

(No Model.)

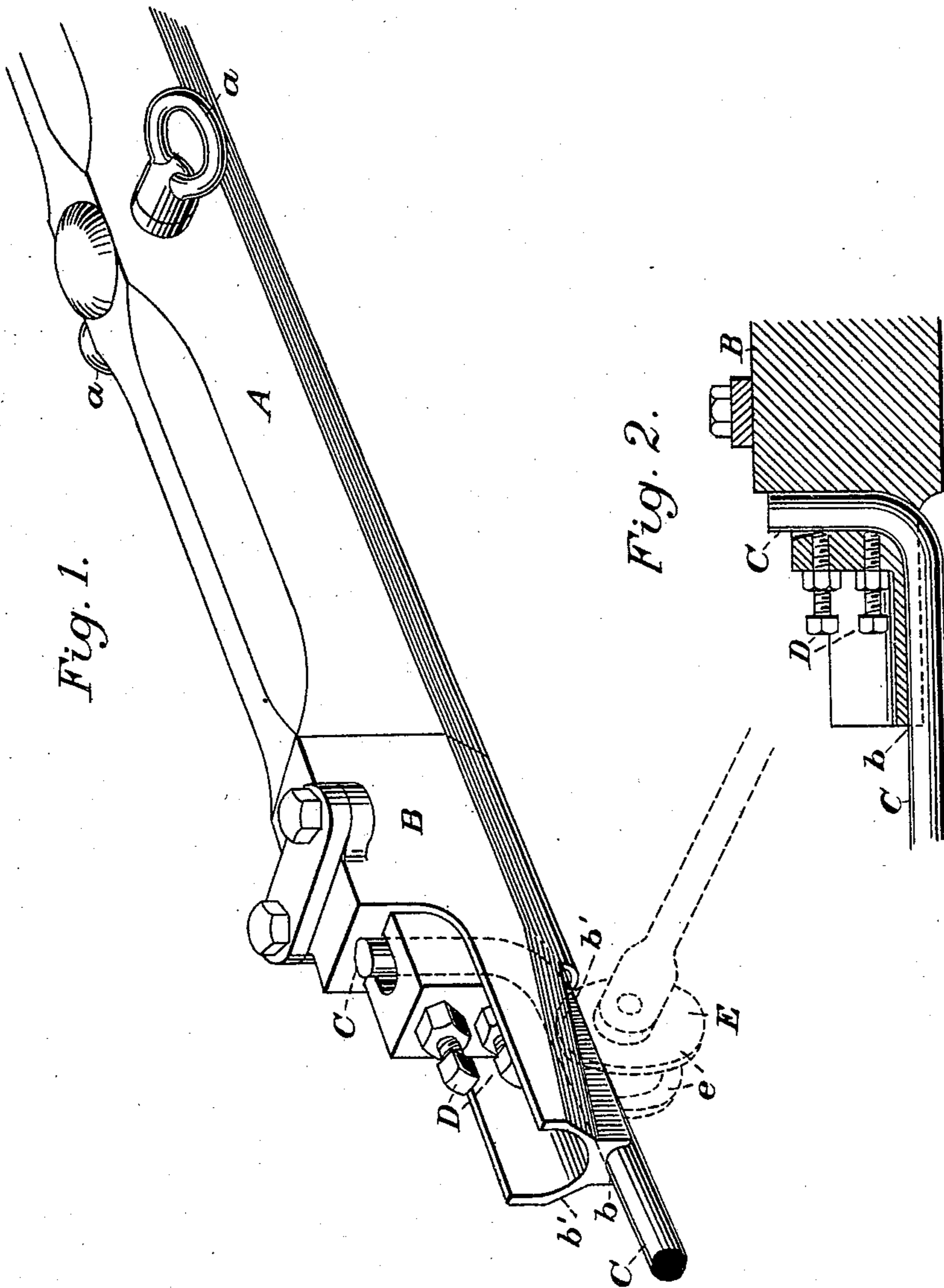
2 Sheets—Sheet 1.

