

PATENT SPECIFICATION

(11) 1251608

DRAWINGS ATTACHED

- (21) Application No. 63022/69 (22) Filed 29 Dec. 1969
 (31) Convention Application No. 96533 (32) Filed 30 Dec. 1968 in
 (33) Japan (JA)
 (45) Complete Specification published 27 Oct. 1971
 (51) International Classification G 04 b 19/24
 (52) Index at acceptance G3T CIA CIB C9



(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 a calendar timepiece, and more particularly to improvements in the day-of-the-week indicating mechanism for such a timepiece.

The present invention seeks to provide a calendar timepiece in which a day-of-the-week indication is provided which is capable of being apprehended visually at a rapid glance without the necessity of reading printed letters or characters.

According therefore to the present invention, there is provided a calendar timepiece including a day-of-the-week indicator adapted to move past a dial window, the indicator being so coloured and/or shaped that at least one of two areas of visually distinguishable appearance can be seen by an observer through the dial window, the relative position of the boundary between the said areas with respect to the dial window occupying a different position for each day of the week as the indicator is advanced, whereby to provide an indication of the day of the week.

In one preferred embodiment, the indicator is a disc whose outer edge represents said boundary.

In another preferred embodiment, the indicator is a disc carrying two portions of different colour and/or pattern.

One of said portions may be transparent while the other is semi-transparent, said disc being in superimposed relationship with a date dial.

In a further advantageous alternative embodiment, one or more of said portions may itself be divided into parts of different colour, the arrangement being such that each part is visible for twelve hours.

In a further optional but advantageous embodiment, there are only two alternately visible colours for the parts visible on week-

days and two colours, different from the first-mentioned colours, for the parts visible on Sundays.

Preferably the dial window is calibrated with the names of, or abbreviations or symbols representing, the days of the week.

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

Figures 1 and 2 are plan views of the elements of a known day-of-the-week indicating mechanism for a calendar timepiece.

Figures 3 and 4 are corresponding plan views of a first preferred embodiment of a day-of-the-week indicator for a calendar timepiece of the present invention.

Figures 5 and 6 are corresponding views of a second preferred embodiment of a day-of-the-week indicator for a calendar timepiece in accordance with the present invention.

Figures 7 to 9 are respective plan views of a dial plate, a day disc and a date dial of a third preferred embodiment of the present invention, and

Figures 10 and 11 are plan views, respectively corresponding to Figures 1 and 2, of a fourth preferred embodiment of a day-of-the-week indicator mechanism for a calendar timepiece in accordance with the present invention.

Referring first to Figures 1 and 2, a day disc 1 adapted to rotate in the direction shown by the arrow is sub-divided into seven portions 2, each portion bearing a day-of-the-week indication in the form of an abbreviated word in a given language. A dial plate 3 is provided with a calendar window 4 and is adapted to be superimposed over the day disc 1 so that one of the day-of-the-week indications can be seen below the window 4.

This known day-of-the-week indicator mechanism has the inconvenience of providing a day-of-the-week indication in only one language and therefore from a manufacturer's point of view extra costs are incurred in having to make day discs 1 with day-of-the-week indications 2 in different languages if he wishes to export his watches to different countries. Moreover, while admittedly it does not take

[Price 25p]

very long to read and properly to comprehend a day-of-the-week indication, nevertheless it would be desirable to provide a day-of-the-week indication which is capable of being apprehended more rapidly. Additionally, in the region of a change-over between two indications, in most known calendar watches there will be quite an appreciable period when parts of two adjacent day indications can be seen, but neither wholly clearly. Alternatively, in known calendar watches in which the change-over occurs substantially instantaneously, the mechanism for effecting such substantially instantaneous change-over complicates manufacture and increases costs.

