

PATENT SPECIFICATION

(11) 1 335 115

DRAWINGS ATTACHED

- (21) Application No. 48084/71 (22) Filed 15 Oct. 1971
 (31) Convention Application No. 102 396 (32) Filed 16 Oct. 1970 in
 (33) Japan (JA)
 (44) Complete Specification published 24 Oct. 1973
 (51) International Classification G04B 47/00
 (52) Index at acceptance G3T A2C A3



(54) IMPROVEMENTS RELATING TO WATCHES

(71) We, KABUSHIKI KAISHA SUWA SEIKOSHA, a Japanese company of 3-4, 4-chome, Ginza, Chuoku, 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 improvements relating to watches.

According to the present invention there is provided a watch provided with relatively movable parts which are respectively graduated with scales to permit mathematical calculations to be made, and a cursor which overlies and is movable with respect to said relatively movable parts and a transparent portion of which is provided with at least one cursor line to assist the setting of the scales.

At least one of the relatively movable parts may be provided with a plurality of scales.

The said relatively movable parts preferably comprise outer and inner concentric annular members. Thus the inner annular member may be fixed, the outer annular member being rotatable. Moreover, the cursor may comprise a rotatable cursor ring, a main part of which is mounted radially inwardly of and concentrically of the inner annular member. The said portion of the cursor which is provided with the said cursor line or lines may project radially outwardly of the main part.

The cursor ring may be provided with at least one radially extending projection for effecting manual rotation of the cursor ring. Moreover, an annular gasket may be interposed between the inner annular member and means carrying the outer annular member.

The cursor and the relatively movable parts may be mounted concentrically about the glass of the watch.

The invention is illustrated, merely by

way of example, in the accompanying drawings, in which:—

Figure 1 is a plan view of a watch according to the present invention,

Figure 2 is a partial cross-sectional view taken on the line II—II of Figure 1, and

Figure 3 is a partial cross-sectional view taken on the line III—III of Figure 1.

Referring to the drawings, a wrist watch according to the present invention has a case body 11 to which are secured the ends of a band 12. The upper surface of the case body 11 has an annular recess 13 within which is mounted a watch glass 14 which is circular in plan and which is held in position by means of a tension ring 15.

Mounted concentrically about the watch glass 14 and spaced therefrom by a gap 16 is an annular member 17. The annular member 17 is mounted in a recess 18 in the upper surface of the case body 11 and is secured therein, e.g. by means of an adhesive.

Mounted concentrically about the annular member 17 is a rotatable bezel member 19 having a peripheral portion 20 by means of which it may be rotated by a finger of a user. The top surface of the bezel member 19 has a recess 21 on which is mounted and to which is secured an annular member 22, the annular member 22 being, for example, held in the recess 21 by caulking or by using an adhesive. The annular member 22 may thus be rotated manually about the fixed annular member 17. An annular gasket 24 is interposed between the annular member 17 and the bezel 19 which carries the annular member 22, the gasket 24 permitting rotation of the annular member 22 while preventing free rotation thereof.

The upper surface of the annular member 17 is provided with a logarithmic scale 25 which is numbered from 0 to 10, while the upper surface of the annular member 22 is provided with a corresponding logarithmic scale 26. Thus the scales 25, 26 form part of

what is, in effect, a circular slide rule and may be used in making mathematical calculations such as multiplications and divisions. Additionally, the upper surface of the annular member 22 is provided with a trigonometrical function or weights and measures conversion scale 27.

The watch 10 is also provided with a rotatable cursor ring 30 a main part 31 of which is mounted in the gap 16 and thus radially inwardly of and concentrically of the annular member 17, and also radially outwardly of and concentrically of the watch glass 14.

The cursor ring 30, which is formed of a transparent synthetic resin, is provided with a projection 32 which engages beneath a shoulder 33 of the annular member 17. Thus although the cursor ring 30 can be rotated with respect to the annular member 17, its close engagement with the latter prevents its free rotation.

The cursor ring 30 is provided with a radially outwardly extending portion 34 which extends throughout the radial extent of the annular member 17 and throughout the radially inner portion of the annular member 22 which is provided with the scale 26. The inner surface of the portion 34 is provided with a cursor line 35 which, as the cursor ring 30 is rotated, will overlie portions of the annular members 17, 22 and will thus assist setting of the scales 25, 26.

Although the cursor ring 30 is shown in the drawings as being provided with a single cursor line 35, it will be appreciated that it may be provided with a plurality of such lines. Furthermore, the radially extending portion 34 could extend throughout the radial extent of the annular member 22.

In order to ensure that the cursor line 35 is not worn in use, the portion 34 may, if desired, be provided as shown with a downwardly extending part 36 which is spaced from the annular member 22. Thus if the portion 34 were forced downwardly the part 36 would contact the annular member 22 before there would be any contact between the latter and the cursor line 35.

The cursor ring 30 is also provided with two diametrically oppositely disposed radially outwardly extending projections 40 for effecting rotation of the cursor ring 30 by means of a finger of the user.

Although the cursor ring 30 is shown as being mounted radially inwardly of the fixed annular member 17, it could be mounted on and radially outwardly of the main part of the rotatable bezel 19.

