

DESCRIPTION

The present invention concerns table-clocks of the type in which the case exhibits rounded forms and is arranged so as to be able to occupy two positions of stable equilibrium, a first in which the dial is hidden and a second in which the dial is visible, the table-clock then being supported on the back cover of the case.

A table-clock of this type is described in the German Utility Model DE 1 833 188. The case of this table-clock comprises a glass and a back cover in the form of a hemispherical cap. The table-clock comprises a ballast mass in its lower part, so as to ensure a stable equilibrium position when the table-clock is resting on its base. Moreover, according to this document, the region of contact in the second stable equilibrium position is flattened in its main embodiment. This characteristic is considered here as advantageous, since the aim sought is to assure a stable equilibrium position, to which the table-clock is rapidly brought back whatever the initial position in which it rests on the crown serving as its base. The table-clock thus realized therefore exhibits great stability.

A type of table-clock is also known from the document CH-A-4 141/72 which has an exterior case in which the general shape is that of a circular body. The case has two plane surfaces, one of which is parallel to the plan of the dial. Thus, to destabilise the table-clock, it is necessary to apply a force such that the result defined by that force and the weight of the table-clock is found to the right of the applied surface.

An aim of the present invention is to provide, to the contrary of the first cited document, a table-clock which is very mobile about a unique stable equilibrium position where the dial is visible.

Furthermore, in view of its hemispherical form, the table-clock as described in this first document exhibits a squat and heavy aspect.

A further purpose of the present invention is to provide a table-clock having a lighter form.

These purposes are attained thanks to the particular characteristics defined by the table-clock of claim 1.

An embodiment of the table-clock according to the invention is schematically shown by way of example in the annexed drawings, in which :

- Figure 1 is an elevational view looking at the dial;
- figure 2 is a profile view with cut away portions;
- figure 3 is a perspective view.

The table-clock as shown includes a case 10 with a glass 12, a bezel 14 and a back cover 16. At the interior of the case are to be found display means including a dial 18 and hands 20 as well as a movement driving the hands 20. This movement is energized by a battery 22. It includes an alarm function controlled by a gravitational switch schematically shown at 24.

Glass 12, slightly convex, is fixed to the bezel 14. Both of these are of circular form. The outer contour of the profile of the bezel 14 is approximately in the form of a quarter of a circle. The edge of such bezel 14 abuts against the edge of the back cover 16. This latter is in the form of a cap, that is to say exhibits a curved and convex surface. The form of this back cover will be defined more precisely hereinafter. The case 10 thus defined has thus rounded forms which give it an agreeable aspect as much in its appearance as in its feel.

A cross-section perpendicular to the dial via the axis 12 o'clock to 6 o'clock corresponds to the profile view of figure 2, the back cover 16 exhibits a first arc of circle 26, the center 01 of which is in front of the dial 18 below the axis passing through its center. This arc 26 is connected to the edge of the back cover 16, on the twelve o'clock side, by a second arc of a circle 28 of small radius centered to the right of the edge of the back cover 16 in order to assure matching with the bezel 14.

In view of the position of the center 01 it is apparent that the upper half of the back cover 16 of the case 10 is thinner than the lower half. The difference in thickness between these two portions of the back cover 16 contributes to the elegance of the clock in a substantial measure.

Figure 2 shows that the other end of arc 26 matches with a third arc of a circle 30 of smaller radius. The center 02 of arc 30 is located within the back cover 16. This arc 30 forms part of a protruding zone 31 of the back cover 16 which will be described in detail hereinafter. The other extremity of arc 30 matches with a rectilinear segment 32, itself matching with the edge of the back cover 16 by means of an arc of a circle 34 corresponding to arc 28. By matching between these arcs and the described segment, it must here be understood that one passes from one of these elements to the neighbouring element with a common tangent, i.e. without a sharp edge.

In other terms, the back cover 16 takes the form of a cap made up of a juxtaposition of portions of ellipsoids, cone and torus, these portions together defining a continuously curved surface. From this it results that neighbouring portions are substantially tangent to one another.

More precisely, the zone neighbouring segment 32 is defined by a portion of a cone 33 generated by the segment 32 turning about the axis of the hands. The edge of the back cover 16 shown on figure 2 by arcs 28 and 34 assumes the form of a section of a torus of which the generating axis is common with that of the hands. The other portions of the back cover 16 are defined by a warped surface which may be broken down into a plurality of ellipsoidal portions. All of the portions are arranged in a manner so that they are substantially tangent to one another.

