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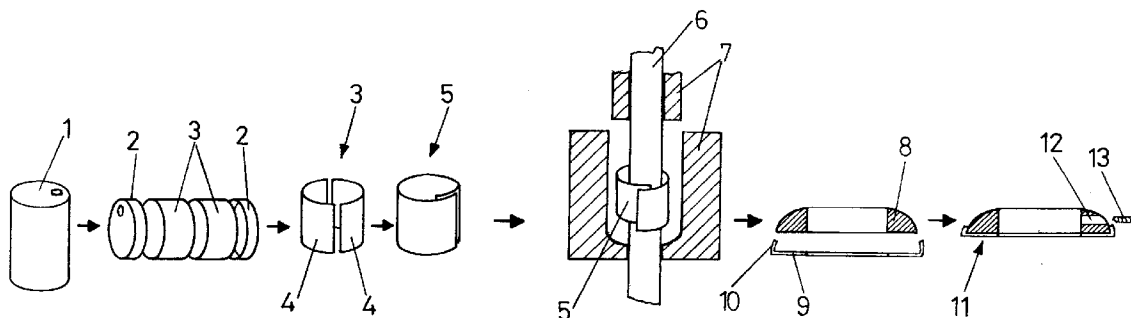
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(54) Procedure to manufacture watch cases

(57) Procedure for the manufacture of watch cases, based on a disposable cylindrical metal container (1) that involves cutting the container cross sectionally in four portions (2 and 3), out of which the intermediate ones (3) are then diametrically cut to obtain semi-cylindrical shells (4) that are rolled up to form a spiral (5) and

which are then subjected to an axial pressing procedure using a die (6-7) which shape corresponds with that of the watch case to be manufactured. A ring shaped part (8) is obtained upon which base is then mounted a crown (9) fitted with a peripheral rib (10).



EP 0 775 951 A2

Description

This invention refers to a procedure to manufacture watch cases, based on disposable containers made of metal, of the type normally used for soft drinks and similar products.

WO 92/18915 describes a procedure for the fabrication of a frame to house a time keeping mechanism, based on disposable containers made of metal, of the type normally used for soft drinks and similar products. In accordance with said procedure, the container, once empty, is then subjected to a process of axial and eventually radial compression, until such time as a body featuring a given size is obtained, corresponding to the required case. Inside this body is then molded a space or hollow where the time keeping mechanism is to be housed. There is furthermore a closing element.

To employ the procedure described it is necessary to use metal presses of a given power level, given that it is necessary to flatten the whole metal can and to generally reduce its contour through the application of radial compression. In the same manner, forming of the hollow space where the time keeping mechanism is to be housed is a difficult operation, as it has to be carried out upon the deformed and compressed container. The operations described are made more difficult due to the compression of the container being effected including its top and bottom ends, which are the areas of the container with the greater degree of rigidity.

On the other hand, the procedure described does not allow the introduction of modifications or variations in respect of the aspect and robustness of the case obtained, from the full container.

The object of this invention is a procedure for the manufacturing of watch cases, using disposable containers of the type described, that does away with the previously described disadvantages, due to its allowing the forming of the cases using simple operations that do not require great efforts.

Another object of the invention is a procedure that makes it possible to vary the aspect and robustness of the case obtained, using a single container.

In accordance with the procedure of the invention, the container is cross sectionally cut in four portions, two shorter height ends, which are sufficient to obtain the bases or bottoms of the container, and two intermediate sections, equal in size to each other and considerably higher than the two prior portions. The previously mentioned intermediate sections are diametrically cut, so as to obtain two semi-cylindrical shells from each one of them. These shells are then rolled up to form a spiral, operation that may be manually effected, due to the low degree of resistance of the shells. The rolling operation may be effected using a cylindrical core that will preferentially be of a diameter corresponding to the internal diameter of the case to be manufactured.

The shells rolled up as previously described are then subjected to an axial pressing operation, using a

die which shape corresponds to that of the case to be obtained. This operation results in a ring shaped body which base is covered using a flat circular crown, topped with a cone shaped peripheral rib, sized so as to fit upon the external side surface of the ring shaped body.

The previously mentioned crown, which may be made of metal, will make it possible to hide away all of the imperfections and rugosities formed on the bottom part of the case during the pressing process.

Furthermore, the crown will also serve, together with its peripheral rib, as a case reinforcement element, preventing any possible deformations.

Finally, a radial hole is then drilled on the ring shaped body, for the passage of the shaft of the time adjustment crown.

The case or box is then completed by adding the corresponding bottom cover and watch face covering glass.

The features and advantages of the procedure object of this invention may be better understood by reading the description below, prepared with reference to the attached drawing, which schematically shows the various stages or phases of the procedure.

Figure 1 depicts, with item reference number 1, a disposable container or can made of metal, of the type used to distribute drinks.

In accordance with the invention, container 1 is then cut cross sectionally in four different portions, two shorter ends marked with item reference number 2 and another two identical intermediate portions, of a greater height, marked with item reference number 3.

Each one of the portions 3 are diametrically cut in order to form two semi-cylindrical shells, marked with item reference number 4. The semi-cylindrical shells are rolled up forming a spiral, as depicted in the drawing by item reference number 5. This operation, due to the low degree of resistance of each one of the shells 4, may be manually effected. The rolling procedure may be effected upon a cylindrical core.

The spiral rolls 5 are then set upon a core 6 of diameter approximately equal to the internal diameter of the box to be obtained and these rolls 5 are subjected to an axial pressing procedure using a die 7 which shape corresponds to that of the watch case to be obtained.

From the previously described pressing operation is then obtained a ring shaped body 8 which shape coincides with that of a watch case. Upon the base of this ring shaped body 8 is then fitted a flat circular crown 9 that incorporates a conically shaped peripheral rib 10 that coincides with the shape of the side surface of the ring shaped body 8, to achieve its adjustment upon it, as depicted in the drawing by item reference 11.

Finally, the ring shaped body 8 with the crown 9 already fitted is then radially drilled to make a hole 12 for the passage of the shaft 13 of the time adjustment crown.

Using the procedure of the invention, low power presses may be employed to effect the pressing opera-

tions upon the reduced resistance rolls of material 5. Furthermore, varying the number of rolls 5 and their relative arrangement for the formation of a ring shaped body 8, it is then possible to obtain cases with different level of robustness and with different decorative elements on their visible surface, which will correspond to the color patterns, signs and text printed upon the original container 1, with the corresponding deformities due to the performance of the cutting and pressing operations.

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Claims

1. Procedure for the manufacture of watch cases, based on a disposable cylindrical metal container, of the type used to distribute soft and similar drinks, characterized in that it includes the following stages:

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a) Cut the container in a direction that is perpendicular to its axis in four different sections, two shorter ones at the end portions, containing the bases or bottom parts, and two intermediate portions that are equal to each other;

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b) cut the two intermediate portions diametrically so as to obtain four semi-cylindrical shells;

c) roll up the semi-cylindrical shells to form a spiral;

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d) subject the previously mentioned rolls to an axial pressing action, using a cylindrical core with a diameter approximately equal to the internal diameter of the case to be obtained and using a die which shape corresponds to that of the watch case;

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e) couple upon the base of the so formed ring shaped part a circular crown topped by a conical peripheral rib capable of being fitted upon the side surface of the previously mentioned ring shaped part; and

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f) drill the ring shaped part radially, for the passage of the time adjustment crown axis.

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