

Oct. 7, 1969

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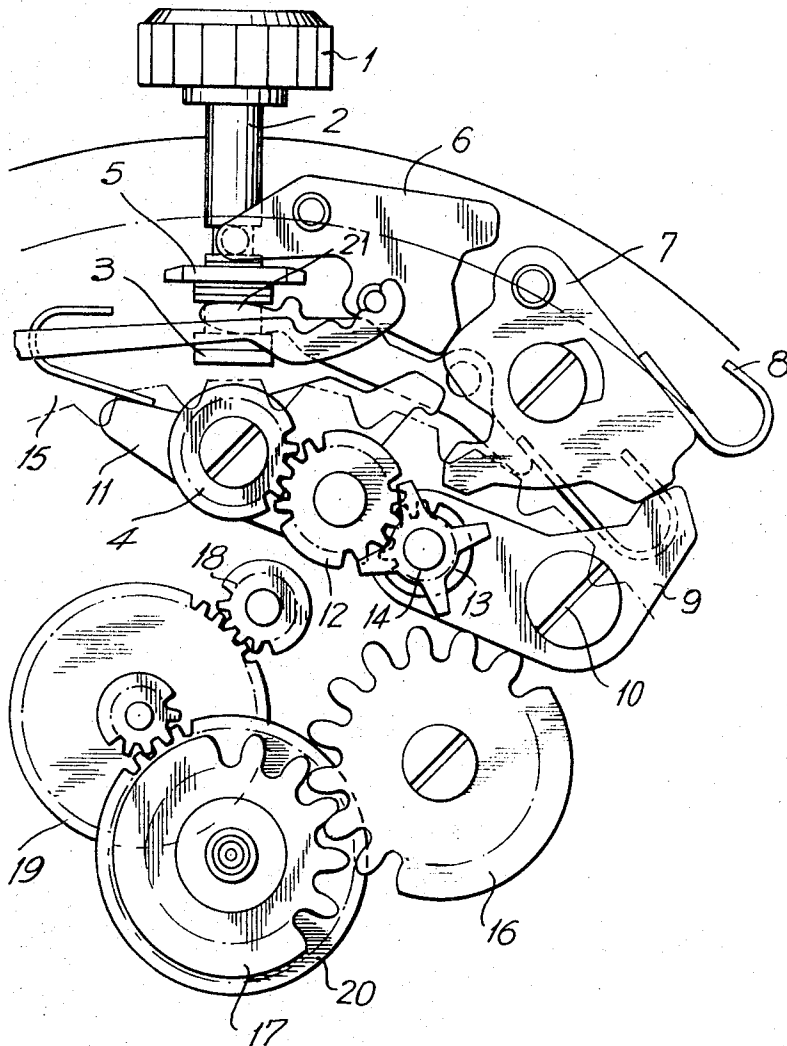
3,470,688

