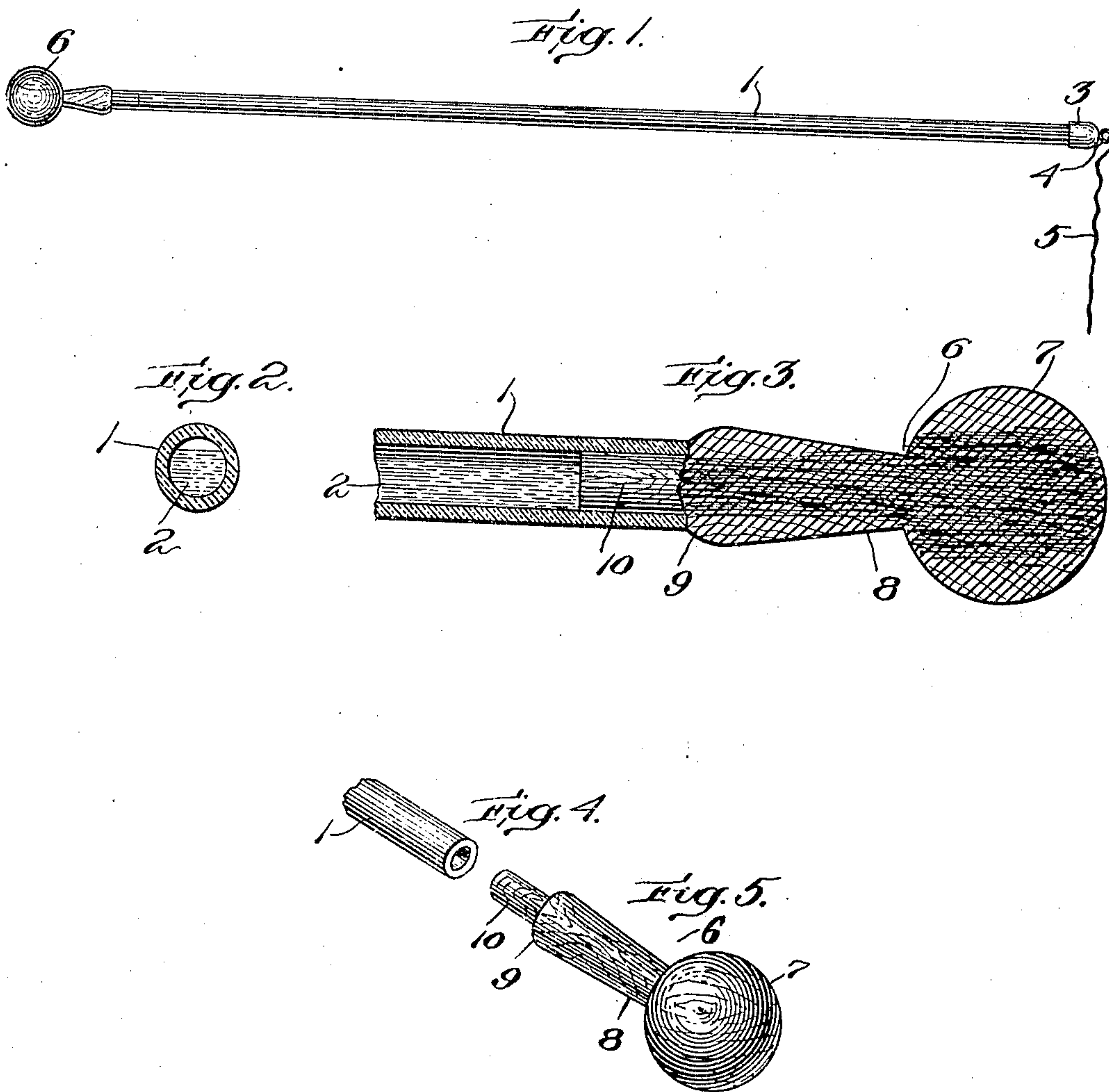


No. 843,354.

PATENTED FEB. 5, 1907.

E. T. NEALEY.  
ELECTRODE FOR THERAPEUTIC USE, &c.  
APPLICATION FILED MAY 14, 1906.



Witnesses:  
M. J. Spalding.  
Wm. J. Pike.

Inventor:  
Everett I. Nealey,  
by Geo. H. Maxwell  
Attorney.



# UNITED STATES PATENT OFFICE.

EVERETT T. NEALEY, OF BANGOR, MAINE.

## ELECTRODE FOR THERAPEUTIC USE, &c.

No. 843,354.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed May 14, 1906. Serial No. 316,703.

