

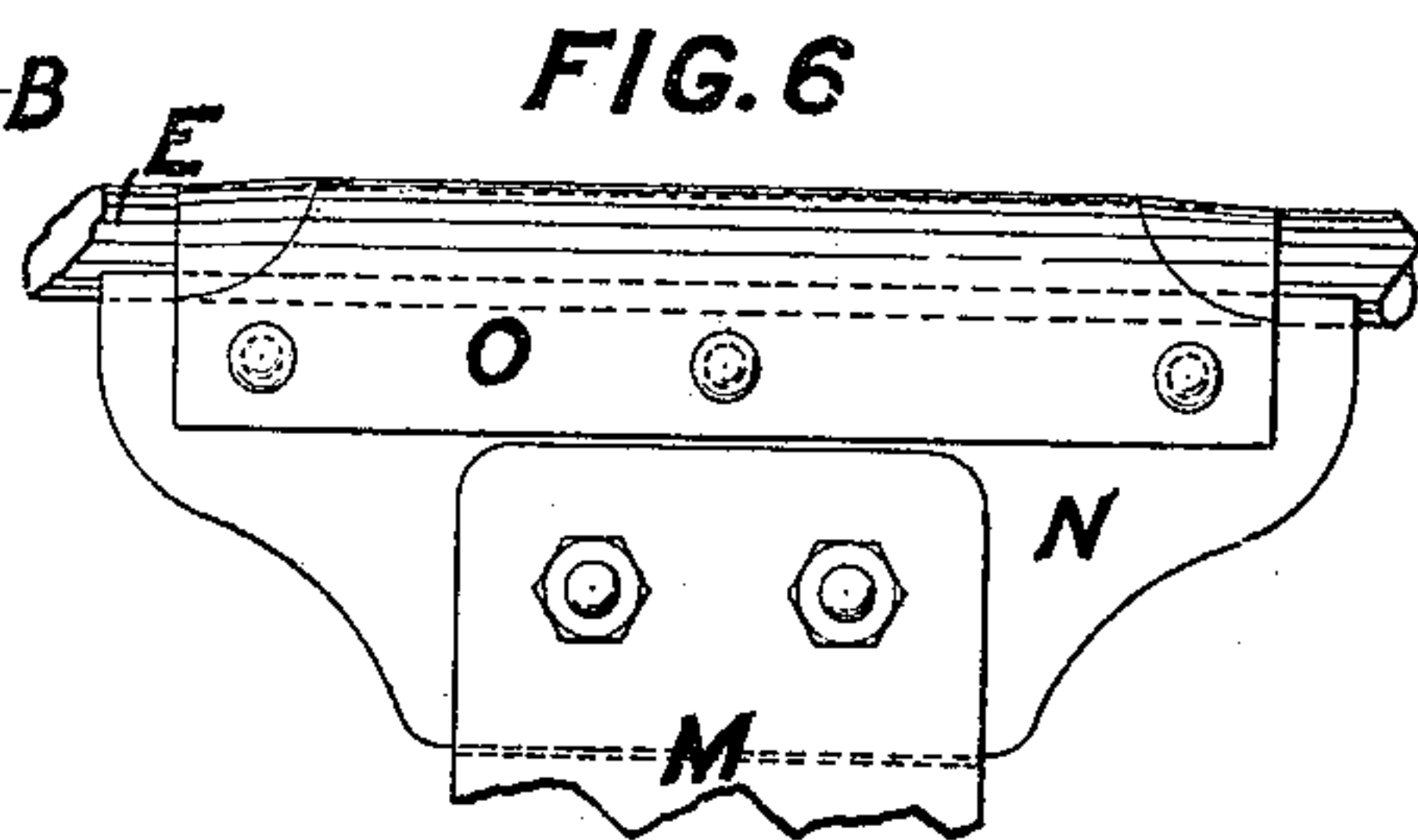
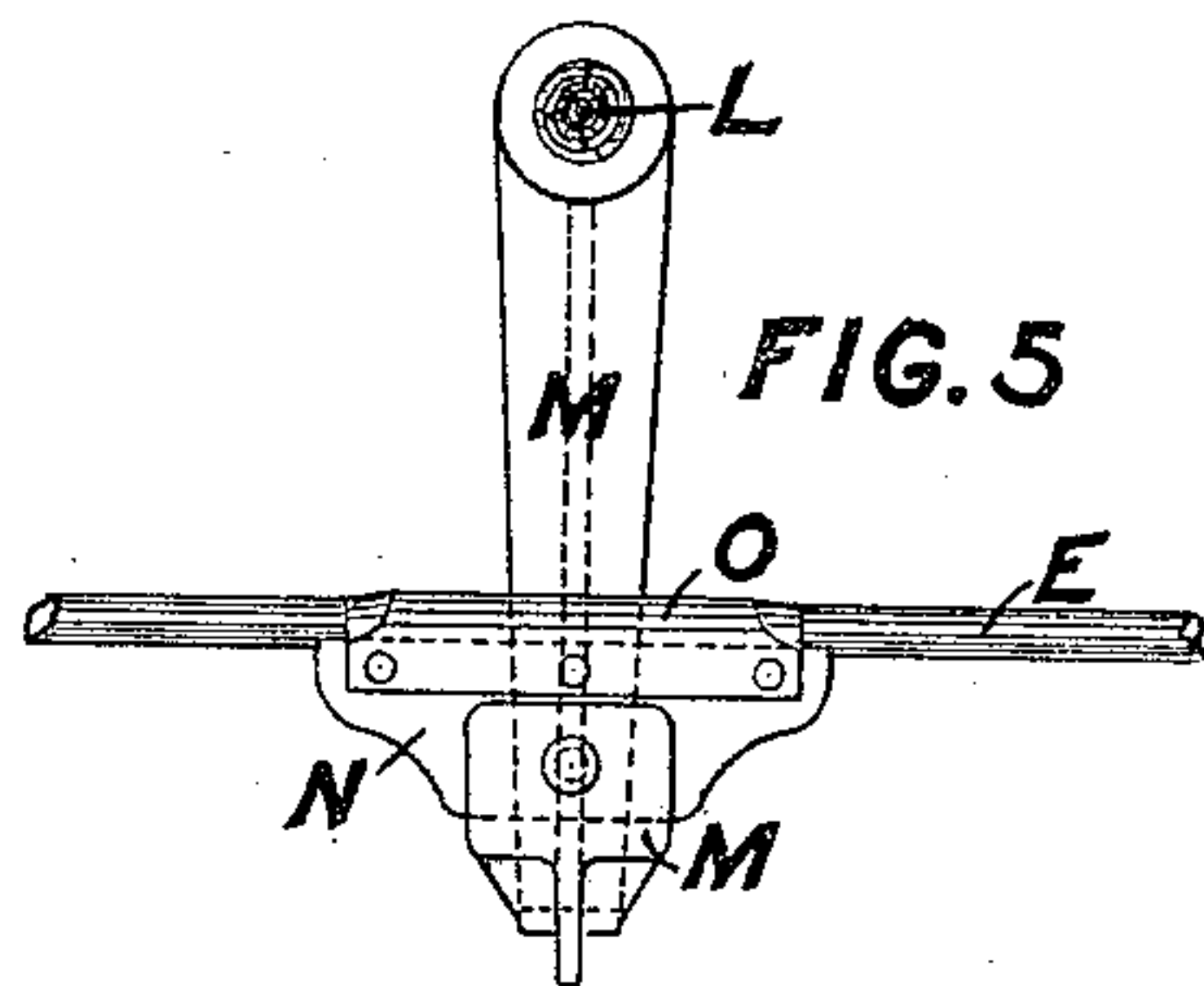
