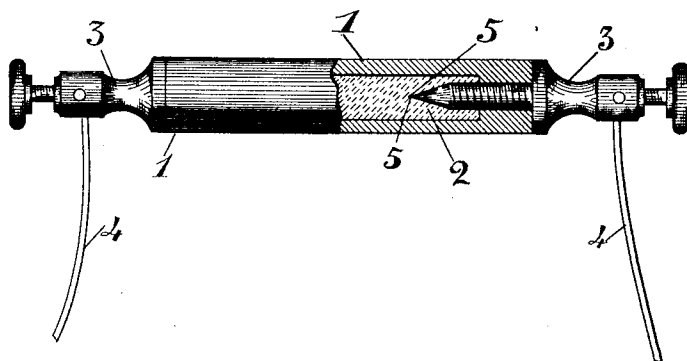


(No Model.)

F. W. A. SCHNEIDER.
RHEOSTAT.

No. 475,898.

Patented May 31, 1892.



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UNITED STATES PATENT OFFICE.

FREDERICK W. A. SCHNEIDER, OF TORONTO, CANADA.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 475,898, dated May 31, 1892.

Application filed July 20, 1891. Serial No. 400,118. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. A. SCHNEIDER, machinist, of the city of Toronto, in the county of York, in the Province of Ontario, have invented a certain new and useful Composition for Resistance Purposes; and I hereby declare that the following is a full, clear, and exact description of the same.

It often happens that a telephone-wire comes crossed with an electric-light wire and the current leaks from the electric-light wire to the telephone-wire, and the office apparatus within the central telephone-station and the subscribers' telephone-station, not being provided with satisfactory protection against such electric-light currents, said currents often cause excessive damage to the instruments in said stations before the current can be switched off or the wire burned through; and the object of my invention is to produce a solidified composition to be used for electrical purposes, which composition will offer a very high resistance to all electrical currents, and said composition consists, essentially, of a mixture of fat or caustic soda or fat, and any of the other crystal salts of like properties—such as potash, pearlash, alkali, binoxalate of potash, and the like—which ingredients are mixed to the consistency of what is commonly known as “soap.” The fat in this mixture offers a high resistance to the current passing through said composition, which resistance amounts almost to insulation; but when the fatty substance is combined with any of the above crystal salts said salts break up the fatty globules and form a pathway through said fatty substance for the current. It is also possible to use as conductors any of the above crystal salts when moistened by water or other suitable agents; but the destructive properties of these salts when moistened are so great that they cannot be economically or satisfactorily used separately for such purposes; but by combining said crystal salts with a fatty substance, which fatty substance predominates in the combination, the destructive properties of said salts are so greatly reduced in force that they are prevented from eating away or destroying any of the parts of the apparatus while they accomplish the desired result. This composition is usually mixed to the consistency of

what is commonly known as “soap,” so that it can be used in a solidified form and the danger arising from evaporation, breakage, and such like evils is entirely avoided and the resistance offered to the current always remains the same. This composition also acts as a regulator for the current, so that in case the current is at any time increased to a strength that would endanger the instruments said current during its passage through the composition is so weakened that the danger arising from such increased strength is entirely avoided. The resistance of this composition can be also regulated by the density and length of the substance. For instance, a compact body of this composition one and one-half inch in length by five-sixteenths of an inch in diameter offers a resistance to galvanic and electric currents of twenty-eight thousand five hundred ohms, equal in resistance to the resistance of an ordinary telephone-line two thousand eight hundred and fifty miles in length, and for some unexplainable reason its resistance to undulatory or telephonic currents is not sufficient to interfere with the successful working of the telephone-line on which it may be interposed between the working telephone-instruments. The resistance of this medium may be increased or diminished by respectively increasing or diminishing the density or by lengthening or shortening the pathway for the current through the same. I find that the best results are obtained by incasing this composition in a chamber composed of an insulatory material—such as hard rubber, ivory, or other suitable non-conducting substance—which chamber is fitted at the opposite points with a terminal or binding post, which binding-posts are so constructed that they enter the composition, and said composition acts as a conductor between said binding-posts or terminals obtained, the whole being arranged and operated, as hereinafter more fully set forth, and more particularly pointed out in the claim.

In the drawing the figure is a view of an insulated chamber, showing the compound provided with a terminal at opposite points to conduct the current from the line-wires to said composition.

Like numerals of reference refer to like

parts throughout the specification and drawing.

In the drawing, 1 refers to a tubular chamber, the casing of which consists of hard rubber, ivory, or other suitable non-conducting material. Within the chamber 1 is placed the composition 2, which composition consists of a mixture of any fatty substance and caustic-soda. Instead of using caustic soda with the fatty substance, I may, if I so desire, use the fatty substance and any other of the crystal salts having properties analogous to the properties of the caustic soda, such as alkali, potash, pearlash, binoxalate of potash, and the like. These crystal salts and the fatty substance are thoroughly combined, and the composition formed by their combination acts as a high resistance.

At the opposite points of the tubular chamber 1 are binding-posts or terminals 3, to which are connected the line-wires 4, said binding-posts or terminals at one end conducting the current from the line-wires to the composition and at the other end from the composition to the line-wire. These binding-posts or terminals 3 are provided with elon-

gated points 5, which enter said composition at opposite points of said tubular chamber. When the terminal at one end of said chamber is of one kind of metal of certain properties and the binding-post or terminal at the opposite side of said chamber is of any metal of opposite properties the composition in said chamber acting upon these metals generates a current of electricity, and if sufficient of the composition and of the materials forming the anodes and cathodes are used sufficient current will be generated to operate any electrical apparatus.

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

A resistance medium composed of saponified fat, contained in a suitable casing interposed in an electric circuit and fitted with terminals to which the circuit-wires are connected, substantially as specified.

Toronto, July 15, 1891.

FREDERICK W. A. SCHNEIDER.

In presence of—

CHARLES H. RICHER,
M. E. ANGELL.