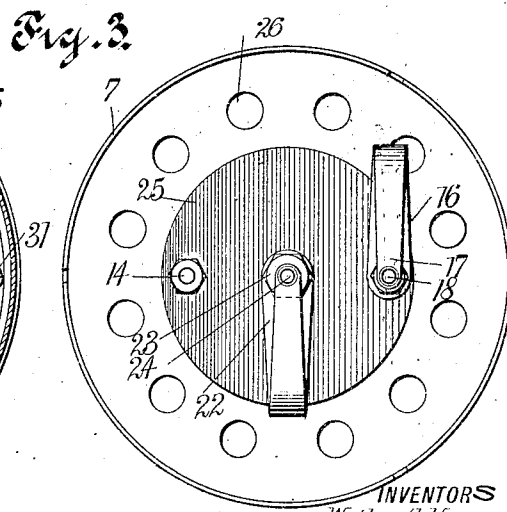
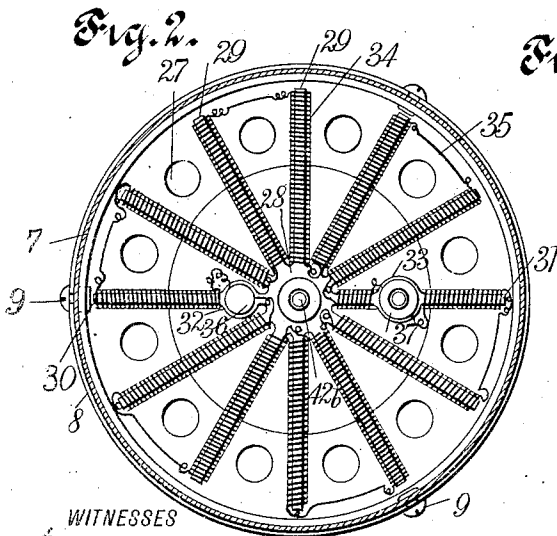
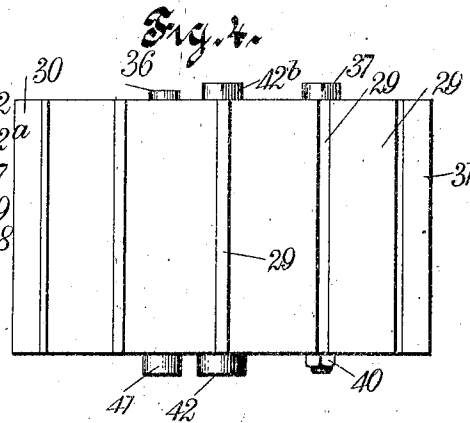
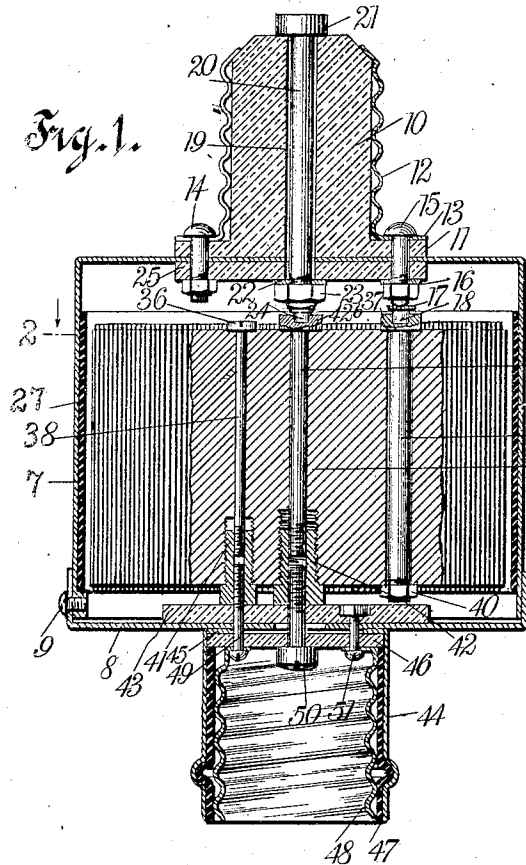


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VOLTAGE REDUCER.
APPLICATION FILED JULY 11, 1911.

1,019,641.

Patented Mar. 5, 1912.



