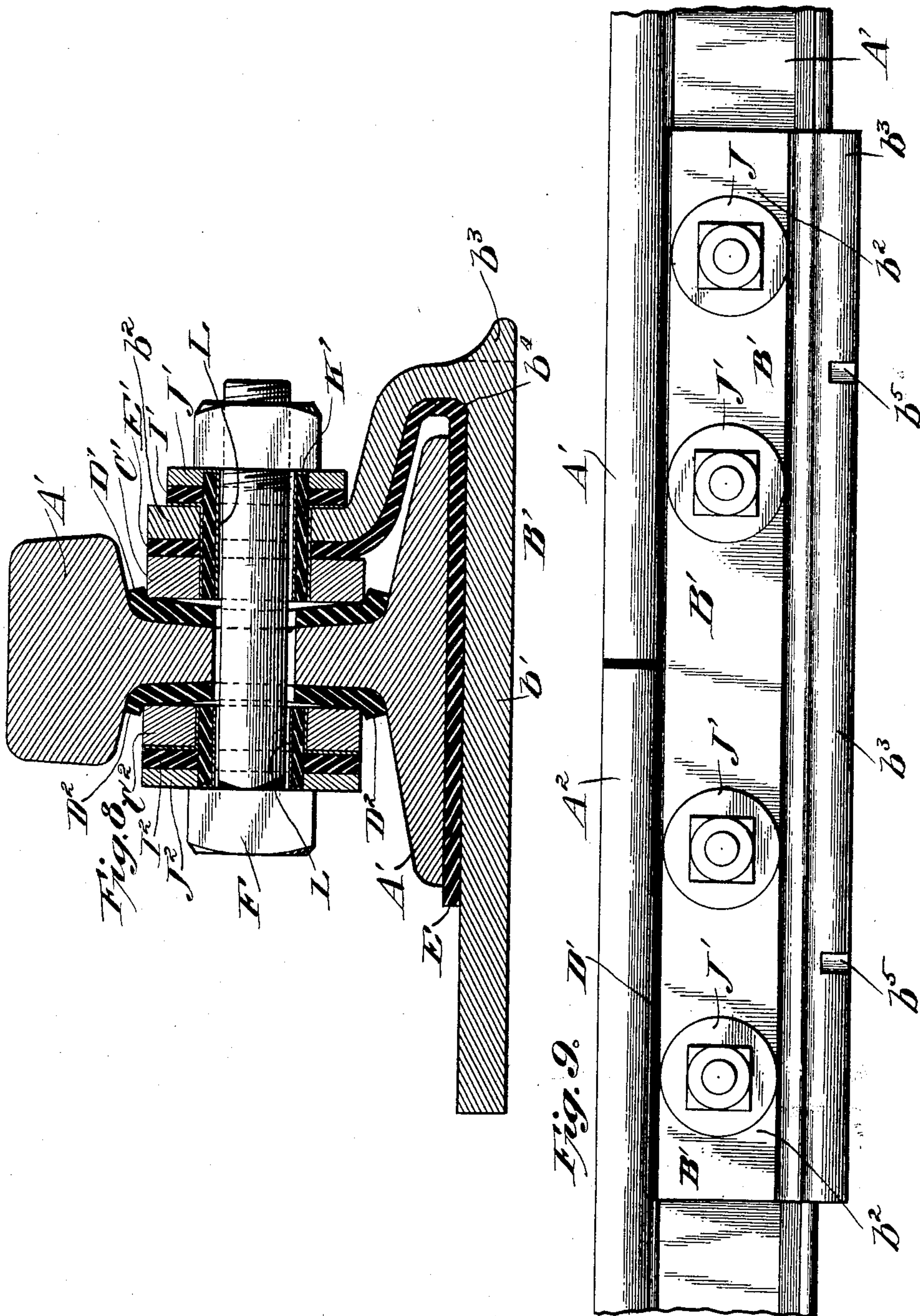
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INSULATED JOINT FOR RAILROAD RAIL SECTIONS.

APPLICATION FILED JUNE 4, 1901.

NO MODEL.

6 SHEETS—SHEET 4.



Witnesses
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INSULATED JOINT FOR RAILROAD RAIL SECTIONS.

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6 SHEETS—SHEET 5.

Fig. 10.

