

L. STEINBERGER.
INSULATING MEANS.
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1,057,184.

Patented Mar. 25, 1913.

2 SHEETS-SHEET 1.

Fig. 1-

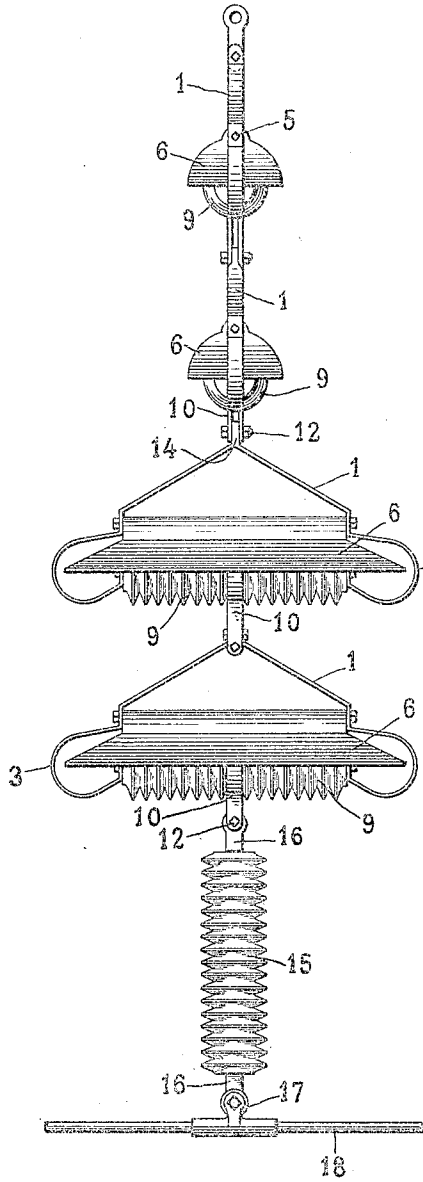
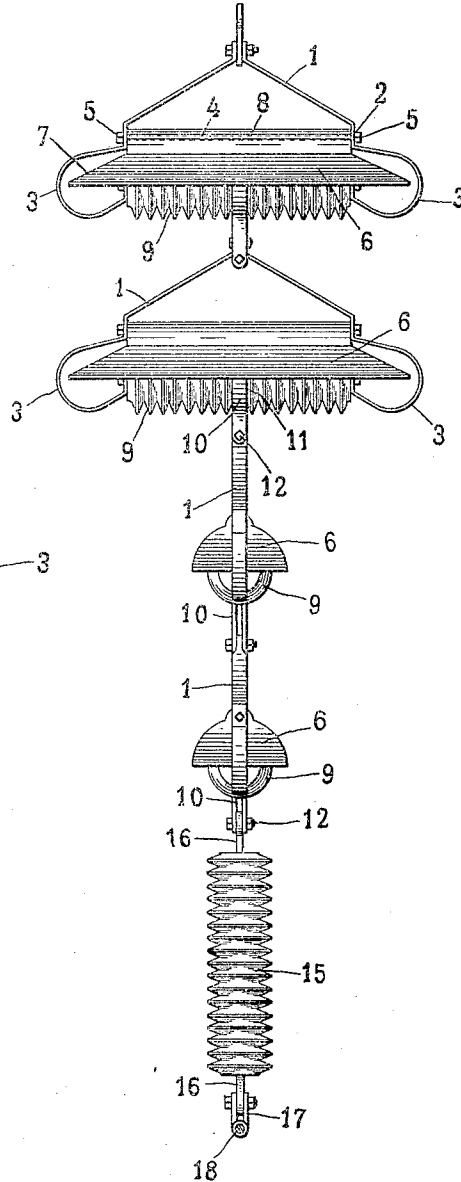


Fig. 2-



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2 SHEETS—SHEET 2.

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INSULATING MEANS.

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To all whom it may concern:

Be it known that I, LOUIS STEINBERGER, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Insulating Means, of which the following is a specification.

This invention relates to insulating means, and more particularly to insulating means comprising a plurality of concatenated units, flexibly suspended from one another in column, whereby a large insulating value may be obtained without the necessity for handling large individual insulators.