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WALTER A. HESSE, OF ALAMEDA, AND JOHN T. SLAVEN, OF OAKLAND, CALIFORNIA.

VOLTAGE-REDUCER.

1,019,641.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed July 11, 1911. Serial No. 637,936.

To all whom it may concern:

Be it known that we, WALTER A. HESSE and JOHN T. SLAVEN, citizens of the United States, and residents, respectively, of Alameda, in the county of Alameda and State of California, and of Oakland, in the county of Alameda and State of California, have invented a new and Improved Voltage-Reducer, of which the following is a full, clear, and exact description.

Our invention relates to voltage reducers working upon the principle of reducing the voltage by the introduction of resistance.

More particularly stated, our invention comprehends a voltage reducer having the form of a single unit so constructed as to offer a definite resistance when inserted in a circuit and provided with means for readily connecting it with other units of its kind in order to increase or diminish the aggregate resistance offered, and consequently to enable the operator to control the voltage at will within reasonable limits.

Our invention further comprehends the particular mechanism comprising an individual unit of the kind above mentioned.

Our voltage reducer may be employed in any number of different relations. It is especially adapted for use in connection with incandescent lamp sockets. It may be employed, for instance, to enable the use of low voltage tungsten lamps in a circuit normally affording high voltage. It is also of peculiar adaptability for use in connection with fan motors and with so-called "dental engines," as well as in connection with various types of electric motors used in the various arts for innumerable purposes.

Reference is to be had to the accompanying drawing forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a substantially central section through one of the resistance units of which our voltage reducer is made up; Fig. 2 is a section on the line 2—2 of Fig. 1, looking in the direction of the arrow; Fig. 3 is a detail view showing the body portion of the casing and its contact mechanism; Fig. 4 is a side elevation of the spider removed from the casing; Fig. 5 is a detail view showing one of the contact springs.

A casing 7 is provided, at its lower end, with a cover 8 secured in position by aid of

screws 9. The casing 7 has generally the form of an inverted cup. Mounted upon the upper end of the casing is a stem 10 of porcelain, glass, or other insulating material, this stem being provided with a base 11 integral with it and fitting directly against the adjacent portion of the casing. Encircling the stem 10 is a sleeve 12 of metal having generally such form that it practically constitutes a thread for the stem 10. The sleeve 12 is provided with an annular portion 13 integral with it, and extending through this annular portion are bolts 14, 15. The bolt 15 extends through the spring contact member 16 (see Fig. 5) having generally the form of a leaf spring, bent back upon itself, and provided with a narrow portion 17 which carries a contact lug 18. The stem 10 is provided with a central passage 19, and extending through the latter is a metallic bolt 20 provided with a head 21. A nut 23 is revolvably fitted upon a portion of this post, which is threaded for the purpose. This bolt extends through a spring contact member 22 (see Fig. 3) having generally the approximate form of the spring contact member shown in Fig. 5. The spring contact member 22 carries a contact lug 24, and like the spring contact member 16, is held against a disk 25 of insulating material disposed centrally within the casing 7. The bolts 14, 15 extend through this disk 25, as will be understood from Fig. 1.

The casing 7 is provided with ventilation holes 26 to facilitate the dissipation of such heat as may be generated within it in consequence of the heating of the various parts which it contains. Within the casing 7 and concentric thereto is a cylinder 27 of fiber, asbestos or other suitable insulating material. A spider 28 made, in this instance, of porcelain, and having the form shown more particularly in Figs. 2 and 4, is provided and located within the casing. This spider has a number of wings 29, 30, 31, each having generally the form of a plate and provided upon its opposite faces with grooves. The wings 30, 31 are respectively provided with cylindrical sleeves 32, 33, these sleeves being practically thickened portions of the wings and having holes extending entirely through them from edge to edge, as will be understood from Fig. 2. Each wing carries a winding 34, the various windings being connected together by wires 35 and be-

ing arranged in two groups corresponding respectively to the top and bottom halves of the spider, as shown in Fig. 2. The wires 35 and the windings 34 are engaged by a metallic bolt head 36 and also by another metallic bolt head 37, these two bolt heads constituting, in effect, a couple of distributing points of opposite sign for the purpose of dividing the current and supplying it in parallel to the two groups of windings. For purposes of distributing the current equally through the windings, the bolt heads 36, 37 may be considered as terminals. These bolt heads are respectively integral with bolts 38, 39. Fitted upon the bolt 39 is a nut 40 whereby it is held rigid relatively to the spider. The end of the bolt 38 opposite the head 36 is threaded, and engaging it is a sleeve 41 threaded internally for the purpose. This sleeve is also threaded externally and fitted into the spider 28. Another sleeve 42 is threaded externally and extends centrally into the spider 28. Fitting into the sleeve 42 is a bolt 42^a, the upper end of which is provided with a head 42^b. This head is a contact member and is of proper conformity to mate the contact lug 24 carried by the contact spring 22.