S. L. FOSTER.

SECTION INSULATOR FOR ELECTRIC RAILWAYS.

No. 581,023.

Patented Apr. 20, 1897.



Witnesses,

E. A. Brandau
J. H. Morse

Inventor

Samuel L. Foster
By Dewey & Co.

Atty.

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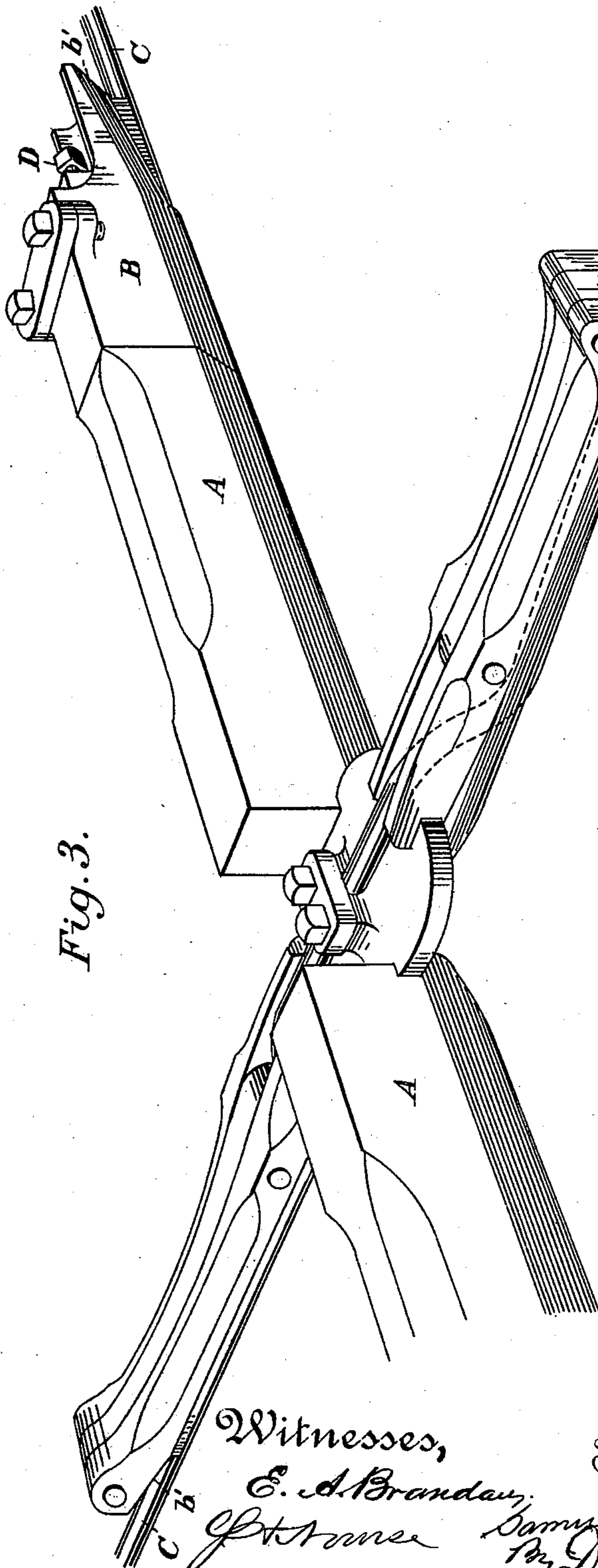


Fig. 3.