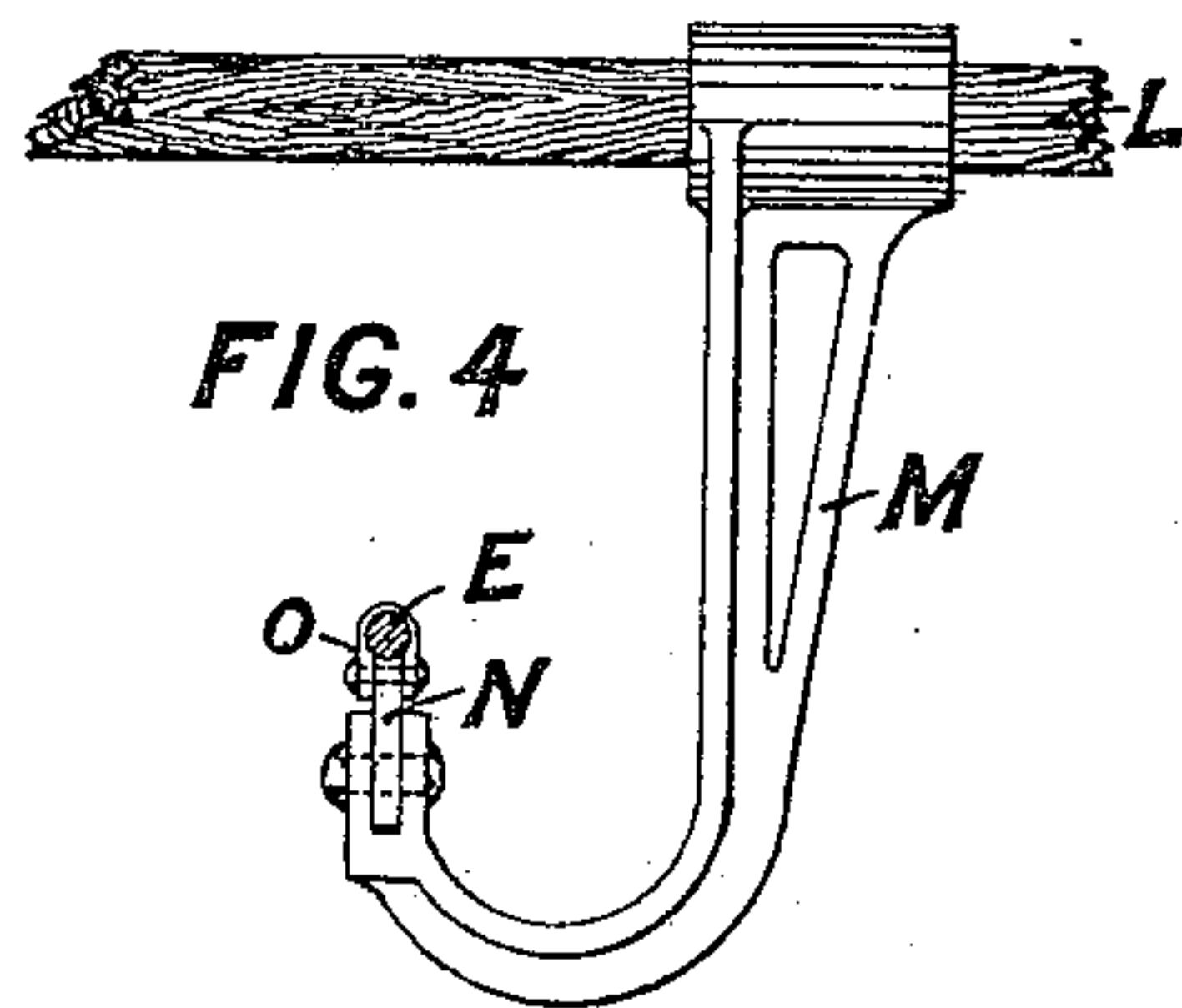
