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[54] **ORNAMENTAL COATING METHOD AND ARTICLES**


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**Related U.S. Application Data**

[63] Continuation-in-part of Ser. Nos. 179,576, Sept. 10, 1971, abandoned, and Ser. No. 231,723, March 3, 1972, Pat. No. 3,816,155, each is a continuation-in-part of Ser. No. 854,761, Sept. 2, 1969, abandoned.

[52] **U.S. Cl.** ..... **427/277;** 427/398

[51] **Int. Cl.²** ..... **B44C 1/22**

[58] **Field of Search** ..... 117/8, 10, 37 R, 39, 64 R, 117/119.4; 161/117, 164; 264/73, 74, 158



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[57] **ABSTRACT**

A method for producing decorative and ornamental protective coatings in simulation of wood graining, leather, and the like. A thixotropic viscous quickly settable liquid resinous coating vehicle is prepared with one or more color pigments or other colorants, depending upon the natural coloring of the wood or leather, etc. to be simulated, and usually at least one non-color solid or extender pigment. These are combined and admixed in a common container from which the mixture is applied to a base surface. The applied coating mixture is leveled mechanically or by gravity into a relatively uniform layer, without brushing. While still liquid and viscous, the leveled coating in most cases is furrowed to develop a lined pattern therein in simulation of wood or leather graining, or otherwise disrupted to develop a distinctive pattern. The coating is permitted to set up and harden. The coating may be formed on a non-adhering surface from which it may be stripped as a self-sustaining film. Effects such as sandblasted graining, distressed wood graining, burled graining, elephant hide leather, and the like, may be obtained by variations of the basic method. The resin may be cast in slabs or blocks of substantial thickness from which veneer layers may be removed.


**20 Claims, No Drawings**

# ORNAMENTAL COATING METHOD AND ARTICLES

This application is a continuation-in-part of our copending applications Ser. No. 179,576, filed Sept. 10, 1971 now abandoned and Ser. No. 231,723, filed Mar. 3, 1972, now U.S. Pat. NO. 3,816,155, issued June 11, 1974, which in turn are continuations-in-part of application Ser. No. 854,761, filed Sept. 2, 1969, now abandoned.

This application relates to a method for producing decorative and ornamental protective coatings in simulation of wood, leather, petrified wood, and the like. Graining is a process employed to make the surface of one wood look like that of another or to made surfaces such as pressed wood panels, chip board, fiber board, metal, paper, etc. look like wood or leather. As described in Goodheart-Willcox's Painting and Decorating Encyclopedia (1964 edition, edited by William Brushwell, published by the Goodheart-Willcox Company, Inc., Homewood, Illinois) pages 223–225, wood graining is an exacting tedious process requiring high skill, much practice and numerous tools. Graining tools include steel and rubber graining combs, fitch brushes for veining and knotting, sable pencil brushes, hog hair mottlers, camel's hair mottlers, piped overgrainers, badger's hair blenders, stipplers and graining check rollers. A properly mixed ground color must first be applied and allowed to dry. Pores are produced by water color stippling over the dried ground coat. This is grained over with oils. The stain is applied and while wet the area is stippled. When this has dried, a graining stain is applied and allowed to partially set. Then figure work is applied using combs, brushes, sponges, etc. Thereafter, a protective finish must be applied over the grain produced. As described in the same work on pages 187 to 228, finishing of natural wood is likewise a tedious task requiring skill, patience and much time.

An alternative to the tedious method of producing simulated wood graining or finishing natural wood is to reproduce photographically a wood grain pattern onto a suitable base surface, or apply such a pattern by printing or engraving methods, such as hot stamping foils and roll printing. These methods have the disadvantage that the same pattern is reproduced over and over, contrary to the never-ending variations found in nature, and the graining is of minute thickness such that it is readily removed, for example if the surface is sanded or accidentally damaged.

