

PATENT SPECIFICATION

DRAWINGS ATTACHED

10

1.193.018

1.193.018



Date of Application and filing Complete Specification: 21 June, 1968.

No. 29780/68.

Application made in Japan (No. 56223) on 1 July, 1967.

Complete Specification Published: 28 May, 1970.

Index at acceptance: —G3 T(A1, C1B)

International Classification: —G 04 b 19/00, 23/02

COMPLETE SPECIFICATION

Timepiece

We, KABUSHIKI KAISHA SUWA SEIKOSHA, a Japanese company, of 5—19, 4-chome, Ginza-Nishi, Chuo-ku, Tokyo, Japan, 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:—

This invention relates to a timepiece.

According to the present invention, there is provided a timepiece including an hour wheel mounted for rotation about the axis of a shaft, a rotary member mounted on said shaft and rotatable relative to said hour wheel, and a retaining member for said rotary member mounted on said shaft in a readily removable manner and so as to have a clearance between itself and said rotary member.

Said retaining member may be mounted in an annular groove in said shaft, or alternatively, said shaft may be provided with a frusto-conical portion, said retaining member being mounted around said portion for engagement therewith.

Said retaining member may be an annular or a part-annular ring, or it may be a substantially U-shaped member.

The timepiece may be a calendar watch, and said rotary member may be a day disc, or alternatively the timepiece may be an alarm watch or alarm clock, in which case said rotary member may be an alarm releasing wheel.

The invention will be described, merely by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a side view partly in section, of one embodiment of part of a timepiece in accordance with the present invention,

Figure 2 is a view corresponding to Figure 1, but showing another embodiment,

Figure 3 is a view similar to Figure 1, but showing yet another embodiment, and

Figures 4 to 6 are, respectively, perspective views of three embodiments of retaining member forming part of a timepiece in accordance with the present invention.

Referring to the drawings, there is shown an hour wheel 1 of a calendar watch in accordance with the present invention, the remainder of the calendar watch not being shown in the interests of clarity. The hour wheel 1 is mounted for rotation about an axis A—A and is mounted on, or is integral with, a shaft 4. Mounted on the shaft 4 is a day disc 2 which is rotatable relatively to the hour wheel 1 about the shaft 4. Mounted above the day disc 2 is a retaining member 3 which is in engagement with a reduced portion of the shaft 4 and is axially spaced from the day disc 2. The ring 3 is readily removably fitted on the shaft 4 and serves as a guard against any excessive displacement of the day disc 2, e.g. due to external shocks. The shape of the retaining member 3 may be in accordance with any of the three embodiments shown in Figures 4 to 6 respectively.

In the embodiment of Figure 2, similar parts have been allotted similar reference numbers. However, in this embodiment, the shaft 4 is provided with an annular groove 5 around which the retaining member 3 is removably fitted.

In the embodiment of Figure 3, similar parts have again been allotted similar reference numbers, but here the shaft 4 is provided with a frusto-conical portion 6 around which the retaining member 3 is fitted.

While in Figures 4 to 6 three exemplary shapes for the retaining member 3 have been shown, it is to be understood that the invention is not limited to these shapes, and any shape would be suitable if it provides an adequate guard for the day disc 2.

As can be seen from the above, the present invention provides a simplified construc-

[Price 5s. 0d.]

tion consisting of a very few number of parts which are easy to assemble, thereby lowering the manufacturing cost of a watch, in which a removable retaining member 3 is fitted on a shaft of the hour wheel 1 and serves as a guard for the day disc 2. As a result of the clearance between the day disc 2 and the retaining member 3, the former can be decreased in thickness without increasing the risk of disengagement of the day disc 2 from other parts it meshes with, and this is very advantageous for the production of a thin watch.

It will be understood that the present invention is not restricted to providing a guard for a day disc 2 in a calendar watch, but it also includes the provision of a retaining member for a releasing wheel in an alarm watch (or alarm clock) which rotates around the hour wheel.

The illustrated embodiments of the present invention constitute an improvement over the hitherto known arrangements for retaining members for a rotary member such as a day disc 2 or an alarm releasing wheel in an alarm watch or clock, in that the thickness of the assembly is reduced in comparison with said known arrangements. In one known prior arrangement, a separate guard member was provided on the base plate which, however, necessitated additional parts and assembly steps and increased the thickness of the watch. In another known arrangement, a dial washer was used, but in this case, it was difficult to keep the clearance between the dial and the day disc constant, since the dial is fixed to the plate at its periphery. On the other hand, excessive clearance caused the day disc to disengage from the parts with which it meshingly engaged and if the depth of meshing therebetween was increased, inevitably the thickness of the watch increased. Additionally, the use of a dial washer increased the rotational resistance of the day disc. Thus, the present invention, as illustrated and described

above, provides a simplified construction by providing a removable retaining member fitted on the shaft of the hour wheel 1 as a guard for, but spaced from the rotary member 2.