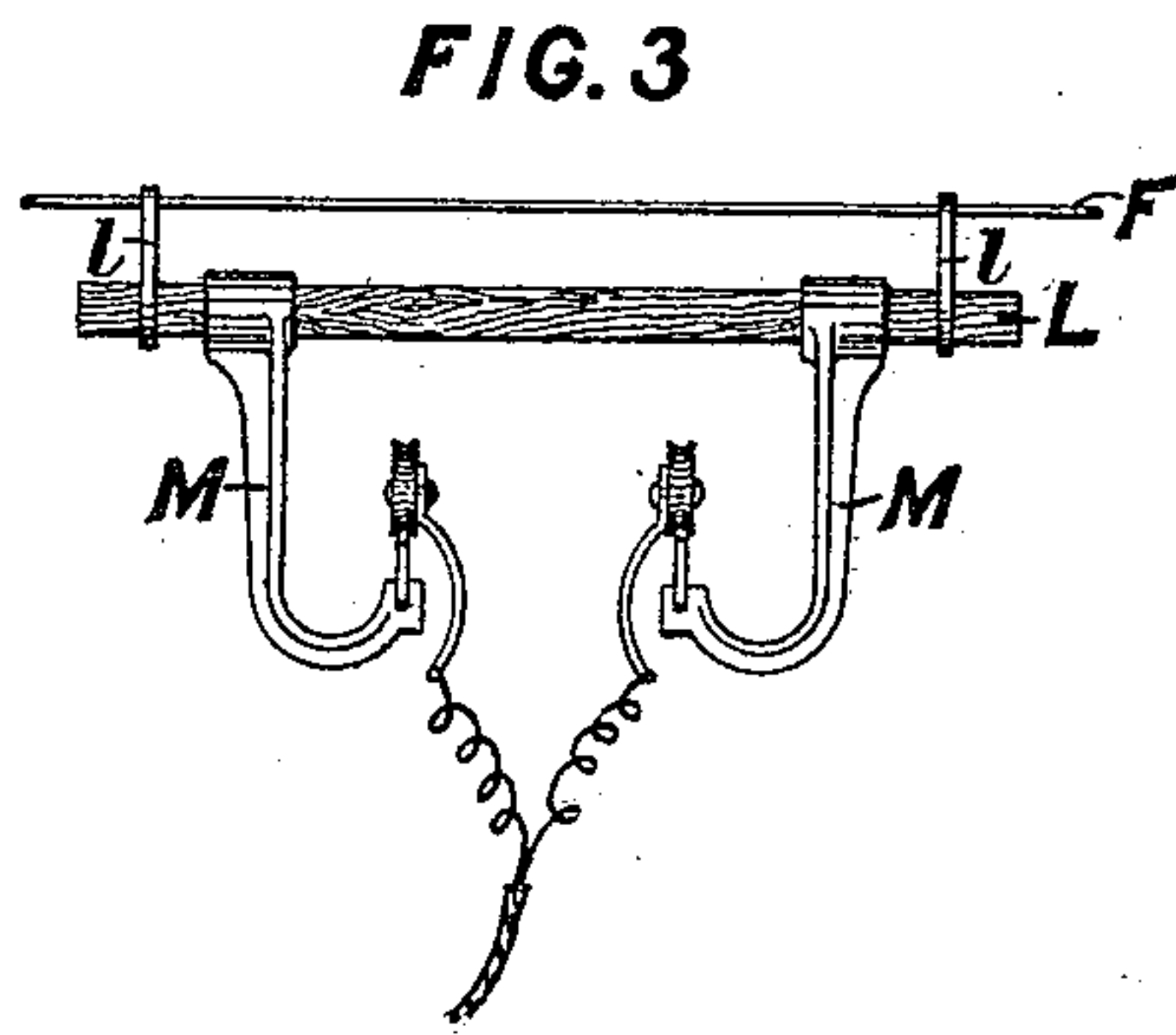
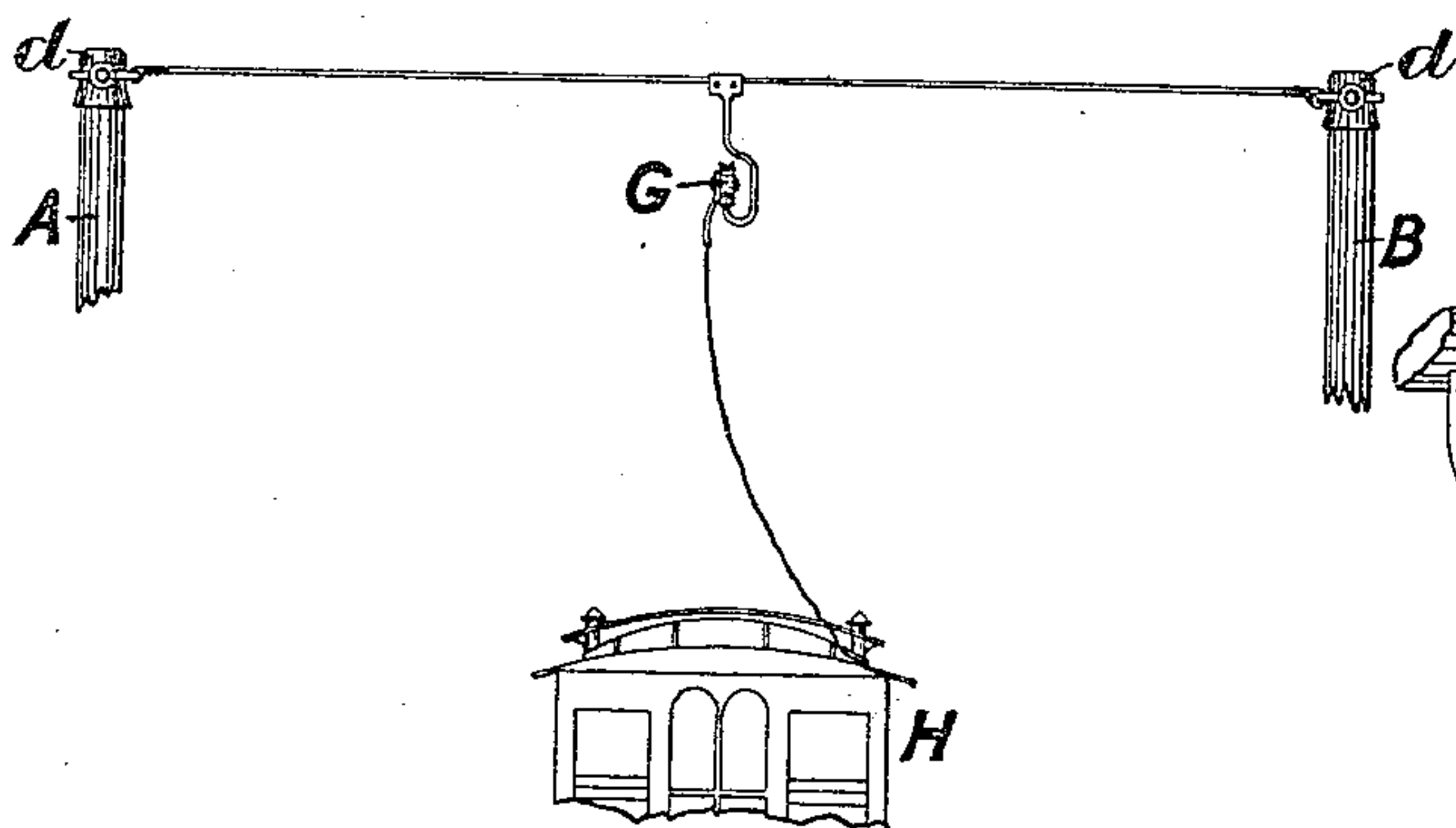
