

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN OR RELATING TO GLOBAL TIMEPIECES

(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 global timepieces, by which expression is meant, in this specification and in the claims which follow timepieces which include a member carrying a scale marked with time-zone marks and/or place names and which serves to indicate the time zone kept at any of a plurality of different parts of the world. Various different places on the earth keep different Standard Times e.g. the time kept in New York is U.S. Eastern Standard Time which is 5 hours slow on Greenwich Mean Time (GMT). Some places keep different Standard Times over different period of the year e.g. in the U.K. GMT is, at present, kept over winter months and British Summer Time (BST) which is 1 hour Fast on GMT, is kept over summer months. Long distance transoceanic ships often keep what is known in maritime circles as "Zone Time" (ZT)—zone 0 is the zone of longitude between 7½°E and 7½°W; Zone -1 is the zone between longitude 7½°E and 22½°E; Zone +1 is the zone between longitude 7½°W and 22½°W; . . . and so on—each zone being 1 hour (15° of longitude) wide and being numbered in accordance with the numbers of hours to be added to or subtracted from Zone time to convert it to GMT. However, in order to avoid unnecessary proximity of description, the term "zone time" will be used herein to include zones of longitude identifiable by numbered time zones such as Zone +1, legally established time zones, such as GMT, BST and Eastern Standard Time in the U.S.A., and place names. Although the invention is primarily intended for use in electronic digitally indicating timepiece

and notably in digitally indicating electronic wrist watches, the invention is not limited to such use.

With known global timepieces the zone scale is usually marked on a rotatable bezel member and, with such known timepieces the fact that there are many places which sometimes keep local mean time (LMT) and sometimes keep local summer time (LST) leads to difficulties, especially with small timepieces such as wrist watches, because a movable scale carrying member able to indicate correctly the time zone being kept at a place which, over part of the year, keeps LMT and over the rest of the year keeps LST, would be too large to be acceptable in practice. Indeed, so far as the present applicants are aware, known global timepieces ignore local summer time altogether and have scale-carrying movable members indicating local mean time only. This is a serious practical disadvantages from the user's point of view. The present invention seeks to avoid this disadvantage.

Electronic global timepieces having a liquid crystal or other digital time display can easily be provided with an arrow headed or similar indicating means which will read against a scale printed with time zone identifying markings (figures and/or names, or abbreviations) so as to indicate the zone time being kept, without having to rotate or otherwise move the scale carrying member, the digital time displayed being the correct local time for a place keeping time in the time zone indicated by the indicator. As will be seen later, the invention provides improved global timepieces in which time zone indication is effected in this manner and which will correctly indicate the zone and the time whether LMT or LST is being kept.

According to this invention there is provided a global timepiece having a movable or apparently movable time zone indicator cooperating with a scale member carrying a scale marked with time zone

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identifying markings and also having bracketing line connections bracketing together points on the scale corresponding with different time zones which are kept in the same places over different periods of the year.

5 The scale may have time zone markings at 1-hour intervals and also a plurality of place names, bracketing line connections being provided from adjacent time zone hour markings to the names of places where different times corresponding with the different time zones indicated by said hour markings are kept over different periods of the year.

10 Portions of the bracketing line connections leading from different adjacent points on the scale may be differently coloured.

15 The scale member may be a bezel member.

The invention is illustrated in the accompanying drawings in which:

20 Figure 1 is a schematic face view of one embodiment of the invention; and

25 Figure 2 is an enlarged face view of part of a place and zone time scale bezel and is illustrative of the manner in which summer time and standard time can be displayed when carrying out the invention.

30 Figure 3 shows a modification of Figure 2.

Referring to Figure 1, the wrist watch therein schematically represented has a digital time display 12 which is visible through a window in a scale carrying bezel member 11. The bezel member has a local time scale which is marked with suitable chosen names of places. As shown there are 35 24 marks, including one marked GMT, one for each of the 24 time zones (GMT is Zone 0. "London" is shown "bracketed" (see Figure 2) against Zone 0 and Zone -1 because, of course, for part of the year London keeps GMT as standard time and for the rest of the year BST (Zone -1) is kept as standard time. There is an indicating mark 13 which appears to move and is illuminated and indicates against the 40 time zone and place name scale the appropriate time zone or place. When the indicating mark 13 appears opposite a particular mark on the scale the time digitally indicated is the correct local time in the zone indicated by the mark 13. In the illustrated embodiment of Figure 1, local time is displayed in hours and minutes, day and date.

