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DETECTOR FOR WIRELESS SYSTEMS.

APPLICATION FILED MAR. 11, 1916.

1,214,265. Patented Jan. 30, 1917.

Fig. 1.

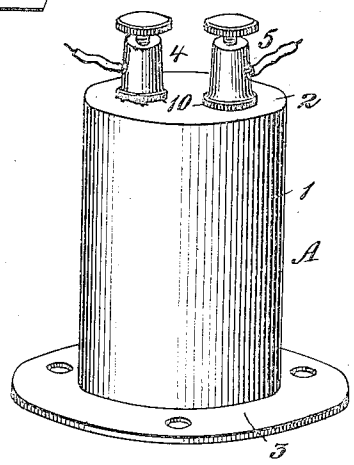


Fig. 2.

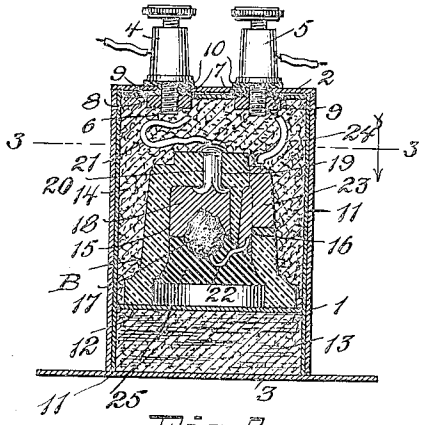
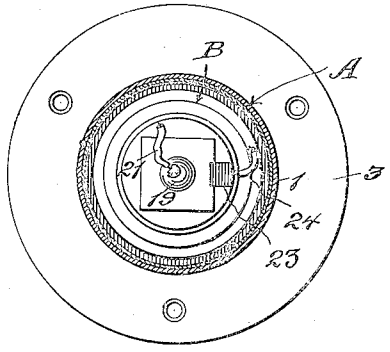


Fig. 3.



WITNESSES

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DETECTOR FOR WIRELESS SYSTEMS.

1,214,265. Specification of Letters Patent. Patented Jan. 30, 1917.

Application filed March 11, 1916. Serial No. 83,528.

To all whom it may concern:

Be it known that we, MILTON BEREL, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county of the Bronx and State of New York, and LOUIS FUNKE, a subject of the Czar of Russia, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Detector for Wireless Systems, of which the following is a full, clear, and exact description.

This invention relates to detectors for wireless systems and has to deal particularly with detectors of the crystal type.

The invention has for its general objects to provide a detector which is unaffected by any of the various factors that are active ordinarily to render frequent adjustment of the detector necessary, and at the same time produce a detector which is comparatively simple and inexpensive in construction and so designed as to be positively fool-proof.

The invention has for a more specific object the provision of a detector of the crystal type in which the active material, such as silicon, is hermetically sealed in a suitable container so as to be proof against all the ordinary disturbing influences, whereby the detector can be used almost indefinitely without requiring adjustment.

With such objects in view, and others which will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be set forth with particularity in the following description and claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention and wherein similar characters of reference indicate corresponding parts in all the views, Figure 1 is a perspective view of the detector; Fig. 2 is a central vertical section thereof; and Fig. 3 is a section on the line 3—3, Fig. 2.

Referring to the drawing, A designates the casing or housing of the detector, the same consisting of a body 1 of suitable shape having upper and lower heads 2 and 3 soldered, brazed or otherwise joined to the body in such a manner as to produce a hermetically sealed housing. Attached to the upper head or top 2 are binding posts or terminals 4 and 5 by which the detector is connected in circuit. The binding posts, as shown in Fig. 2, have threaded studs 6 which pass through openings 7 in the top of the casing, and on these threaded studs are nuts 8 by which insulating washers 9 and 10 are clamped against the inner and outer surfaces of the head 2, whereby moisture-tight joints are obtained. The casing, which may be made of iron or other suitable metal, is preferably, although not necessarily, provided with a lining 11 of thin sheet iron.

Within the casing A is disposed a container B that carries the active material of the detector. This container B rests on a plate 12 under which is a mass of cushion material, such as raw cotton 13, and also filling the space around the container B is cotton or equivalent material 14, whereby mechanical shocks are prevented from being transmitted to the container or holder B. In the present instance the holder B is a porcelain body such as is used for fuse plugs, such being advantageous since it can be obtained as an economical article now had in the market quite reasonably.

