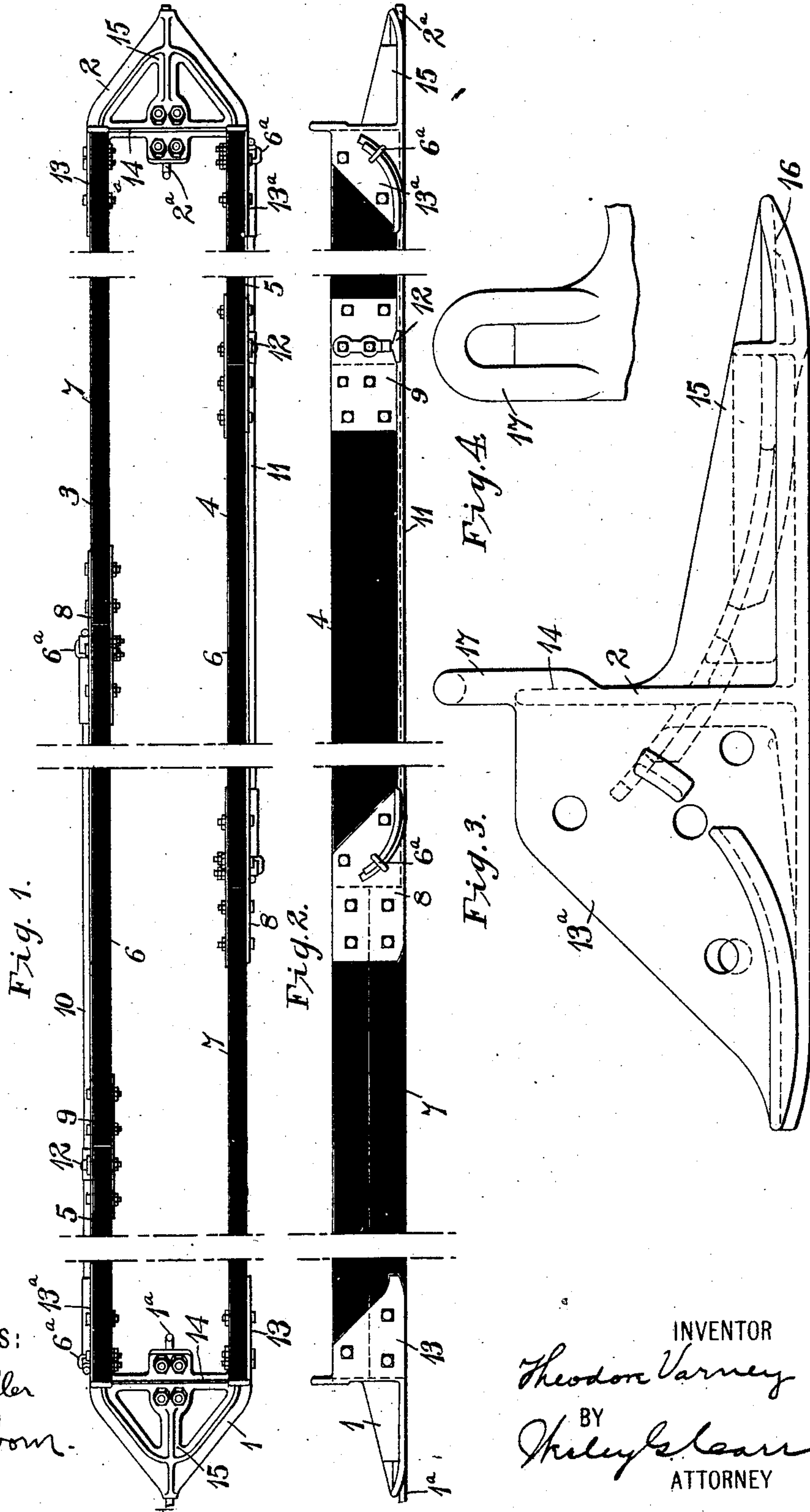


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SECTION BREAK INSULATOR.  
APPLICATION FILED JUNE 4, 1906.

933,800.

Patented Sept. 14, 1909.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## SECTION-BREAK INSULATOR.

933,800.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed June 4, 1906. Serial No. 320,138.

*To all whom it may concern:*

Be it known that I, THEODORE VARNEY, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Section-Break Insulators, of which the following is a specification.

My invention relates to electric trolley line construction and it has for its object to provide a section break insulator for such construction that shall be simple and durable and adapted for use in connection with high speed sliding or bow trolleys.

In trolley line construction, it is often desirable to divide the line into a series of sections which are insulated from each other and which may be connected, through suitable switching devices, by shunt circuits.

When an arrangement of this kind is employed, a section break insulator must be provided which is capable of withstanding the mechanical tension in the line and which is also capable of resisting the electrical strains imposed by the voltage of the line.

