

PATENT SPECIFICATION

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DRAWINGS ATTACHED



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(54) CALENDAR TIMEPIECE

(71) We, KABUSHIKI KAISHA SUWA SEIKOSHA, a Japanese company, of 3-4, 4-chome, Ginza, 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 calendar timepieces.

According to the present invention there is provided a calendar timepiece including a calendar indicating means, a calendar indication correcting mechanism, an operating member movable between an operative position and an inoperative position, said mechanism comprising a pivotally mounted first lever, a calendar indication correcting member which when it engages the calendar indicating means effects correction of the calendar indication in response to movement of the operating member when the latter is in its operative position, and a pivotally mounted second lever which cooperates with said first lever so that, when said operating member is in its inoperative position, the first and second levers position the calendar indication correcting member out of engagement with the calendar indicating means.

In the illustrated embodiment said calendar indicating means is a date indicating means and said calendar indication correcting mechanism is a date indication correcting mechanism. Alternatively, said calendar indicating means may be a day indicating means and said calendar indication correcting mechanism may be a day indication correcting mechanism.

Preferably said operating member is a rotary winding crown, rotation of said winding crown when in the operative position effecting correction of the calendar indication means.

A day indicating means may also be provided, rotation of said winding crown in one direction effecting correction of the date indication and rotation of the winding

crown in the opposite direction effecting correction of the day indication.

The calendar timepiece may include time correcting means, movement of said operating member when in the inoperative position effecting correction of the time indication.

The invention is illustrated, merely by way of example, in the accompanying drawings, in which:—

Figure 1 shows a plan view of part of a calendar timepiece according to the present invention, a winding crown being in the operative position.

Figure 2 is similar to Figure 1 but with the winding crown in the inoperative position, and

Figure 3 shows a partial cross-section of the calendar timepiece of Figures 1 and 2.

Calendar timepieces are already known which are provided with day and date indication correcting mechanisms. Known day and date indication correcting mechanisms operate in one of the four following ways:—

- (1) A winding crown corrects the position of the hands of the calendar timepiece as well as a calendar dial;
- (2) a calendar dial is rotated by the reciprocation of a winding crown or a separate button;
- (3) a combination of (1) and (2); or
- (4) a calendar dial is rotated by rotating a winding crown.

However, (1), (2) and (3) are troublesome and the correction of the date takes a considerable time. Furthermore, during rotation of the calendar dial the hands of the watch have to be moved. Furthermore, when the calendar timepiece is subjected to shocks such as when it is dropped, the date indication may be altered. (4) has the disadvantage that it is a complicated device and it occupies much space and employs a large number of components and thus its cost is high.

[Price 25p]

Referring to the drawings, there is shown a calendar timepiece having a winding crown 1, a setting lever 2 which cooperates with the winding crown, and a pivotally mounted first lever 3 engaging with the setting lever 2 and having an elliptical aperture or hole 3a therein and a projection 3b. A spring 4 presses down upon the first lever 3 biasing it towards the setting lever 2. A setting wheel 5 is rotatably mounted on the first lever 3 and a correcting wheel 6, mounted on a spindle 6a, engages with a setting wheel 5 and is movable to an extent dictated by the elliptical hole 3a. A pivotally mounted second lever 7 is pivotally mounted about a pin 8 and is provided at its end adjacent the first lever 3 with a projection 7a and at its end adjacent the spindle 6a of the correcting wheel 6 is provided with a projection 7b. There is also provided a date wheel 9, a day wheel 10, an intermediate wheel 11 engaging with the day wheel and a minute wheel 12 engaging with an hour wheel (not shown). A clutch wheel 13 engages with the setting wheel 5 so that the latter is rotated by the crown wheel 1. The clutch wheel 13 slides on a square section part 1a of the winding crown 1.