DATE AND DAY CORRECTING DEVICE OF A CALENDAR TIMEPIECE

Filed Nov. 30, 1967

4 Sheets-Sheet 1

FIG. 1



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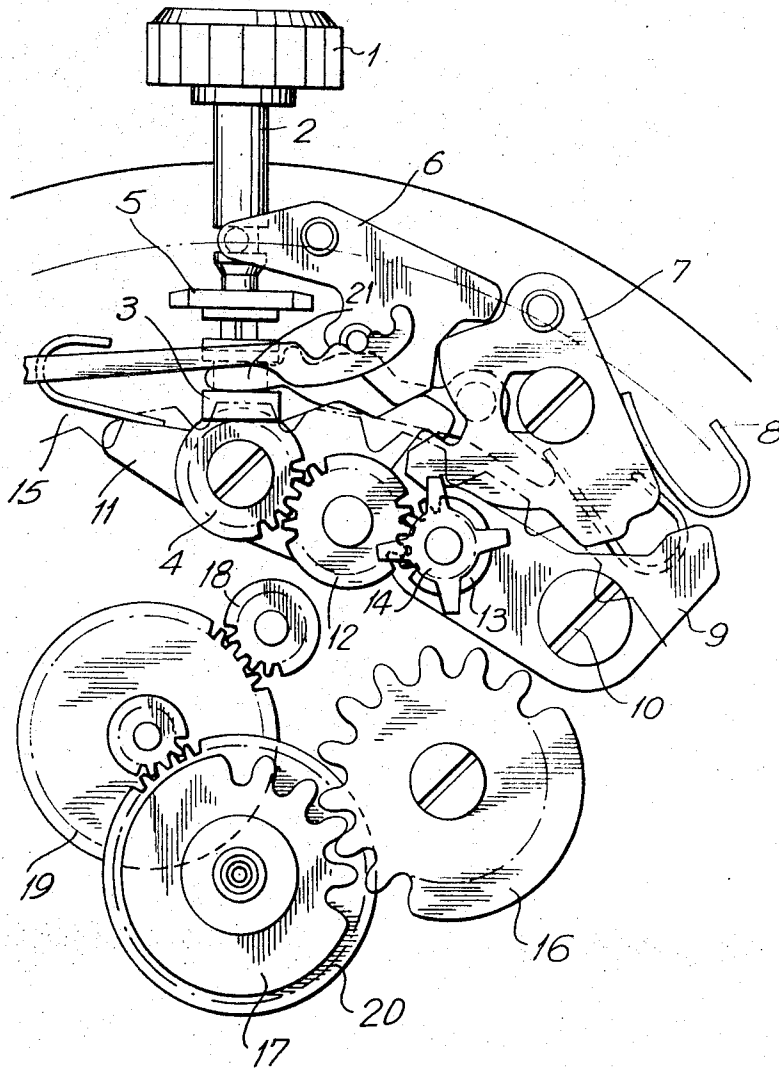
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FIG. 2



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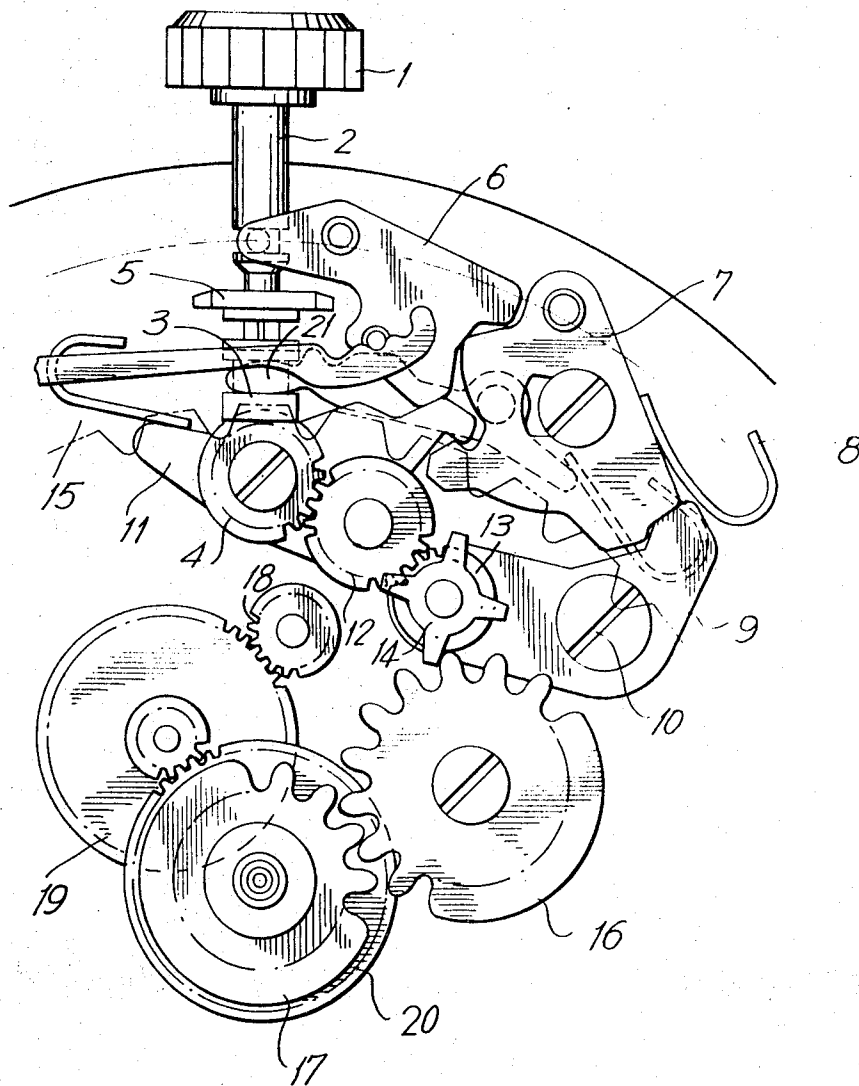
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FIG. 3