As will be appreciated the provision of the cursor ring 30 enables multiplications and divisions to be more easily and accurately performed than would be the case without its use. Moreover, provision of the cursor line 35 may enable one to use scales such as the scale 27 which it would otherwise be difficult to read accurately.

WHAT WE CLAIM IS:—

1. A watch provided with relatively movable parts which are respectively graduated with scales to permit mathematical calculations to be made, and a cursor which overlies and is movable with respect to said relatively movable parts and a transparent portion of which is provided with at least one cursor line to assist the setting of the scales.

2. A watch as claimed in claim 1 in which at least one of the relatively movable parts is provided with a plurality of scales.

3. A watch as claimed in any preceding claim in which the said relatively movable parts comprise outer and inner concentric annular members.

4. A watch as claimed in claim 3 in which the inner annular member is fixed and the outer annular member is rotatable.

5. A watch as claimed in claim 3 or 4 in which the cursor comprises a rotatable cursor ring, a main part of which is mounted radially inwardly of and concentrically of the inner annular member.

6. A watch as claimed in claim 5 in which the said portion of the cursor which is provided with the said cursor line or lines projects radially outwardly of the said main part.

7. A watch as claimed in claim 6 in which the cursor ring is provided with at least one radially extending projection for effecting manual rotation of the cursor ring.

8. A watch as claimed in any of claims 3 to 7 in which an annular gasket is interposed between the inner annular member and means carrying the outer annular member.

9. A watch as claimed in any of claims 3 to 8 in which the cursor and the relatively movable parts are mounted concentrically about the glass of the watch.

10. A watch substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

J. MILLER & CO.,
Agents for the Applicants,
Chartered Patent Agents,
262 High Holborn,
London, W.C.1.

what is, in effect, a circular slide rule and may be used in making mathematical calculations such as multiplications and divisions. Additionally, the upper surface of the annular member 22 is provided with a trigonometrical function or weights and measures conversion scale 27.

The watch 10 is also provided with a rotatable cursor ring 30 a main part 31 of which is mounted in the gap 16 and thus radially inwardly of and concentrically of the annular member 17, and also radially outwardly of and concentrically of the watch glass 14.

The cursor ring 30, which is formed of a transparent synthetic resin, is provided with a projection 32 which engages beneath a shoulder 33 of the annular member 17. Thus although the cursor ring 30 can be rotated with respect to the annular member 17, its close engagement with the latter prevents its free rotation.

The cursor ring 30 is provided with a radially outwardly extending portion 34 which extends throughout the radial extent of the annular member 17 and throughout the radially inner portion of the annular member 22 which is provided with the scale 26. The inner surface of the portion 34 is provided with a cursor line 35 which, as the cursor ring 30 is rotated, will overlie portions of the annular members 17, 22 and will thus assist setting of the scales 25, 26.

Although the cursor ring 30 is shown in the drawings as being provided with a single cursor line 35, it will be appreciated that it may be provided with a plurality of such lines. Furthermore, the radially extending portion 34 could extend throughout the radial extent of the annular member 22.

In order to ensure that the cursor line 35 is not worn in use, the portion 34 may, if desired by provided as shown with a downwardly extending part 36 which is spaced from the annular member 22. Thus if the portion 34 were forced downwardly the part 36 would contact the annular member 22 before there would be any contact between the latter and the cursor line 35.

The cursor ring 30 is also provided with two diametrically oppositely disposed radially outwardly extending projections 40 for effecting rotation of the cursor ring 30 by means of a finger of the user.

Although the cursor ring 30 is shown as being mounted radially inwardly of the fixed annular member 17, it could be mounted on and radially outwardly of the main part of the rotatable bezel 19.

As will be appreciated the provision of the cursor ring 30 enables multiplications and divisions to be more easily and accurately performed than would be the case without its use. Moreover, provision of the cursor line 35 may enable one to use scales such as the scale 27 which it would otherwise be difficult to read accurately.

WHAT WE CLAIM IS:—

1. A watch provided with relatively movable parts which are respectively graduated with scales to permit mathematical calculations to be made, and a cursor which overlies and is movable with respect to said relatively movable parts and a transparent portion of which is provided with at least one cursor line to assist the setting of the scales.

2. A watch as claimed in claim 1 in which at least one of the relatively movable parts is provided with a plurality of scales.

3. A watch as claimed in any preceding claim in which the said relatively movable parts comprise outer and inner concentric annular members.

4. A watch as claimed in claim 3 in which the inner annular member is fixed and the outer annular member is rotatable.

5. A watch as claimed in claim 3 or 4 in which the cursor comprises a rotatable cursor ring, a main part of which is mounted radially inwardly of and concentrically of the inner annular member.

6. A watch as claimed in claim 5 in which the said portion of the cursor which is provided with the said cursor line or lines projects radially outwardly of the said main part.

7. A watch as claimed in claim 6 in which the cursor ring is provided with at least one radially extending projection for effecting manual rotation of the cursor ring.

8. A watch as claimed in any of claims 3 to 7 in which an annular gasket is interposed between the inner annular member and means carrying the outer annular member.

9. A watch as claimed in any of claims 3 to 8 in which the cursor and the relatively movable parts are mounted concentrically about the glass of the watch.

10. A watch substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

J. MILLER & CO.,
Agents for the Applicants,
Chartered Patent Agents,
262 High Holborn,
London, W.C.1.

