(No Model.) 2 Sheets—Sheet 1.

A. HANSON.

INSULATED CROSSOVER FOR TROLLEY WIRES.

No. 567,784. Patented Sept. 15, 1896.

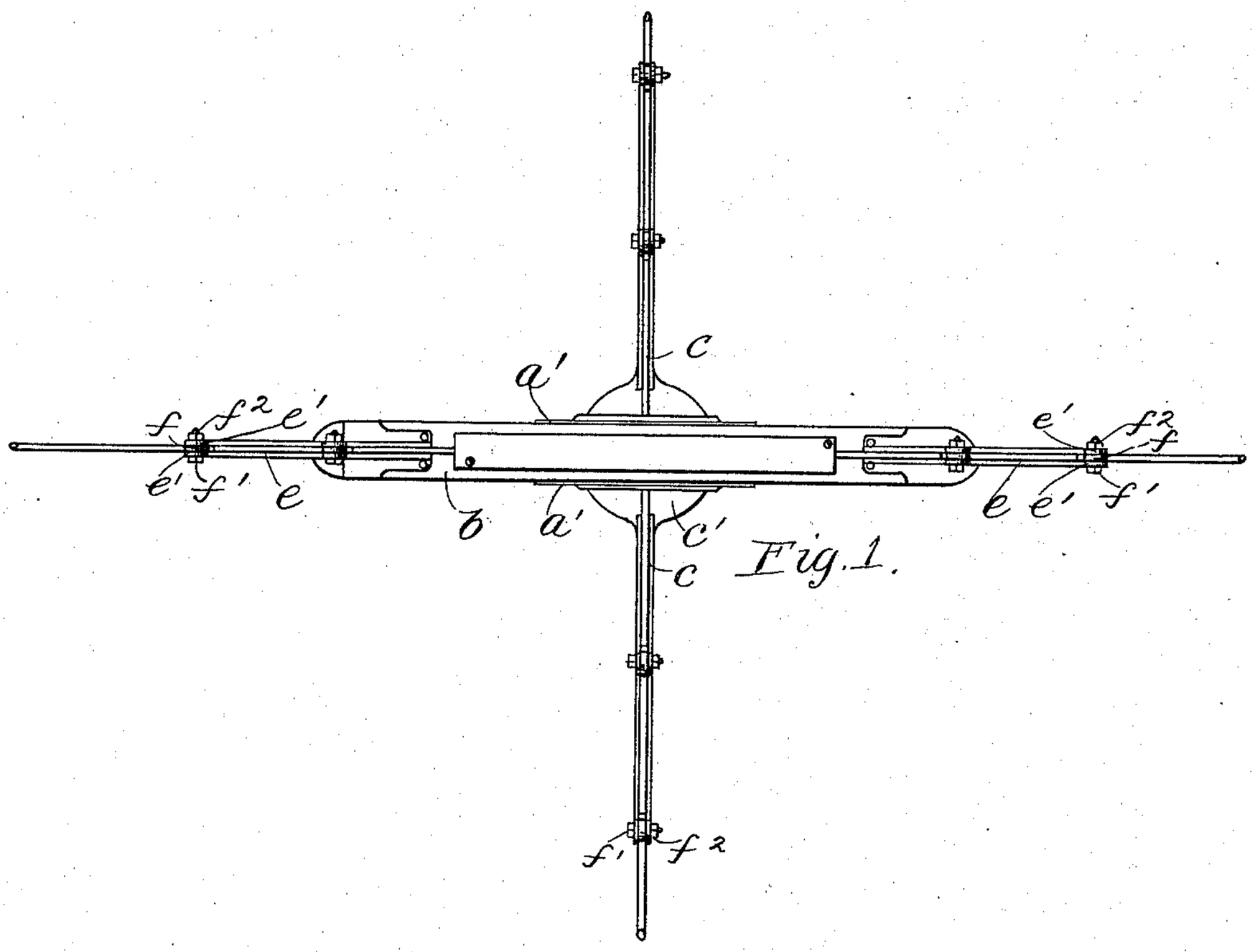


Fig. 1.

