

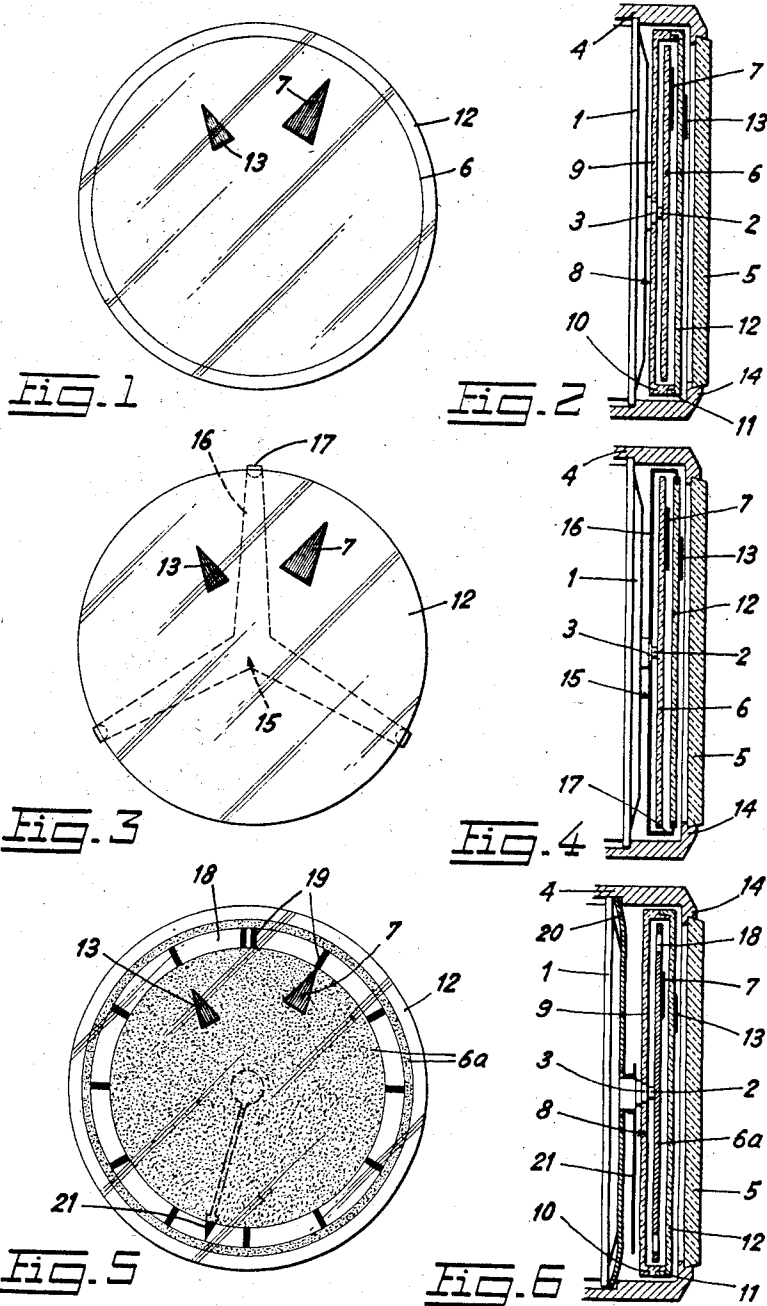
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TIME INDICATING DEVICE FOR WATCHES, CLOCKS AND THE LIKE

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TIME INDICATING DEVICE FOR WATCHES, CLOCKS AND THE LIKE

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This invention relates to time indicating devices for watches, clocks and the like, having a center shaft making one revolution in an hour and an hour wheel sleeve on said shaft. More particularly this invention relates to such time indicating devices in which the hands are replaced by disks carrying marks in an attempt to produce a mysterious effect.

In most of the time indicating devices of this type known in the art, the transparent disks carrying marks either have a small central opaque portion or are fixed to a visible central shaft or sleeve. In other known watches or clocks the central portions of the said disks are hidden behind a small opaque disk or coat of paint applied on the lower face of the glass. Besides the fact that the apparent shafts and sleeves carrying the marked transparent disks are not esthetic, it has even been observed with these known constructions that a mark provided on a transparent disk at the same level or even below an opaque central portion either of the disk itself or of the watch or clock glass does not produce the mysterious effect expected.

Some manufacturers have attempted to improve the effect obtained by providing the watch or the clock with disks carrying time indicating marks and having no apparent central portion, such disks being either entirely transparent or entirely opaque. Since two marks are required to indicate the hours and the minutes, respectively, the watch or clock can obviously be provided at most with one opaque disk. The supporting disk of the upper indicating mark must thus be constituted by a transparent disk. Now if no opaque element shall appear in the center of the disk, the latter must be provided with a toothing at its periphery so that it may be driven thereby.

In these constructions known in the art, the driving means of the upper transparent disk consist of extra gears located at the periphery of the disk. If such gears constitute a complication in a clock, they cannot be provided at all in most of the watches, since the case-band and the bezel are not large enough to locate such supplementary gears at the periphery of the time indicating disks appearing in the watch bezel.

It is therefore an object of the invention to improve the time indicating devices of the type comprising an entirely transparent upper marked disk (i.e. without any apparent central element), so that the moving time indicating elements can be set on a standard watch or clock movement without requiring any peripheral extra gear to drive these moving elements.

Further objects of the invention will appear in the course of the following description.

Three embodiments of the time indicating device according to the invention are represented diagrammatically and by way of example in the drawings annexed to this specification.

In the drawings:

Fig. 1 is a plane view of the first embodiment and

Fig. 2 is a part diametrical cross-section of this embodiment.

