No. 791,012. PATENTED MAY 30, 1905.

H. P. DAVIS & T. VARNEY.

STRAIN DEVICE FOR ELECTRIC RAILWAYS.

APPLICATION FILED OCT. 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

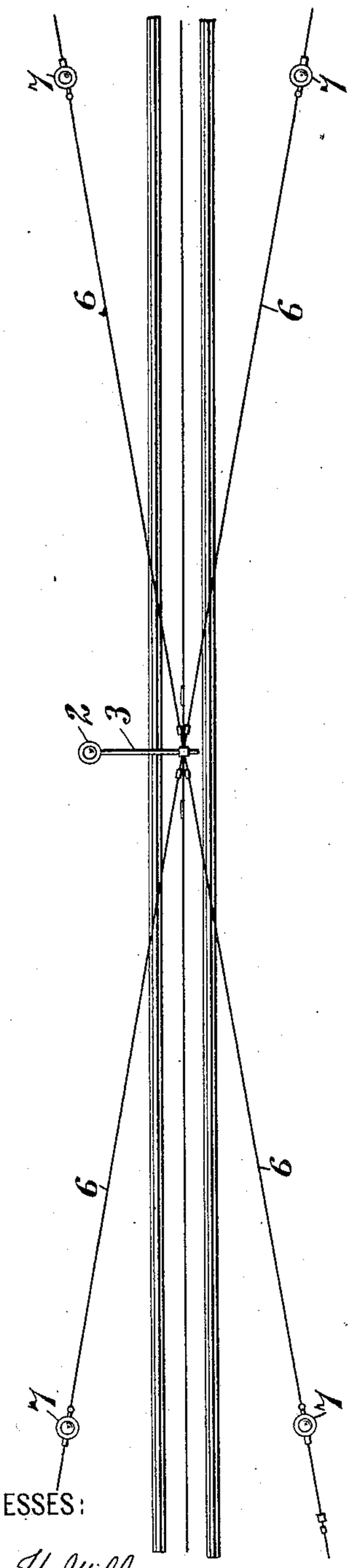

Fig. 2.

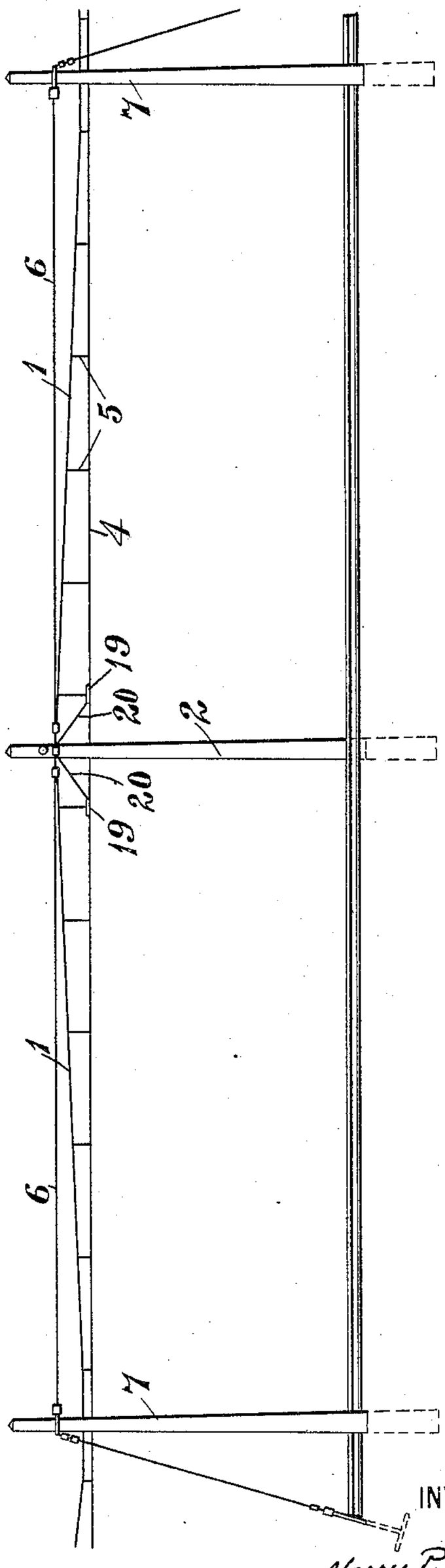

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Fig. 3.