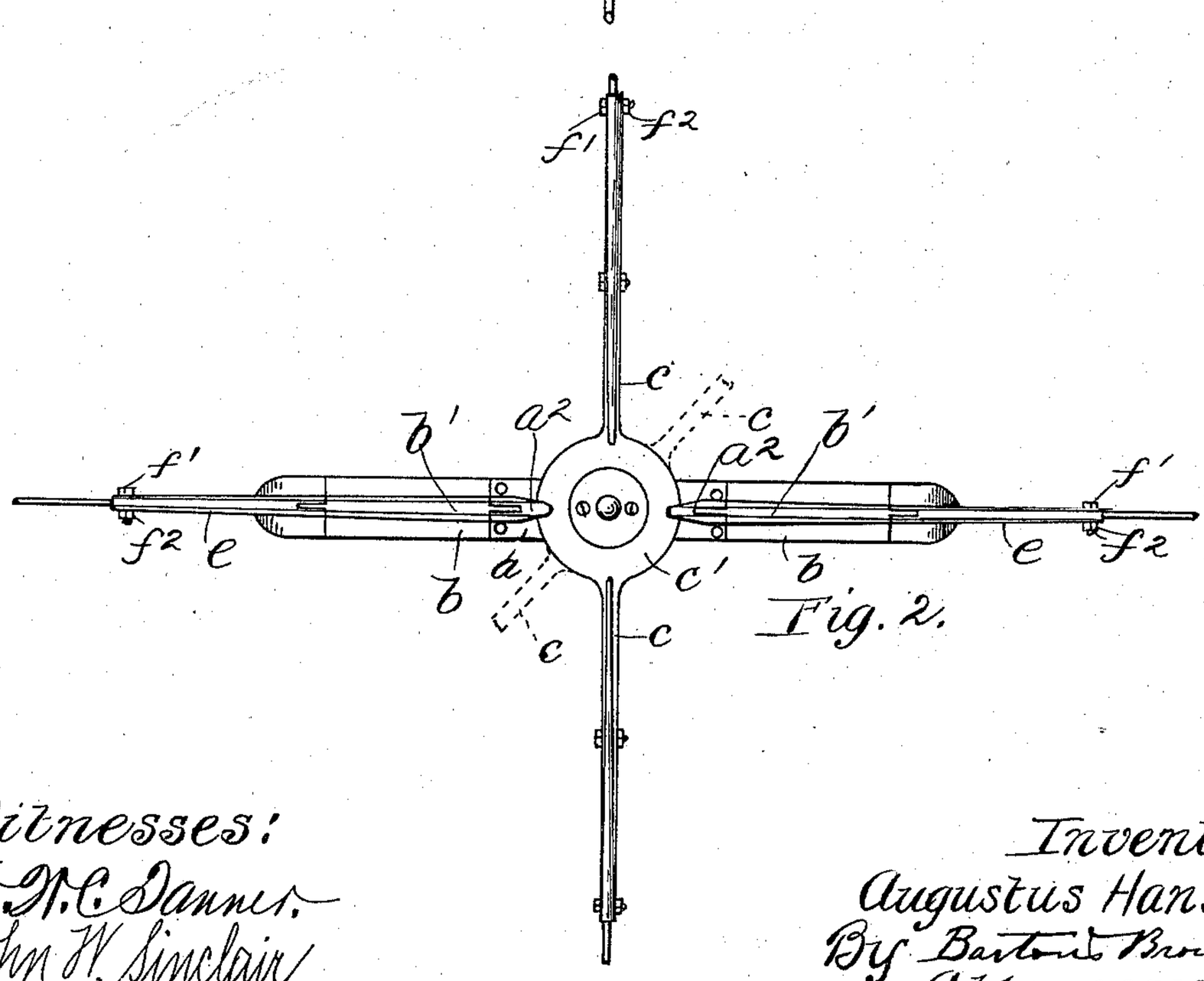


Fig. 2.

