

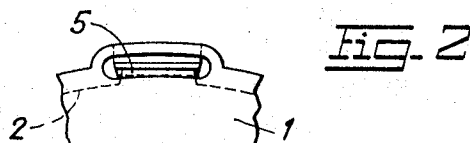
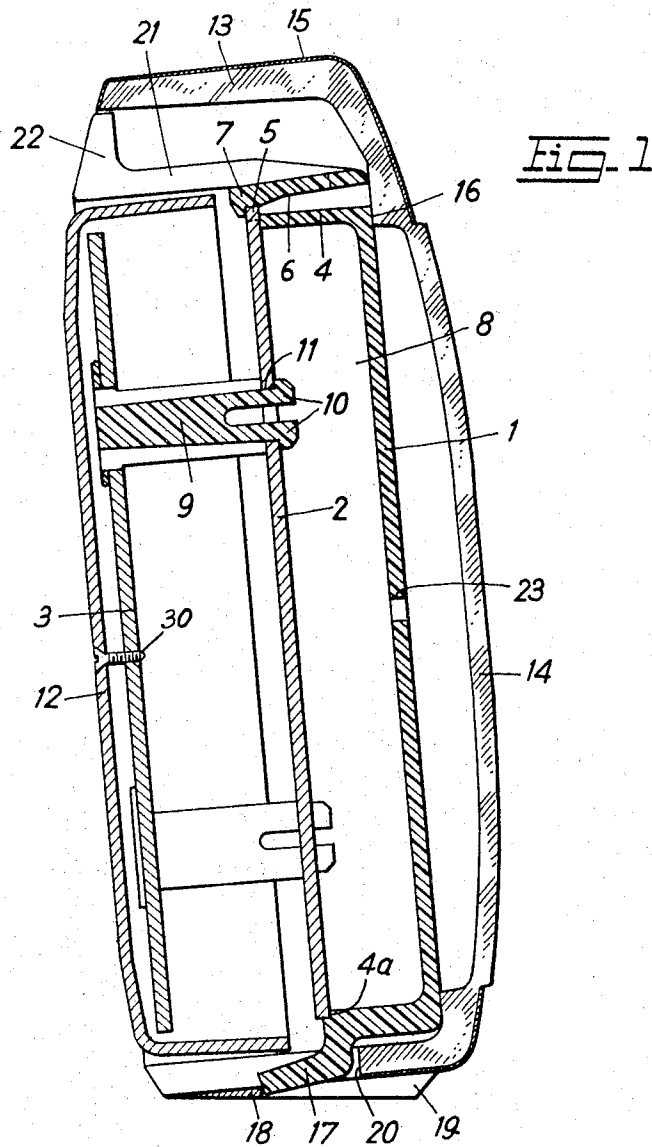
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RINGING WATCH PIECE

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RINGING WATCH PIECE

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The present invention relates to a ringing watch piece comprising a case and a removable frame located within said case and carrying a movement and a ringing mechanism.

The invention more particularly refers to the manufacture and to the assembling of watch pieces of this type and proposes a rationalized structural arrangement affording for a simplification and for an acceleration not only of the manufacture of the different elements of the watch piece, but in addition also of their assembling.

A further object of the invention, moreover, is to realize a watch piece, the essential parts of the movement of which are housed within an entirely closed enclosure and are efficiently protected against any penetration of dust.

To this end the ringing watch piece according to the present invention is characterized in that the case comprises a front wall provided with a glass, and a side wall, and in that partition elements, adapted to the dimensions of said side wall of the case and carried by the removable frame form, the rear wall of the watch piece.

Other features and advantages of the invention will become apparent from the description now to follow, of a preferred embodiment thereof, given by way of example only, and in which reference will be made to the accompanying drawings, in which:

FIG. 1 is a diagrammatic axial section of this embodiment, with the parts of the movement removed, and

FIG. 2 is a top view showing a detail of a portion of this watch piece.

The watch piece illustrated in the drawing is a carriage-clock with alarm mechanism, of general circular shape, adapted to be placed on a piece of furniture in a position approximately vertical.