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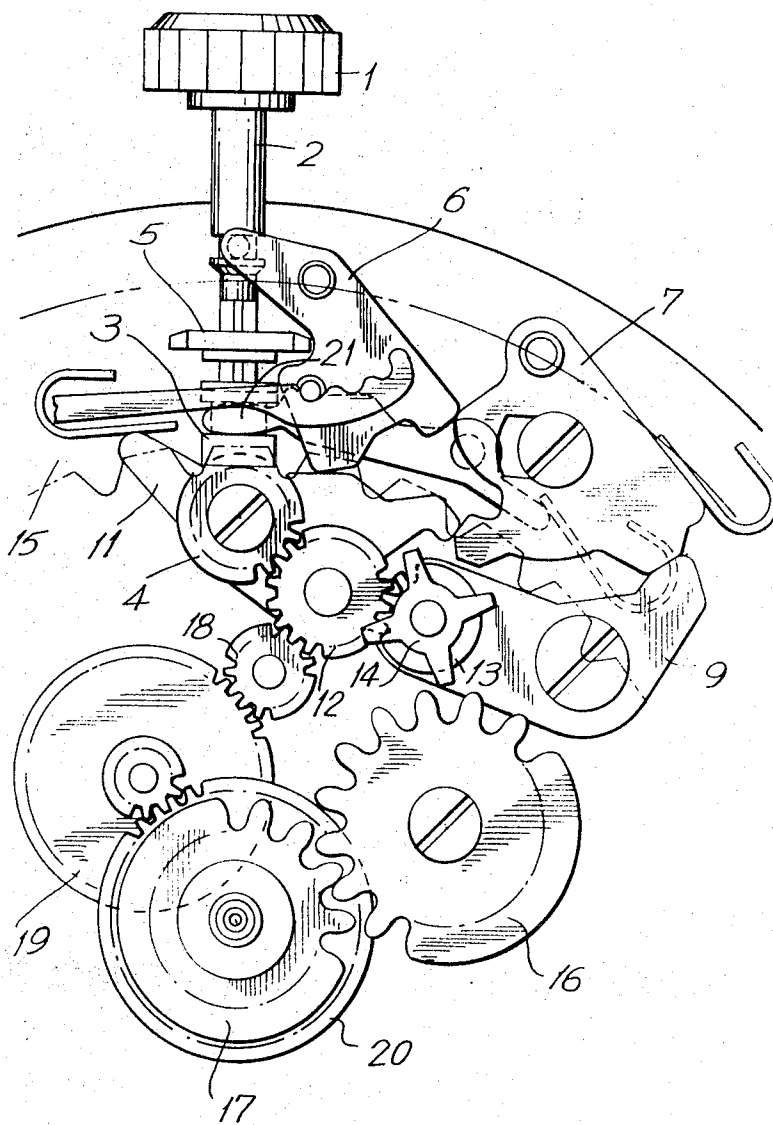
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FIG. 4



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## DATE AND DAY CORRECTING DEVICE OF A CALENDAR TIMEPIECE

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Filed Nov. 30, 1967, Ser. No. 686,937  
Claims priority, application Japan, July 26, 1967, 42/63,987  
Int. Cl. G04b 19/24

U.S. Cl. 58-58

1 Claim

### ABSTRACT OF THE DISCLOSURE

A calendar watch having a winding stem longitudinally displaceable into a plurality of predetermined positions, said winding stem being operatively connected in one of said positions to either a date wheel or a daily star, depending on the direction of rotation of said winding stem to effect date and day correction of the watch. The operative connection between the winding stem and date wheel or daily star includes a correcting wheel which is laterally displaceable between a first position in operative connection with said date wheel, a second position in operative connection with neither said date wheel nor said daily star and a third position in operative connection with said daily star, means being provided to lock said correcting wheel in said third position when said winding stem is disposed in other than said date and day correcting position.

