

J. L. CREVELING.
WAVE DETECTOR.
APPLICATION FILED MAY 24, 1907.

1,004,748.

Patented Oct. 3, 1911.

Fig. 1

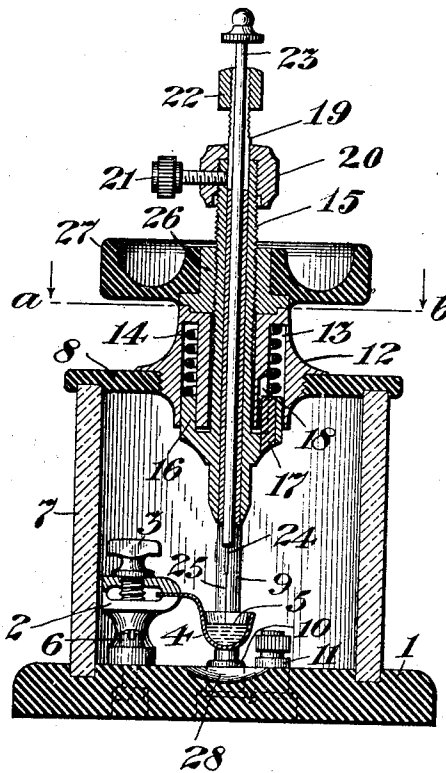


Fig. 2

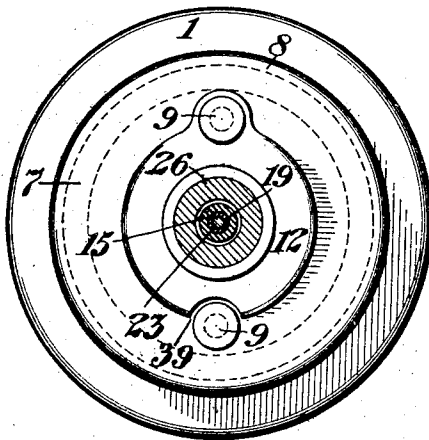


Fig. 4

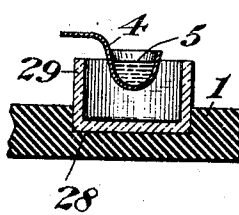
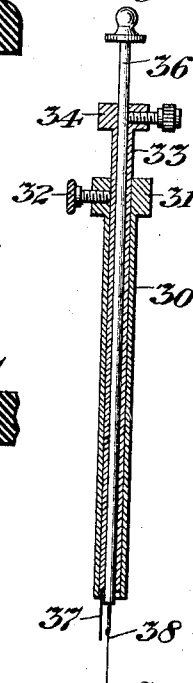


Fig. 3



Witnesses:
Chas. Clagett
Edna P. Collins

Inventor
John L. Creveling

UNITED STATES PATENT OFFICE.

JOHN L. CREVELING, OF NEW YORK, N. Y.

WAVE-DETECTOR.

1,004,748.

Specification of Letters Patent.

Patented Oct. 3, 1911.

Application filed May 24, 1907. Serial No. 375,534.

To all whom it may concern:

Be it known that I, JOHN L. CREVELING, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Wave-Detectors, as set forth in the following specification and drawing, forming a part thereof.

My invention has for its principal object to produce a detector of electric waves or oscillations or a device useful for any other purpose requiring quick and accurate adjustment of one or more small or delicate electrodes.

The particular form of my invention shown in the accompanying drawing has for its particular object to produce an improved form of electrolytic wave detector covered broadly in United States Letters Patent No. 761,450, granted to me May 31, 1904, comprehending a plurality of electrodes an intervening electrolyte and means for adjusting their mutual relations.

In the drawing: Figure 1 indicates a vertical section of one type of my improved detector. Fig. 2 is a plan view of the same in partial section through the line *a-b*. Fig. 3 is a section of one form of multiple electrode which may be used in my invention; and Fig. 4 is a modification of one portion, shown in section in Fig. 1, as will hereinafter more fully appear.

In the various figures like numerals refer to corresponding parts.

