

No. 689,199.

Patented Dec. 17, 1901.

T. B. KINRAIDE.
ELECTRODE.

(Application filed May 2, 1901.)

(No Model.)

Fig. 1.

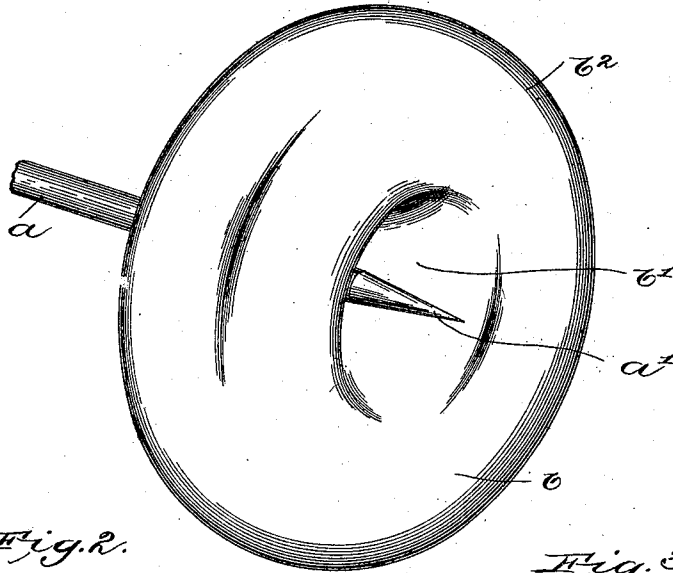


Fig. 2.

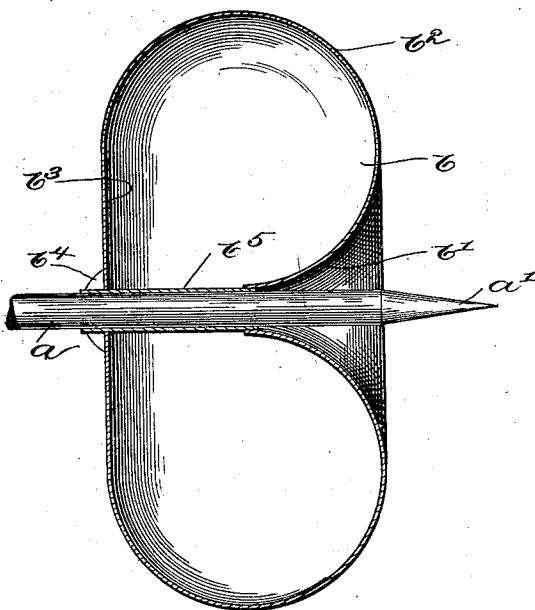
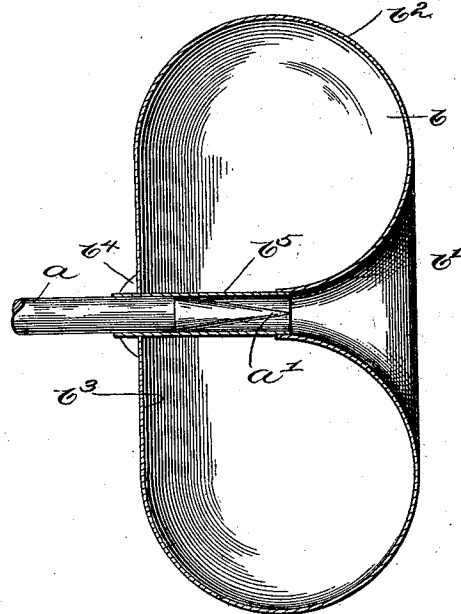


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS B. KINRAIDE, OF BOSTON, MASSACHUSETTS.

ELECTRODE.

SPECIFICATION forming part of Letters Patent No. 689,199, dated December 17, 1901.

Application filed May 2, 1901. Serial No. 58,511. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. KINRAIDE, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Electrodes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention is an electrode having for its object the regulation of the discharge effects or capabilities of the electrode.