The operation of the calendar timepiece is as follows:

When the winding crown 1 is in its operative position shown in Figure 1 and is rotated in a clockwise direction the setting wheel 5 is rotated in a counterclockwise direction through the clutch wheel 13. This causes the correcting wheel 6 to move along the elliptical hole 3a of the first lever 3 towards the date wheel 9 to the position shown in broken lines in Figure 1 where it engages with the date wheel 9 to cause correction of the date indication. On the other hand, when the winding crown 1 is rotated in a counterclockwise direction the setting wheel 5 is rotated in a clockwise direction and the correcting wheel 6 is moved along the elliptical hole 3a of the first lever 3 to the position shown in full lines in Figure 1 where it engages with the intermediate wheel 11 so that the day wheel 10 is rotated to effect a correction of the day indication.

When the winding crown 1 is pulled out, i.e. moved to its inoperative position shown in Figure 2, the setting lever 10 is pivoted in a counterclockwise direction and the first lever 3 is urged in a clockwise direction by the spring 4. At the same time the setting wheel 5, which is still engaged with the clutch wheel 13, engages with the minute wheel 12. The second lever 7 is rotated in a clockwise direction by coaction between the projection 3b on the first lever 3 and the projection 7a on the second lever. The projection 7b on the second lever 7

engages with the spindle 6a of the correcting wheel 6 causing it to move in the elliptical hole 3a to the position shown in Figure 2. In this position the correcting wheel 6 neither engages the date wheel 9 nor the intermediate wheel 11, i.e. is in a "neutral" position, and, therefore, when the winding crown 1 is rotated correction of the time indication is effected, and this correction is independent of the correction of the date indication and the day indication. The described embodiment relates to a calendar timepiece having both a date indication and a day indication. However, it will be appreciated that this invention is applicable to a calendar timepiece having either a date indication or a day indication. Furthermore, the correcting wheel 6 can engage directly with the day wheel 10 and thus the intermediate wheel 11 need not be provided.

It will be appreciated that the above calendar timepiece has a small number of component parts and has the advantage that the day indication, date indication, and time indication can be corrected independently of one another. Accordingly, correction of the time indication or correction of the day indication or correction of the date indication may be effected extremely easily and quickly and damage caused by interference between the day wheel, and date wheel and the correcting wheel 6 does not occur. Besides, the "neutral" position of the correcting wheel 6 when the winding crown is in the inoperative position means that the components do not take up much space. Basically, the above calendar timepiece provides a date and day indication correcting mechanism wherein the operation is easy, the troubles are few and it may be produced at a reasonable cost.

WHAT WE CLAIM IS:—

1. A calendar timepiece including a calendar indicating means, a calendar indication correcting mechanism, an operating member movable between an operative position and an inoperative position, said mechanism comprising a pivotally mounted first lever, a calendar indication correcting member which when it engages the calendar indicating means effects correction of the calendar indication in response to movement of the operating member when the latter is in its operative position, and a pivotally mounted second lever which cooperates with said first lever so that, when said operating member is in its inoperative position, the first and second levers position the calendar indication correcting member out of engagement with the calendar indicating means.

2. A calendar timepiece as claimed in claim 1 in which said calendar indicating



Referring to the drawings, there is shown a calendar timepiece having a winding crown 1, a setting lever 2 which cooperates with the winding crown, and a pivotally mounted first lever 3 engaging with the setting lever 2 and having an elliptical aperture or hole 3a therein and a projection 3b. A spring 4 presses down upon the first lever 3 biasing it towards the setting lever 2. A setting wheel 5 is rotatably mounted on the first lever 3 and a correcting wheel 6, mounted on a spindle 6a, engages with a setting wheel 5 and is movable to an extent dictated by the elliptical hole 3a. A pivotally mounted second lever 7 is pivotally mounted about a pin 8 and is provided at its end adjacent the first lever 3 with a projection 7a and at its end adjacent the spindle 6a of the correcting wheel 6 is provided with a projection 7b. There is also provided a date wheel 9, a day wheel 10, an intermediate wheel 11 engaging with the day wheel and a minute wheel 12 engaging with an hour wheel (not shown). A clutch wheel 13 engages with the setting wheel 5 so that the latter is rotated by the crown wheel 1. The clutch wheel 13 slides on a square section part 1a of the winding crown 1.