The section break insulator of my invention is constructed in view of the aforesaid requirements and is further arranged so that, under normal conditions, a sliding or bow trolley may pass over it without becoming electrically disconnected from the supply line.

My invention is illustrated in the accompanying drawings in which—

Figure 1 is a plan view, and Fig. 2 a side elevation of a section break insulator constructed in accordance therewith. Figs. 3 and 4 are detail views of the trolley end clamp shown in Figs. 1 and 2.

Referring to the drawings, the insulator here illustrated comprises a pair of similar clamping end members 1 and 2 to which the extremities of the trolley conductors 1<sup>a</sup> and 2<sup>a</sup>, which are to be electrically separated, are connected and a pair of side bars 3 and 4 which are similar to each other. The side bars 3 and 4, as illustrated, severally comprise a series of sections 5, 6 and 7 of insulating material which are joined together by plates 8 and 9 of conducting material to which they are bolted and are attached to the end clamps 1 and 2, forming a long, and substantially rectangular, frame. The insulating sections 7 are divided longitudinally into two strips, the lower of which may

readily be replaced, when worn, without dismantling the frame. A pair of conductors 10 and 11 are electrically connected to the respective end clamps 1 and 2 and extend along the lower edges of the insulating sections 5 and 6, being held in position at each end by U-shaped bolts 6<sup>a</sup> which pass through holes in the end clamps and also similar holes in the conducting plates 8. The conductors 10 and 11 are further supported substantially at their middle points by trolley-conductor clamps 12 of well known construction which are bolted to the conducting plates 9. In this way, the conducting end clamps 1 and 2 are completely separated from each other electrically while the conductors 10 and 11, which are respectively connected thereto, extend over the middle sections 6 of the insulating side bars 3 and 4 and, consequently, a sliding or bow trolley will move into engagement with the second conductor before it is disengaged from the first.

The conducting end clamps 1 and 2 are preferably made of cast material, such as brass, and each of them is provided with side plates 13 and 13<sup>a</sup> to which the ends of the insulating side bars 3 and 4 are bolted and with a cross web 14 and a projection 15 which is grooved to receive a trolley conductor. The side plates 13<sup>a</sup> are also flanged to receive the ends of the conductors 10 and 11. The construction of the end members 1 and 2 is such that the trolley line conductors enter centrally located grooves 16 at the level of the line and are then bent upwardly, following a curved portion of the groove to which they may be clamped by suitable means. The contact edges of the section break devices are substantially in one plane so that a sliding trolley may pass over it smoothly.

The end castings 1 and 2 are provided with loops 17, located substantially at the corners of the rectangular frame, by means of which the section break device may be suspended in a plane parallel to that of the track below it. The ends of the trolley conductor may extend for a short distance inwardly and upwardly after leaving the end clamps so that a shunt may be attached directly thereto and a good electrical connection insured.

Although a specific arrangement is shown, I desire that only such limitations be im-



posed as are indicated in the appended claims.

I claim as my invention:

1. A section break device for trolley con-  
5 ductors comprising parallel side bars of in-  
sulating material composed of end-to-end  
sections, combined end castings and trolley-  
conductor clamps, side plates for clamping  
the bar sections together, contact conductors  
10 having upturned outer ends clamped to op-  
posite end castings and having upturned  
inner ends clamped to certain of said side  
plates.

2. A section break device for trolley con-  
15 ductors comprising parallel bars of insulat-  
ing material, combined end castings and trol-  
ley-conductor clamps, contact conductors  
severally connected to opposite end castings  
and extending along the bottom edges of the  
20 two side bars beyond their middle points,  
and detachable insulating contact strips lo-  
cated between the inner end of each contact  
conductor and one of the end castings.

3. A section break device for trolley con-  
25 ductors which are adapted for contact de-  
vices having relatively wide contact areas,  
said device comprising combined end brack-

ets and trolley-conductor clamps, parallel  
sectional side bars of insulating material,  
plates for clamping the bar sections together, 30  
and conductors severally connected to the  
end brackets and to certain of said clamping  
plates and extending along the side bars such  
distances as to overlap.

4. A supply line section break device for 35  
sliding trolleys comprising a frame having  
spaced sectional side bars of insulating ma-  
terial, side plates for clamping the bar sec-  
tions together, end clamps of conducting  
material having center grooves to receive 40  
line conductors, and means for clamping the  
conductors in the grooves, and relatively  
short overlapping conductors disposed ad-  
jacent to the lower edges of the side bars and  
having upturned ends fastened to opposite 45  
end clamps of the frame and to certain of  
said side plates.

In testimony whereof, I have hereunto  
subscribed my name this 31st day of May,  
1906.

THEODORE VARNEY.

Witnesses:

ARTHUR J. SWEET,  
BIRNEY HINES.