Referring now to the first preferred embodiment of the present invention shown in Figures 3 and 4, the day disc 1 is divided into two portions respectively designated with the letters A and B, and these portions are of contrasting colours. Thus a boundary line 5 is defined between these two portions A and B. This boundary line has seven stepped portions or sectors of consecutively increasing radius from the centre of the disc 1. The outer edge of the portion A for each sector may be curved as shown, although it may in some circumstances be a straight line, or in a further alternative, it may be a spiral boundary line spread over the whole disc 1 for substantially continuous change. The dial plate 3 is provided with a window 6 which in the Figure 3 embodiment is calibrated with the names of the days of the week as shown by the reference number 7. Although such calibration is preferred, it could be omitted, since a mere and rapid glance at the window 6 will show the position of the boundary line 5 underneath to give the observer a rapidly apprehensible indication of the day of the week, merely by estimating the relative sizes of the differently coloured portions on either side of the boundary line 5. If he then wishes to make a more precise observation, and day-of-the-week indicators 7 are present, he can then actually compare the position of the boundary 5 with the indications 7.

It is envisaged that for certain days of the week only one colour might be visible through the window 6. The invention is not, of course, restricted to the portions A and B each being of a single colour and they may each display several colours; or may be of the same colour but different shade; or may be patterned differently, in which case again the portions A and B may be of the same colour.

The particular shape of the boundary line 5 as shown in Figure 4 has the advantages that, by virtue of the circular arc portions thereof, any small error or shift in a circumferential direction will not substantially change the relative positions of the boundary 5 and the indication 7, while at the change-over the planar portions connecting the circular arc portions can be seen through the window 6

and this will clearly cause less confusion than if parts of two successive names of the day of the week were seen.

In a further alternative, not shown, the day disc 1 may comprise two superimposed portions, rather than one disc having two separately coloured portions. Thus there could be a bottom disc B and a top disc A with edges shaped like the boundary 5. In this embodiment it is the actual outer edge of the disc A which represents the boundary 5.

Turning now to the embodiment shown in Figures 5 and 6, the window has been shifted to the nine o'clock position and the boundary line 10 can be seen therethrough as aligned with the day indications arranged in two superimposed rows. Again, if so desired, the actual indications can be omitted.

Turning now to the embodiment shown in Figures 7 to 9, the day disc 8 shown thereon is adapted to be superimposed on a date dial 9, and the day disc 8 itself has a transparent and a semi-transparent portion to allow simultaneous observation of the date and the boundary line between the said portions for a simultaneous indication of the date and of the week. This embodiment permits the observer to apprehend at a rapid glance the actual date of the month and also whether that date is at all near a week-end.

Referring now to the embodiment shown in Figures 10 and 11, each sector of the portion A is radially bisected so that circumferentially successive portions are provided with alternate colours C and D. However, for Sunday, the sector is also bisected but its two parts are provided with different colours E and F different from the colours C and D. Thus each part-sector C, D, E or F will be seen for twelve hours to permit an observer to deduce as to whether it is morning or afternoon at the time of the observation and to distinguish between weekdays and Sundays. This may be an advantage when setting the time indicating hands of the timepiece after a stoppage.

WHAT WE CLAIM IS:—

1. A calendar timepiece including a day-of-the-week indicator adapted to move past a dial window, the indicator being so coloured and/or shaped that at least one of two areas of visually distinguishable appearance can be seen by an observer through the dial window, the relative position of the boundary between the said areas with respect to the dial window occupying a different position for each day of the week as the indicator is advanced, whereby to provide an indication of the day of the week.

2. A timepiece as claimed in claim 1 wherein the indicator is a disc whose outer edge represents said boundary.

3. A timepiece as claimed in claim 1 wherein the indicator is a disc carrying two portions of different colour and/or pattern.

4. A timepiece as claimed in claim 3 where-



very long to read and properly to comprehend a day-of-the-week indication, nevertheless it would be desirable to provide a day-of-the-week indication which is capable of being apprehended more rapidly. Additionally, in the region of a change-over between two indications, in most known calendar watches there will be quite an appreciable period when parts of two adjacent day indications can be seen, but neither wholly clearly. Alternatively, in known calendar watches in which the change-over occurs substantially instantaneously, the mechanism for effecting such substantially instantaneous change-over complicates manufacture and increases costs.

