

(No Model.)

2 Sheets—Sheet 1.

L. McCARTHY.
SECTION INSULATOR.

No. 570,140.

Patented Oct. 27, 1896.

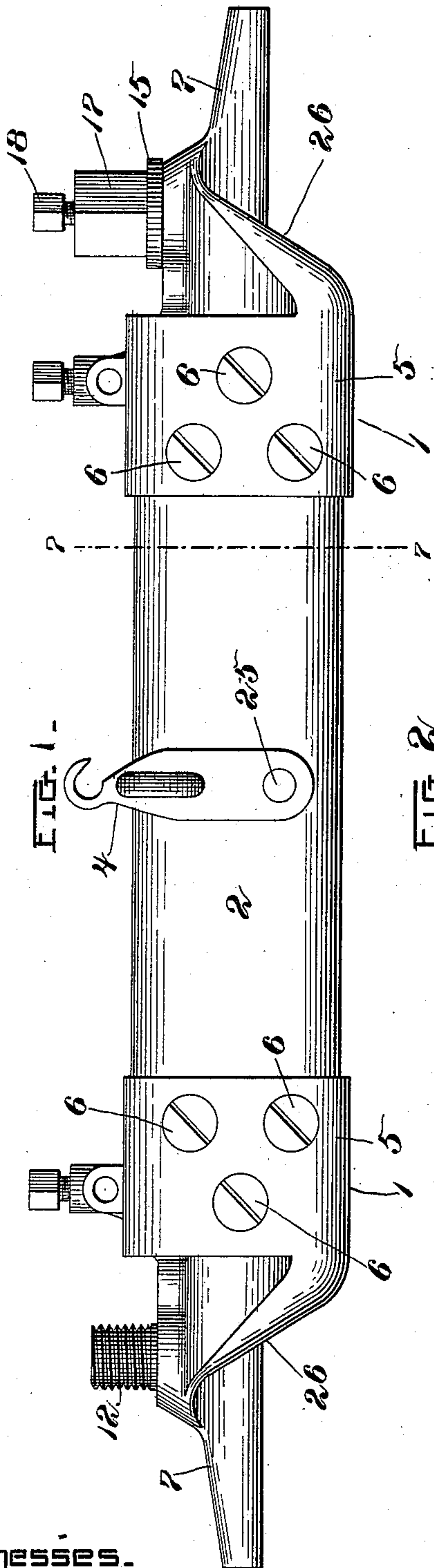
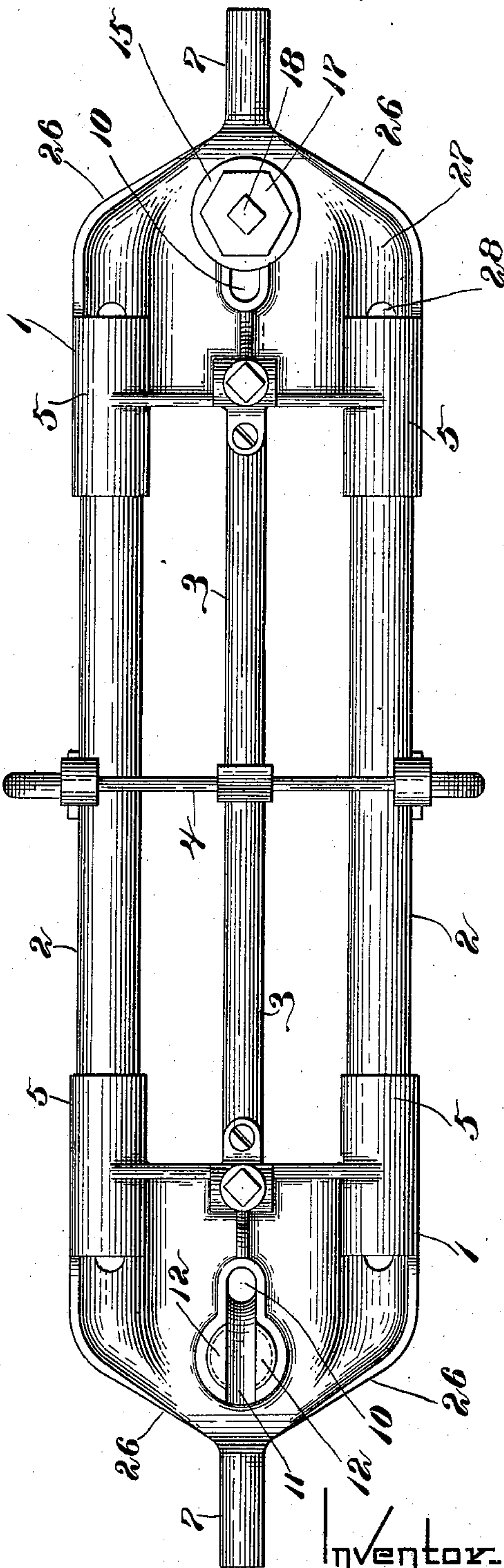


FIG. 2.