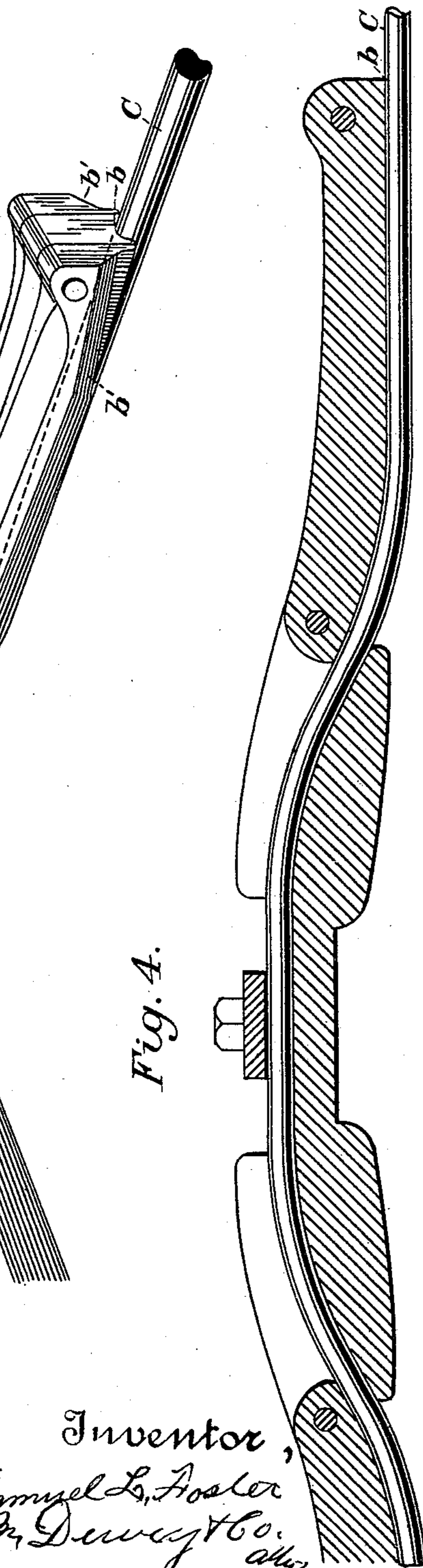


Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL L. FOSTER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
MARKET STREET RAILWAY COMPANY, OF SAME PLACE.

SECTION-INSULATOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 581,023, dated April 20, 1897.

Application filed December 23, 1896. Serial No. 616,776. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. FOSTER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Section-Insulators for Electric Railways; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to those devices used in electric railways, especially of the overhead class, and variously named "section-insulators," "insulated crossings," "crossing-plates," "frogs," and "switches," according to the particular use in which they are employed, and all of which, in one form or another, are interposed in the path of travel of the trolley. My invention, though applicable to all of these devices, I have for the sake of brevity entitled "section-insulator," as that is the form in which I shall illustrate it.

A section-insulator, as is well known, is a piece of non-conducting material let into the trolley-wire to divide it into sections, which sections, being fed separately, can be switched out separately when required.

My invention consists of a peculiarly-constructed terminal member of a section-insulator or any of the other devices, such as those above enumerated, and which are interposed in the path of the trolley, the essential feature of said terminal member being an inclined plane occupying such relation to the trolley-wire that when the trolley-wheel reaches it the bearing of said wheel, instead of being on the bottom of its groove, as is the case when running on the wire, shall, by reason of said inclined plane, be on the side portion or flange of the groove, the object being to provide by this construction and shape that the wheel shall be received onto and let off the section-insulator or other device in a way that avoids the hammer-blow usual with these overhead parts. This result is attained by providing that the wheel shall, upon approaching, begin to bear with its flanges on the inclined planes of the terminal member before it ceases to bear on the trolley-wire, the shape of the terminal member being such as to be adapted to wheels in all stages of wear. When the wheel is leaving the opposite terminal member, the shape of said mem-

ber permits said wheel to come onto the wire before it leaves the bearing of its side flanges on the inclined planes of said member, thus conducing to a long life in the device and reducing to a minimum the wear on the trolley-wire at the ends of the insulator or other like part.