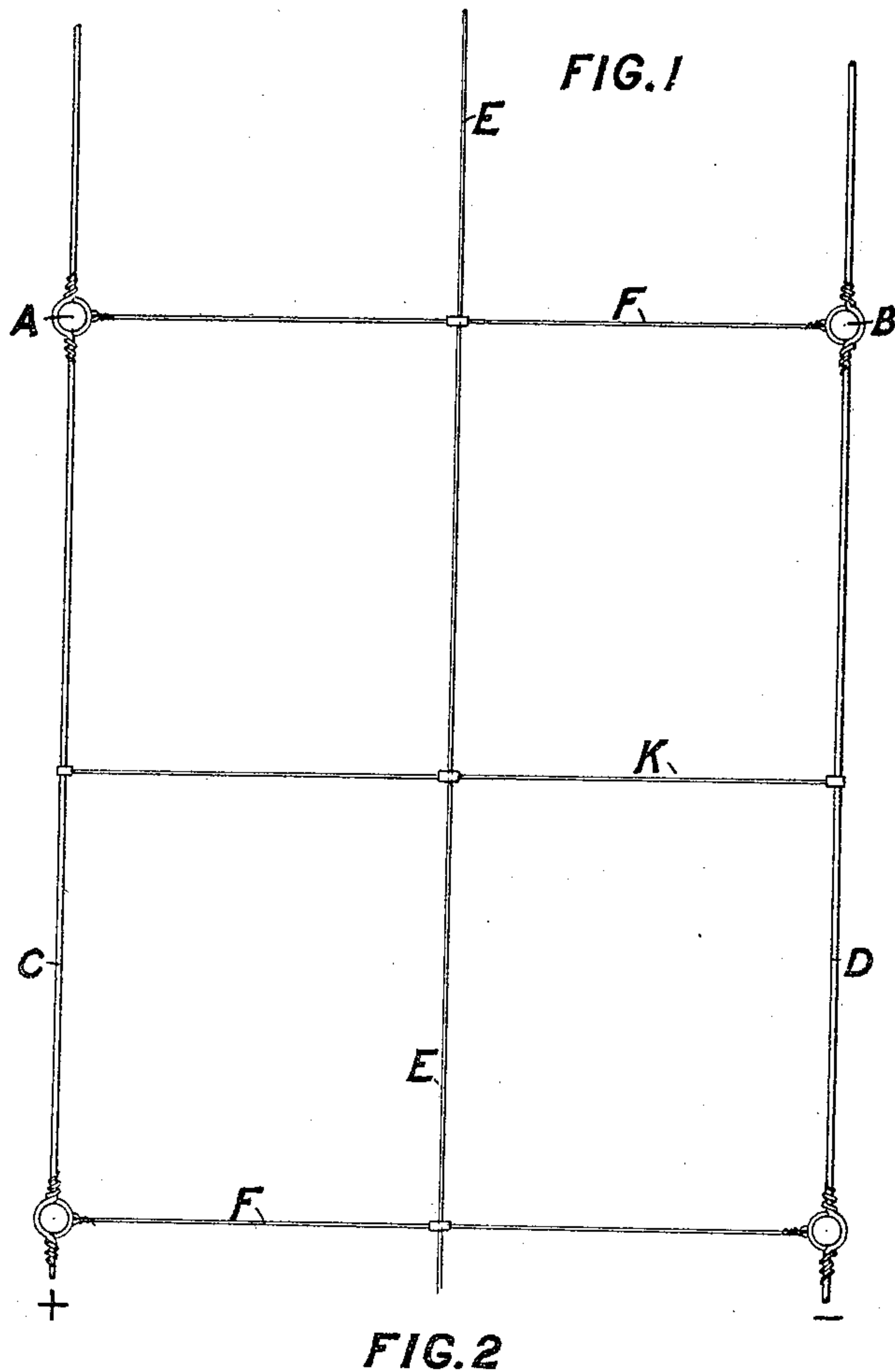
(No Model.)