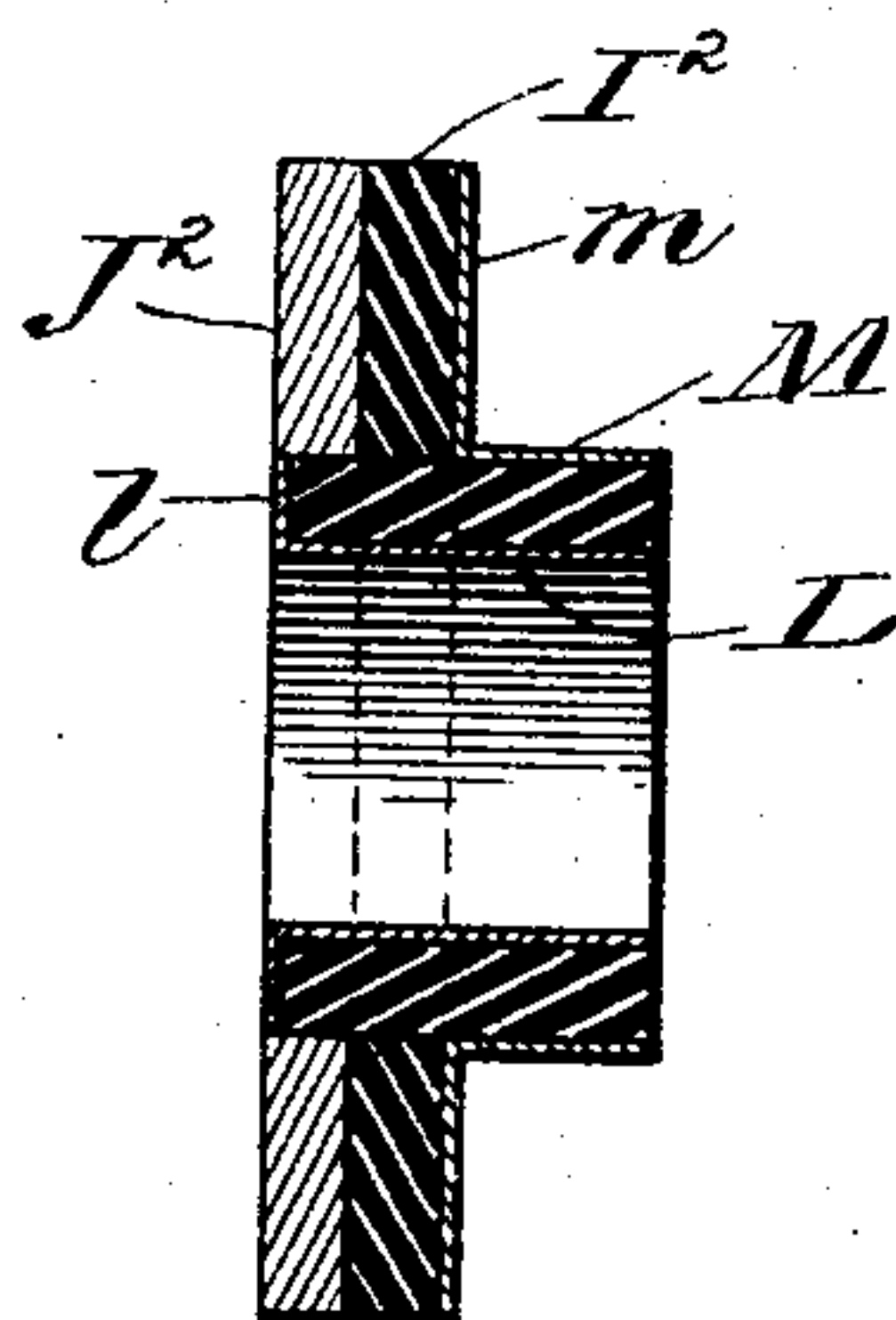


Fig. 11.