The elements of the movement (not shown) of the watch piece are carried by a frame constituted by three elements, namely a dial 1, a bottom-plate 2 and a back 3. The dial 1 is a molded or injection moulded piece of synthetical material made of one piece with a lateral wall 4 attached to the periphery of the dial on the whole circumference thereof. This side wall has a shoulder 4a extending over its entire length and against which bears the periphery of the plate 2. The latter in this manner is maintained at a determined distance from the dial 1. It is centered by the rim of the shoulder 4a. Lateral catches 5 of trapezoidal form project from at least two points of the periphery of the plate 2. To these catches correspond, in the wall 4, resilient elements 7 shaped as hooks adapted to be attached each to one of the catches 5 so as to removably retain the plate 2 bearing against the shoulder 4a. The hooks 7 are made of one piece with the dial 1 in the molding thereof. They are separated from the wall 4 by openings 6 leaving at the outside of the wall only a thin resiliently deformable element. The presence of the catches 5 also affords for an orientation of the plate with respect to the dial.

The plate 2 and the dial 1 define a housing 8 of cylindrical shape which is entirely closed and which consequently cannot be penetrated by dust. This housing is destined to receive the most delicate parts of the movement of the watch piece, more particularly the wheels and

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the regulating device. The going barrel is placed within another housing described hereinafter.

This second housing is mainly delimited by the plate 2 and by the back 3. These are both metallic pieces, however the back 3 carries pillars 9 of synthetic material the upper ends of which present two catches 10 which are deformable so that they can be engaged into corresponding openings 11 of the plate 2 in order to ensure the fixation of the back 3 to the plate 2. In addition to the barrel, the elements of the ringing mechanism are also lodged and secured between the frame elements 2 and 3. The described watch piece further comprises a bell 12 made of a swaged, circular, sheet metal piece secured by appropriate means, such as screw 30, to the rear face of the back 3. The lateral wall of this bell extends in direction of the plate 2 about the back 3. As to the case of the described watch piece it is constituted of one sole element made of one piece with a glass 14. This element has the shape of a cylindrical dome made of a transparent synthetic material such as the material known under the Trademark "Plexiglas" and the outer surface of which carries a metallized layer 14 which covers the lateral wall of the case 13 and a portion of its front face thus forming the ring usually holding the glass. The portion of this element which is left free by the metallic layer forms the glass. It is circular but excentric with respect to the dome 13.

The portion 14, which forms the glass of the described watch piece, is slightly domed and fits an inner peripheral shoulder 16 of annular shape which limits the inner face of the case 13 and against which bears the periphery of the dial 1. The frame of the movement is secured to the case by means of three resilient elements 17 forming tongues extending obliquely to the exterior from the base of the lateral wall 4 of the dial, and which are equally distributed over the circumference of this wall. The free ends of these tongues 17 are engaged by notches 18 formed by elements of the wall 13. The notch 18, which is visible on FIG. 1, is formed in a thickening of triangular shape of said wall at the point where it is nearest to the wall 4. This triangular thickening forms two stands 19 on which the watch rests. The wall 13 is provided between the stands 19, with an opening 20 engaged by the tongues 17. The other notches 18 being situated in a visible portion of the wall 13 extend only to the interior of this wall, which thus does not have any corresponding opening. In order to put in place the frame of the movement it is sufficient to engage this frame from the back into the dome 13. The tongues 17 will then engage the notches 18. In order to remove the frame the tongue 17 situated between the stands 19 is pushed towards the interior, whereafter the movement may be extracted obliquely.

Once the movement is in place its axis coincides with that of the glass 14. To ensure the centering of the movement the wall 13, in the zone extending between the catches 17 and the resilient members 7, is provided with prolongations 21 terminated by flanges 22. These flanges in plan have the shape of crescents and their dimensions are determined so that they fit with small play within the lateral wall 13 of the case. Thus the watch piece is closed to the rear by the rear faces of the flanges 22 and by the base of the bell 12.

The dial 1 is provided with an opening 23 for the passage of the shaft carrying the hands of the movements. Through this opening the housing 8 communicates with a housing which also is entirely closed and delimited by the dial and the glass, and which serves to receive the hands.