Witnesses:
D. H. C. Danner.
John W. Sinclair

Inventor:
Augustus Hanson,
By Barton & Brown,
Attorneys.

(No Model.) 2 Sheets—Sheet 2.

A. HANSON.

INSULATED CROSSOVER FOR TROLLEY WIRES.

No. 567,784. Patented Sept. 15, 1896.

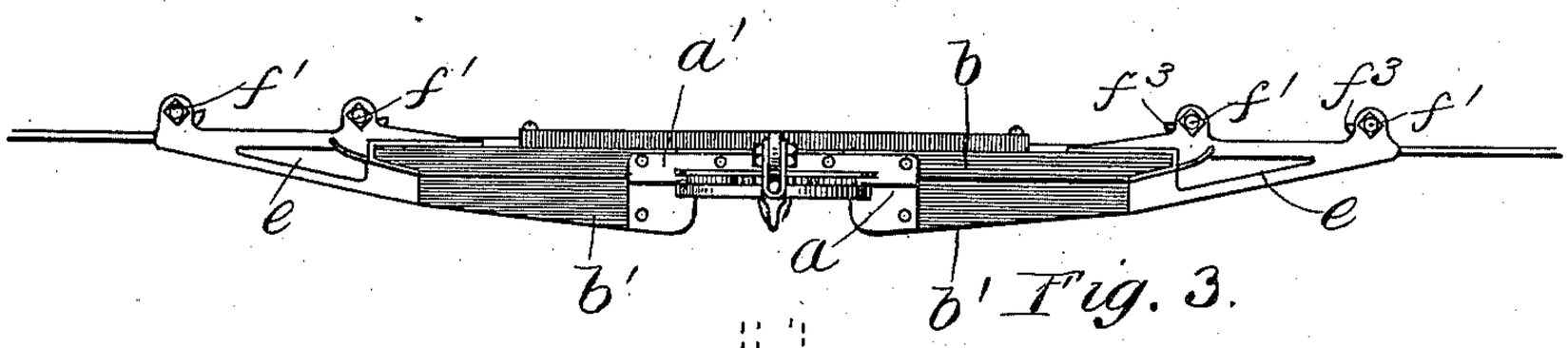


Fig. 3.

