

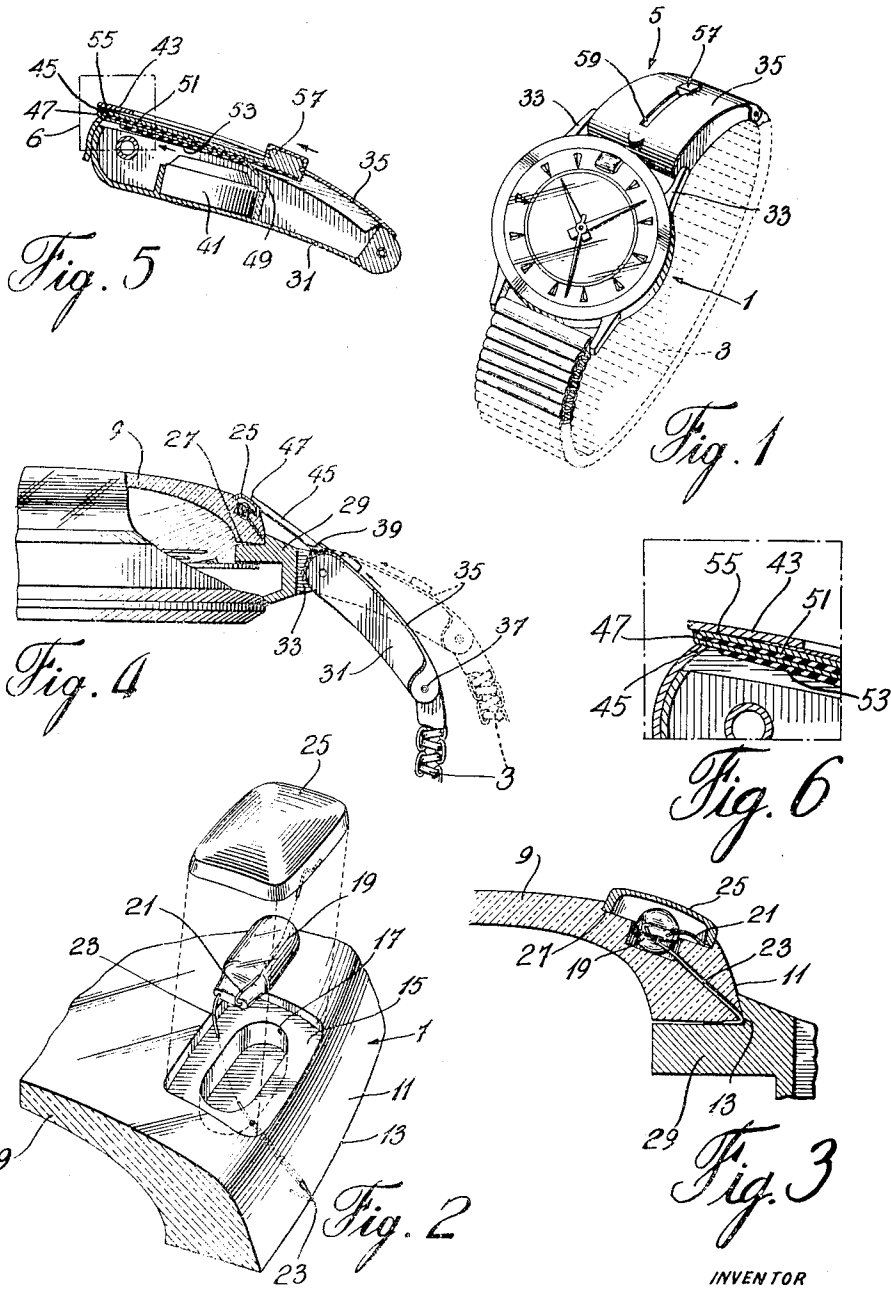
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WATCH DIAL ILLUMINATING DEVICE

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3,224,184
WATCH DIAL ILLUMINATING DEVICE
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The present invention pertains to a watch dial illuminating device and more particularly to a watch glass having an illuminating electric bulb mounted in a cavity in the body of the glass and adapted to be coupled to a hollow container housing a power circuit and also serving as a wrist band element. As such, the present invention is an improvement of that disclosed in my prior U.S. application, now U.S. Patent No. 3,018,614, issued January 30, 1962.

