

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) MECHANISM FOR A 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 concerns a mechanism for a calendar timepiece, and a calendar timepiece provided with said mechanism.

According to the present invention, there is provided a mechanism for a calendar timepiece comprising a date wheel, a day star wheel, a rotatably mounted date and day correcting member, and operating means for rotating the correcting member through a relatively small and a relatively large angle respectively, rotation of the correcting member through the said relatively small angle rotating it between an inoperative position and a first operative position in which one only of said wheels is adjusted, and rotation of the correcting member through the said relatively large angle rotating it between the inoperative position and a second operative position in which both of said wheels are adjusted.

As will be appreciated, the present invention provides a simple and easily operable mechanism by means of which both the date and the day indications of a calendar timepiece may be adjusted.

Preferably, in the first operative position, only the day star wheel is adjusted.

The correcting member may have first and second portions which are respectively engageable with the day star wheel and the date wheel but which are out of engagement therewith in the said inoperative position.

Thus the said correcting member may have a finger an end portion of which is engageable with a tooth of the day star wheel.

The finger may be provided with an abutment portion engageable with a tooth of the date wheel. Thus the date wheel may be an internally toothed wheel, the abutment portion

being constituted by a stepped portion of the finger which is engageable with an internal tooth of the date wheel.

The operating means preferably comprises a crown secured to a winding stem, and means interconnecting the winding stem and the correcting member, axial movement of the crown through a relatively small distance moving the correcting member into the first operative position, and axial movement of the crown through a relative large distance moving the correcting member into the second operative position.

Thus both the date and the day indications can be corrected by the extent to which the crown is moved axially, e.g. in an inward direction.

Spring means are preferably provided for urging the correcting member towards the inoperative position.

The invention also comprises a calendar timepiece provided with a mechanism as set forth above.

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

Figure 1 is a plan view of a mechanism for a calendar timepiece according to the present invention, the parts of the said mechanism being shown in the said inoperative and in the said first operative positions respectively.

Figure 2 is a view similar to Figure 1 but indicating the relative dispositions of the parts of the mechanism in the said inoperative position and in the second operative position respectively, and

Figure 3 is a broken-away cross-sectional view of the mechanism of Figures 1 and 2.

Referring to the drawings, a calendar timepiece 10 has a crown 11 secured to a winding stem 12, the winding stem 12 being axially movable inwardly and outwardly of the calendar timepiece 10. The winding stem 12 has a reduced diameter portion 13 which is engaged by a projecting pin or boss 14 on a setting lever 15, the setting lever 15 being pi-

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totally mounted in the timepiece on a pivot 16.

The setting lever 15 has a nose portion 17 which engages a pin 20 on a date and day correcting member 21 which is rotatably mounted on a pivot 22.

The winding stem 12 carries a clutch wheel 23 having a recessed portion 24 which is engaged by a part 25 of a clutch lever 26.

The clutch wheel 23 is adapted to engage a setting wheel 27 which is itself in mesh with a minute wheel 30. The minute wheel 30 is in mesh with a day star wheel 31 which adjusts the day indication (not shown) of the calendar timepiece 10, the day star wheel 31 being engaged by a lever 32 which is urged into the engaged position by a spring 33.

An annular date wheel 34 has internal teeth 35 one of which is engaged by a date jumper 36 which is urged into engagement with the respective tooth 35 by a date jumper spring 37.

The correcting member 21 has a finger 40 an end portion 41 of which is engageable with a tooth 42 of the day star wheel 31.

The finger 40 has a stepped portion 43 which forms an abutment portion engageable with a tooth 35 of the date wheel 34.

A leaf spring 44 engages a shoulder 45 of the correcting member 21 and urges the latter towards an inoperative position which is shown in full lines in Figures 1 and 2, and in which the end portion 41 and stepped portion 43 of the correcting member 21 are respectively out of engagement with the teeth 42 of the day star wheel 31 and the teeth 35 of the date wheel 34.