Referring to the accompanying drawings, Figure 1 is a view of one end of a section-insulator. Fig. 2 is a section through its terminal member. Fig. 3 shows my device as applied to crossing-plates. Fig. 4 is a section of the latter.

A is the non-conducting body of a section-insulator, having the usual staples *a* by which it is suspended by guys from the side poles.

B is the metallic end forming the terminal member. There is one of these terminal members at each end of the body A.

C are the ends of the trolley-wire. These pass under and lie within a partial groove *b* under the extended tip of the terminal members, and thence they pass upwardly in a hole and are clamped by the set-screws D. It is best in practice to have two of these set-screws, so that they will bind upon the wire at different points and thus produce a bend or cramp in it, which causes them to hold it with greater security.

The lowermost edge of the trolley-wire at the point where it bends upwardly is about flush with the lower edge of the main body of the terminal members, and it is at this point where the trolley-wheel leaves the wire and passes upon the terminal member and where it leaves the terminal member and passes to the wire that the hammer-blow or pounding takes place. To avoid this, I provide the sides of the extended tip of the terminal member just above the groove *b* with the inclined bearing-planes *b'*, one on each side. These, with respect to each other, gradually diverge or widen from the extremity to the main body of the terminal member, which they join in a practically continuous and flush surface.

E represents the trolley-wheel.

In operation as the trolley approaches the section-insulator the bearing of the wheel on the trolley-wire is in the bottom of the groove of said wheel; but as it reaches the tip extension of the terminal member B and while it is

still bearing with the bottom of its groove up under the trolley-wire its side flanges *e* are approaching the inclined planes *b'* and gradually meet said planes and begin to bear upon them with their inner surfaces, and as the trolley-wheel progresses these flanges *e* gradually take all the bearing on the inclined planes, and when the trolley-wheel leaves the wire it will proceed upon the insulator without the hammer-blow or pounding which it is desired to avoid. The reverse of this operation takes place when leaving the section-insulator, as the bearing of the side flanges of the trolley-wheels is gradually and gently transferred from the inclined planes to a bearing of the bottom of the trolley-wheel groove on the wire, thus leaving the insulator without hammering. This same operation takes place no matter what may be the condition of wear of the trolley-wheel, for the flanges of the wheel will gradually and gently take their bearing on the inclined planes. Thus the construction is adapted to trolley-wheels in all stages of wear.

As I have before stated, although I have herein illustrated my invention as applied to a section-insulator, I wish it to be understood that the same construction of terminal member can be advantageously used in insulated crossings, crossing-plates, frogs, switches, and similar overhead electric devices.

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

1. Section-insulators and other devices of electric railways, interposed in the path of the trolley, said devices having a terminal member to which the end of the trolley-wire is connected, said member having an inclined

plane adapted to gradually receive or part with the bearing of the flanges of the trolley-wheel before or after said wheel leaves or comes to its bearing on the wire, according as the wheel is entering upon or leaving said terminal.

2. Section-insulators, and other devices of electric railways, interposed in the path of the trolley, said devices having a terminal member to which the end of the trolley-wire is connected, said member having on each side thereof inclined planes which gradually diverge laterally with respect to each other and adapted to gradually receive or part with the bearing of the flanges of the trolley-wheel before or after said wheel leaves or comes to its bearing on the wire, according as the wheel is entering upon or leaving said terminal.

3. Section-insulators and other devices of electric railways, interposed in the path of the trolley, said devices having a terminal member to which the end of the trolley-wire is connected, said member having a tip extension in the lower portion of which is formed a groove to receive the end of the wire, and having formed above said groove inclined planes, one on each side, and gradually diverging with respect to each other and adapted to gradually receive or part with the bearing of the flanges of the trolley-wheel before or after said wheel leaves or comes to its bearing on the wire, according as the wheel is entering upon or leaving said terminal.

In witness whereof I have hereunto set my hand.

SAMUEL L. FOSTER.

Witnesses:

J. S. WILLCUTT,
GEO. B. WILLCUTT.