Within the cover 8 is a disk 43 of insulating material, and engaging the outside of this cover is a sleeve 44 of metal. This sleeve is provided with an annular portion 45 extending inwardly. A disk 46 of insulating material engages the portion 45 of the sleeve 44. Mounted within the metallic sleeve 44 and concentric to the same is another sleeve 47 of insulating material. Disposed within this sleeve is another sleeve 48 which is of metal and so formed as to present practically a threaded internal surface. A bolt 49 extends through portions of the sleeve 48 and also through the disk 46, the cover 8, the disk 43, and engages the sleeve 41. A bolt 50 also extends through the disk 46 and 43, and engages the sleeve 42. Another bolt 51 engages a portion of the sleeve 48 and extends through the disks 46 and 43, as well as through the intermediate portion of the cover 8.

The operation of my device is as follows: The parts being assembled and connected as above described, the unit is placed in position by securing the upper end into a threaded socket, preferably of the kind used in connection with incandescent lamps. The threaded sleeve 48 is now free and may be considered as the so-called "lamp socket" to which the connections are made in the usual manner. If more than one resistance unit is desired, it may be added by simply securing its threaded sleeve 12 into the threaded sleeve 48 of the unit first placed in position. Any number of units may thus be connected up together in series so that the aggregate resistance may be increased

and the effective voltage may be consequently reduced within limitations to be determined by the operator. Suppose, now, that a person has already purchased a voltage reducer and has it on hand, but its working capacity is such that it fails to afford him the desired reduction in resistance. This may readily happen where the potential supplied from mains is 220 volts and a tungsten lamp built for 110 volts is to be used, and where, consequently, it is desirable to introduce a resistance sufficient to degrade the potential developed to 110 volts. Again, a person may have a circuit, the resistance of which is already adjusted for a tungsten lamp, and he may desire to install instead a fan motor requiring 50 volts. In this event the person could purchase a resistance unit of either kind above described, and substitute such unit for the one already comprising part of the circuit. The old unit could thus be returned to the dealer who would doubtless be willing to allow something for it.

We do not limit ourselves to the use of the materials above described, nor to the precise arrangement of the parts, the scope of our invention being commensurate with our claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. A device of the character described, comprising a casing, a spider in said casing having openings extending therethrough, certain of which openings are enlarged at one end to provide bores, internally and externally threaded sleeves extending into said bores, bolts extending through said openings, certain of which bolts are threaded at one end partially into said sleeves, and certain other of which bolts have contact pieces at their opposite ends, a winding upon said spider connected with the said contact pieces, spring contact members in engagement with said contact pieces, and contact bolts extending exteriorly of the casing and having their inner ends threaded into said sleeves whereby to electrically connect them with said first-named sleeve engaging bolts and to secure the spider in position within the casing.

2. A device of the character described, comprising a casing, a spider therein having a central opening and parallel openings upon opposite sides of said central openings, said central opening and one of said side openings having enlarged bores at one end, sleeves secured within said bores and internally threaded, bolts extending through the last-mentioned openings and having one of their ends threaded into and partially through said sleeves, the central bolt having a contact piece at its opposite end, a bolt extending through the other of said side

openings and also having a contact piece
at one end, spring contact members in en-
gagement with said contact pieces, a wind-
ing mounted upon said spider and having
5 its ends connected respectively to said bolts
in the side openings, and contact bolts ex-
tending exteriorly of the casing and having
their inner ends threaded into said sleeves
whereby to electrically connect them with
10 the said first-named sleeve engaging bolts

and also to secure the spider within the casing.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WALTER A. HESSE.
JOHN T. SLAVEN.

Witnesses:

FRANK WELBOAN,
EMIL S. NEUSCHWANDER.