When, however, the crown 11 is moved axially inwardly through a relatively small distance, the parts of the mechanism are moved into a first operative position indicated by chain dotted lines in

Figure 1. In this first operative position, the setting lever 15 is rotated about its pivot 16 so that its nose portion 17, by virtue of its engagement with the pin 20, rotates the correcting member 21 through a relatively small angle. This rotation of the correcting member 21 through the said relatively small angle causes the end portion 41 of the finger 40 to move the respective tooth 42 of the day star wheel 31 so as to advance the latter by one tooth, and thereby correct the day indication. This rotation of the correcting member 21 through the said relatively small angle is, however, insufficient to cause engagement between the stepped portion 43 and the respective tooth 35 of the date wheel 34 such as would be needed to advance the date wheel 34 through one tooth.

Accordingly, on releasing the crown 11, the latter, together with the winding stem 12, setting lever 15 and correcting member 21 are restored by the spring 44 to the inoperative

position, the day indication having been altered by one day without alteration of the date indication.

As will be seen from Figure 2, however, when the crown 11 is moved axially inwardly through a relatively large distance, the parts of the mechanism may be moved into the position shown in chain dotted lines in Figure 2, in which the correcting member 21 is moved through a relatively large angle, and so into a second operative position. The movement of the correcting member 21 into the second operative position, not merely causes the end portion 41 of the finger 40 to engage the respective tooth 42 of the day star wheel 31 so as to advance the latter through one tooth, but also effects engagement between the stepped portion 43 and the respective tooth 35 of the date wheel 34 so as to move the latter through one tooth also.

Thus when the crown 11 is released, the spring 44 will restore the parts to the inoperative position and both the day and the date indications will have been adjusted.

As will be appreciated, the mechanism described above permits the date indication and the day indication to be adjusted simultaneously or the day indication to be adjusted independently, the mechanism being easy to operate and comprising a small number of parts.

WHAT WE CLAIM IS:—

1. A mechanism for a calendar timepiece comprising a date wheel, a day star wheel, a rotatably mounted date and day correcting member, and operating means for rotating the correcting member through a relatively small and a relatively large angle respectively, rotation of the correcting member through the said relatively small angle rotating it between an inoperative position and a first operative position in which only one of said wheels is adjusted, and rotation of the correcting member through the said relatively large angle rotating it between the inoperative position and a second operative position in which both of said wheels are adjusted.

2. A mechanism as claimed in claim 1 in which, in the first operative position, only the day star wheel is adjusted.

3. A mechanism as claimed in claim 2 in which the correcting member has first and second portions which are respectively engageable with the day star wheel and the date wheel but which are out of engagement therewith in the said inoperative position.

4. A mechanism as claimed in claim 3 in which the said correcting member has a finger an end portion of which is engageable with a tooth of the day star wheel.

5. A mechanism as claimed in claim 4 in which the finger is provided with an abutment portion engageable with a tooth of the date wheel.



totally mounted in the timepiece on a pivot 16.

5 The setting lever 15 has a nose portion 17 which engages a pin 20 on a date and day correcting member 21 which is rotatably mounted on a pivot 22.

The winding stem 12 carries a clutch wheel 23 having a recessed portion 24 which is engaged by a part 25 of a clutch lever 26.

10 The clutch wheel 23 is adapted to engage a setting wheel 27 which is itself in mesh with a minute wheel 30. The minute wheel 30 is in mesh with a day star wheel 31 which adjusts the day indication (not shown) of the calendar timepiece 10, the day star wheel 31 being engaged by a lever 32 which is urged into the engaged position by a spring 33.

15 An annular date wheel 34 has internal teeth 35 one of which is engaged by a date jumper 36 which is urged into engagement with the respective tooth 35 by a date jumper spring 37.

20 The correcting member 21 has a finger 40 an end portion 41 of which is engagable with a tooth 42 of the day star wheel 31.

25 The finger 40 has a stepped portion 43 which forms an abutment portion engageable with a tooth 35 of the date wheel 34.