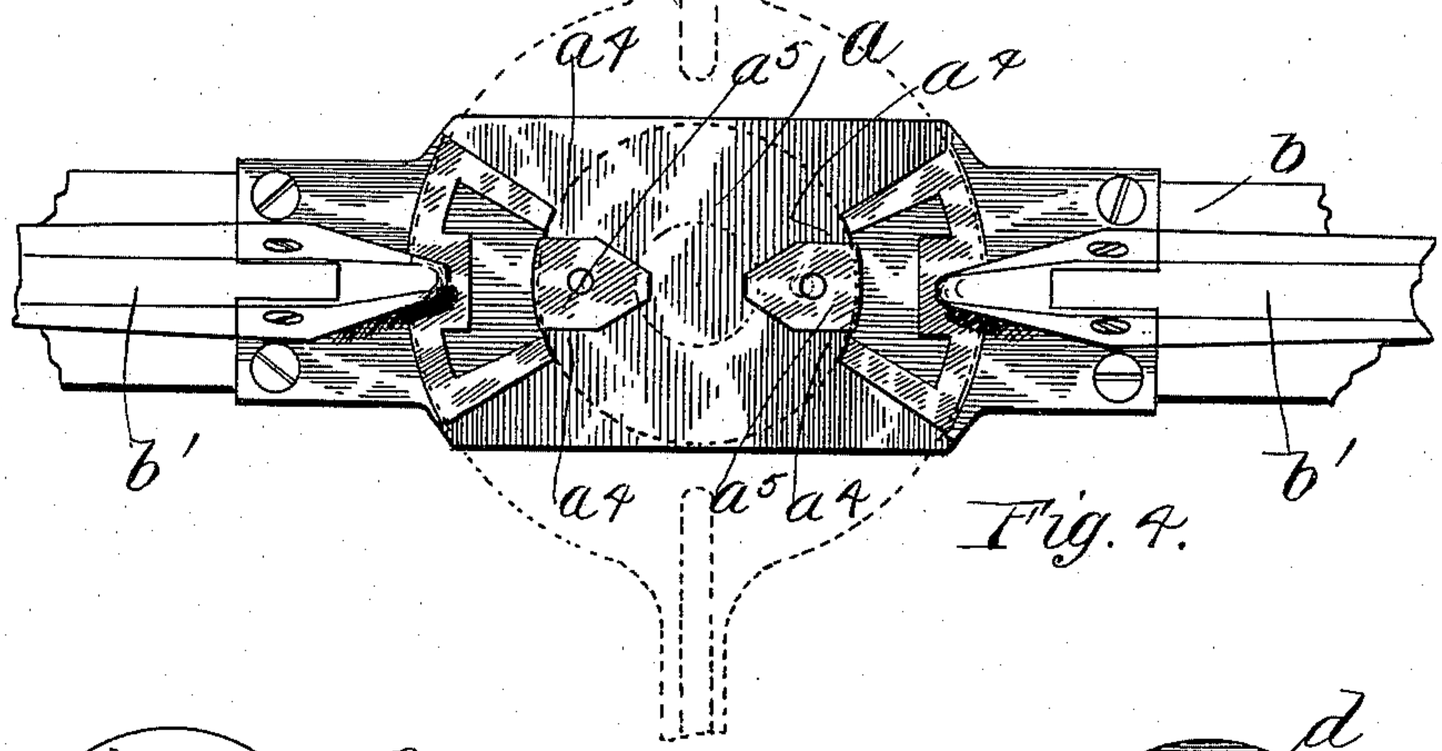


Fig. 4.

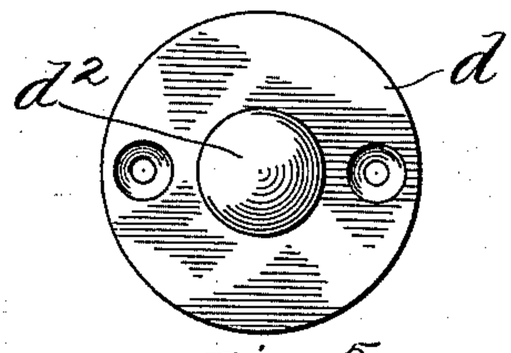


Fig. 5.

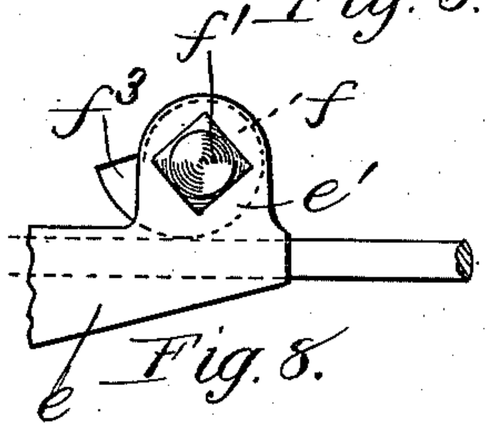


Fig. 8.