The body B has two compartments 15 and 16 in the first of which is anchored a piece of silicon 17 which forms the active material of the detector. This is anchored in the compartment 15 by a mass of linotype or equivalent metal 18 poured in when in a molten state, and this anchoring material is in contact with a terminal element 19 which passes out through an opening 20, and has its outer extremity connected by a wire 21 with the binding post 4. Bearing on the surface of the silicon is a wire 22 of suitable gage and stiffness and which is anchored in a suitable material 23, such as linotype metal cast in the compartment 16, this metal being connected by a wire 24 with the binding post 5. After the right point and pressure of contact have been obtained between the wire 22 and the silicon 17, as ascertained by testing, a sealing material 25 is poured into the compartment 15 when the body B is turned up-side down. This sealing material 25 is of such a nature that it will have no disturbing effect upon the nature of the contact between the silicon 17 and wire 22, as the sealing material cools and solidifies. It will thus be seen that by using molten metal 18 and 23 to anchor the silicon 17 and wire 22, respectively, and by using a sealing composition 25 in ?

manner shown, the vital parts of the detector are thoroughly protected from dampness, changes of temperature, oxidation, and also from mechanical jars, so that it is possible to use the holder B and its sealed-in parts as a practical detector, but to add further protection the casing A with its cushion material is employed to surround the part B. After assembling the various parts, and the heads 2 and 3 of the casing are soldered to the body 1, the article can be placed in a nickel-plating bath and nickel-plated without any danger of liquid entering the casing, or the casing may be enameled.

Linotype metal is used because its property is such that it expands upon solidifying and completely fills the mold into which it is poured, thus preventing any kind of motion of the anchorages of the two elements of the detector. The composition of the sealing compound 25 is a suitable mixture of sealing wax and animal fat.

From actual test with a device of the character herein set forth extending over a period of many months, it has been proved that a detector can be kept in operative condition without any necessity of adjustment and still operate at its initial maximum efficiency.

From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while we have described the principle of operation, together with the device which we now consider to be the best embodiment thereof, we desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as fall within the scope of the appended claims.

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

1. A detector comprising a container, an active crystal, a conductor contacting therewith, means for hermetically sealing the crystal and conductor in the container, and terminals at the outside of the container for connection with a wireless circuit.

2. A wireless detector comprising a chambered container, an active crystal in the chamber, a conductor bearing on the crystal and disposed in the chamber, separate masses of metallic material in which the crystal and conductor are respectively anchored, and a composition for hermetically sealing the conductor and crystal, said composition being neutral in cooling and solidifying, whereby the nature of the contact between the conductor and mineral is unaffected.

3. A wireless detector comprising a chambered container, an active crystal in the chamber, a conductor bearing on the crystal and disposed in the chamber, separate masses of metallic material in which the crystal and conductor are respectively anchored, a composition for hermetically sealing the conductor and crystal, said composition being neutral in cooling and solidifying, whereby the nature of the contact between the conductor and crystal is unaffected, a housing for the said container, and cushion material surrounding the container and holding the same separated from the walls of the casing.

4. A wireless detector comprising a casing hermetically sealed, binding posts on the casing, a container disposed in the casing, cushion material surrounding the container and separating the same from the walls of the casing, terminals on the container and connected with the respective binding posts, and detector means hermetically sealed in the container.

5. A detector comprising a hermetically sealed casing, binding posts having portions extending through the walls of the casing, moisture-tight joints at the points where the binding posts extend through the casing, a container disposed within the casing, terminals on the container connected with the respective binding posts, a crystal electrically connected with one of the terminals, a conductor electrically connected with the other terminal and bearing on the crystal, and a material covering the crystal and conductor, whereby the contact between the two is maintained permanent.

6. A wireless detector comprising a chambered body, a crystal disposed in the chamber of the body, a conductor also disposed in the chamber and bearing on the crystal, a plastic material covering the conductor and crystal for maintaining the contact between the two permanent, masses of metal in the chamber and in which the crystal and conductor are respectively anchored, and wires electrically connected with the said masses of anchoring material.

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

MILTON BEREL.
LOUIS FUNKE.

Witnesses:
C. BRADWAY,
PHILIP D. ROLLHAUS.