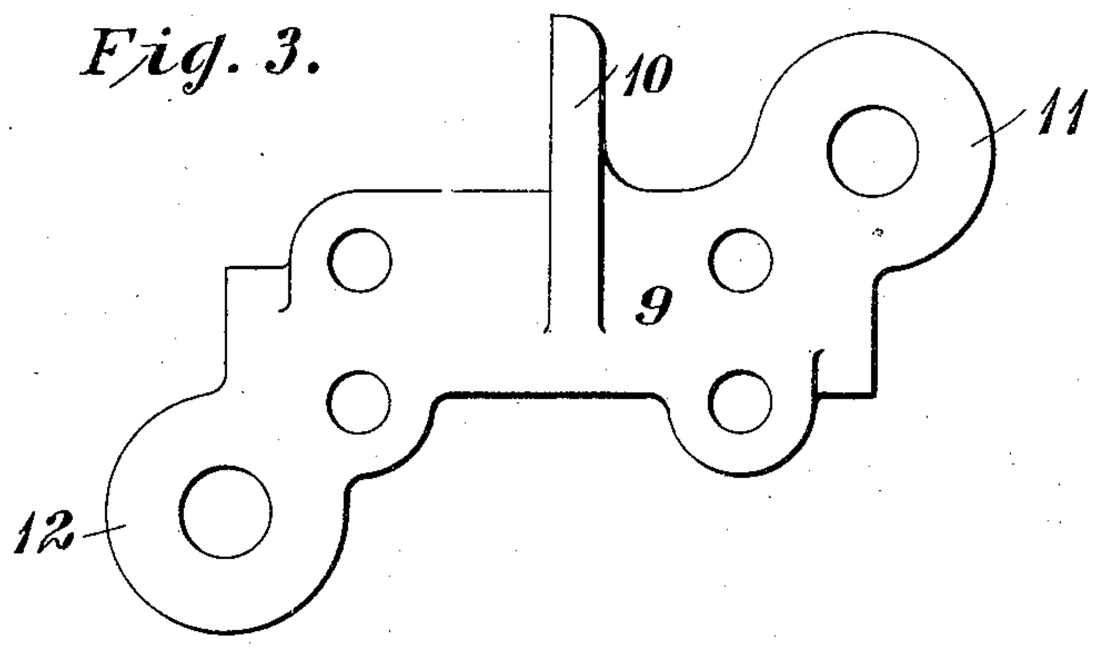


Fig. 4.