3 Sheets—Sheet 1.

E. M. BENTLEY.
ELECTRIC RAILWAY CONDUCTOR SUPPORT.

No. 459,737.

Patented Sept. 22, 1891.



Witnesses:

R. H. Creugbaur
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(No Model.)

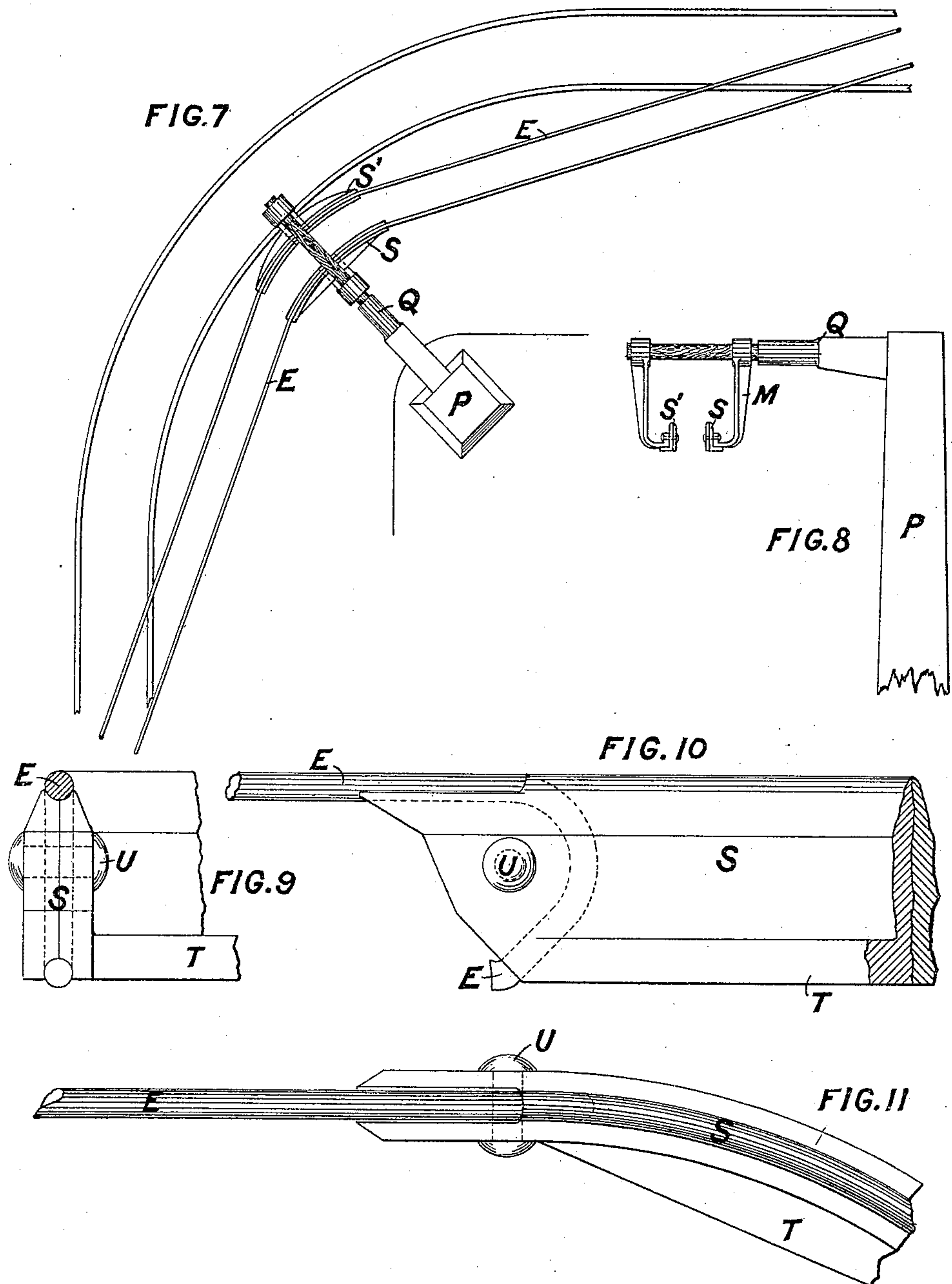
3 Sheets—Sheet 2.