As is well known, in certain situations of electrical discharge—as, for instance, in connection with the discharge-electrode of a Leyden jar—there is a tendency to continuous leakage, which prevents the full charging of the jar, and, again, it is sometimes desirable to check the brush-discharge—as, for instance, in an induction apparatus—especially when the two discharge-terminals are separated some distance, and also it is frequently convenient to be able to reverse the direction of discharge between two electrodes. Accordingly I have devised the hereinafter-described electrode for accomplishing, among other things, the above results, and in effecting my purpose I have availed myself of the principles set forth in my application, Serial No. 26,709, filed August 13, 1900, by combining the extensionless-point feature with the limitless-plane feature, as defined in my said application.

In the preferred construction of my present electrode I mount the point-discharge or discharge-rod adjustably in the center of the limitless plane, shaping the latter to correspond, so that it will maintain itself, electrically speaking, as a receiving plane or surface without edges or angular or pointed surfaces.

Further description of my invention and the operation thereof will be set forth in the following portion of the specification by reference to the accompanying drawings.

In the drawings, Figure 1 is a perspective view of my electrode. Fig. 2 is a vertical cross-section thereof. Fig. 3 is a view similar to Fig. 2, showing the electrode in a different adjustment.

It will be understood that my electrode is applicable to any conductor, the latter being

herein indicated as a rod *a*, having at its forward end a point-discharge *a'*, formed integrally therewith. Mounted on the rod *a* just back of the point *a'* is the limitless-plane portion *b* of the electrode, herein shown as having a central inwardly-sloping curved surface *b'*, forming a bell-shaped mouth or opening, in the center of which is the point *a'*. The limitless-plane portion of the electrode extends from this central bell-shaped portion outwardly in such manner as to have no angular or pointed surfaces, being herein shown as curved around at *b''*, substantially as shown in my before-mentioned application, the rear portion of the shell or surface extending at *b''* back to the rod *a* and being joined at *b''* to a tubular or sliding portion *b'''* thereof. The purpose of this construction is to permit the point and surface to be moved relatively to each other so that the point may occupy an extended position, as shown in Fig. 2, or an intermediate position, as shown in Fig. 1, or a retracted position, as shown in Fig. 3, the portion *b* being in my present construction simply shoved backward or forward on the rod *a*. When the point projects forward, as indicated in Fig. 2, the electrode operates freely as a point-discharge; but when the parts are in the position shown in Fig. 3 the point is rendered inactive by reason of its inability to discharge past the extended surface *b*, which is charged with the same electricity as the point, this extended area of charged surface of like electricity repelling the discharge tendency of the point. Also by moving the two parts in one direction or the other a minimum or maximum charge or tendency to discharge may be maintained. For instance, as shown in Fig. 2, there is the greatest freedom of discharge, and this decreases as the shielding or screening influence of the limitless plane portion *b* is moved forward toward the point.

If, for example, my electrode is employed as a discharge-terminal of a Leyden jar and it is desired to check the brush discharge that takes place in the Leyden jar, causing the same slowly to "leak," as it is termed, all that is necessary is to move the surface *b* into screening position relatively to the point, thereby insuring a maximum charge of the jar. When thus charged, my electrode makes

it possible to discharge the charge across a much greater air-gap by means of the screened point than is possible with simply usual discharge-terminals.

5 I have not undertaken to set forth in this specification all the uses to which my invention may be put, as it will be understood that it is applicable to a practically endless range of uses in connection with electrical apparatus.

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

15 1. An electrode having a discharge-point, and means for electrically screening said point for limiting the tendency thereof to discharge.

2. An electrode having a discharge-point, and adjustable means for electrically screen-

ing said point for varying the tendency thereof to discharge. 20

3. An electrode having a comparatively fine point combined with a plane conducting-surface having its edges curved or rolled rearwardly and inwardly, and means for moving 25 said surface relatively to said point.

4. An electrode having a plane conducting-surface shaped without edges or angular or pointed surfaces, combined with a point-discharge mounted within the area of said surface and projecting therefrom. 30

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

THOMAS B. KINRAIDE.

Witnesses:

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