

PATENT SPECIFICATION

(11)

1 318 326

DRAWINGS ATTACHED

1 318 326

- (21) Application No. 17917/71 (22) Filed 28 May 1971
(31) Convention Application No. 57 055 (32) Filed 11 June 1970 in
(33) Japan (JA)
(44) Complete Specification published 31 May 1973
(51) International Classification G04B 19/24
(52) Index at acceptance
G3T CIA C1B



(54) CALENDAR MECHANISM FOR A TIMEPIECE

(71) We, KABUSHIKI KAISHA SUWA SEIKOSHA, a corporation of Japan, 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 calendar mechanism for a timepiece such, for example, as a calendar watch.

In a conventional calendar watch having a calendar wheel (which may be a date wheel, a day wheel, or a month wheel) and an easily operable correcting device for adjusting the calendar indication given by the calendar wheel, there are periods during which correction of the calendar indication of the calendar wheel is impeded. Thus, for example, if the calendar wheel is a date wheel which is rotated once a day by a tooth of a calendar advancement gear of a calendar gear train, there will be several hours each day during which the said tooth will obstruct the free rotation of the calendar wheel so as to prevent the calendar indication from being quickly corrected by the correcting device. If, therefore, the user of the watch, without realising these facts, uses considerable force in an attempt to adjust the calendar indication, then the calendar advancement gear, the correcting device, the calendar gear train and a minute wheel gear train may all be broken. Consequently, in order to prevent such a state of affairs, mechanisms for calendar wheel adjustment have had to be intricate.

According to the present invention, there is provided a calendar mechanism for a timepiece comprising a toothed calendar wheel, and an advancement wheel provided with an advancement member which engages the teeth of the calendar wheel periodically to advance the latter from one calendar indication to the next, the said advancement

member being resiliently deflectable with respect to the plane of the advancement member, predetermined correction of the calendar wheel involving relative resilient deflection with respect to the said plane between the advancement member and the calendar wheel so as to permit the said correction.

As will be appreciated, the invention enables the correction of the calendar indication to be readily effected without necessitating the use of a mechanism involving large numbers of parts.

The said tooth of the advancement wheel is preferably chamfered to assist the riding thereof of the teeth of the calendar wheel. However, the said tooth of the advancement wheel is preferably chamfered throughout only a portion of the radially outermost part thereof.

The advancement wheel may be mounted adjacent a plate having an aperture therein into which the said tooth of the advancement wheel moves as a result of the said resilient deflection.

The mechanism may comprise a correcting device engagable with the calendar wheel and operable to adjust the calendar indication given by the latter, predetermined correction of the calendar wheel by the correcting device, at a time when the advancement device is engaging the calendar wheel to move the latter, involving the said deflection.

The invention also comprises a timepiece, e.g. a watch, having a calendar mechanism as set forth above.

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

Figure 1 is a broken-away plan view of a calendar mechanism for a timepiece according to the present invention.

Figure 2 is a broken-away perspective view of part of the calendar mechanism of

[Price 25p]

Figure 1, and

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

5 Referring to the drawings, a calendar mechanism for a calendar watch comprises an externally toothed date advancement wheel 1 having a tooth 3 which is radially longer than the other teeth of the date advancement wheel 1. The tooth 3 is engagable, once a day, with internal teeth 8 of a date wheel 2. The date advancement wheel 1 is rotated through 360° each day by a motion transmitting wheel 5 which is mounted on an hour wheel 10. The tooth 3 thus engages the teeth 8 of the date wheel 2 periodically to advance the date wheel 2 from an indication of one date (e.g. the fourth day of a month) to an indication of the next date (i.e. the fifth day of the month).

An externally toothed date correcting wheel 7 has teeth which are engagable with the teeth 8 of the date wheel 2 so that the date indicated by the date wheel 2 can be corrected by rotating the date correcting wheel 7 by means of a crown (not shown). As will be appreciated, if no special provision were made to prevent this, predetermined correction of the date wheel 2 by the date correcting wheel 7, at a time when the tooth 3 is engaging a tooth 8 of the date wheel 2, could result in considerable damage to the calendar mechanism.