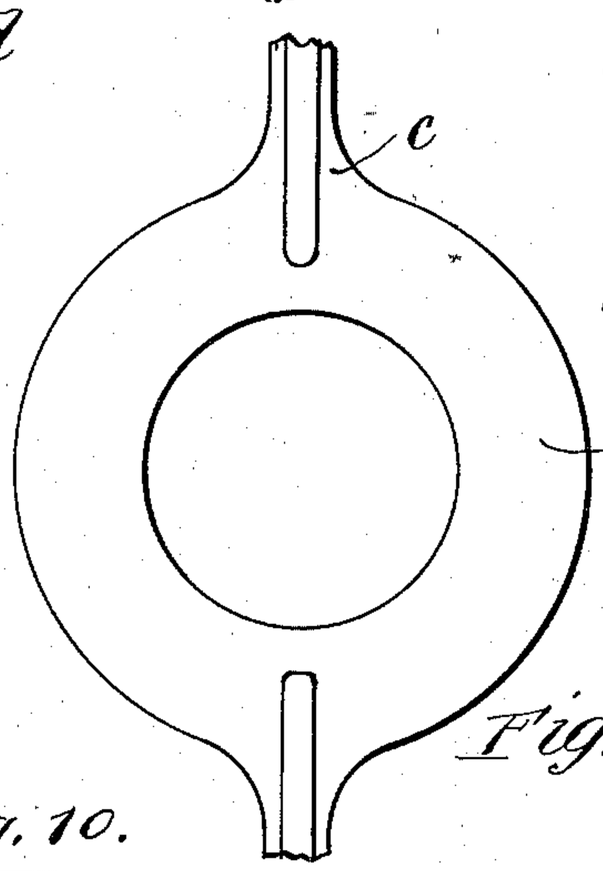


Fig. 7.

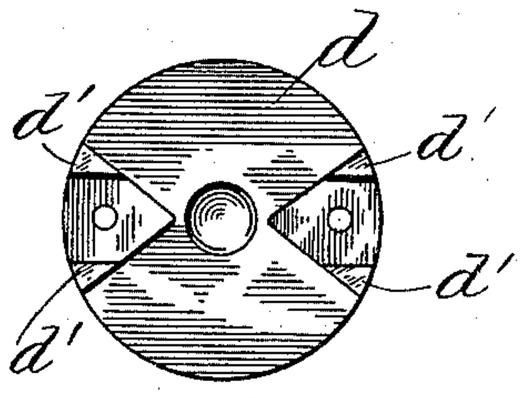


Fig. 6.

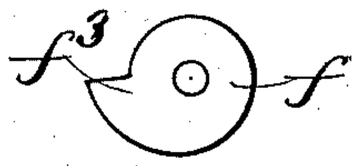
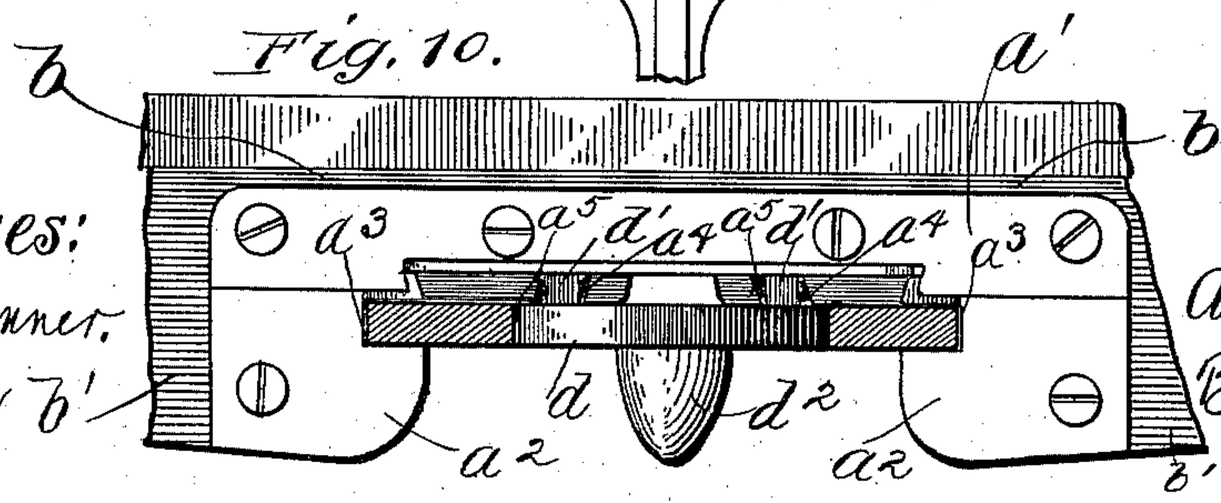