### BACKGROUND OF THE INVENTION

The present invention relates to date and day correcting device of a calendar timepiece, more particularly to a calendar watch in which date and day can be corrected instantaneously only by turning the winding stem fitted with the crown.

In recent days watches with additional mechanisms such as water-proof and calendar arrangements have become popular and most calendar watches have a day indication as well as a date indication. In a calendar watch date and day should be corrected whenever the watch stops running, as would be the case if the watch were not wound or after repair, and various day correcting devices have been developed wherein the day indication is advanced by turning the hand by means of the crown, the day indication corrected by pushing in and pulling out of the crown, or an additional button for day correction is provided. In these conventional devices the day indication is corrected independent of date correction by turning the hands by means of the crown. However, the mechanism of such conventional devices is complicated as an additional button is necessary besides the winding stem and it takes much time to effect correction by turning the hands.

A calendar watch wherein both date and day were corrected by a single device is taught in the copending application Ser. No. 686,936, assigned to the assignee herein, to ameliorate the above-mentioned effects. By means of said device date and day can be corrected instantaneously be merely turning the crown. However, one defect in that arrangement is that the correcting wheel cannot be fixed in the normal position so that if the date wheel or the daily star happens to engage with the correcting wheel when advancing the date or day indications, a large transmitting torque is produced and the date and day indications do not change smoothly. The present invention, is thus directed to the amelioration of the above-mentioned defects by setting the disposition of the correcting wheel when the winding stem is disposed in other than the date and day correcting position, in a position out of operative engagement with the date wheel and daily star. That is

to say the object of the present invention is to provide a completely novel calendar watch which can correct both the date and day indication easily only by turning the winding stem to the right or left.

### BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is had to the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of the calendar watch in accordance with the invention disposed in the winding position;

FIG. 2 is a plan view of the calendar watch of FIG. 1 disposed in the date-correcting position;

FIG. 3 is a plan view of the calendar watch of FIG. 1 disposed in the day-correcting position; and

FIG. 4 is a plan view of the calendar watch of FIG. 1 disposed in the hand-setting position.

FIG. 1 is a plane view showing a calendar device of the present invention, in which, the winding stem 2 provided with the crown 1 is pushed in most deeply, clutch wheel 3 is disengaged from a setting wheel 4, and only the clutch wheel 3 and the winding pinion 5 rotate in response to the rotation of the crown. Turning of the winding stem in this position winds the mainspring through the crown wheel and the ratchet wheel, neither of which are shown. Clutch wheel 3 is adapted for longitudinal displacement along winding stem 2 and rotation therewith.

FIG. 2 is a plane view showing the calendar watch disposed in the date correcting position. Pulling out the winding stem one stage from the FIG. 1 position rotates a setting lever 6 in clockwise direction about its pivot, thereby permitting lever 7 to rotate in a clockwise direction about its pivot in response to a setting lever spring 8. The rotation of lever 7 unlocks correcting lever 9, permitting said correcting lever to oscillate around the axis 10. The pulling out of the winding stem serves to displace the clutch wheel 3 to out of engagement with winding pinion 5 of the mainspring winding train. In addition to permitting the rotation of lever 7, the rotation of the setting lever 6 rotates a yoke 21 in a counter-clockwise direction about its pivot to engage the clutch wheel 3 with the setting wheel 4. Turning of crown 1 in a counter-clockwise direction (viewed from the top) in this position rotates a train formed from clutch wheel 3, setting wheel 4, setting transmitting wheel 12 and correcting transmitting wheel 13. Correction transmitting wheel 13 is rotatable with the correcting wheel 14 in one body, the correction transmitting wheel 13 and correcting wheel 14 being rotatably mounted on correcting lever 9 and pivotable therewith. Turning of the crown to the counter-clockwise direction (as viewed from the top) engages the correcting wheel with the date wheel 15 for the correction of the date indication.