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FIG. 12

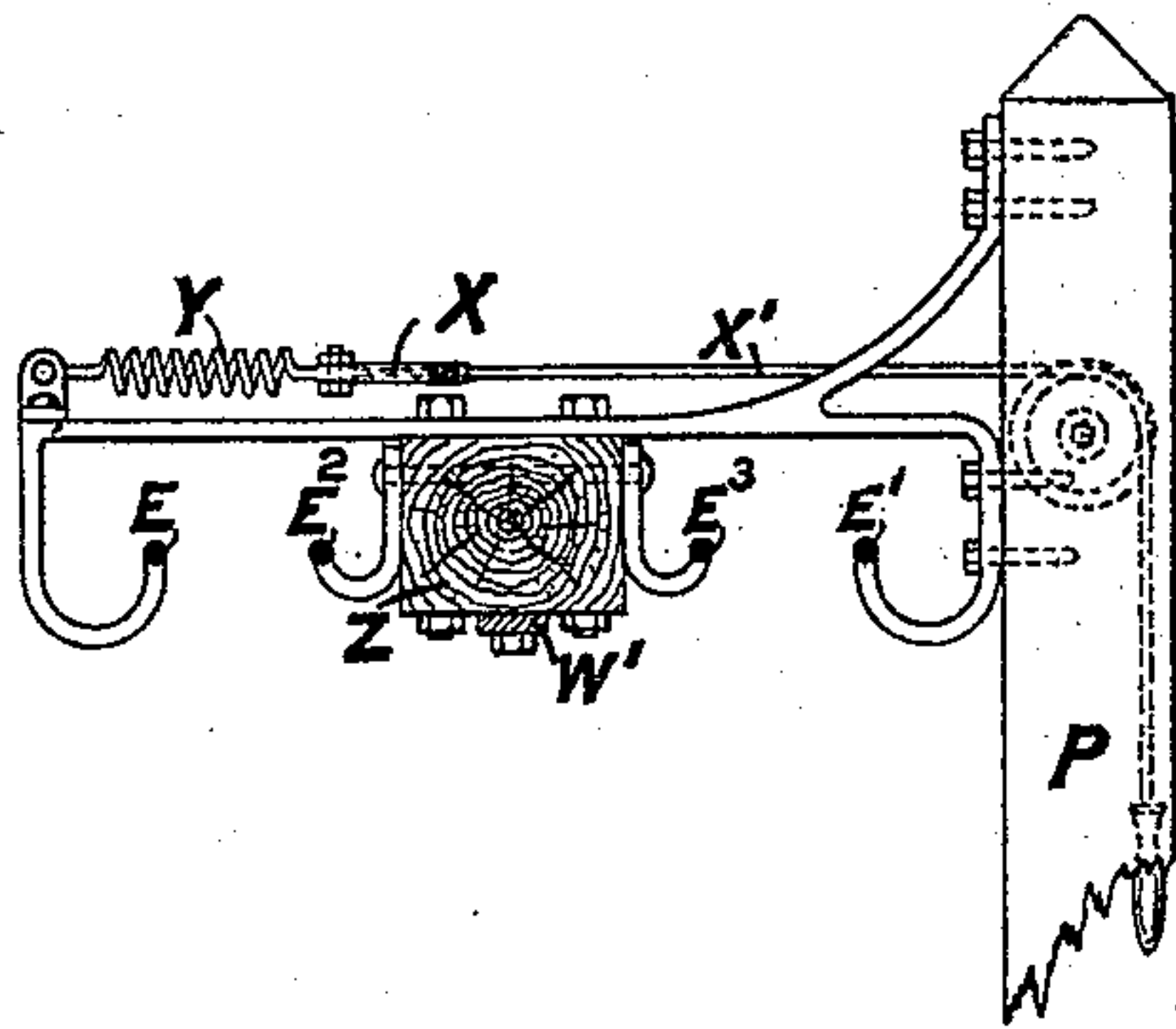


FIG. 13

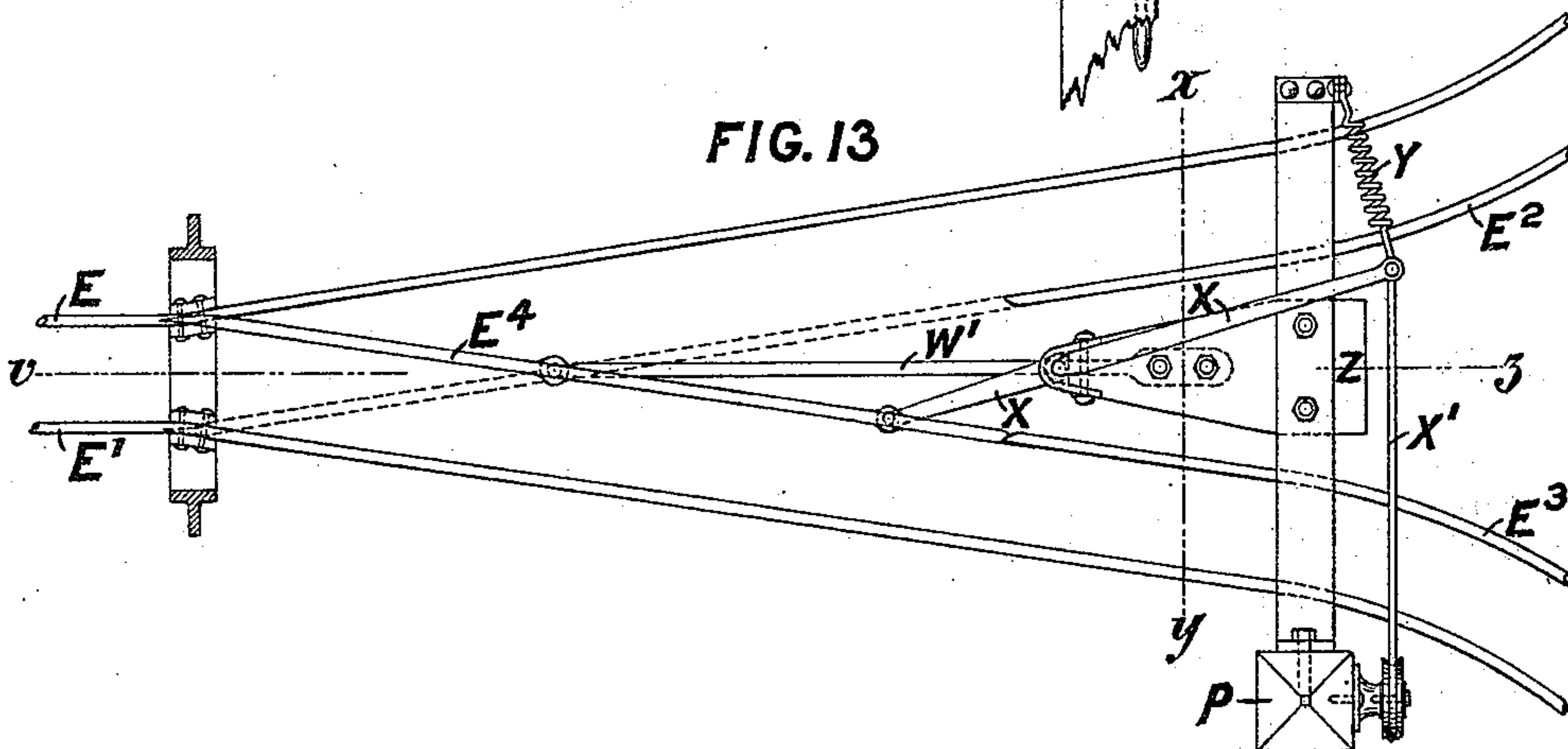


FIG. 14

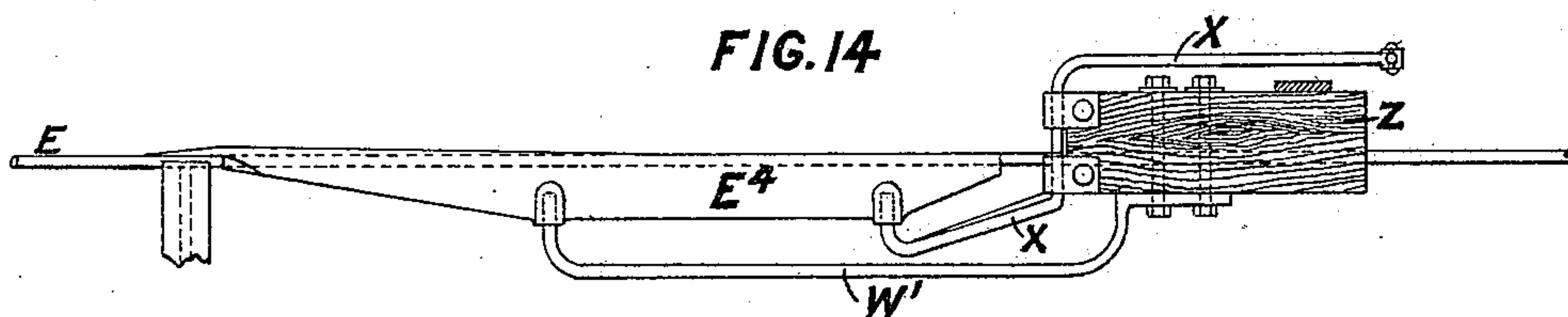


FIG. 14^A