Fig. 9.

Fig. 10.



Witnesses:
D. H. C. Danner.
J. W. Sinclair.

Inventor:
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Attorneys.

UNITED STATES PATENT OFFICE.

AUGUSTUS HANSON, OF CHICAGO, ILLINOIS.

INSULATED CROSSOVER FOR TROLLEY-WIRES.

SPECIFICATION forming part of Letters Patent No. 567,784, dated September 15, 1896.

Application filed April 3, 1896. Serial No. 586,021. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS HANSON, 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 Insulated Crossovers for Contact-Wires, (Case No. 2,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to crossovers for contact-wires of electric railways; and its object is to provide, first, a construction wherein two contact-wires insulated from each other may cross at any angle, and, second, improved means for securing the crossover to the contact-wires without the necessity of injuring the latter by cutting or bending.

In accordance with my invention I provide a central casting, to either side of which is fastened an insulating-block carrying end pieces, to which one of the two contact-wires is secured in a manner hereinafter described. The insulating-block and end pieces are so formed as to constitute a runway for the contact-wheel which passes along the contact-wire that is secured to them. A second runway is pivotally mounted upon said central casting in such a manner that it may be turned at any desired angle, and the other contact-wire is secured thereto. The central casting and the last-mentioned runway are thoroughly insulated from the first contact-wire by the insulating-block which intervenes between the end pieces and the central casting. Upon the end pieces I provide lugs or ears having eccentric die-blocks or cams pivoted between them on bolts passing therethrough. Each cam or die-block is provided with a lug which may be struck with a hammer to rotate the cam and press it firmly against the contact-wire, whereupon the nut on the bolt is tightened to retain the cam or die-block in position. The contact-wire is thus fastened securely between the end piece and the die-block without bending, cutting, or otherwise injuring it.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a top view of the crossover of my invention. Fig. 2 is a bottom view thereof. Fig. 3 is a side elevation. Fig. 4 is a bottom view of the central casting, the lower runway being indicated in dotted lines, together with the center piece upon which the lower runway is pivoted. Fig. 5 is a bottom view of the center piece. Fig. 6 is a top view thereof. Fig. 7 is a detail view of the central portion of the lower runway. Fig. 8 is a detail view of the extremity of one of the end pieces, showing my improved method of fastening the contact-wire in place. Fig. 9 is a detail of the cam or eccentric die-block. Fig. 10 is an elevation of the central casting, the lower runway being indicated in section, together with the center piece upon which it is pivoted.

Like letters refer to like parts throughout the several figures.

The central casting a is formed with two upwardly-projecting flanges a' a', which form a trough for the reception of an insulating-block b. The latter may be made of dry hard-wood fiber or other suitable material. Upon the bottom of casting a lugs a^2 a^2 are formed, to which are fastened, by a mortise-and-tenon joint, the insulating-runways b' b', which are separate from block b and may be removed when worn.

Horizontal slots a^3 a^3 are provided in lugs a^2 a^2, which serve to retain the central portion c' of lower runway c, which is pivoted upon a center piece d. The center piece d is formed with projecting lugs d', which fit into and are retained in position by notches a^4 a^4, provided in tongues a^5 a^5, which are formed upon casting a and which serve as a bearing-surface for the portion c' of lower runway c. A lug d^2 is also provided upon center piece d, which acts as a guide for the contact-wheel passing along either runway.