Referring now to the first preferred embodiment of the present invention shown in Figures 3 and 4, the day disc 1 is divided into two portions respectively designated with the letters A and B, and these portions are of contrasting colours. Thus a boundary line 5 is defined between these two portions A and B. This boundary line has seven stepped portions or sectors of consecutively increasing radius from the centre of the disc 1. The outer edge of the portion A for each sector may be curved as shown, although it may in some circumstances be a straight line, or in a further alternative, it may be a spiral boundary line spread over the whole disc 1 for substantially continuous change. The dial plate 3 is provided with a window 6 which in the Figure 3 embodiment is calibrated with the names of the days of the week as shown by the reference number 7. Although such calibration is preferred, it could be omitted, since a mere and rapid glance at the window 6 will show the position of the boundary line 5 underneath to give the observer a rapidly apprehensible indication of the day of the week, merely by estimating the relative sizes of the differently coloured portions on either side of the boundary line 5. If he then wishes to make a more precise observation, and day-of-the-week indicators 7 are present, he can then actually compare the position of the boundary 5 with the indications 7.

It is envisaged that for certain days of the week only one colour might be visible through the window 6. The invention is not, of course, restricted to the portions A and B each being of a single colour and they may each display several colours; or may be of the same colour but different shade; or may be patterned differently, in which case again the portions A and B may be of the same colour.

The particular shape of the boundary line 5 as shown in Figure 4 has the advantages that, by virtue of the circular arc portions thereof, any small error or shift in a circumferential direction will not substantially change the relative positions of the boundary 5 and the indication 7, while at the change-over the planar portions connecting the circular arc portions can be seen through the window 6

and this will clearly cause less confusion than if parts of two successive names of the day of the week were seen.

In a further alternative, not shown, the day disc 1 may comprise two superimposed portions, rather than one disc having two separately coloured portions. Thus there could be a bottom disc B and a top disc A with edges shaped like the boundary 5. In this embodiment it is the actual outer edge of the disc A which represents the boundary 5.

Turning now to the embodiment shown in Figures 5 and 6, the window has been shifted to the nine o'clock position and the boundary line 10 can be seen therethrough as aligned with the day indications arranged in two superimposed rows. Again, if so desired, the actual indications can be omitted.

Turning now to the embodiment shown in Figures 7 to 9, the day disc 8 shown thereon is adapted to be superimposed on a date dial 9, and the day disc 8 itself has a transparent and a semi-transparent portion to allow simultaneous observation of the date and the boundary line between the said portions for a simultaneous indication of the date and of the week. This embodiment permits the observer to apprehend at a rapid glance the actual date of the month and also whether that date is at all near a week-end.

Referring now to the embodiment shown in Figures 10 and 11, each sector of the portion A is radially bisected so that circumferentially successive portions are provided with alternate colours C and D. However, for Sunday, the sector is also bisected but its two parts are provided with different colours E and F different from the colours C and D. Thus each part-sector C, D, E or F will be seen for twelve hours to permit an observer to deduce as to whether it is morning or afternoon at the time of the observation and to distinguish between weekdays and Sundays. This may be an advantage when setting the time indicating hands of the timepiece after a stoppage.

WHAT WE CLAIM IS:—

1. A calendar timepiece including a day-of-the-week indicator adapted to move past a dial window, the indicator being so coloured and/or shaped that at least one of two areas of visually distinguishable appearance can be seen by an observer through the dial window, the relative position of the boundary between the said areas with respect to the dial window occupying a different position for each day of the week as the indicator is advanced, whereby to provide an indication of the day of the week.

2. A timepiece as claimed in claim 1 wherein the indicator is a disc whose outer edge represents said boundary.

3. A timepiece as claimed in claim 1 wherein the indicator is a disc carrying two portions of different colour and/or pattern.

4. A timepiece as claimed in claim 3 where-

in one of said portions is transparent while the other is semi-transparent, said disc being in superimposed relationship with a date dial.

5 5. A timepiece as claimed in claim 3 or claim 4 wherein one or more of said portions is itself divided into parts of different colour, the arrangement being such that each part is visible for twelve hours.

10 6. A timepiece as claimed in claim 5 wherein there are only two alternately visible colours for the parts visible on weekdays and two colours, different from the first-mentioned colours, for the parts visible on Sundays.

7. A timepiece as claimed in any preceding

claim wherein the dial window is calibrated 15 with the names of, or abbreviations or symbols representing, the days of the week.

8. A calendar timepiece substantially as hereinbefore described with reference to and as shown in Figures 3 and 4, or Figures 5 and 20 6, or Figures 7 to 9, or Figures 10 and 11 of 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, 1971.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

