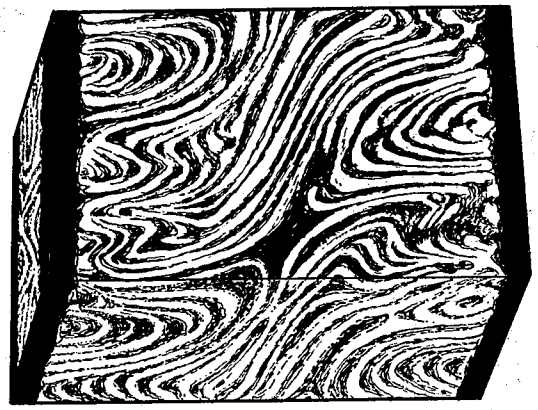
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PROCESS OF DECORATING ARTICLES

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Inventor

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## PROCESS OF DECORATING ARTICLES

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1 Claim. (Cl. 41—26)

My invention relates to a decorated article and to a process of decorating, and, more particularly, applying a decorating surface finish to, articles.

The object of my invention is an economic and simple process of decorating articles eliminating the artist's work in designing the decoration and I attain this object by using patterns offered by nature itself. It is well known that microscopy reveals patterns of extraordinary beauty occurring in the surface structure of materials which occur naturally or may be produced artificially. Such patterns are formed for instance by materials of crystalline structure or in the animated world, particularly in the maritime life. A well known example are corals.

I have found that a beautiful surface finish may be produced on articles by taking a microphotographic picture of such materials using a magnification sufficient to reveal the patterns, producing a printing form from the picture so obtained and employing this printing form for applying an imprint to the surface of the article to be decorated. The appearance of articles of any kind may be greatly improved in this manner. My invention may be applied with great advantage to steel furniture for instance, which ordinarily lacks any artistic appearance but provided with the beautiful patterns produced by nature itself will gain a highly artistic value.

I may use the printing form for printing either directly on the surface to be finished or on transfer pictures which are later applied to the article by decalcomania.

Any one of the known printing processes may be employed, for instance typography, the offset process or the intaglio printing process. I prefer, however, to use the photomechanical intaglio process as it permits the reproduction of the whole scale of tints from the original photograph in a single operation, a rubber roller being employed in a known manner to transfer the pattern from the printing plate to the surface to be finished. Multi-color printing processes may also be employed. In this event I prefer to use transfer pictures.

The surface to be decorated may either be directly printed upon from the printing form or may be first provided with a coat of varnish, paint or priming. The printed pattern may be protected by a coat of varnish which may be tinted, if desired, and may be applied by the ordinary process of baking or spraying. The protective coat may be ground or polished in a subsequent operation, if desired.

A preferred embodiment of my invention is shown in the accompanying drawing representing a cigarette box provided with a pattern microscopically derived from the structure of damascene steel.

In producing this article I proceed as follows:

A piece of damascene steel is ground to produce the plane and even surface. This surface is etched with a suitable agent, for instance the following solution:

500 cu. cm. water; 500 cu. cm. alcohol; .5 gram $SnCl_2$; 1 gram $CuCl_2$; 30 grams $FeCl_3$; 50 cu. cm. hydrochloric acid.

A michophotographic picture is then taken of the etched surface at the scale of 500:1. From the negative photograph so obtained a diapositive is made and this diapositive is used to produce an intaglio printing plate by the well-known photomechanical process. As the details of this process are well known in the art, a detailed description thereof may be dispensed with. Briefly, the process comprises the following steps:

A chromate gelatine plate is first exposed through a screen of about 175 lines per inch and is then exposed through the diapositive of the pattern. The gelatine layer so exposed is transferred to a copper plate and, carried by this copper plate, is developed in diluted alcohol to dissolve the unexposed portions of the chromate gelatine. After the development has been completed, the copper plate is brought into a ferrichloride solution which penetrates through the gelatine layer and etches the copper surface more or less depending on the thickness of the gelatine layer. Preferably, the etching process is performed in three successive steps, first with a well diluted solution of ferrichloride and then with a gradually stronger solution. In this manner, a printing plate is obtained showing the pattern in hollow relief or intaglio.

The cigarette box shown on the drawing is made of plywood. Its surface is first provided with a coat of a priming which is then ground and polished to obtain a perfectly plane and smooth surface. If desired, the surface may be provided with a coat of a suitable varnish, for instance gold varnish.

In order to apply the pattern to this surface, the printing form is first inked and the excess of ink is scraped off in a known manner with a doctor blade. Inks of any suitable color and any suitable composition may be used for this purpose. As inks of this character are well known in the art, it does not seem necessary to cite specific compositions. After this step, a rubber roller is rolled over the printing form in order

to cause the ink to adhere to the rubber. This rubber roller is then employed to transfer the ink to the surface of the cigarette box. After the ink has dried the imprint is provided with a protective coat of clear nitrocellulose varnish which is preferably applied by spraying and is subsequently polished in a known manner.

What I claim is:

The process of decorating materials comprising coating the article to be treated with a priming coat, grinding said priming coat to produce a smooth and planular surface, microphotographically forming a print of the surface of a crystalline material, photomechanically producing a printing plate with a printing image corresponding to the microphotograph, applying such image to the article to be decorated with a printing medium, applying a transparent protective coat to such article to preserve the image so obtained.

KARL EICHSTÄDT.