30 A leaf spring 44 engages a shoulder 45 of the correcting member 21 and urges the latter towards an inoperative position which is shown in full lines in Figures 1 and 2, and in which the end portion 41 and stepped portion 43 of the correcting member 21 are respectively out of engagement with the teeth 42 of the day star wheel 31 and the teeth 35 of the date wheel 34.

35 When, however, the crown 11 is moved axially inwardly through a relatively small distance, the parts of the mechanism are moved into a first operative position indicated by chain dotted lines in

40 Figure 1. In this first operative position, the setting lever 15 is rotated about its pivot 16 so that its nose portion 17, by virtue of its engagement with the pin 20, rotates the correcting member 21 through a relatively small angle. This rotation of the correcting member 21 through the said relatively small angle causes the end portion 41 of the finger 40 to move the respective tooth 42 of the day star wheel 31 so as to advance the latter by one tooth, and thereby correct the day indication. This rotation of the correcting member 21 through the said relatively small angle is, however, insufficient to cause engagement between the stepped portion 43 and the respective tooth 35 of the date wheel 34 such as would be needed to advance the date wheel 34 through one tooth.

45 Accordingly, on releasing the crown 11, the latter, together with the winding stem 12, setting lever 15 and correcting member 21 are restored by the spring 44 to the inoperative

65 position, the day indication having been altered by one day without alteration of the date indication.

70 As will be seen from Figure 2, however, when the crown 11 is moved axially inwardly through a relatively large distance, the parts of the mechanism may be moved into the position shown in chain dotted lines in Figure 2, in which the correcting member 21 is moved through a relatively large angle, and so into a second operative position. The movement of the correcting member 21 into the second operative position, not merely causes the end portion 41 of the finger 40 to engage the respective tooth 42 of the day star wheel 31 so as to advance the latter through one tooth, but also effects engagement between the stepped portion 43 and the respective tooth 35 of the date wheel 34 so as to move the latter through one tooth also.

75 Thus when the crown 11 is released, the spring 44 will restore the parts to the inoperative position and both the day and the date indications will have been adjusted.

80 As will be appreciated, the mechanism described above permits the date indication and the day indication to be adjusted simultaneously or the day indication to be adjusted independently, the mechanism being easy to operate and comprising a small number of parts.

WHAT WE CLAIM IS:—

95 1. A mechanism for a calendar timepiece comprising a date wheel, a day star wheel, a rotatably mounted date and day correcting member, and operating means for rotating the correcting member through a relatively small and a relatively large angle respectively, rotation of the correcting member through the said relatively small angle rotating it between an inoperative position and a first operative position in which only one of said wheels is adjusted, and rotation of the correcting member through the said relatively large angle rotating it between the inoperative position and a second operative position in which both of said wheels are adjusted.

100 2. A mechanism as claimed in claim 1 in which, in the first operative position, only the day star wheel is adjusted.

105 3. A mechanism as claimed in claim 2 in which the correcting member has first and second portions which are respectively engagable with the day star wheel and the date wheel but which are out of engagement therewith in the said inoperative position.

110 4. A mechanism as claimed in claim 3 in which the said correcting member has a finger an end portion of which is engagable with a tooth of the day star wheel.

115 5. A mechanism as claimed in claim 4 in which the finger is provided with an abutment portion engagable with a tooth of the date wheel.

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6. A mechanism as claimed in claim 5 in which the date wheel is an internally toothed wheel the abutment portion being constituted by a stepped portion of the finger which is
5 engagable with an internal tooth of the date wheel.
7. A mechanism as claimed in any preceding claim in which the operating means comprises a crown secured to a winding stem, and means
10 interconnecting the winding stem and the correcting member, axial movement of the crown through a relatively small distance moving the correcting member into the first operative position, and axial movement of the crown through
15 a relative large distance moving the correcting member into the second operative position,
8. A mechanism as claimed in any preceding claim in which spring means are provided for urging the correcting member towards the inoperative position.
9. A mechanism for a calendar timepiece substantially as hereinbefore described with reference to and as shown in the accompanying drawings.
10. A calendar timepiece provided with a
25 mechanism as claimed in any preceding claim.

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