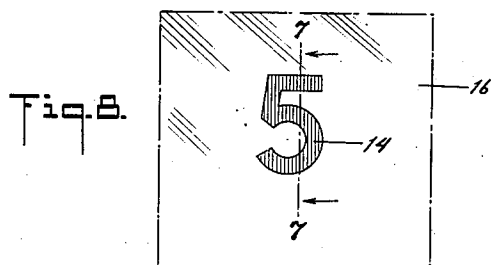
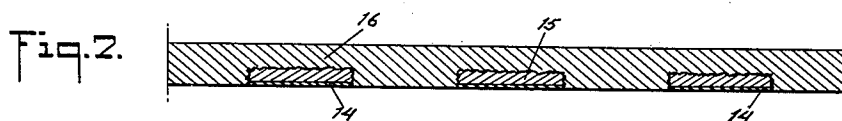
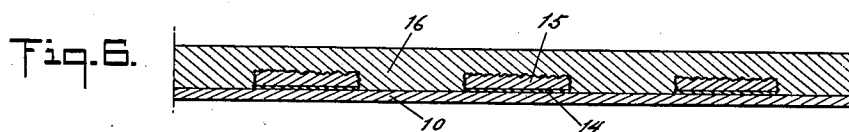
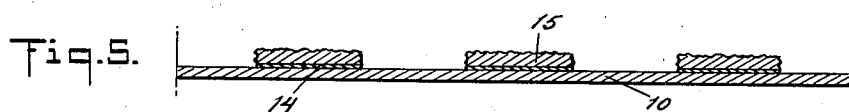
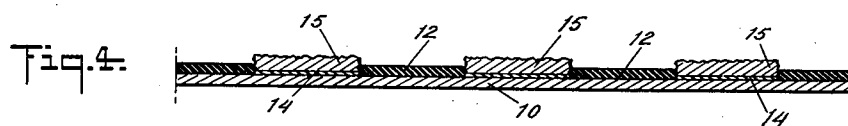
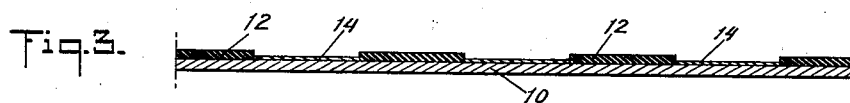


June 19, 1934.

H. L. DECKER
METHOD OF ORNAMENTATION
Filed Jan. 14, 1933

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UNITED STATES PATENT OFFICE

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METHOD OF ORNAMENTATION

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5 Claims. (Cl. 41—33)

This invention relates to a method of ornamentation, and has for its principal object the economical and convenient production of a pattern of ionizable material in a surface of different material.

Other objects will appear from the following description referring to the accompanying drawing, in which

Figure 1 is a diagrammatic section of a transfer surface having ink applied thereto;

Figure 2 shows the same, with resist material applied to the ink;

Figure 3 shows the flash coating of the unprotected area;

Figure 4 shows the heavy electroplated coating;

Figure 5 shows the same with the protective material removed;

Figure 6 shows the plated portion embedded in the surface to be ornamented;

Figure 7 is a section through the finished product, taken along line 7—7 of Figure 8, and shows the transfer surface removed; and

Figure 8 is a front view of the finished product.

The invention comprises broadly, electroplating a pattern onto a transfer surface, and transferring the pattern to the final surface.

In the form shown, the transfer surface comprises a metal plate 10 of steel, zinc or the like. A mask 12 is applied to the transfer surface and covers portions thereof, leaving exposed an area which is a reverse of the pattern desired in the finished product.

This mask 12 may be conveniently formed by lithographing or otherwise treating the plate 10 to apply ink 13 thereto in an area which is a reverse negative of the final pattern. The light coating of ink while still moist is dusted with a resist compound or powder which has a low melting point. This resist material adheres to the ink but is removed from the exposed area. The plate is then baked, to fuse the ink and resist into a dense impervious mask.