In the practice of the invention described in this U.S. patent, several disadvantages have been noted. The most serious drawback with the device of this prior patent resides in that the vacuum is difficult to maintain in the cavity created in the glass body itself within which were mounted the electric illuminating filaments. Apart from this difficulty of maintaining the vacuum, it was found that the manufacture of such an article was relatively expensive.

The same patent also proposed to mount the illuminating filament within an open cavity through the inner surface of the glass body, facing the dial. This was found to be an impractical solution as the lack of vacuum resulted in rapid burning of the filament and damage to the glass.

Still another inconvenience of this latter device lied in that the illuminating bulb created a disturbing glare through the glass body rather than having the full illumination directed solely at the dial.

It is therefore an object of the present invention to overcome the aforementioned disadvantages by providing a special watch glass construction capable of using an ordinary standard factory-made electric bulb thus avoiding any danger of a vacuum leak or destruction of the filament or plastic glass by failure to provide such a vacuum.

Still another object of the invention resides in providing a watch glass, preferably made of plastic, including a dial illuminating assembly having an opaque cover over the light bulb acting as a shade to prevent any undesired glare and preferably provided with a reflecting inner surface adapted to direct all of the illumination toward the watch dial.

Yet another object of the invention lies in the provision of a watch glass having the above noted features and advantages yet remaining waterproof, as in conventional watch glasses.

These various objects may be obtained in a watch glass made according to the invention and adapted to be mounted over the dial of a watch, the said watch glass comprising: a glass body formed with a cavity adjacent the edge thereof and opening only through the outer surface of the body; a miniature electric bulb in the cavity having two lead-in wires; an electrically conductive cover closing said cavity over the bulb; one of the lead-in wires being in electrical contact with said cover and the other wire extending through the glass body to the edge thereof and protruding out of the glass body.

This watch glass is intended for use in combination with a metallic casing over which the glass body is mounted with the said other lead-in wire disposed in electrical contact with the casing; the combination including a metallic hollow container, as separate or integral part of a wrist band, pivotally mounted on the casing in electrical contact therewith; at least one battery in said container in electrical contact therewith and switch means including

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a displaceable lever movable in and out of electrical communication between the cover and the said battery, the said lever being electrically insulated from the container.

A better understanding of the invention will be afforded by the description that follows of a preferred embodiment thereof with special reference to the appended drawing, wherein:

FIG. 1 is a perspective view of the watch dial illuminating device as shown mounted on a watch and a bracelet therefor;

FIG. 2 is an exploded view, on an enlarged scale, of the watch glass assembly of the invention;

FIG. 3 is a transverse cross-sectional view of part of a glass body and metallic casing therefor including the illuminating means all in accordance with the teaching of the present invention;

FIG. 4 is a side elevation view, partly in cross-section, of part of a watch and bracelet equipped with the illuminating device of the invention;

FIG. 5 is a cross-sectional view, of the container comprising the power and switch means;

FIG. 6 is a magnified view of part 6 identified by a dash and dot line.

The invention is used with a standard watch 1 having a wrist bracelet 3 and including a battery container 5 connecting one end of wrist bracelet 3 to the watch 1.

As best seen in FIG. 2, the watch glass is formed of a glass body 7 generally cup-shaped in cross-section and formed with a base portion 9 peripherally bent to form a skirt 11 terminating into a lower outer lateral edge 13.

Glass body 7 is preferably made of transparent plastic and is formed with a cavity adjacent peripheral edge 11 and opening through the outer surface of the base portion 9. The cavity preferably comprises a top generally rectangular recess 15 in the center of which is machined a groove 17 the size of which is determined by the size of a miniature electric bulb 19 of standard manufacture. This bulb 19 has two lead-in wires 21 and 23 coming out of one end thereof.

The cavity is closed by an electrically conductive, preferably fully metallic, cover 25 having the general shape of an inverted rectangular cup formed with a peripheral flat edge surface 27.

The cover 25 is set into the cavity by being laid over recess 15 and sealed therein over electrical bulb 19. It will also be noted that the free end of lead-in wire 21 is bent and joined in electrical contact with cover 25, preferably by welding, in sealed mounting of the cover over the glass body 7. Preferably, bulb 19 and lead-in wire 21 are secured to the cover 25 prior to insertion and sealing in recess 15.

The second lead-in wire 23 is made to extend across peripheral skirt 11 of the glass body 7 whereby to protrude out of the said glass body about the lower lateral edge 13.

Cover 25 is pressed into recess 15 preferably in such a manner as to be removable therefrom to replace bulb 19 should it happen to burn out or else cover 25 may be made to be completely sealed in the said recess 15.