Witnesses.

Charles F. Randall;
Robert Wallace.

Inventor.

Louis McCarthy
by Maceo Calver & Randall
his Attorneys

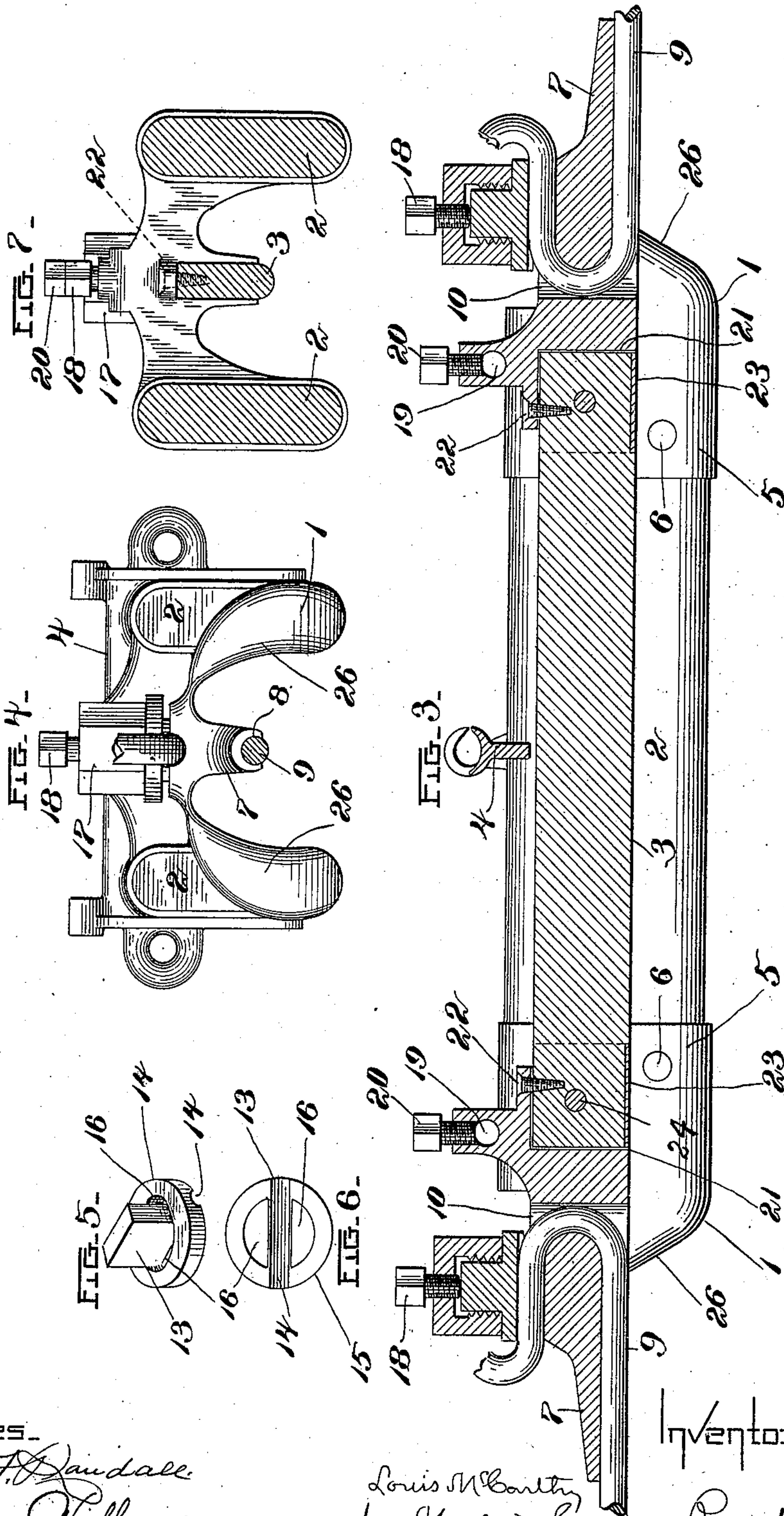
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Patented Oct. 27, 1896.



