

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Calendar Timepiece

We, KABUSHIKI KAISHA SUWA SEIKOSHA, a Japanese company, of 5-19, 4-chome, Ginza-nishi, 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, and although it is not so restricted, it will be particularly described with reference to a calendar watch.

It is known to provide watches with a day dial which is adapted to move past a window in the main dial of the watch to provide an indication of the day of the week. However, the user of a watch will usually want the day indication to be in his mother tongue, whereas from the manufacturer's point of view it would obviously be preferable not to have to change the day dial when making watches for different countries with different native languages. Accordingly, there exists a need for a calendar watch or other calendar timepiece having a day indication in several languages, but in which the user of the watch will be able to read the day indication uniquely in his own native tongue, so as to avoid confusion.

According to the present invention there is provided a calendar timepiece having a day dial on which are marked successively n different kinds of day indication settings for a given day of the week, only one such day indication at a time being arranged to be visible externally of the timepiece, a day wheel, and driving means interconnecting said day wheel and said day dial such that for one complete rotation of said day wheel the day dial is advanced by n settings, (n being a positive integral number not less than 2), and selecting means enabling

the selection of any one of said kinds of day indication on the day dial to be externally visible.

Preferably, the day dial is mounted for rotation with a day star wheel which has $7n$ gear teeth, said gear teeth being adapted to mesh with a driving member mounted for rotation with said day wheel.

Said selecting means may include a day correcting lever which is actuatable externally of the timepiece to advance the day dial by one setting.

In one preferred embodiment, said correcting lever has a nose movable into and out of engagement with the gear teeth of said day star wheel, there being a resilient biasing means for urging said nose out of said engagement.

A push button may be provided for moving said nose into said engagement against the bias of said biasing means.

In one preferred embodiment, the day dial is provided with French and English language day indications, although other languages may alternatively or additionally be used.

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

Figure 1 is a somewhat schematic plan view, partially broken away, of a calendar watch in accordance with the present invention, and

Figure 2 is a developed sectional view of the calendar watch of Figure 1.

Referring now to the drawings, there is shown a calendar watch having a main, i.e. time-indicating dial 18 provided with a window 19 through which the day indications or settings of the day of the week provided on the top surface of a day dial 15 can be seen. The watch case is schematically shown by a circle in Figure 1.

In the illustrated embodiment, the days

[Price 4s. 6d.]

of the week have English day indications 16 and French day indications 17, and these are arranged circumferentially successively. In other words, Sunday is marked 5 by circumferentially successive settings on the disc-shaped day dial 15 with the English abbreviation "SUN" and by the French abbreviation "DIM" for "dimanche".

The day dial 15 is rigidly mounted on 10 a day star wheel 6 which itself is mounted on the shaft 1 of the hour wheel 21 of the calendar timepiece.

In this example, in which two kinds of day indication are provided on the day dial 15, namely English and French, the day 15 star wheel 6 is provided with twice seven, i.e. fourteen, gear teeth 7, for a reason explained below.

The hour wheel 21 meshes with an intermediate gear arrangement 2 to drive a day 20 driving wheel 3 such that the latter will perform one rotation in twenty-four hours, i.e. for twenty-four rotations of the hour wheel 21.

Mounted coaxially with the day driving wheel 3 for rotation therewith is a day 25 driving disc 4 provided with a finger or projection 5 adapted to engage with the teeth 7 of the day star wheel 6. The extent of the intersection of the respective paths of finger 5 and teeth 7 is such that every 30 twenty-four hours the finger 5 will cause the day star wheel 6 to advance by the extent of two teeth, thereby advancing the day dial 15 by two settings, which in turn 35 means that, in the illustrated example, always the French language day indications will be brought under the window 19.

It will be appreciated that the invention 40 is not restricted to two kinds of day indications, and within reason having regard to the size of the calendar timepiece and the day dial, if n kinds of day indications are provided on the day dial 15, then all that 45 is necessary is to provide the day star wheel 6 with $7n$ teeth to produce the desired result, n being a positive integral number at least equal to 2.

The present invention provides for a 50 means of selecting the particular kind of day indication desired by the user of the calendar timepiece, or in the particular described embodiment, there is provided means for selecting the language in which 55 the day indication is to be viewable by the user.

