

PATENT SPECIFICATION(11) **1 254 389****DRAWINGS ATTACHED**

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**(54) WATCH INDICATOR RING**

(71) We, TIMEX CORPORATION, a Corporation organised under the Laws of the State of Delaware, United States of America, of Waterbury 20, Connecticut, United States of America, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to watches and more particularly to a watch having a manually rotatable indicator ring.

Watches having manually rotatable indicator rings have become increasingly popular. For example, many persons like to wear the so-called "skin diver" type of watch, which has a rotatable ring attached to the bezel portion of the watch case. The ring is marked to indicate 60 minutes and is rotated manually to indicate the elapsed time of a dive. Many of these watches are bought by persons who do not skin dive, but who nevertheless like to wear such a watch. Rotatable indicator dials may also be used to indicate different time zones, dates of the month, days of the month, or may have other scales on their faces.

The constructions which have been proposed for the indicator ring and its support are relatively complex, costly and are often unsatisfactory. For example, the ring may be mounted on a top ledge of the bezel and a ring-like flat corrugated friction spring positioned between the bezel and the indicator ring. The friction spring is often made of a metal which becomes corroded, for example, by rust or other oxidation. The spring normally urges the indicator ring against the bezel and permits turning of the indicator ring. However, the corrosion of the spring may prevent its proper functioning. In addition, such springs are difficult to manufacture so that they provide a constant holding power. Consequently, the indicator ring may be loose or too difficult to turn.

[Price 25p]

According to the present invention there is provided a watch including a watch case 50 having a bezel, the bezel having an annular top ledge portion and an annular protruding portion radially inwardly of the ledge, and a manually rotatable indicating ring, said ring being of a resilient synthetic resin 55 and comprising, as integral portions, an annular ring portion snap-fitted over said protruding portion of the bezel, and at least two resilient protruding spring feet positioned between said ring portion and said ledge portion of the bezel, said spring 60 feet normally urging the annular ring portion into engagement with said protruding portion of the bezel and being compressible to permit the annular ring portion to move 65 away from said protruding portion of the bezel and allow rotation of the ring.

The indicator ring of the present invention can readily be made corrosion-proof, reliable and constant in operation, 70 simple to assemble and relatively inexpensive, and also it does not show appreciable wear in usage and may be readily replaced.

A preferred embodiment of the present invention will now be described in detail 75 with reference to the accompanying drawing of which:—

Fig. 1 is a top plan view of a watch according to the present invention;

Fig. 2 is an enlarged sectional view of a 80 portion of the bezel of the watch case, showing the indicator ring in its normal position;

Fig. 3 is a view similar to Fig. 2, but showing the indicator ring in its revolvable 85 position; and

Fig. 4 is a side view of a portion of the indicator ring, taken along line "A"—"A" of Fig. 2.

The watch shown in Fig. 1 is a wrist 90 watch 1 having a watch case 2. The watch case includes a bezel portion 3. A crystal 4 mounted on the bezel 3 encloses the top of the case and protects the movement (not shown). The movement may be a con- 95 ventional watch movement having a seconds

hand 5, a minutes hand 6, and an hour hand 7. The watch may also have a hand which rotates once each 24 hours (not shown). Time indications 9 are applied on a dial 10 beneath the crystal 4.

A rotatable indicator ring 11 is revolvably attached to the bezel 3. The ring may have, as indicated, time indications 12 showing sixty minutes. In this version of a "skin diver" watch, the ring may be rotated manually relative to the minutes hand 6 in order to show, in conjunction with the hand, an elapsed amount of time. Alternatively, the ring may have twelve hour markings to indicate time zones. Other alternative marking scales may be presented on the indicator ring, for example, days of the week or dates which would be set relative to the time indications on the dial.

The bezel 3 shown in Fig. 2 is made of metal or alternatively, of plastics. The bezel has a top ledge portion 13 having an annular channel 14. An annular flange 15, an integral part of bezel 3 at the radially inner edge of the ledge portion 13, is cut-back on its exterior face 16 to form a protruding top edge 17. The face 16 is sloped (tapered) so that it has a larger outside diameter at the top edge 17 than at its bottom.

The indicating ring 11 is preferably moulded from a durable self-lubricating synthetic resin such as nylon, which is also somewhat resilient. The ring has a top face 18 upon which, as described above, are printed or otherwise positioned a scale, such as time or date indications 12. A plurality of spring foot portions 20 are integral with the ring 11 and extend from the bottom of the ring. A series of indentations in the ring forms a knurled surface useful to grip when turning the ring. The inner wall 21 of the ring 11 is tapered so that its inner diameter is larger at the top than at the bottom. There are preferably three feet 20, each as shown in Fig. 4, evenly spaced around the circumference of the ring. Each foot is in the form of an arch relative to the body of the indicator ring 11. The ring has at least two such feet, although more may be used.

As shown in Fig. 2, under normal conditions the feet 20 urge the ring 11 against the outer face 16 of the flange with sufficient force so that the ring will not turn under slight accidental pressure or shock. The normal force of the spring feet, shown by arrow A, is upward.