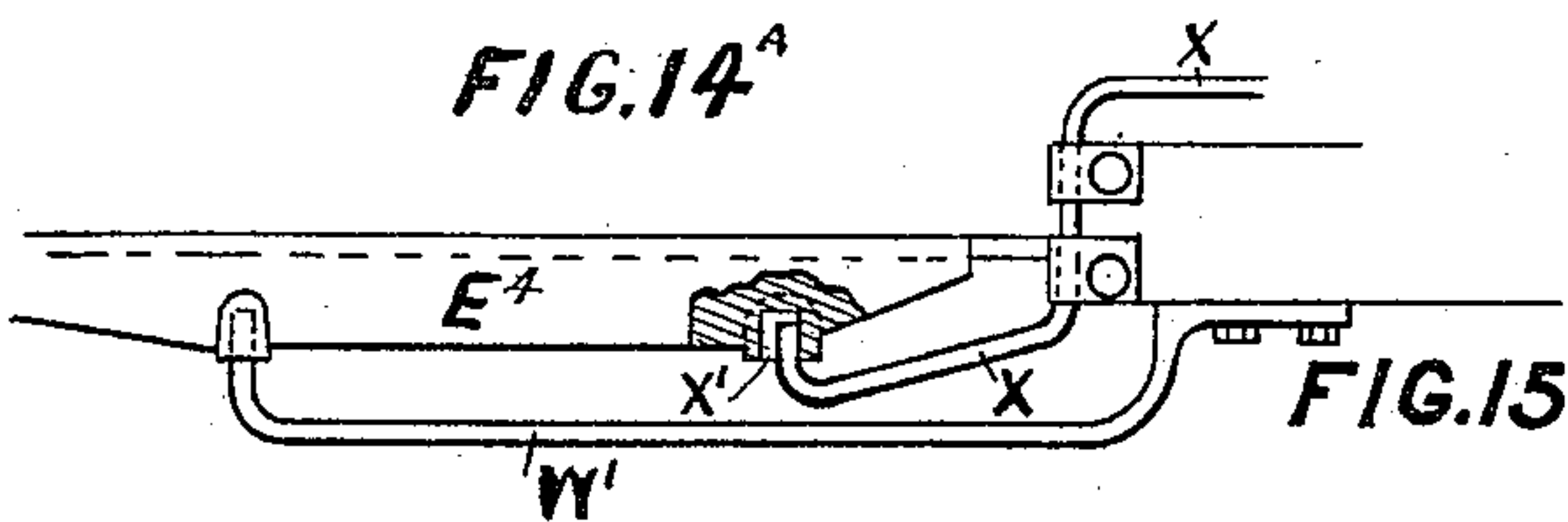
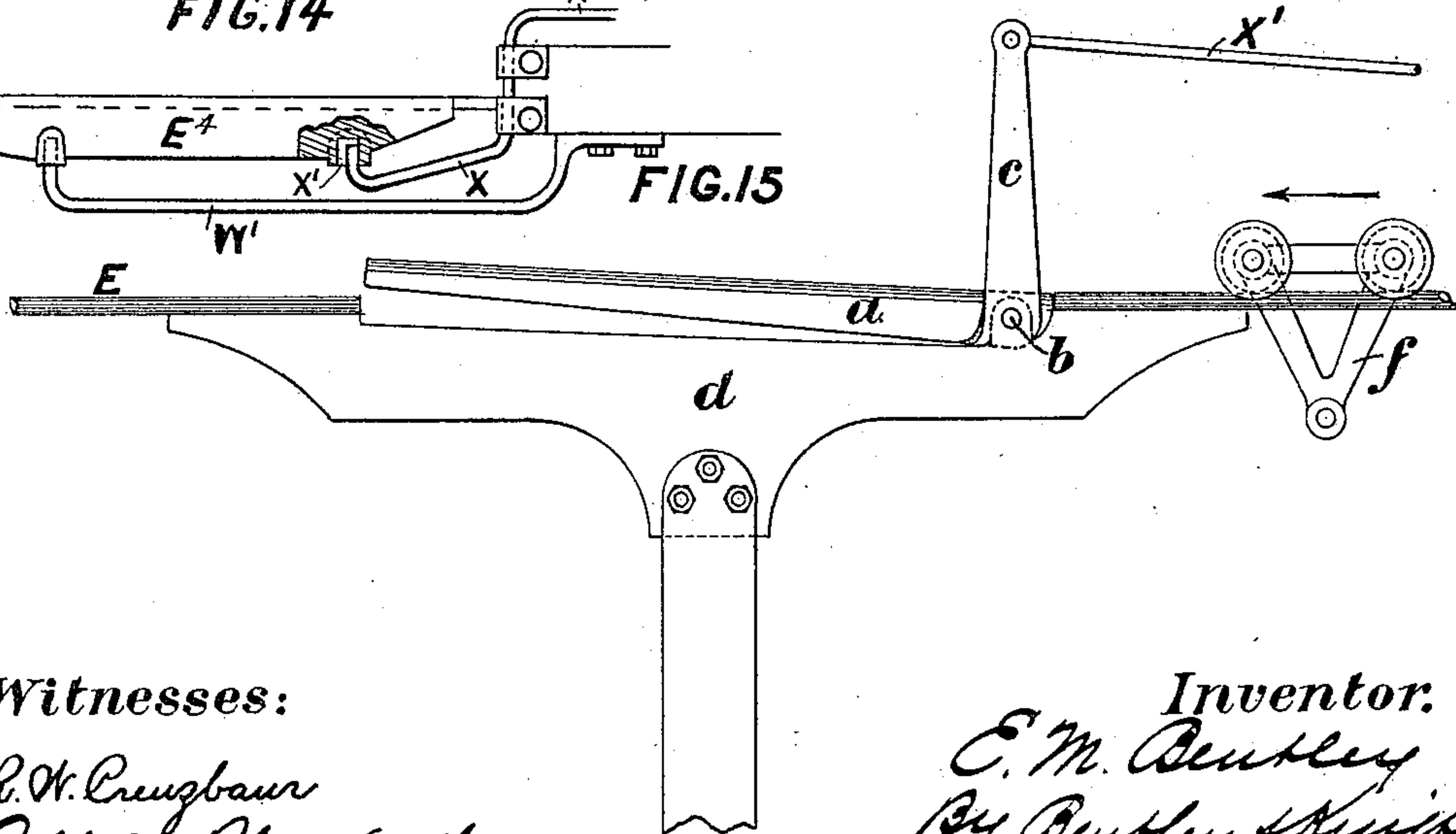


FIG. 15



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UNITED STATES PATENT OFFICE.

EDWARD M. BENTLEY, OF NEW YORK, N. Y.

ELECTRIC-RAILWAY-CONDUCTOR SUPPORT.