*To all whom it may concern:*

Be it known that I, EVERETT T. NEALEY, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented an Improvement in Electrodes for Therapeutic Use, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

For certain uses, usually therapeutic, of certain kinds of current, such as current derived from a static influence machine and some kinds of high-frequency current, it is desirable to obtain a discharge in the form of an effluve, and for this purpose electrodes of wood have been commonly employed. For instance, a patient seated on an insulated platform grasps one terminal of a static machine, the other terminal being grounded, and the operator then performs the desired treatment by holding a grounded wooden electrode near the patient, as required, with the result that a soft effluve discharge takes place; but in practice the wood dries and carbonizes, so that it quickly loses its proper condition and tends to spark, more or less. When the wood has once dried and carbonized, even slightly, it can never be wet properly again, and this is so well recognized that physicians are constantly soaking their electrodes of this character before use.

My present invention aims to preserve and improve the desirable character of the electrode referred to, whereby the current is properly modified and given the greatest efficiency and adaptability to therapeutic uses, while at the same time providing means for varying the strength of the current and adapting it with the utmost nicety to all variations of cases, and to this end I provide a compound electrode made of glass or equivalent insulating material, serving as a vehicle for carrying the liquid, and the latter having direct access to the wood or equivalent discharge end and keeping the latter properly moist and in proper condition all the time. By varying the character of the liquid it will transmit more or less current and will otherwise modify the current. By means of this electrode I avoid altogether the usual tendency to spark, (other electrodes tending to spark as well as effluve,) and at the same time I obtain a longer spark because of the smoother or more perfect liquid conductor of the electric current.

The constructional details and other advantages of my invention will be pointed out more particularly in the following description, reference being had to the accompanying drawings, in which I have shown one preferred embodiment of my invention.

In the drawings, Figure 1 is a view in side elevation of my improved electrode. Fig. 2 is a transverse sectional view thereof. Fig. 3 is a longitudinal sectional view; and Figs. 4 and 5 are perspective views of the glass tube and wooden tip, respectively.

In its mechanical elements my invention is exceedingly simple, comprising in its essentials a glass tube 1, filled with liquid 2 and having a metal cap or closure 3 at one end provided with an eye 4 for receiving a terminal 5, and at its other end having a tip 6 of wood or equivalent porous or fibrous material. All these parts may have any desired and convenient shape found preferable for any given situation, a straight electrode of the form shown being best adapted for general use. The tip 6 has a round knob-like end 7 and preferably a more or less narrow neck 8 and tapering or conical shouldered end 9, provided with a stopper 10 for closing tightly the end of the tube 1.

The character of the liquid is varied for varying the strength of the current—as, for example, distilled water, alcohol, and other clear limpid liquids offer the most resistance to current-flow, while salty or carbonized or dirty water will transmit more current. The introduction of anything, such as coloring-matter or other fine granular material, in the water to make it more dense will transmit more current, and this feature lends ocular effectiveness to the instrument by permitting attractive coloring and other fancy effects on account of the liquid in the glass. The glass is made heavy to prevent dissipation of current transversely. In use the liquid 2 enters the pores of the stopper or tip endwise and is held in suspension by capillary attraction in just the right amount for maintaining the tip 6 properly saturated at all times. The conical shape or reduced portion of the neck permits a slight accumulation of moisture, and if the liquid is of a penetrating and highly fluid character it will flow over the outside of the knob 7 to some extent.

The presence of the moisture in the porous tip prevents the wood from drying and carbonizing, so that the electrode is thereby maintained automatically in proper condition.



tion at all times for giving the desired character of current discharge with the greatest efficiency. The result is that the electrode will endure indefinitely, and as there is no sparking it is specially adapted for therapeutic uses, and because of the special liquid conductor inclosed in glass or equivalent insulating material a longer spark is obtainable than if the portion 1 were wood, as said liquid is a more perfect, even, and properly-regulated conductor. The strength of current and the character of the current may further be regulated by varying the amount of liquid in the tube, and the operator can further control and regulate the current by the position in which he carries or handles the electrode.

My electrode is specially adapted to therapeutic uses, as already stated, including medication, by means of static electricity and static cataphoresis, although I do not intend to limit the electrode to these particular uses.

As already intimated, I do not restrict myself to the construction shown, as it may be widely varied without departing from the spirit and scope of my invention.

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

1. An electrode of the kind described, comprising a porous terminal and a hollow support of insulating material, containing a liquid conductor. 30

2. An electrode, provided with means for securing a terminal wire, means for effecting an effluve discharge, and an intervening liquid-current conductor. 35

3. An electrode, comprising a tube of insulating material, closed at one end, a liquid conductor therein, and a wooden discharge-tip at the other end. 40

4. An electrode, comprising a wooden conductor portion, a liquid-conductor portion, and a glass inclosure therefor.

5. As an article of manufacture, an electrode, comprising a glass tube adapted to contain a fluid-current conductor, means for securing a contact-wire closing one end of said tube, and a wooden discharge-tip closing the opposite end of said tube. 45

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 50

EVERETT T. NEALEY.

Witnesses:

GEO. H. MAXWELL,  
M. J. SPALDING.