Witnesses.

Arthur T. Dandall.
Robert Wallace.

Inventor.

Louis McCarthy
by Maceo Calver Randall
his Attorney

UNITED STATES PATENT OFFICE.

LOUIS MCCARTHY, OF BOSTON, MASSACHUSETTS.

SECTION-INSULATOR.

SPECIFICATION forming part of Letters Patent No. 570,140, dated October 27, 1896.

Application filed November 19, 1894. Serial No. 529,247. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MCCARTHY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Section-Insulators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of the invention is to produce a section-insulator or the like of novel and improved character and construction which shall be efficient in use, strong, and capable of sustaining the strains to which such devices are subjected, simple and inexpensive and adapted to have the section-wires quickly, easily, and conveniently connected therewith and disconnected therefrom; also, one in which injury resulting from a misplaced trolley is obviated; also, one in which the runner-piece which bridges the space between the proximate ends of the two section-wires may be readily removed and replaced.

25 The invention will be described first with reference to the accompanying drawings, after which the distinguishing characteristics thereof will be pointed out more particularly, and distinctly defined in the claims at the close of this specification.

30 The accompanying drawings represent in the various views thereof a section-insulator embodying my invention in the best form that has yet been devised by me. The invention, however, is not necessarily restricted to the precise details of construction, arrangement, &c., which are illustrated, and these may be varied in any approved manner without involving any departure from the principles of my invention so long as the essentials and bounds or limits that are defined in the claims are observed and maintained.

35 Figure 1 of the drawings shows in side view a section-insulator embodying the invention, parts of one of the clamps for the section-wires being omitted in order to show a feature of the construction. Fig. 2 shows the same in plan, the same details being omitted. Fig. 3 shows the same in longitudinal section at mid-width thereof, both of the clamps being shown complete and the ends of the section-wires being shown in place. Fig. 4 is a view of the section-insulator in end elevation,

showing a section-wire in cross-section. Figs. 5 and 6 are a perspective and a bottom view, respectively, of the follower-block of a clamp. 55 Fig. 7 is a section on line 7 7, Fig. 1, showing more clearly the manner in which the runner is secured in place, as also the form thereof in cross-section and the socket into which it is fitted. 60

1 1 are two end pieces provided with means for holding the proximate ends of two section-wires, and 2 2 are two side bars of wood, fiber, or other material having the requisite strength and other properties. These side bars have the said end pieces secured to their opposite ends. 65

3 is a strip or bar of wood or equivalent material located between the side bars and in line with the section-wires, so that after the trolley leaves the end of one of said wires it will pass along the under side of the strip or bar 3, and thence be guided onto the end of the other section. This piece is known commonly as a "runner-piece." 70 75

4 is a suspension device by means of which the section device may be engaged with a transverse supporting wire or wires and with suitable stay or guy wires.

The end pieces 1 1 are alike. Each is provided at its two sides with sockets 5 5, which receive the corresponding ends of the two side bars 2 2, the said ends being secured in the said socket by means of screws 6 6 6. These screws are inserted through one side of each socket, pass entirely through the end of the side bar in said socket, and their threaded ends are screwed into threaded holes in the other side of the socket. Rivets might be employed. The end pieces are tied together or united by the side bars, which latter are, as will be observed, of insulating material. Each end piece 1 is furnished with a device for receiving and holding one end of a section-wire. 80 85 90 95

The arrangement and construction of such device which I prefer are as follows: The middle part 7 of the end piece has on its under surface a groove or trough 8, extending from the extremity of its outwardly-projecting end or nose throughout the greater part of the length of such middle part, and this groove or trough in practice receives the wire 9, as shown in Figs. 3 and 4. In the said 100

middle part is made a vertical hole or passage 10, (see Figs. 2 and 3,) through which the free end of the wire 9 is passed upwardly, the groove or trough 8 leading into the said vertical hole or passage 10. On the upper side of the middle part 7 is a groove or trough 11, leading outward from the vertical hole or passage 10, and into this groove or trough 11 the free end of the wire is bent, as shown in Figs. 3 and 4. The side of hole or passage 10, around which the wire is bent, is rounded away at the corners thereof, in order to remove the angles and permit a short and smooth bend in the wire to be made. From opposite sides of the groove or trough 11 rise elongated lugs or studs 12 12, the inner or proximate sides of which are flat and parallel, being spaced apart a distance equal to the width of said groove or trough. The outer sides or surfaces of said lugs or studs are curved and when viewed in plan form segments of one circle. The said curved sides or surfaces are cut with threads which would constitute one continuous screw-thread if the two lugs or studs were replaced by a cylindrical stud of the diameter of the circle aforesaid. For convenience in designation I term the two lugs or studs 12 12 a "divided screw." To the divided screw is applied a follower-block 13, (see Figs. 5 and 6,) the underside of which is preferably grooved, as at 14, to fit the upper surface of the wire. The body of said block fits in the space between the two lugs or studs constituting the divided screw. The flange 15 at the lower end of the block has holes 16 16, through which the lugs 12 12 pass when the block is applied to the divided screw.