The operation of the calendar timepiece is as follows:

When the winding crown 1 is in its operative position shown in Figure 1 and is rotated in a clockwise direction the setting wheel 5 is rotated in a counterclockwise direction through the clutch wheel 13. This causes the correcting wheel 6 to move along the elliptical hole 3a of the first lever 3 towards the date wheel 9 to the position shown in broken lines in Figure 1 where it engages with the date wheel 9 to cause correction of the date indication. On the other hand, when the winding crown 1 is rotated in a counterclockwise direction the setting wheel 5 is rotated in a clockwise direction and the correcting wheel 6 is moved along the elliptical hole 3a of the first lever 3 to the position shown in full lines in Figure 1 where it engages with the intermediate wheel 11 so that the day wheel 10 is rotated to effect a correction of the day indication.

When the winding crown 1 is pulled out, i.e. moved to its inoperative position shown in Figure 2, the setting lever 10 is pivoted in a counterclockwise direction and the first lever 3 is urged in a clockwise direction by the spring 4. At the same time the setting wheel 5, which is still engaged with the clutch wheel 13, engages with the minute wheel 12. The second lever 7 is rotated in a clockwise direction by coaction between the projection 3b on the first lever and the projection 7a on the second lever. projection 7b on the second lever 7

engages with the spindle 6a of the correcting wheel 6 causing it to move in the elliptical hole 3a to the position shown in Figure 2. In this position the correcting wheel 6 neither engages the date wheel 9 nor the intermediate wheel 11, i.e. is in a "neutral" position, and, therefore, when the winding crown 1 is rotated correction of the time indication is effected, and this correction is independent of the correction of the date indication and the day indication. The described embodiment relates to a calendar timepiece having both a date indication and a day indication. However, it will be appreciated that this invention is applicable to a calendar timepiece having either a date indication or a day indication. Furthermore, the correcting wheel 6 can engage directly with the day wheel 10 and thus the intermediate wheel 11 need not be provided.

It will be appreciated that the above calendar timepiece has a small number of component parts and has the advantage that the day indication, date indication, and time indication can be corrected independently of one another. Accordingly, correction of the time indication or correction of the day indication or correction of the date indication may be effected extremely easily and quickly and damage caused by interference between the day wheel, and date wheel and the correcting wheel 6 does not occur. Besides, the "neutral" position of the correcting wheel 6 when the winding crown is in the inoperative position means that the components do not take up much space. Basically, the above calendar timepiece provides a date and day indication correcting mechanism wherein the operation is easy, the troubles are few and it may be produced at a reasonable cost.

WHAT WE CLAIM IS:—

1. A calendar timepiece including a calendar indicating means, a calendar indication correcting mechanism, an operating member movable between an operative position and an inoperative position, said mechanism comprising a pivotally mounted first lever, a calendar indication correcting member which when it engages the calendar indicating means effects correction of the calendar indication in response to movement of the operating member when the latter is in its operative position, and a pivotally mounted second lever which cooperates with said first lever so that, when said operating member is in its inoperative position, the first and second levers position the calendar indication correcting member out of engagement with the calendar indicating means.

2. A calendar timepiece as claimed in claim 1 in which said calendar indicating



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means is a date indicating means and said calendar indication correcting mechanism is a date indication correcting mechanism.

3. A calendar timepiece as claimed in claim 1 in which said calendar indicating means is a day indicating means and said calendar indication correcting mechanism is a day indication correcting mechanism.

4. A calendar timepiece as claimed in any preceding claim in which said operating member is a rotary winding crown, rotation of said winding crown when in the operative position effecting correction of the calendar indication means.

5. A calendar timepiece as claimed in claim 4 when dependent upon claim 2 in which a day indicating means is also provided, rotation of said winding crown in

one direction effecting correction of the date indication and rotation of the winding crown in the opposite direction effecting correction of the day indication. 20

6. A calendar timepiece as claimed in any preceding claim including time correcting means, movement of said operating member when in the inoperative position effecting correction of the time indication. 25

7. A calendar timepiece substantially as herein described with reference to and as shown in the accompanying drawings. 30

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

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