A further discussion of the prior art relating to wood graining is found in Danielson U.S. Pat. No. 2,257,595, issued Sept. 30, 1941. The Danielson patent is directed to a paint for simulating wood grain. The paint is composed essentially of a mixture of a resinous vehicle and a non-leafing metal powder pigment and a coloring material such as an asphaltic varnish. This paint is used to produce what is described as a strikingly realistic representation of a grained wood surface. When applied with a brush, the paint is described as automatically forming a series of dark and light bands or lines or random size and shade in close simulation of the natural grain of a large variety of woods. Alternatively, the paint may be applied by spraying and thereafter brushed. Danielson requires that his pigments be preliminarily treated to positively prevent leafing. For example, the powder is preliminarily mixed with a small quantity of the vehicle and then preferably aged, as by heating for 15 to 30 minutes at about 100°C, because, in Danielson's relatively thin flowable vehicle, leafing metal powder pigment would tend to rise uniformly to the surface and give an undesirable overall metallic appearance.



Danielson requires a long enough drying time so there is no immediate thickening or setting to impede ready application or reworking with a brush to that rapid drying vehicles are preferably avoided. Danielson states substituting pigments of the ordinary type in lieu of asphalt has generally been found unsatisfactory. He states thus, for example, carbon black produces an unsatisfactory mottled effect, while ground pigments merely produce a correspondingly colored streaky surface when brushed. In general, the coloring material should be entirely or chiefly of a soluble or quasisoluble nature like asphalt rather than in the form of precipitated particles like pigments of the ordinary type.

The prior art is further exemplified by Spatola U.S. Pat. No. 3,600,346 issued Aug. 17, 1971. The Spatola patent is directed to a method painting to produce grained or antique effects by the use of a composition which includes (1) a principal pigment dispersed in a paint vehicle in the conventional manner, and (2) a secondary pigment which is rendered physically incompatible with the liquid vehicle of the base paint by being dispersed in and coated with a resinous carrier which is substantially immiscible with the paint vehicle. The initial application of Spatola's paint provides the surface with a continuous coating of the primary pigment. The paint is applied by ordinary means such as brushing which subjects the paint to considerable stress and manipulation. Somewhat greater stress than that used in ordinary painting is required to bring out the secondary pigment to create a grained effect. Extra brush pressure and repeated stroking of the areas to be grained will bring out the secondary pigment or the areas can be rubbed with a sponge, roller or other material.

Simulated leather, according to the prior art, is confined primarily to simulation of the surface texture and contour pattern of pores, fissures, scales, and the like, usually in a uniform color.

In our copending application Ser. No. 231,732, now U.S. Pat. No. 3,816,155 there is described a process which permits the simulation of wood in an almost unlimited variety of patterns such as fir, oak, burled walnut, ebony, mahogany, tiger wood, and the like, and textures such as buffed and polished, sandblasted, distressed, and the like. That process may be carried out with a minimum of skill. The grain pattern extends through most of the entire thickness of the coating and cannot be destroyed by buffing or sanding unless the entire coating is destroyed. The coating may be produced adhered to a base surface or it may be applied to a smooth non-adhering surface from which it may be stipped to form a self-sustaining film. Depending upon the coating vehicle used, the coating may be extraordinarily tough and durable. Simulated exotic leathers, such as elephant hide and alligator or other reptiles may be similarly produced.

The method of our copending application Ser. No. 231,732 comprises the steps of: (1) preparing a plurality of portions of colored viscous settable liquid resinous coating vehicle; (2) combining these portions without appreciable admixture of the portions; (3) spreading the resulting heterogeneous liquid mixture onto a base surface; (4) acting upon the coating mixture while still liquid and viscous to level it into a layer of substan-

tially uniform thickness and to develop a pattern having visible color lines of demarcation in the coating; and (5) permitting the coating to set up and harden.