In the drawing, (1) indicates the base of the detector made preferably of any suitable insulating material. Upon this is mounted a small vise or clamp (2), the jaws of which may be opened or closed as by the adjusting screw (3). The member (2) serves to support or carry the small receptacle (4), which contains any suitable solution or an electrolyte indicated at (5), which is in electrical communication with the member (2), through the receptacle (4), provided the same be made of conducting material, or if (4) be made of non-conducting material a conducting member may be led from the electrolyte to the member (2) establishing electrical communication therewith. The member (2) is provided with a binding screw (6), by which connection with the member (2) can be established in a suitable circuit.

(7) is a glass cylinder resting in an annular recess in the base (1) and serves to surround the above described members of the instrument and protect the same from action of wind or dust, and from mechanical injury. The member (7) carries or supports the annular member (8) of suitable insulating material, which is firmly held down upon the glass cylinder (7) as by means of rods (9) having expanded thumb screw portions upon the top, as indicated in Fig. 2, and a threaded portion at the bottom engaging the threads in nuts or bosses (10) of conducting material properly fastened to the base plate (1). One of these posts may be in electrical communication with the binding post (11) as indicated in Fig. 1.

(12) represents a metallic member which is firmly fastened into the member (8) and carried thereby. This member is provided with an annular recess or cavity (13) into which is placed a compression spring (14). The member (12) is provided with a central aperture, through which passes the stem (15), provided at its lower portion with the annular shoulder or flange (16), which is pressed downwardly by the compression spring (14). The stem (15) has a certain vertical movement but is kept from revolving by the pin or key (17) engaging the slot or key-way (18). The threaded portion of the stem (15) engages the nut (26) which is provided with a hand-wheel (27), revolution of which in one direction would cause the member (15) to be raised against the action of the spring (14) and in the other direction will allow the spring (14) to lower the member (15). The member (15) is provided with a central bore into which may be inserted the tube (19), passing through the cap (20), which is attached to the stem (15) and carries the thumb screw (21) adapted to press against or release the tube (19).

(22) is a nut having a taper thread engaging the end of the tube (19) and which is threaded and longitudinally slotted as indicated in Fig. 1 in a manner which will hereinafter more plainly appear.

(23) is a rod or wire which is inserted within the bore of tube (19) and may be firmly held in any position within the tube by screwing up the nut (22) or by pressing against the side of tube (19), as by screw (21), so as to compress the slotted end of the tube (19) against the rod (23). One

end of the rod (23) is provided with a small extension (24) to which is attached the small or delicate electrode (25).

(28) is a recess or basin cut in the base member (1) to catch any of the electrolyte which might be spilled out of the receptacle (4) or dropped in the operation of filling the same.

(29) (see Fig. 4) is a small glass receptacle, which may be fitted into the depression (28) as a further means of catching any of the electrolyte which might be spilled.

In Fig. 3, (30) represents the tube or protecting sleeve, similar to (19), provided with an expanded portion (31) and adjusting screw (32), serving to grip the tube (33) which is inserted within the tube (30) as shown. (33) is provided with an expanded portion (34) and adjusting screw (35) adapted to hold or release the rod (36) as desired. The tube (33) carries the small electrode (37) while the rod (36) is provided with a small electrode (38); when the detector is assembled as shown in Figs. 1 and 2, the expanded portion of one of the rods (9) establishes electrical communication between the electrode (25) and the binding post (11), by causing electrical connection between the members (12) and (10). In this way the binding post (11) serves to connect electrode (25) into any suitable circuit. The member (12) may be cut away as indicated at (39) in Fig. 2, and thus keep one of the rods (9) from electrical communication with the member (12) and other parts electrically connected therewith.

The operation of the detector as above described is substantially as follows:—The electrode (4), electrolyte (5) and electrode (25) are placed in series in any suitable circuit as may be readily seen by connecting said circuit into binding posts (6) and (11) and with the parts in the position shown delicate adjustment can be given to the electrode (25) by revolution of the hand-wheel (27), while coarse adjustment of the electrode (25) can be instantly effected by relieving the pressure against the member (23), as by unscrewing (21) and moving the member (23) within the tube (19) by hand. If desirable to remove the electrode (25), it may be drawn quite within the tube (19) by properly sliding the member (23) within the tube (19), in which position the delicate electrode (25) will be entirely surrounded and protected by the tube (19). Then the tube (19), together with the members (23), (24) and (25) can readily be withdrawn from the bore of stem (15).