17 is an internally-threaded cap or nut which is applied to and screwed down upon the divided screw to force the block 13 downward and clamp the end of the wire beneath such block in the trough or groove 11. The lower edge of said cap or nut bears on the flange 15 of the block 13. A screw 18 has its threaded stem fitted to a threaded hole in the top of said cap or nut 17, and its end bears against the upper end of the body of the block 13. (See Fig. 3.) After the cap or nut is turned down tightly into place against the flange of the block the said screw 18 is tightened and acts to jam or bind the nut upon the threads of the divided screw, and at the same time the pressure of the end of the screw upon the top of the block maintains the under surface of the block in firm engagement with the end of the wire, preventing any relaxation of the pressure of said surface against the wire.

19 is a socket or perforation in the end piece for the reception of a feed-wire, and 20 is a binding-screw to retain said feed-wire in place. As customary, the ends of a short wire or "jumper" may be inserted and secured in the sockets 19 of the two end pieces instead of feed-wires when it is not desired to apply feed-wires to the adjacent ends of two sections.

Each end piece has a socket 21 at mid-width thereof, in which is placed the corresponding end of the runner-piece 3. The said runner-piece is connected detachably with the end pieces in order to permit it to be readily removed and replaced when required, thus enabling a new one to be substituted for a worn or broken one. To this end the sockets 21 21 in the end pieces preferably are made open, so as to enable the runner-piece to be inserted or removed by a movement transversely of the length thereof. In the drawings the sockets are open and the ends of the runner-piece secured in place by screws 22 passing down from above through the upper part of the sockets. The pressure of the trolley against the under side of the runner-piece simply forces it more firmly into place in the sockets. Each end of the runner-piece 3 is incased with sheet metal 23 to protect it from being injured by blows from the trolley, the metallic casing being held in place by rivets 24. The runner-piece 3 may be removed readily from its sockets after the screws 22 22 have been removed and as readily reinserted or replaced by a new one.

The suspension device 4 is held to the side bars 2 2 by bolts 25, and may be of any suitable and approved character.

The parts 7 of each end piece depends below the transverse part or web of the end piece to afford clearance at the sides of such part for the flanges of the trolley.

Each end piece is formed in advance of the sockets 5 5 with deflecting portions 26 26, having exposed surfaces which diverge laterally, as in the plan shown in Fig. 2, and also incline rearwardly, as shown in side elevation in Figs. 1 and 3, they extending from a point in advance of the wire-retaining clamp on each end piece down to the lower surfaces of the sockets 5 5. These surfaces are rounded horizontally, as shown, and their shear or pitch causes them to deflect a misplaced trolley or its supporting arm or pole laterally and downwardly outside of the sockets, thus reducing to a minimum all danger of damage to the insulator from this cause. Inside the diverging deflecting portions 26 26 are depressions or cavities 27 27. It would be undesirable and unnecessary to make the end pieces solid at these points, as an unnecessary amount of metal would be used, increasing the weight and cost; hence these cavities 27 27. For the purpose of preventing the accumulation of moisture in the said cavities drip-holes 28 28 are provided at the lowest point thereof, as shown in Fig. 2.

I claim as my invention—

1. A section-insulator comprising side bars and end pieces to which said side bars are attached, the said end pieces having means for securing the ends of section-wires and being provided with deflecting portions which diverge laterally and rearwardly, and also incline rearwardly, substantially as described.

2. The clamping device comprising a sup-

port having a hole or passage therethrough
and grooved on opposite surfaces thereof,
with the grooves leading into the said hole or
passage, a divided screw having the parts
5 thereof disposed on opposite sides of one of
said grooves, a follower-block fitted to the
opening between the parts of the said divided
screw; a cap or nut working on said screw
and engaging with said follower-block and a

locking-screw fitted to the cap or nut and
taking bearing against the follower-block,
substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

LOUIS MCCARTHY.

Witnesses:

WM. A. MACLEOD,
CHAS. F. RANDALL.