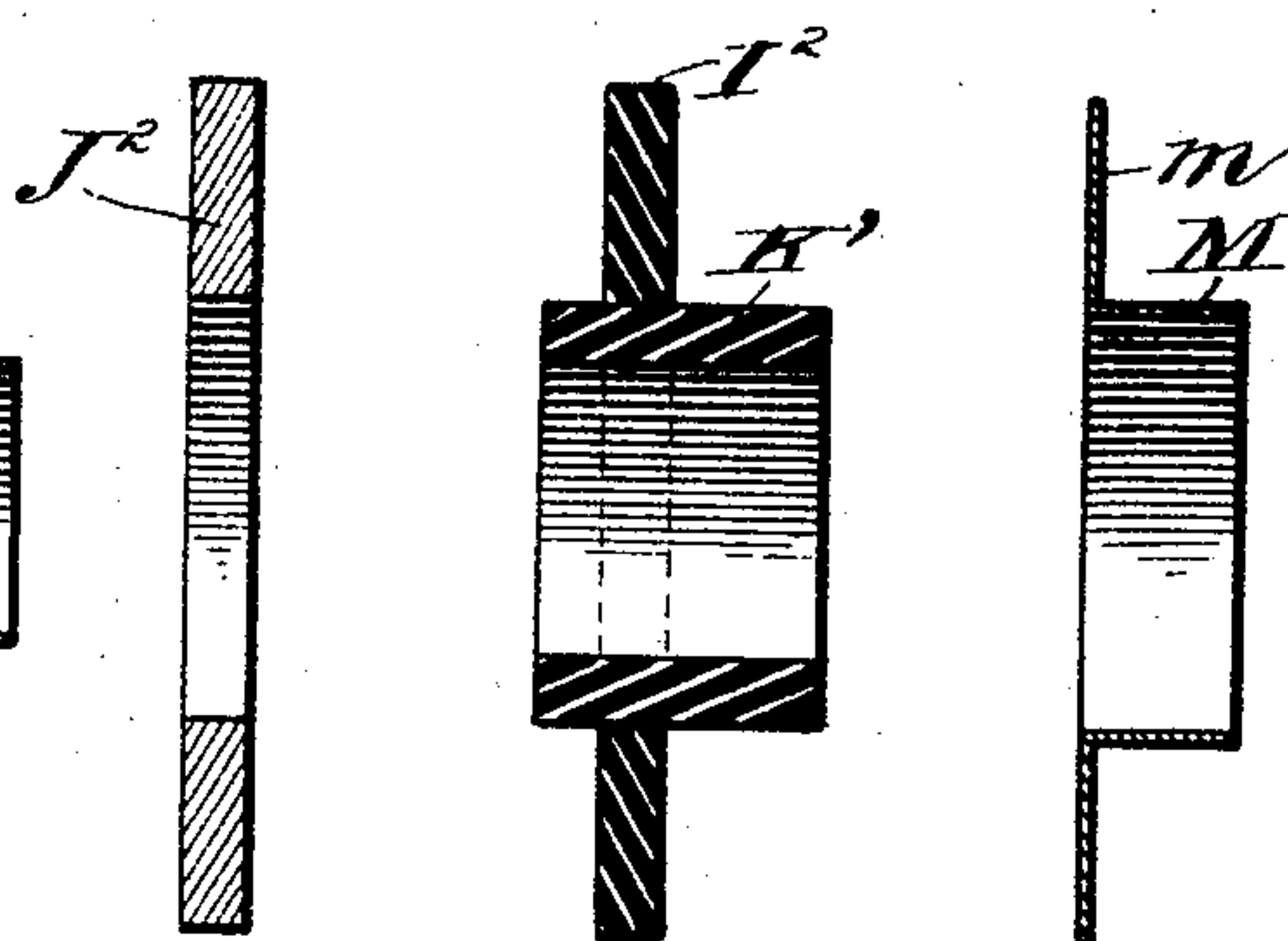