Among the objects of my invention are the following: I: To connect together a plurality of insulator units in such a manner as to minimize the formation of conductive paths between units ordinarily caused by the dripping or running of water from one unit to another, or by the formation of icicles extending from one unit to another. II: To arrange a plurality of longitudinal insulators so that the dripping or running of water from one unit to another is to a great extent avoided. III: To suspend a plurality of longitudinal insulators one from the other in vertical column, with the insulators extending longitudinally in different directions. IV: To suspend a plurality of longitudinal insulators in vertical column with their axes out of parallelism in a common plane. V: To suspend a plurality of horizontally disposed longitudinal insulators one from another so that the vertical planes of their axes are out of parallelism. VI: To suspend a plurality of longitudinal insulators in vertical column, one or more of said insulators being horizontally disposed and one or more being vertically disposed, the horizontally disposed units extending longitudinally in different directions.

Other objects and aims of the invention, more or less broad than those indicated, together with the advantage inherent, will be in part obvious and in part specifically referred to in the course of the following description of the elements, combinations, arrangements of parts, and applications of parts constituting the invention; and the scope of protection contemplated will appear in the claims.

In the accompanying drawings, which are to be taken as a part of this specification, and in which I have shown a merely illus-

trative embodiment of the invention: Figure 1 is an elevation illustrating a concatenated series of insulators embodying my invention, shown connected to a conductor; Fig. 2 is a view at right angles to that of Fig. 1; and Fig. 3 is an elevation of a column of insulators, some vertically disposed and some horizontally disposed, the horizontally disposed units extending longitudinally in different directions.

Referring to the numerals on the drawings, the numeral 1 indicates a bail, having eyes 2, and also having spring portions 3. These spring portions are bent back upon themselves, as indicated, and are thus given proper conformity to serve as leaf springs. A metallic rod 4 extends through the eyes 2, and is provided with threaded ends upon which are screwed nuts 5. At 6 is a longitudinal rain-shield having generally the form of a shed, and provided with ends 7 sloping obliquely downward to facilitate the shedding of moisture. This rain-shield is provided with a tubular portion 8 through which the rod 4 extends. The ends of the tubular portion 8 serve as limiting stops against which the eyes 2 are pressed by action of the nuts 5. The spring portions 3 are provided at their ends with eyes disposed adjacent to the respective ends of a rod insulator 9, which is illustrated merely as a form of longitudinal insulator. This insulator 9 may be provided with corrugations, as shown, and as is familiar in the art. A metallic collar 10 is fitted upon the insulator 9 midway of the ends thereof in a seat 11 provided for the purpose. The ends of this collar are flattened and extend downwardly, and passing through them is a pin 12.

For the purpose of my invention the bail 1 is provided intermediate its ends with an upstanding portion 14, which is flattened in a line transverse to the general line of the bail. With this flattened portion 14 are adapted to engage the flattened ends of the collar 10 belonging to another insulator unit, similar to the one described above, the ends of the collar straddling the portion 14, and pivotally held with respect thereto by means of the pin 12 that passes through the ends of the collar and an appropriate aperture in the portion 14. By this arrangement, it will be obvious that insulator units such as have been described may be suspended, the one from the other, so that

whereas they may occupy parallel horizontal planes, the vertical planes of their axes will be out of parallelism, and will intersect. The uppermost unit of course will be suspended by its bail from any appropriate support. With such arrangement it is evident that the drip or running of moisture from the greater part of the length of the upper insulator on to the insulator below it will be avoided, and the only possible drip would be in the line of intersection of the vertical planes of the axes of the insulators. Naturally, if I chose to suspend a plurality of more than two horizontally disposed longitudinal insulators, one from the other, I would, in order to minimize the drip from one to another, arrange the flexible connections between them in such manner that the vertical planes of their axes would be out of parallelism and intersect at such angles as would permit of the greatest possible arc between the vertical plane of the axis of one insulator, and the vertical planes of the axes of the insulators below it. For instance, if I employed three flexibly connected units, I would arrange their connections so that they would always maintain a relation in which the vertical plane of the axis of one insulator would intersect the vertical planes of the axes of the other two insulators at an angle of sixty degrees, respectively. Consequently, the drip from the ends of the uppermost insulator, supposing that the drip was vertical, would be out of alinement with the ends of both insulators below it. I may also add to the arrangement above described another longitudinal insulator, which may be pivotally connected by one end to the suspending collar 10 of the lowermost horizontally disposed insulator. In such case the longitudinal insulator 15 would be provided at one end with the eye member 16, and pin 12 fastened through the ends of the collar 10 and said eye member. The insulator 15 hangs perpendicularly below the middle of the horizontally disposed insulator to which it is attached, and the lower end of the insulator 15 may be provided with another connecting member 16 whereby it may be pivotally connected to another insulator or to clamp 17, which engages a conductor 18. It will be apparent that, considering the vertically disposed longitudinal insulator 15 and the horizontally disposed longitudinal insulator from which it depends, that these two have their axes in a common vertical plane; but their axes are not parallel in this common plane. Considering the upper two insulator units, these are in parallel horizontal planes, but the vertical planes of their axes are not parallel. It will be evident that in using an arrangement such as shown in the drawing the uppermost insulator will not discharge the drip from its ends upon