35 In order, however, to prevent this, the tooth 3 is resiliently deflectable with respect to the plane of the date advancement wheel 1 and is provided with a chamfered part 4 which extends throughout only a portion of the radially outermost part of the tooth 3.

The date advancement wheel 1 is mounted above a plate 11 having an aperture 6 therein. As clearly illustrated in Figure 3, if appropriate correction of the date wheel 2 is made by the date correcting wheel 7 at a time when the tooth 3 is operatively engaging a tooth 8 of the date wheel 2, there will be relative resilient deflection between the tooth 3 and the date wheel 2 so as to permit the said correction. In the course of this relative resilient deflection the tooth 3 will move downwardly into the aperture 6, while the chamfered portion 4 of the tooth 3 will assist the riding thereover of the teeth 8 of the date wheel 2.

Thus in the case of the present invention, even when the tooth 3 is advancing the date wheel 2, date correction can be safely effected by the date correcting wheel 7, without breaking any parts. Moreover when the date advancement wheel 1 is in a position to advance the date wheel 2, the date advancement wheel 1 can be oscillated clockwise and counter-clockwise, by manual

operation of the hour wheel 10, so as to bring the tooth 3 into driving engagement with successive teeth 8, the tooth 3 bending every time it is passed beneath a tooth 8. Thus the date wheel 2 can be advanced one tooth at a time, so that even if the watch has no date correcting wheel 7, date correcting can be easily performed.

In contrast therefore to the conventional construction of calendar mechanisms, the present invention reduces the risk of breakage and enables date correction to take place in a counter-clockwise direction without the necessity to increase the number of parts of the mechanism and without the need to add a special date advancing tooth.

Although the construction has been described with reference to the correction of a date wheel 2, it may equally be applied to other calendar wheels such as a month wheel or a day wheel.

WHAT WE CLAIM IS:—

1. A calendar mechanism for a time-piece comprising a toothed calendar wheel, and an advancement wheel provided with an advancement member which engages the teeth of the calendar wheel periodically to advance the latter from one calendar indication to the next, the said advancement member being resiliently deflectable with respect to the plane of the advancement member, predetermined correction of the calendar wheel involving relative resilient deflection with respect to the said plane between the advancement member and the calendar wheel so as to permit the said correction.

2. A calendar mechanism as claimed in claim 1 in which the said advancement member is chamfered to assist the riding thereover of the teeth of the calendar wheel.

3. A calendar mechanism as claimed in claim 2 in which the said advancement member is chamfered throughout a portion of the radially outermost part thereof.

4. A calendar mechanism as claimed in any preceding claim in which the advancement wheel is mounted adjacent a plate having an aperture therein into which the said advancement member moves as a result of the said resilient deflection.

5. A calendar mechanism as claimed in any preceding claim in which the mechanism comprises a correcting device engageable with the calendar wheel and operable to adjust the calendar indication given by the latter, predetermined correction of the calendar wheel by the correcting device, at a time when the advancement member is engaging the calendar wheel to move the latter, involving the said deflection.

6. A calendar mechanism as claimed in any preceding claim in which the advance-

Figure 1, and

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

5 Referring to the drawings, a calendar mechanism for a calendar watch comprises an externally toothed date advancement wheel 1 having a tooth 3 which is radially longer than the other teeth of the date advancement wheel 1. The tooth 3 is engagable, once a day, with internal teeth 8 of a date wheel 2. The date advancement wheel 1 is rotated through 360° each day by a motion transmitting wheel 5 which is mounted on an hour wheel 10. The tooth 3 thus engages the teeth 8 of the date wheel 2 periodically to advance the date wheel 2 from an indication of one date (e.g. the fourth day of a month) to an indication of the next date (i.e. the fifth day of the month).