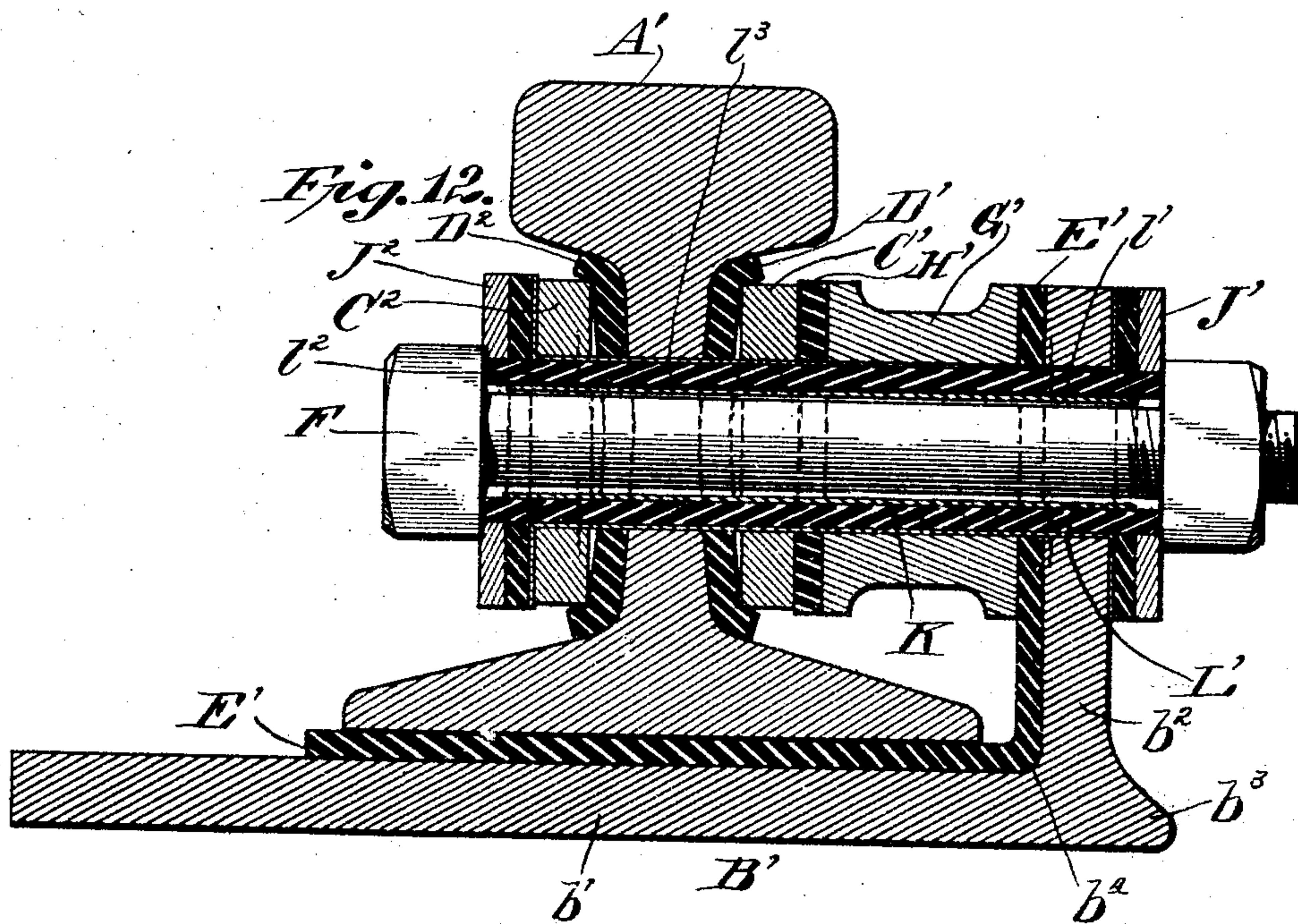