Extra electrodes and members (23) and tubes (19) may be kept with the tube in such position as to entirely protect the electrode (25) and readily inserted within the bore of the stem (15) without any danger

of in any way injuring the delicate electrode (25). When the tube (19) has been properly inserted within the member (25), then (23) may be pressed down rapidly as desired, until electrode (25) shall contact with the electrolyte (5), which will cause a signal to the operator if the instrument be in an ordinary detecting circuit; whereupon the screw (21) can be set up to hold the electrode in a fixed position relative to the member (15), and then delicate, careful adjustment, giving any desired depth of immersion, can be quickly made by operation of the hand-wheel (27). In this manner, worn out electrodes can be rapidly taken out and new ones placed in their stead without any danger of damage, even in the dark, or the whole operation can be done with one hand while the operator is using the other for sending.

In cases where it is desirable to change from a fine electrode to a coarser one, the same may be accomplished quite rapidly by substituting another in the manner above set forth; or in instruments where this change is often desirable the modification, as shown in Fig. 3, may be very useful. With this arrangement both the electrodes (37) and (38) may be protected from any mechanical injury, by drawing them within the sleeve (30), and the sleeve or tube (30) can then be inserted in the bore of the member (15) of the detector, as was described in reference to the sleeve or tube (19). Then by proper and evident manipulation, either the electrode (37) or (38) may be brought into contact and properly immersed in the electrolyte (5) in a manner evident from the above description. Further, rapid changes from one electrode to the other can be made in a manner quite apparent.

I do not in any way limit myself to this specific or detail construction of the apparatus as above described and shown in the drawing, the same being merely a particular form of device at present used by me in carrying out and employing my invention. Considerable variation can, of course, be made without departing from the spirit or scope of my invention, which is as set forth in the following claims.

I claim—

1. A detector of electric disturbances comprehending a plurality of conducting members, an interposed electrolyte and means for adjusting said members to vary the circuit therethrough comprising a movable member, means for delicately adjusting the same, a protecting member carried thereby, means for supporting one of said conducting members carried by said protecting member whereby the conducting member may be drawn within said protecting member.

2. A detector for electric waves or oscillations comprehending a receptacle of conducting material, a conducting medium in said receptacle, a conducting member immersed in said medium and removable means carrying said last named member, provided with means movable thereon for protecting said member.

3. A detector of electric waves or disturbances comprehending a plurality of electrodes and an interposed electrolyte combined with a member carrying one of said electrodes, a sleeve surrounding said member, means for holding said member in a fixed position in relation to said sleeve and means supporting said carrying member and sleeve capable of adjusting the relation between the electrode and the electrolyte.

4. A detector of electric waves or disturbances comprising an electrolyte, a plurality of electrodes in operative relation thereto combined with means for supporting one of said electrodes comprising an electrode holder, a sleeve surrounding said holder and means for holding said sleeve and holder in adjustable relation to the electrolyte.

5. A detector of electric waves or impulses comprising an electrode, an electrode holder, a movable sleeve surrounding the same, means for retaining the sleeve in fixed positions upon the holder, an electrolyte and

means for supporting the electrode in adjustable relation to the electrolyte in such manner that it may be immersed therein.

6. A detector of electric waves or impulses comprising an electrode, an electrode holder, a movable sleeve surrounding the same, means for retaining the sleeve in fixed position upon the holder, an electrolyte and means for supporting the electrode in adjustable relation to the electrolyte in such manner that it may be immersed therein, and means for varying its depth of immersion.

7. A detector of electric waves or impulses comprehending an electrode, an electrolyte and means for varying the immersion of the electrode in the electrolyte comprising a frictionally held coarse adjustment and a fine adjustment means cooperating therewith.

8. A detector of electric waves or impulses comprehending an electrolyte, an electrode immersed therein, means for adjusting the immersion of said electrode, another electrode adjustable by said means combined with means whereby one of said electrodes may be made operative and the other inoperative without removal from the detector.

JOHN L. CREVELING.

Witnesses:

EUGENE DUGE,

T. J. DORLAN.