Furthermore, the protruding zone of which arc 30 forms a portion is defined by a part of a sphere the radius of which is substantially less than the average radius of the neighbouring zone. The dimensional relationship between these radii is typically equal to $1/3$.

Thus, the back cover 16 of case 10 is formed by a continuous surface without sharp edges. It exhibits in the center portion of its width and in the lower half a first zone defined by a first convex surface 31 on which the table-clock is supported in its second equilibrium position and a second zone defined by a second convex surface 38 and surrounding the first zone. The average radius of curvature of the first surface is less than the average radius of curvature of the second surface. Furthermore, the second surface 38 includes, in the portion taken between the first zone and the lower edge of the case, a flattened surface defined by the conical portion and proximate a protruding zone.

In all the sections under consideration, the profile of the back cover 16 of the case is naturally closer to the dial 18 than in the section passing through the axis 12 o'clock - 6 o'clock of this latter. It follows that the surface of the back cover 16 is entirely situated at the interior of a semi-spherical surface centered in the

plane of the edge of the back cover 16 at the intersection with the axis of the hands and having a diameter equal to that of the edge of the back cover, i.e. equal to the diameter of the case itself. The back cover 16 thus has a relatively flat form which gives it its elegance.

A first position of stable equilibrium of the clock as described is that in which the glass 12 or bezel 14 rests on a flat support (work table, desk, night table, etc.). In this position dial 18 is evidently hidden.

In the second position of stable equilibrium shown on figure 3, dial 18 is inclined. It is located approximately in a plane perpendicular to the axis of vision of a person seated at the table on which the table-clock may rest.

To assure the stability of this second equilibrium position, the table-clock is provided with a counterweight 36 housed in the lower portion of case 10, more precisely at the front and above the portion of case 10 including the flattened surface and engaged in the bezel 14, this latter being hollowed out.

Counterweight 36 thus forms ballast for the table-clock. This ballast is completed by the battery 22 which is the heaviest component of the table-clock and which is placed behind the dial and just above the counterweight 36. This latter and battery 22 ballast the table-clock in a manner such that its center of gravity G is located below point 02. More precisely, the mass and position of the counterweight 36 are chosen in a manner such that the straight line passing through points 02 and G makes an angle of approximately 30° with a surface tangent to the glass.

This angle defines the inclination of the dial in the second equilibrium position of the table-clock.

Furthermore, the distance between point 02 and point G determines the frequency at which the table-clock will oscillate when one displaces it from its second point of equilibrium. The frequency is higher in proportion to the increase in this distance.

One may further note that the straight line passing through points 02 and G cuts the arc 30 at its end neighbouring segment 32. From this, it is evident that the support point 40 of the table-clock in its second position of stable equilibrium is located in the neighbourhood of the periphery of the protruding zone close to its lower portion. It is thus close to the flattened surface proximate the protruding zone.

CLAIMS

1. Table-clock including a case (10) provided with a front glass (12) and a back cover (16) in the form of a cap, an arrangement for displaying the time of day (18, 20) covered by the glass (12), and means (36) for positioning the center of gravity (G) of the table-clock, the position of said center of gravity (G) defining a single position of stable equilibrium of the table-clock when it rests on its back cover (16), this table-clock being characterized in that the back cover (16) includes a first zone defined by a first convex surface (31) completely rounded and located mainly in the lower part of said back cover (16), the table-clock resting on a part (40) of the first convex surface (31) in said position of stable equilibrium and being able to have a free pendulous motion around this position of stable equilibrium, the back cover (16) further including a second zone defined by a second convex surface (38) and including said first zone, the mean radius of curvature of the first convex surface (31) being less than the mean radius of curvature of the second convex surface (38).

2. Table-clock according to claim 1, characterized in that said convex surfaces (31, 38) form a continuously curved surface, without sharp edge.

3. Table-clock according on one of claims 1 or 2, characterized in that a straight line passing through the center of curvature (02) of the first zone and through the center of gravity (G) of the table-clock forms an angle of about 30° with a surface tangent to the glass (12).

4. Table-clock according to one of claims 1 to 3, characterized in that the portion of the second zone included between the first zone and the lower edge of the back cover (16) is formed as a portion of a cone (33).



5. Table-clock according to one of claims 1 to 4, characterized in that it includes a manually adjustable audible alarm arrangement and a position detecting means arranged so as to interrupt the alarm when the table-clock rests on its front face.