WHAT WE CLAIM IS:—

1. A timepiece including an hour wheel mounted for rotation about the axis of a shaft, a rotary member mounted on said shaft and rotatable relative to said hour wheel, and a retaining member for said rotary member mounted on said shaft in a readily removable manner and so as to have a clearance between itself and said rotary member.

2. A timepiece as claimed in claim 1 wherein said retaining member is mounted in an annular groove in said shaft.

3. A timepiece as claimed in claim 1 wherein said shaft is provided with a frusto-conical portion, said retaining member being mounted around said portion for engagement therewith.

4. A timepiece as claimed in any preceding claim wherein said retaining member is an annular or part-annular ring.

5. A timepiece as claimed in any of claims 1 to 4 wherein said retaining member is a substantially U-shaped member.

6. A timepiece as claimed in any preceding claim wherein the timepiece is a calendar watch, and said rotary member is a day disc.

7. A timepiece as claimed in any of claims 1 to 5, wherein the timepiece is an alarm watch or alarm clock, and said rotary member is an alarm releasing wheel.

8. A timepiece substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

J. MILLER & CO.,
Agents for the Applicants,
Chartered Patent Agents,
262 High Holborn,
London, W.C.1.

tion consisting of a very few number of parts which are easy to assemble, thereby lowering the manufacturing cost of a watch, in which a removable retaining member 3 is fitted on a shaft of the hour wheel 1 and serves as a guard for the day disc 2. As a result of the clearance between the day disc 2 and the retaining member 3, the former can be decreased in thickness without increasing the risk of disengagement of the day disc 2 from other parts it meshes with, and this is very advantageous for the production of a thin watch.

It will be understood that the present invention is not restricted to providing a guard for a day disc 2 in a calendar watch, but it also includes the provision of a retaining member for a releasing wheel in an alarm watch (or alarm clock) which rotates around the hour wheel.

The illustrated embodiments of the present invention constitute an improvement over the hitherto known arrangements for retaining members for a rotary member such as a day disc 2 or an alarm releasing wheel in an alarm watch or clock, in that the thickness of the assembly is reduced in comparison with said known arrangements. In one known prior arrangement, a separate guard member was provided on the base plate which, however, necessitated additional parts and assembly steps and increased the thickness of the watch. In another known arrangement, a dial washer was used, but in this case, it was difficult to keep the clearance between the dial and the day disc constant, since the dial is fixed to the plate at its periphery. On the other hand, excessive clearance caused the day disc to disengage from the parts with which it meshingly engaged and if the depth of meshing therebetween was increased, inevitably the thickness of the watch increased. Additionally, the use of a dial washer increased the rotational resistance of the day disc. Thus, the present invention, as illustrated and described

above, provides a simplified construction by providing a removable retaining member fitted on the shaft of the hour wheel 1 as a guard for, but spaced from the rotary member 2.

WHAT WE CLAIM IS:—

1. A timepiece including an hour wheel mounted for rotation about the axis of a shaft, a rotary member mounted on said shaft and rotatable relative to said hour wheel, and a retaining member for said rotary member mounted on said shaft in a readily removable manner and so as to have a clearance between itself and said rotary member.

2. A timepiece as claimed in claim 1 wherein said retaining member is mounted in an annular groove in said shaft.

3. A timepiece as claimed in claim 1 wherein said shaft is provided with a frusto-conical portion, said retaining member being mounted around said portion for engagement therewith.

4. A timepiece as claimed in any preceding claim wherein said retaining member is an annular or part-annular ring.

5. A timepiece as claimed in any of claims 1 to 4 wherein said retaining member is a substantially U-shaped member.

6. A timepiece as claimed in any preceding claim wherein the timepiece is a calendar watch, and said rotary member is a day disc.

7. A timepiece as claimed in any of claims 1 to 5, wherein the timepiece is an alarm watch or alarm clock, and said rotary member is an alarm releasing wheel.

8. A timepiece substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

J. MILLER & CO.,
Agents for the Applicants,
Chartered Patent Agents,
262 High Holborn,
London, W.C.1.

Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1970.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.



* C L N S *