

"CLOCK"

The present invention relates to a clock such as a hanging clock or the like, and although it is not so restricted, the invention particularly relates to a thin clock.

5 A clock is known in which a dial is disposed in front of a movement support plate on which a movement capsule, which contains the movement, is fixedly secured. A transparent front cover is disposed in front of the dial, and hands are disposed in a space between the front cover and the dial. A setting shaft for correcting the time
10 is disposed on the back side of the movement support plate. Recently there has been a requirement for a light, thin and small clock, so that it has been an extremely important technical problem to make the clock thin. Under such circumstances, the distance between the dial and the front
15 cover is made extremely small, and, further, the front cover, the dial, the movement support plate, and even the hands themselves have been formed extremely thin insofar as the strength of the clock would permit it.

20 As a result, the movement support plate and the front cover can easily be deformed due to temperature, the application of pressure while turning the hands, and so on, so as to cause the front cover to touch the hands, especially the minute hand, so that the minute hand comes off the minute hand shaft, the front cover is rubbed

by the minute hand, and is damaged thereby, or in the worst case, the clock is stopped.

The object of the present invention, in its preferred form, is therefore to provide a clock in which the space between the front cover and dial can be kept substantially constant even if the movement support plate or the front cover is deformed.

According, therefore, to the present invention, there is provided a clock comprising a movement supported by a movement support plate; a dial disposed in front of the movement support plate; a transparent front cover disposed in front of the dial with a space therebetween; hands which are driven by said movement and which are disposed in said space; time indicating members which are formed integrally with or secured to the back face of the front cover and which project rearwardly so as to extend to a position in which they abut or are adapted to be brought into abutment with the front surface of the dial; and a plurality of projections which project forwardly from the front face of the movement support plate so as to abut or to be adapted to be brought into abutment with the rear surface of the dial at positions corresponding to those of the time indicating members, the dial being disposed between and supported by the time indicating members and the projections.

Accordingly, even if the front cover is subject

to deformation by temperature, or by pressure applied in operation, or the like, the space between the front cover and the dial can be maintained by the time indicating members so as to prevent the front cover from touching the hands.

Preferably the movement is housed in a capsule carried by the movement support plate.

Decorative members may be mounted on the front surface of the front cover at time indicating positions, said decorative members being secured to the movement support plate.

The invention is illustrated, merely by way of example, in the accompanying drawings, in which:-

Figure 1 is a front view of a clock according to the present invention,

Figure 2 is a partially cut-away enlarged cross-sectional view of the clock of Figure 1, and

Figure 3 is an enlarged cross-sectional view of a main part of the clock of Figures 1 and 2.

Terms such as "upper" and "lower", as used in the description below, are to be understood to refer to directions as seen in the accompanying drawings.

As shown in Figures 1 and 2, a thin clock according to the present invention is constituted by a movement support plate 1 which is used also as a back frame, a dial 2 which is disposed in front of the movement support plate 1 with a space 1b therebetween, a transparent front cover 3

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disposed in front of a dial 2 with a space 2a therebetween,
and a movement capsule or housing 4 which is fixed in a
central portion of the movement support plate 1.

Hands 5 are driven by a known timepiece movement (not shown)

5 which is provided in the capsule 4, the hands 5 being
disposed in the space 2a between the dial 2 and the front
cover 3. Decorative buttons 6 which are used also as time
indicating members, and which for this purpose are
disposed at the 3 o'clock, 6 o'clock, 9 o'clock and
10 12 o'clock positions, are fixedly attached on the front
surface of the front cover 3. Screws 7 inserted into the
movement support plate 1 from its back side are screwed
into the back surfaces of at least some of the
decorative buttons 6 so that the front cover 3 and the
15 movement support plate 1 are connected to the dial 2
interposed therebetween.

As clearly shown in Figures 2 and 3, projections 3a
are integrally formed with the front cover 3 at positions at
which the hands 5 are not prevented from turning, the
20 distal ends of the respective projections 3a abutting
the front surface of the dial 2, or being adapted to be brought
into abutment with the latter. Accordingly, even if the front
cover 3 is deformed due to temperature or due to the
application of pressure while turning the hands, the space 2a
25 between the front cover 3 and the dial 2 may be kept

substantially constant by the projections 3a so as to prevent the front cover 3 from touching the hands 5. The projections 3a are disposed at time indicating positions such as 1 o'clock, 2 o'clock, 4 o'clock, 5 o'clock, 7 o'clock, 8 o'clock, 10 o'clock and 11 o'clock. Thus each of the hour positions is indicated either by a decorative button 6 or by a projection 3a.

As shown in Figure 3, pairs of projections 1a are formed integrally with or are secured to the movement support plate 1 at the front surface thereof. The upper end surfaces of the projections 1a abut or are adapted to be brought into abutment with the lower or rear surface of the dial 2, so that the dial 2 and the front cover 3 are prevented from being excessively deformed. The projections 1a are at positions corresponding to those of the projections 3a.

In the embodiment described above, even if the front cover 3 and/or the movement support plate 1 is deformed by temperature, or by external force or the like, the projections 3a keep the space between the front cover 3 and the dial 2 substantially constant so as to prevent the hands 5 from touching the front cover 3 and thus prevent the latter from damage, by the hands, prevent the rotation of the hands being stopped, and prevent the operation of the clock being stopped. Accordingly, it is possible to make the space 2a between the dial 2 and the front cover 3 as narrow as possible to thereby make the clock thin.



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C L A I M S

1. A clock comprising a movement supported by a movement support plate; a dial disposed in front of the movement support plate; a transparent front cover disposed in front of the dial with a space therebetween; hands which are driven by said movement and which are disposed in said space: time indicating members which are formed integrally with or secured to the back face of the front cover and which project rearwardly so as to extend to a position in which they abut or are adapted to be brought into abutment with the front surface of the dial; and a plurality of projections which project forwardly from the front face of the movement support plate so as to abut or to be adapted to be brought into abutment with the rear surface of the dial at positions corresponding to those of the time indicating members, the dial being disposed between and supported by the time indicating members and the projections.

2. A clock as claimed in claim 1 in which the movement is housed in a capsule carried by the movement support plate.

3. A clock as claimed in claim 1 or 2 in which decorative members are mounted on the front surface of the front cover at time indicating positions, said decorative members being secured to the movement support plate.



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4. A clock as claimed in claim 1 and substantially as hereinbefore described with reference to and as shown in the accompanying drawings.