An externally toothed date correcting wheel 7 has teeth which are engagable with the teeth 8 of the date wheel 2 so that the date indicated by the date wheel 2 can be corrected by rotating the date correcting wheel 7 by means of a crown (not shown). As will be appreciated, if no special provision were made to prevent this, predetermined correction of the date wheel 2 by the date correcting wheel 7, at a time when the tooth 3 is engaging a tooth 8 of the date wheel 2, could result in considerable damage to the calendar mechanism.

35 In order, however, to prevent this, the tooth 3 is resiliently deflectable with respect to the plane of the data advancement wheel 1 and is provided with a chamfered part 4 which extends throughout only a portion of the radially outermost part of the tooth 3.

40 The data advancement wheel 1 is mounted above a plate 11 having an aperture 6 therein. As clearly illustrated in Figure 3, if appropriate correction of the date wheel 2 is made by the date correcting wheel 7 at a time when the tooth 3 is operatively engaging a tooth 8 of the date wheel 2, there will be relative resilient deflection between the tooth 3 and the date wheel 2 so as to permit the said correction. In the course of this relative resilient deflection the tooth 3 will move downwardly into the aperture 6, while the chamfered portion 4 of the tooth 3 will assist the riding thereover of the teeth 8 of the date wheel 2.

Thus in the case of the present invention, even when the tooth 3 is advancing the date wheel 2, date correction can be safely effected by the date correcting wheel 7, without breaking any parts. Moreover when the date advancement wheel 1 is in a position to advance the date wheel 2, the date advancement wheel 1 can be oscillated clockwise and counter-clockwise, by manual

operation of the hour wheel 10, so as to bring the tooth 3 into driving engagement with successive teeth 8, the tooth 3 bending every time it is passed beneath a tooth 8. Thus the date wheel 2 can be advanced one tooth at a time, so that even if the watch has no date correcting wheel 7, date correcting can be easily performed.

In contrast therefore to the conventional construction of calendar mechanisms, the present invention reduces the risk of breakage and enables date correction to take place in a counter-clockwise direction without the necessity to increase the number of parts of the mechanism and without the need to add a special date advancing tooth.

Although the construction has been described with reference to the correction of a date wheel 2, it may equally be applied to other calendar wheels such as a month wheel or a day wheel.

WHAT WE CLAIM IS:—

1. A calendar mechanism for a time-piece comprising a toothed calendar wheel, and an advancement wheel provided with an advancement member which engages the teeth of the calendar wheel periodically to advance the latter from one calendar indication to the next, the said advancement member being resiliently deflectable with respect to the plane of the advancement member, predetermined correction of the calendar wheel involving relative resilient deflection with respect to the said plane between the advancement member and the calendar wheel so as to permit the said correction.

2. A calendar mechanism as claimed in claim 1 in which the said advancement member is chamfered to assist the riding thereover of the teeth of the calendar wheel.

3. A calendar mechanism as claimed in claim 2 in which the said advancement member is chamfered throughout a portion of the radially outermost part thereof.

4. A calendar mechanism as claimed in any preceding claim in which the advancement wheel is mounted adjacent a plate having an aperture therein into which the said advancement member moves as a result of the said resilient deflection.

5. A calendar mechanism as claimed in any preceding claim in which the mechanism comprises a correcting device engageable with the calendar wheel and operable to adjust the calendar indication given by the latter, predetermined correction of the calendar wheel by the correcting device, at a time when the advancement member is engaging the calendar wheel to move the latter, involving the said deflection.

6. A calendar mechanism as claimed in any preceding claim in which the advance-



ment member is an advancement tooth.

7. A calendar mechanism for a timepiece substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

8. A timepiece having a calendar mecha-

nism as claimed in any preceding claim.

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 Tweeddale Press Ltd., Berwick-upon-Tweed, 1973.
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.



* C L M S *