Turning now to FIG. 3, it is seen that the turning of crown 1 in the clockwise direction (viewed from the top) rotates the train formed from clutch wheel 3, setting wheel 4, correction transmitting wheel 13 and correcting wheel 14 as described in connection with FIG. 2. Each wheel turns in a direction opposed to that of FIG. 2 and the correcting lever 9 displaces in a counter-clockwise direction about pivot 10 to carry correcting wheel 14 into engagement with the day correction transmitting wheel 16. The day correction transmitting wheel 16 drives the daily star 17 incorporated with the day dial, not shown, to correct the day indication. Accordingly, turning the crown in a clockwise direction effects day correction and turning the crown in a counter-clockwise direction effects date correction instantaneously.

FIG. 4 is a plane view showing the calendar watch in the hand setting position, in which the winding stem

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is pulled out one more stage to further rotate setting lever 6 in a clockwise direction. Setting lever 6 in turn rotates lever 7, in a counter-clockwise direction. Lever 7 locks the oscillation of the correcting lever 9 to set the correcting wheel 14 in a position where it engages neither the date wheel nor the day correction transmitting wheel 16. Rotation of setting lever 6 also rotates the setting wheel lever 11 as well as the lever 7. Setting transmitting wheel 12 is rotatably mounted on the setting wheel lever 11 and pivoted therewith. Said setting transmitting wheel is pivoted into engagement with the intermediate wheel 18. Thus, in this position, the turning of the crown rotates clutch wheel 3, setting wheel 4, setting transmitting wheel 12, intermediate wheel 18, minute wheel 19 and hour wheel 20 in turn to set the hands of the watch.

Although in this embodiment the intermediate wheel 18 is provided between the setting wheel 4 and the minute wheel 19, and day correction transmitting wheel 16 is provided between the correcting wheel 14 and the daily star 17, it is to be expressly understood that these intermediate elements such as the intermediate wheel and the day correction transmitting wheel may be omitted according to the train arrangement without spoiling the object of the present invention. This invention is also applicable to an automatic winding watch in which the main spring need not be wound. As described hereinbefore the present invention permits the easy and instantaneous date and day correction by turning the winding stem to the right or left. Further, the watch according to the present invention includes a small number of parts and an additional button is unnecessary. This arrangement is advantageous from both manufacturing and assembling standpoint.

What I claim is:

1. In a calendar watch having a winding stem longitudinally displaceable between a plurality of predetermined positions including a date and day correcting position; a date wheel; a daily star; and means operatively connecting said winding stem when it is disposed in said day and date correcting position, and said date wheel and daily star for the selective rotation of said date wheel in response to the rotation of said winding stem in one direction and the rotation of said daily star when said winding stem is rotated in the other direction, the im-

provement which comprises said operative connection means including a pivotable correcting lever; a correcting wheel rotatably mounted on said correcting lever for pivoting thereby between a first position at which said correcting wheel is operatively connected with said date wheel for rotation thereof, a second position at which said correcting wheel is disengaged from operative connection with both said date wheel and said daily star, and a third position in which said correcting wheel is operatively connected to said daily star; and means operatively connecting said correcting wheel and said winding stem at least when said winding stem is disposed in said day and date correcting position for rotating said correcting wheel in response to the rotation of said winding stem and for pivoting said correcting lever in response to the direction of rotation of said winding stem to dispose said correcting wheel in said first position when said winding stem is rotated in one direction and in said third position when said winding stem is rotated in the other direction; said calendar watch including means for locking said correcting lever with said correcting wheel disposed in said second position in response to the longitudinal displacement of said winding stem when said winding stem is disposed at other than said day and date correcting position.

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U.S. Cl. X. R.

58—85.5