Glass body 7 is adapted for mounting in a metallic casing 29 in a conventional manner but with the free end of lead-in wire 23, bent under the peripheral skirt 11 or otherwise mounted in electrical contact with the said metallic casing 29.

As illustrated in FIGS. 1, 4 and 5, container 5 generally comprises an open top metallic housing 31 pivotally mounted in electrical contact on a pair of spaced lugs 33 integral with watch casing 29. The said housing 31 is closed by an arcuate lid 35 pivotally mounted to housing 31 at one end as at 37 and locked in closed position by means of a resilient bent end 39 at the other end fitting

over a correspondingly bent or arcuate end of housing 31. Housing 31 contains at least one battery 41 set between spaced bracket 43 to prevent any undue displacement in the said housing.

Physical contact to close the electrical circuit is obtained by means of a switch means including an elongated metallic leaf 45 bent at both ends 47 and 49 as particularly illustrated in FIG. 5. It should be understood at this time that movement of metal leaf 45 eventually closes the electrical circuit by allowing end 47 to contact metallic cover 25 of the watch glass 7 while end 49 simultaneously comes in electrical contact with the top of battery 41. In any other positions, electrical contact is broken and the battery 41 is completely inoperative.

To allow for differences in the distance between cover 25 and battery 41, from one watch and bracelet to another, it is suggested that the said leaf 45 be adjustable as to length to ensure simultaneous contact of cover 25 and battery 41 on any watch and bracelet combination.

Metal leaf 45 is insulated from housing 31 (FIGS. 5 and 6) by being laid between two insulating layers 51 and 53, such as plastic or rubber, layer 53 terminating short of end 47 of metal leaf 45 to allow proper contact with cover 25. The top layer 51 is secured to an operating arm 55 terminating into an operating knob 57 adapted to extend through an elongated slot 59 (FIG. 1) provided through lid 35. As best seen in FIG. 1, the said knob 57 has a T-shaped construction whereby it is capable of retaining the metal leaf in close contact with lid 35 since the assembly of arm 55, layers 51, 53 and metal leaf 45 is wider than the said slot 59.

Although a specific embodiment of the invention has just been described, it will be understood that various modifications are possible within the spirit of the invention and the scope thereof should only be construed from the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A watch glass adapted to be mounted over the dial of a watch comprising:

- (a) a glass body formed with a cavity opening only through the outer surface of the body;
- (b) a miniature electric bulb in said cavity having two lead-in wires;
- (c) an electrically conductive cover closing said cavity over said bulb;
- (d) one of said lead-in wires being in electrical contact with said cover and the other wire extending through said glass body to the edge thereof and protruding out of said glass body.

2. A watch glass adapted to be mounted over the dial

of a watch comprising:

- (a) a cup-shaped glass body having a base portion and a peripheral skirt defining a lower edge;
- (b) said body being formed with a cavity in said base portion and adjacent said skirt, said cavity opening through the outer surface of the body;
- (c) a miniature electric bulb in said cavity having two lead-in wires;
- (d) an inverted cup-shaped metallic cover closing said cavity over said bulb;
- (e) one of said lead-in wires being in electrical contact with said cover and the other wire extending through said glass body to the edge thereof and protruding out of said glass body.

3. A watch glass as claimed in claim 2, wherein said cover has a peripheral flat edge surface and said one lead-in wire is secured to said edge.

4. A watch glass adapted to be mounted over the dial of a watch comprising:

- (a) a cup-shaped glass body having a base portion and a peripheral skirt defining a lower edge;
- (b) said body being formed with a cavity in said base portion and adjacent said skirt, said cavity opening through the outer surface of the body;
- (c) a miniature electric bulb in said cavity having two lead-in wires;
- (d) an inverted cup-shaped metallic cover closing said cavity over said bulb;
- (e) one of said lead-in wires being in electrical contact with said cover and the other wire extending through said glass body to the edge thereof and protruding out of said glass body; in combination with
- (f) a metallic casing over which said glass body is mounted with said other lead-in wire in electrical contact with said casing;
- (g) a metallic hollow container as part of a wrist band; said container being mounted on said casing in electrical contact therewith;
- (h) at least one battery in said container in electrical contact therewith;
- (i) switch means including a displaceable electrically conductive lever movable in and out of electrical communication between said cover and battery.

5. A watch glass as claimed in claim 4, wherein said lever is insulated from said container.

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LEO SMILOW, *Primary Examiner.*