Fig. 12.



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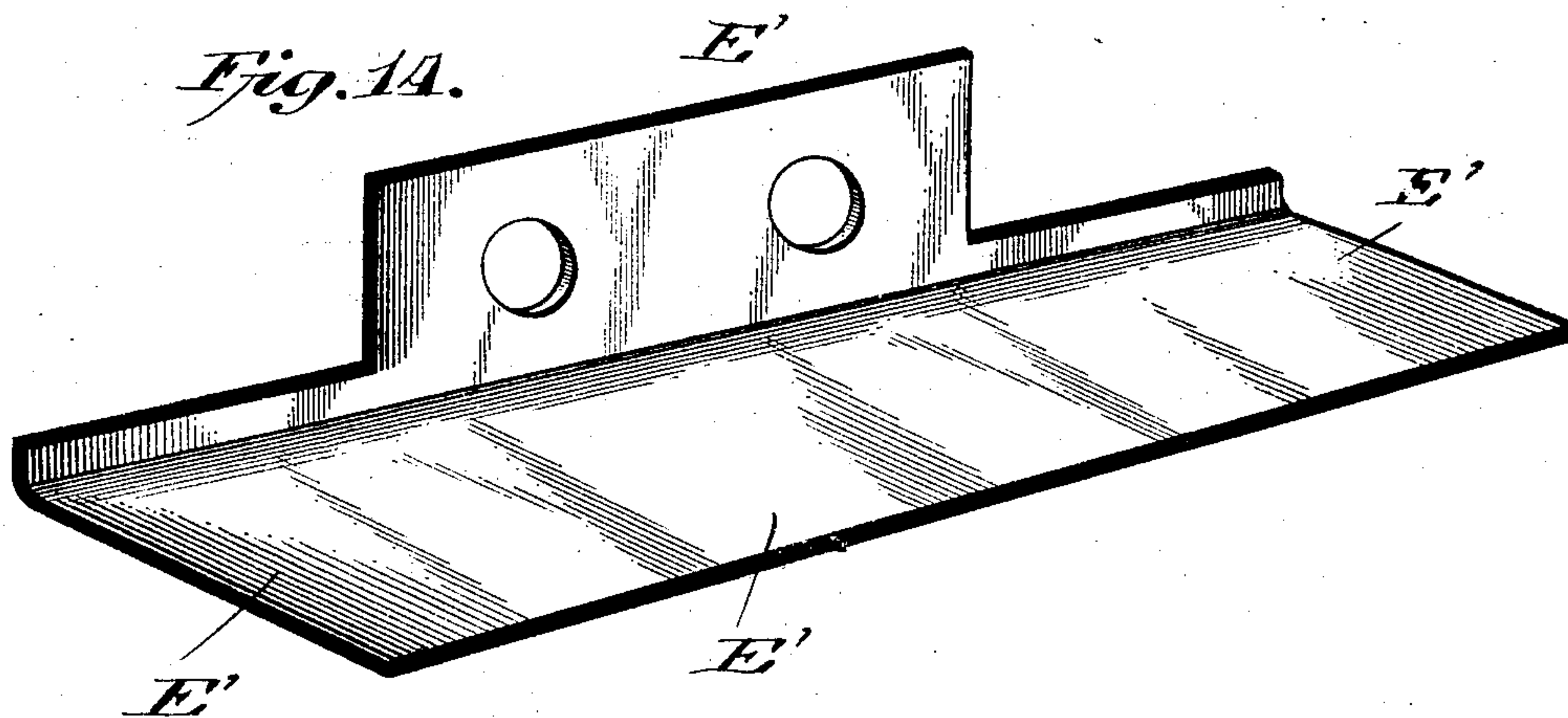
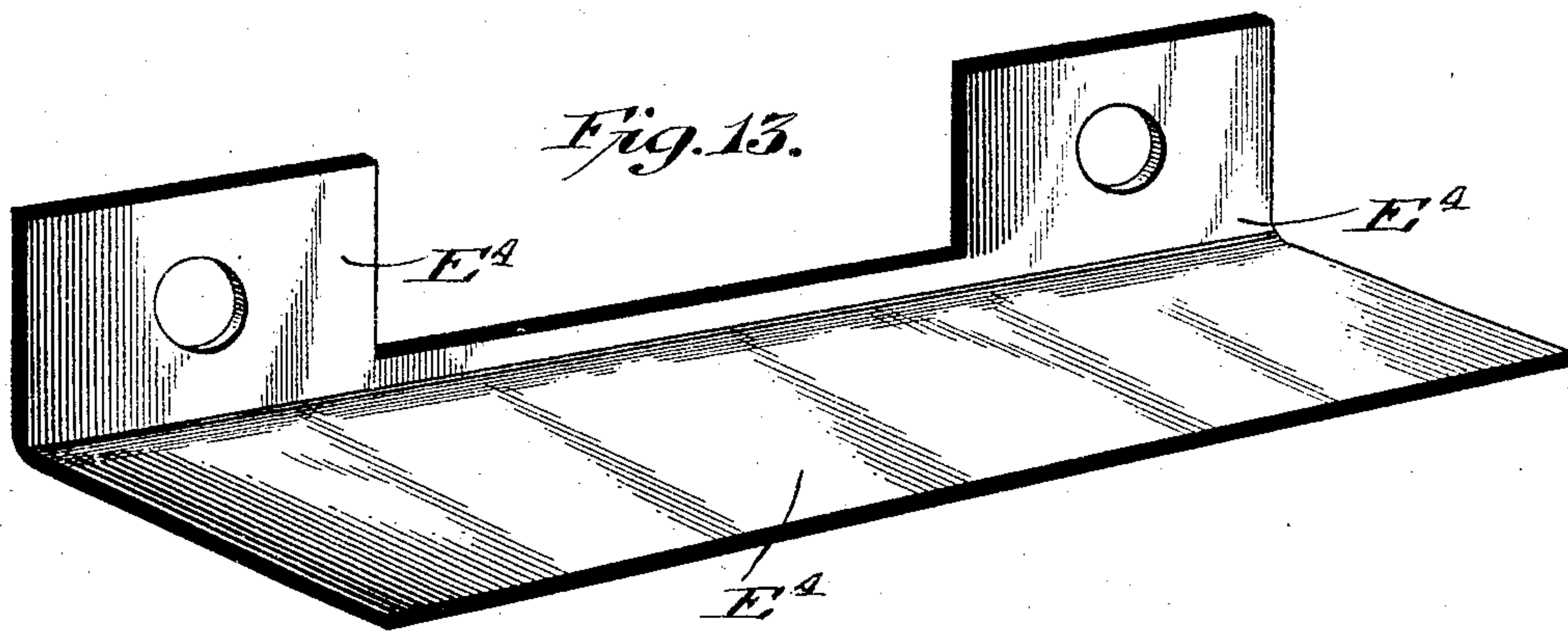
G. A. WEBER.