The plate with the mask thereon is then subjected to an electroplating action, whereby metal is electroplated onto the exposed area of the plate. Preferably the masked plate is immersed in an electroplating bath, and a thin plating or flash coating 14 is first applied. This flash coating 14 may be of nickel, silver, gold, or alloy, and is applied in such a manner as to avoid a strong bond with the steel plate 10. When silver is employed for the flash coating, all that is necessary is to make sure that the steel is clean and

bright. But if nickel is to be used for the flash coating, it is advisable to give the steel plate a preliminary treatment, such as dipping in a chromic acid solution before immersing the plate in the electro-plating bath.

After the flash coating or thin plating 14 is applied, a heavy backing coating 15 is plated onto the plating 14. The coating 15 is preferably of a different and less ornamental metal, such as copper, and has a stronger bond with the coating 14 than the bond between the coating 14 and the transfer surface of the plate 10. It is also preferred that the coating 15 be applied under high current density, so that it has a rough surface with numerous projections.

The mask is then removed, leaving the electroplated deposit raised above the transfer surface. The resist compound and ink may be washed off by means of a suitable solvent.

The electroplated deposit is then bonded to the surface to be ornamented, this bond being stronger than that of the plating on the transfer surface. Preferably the deposit is inlaid in the final surface, the rough surface and projections facilitating the bonding.

In the form shown, the final surface 16 is formed of plastic molding material, such as rubber, celluloid, various resins, or other material which can be made to flow under heat or pressure or both, and preferably a phenol condensation product, such as bakelite, durez, or plaskon. This material is applied to the transfer surface with the electroplated deposit thereon, and cured by heat and pressure, so that the deposit is firmly embedded in the molded plastic material.

Then the transfer plate is removed. This may be merely lifted off, as the flash coating adheres only lightly to the steel or zinc plate, while the rough surface and projections of the heavy copper coating are securely anchored in the molded plastic material.

It will be readily understood that the surface of the transfer plate may be smooth and polished, or rough and stippled, and after removal of the transfer plate, the product may be buffed if desired.

The ornamentation thus produced may be merely conventional figures, or metal silhouettes, or it may be also indicia. A preferred form is an automobile instrument dial, in which the plastic molding material is translucent.

The metal indicia are clearly visible in daylight, and when the dial is illuminated from the rear the opaque metal indicia present a sharp contrast from the face of the dial.

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It will be understood that the invention is not to be limited to the details described, but instead, it embraces such modifications thereof as fall within the scope of the appended claims.

I claim:

1. A method of inlaying metal in plastic molding material, which comprises masking a portion of a metal surface by covering a predetermined portion only of its area with resist material leaving the remainder thereof exposed, electroplating a different metal onto the exposed portions of said masked metal surface thereby forming a raised silhouette, and embedding said electroplated deposit in said plastic molding material.
2. A method of inlaying metal, which comprises lithographing a silhouette negative onto a portion only of a metal plate, applying resist to the ink so lithographed, thereby forming a protective cover for the area of said plate outside of said silhouette, electroplating a different metal onto the exposed portions only of the plate, thereby forming a raised positive silhouette, removing the ink and resist and embedding the electroplating in the surface to be inlaid.
3. A method of producing ornamentation which comprises electroplating a portion only of a transfer surface, applying plastic molding material to both said electroplating and also the remaining portion of said transfer surface, curing the molding material, and removing the transfer surface

leaving the electroplating embedded in said molding material.

4. A method of inlaying metal which comprises electroplating a thin deposit of metal onto the exposed portion of a transfer surface through a mask, electroplating a heavy deposit of a different metal over said thin deposit, embedding the side and edges of said heavy deposit in the surface to receive the inlay, and removing the transfer surface from the thin deposit.

5. A method of inlaying metal in plastic molding material, which comprises applying ink in a negative reverse pattern onto a metal transfer surface, applying resist material to the ink, treating the ink and resist material to form a protective coating for the area of the metal transfer surface covered thereby, electroplating the remaining area of said metal transfer surface first with a flash coating of ornamental metal adhering lightly to said transfer surface, and then with a heavy backing coating of less ornamental metal at high current density forming a rough surface, washing off the protective coating leaving the positive reverse pattern of electroplated material raised on the metal transfer surface, covering said electroplated pattern and transfer surface with plastic molding material and curing under heat and pressure, and lifting off the metal transfer surface, leaving the positive metal pattern embedded in said plastic material.

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