SPECIFICATION forming part of Letters Patent No. 459,737, dated September 22, 1891.

Application filed September 5, 1887. Serial No. 248,769. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BENTLEY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented a certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention pertains to electric railways in which the supply-conductors are suspended above the railway and connection maintained between the car and conductors by a trolley or any traveling contact device.

In the accompanying drawings, A and B, Figures 1 and 2, are poles upon opposite sides of a street or railway track. C and D are conducting-wires of large capacity suspended from the poles by insulators *d* in the usual manner. F F are cross-wires extending across the street and supporting the small wire E in any well-known manner. The wire E is adapted to have a contact-trolley G travel upon it, from which a wire is led to the propelling-motor on car H. The contact-trolley is supported on the wire by the grooved wheels, as shown, the edges of the grooves forming side guards, keeping the trolley in place. Wire E is connected electrically to the supply-wires C and D, either by the cross-wires F or by separate wires K, which may also aid in supporting wire E. When both a positive and negative suspended wire is employed, they may be supported as in Fig. 3, where L is a short wooden bar supported from cross-wire F by short links *l*. Two curved hangers M are supported from L and insulated from each other by the bar. At the lower end of M is a fork in which is set and riveted or bolted the fin N. The wire E is laid in a groove in the upper edge of N and held in place by a thin metallic sleeve O, which embraces the wire and is riveted to the fin. The ends of the sleeve are tapered down, so as not to interfere with the passage of the contact-wheel. The details of this method of suspension are shown in Figs. 4, 5, and 6. Upon a curve I bring the wire to a rigid curved bar hung from a bracket extending over the street from the curve. This bar is bent so that its upper edge forms a continuation of the wire, or the wire itself may be brazed fast along the upper edge of the bar.

Figs. 7 and 8 are a plan and elevation of

the curve, the wire being bent on a shorter radius than the track, the slack wire between the trolley and the car allowing for the resulting deviation from exact parallelism of the track and wire. P represents the pole on the curb Q, the bracket extending therefrom over the street; S and S', the curved bars supported from the hangers M. The end of bar S is shown in detail in Figs. 9, 10, and 11. It is split in a vertical longitudinal plane and the two parts fitted to clasp the bent end of the wire between them. The two parts are then riveted together and the wire is firmly clamped, while the upper edges of the two halves are so shaped as to form when placed together a continuation of the upper surface of the wire on which the trolley rolls. The bars S are strengthened by horizontal ribs T.

Figs. 12, 13, 14, and 14^a show a switch-point, Fig. 12 being a section on line *xy*, and Fig. 14 a section on line *vz*, Fig. 13. E and E' are the two wires of the single track, which are extended to form the two outer wires of the two branches, respectively. The two inner wires E² and E³ come nearly together and are attached to an insulating-block Z. A bracket W' is bolted to the lower side of Z and at its outer extremity is pivoted the conductor-switch point E⁴, which is electrically independent of either conductor and when in its two positions, respectively, leads from E to E³ or from E' to E². It is operated by a lever X, pivoted at the end of block Z and also to the under side of E⁴. If the spring of the switch tongue and lever does not permit the throwing of the switch with sufficient ease, a slight lost movement will be provided where the lever X joins the switch-tongue. This is shown at X' in Fig. 14^a. This lever may be operated by a cord X', running over a pulley on post P. The cord X' may be connected to the track-switch, so that E' will be worked in one direction by the movement of the track-switch and in the other direction by the action of spring Y. In other cases the lever X may be extended and bent down into the path of the trolley, so as to be struck by it both going into and coming out of the switch.

In Fig. 15 is shown a device for actuating a switch-point by the passing trolley. A section *a* of the conductor is pivoted to the supporting-fin *d*, so as to be operated by the

weight of trolley *f* when going in the direction of the arrow. This throws arm *c*, which in turn pulls on cord *X'* and works the switch-point. One such device is placed so that the trolley may throw the point as it approaches it in coming out of the switch and another is placed so that the point will be reset as the trolley moves away from it.

I claim—

1. In an electric railway, the combination of the suspended wire, the fin *N*, the sleeve *O*, and a support separate from the fin, but to which it is attached.

2. In an electric railway, the combination of the contact-conductor, bearing-fins at intervals to which said conductor is secured by sleeves made of such thinness as not to interrupt the passage of the contact device, and supports to which said fins are attached, the conductor being thus suspended along the railway-track.

3. In an electric railway, the combination of a supply-conductor with hangers therefor, provided with grooved fins for receiving the wire, and metal sleeves or clips passing around the wire and holding it in place, as set forth.

4. In an electric railway, the combination, with a suspended conductor, of a clamp forming a continuation of the contact-surface of the conductor and divided vertically into parts fitted to the wire and to each other.

5. The combination, in an electric railway, of the suspended conductor and the curved bar *S*, adapted to take the strain of the said conductor and provided with a horizontal flange.

6. In a switch for suspended electric conductors, the combination, with main and branch conductors, of a laterally-movable tongue connecting the conductors and normally spring-pressed against the main conductor.

7. The combination, in a switch for electric railways, of main and branching conductors and a switch-tongue pivoted so as to form a continuation of the branch conductor and having its free end normally spring-pressed against the main conductor, as set forth.

8. The combination, in an electric railway, of main and branching conductors and an intermediate switch-tongue forming a continuation of the branch conductor and normally spring-pressed against the main conductor, with a contact device provided with side guards traveling in engagement with the conductors and adapted to be transferred from the main to the branch line upon the switching-section, as described.

9. In an electric railway, the combination of intersecting conductors, as $E E^3$ and E' and E^2 , with an intermediate movable section adapted to guide the contact device along either conductor, as described.

10. In an electric railway, the combination of intersecting and interrupted supply-conductors, as $E E^3$ and E' and E^2 , with a centrally-pivoted section adapted to swing into line with either conductor, as described.

11. The combination, with an electric railway, of main and branch conductors and a movable switch-tongue connecting the conductors with an actuating device therefor connected to the switch at a point out of the path of travel of the contact device.

12. The combination, in an electric railway, of main and branch conductors and a movable switch-tongue, with a trip located in the path of the contact device, and connections between the said trip and switch, whereby the striking of the trip by the contact device operates the switch, as described.

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Witnesses:

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