The plate 2 is also provided with openings (not shown) opening into the housing delimited by the back 3. These

openings serve for the passage of shafts connecting the barrel with the wheels of the movements and with the control members for the hands and for the regulation.

The winding of the barrel may be effected by means of a member traversing an opening in the back 3 and a corresponding opening in element 12, and actuating the barrel, since the latter is arranged between the parts 2 and 3.

In the described arrangement the dial with its wall 4 and the plate 2 delimit an entirely closed housing ensuring excellent tightness of this housing against dust penetration. Moreover the described watch piece is of an extremely simplified assembling, since as well the assembling of the parts of the frame as also that of the case itself may be effected by engagement against an abutment surface and locking by resilient members.

Instead of being made of one piece with the glass 14 the case 13 could also be manufactured in two pieces one, forming the lateral wall of the case, being of non-transparent material, for example metal. The case 13 could also be entirely transparent the outer face of the wall with the prolongations 21 being provided with decorations which could then be seen in transparence. Instead of a decoration carried by the lateral wall of the dial it would also be possible to arrange in the space between the wall 13 and the wall 4 decorating elements such as for example figurines.

Finally, instead of securing the plate 2 to the dial 1 and the frame to the case by means of resilient elements such as has been described, these connections could also be realized by screws or rivets.

Moreover the lateral wall of the dial 1, instead of being provided with several notches 18 distributed over its periphery, could be provided in a modification only with one such notch engaged between the stands of the case as represented on the drawing. At its upper portion diametrically opposite to the notch 18 the said wall would then be provided with a lateral projection provided with an opening for the passage of a control button, for example the stop button of the ringing. A circular housing made in the wall of the case and the base of which would be provided with an opening for the passage of this control button would receive the said projection in the assembling of the movement to the case. The locking of the movement would then be realized by means of the notch 18.

The described watch piece, owing to its construction making use of molded pieces for the frame elements and for the case, affords for great variations in its outer shape, such as square-shape, circular shape, asymmetrical shape or fancy shape. All these elements could of course also be realized by other process, for example by sintering.

I claim:

1. For use in an alarm clock including a movement and a ringing mechanism; the combination comprising an external case including a front wall which is at least partially transparent and a side wall projecting from the periphery of the front wall to define therewith a chamber, a multipiece frame received in said chamber of the case, means removably fixing said frame with respect to said

side wall of the case, said frame including three overlying plates including a dial plate engaged against the front wall of the case, an intermediately positioned movement plate and means securing said movement plate to said dial plate to define a compartment for receiving a portion of the movement of a clock, and a rear plate spaced from the side of the movement plate opposite the dial plate to define with the movement plate a space for receiving the ringing mechanism and barrel of a clock, and a dome shaped bell in the case overlying and surrounding said rear plate and attached to said rear plate to substantially close the case at its end opposite said front wall.

2. The combination defined in claim 1 wherein said dial plate has an integral annular side wall having at its free end an annular shoulder receiving peripheral portions of said movement plate, and wherein said means fixing said movement plate to said dial plate includes a number of resilient hook-shaped elements integrally formed at the periphery of said dial plate side wall, said elements having a hook portion overlying and engaging the peripheral portions of said movement plate to press them against said shoulder in said dial plate.

3. The combination defined in claim 2 wherein said peripheral portions of said movement plate engaged by said hook portions are tabs integral with said movement plate and projecting outwardly therefrom.

4. The combination defined in claim 1 wherein said means securing the frame to said case side wall includes integral resilient tongues projecting from the periphery of said dial plate and a number of notches formed in said case side wall and removably receiving said tongues.

5. The combination defined in claim 1 wherein said frame is eccentrically mounted with respect to the case, and the combination further including a number of elongated members of variable width inserted between the side walls of the case and the periphery of the frame to insure eccentric positioning of the frame in the case.

6. The combination defined in claim 5 wherein said elongated members are fixed to the side wall of the case.

7. The combination defined in claim 6 wherein said case has a flat annular shoulder formed about the front wall of the case and wherein said dial plate is pressed against said flat annular shoulder of the case.

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