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Figs. 3 and 4 are similar views of the second embodiment, and

Figs. 5 and 6 similarly show the third embodiment.

Whether the time indicating devices embodying the invention are mounted on watches or on clocks is immaterial and the mechanism on which they are mounted will accordingly be designated by the generic expression time-piece hereunto.

The timepiece shown in Figs. 1 and 2 comprises a standard movement 1, i.e. a movement having a central shaft 2, which makes one revolution in an hour, and an hour wheel sleeve 3 so rotatably mounted on shaft 2 as to make one revolution in twelve hours. The movement 1 is located in a casing 4 and it is protected therein by a glass 5.

The indicating device of this timepiece comprises an opaque minute disk 6. On its face visible through the glass 5 this disk 6 carries an index 7 and its lower face comprises a central bored portion to fix the disk 6 on to the shaft 2. This central bored portion of the disk 6 can either be provided by a blind hole in the lower face of the disk 6 itself, or by a blind hole provided in a central disk portion thicker than the rest of this disk. The central bored portion mentioned above can also consist of a sleeve fixed to the lower face of the disk 6 for instance by soldering.

The time indicating device further comprises a support member 8 consisting of a plate 9 and a cylindrical side wall 10. The plate 9 is set on the hour sleeve 3 and the side wall 10 surrounds the disk 6 and extends above the latter. The outer side portion of this side wall 10 is so recessed as to receive a peripheral rim 11 of an hour disk 12. The disk 12 is entirely transparent and it carries an hour indicating index 13.

When observing the indicating device described through the glass 5 one sees only the index 13 in front of and the index 7 on the uniform background constituted by the opaque disk 6, and the effect produced by this index 13 is quite mysterious. Watch manufacturers themselves have not understood how this index was held. Until they disassembled the timepiece they believed that a magnet was holding and driving the index 13. The bezel 14 obviously masks the outer edge on the disks.

In a timepiece which is large enough, the same effect can be produced also with the index 7 by fixing it a certain distance above the visible face of the disk 6, for instance by means of small invisible pillars or by means of a narrow transparent stay. In small timepieces, on the contrary, time indicating marks can be provided on the disks 6 and 12 by engraving or by printing.

Although the time indicating device described is thicker than the usual devices with hands, it will be observed that the whole thickness of the timepiece is about the same, since the third level occupied here by the plate 9 is compensated by the dial which can be dispensed with.

To assemble the indicating device described the support 8 is first set on to the sleeve 3, then the disk 6 is fixed on to the shaft 2 and the rim 11 of disk 12 is eventually engaged in the peripheral wall recess of the support 8. It will be observed that the disk 12 can easily be removed from its support 8 by introducing for instance a knife blade between both elements.

The horal graduations usually appearing on the dial may here be provided under the glass 5 or on the bezel 14.

The second embodiment shown in Figs. 3 and 4 only differs from the first one by the fact that the support of the hour disk 12 has another form. In the second embodiment the support in question consists of a central portion 15 fixed on to the hour wheel shaft 3, and of three arms 16 extending radially under the disk 6 and having their extremities 17 bent upwards, around and above the

disk 6. The arms 16 are resilient and their ends are set in corresponding slots provided in the outer edge of the disk 12.

In the third embodiment (Figs. 5 and 6) the hour disk support 8 is the same as in the first embodiment, but the minute disk 6a is not entirely opaque. It is provided with a narrow annular transparent zone 18 in which appear the horal graduations 19 of the dial 20. An alarm hand 21 or a reserve power pointer may also appear through the said transparent zone.

While three embodiments of the invention have been described hereabove in detail, it will be understood that various changes in the shape, sizes and arrangement of parts will appear obvious to those skilled in the art without departing from the spirit of the invention or sacrificing the advantages thereof.

I claim:

1. In a time-indicating device for watches, clocks and the like, having a center shaft making one revolution in one hour and an hour wheel sleeve on said shaft, the combination of an opaque disk, a mark on one face of said opaque disk to indicate the minutes, fixing means in the center of the other face of said disk so arranged as to secure said opaque disk to said center shaft, support means fixed on to said hour wheel sleeve and extending below and around said opaque disk, a transparent disk above said opaque disk, a mark indicating the hours on said transparent disk and means at the periphery of said transparent disk to removably secure this disk to said support means.

2. The combination of claim 1, in which said support means are constituted by a plate and a cylindrical wall surrounding the minute disk and extending thereabove.

3. The combination of claim 2, in which the outer end portion of said cylindrical wall is recessed, and in which said hour disk has a peripheral rim located in the recess of said cylindrical wall.

4. The combination of claim 1, in which said support means comprise radial arms having their extremities bent around the minute disk.

5. The combination of claim 4, in which slots are provided in the edge of said hour disk to receive the ends of the arms of said support means.

6. In a time indicating device for watches, clocks and the like, having a dial carrying an horal graduation and being provided with a central aperture, a center shaft passing through said central aperture of the dial and making one revolution in one hour and an hour wheel sleeve on said shaft also passing through said central dial aperture, the combination of an opaque disk having a narrow transparent annular zone through which the said horal graduation of the dial is visible, a mark on one face of said opaque disk to indicate the minutes, fixing means in the center of the other face of said disk so arranged as to secure said opaque disk to said center shaft, support means comprising a transparent plate fixed on to said hour wheel sleeve and extending below said opaque disk, and a cylindrical wall around said opaque disk, integral with said transparent plate, a transparent disk above said opaque disk, a mark indicating the hours on said transparent disk and means at the periphery of said transparent disk to removeably secure this disk to said cylindrical wall of said support means.

7. The combination of claim 6, in which a moving indicator is located between said dial and said transparent plate of said support means so as to appear in said transparent zone of said opaque disk.

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