The selection means includes a substantially bell crank-shaped day correcting lever 9 which is pivoted at 11 to the frame 60 20 of the watch and which has at one end thereof a nose 10, the nose 10 being thus movable into and out of engagement with the teeth 7 of the day star wheel 6. The other end 12 of the lever 9 is in engagement 65 with a leaf spring 13 which urges

the lever to turn counter-clockwise as viewed, i.e. out of engagement with the day star wheel 6. Additionally, a push button 14, external of, but extending through, the watch case is provided, which is engageable with 70 the end 12 of the lever 9, depression of which is capable of overcoming the bias of the spring 13 and causing the nose 10 to move into engagement with the teeth 7 of the day star wheel 6, whereby said wheel 75 6, and thus the day dial 15, will be advanced by one setting. As will be appreciated, the advance of the day dial 15 by one setting will cause, in the illustrated example, a change-over from the French to 80 the English indication, that is to say, instead of seeing "DIM" under the window, the user will now see "MON" (not shown). While this also involves a change of the day indication, it will, of course be understood that a subsequent actuation of the 85 push-button 14 will cause a change of "MON" to "LUN" for "lundi", i.e. "Monday" in French; in other words, a change of language without change of the actual 90 day indication will occur.

A day wheel jumper 8 is also shown and is provided to help position the relative positions of the letters on the day dial 15 and the window 19, as well as to position the 95 teeth 7 of the day star wheel 6 relative to the finger 5.

It will be appreciated that the illustrated embodiment of the present invention affords 100 substantial advantages to the manufacturer in that he does not have to provide too many different types of day dials. The illustrated arrangement of the day dial itself is also preferable from the user's point of view, since by arranging the day indications in different languages successively, an arrangement in which a day indication of 105 the same day in different languages appears together under one window is avoided.

In the above description, the day indications 110 were the abbreviated words for the various days of the week. However, at least one of the indications may be pictorial symbols instead. Thus, in Japan, a picture of the sun is widely understood to represent "Sunday", the moon "Monday", fire 115 "Tuesday", water "Wednesday" and so on, and so these symbols may be used instead of letters. Accordingly, the expression "different kinds of day indication" as used throughout this specification and claims 120 should be understood to include the alternative of symbols as described above.

WHAT WE CLAIM IS:—

1. A calendar timepiece having a day dial on which are marked successively n 125 different kinds of day indication settings for a given day of the week, only one such day indication at a time being arranged 130

of the week have English day indications 16 and French day indications 17, and these are arranged circumferentially successively. In other words, Sunday is marked 5 by circumferentially successive settings on the disc-shaped day dial 15 with the English abbreviation "SUN" and by the French abbreviation "DIM" for "dimanche".

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In the above description, the day indications 110 were the abbreviated words for the various days of the week. However, at least one of the indications may be pictorial symbols instead. Thus, in Japan, a picture of the sun is widely understood to represent 115 "Sunday", the moon "Monday", fire "Tuesday", water "Wednesday" and so on, and so these symbols may be used instead of letters. Accordingly, the expression "different kinds of day indication" as used 120 throughout this specification and claims should be understood to include the alternative of symbols as described above.

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1. A calendar timepiece having a day 125 dial on which are marked successively n different kinds of day indication settings for a given day of the week, only one such day indication at a time being arranged 130



to be visible externally of the time piece, a day wheel, and driving means interconnecting said day wheel and said day dial such that for one complete rotation of said day wheel the day dial is advanced by n settings, (n being a positive integral number not less than 2), and selecting means enabling the selection of any one of said kinds of day indication on the day dial to be externally visible.

2. A calendar timepiece as claimed in claim 1 wherein the day dial is mounted for rotation with a day star wheel which has $7n$ gear teeth, said gear teeth being adapted to mesh with a driving member mounted for rotation with said day wheel.

3. A calendar timepiece as claimed in claim 1 or claim 2 wherein said selecting means includes a day correcting lever which is actuatable externally of the timepiece to advance the day dial by one setting.

4. A calendar timepiece as claimed in claim 3 wherein said correcting lever has

a nose movable into and out of engagement with the gear teeth of said day star wheel, there being a resilient biasing means for urging said nose out of said engagement.

5. A calendar timepiece as claimed in claim 4 wherein a push button is provided for moving said nose into said engagement against the bias of said biasing means.

6. A calendar timepiece as claimed in any preceding claim wherein the day dial is provided with French and English language day indications.

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

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