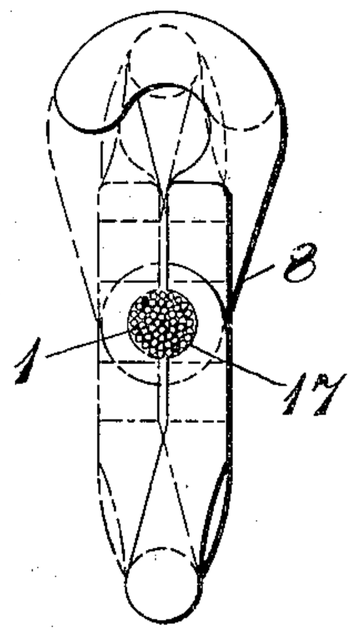
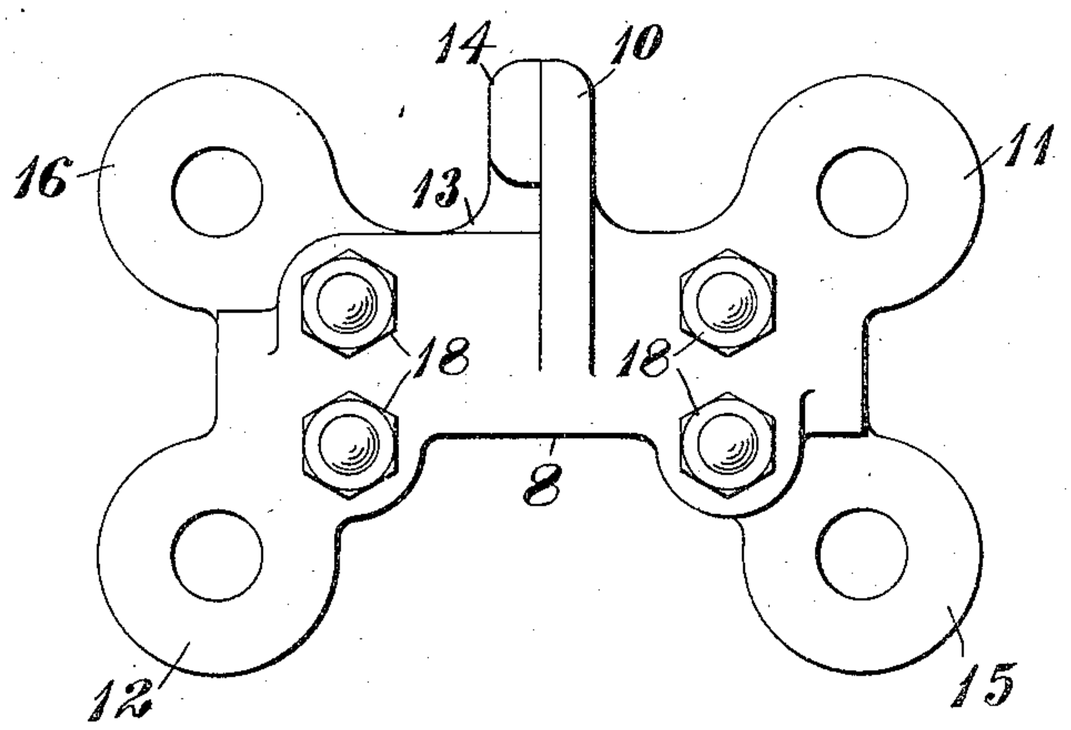


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY P. DAVIS AND THEODORE VARNEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

STRAIN DEVICE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 791,012, dated May 30, 1905.

Application filed October 19, 1904. Serial No. 229,177.

To all whom it may concern:

Be it known that we, HARRY P. DAVIS and THEODORE VARNEY, citizens of the United States, and residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Strain Devices for Electric Railways, of which the following is a specification.

Our invention relates to electric railways, and particularly to means for supporting the trolley-conductors with which roads intended for high-speed operation are equipped.

The object of our invention is to provide a simple and effective strain apparatus for use in erecting and supporting overhead conductors for electric railways.

In the accompanying drawings, Figure 1 is a plan view, partially diagrammatic in character, of a section of road equipped with our invention; and Fig. 2 is a side elevation of the apparatus shown in Fig. 1. Fig. 3 is a side elevation of one-half of a strain-clamp. Fig. 4 is an end elevation, and Fig. 5 a side elevation, of a complete clamp.

A desirable means for supporting an overhead structure of an electric road intended for high-speed operation comprises a messenger wire or cable which hangs in catenary curves between poles located at suitable intervals along the roadway and substantially vertical hangers of different lengths, according to their positions along the catenary curves of the messenger-cable, which are clamped at their upper ends to the cable and at their lower ends to the trolley-conductor, the forms of the hangers and their locations being such that the trolley-conductor shall be securely supported at a substantially uniform distance above the track-rails. On account of the high speeds which are attained by vehicles on roads of this character and the comparatively long spans between the supporting-poles it will generally be found desirable to utilize strain wires or cables in erecting the structure, which may subsequently serve as an effective steadying means.