INSULATED JOINT FOR RAILROAD RAIL SECTIONS.

APPLICATION FILED JUNE 4, 1901.

NO MODEL.

6 SHEETS—SHEET 6.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE A. WEBER, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
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INSULATED JOINT FOR RAILROAD-RAIL SECTIONS.

SPECIFICATION forming part of Letters Patent No. 772,008, dated October 11, 1904.

Application filed June 4, 1901. Serial No. 63,124. (No model.)

To all whom it may concern:

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

This invention relates to insulated rail-joints; and its objects are to improve upon the construction of such joints and increase their strength and efficiency.

Further objects of the invention are to secure a firm splice between the rails with high insulating qualities.

Other objects of the invention will hereinafter appear; and to these ends the invention consists of an insulated joint for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts having the general mode of operation substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings.

In the accompanying drawings, Figure 1 is a transverse section of a railroad-rail joint embodying my improvement. Fig. 2 is a top view of the same, partly in section. Fig. 3 is an elevation of one side. Fig. 4 is an elevation of the other side. Fig. 5 is a transverse section of a railroad-rail joint embodying my improvement with some slight modifications of form. Fig. 6 is a top view of the same, partly in section. Fig. 3 not only represents one side of the railroad-rail joint illustrated by Figs. 1 to 4, inclusive, but also one side of the modified form of railroad-joint illustrated by Figs. 5 and 6. Fig. 7 is an elevation of the opposite side of the last-named railroad-rail joint. Fig. 8 is a transverse section of a railroad-rail joint embodying my improvement with some slight modifications of form. Fig. 7 is an elevation of one side of this joint which is illustrated by Fig. 8. Fig. 9 is an elevation of the other side of the joint illustrated by Fig. 8. Fig. 10 is a section, taken transversely to the length of a joint, of certain parts used in the joints of all the preceding figures for insulating a

bolt. Fig. 11 is a similar view of the same parts with some of them detached from others. Fig. 12 is a transverse section of a railroad-rail section embodying my improvement and modified as to the insulation of the bolt. Fig. 13 is a perspective view of a strip of insulating material used in my joints. Fig. 14 is a perspective view of a strip of insulating material of modified form.

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

Referring first to Figs. 1 to 4, inclusive, A' A² designate railroad-rail sections arranged end to end. They may be of any suitable form.

B' B² designate two angle chairs or shoes having spike-plates and preferably made of rolled steel. Each angle-chair comprises a base or bridge plate *b'* and an upright or bolt-plate *b²*, preferably strengthened at their junction by means of an outside fillet *b³* and, if desirable, also by an inside fillet *b⁴*. The angle-chairs are provided with spike-receiving recesses *b⁵* and openings *b⁶*, as indicated in Figs. 2, 3, 4, and 6.

