A wrist watch has an electric bulb for illuminating the dial and a battery lodged in a housing independent of the watch movement housing and having an elastically mounted cover. Electrical circuit means for connecting the battery to the bulb include a switch operable to illuminate the dial by a pressure exerted on the cover by the wrist upon which the watch is worn.

5 Claims, 2 Drawing Figures
WRIST WATCH WITH DIAL ILLUMINATING DEVICE

This invention relates to wrist-watches provided with dial illuminating means.

According to the invention there is provided a wrist watch comprising electrical lighting means for illuminating the dial, electrical power storage means lodged in a housing independent of the watch movement housing, and a contactor capable of circuit connecting the storage means to said lighting means by a pressure exerted by a wrist upon which the watch may be worn to thereby illuminate said dial.

Such a wrist watch thus has great ease of control of the illumination thereof without the necessity of using the hand opposite to that carrying the watch to operate the contactor. Additionally, because of the possibility of elimination of switch means provided with a sliding or pivoting lever the wrist watch and its illuminating device can be made completely watertight.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

FIG. 1 is a partial cross-section view of a wrist watch according to the present invention as it would appear when the wearer's wrist is flexed.

FIG. 2 is an enlarged view of a portion of the structure of FIG. 1 and illustrates the mechanism as it would appear when the wearer's wrist is not flexed.

Referring to the drawing the wrist watch shown comprises a watch case generally designated by reference numeral 1, this case comprising a central portion 2, and a bezel 3 carrying a glass 4. The movement 5 of this watch is located inside the central portion 2, and its dial 6 is wedged between movement 5 and the internal edge 7 of bezel 3.

The watch is provided with an illuminating device comprising a miniature electric bulb 8 disposed in a housing 9 provided in the thickened edge of the watch glass 4. A cover 10 forming an opaque screen covers and protects the bulb 8. The cover 10 can be fixed by sticking or welding to glass 4. In the thickened edge of glass 4 are provided two passages 11 and 12 respectively for conducting wires 13 and 14 of bulb 8. Wire 14 is pinched between the edge of glass 4 and bezel 3, as at 14a which connects it to the mass of the metallic components, namely, the case 1, its central portion 2 and the bezel 3 as previously described. Wire 13 is engaged in a nick 15 on the internal edge 7 of bezel 3 to come into contact with the extremity 16 of an insulated wire 16a fixed in a bore 17 of central portion 2, for example by sticking with an elastomer material 17a.

The watch case 1 has an arc-shaped extension 18 forming one of the attachments for a watch bracelet. This extension 18 is of generally U-shaped cross-section, with the open end of the U facing towards the left of the figure and thus towards the wearer's wrist. Against the internal face of extension 18 are provided two contactors 19 and 20. The contactor 19 is electrically insulated with respect to extension 18 and casing 1, and is connected to wires 13, and 16a. The contactor 20 is connected to the extension 18.

At the interior of extension 18 is fitted a cover member 21 made of supple electrically insulating material, preferably of plastics material. Cover 21 has two recesses 22 and 23 housing batteries 24 and 25 respectively and which are connected in series by a conducting wire 26. The cover is connected to extension 18 by a pin 27.

It is evident, taking into account the flexibility of cover 21, that a simple pressure exerted by the user's wrist enables batteries 24 and 25 to be brought into contact with contactors 19 and 20, as illustrated in FIG. 1, which closes the electrical circuit and causes illumination of the dial 6 by bulb 8. When the pressure is released, cover 21 elastically returns to its rest position as shown in FIG. 2, breaking the electrical circuit between either or both contactors 19, 20 and their respective batteries and thereby switching off bulb 8.

A supple fluidtight packing member, not shown, can be inserted between the internal wall of extension 18 and cover 21 to ensure perfect fluidtightness of the electrical power supply device.

As a variant, a spiral or blade spring can be inserted between the bottom of the extension 18 and the cover 21 to ensure separation thereof when illumination is no longer desired.

The embodiment illustrated in the drawing shows bulb 8 located in the external part of watch glass 4; however, the housing for bulb 8 could naturally be provided in the internal face of glass 4.

In the illustrated embodiment, the extension 18 constitutes a rigid piece with case 1. It is possible as a variant to provide such an extension articulated to casing 1. In this case, the extension would constitute a part of the bracelet.

In yet another embodiment, and particularly in the case of a watch case of elongated shape, for example rectangular, the housing for storing the battery (or batteries) 24, 25 could be provided in the body of the watch case itself. This watch case body would thus comprise housing for the watch movement and an independent housing for the battery. Of course, the bottom of this housing would be used to actuate the illumination control contactor by elastic deformation.

The following are two examples of an application of this invention. In a diver's wrist watch, illumination of the dial could be automatically ensured upon diving below a certain depth, while under normal air pressure the pressure exerted by the wrist on cover 21 could be insufficient to close the circuit and cause illumination.

For an automobile rally driver's watch, in which various dials often have to be illuminated to enable accurate reading during night driving, illumination could be controlled in two ways. If the wrist carrying the watch does not normally exert a sufficient pressure on cover 21 to cause illumination, the extension 18 can be applied against a part of the automobile so that the wrist presses cover 21 to cause temporary illumination of the dial. Alternatively, if the user wishes to keep the dial constantly illuminated, he can simply positionally adjust the watch on his wrist until the pressure exerted by his wrist on cover 21 is sufficient to permanently close the circuit. In both cases, the dial can be clearly read while allowing freedom of the user's other hand for other operations.

I claim:
1. In a wrist watch having an outer face, a dial on said outer face and electrical lighting means for illuminating the dial and having a first housing for a watch movement, the improvement comprising a second housing connected to said first housing, electrical power
storage means in said second housing, and electrical circuit means in said housing and including a movable pressure-operative contactor on an inner face of said housing for connecting said power storage means to said lighting means, said contactor being operable to cause illumination of said dial by a pressure exerted by a wrist upon which the watch may be worn.

2. A wrist watch as set out in claim 1, in which said second housing is defined between a member open on a side thereof facing a wrist upon which said watch may be worn and a cover elastically mounted in said opening of said member, said cover being movable to operate said contactor to cause illumination of said dial by a pressure exerted by said wrist against an opposed elastic force tending to urge said cover to operate said contactor to prevent illumination of said dial.

3. In a wrist watch as set out in claim 2, the improvement whereby said cover is of supple material elastically deformable to operate said contactor to cause illumination of said dial.

4. In a wrist watch as set out in claim 2, the improvement whereby said cover is in electrically insulating material and has at least one recess therein for housing said electrical power storage means.

5. In a wrist watch as set out in claim 2, and wherein said dial, said electrical lighting means for illuminating said dial, and said first housing are all located in or on a watch case, the improvement whereby said second housing is formed in an arcuate channel-like extension to said watch case, said extension forming attachment means for a bracelet, and said cover being fixed to said extension by a pin.