In the accompanying drawings the poles for directly supporting the messenger-cable 1 are located alongside the track, or in the case of a double-track road they may be located between the two tracks, one of such poles being here indicated at 2 and as provided with a laterally-projecting arm or bracket 3, from which the messenger-cable is directly suspended. The trolley-conductor 4 is suspended from the messenger-cable by means of substantially vertical hangers 5, and the messenger-cable is braced and steadied by means of strain-cables 6, each of which is fastened at one end to the messenger-cable by means of a special clamp, which will be hereinafter fully described, and at its other end is fastened to a pole 7, there being four strain-wires and four poles for each clamp, which are symmetrically located substantially as indicated in Fig. 1.

The strain-clamp 8, to which the ends of the strain-wires 6 are attached, comprises a right-hand casting 9, having a hook 10 at one side, an ear 11 at one corner, and a similar ear 12 at the diagonally opposite corner. The other casting 13 has a hook 14 at one side, an eye 15 at one corner, and an eye 16 at the diagonally opposite corner. Each casting has a longitudinal semicylindrical recess in one side which is of such diameter that when the two castings are brought together the two recesses will form a single cylindrical recess 17, in which is clamped the messenger-cable 1 by means of suitable screws or bolts 18. The hooks 10 and 14 project in opposite directions, and when the two castings constituting the clamp are brought together so that the holes for the bolts 18 register with each other the hooks are in side-by-side engagement and form a ring which is located in the eye of a suitable hanger with which the bracket or supporting arm 3 is provided, the two hooks being inserted through this eye as the two castings are brought together, so that there is no possibility that the structure will become detached unless the bolts 18 are removed and the two castings separated from each other

laterally. The two castings 9 and 13 are made from the same pattern and are therefore interchangeable.

One end of each of the two wires 6, located at opposite sides of the track, is fastened to the ear 11 of the clamp 8, and each end of two of the strain-wires 6, branching in the opposite direction, is fastened securely to the ear 16 of the clamp. Each of the ears 12 and 15 is utilized for connecting the clamp to suitable clamps 19, with which the trolley-wire 4 is provided, by means of wires or cables 20, as is indicated diagrammatically in Fig. 2.

Instead of suspending the messenger-cable from bracket-arms it may of course be suspended from span-wires that are stretched between poles located at opposite sides of the track in accordance with well-known practice, if desired.

The details of construction as regards form and dimensions of parts may obviously be otherwise varied from what is shown without departing from our invention.

We claim as our invention—

1. The combination with a messenger wire or cable and a trolley-conductor, of a two-part strain-clamp fastened to the messenger wire or cable and strain-wires branching from said strain-clamp.

2. In an overhead structure for electric railways, a messenger wire or cable, supporting means therefor, a trolley-conductor, hangers between said conductor and the messenger wire or cable, a two-part strain-clamp fastened to the messenger wire or cable and strain-wires branching from said clamp.

3. A strain-clamp comprising two complementary parts each of which has eyes at diagonally opposite corners and an intermediate hook at one side.

4. A two-part strain-clamp one of the members of which has an upper left-hand eye and a lower right-hand eye, the other of which has an upper right-hand eye and a lower left-hand eye, and each of which has a hook projecting from its upper edge, the two hooks, when the parts are assembled, forming a supporting loop or ring.

5. A strain-clamp comprising a right-hand member and a left-hand member, each of which has two eyes at diagonally opposite corners and a hook at one side, and means for clamping the two parts together.

6. A strain-clamp comprising two complementary parts each of which has a longitudinal recess in one face, eyes at two of its diagonally opposite corners and a hook projecting from one edge.

In testimony whereof we have hereunto subscribed our names this 8th day of October, 1904.

HARRY P. DAVIS.
THEODORE VARNEY.

Witnesses:
CAROLINE SMYERS,
CARL P. NACHOD,
BIRNEY HINES.