45 The form of "bracketing" for the means of places which change over, during the year, from local standard time to local summer time and vice versa is best seen from Figure 2. In the particular arrangement chosen for illustration in 50 Figure 1, London, Paris, Sydney NSW, Los

Angeles (indicated by the reference "LOS") Chicago, New York ("NY") and Rio de Janeiro ("Rio") are shown bracketed. A bracket is also shown between the marks for zones +6 and +7. This bracket could, of course, be marked with the name of some major town which, for part of the year, keeps Zone Time +6 and for another part of the year keeps Zone Time +7. Referring to Figure 2, the "bracket" for London is shown as consisting of two lines 21 and 22 extending respectively from the scale marks for GMT (Zone 0) and Zone -1 (BST) to the word "London". A similar method of "bracketing" is used for other places which keep different times for differing parts of the year, e.g. Paris (see again Figure 2). In order to increase the distinction between local standard time and local summer time it is preferred to make the two lines which together make up a "bracket" readily distinguishable, for example by making them different in colour. This is indicated in Figure 2 by the use of different shadings for the two lines.

A somewhat different method of "bracketing" adjacent time zone marks is represented (for London, and, in part, for Paris) in Figure 3. Here the references "GMT" and "London" are inscribed against the mark for Time Zone 0 and an arcuate arrow headed line 23 extends from this mark to the mark for Zone -1 against which is the legend "Paris". The indicating mark 13 is shown against the Time Zone mark for Zone -1 in Figure 3 and, with the indicating mark 13 in this position, the time displayed is British Summer Time.

The invention, although primarily intended for electronic timepieces and illustrated in Figure 1 as applied to an electronic digitally displaying wrist watch is not limited to this application but can be applied to mechanical global timepieces.

WHAT WE CLAIM IS:—

1. A global timepiece as herein defined having a movable or apparently movable time zone indicator cooperating with a scale member carrying a scale marked with time zone identifying markings and also having bracketing line connections time zones which are kept in the same places over different periods of the year.

2. A timepiece as claimed in claim 1 wherein the scale carries time zone markings at 1-hour intervals and also a plurality of place names, bracketing line connections being provided from adjacent time zone hour markings to the names of places where different times corresponding with the different time zones indicated by said hour markings are kept over different periods.

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identifying markings and also having bracketing line connections bracketing together points on the scale corresponding with different time zones which are kept in the same places over different periods of the year.

The scale may have time zone markings at 1-hour intervals and also a plurality of place names, bracketing line connections being provided from adjacent time zone hour markings to the names of places where different times corresponding with the different time zones indicated by said hour markings are kept over different periods of the year.

Portions of the bracketing line connections leading from different adjacent points on the scale may be differently coloured.

The scale member may be a bezel member.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a schematic face view of one embodiment of the invention; and

Figure 2 is an enlarged face view of part of a place and zone time scale bezel and is illustrative of the manner in which summer time and standard time can be displayed when carrying out the invention.

Figure 3 shows a modification of Figure 2.

Referring to Figure 1, the wrist watch therein schematically represented has a digital time display 12 which is visible through a window in a scale carrying bezel member 11. The bezel member has a local time scale which is marked with suitable chosen names of places. As shown there are 24 marks, including one marked GMT, one for each of the 24 time zones (GMT is Zone 0. "London" is shown "bracketed" (see Figure 2) against Zone 0 and Zone -1 because, of course, for part of the year London keeps GMT as standard time and for the rest of the year BST (Zone -1) is kept as standard time. There is an indicating mark 13 which appears to move and is illuminated and indicates against the time zone and place name scale the appropriate time zone or place. When the indicating mark 13 appears opposite a particular mark on the scale the time digitally indicated is the correct local time in the zone indicated by the mark 13. In the illustrated embodiment of Figure 1, local time is displayed in hours and minutes, day and date.

The form of "bracketing" for the means of places which change over, during the year, from local standard time to local summer time and vice versa is best seen from Figure 2. In the particular arrangement chosen for illustration in Figure 1, London, Paris, Sydney NSW, Los

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2. A timepiece as claimed in claim 1 wherein the scale carries time zone markings at 1-hour intervals and also a plurality of place names, bracketing line connections being provided from adjacent time zone hour markings to the names of places where different times corresponding with the different time zones indicated by said hour markings are kept over different periods.



3. A timepiece as claimed in claim 1 or 2 wherein portions of the bracketing line connections leading from different adjacent points on the scale are differently coloured.

4. A timepiece as claimed in any of the preceding claims wherein the scale member is a bezel member.

5. Global timepieces as claimed in claim

1 and substantially as herein described and illustrated in the accompanying drawings.

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