either the insulator ends below it, nor upon the lowermost insulator 15. And if there be any drip from the middle insulator of the three, the drip from the ends thereof will not strike the insulator 15.

In Figs. 1 and 2 the column comprises two horizontally disposed insulators, with their axes in a common vertical plane; supported from one of these is a pair of similar units having their axes in a common vertical plane, which intersects that of the first two insulators; and finally, from one of the last named units depends a vertically disposed unit.

In Fig. 3 there is a vertically disposed unit at each end of the column, and intermediate these a plurality of horizontally disposed units, alternate ones of which, at least, have their axes in intersecting vertical planes. All connections between units, and between units and supports or conductors, are preferably pivotal, as shown and described.

The advantages of such arrangements are obvious, and are believed to be sufficiently referred to in the course of the foregoing description.

It will be understood that the insulators proper may be made of any usual or preferred insulating material though I prefer to use the material known in the art as "Electrose." The shields, where shields are employed in connection with the insulators proper, may also be made of any preferred material, though some insulating material would be best.

It will be understood also that the sheds or shields, if employed would preferably be large enough to completely cover the insulator which they protect.

It will also be understood that in some cases I may dispense with the shields and also with the vertical insulators, and that my invention contemplates broadly the suspension of longitudinal insulators to the attainment of the objects set forth, the particular forms of insulator shown, and their association with shields being merely set forth because an advantageous connection of the parts for the purposes of this invention may be conveniently adjusted thereby.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of

the invention, which as a matter of language, might be said to fall therebetween.

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

1. Insulating means comprising a plurality of concatenated horizontally disposed longitudinal insulators suspended in column with the vertical planes of their axes intersecting, each insulator having on one side of its axis an attaching member having a flat surface, extending in a line transverse to the longitudinal axis of the insulator, and on the other side of its axis an attaching member having a flat surface extending in a line parallel to the axis of the insulator.

2. Insulating means comprising a plurality of horizontally disposed longitudinal insulators suspended in vertical column and adapted to support a conductor from the lowest insulator in the column; said insulators being arranged with the longitudinal axis of each extending in a different direction from the longitudinal axis of the next adjacent insulator in the column, so that only a portion of any one insulator is vertically beneath the insulator next above, for the purpose set forth.

3. Insulating means comprising a plurality of longitudinal insulators arranged in vertical column and adapted to support a conductor from the lowest insulator in the column, said insulators being arranged with their longitudinal axes in substantially parallel horizontal planes, the vertical planes of the axes of some of said insulators being out of parallelism so that only a portion of some of said insulators is vertically beneath the insulator next above, for the purpose set forth.

4. Insulating means comprising a plurality of concatenated flexibly connected longitudinal insulators suspended in vertical column from the intermediate portion of the one next above and adapted to support a conductor from the lowest insulator in the column; said insulators being arranged with their longitudinal axes in substantially parallel horizontal planes, the vertical planes of the axes of some of said insulators being out of parallelism so that only a portion of some of said insulators is vertically beneath the insulator next above, for the purpose set forth.

5. Insulating means comprising a plurality of concatenated flexibly connected longitudinal insulators suspended in vertical column from the intermediate portion of the one next above and adapted to support a conductor from the lowest insulator in the column; said insulators being arranged with their longitudinal axes in substantially parallel horizontal planes, the vertical planes of the axes of some of said insulators being out of parallelism so that only a portion of some of said insulators is vertically beneath the insulator next above, for the purpose set forth, the connections between the insulators comprising a collar encircling one of the insulators substantially at its middle and a bail connected to and pendent from said column and having its ends extending in opposite directions and engaging the opposite ends of the next insulator in the column.

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

LOUIS STEINBERGER.

Witnesses:

NATHALIE THOMPSON,
RAY LOUDEN.