End pieces e are provided upon the ends of the insulating-block b and runway b' b' for the reception of the upper contact-wire. Ears e' e' are provided upon the end pieces e, between which a cam or eccentric die-block f is pivoted upon a bolt f', passing therethrough and retained by a nut f^2. A lug f^3 is provided upon the die-block which may be struck with a hammer to rotate the same and cause it to press firmly against the contact-wire. The nut f^2 is then tightened to retain

the die-block in position. The contact-wire is thus held firmly between the end piece *e* and the die-block *f*, the ears *e' e'* also helping to retain it in position. Two of these fastening devices are preferably provided upon each end piece and two upon each end of the lower runway. The crossover is thus very firmly secured to the two contact-wires without cutting, bending, or otherwise damaging the latter in the least.

By virtue of the pivotal mounting of the lower runway *c* the device may be used in connection with contact-wires crossing at any desired angle, or, should the wires sway or swerve laterally, the two members of the crossover will accommodate themselves to the change, instead of being in a fixed relation to each other, as has been the case with crossovers in use heretofore.

It is evident that modifications may be made without departing from the spirit of my invention. I do not, therefore, desire to be limited to the precise construction shown herein; but,

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

1. In a crossover for contact-wires of electric railways, the combination with a central casting, of an insulating-block secured thereto, end pieces mounted upon said insulating-block, means for securing one of the contact-wires thereto, lugs formed upon said central casting, said lugs, insulating-block and end pieces forming a runway upon which the contact-wheel may travel, a second runway pivoted to said central casting in such a manner that it may be adjusted at any desired angle, and means for securing the second contact-wire to said second runway, substantially as described.

2. In a crossover for contact-wires of electric railways, the combination with a central casting, an insulating-block secured thereto, end pieces mounted upon said insulating-block, said central casting, insulating-block and end pieces forming a runway and constituting one member of the crossover, means for securing one of the contact-wires to said member, a second member or runway, means for securing a second contact-wire to said second member or runway, and a pivotal connection between said members, whereby they may be adjusted at any desired angle, or may adjust themselves to lateral swerving or swaying of the contact-wires, substantially as described.

3. In a crossover for contact-wires of electric railways, the combination with the central casting *a*, of lugs a^2 a^2 formed thereon, flanges *a' a'*, an insulating-block *b* secured between said flanges and to said lugs a^2 a^2, end pieces *e e* mounted upon said insulating-block, said end pieces, block and lugs a^2 a^2 forming two runways and constituting one member of the crossover, means for securing one of the crossing contact-wires to said member, a second member or runway *c*, center piece *d*, upon which is pivoted said member or runway *c*, said member *c* being retained in position by said lugs a^2 a^2, and means for securing the second of the crossing contact-wires to said member *c*, substantially as described.

4. In a crossover for contact-wires of electric railways, the combination with the central casting *a*, of lugs a^2 a^2 formed thereon, flanges *a' a'*, an insulating-block *b* secured between said flanges *a' a'* and to said lugs a^2 a^2, end pieces *e e* mounted upon said insulating-block, said end pieces, block and lugs a^2 a^2 forming two runways and constituting the upper member of the crossover, means for securing one of the contact-wires to said upper member, tongues a^5 a^5 formed upon said casting *a* and having notches a^4 a^4, a center piece *d*, provided with lugs *d'* which fit into said notches a^4 a^4 a second member or runway *c* of said crossover, having a central portion *c'* retained by said lugs a^2 a^2 provided in said central casting *a* and pivoted upon said center piece *d*, and means for securing the second contact-wire to said second member or runway, substantially as described.

In witness whereof I hereunto subscribe my name this 30th day of March, A. D. 1896.

AUGUSTUS HANSON.

Witnesses:

CHARLES A. BROWN,

JOHN W. SINCLAIR.