The user, to set the ring, places a downward force, shown by arrow B in Fig. 3, on the ring 11. This compresses the arches of the spring feet and brings the inner wall 21 of the indicator ring away from the surface 16 of the flange so that the user can readily revolve the ring. The ring revolves

with its feet 20 riding in the channel 14.

The ring 11 is made sufficiently resilient so that it may be assembled by being snap-fitted (pressed) over the protruding top edge 17 of the flange. Similarly, its removal simply involves it being forced over the flange.

The rotatable indicator ring is completely rust-proof as it is made of plastics. It is easily assembled to the watch case by simply snapping it in position over the flange 15. The indicator ring is relatively inexpensive as it may be moulded as a single unit.

WHAT WE CLAIM IS:—

1. A watch including a watch case having a bezel, the bezel having an annular top ledge portion and an annular protruding portion radially inwardly of the ledge, and a manually rotatable indicating ring, said ring being of a resilient synthetic resin and comprising, as integral portions, an annular ring portion snap-fitted over said protruding portion of the bezel, and at least two resilient protruding spring feet positioned between said ring portion and said ledge portion of the bezel, said spring feet normally urging the annular ring portion into engagement with said protruding portion of the bezel and being compressible to permit the annular ring portion to move away from said protruding portion of the bezel and allow rotation of the ring.

2. A watch according to claim 1 wherein the spring feet are arch-shaped.

3. A watch according to claim 1 or claim 2, wherein the indicating ring has an inside tapered wall the diameter of which increases from the bottom of the ring towards the top, said protruding portion of the bezel comprising a flange having a sloping wall which increases in diameter upwardly thereof to co-operate with the inside tapered ring wall, whereby the ring is able to be snap-fitted into position.

4. A watch according to any one of the preceding claims, wherein the bezel edge has an annular channel and said feet ride in said channel.

5. A watch according to any one of the preceding claims, wherein the top of the indicator ring is marked to indicate time zone difference or elapsed time.

6. A watch according to any one of the preceding claims, including a crystal mounted on the bezel.

7. A watch substantially as hereinbefore described with reference to the accompanying drawing.

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A rotatable indicator ring 11 is revolvably attached to the bezel 3. The ring may have, as indicated, time indications 12 showing sixty minutes. In this version of a "skin diver" watch, the ring may be rotated manually relative to the minutes hand 6 in order to show, in conjunction with the hand, an elapsed amount of time. Alternatively, the ring may have twelve hour markings to indicate time zones. Other alternative marking scales may be presented on the indicator ring, for example, days of the week or dates which would be set relative to the time indications on the dial.

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The indicating ring 11 is preferably moulded from a durable self-lubricating synthetic resin such as nylon, which is also somewhat resilient. The ring has a top face 18 upon which, as described above, are printed or otherwise positioned a scale, such as time or date indications 12. A plurality of spring foot portions 20 are integral with the ring 11 and extend from the bottom of the ring. A series of indentations in the ring forms a knurled surface useful to grip when turning the ring. The inner wall 21 of the ring 11 is tapered so that its inner diameter is larger at the top than at the bottom. There are preferably three feet 20, each as shown in Fig. 4, evenly spaced around the circumference of the ring. Each foot is in the form of an arch relative to the body of the indicator ring 11. The ring has at least two such feet, although more may be used.

As shown in Fig. 2, under normal conditions the feet 20 urge the ring 11 against the outer face 16 of the flange with sufficient force so that the ring will not turn under slight accidental pressure or shock. The normal force of the spring feet, shown by arrow A, is upward.

The user, to set the ring, places a downward force, shown by arrow B in Fig. 3, on the ring 11. This compresses the arches of the spring feet and brings the inner wall 21 of the indicator ring away from the surface 16 of the flange so that the user can readily revolve the ring. The ring revolves

with its feet 20 riding in the channel 14.

The ring 11 is made sufficiently resilient so that it may be assembled by being snap-fitted (pressed) over the protruding top edge 17 of the flange. Similarly, its removal simply involves it being forced over the flange.

The rotatable indicator ring is completely rust-proof as it is made of plastics. It is easily assembled to the watch case by simply snapping it in position over the flange 15. The indicator ring is relatively inexpensive as it may be moulded as a single unit.

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2. A watch according to claim 1 wherein the spring feet are arch-shaped.
3. A watch according to claim 1 or claim 2, wherein the indicating ring has an inside tapered wall the diameter of which increases from the bottom of the ring towards the top, said protruding portion of the bezel comprising a flange having a sloping wall which increases in diameter upwardly thereof to co-operate with the inside tapered ring wall, whereby the ring is able to be snap-fitted into position.
4. A watch according to any one of the preceding claims, wherein the bezel edge has an annular channel and said feet ride in said channel.
5. A watch according to any one of the preceding claims, wherein the top of the indicator ring is marked to indicate time zone difference or elapsed time.
6. A watch according to any one of the preceding claims, including a crystal mounted on the bezel.
7. A watch substantially as hereinbefore described with reference to the accompanying drawing.

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