Oct. 11, 1966 P. HUGUENIN 3,277,562

METHOD FOR MANUFACTURING CLOCK DIALS

Filed Feb. 9, 1965

FIG. 1

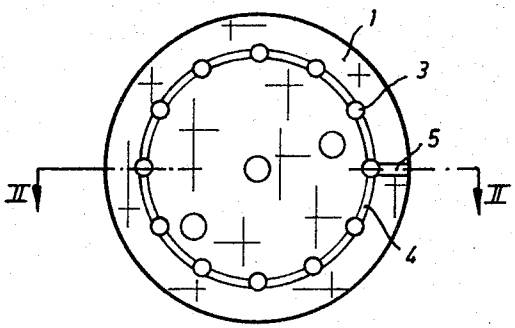


FIG. 2

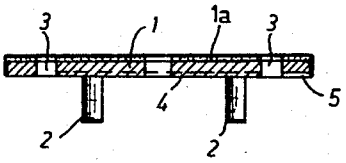


FIG. 3

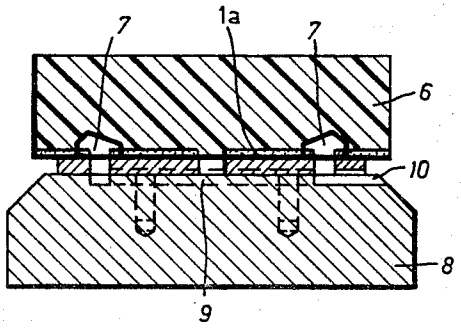


FIG. 5

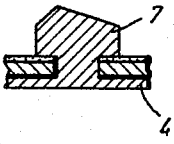


FIG. 4



United States Patent Office 3,277,562 Patented Oct. 11, 1966

3,277,562

METHOD FOR MANUFACTURING CLOCK DIALS

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Filed Feb. 9, 1965, Ser. No. 431,282
Claims priority, application Switzerland, Feb. 11, 1964, 1,603/64
3 Claims. (Cl. 29—177)

The present invention relates to a method for manufacturing clock dials.

Clock dials are frequently furnished with slightly protruding hour-signs or ornamental patterns. Such signs are often added to the dial plate and fixed to the latter by means of rivets. According to certain methods, these signs can be electro-deposited on, or welded to, the plate and they are finished by mechanical faceting or polishing.

According to other methods, a shell is prepared by electroplating and it serves to cover the plate and the signs. That shell is fixed to the plate by means of a resin.

It has been suggested to inject signs through openings in the dial plate, and colour them by electro-deposition. These openings, of a suitable shape, allow to anchor the signs on to the plate.

Finally, according to still another method, more especially adapted to large size dials, the signs are stuck on to the plate. The reverse side of the signs must be coated with glue before these signs are laid on the plate. In view of the difficulties encountered, as well as regards an even distribution of the glue as the centering of the signs on the plate, that method cannot be profitably carried out.

The present invention relates to a method for manufacturing a clock dial with slightly protruding signs, said method consisting in injecting from the reverse side of the dial plate and through openings made in the latter, a molten material which fills prints of the hour-signs provided in a mould laid on the plate face. Said method is characterised in that the plate face is coated, before the sign prints are injected, with a self-adhesive film adapted to fix said signs once said material has solidified.

The features of the present invention will be disclosed hereafter, reference being had to the accompanying drawing in which

FIG. 1 is the plan view of the reverse side of a dial plate,

FIG. 2 is a cross section of FIG. 1 along II—II,

FIG. 3 shows how the sign prints are injected and

FIGS. 4 and 5 show two signs obtained by the method according to the invention.

The operating steps are as follows:

A dial face **1** is coated with a film of a self-adhesive plastic material **1***a*. That plate comprises feet **2** and, for each of the signs which are to appear on the dial face, an opening **3**. A circular groove **4** which connects these openings is itself connected to the plate edge by a rectilinear groove **5**. A mould **6** (FIG. 3), of plastic material for instance, is provided with recesses which are the female counterparts of the hour-signs to be molded and which will protrude from the dial. The dial plate **1** is anchored to a base **8** by its feet **2**. Circular and rectilinear grooves, **9** and **10** respectively, are provided on the upper face of that block. They perfectly match the grooves made in the reverse side of the plate. Once superposed, they form an inlet channel for introducing the liquid molding material, said channel having a cross-section large enough to permit the exhaust of air and prevent choking due to a too-quick cooling of the molten molding material.

The mold **6**, the prints of which may have been previously metallized is laid on the plate; then the liquid molding material is injected.

The material injected, which has a low melting point, can be a plastic material or an alloy of the lead-tin-antimony type, melting between 55 and 100° C. (between 130 and 212° F.). Once the signs have cooled, the material injected perfectly sticks to the self-adhesive layer which has been previously laid on the dial plate.

By using, for injecting the sign prints, a plastic material of the same kind as that forming the self-adhesive film, a welding is achieved which increases the adhesiveness resulting from the self-adhesive character of the film.

According to still another form of embodiment, in the case of thin plates, the inlet channel can be simply constituted by a groove in the base.

Such a method for manufacturing clock-dials with slightly protruding signs has the advantage of providing signs having a metallic aspect, and it requires just one operating step for simultaneously manufacturing and fixing all the signs on the base plate.

What I claim is:

1. A method for manufacturing clock dials having a plate with slightly protruding signs, comprising piercing said plate at locations corresponding to that of the signs to be made, coating the face of the plate of said dial with a self-adhesive film, placing a mold on said plate face, said mold comprising recesses which are the female counterparts of the signs to be made, injecting a molten molding material from the reverse side of said plate into said openings and, therefrom, into said recesses, whereby the mass of said molding material once solidified is fixed to said plate, owing to said self-adhesive film.

2. A method for manufacturing a clock-dial having a plate with slightly protruding signs, comprising piercing said plate at locations corresponding to that of the signs to be made, coating the face of the plate of said dial with a film of self-adhesive plastic material, placing a mold on said face of the plate, said mold comprising recesses which are the female counterparts of the signs to be made, injecting a molten molding material from the reverse side of said plate into said openings and, therefrom, into said recesses, whereby the mass of said molding material once solidified is fixed to said plate, owing to said film of self-adhesive plastic material.

3. A method for manufacturing a clock-dial having a plate with slightly protruding signs, comprising piercing said plate at locations corresponding to that of the signs to be made, coating the face of the plate of said dial with a film of a first self-adhesive plastic material, placing a mold on said face of the plate, said mold comprising recesses which are the female counterparts of the signs to be made, injecting a molten plastic material from the reverse side of said plate into said openings and, therefrom, into said recesses, whereby the mass of said molten plastic material once solidified is fixed to said plate owing to said film of a first self-adhesive plastic material.

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