C' C² are bars constituting plates for bolting the rail-joint together, preferably made of steel, arranged on opposite sides of the rail-sections and between them and the uprights of the chairs B' B².

D' D² designate strips or long thin blocks of insulating material arranged on opposite sides of the webs of the rail-sections and preferably having their edges bent downwardly above the bases and upwardly beneath the heads of the rail-sections.

E' E² designate strips of insulating material extending along the bases of the angle-chairs and up against the inner sides of the uprights of the angle-chairs. Preferably they will extend up to the top edge of these uprights.

The angle-chairs B' B², the bars C' C², the strips of insulating material D' D², and the strips of insulating material E' E² extend the whole length of the joint and lap a considerable length of the adjacent ends of the rail-sections A' A².

Bolts F secure the parts together, and of

them any suitable number may be used. Surrounding each bolt intermediate of the uprights of the angle-chairs $B' B^2$ and the bars $C' C^2$ are thimbles or sleeves $G' G^2$, which may
 5 be made of cast metal, preferably steel. They constitute filling-pieces. Intermediate of them and the bars $C' C^2$ are washers $H' H^2$, of insulating material. Outside the uprights
 10 of the angle-chairs $B' B^2$ washers $I' I^2$, of insulating material, surround the bolts, and outside of these washers of insulating material metal washers $J' J^2$ surround the bolts. Surrounding the bolts F inside the uprights of
 15 the angle-chairs $B' B^2$ are bushings $K' K^2$, and these have fitted to them the washers $I' I^2$ and also the washers $J' J^2$. Preferably the bushings will have inside them thin steel sleeves L , with outwardly-turned flanges l at
 20 the outer ends. It will be also advantageous to surround the bushings with steel collars M at one side of the washers $I' I^2$ and to provide these collars with flanges m , bearing against the washers $I' I^2$. Thus the bushings $K' K^2$
 25 and the washers $I' I^2$ will be prevented by their metallic armor from injury through abrasion caused by the turning of the bolts.

All the insulating material which I have mentioned will preferably be vulcanized fiber.

The insulating-strips $E' E^2$ for the sake of
 30 economy may have their upright portions cut away, as shown in Fig. 14, or like the piece E^4 , as shown in Fig. 13.

In Figs. 5 to 7, inclusive, I have shown the same combination of parts already explained,
 35 excepting that the angle-chair B^2 , with its appurtenant strip of insulating material E^2 , thimbles G^2 , and washer H^2 , have been omitted and bolts of a shorter size have been substituted for the long bolts.

In Figs. 8 and 9 I have shown the same
 40 omissions as in Figs. 5 to 7, and I have also shown the omission of the thimbles G' , the upright of the shoe being bent inward toward the web of the rail and then upward
 45 again, so that the last-mentioned portion will be close to the bar C' .

In Fig. 12 I have shown substantially the same construction as in Figs. 5 to 7, but have
 50 also shown a modification consisting in the employment of a single bushing K , extending the whole length of the bolts between their heads and nuts, and inside such bushing is a sleeve, preferably of steel, L' , which extends
 55 almost the whole length of the bushing, but not quite to either of its ends. I have indicated by dotted lines in Fig. 12 that instead of these long bushings short pieces may be employed—as, for instance, two short bushings $l' l^2$, extending through the uprights of
 60 the shoes and adjacent parts, and a third short bushing l^3 through the web of the rail-section.

It will be observed that in all the examples of my invention I have provided for adequate
 65 insulation without weakening the rail-sections by any unusual perforations.

Obviously some features of this invention may be used without others, and the invention may be embodied in widely-varying forms.

Therefore, without limiting the invention to the constructions shown and described nor
 70 enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. In an insulated joint for railroad-rail sections, the combination of a rail-chair having
 75 a base for supporting the feet of the rail-sections and an upright or bolt-plate at one side of the webs of the rail-sections, metal filling-pieces between the upright of the chair and the webs of the rail-sections, a metal bar or
 80 bolt-plate at the other side of the rail-sections, and insulating material for preventing electric communication between the rail-sections, substantially as specified.

2. In an insulated joint for railroad-rail sections, the combination of metal bars, one on
 85 each side of the rail-sections, metal filling-pieces outside these metal bars, two rail-chairs having bases for supporting the feet of the rail-sections and uprights or bolt-plates extending adjacent to the filling-pieces, bolts for
 90 securing the parts together and insulating material for preventing electric communication between the rail-sections, substantially as specified.

