A. O. AUSTIN.

SECTIONAL INSULATOR.

APPLICATION FILED DEC. 15, 1909. RENEWED JAN. 25, 1911.

1,010,011. Patented Nov. 28, 1911.

Fig. 1

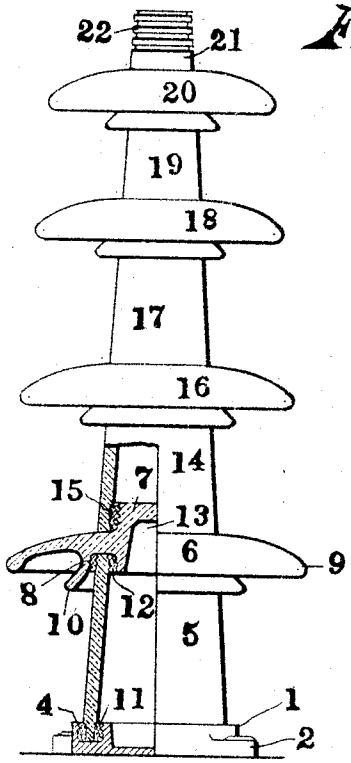


Fig. 2

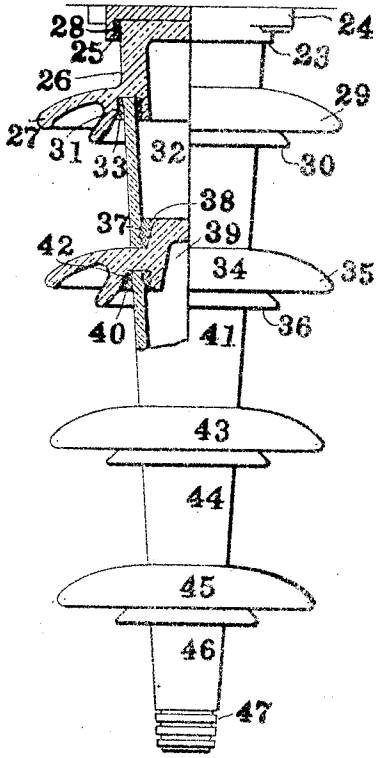


Fig. 3

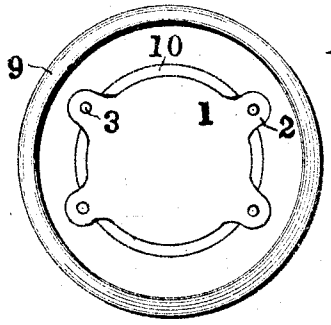
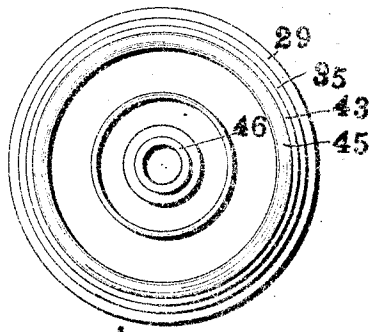


Fig. 4



Witnesses

Glenara Fox

Verta Lynde

INVENTOR-

Arthur O. Austin,

By C. E. Humphrey

ATTORNEY.

UNITED STATES PATENT OFFICE.

ARTHUR O. AUSTIN, OF BARBERTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE OHIO INSULATOR COMPANY, OF MANSFIELD, OHIO, A CORPORATION OF OHIO.

SECTIONAL INSULATOR.

1,010,011. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed December 15, 1909, Serial No. 533,194. Renewed January 25, 1911. Serial No. 604,670.

To all whom it may concern:

Be it known that I, ARTHUR O. AUSTIN, a citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented new and useful Improvements in Sectional Insulators, of which the following is a specification.

This invention relates to sectional insulators, more especially to insulators for supporting conductors or cables for high tension electric currents.

The object of the invention is to provide an insulator composed of a series of flanged insulator units, each preferably provided with one or more petticoats, said units being united by intervening and preferably tubular spacing members fixedly connected with and supporting the units, the entire device constituting when assembled a rigid unitary structure of such construction that the electrical conductor or cable may be suitably held in position and at such a distance from other structures as will prevent arcing or leakage and consequent loss of current.

A further object of the invention is to so construct the insulator that any leakage of the current from the electrical conductor or cable along the interior of the structure is deflected outwardly onto the surface of the insulator units to assist in preventing the possibility of the arcing of the current.

