ABSTRACT: A battery-carrying means for an electric or electronic timepiece wherein the elastic contact means projecting from the cover providing access to a battery-receiving means in said timepiece are positioned on the cover so as to be out of contact with the projected portion of the battery should said battery be inserted with said projected portion facing said cover. An insulating member or a space is provided between said cover and said projected portion to prevent contact therebetween should said battery be so inserted.
BATTERY-CARRYING MEANS FOR ELECTRIC OR ELECTRONIC TIMEPIECE

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a fragmentary cross-sectional view of a conventional electric or electronic timepiece having a battery; FIG. 2 is a fragmentary cross-sectional view of an electric or electronic timepiece having a battery according to the present invention; FIG. 3 is a fragmentary cross-sectional view of a timepiece having a battery inserted upside down according to the present invention.

DETAILED DESCRIPTION OF INVENTION

The present invention relates to the construction of an electric or electronic timepiece having a case back or a cover member for installing and removing a battery, wherein inversion of a battery does not cause a short circuit.

Referring to the drawings, the conventional timepiece as shown in FIG. 1 has been commonly used. This type of timepiece is so constructed that a concave opening for receiving a battery 1 is formed on a baseplate 2 and an elastic plate 4 insulated from the baseplate 2 by an insulating member 3 and carrying the battery 1 is provided in the central portion of the bottom of said concave opening. The battery 1 is then inserted normally in said concave of the baseplate 2 through an opening in the case 8. A cover member 5 is electrically energized through the baseplate 2 to the case 8 by grounding the positive lead terminal or the negative lead terminal of the battery to the movement. An elastic plate 6 is fastened to the inner surface of the cover member 5. The cover member 5 with the elastic plate 6 is mounted on the case in such a manner that current is applied to the electric circuit by the tension exerted elastically by said plate 6.

However, the disadvantage of this arrangement resides in the fact that when the battery is inserted, its polarity, i.e., negative and positive terminals, is liable to be mistaken. In addition, it is also difficult to define the direction for inserting such battery.

Secondly, if the battery is inverted, i.e., upside down, a short circuit would be caused, thereby consuming a large amount of energy or even entirely exhausting the electricity stored in the battery.

The purpose of the present invention is to eliminate the above-mentioned defects and to provide an improved battery-carrying means for an electric or electronic timepiece.

As shown in FIG. 2, the battery 1 consisting of the cylindrical portion of the positive pole and the projected portion of the negative pole is inserted in the concave opening formed in the baseplate 2 with said projected portion of the battery facing downward. At the bottom of said concave opening, there is provided one elastic plate 4 insulated from the baseplate 2, which is grounded, by the insulating member 3. The battery 1 is carried by said elastic plate 4. The elastic plate 6 is fastened to the outer periphery portion of the inner surface of the cover member. The cover member 5 with the elastic plate 6 is then mounted on the case 8 so as to press against the outer periphery portion of the bottom of the battery 1 in such a manner that the current is applied to the circuit from the battery of the electric power source. Further, the insulating member 7 is fastened to the central portion of the inner surface of the cover member 5.

In this arrangement, even if the battery 1 is inverted, a short circuit does not occur as certain clearance is kept structurally between the battery 1 and the elastic plates 6 as shown in FIG. 3. If the elastic plates should make contact with the shoulder portion of the battery 1 due to manufacturing tolerance, a short circuit does not occur since they have the receiving potential. Furthermore, the short circuit which may be caused by contact between the projected portion of the battery 1 and the cover member 5 can be prevented by the insulating member 7.

As can be understood from the above description, the main advantages of the present invention reside in the fact that even if the battery is inverted, a short circuit does not occur and the battery can be inserted again without wasting the energy stored therein. Further, the following defects which reside in the conventional electric timepiece having a battery can be eliminated, namely, when the battery is inserted, its polarity is apt to be mistaken and it is difficult to show the direction to insert the battery.

Moreover, instead of the insulating member 7, a space may be provided in order to prevent the contact with the projected portion of the battery.

The present invention is not restricted to electric wrist watches and can be applied to other electric products using batteries.

What I claim is:

1. A battery-carrying means for an electric or electronic timepiece, said battery having a casing portion defining a first pole and a projected portion defining a second pole, comprising a battery-receiving means in said timepiece for receiving said battery and providing electrical contact with said battery-projected portion; a timepiece case formed with an aperture therethrough providing access to said battery-receiving means; cover means for closing said case aperture; elastic contact means projecting from said cover for providing electrical contact with said battery-casing portion and positioned on said cover to be out of contact with said battery-projected portion should said battery be inserted in said battery-receiving means with said projected portion facing said cover.

2. A battery-carrying means as recited in claim 1, wherein said means for preventing contact includes an insulating member mounted on said cover and positioned to be engaged by said battery-projected portions should said battery be inserted in said battery-receiving means with said projected portion facing said cover.

3. A battery-carrying means as recited in claim 1, wherein said means for preventing contact includes means for increasing the length of said elastic contact means so that said elastic contact means engage said battery-casing portion should said battery be inserted in said battery-receiving means with said projected portion facing said cover to maintain a space between said cover and battery-projected portion.

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