3. In an insulated joint for railroad-rail sections, the combination of side bars or bolt-
 95 plates lapping the ends of the rail-sections, metal filling-pieces intermediate of the rail-sections and one of the bolt-plates, bolts for securing the parts together and suitable insulation for preventing electric communication
 100 between the rail-sections.

4. In an insulated joint for railroad-rail sections, the combination of side bars or bolt-
 105 plates lapping the ends of the rail-sections, metal filling-pieces intermediate of the rail-sections and one of the bolt-plates, bolts for securing the parts together, and bushings and washers of insulating material for insulating
 110 the bolts.

5. In an insulated joint for railroad-rail sections, the combination of side bars or bolt-
 115 plates lapping the ends of the rail-sections, insulating material intermediate of the rail-sections and the bolt-plates, bolts for securing the parts together and sleeves of insulating material surrounding the bolts substantially throughout the length of the bolts and extending
 120 through the rail-sections.

6. In an insulated joint for railroad-rail sections, the combination of side bars or bolt-
 125 plates lapping the ends of the rail-sections, insulating material intermediate of the rail-sections and the bolt-plates, bolts for securing the parts together, sleeves of insulating material surrounding the bolts substantially throughout the length of the bolts and extending
 130 through the rail-sections, and thin metal sleeves intermediate of the said insulating-sleeves and the bolts.

7. An insulated rail-joint, comprising the rails, rail-chairs having uprights or bolt-plates at each side of the joint, metal bars extending along the rail-webs, metallic filling-pieces between said bars and the uprights of the chairs, and suitable insulation for preventing the electric continuity of the rails.

8. An insulated rail-joint, comprising the rails, the rail-chair having a base and an upright or bolt-plate, metal bars extending along the rail-webs, one at each side of the rails, metallic filling-pieces between one of said bars and the upright of the chair, and suitable insulation for preventing electric communication between the rails.

9. An insulated rail-joint, comprising a rail-chair having a base and an upright or bolt-plate, metal bars extending along the rail-webs at each side of the rails, one of said bars being between the upright of the chair and the rails, and suitable insulation for preventing electric communication between the rails.

10. An insulated rail-joint, comprising the meeting ends of rails, means for maintaining said rails in surface and alinement, and armored insulation for preventing an electric continuity between the rails.

11. An insulated rail-joint, comprising the meeting ends of rails, means for maintaining said rails in surface and alinement, and insulation for preventing electric communication between the rails, said insulation being provided with a protective covering of metal armor.

12. An insulated rail-joint, comprising the meeting ends of rails, metallic side bars or bolt-plates at each side of the joint extending across the joint, bolts for securing the parts of the joint together, filling-pieces between the rail-webs and the bolt-plates, said filling-pieces being in the form of spools of suitable material arranged over the bolts, and suitable insulation for preventing electric communication between the rails.

13. An insulated rail-joint, comprising the rail ends, bolts for securing the parts of the joint together, filling-pieces in the form of spools or sleeves of suitable material arranged on said bolts, means for maintaining the rails in alinement, and suitable insulation for preventing the electric continuity of the rails.

14. An insulated rail-joint, comprising the rails, a rail-chair having a base and an upright or bolt-plate, a metallic side bar at the side of the joint opposite the upright of the chair, bolts for securing the parts of the joint together, filling-pieces in the form of thimbles or sleeves of suitable material arranged on said bolts, and suitable insulation for breaking the electric continuity of the rails.

15. The combination of adjacent rail-sections arranged end to end, angle-chairs provided with uprights or bolt-plates and lapping the end portions of the rail-sections, metallic filling-pieces insulated from the uprights and rail-sections, bolts for securing the parts of the joint together insulated from the uprights and filling-pieces, and insulating material between the bases of the rails and angle-chairs.

16. The combination of adjacent rail-sections arranged end to end, an angle-chair having a base and an upright or bolt-plate and lapping the end portions of the rail-sections, metallic filling-pieces insulated from the chair and rail-sections, bolts for securing the parts together also insulated from the rail-sections and chair, and means for insulating the meeting faces of the rails from each other.

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,
ALFRED H. EVANS.