The invention further contemplates constructing the insulator, as before stated, of an alternating series of spacing members and insulator units so that in constructing the same the length of the insulator may be easily increased by the addition of additional units and spacing members.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be hereinafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, in which similar reference numerals indicate like parts in the different figures: Figure 1 is a view in side elevation of a sectional insulator constructed in accordance with this invention adapted to support a current-conducting wire from below and constituting a "post" type of insulator with a portion thereof broken away to better illustrate the construction of the same. Fig. 2 is a view similar to Fig. 1 of a suspension type of insulator adapted to support a current-conducting wire from above. Fig. 3 is an inverted plan of the device shown in Fig. 1; and, Fig. 4 is a view similar to Fig. 3 of the device shown in Fig. 2.

In Figs. 1 and 3 are shown a "post" type of insulator embodying this invention which is adapted to be positioned below the current-conducting wire or cable in sustaining the same and it comprises a base plate 1 provided with a plurality of laterally-projecting ears 2 having apertures 3 through which may be passed holdfast devices for securing the same to a suitable supporting medium. The base 1 is provided with an annular groove or channel 4 in which is mounted a tubular spacing member 5 constructed of porcelain or some non-conducting material and preferably formed in the shape of a hollow frustum of a cone.

Mounted on the spacing member 5 is an insulator unit 6 provided in its upper portion with a head 7 and in its under face with an annular groove 8 to receive the upper end of the member 5. The insulator unit 6 is also provided with a laterally and downwardly-turned flange 9 to assist in securing perfect insulation of the current-conducting wire or cable carried by the device, and the under surface of the unit 6 may also be provided with one or more petticoats 10, preferably slightly outwardly-flaring. The unoccupied portion of the groove 4 in the base which receives the lower end of the spacing member 5 is filled with some material such as plaster of Paris or cement for firmly uniting the members 1 and 5 together, and the upper end of the member 5 is secured in the annular groove 8 by a filling 12 of similar material. The lower central portion of the insulator unit may be provided with a cup-shaped recess 13 to reduce the weight of the entire structure.

Mounted on the upper surface of the flanged portion 9 of the unit 6 and surrounding the head portion 7 thereof is a spacing member 14 the interior diameter of which is slightly larger than the exterior

diameter of the head to provide an annular space in which is placed cement or plaster of Paris, indicated in the drawings by the reference numeral 15 to insure a firm joint between the lower end of the spacing member 14 and the head 7 of the unit 6. Mounted on the upper end of the spacing member 14 is an insulator unit 16 of less diameter than the unit 6 but otherwise similarly formed and provided with a groove (not shown) into which the upper end of the spacing member 14 is secured in a manner similar to the securing of the upper end of the member 5 in the groove 8. The spacing member 14 is slightly less in size than the member 5 so that the entire structure is upwardly-tapering. Mounted on the unit 6 is a spacing member 17 supporting an insulator unit 18 upon which is mounted a spacing member 19 supporting an insulator unit 20, the members 16, 17, 18, 19 and 20 gradually decreasing in size and all connected in the same manner as has been described with reference to the connection between the spacing member 5 and the insulator unit 6. Mounted on the head of the upper unit 20 is a stem 21, preferably provided with a plurality of circumferential grooves 22 to receive a current-conducting wire or cable-supporting device which may be of any type suited to the purpose of securely retaining and supporting an electrical conductor or cable; but as the type of wire-supporter is immaterial to this invention, an illustration of the same and a description thereof is believed to be unnecessary.

It will be noted that the spacing members 5, 14, 17 and 19 and the stem 21 are each preferably gradually reduced in diameter so as to give to the entire device a frusto-conical contour, and each superposed insulator unit is preferably smaller than the one immediately below it.

It is contemplated that all the units and spacing members will be formed of porcelain or some other analogous material having non-conducting qualities and the spacing of these units from each other and their interposition in the general structure of the insulator produces a perfect and complete insulation of the wire supported on the device and carried by the stem 21.

In Fig. 2 is shown a suspension type of insulator adapted to be sustained by a suitable support and to sustain at its lower end by suitable means a current-conducting wire or cable.

The insulator shown in Figs. 2 and 4 is provided with an upper member 23 having apertured lugs 24 through which may be passed holdfast devices for securing the same to an overhead support. The body portion of the member 23 is provided with a recess 25 adapted to receive a head 26 of an insulator unit 27. The head is preferably in the form of an inverted frustum of a cone and is secured in the recess by cement or plaster of Paris, indicated in the drawings by the reference numeral 28. The unit 27 is provided with a flange 29 and preferably with a petticoat 30 depending therefrom. This member 27 is further provided with an annular recess 31 to receive the upper end of a tubular spacing member 32, preferably in the form of an inverted frustum of a cone, which is secured in said annular recess by means of cement or plaster of Paris 33. The spacing member 32 constitutes supporting means for a second insulator unit 34 provided with a flange 35 similar to the flange 29 and preferably provided with a petticoat 36. The unit 34 is also provided with an upwardly-extending head 37 slightly smaller than the lower end of the spacing member 32 which is adapted to be inserted therein and united thereto by cement or plaster of Paris 38. The head 37 is preferably provided with an upwardly-extending cup-shaped recess 39. Surrounding the recess 39 is an annular recess 40 into which is inserted the upper end of a spacing member 41 which is held therein by a layer of cement or plaster of Paris 42. The spacing member 41 in turn supports a third unit 43 and below this is positioned another spacing member 44 which supports a fourth insulator unit 45 from which depends a stem 46 having its end preferably provided with circumferential grooves 47 for connecting it with a wire-supporting member to be mounted thereon.

It will be obvious that instead of making the insulator of a tapering conformation, the spacing members interposed between the insulator units may be cylindrical instead of frusto-conically-formed and all of the insulator units may be of one size without departing from the scope of this invention, but the construction heretofore shown and described is the preferred one; and it will also be apparent that instead of making the spacing members of vitrified material such as porcelain, they may be constructed of metal and in this latter case the insulator units constitute the only insulating means of which the sectional insulator is composed.

It will be noted that by mounting the superposed spacing members upon the upper faces of the insulator units any leakage of the current through the interior of the insulator, will, as it encounters each insulator unit, be deflected outwardly and thereby increase the efficiency of the device as an insulating medium.

I claim:

1. A sectional insulator comprising a series of tubular frusto-conically-formed spacing members and a series of saucer-shaped laterally-flanged insulator units, each of said units provided with a projecting head adapt-

ed to be inserted in one end of an adjacent spacing member, said units each further provided in its opposite face with an annular channel to receive the complementary end of another spacing member, the members of each series arranged to alternate with respect to each other and means for uniting all of said elements together to form a homogeneous unitary structure.

2. A sectional insulator comprising a series of tubular frusto-conically-formed spacing members and a series of saucer-shaped laterally-flanged insulator units, each of said units provided with a projecting head adapted to be inserted in one end of an adjacent spacing member, said units each further provided in its opposite face with an annular channel to receive the complementary end of another spacing member, the members of each series arranged to alternate with respect to each other, a supporting member provided with means to receive one member of either series and means for uniting all of said elements, including said supporting member, together to form a homogeneous unitary structure.

3. A sectional insulator comprising a series of tubular spacing members, the openings therein extending throughout said members, and a series of saucer-shaped laterally-flanged insulator units, each of which is provided with a projecting portion arranged to be inserted on one end of an adjacent spacing member, each of the said units further provided on its opposite face with a recess to receive the complementary end of another adjacent spacing member, said members and units arranged to alternate in position and be secured together to form a unitary structure.

4. A sectional insulator comprising a series of tubular spacing members hollow throughout their entire length, and a series of saucer-shaped laterally-flanged insulator units each of which is provided with a projecting portion adapted to loosely telescope one of the ends of an adjacent spacing member, each of said units further provided in its opposite face with a recess to receive the complementary end of another adjacent spacing member, said spacing members and units arranged to alternate in position and be secured together to form a unitary structure.

5. A sectional insulator comprising a series of tubular spacing members, both ends of which are open, and a series of saucer-shaped laterally-flanged insulator units each of which is provided with a projecting portion adapted to loosely telescope one end of an adjacent spacing member, each of said units further provided in its opposite face with a recess to receive the complementary end of another adjacent spacing member, said spacing members and units arranged to alternate in position and be secured together to form a unitary structure.

6. A sectional insulator comprising a structure composed of a series of tubular spacing members having open ends, and a series of insulator-units alternating with said spacing members, said insulator-units having portions projecting into the open ends of said spacing members and interlocking therewith, said units providing closure members for the open ends of said tubular members, said members and units rigidly secured together to form a homogeneous structure.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR O. AUSTIN.

Witnesses:

HELEN M. STUCKER,

C. E. HUMPHREY.