It has now been discovered that similar and additional results may unexpectedly be obtained through an even simpler method. Broadly stated, the method of the present invention comprises the steps of:

1. Preparing a viscous thixotropic non-free-flowing quickly settable liquid resinous coating vehicle containing at least one color pigment or other colorant and usually at least one non-color solid or extender pigment and mixing thoroughly;

2. Spreading the resulting homogeneous liquid mixture onto a base over substantially the entire surface;

3. Gently acting upon the coating mixture while still liquid and viscous, either mechanically or by gravity without brushing or rubbing, to level it into a layer of substantially uniform thickness and color so that the uniform coating is disrupted to develop a pattern having visible color lines of demarcation in the coating, either by gentle mechanical disruption or internally developed flow resulting in self-disruption; and

4. Permitting the coating to set up and harden.

Unexpectedly, although the coating material is applied as a homogeneous mixture of uniform color, when the coating is disrupted distinct color and shade variations appear in the coating. For example, if a fine rake having a plurality of spaced apart pins or tines is gently dragged through an appropriately uniformly colored coating, distinct lines in simulation of natural wood graining appear immediately. If the tool used to disrupt the surface coating is moved through the coating in an irregular or circular path, knarled or burled wood effects are obtained. If the coating material is applied in globs or strips which run together or are leveled so as to be merged, similar distinct lines of demarcation will appear at the merger boundaries and a pattern will develop without other disruption of the coating.

The coating material is applied is homogeneous, that is, it is a substantially uniform dispersion of solids of different size, mass, specific gravity, density, and the like, in a liquid thixotropic resinous medium, which may also include one or more components of different density, miscibility, volatility, and the like. All of the colorants are compatible with the vehicle and enter into and become part of the substantially uniform mixture. In addition, small to large bubbles of air or vapor may be distributed throughout the liquid. Even though applied as a homogeneous mass, however, at least some of the components are incompatible with others. Although not desiring to be bound by any particular theory, it is believed that a phase separation begins to take place upon application of the coating and this separation is made non-uniform and accelerated and modified by the disruption of the coating. Color pigments and dyes tend to migrate toward and be concentrated, and the colors are intensified, at the points or lines of disruption. Less dense substances tend to agglomerate and rise to the surface. The action resembles a growing cell structure which divides and multiplies repeatedly. Setting and hardening of the coating fixes the resulting patterns and textures.

## VEHICLE

The coating vehicle used in carrying out the method of the present invention may be any one of the natural or synthetic resins, or drying oils, or lacquers, and mixtures thereof, commonly used in preparing decorative and protective coatings such as paints and varnishes and having thixotropic properties. Such suitable resinous vehicles include synthetic resins such as alkyd resins; polyester resins, including water extended polyesters, polystyrene, vinyl resins including polyvinyl acetate, polyvinyl chloride, vinyl chloride-vinyl acetate copolymers, etc.; polyamide resins, polyurea resins, acrylic resins; phenolic resins; maleic resins; coumarone-indene resins; urea-formaldehyde resins; melamine-formaldehyde resins; epoxy resins including water emulsifiable epoxy resins; silicone resins; ionomer resins; acetal resins, polyethylene; polypropylene, hydrocarbon resins; latex; rubber derivatives, such as chlorinated rubber; polycarbonate resins; phenoxy resins, fluoroplastics; styrene-butadiene rsins; polyurethane resins; furane resins; polysulfone resins; pentaerythritol resins; ester gum; copal ester; and the like. Natural resins which may be used include shellac, rosin copal resins, dammar resins, manilla resins, etc. Lacquers such as those formed from nitrocellulose, cellulose acetate, cellulose acetate-butyrate, ethyl cellulose, etc. may be used. Drying oils which may be used include those commonly used in paints and varnishes, such as linseed oil, soybean oil, tung oil, dehydrated castor oil, perilla oil, oiticica oil, fish oil, safflower oil, and the like.

These vehicles commonly contain solvents, diluents, thinners, driers ultra-violet light absorbers, fire retardants, and the like. Typical solvents and thinners include turpentine, dipentine, pine oil, petroleum spirits, naphtha, mineral spirits, ethyl and methyl alcohol, toluol, benzol, xylol, acetone, ethyl acetate, amyl acetate, etc. Typical driers include cobalt driers, lead driers, manganese driers, calcium driers, iron driers, etc., all of which are well known to the trade.

The vehicle may be one which sets up and hardens as a result of oxidation, such as drying oils; or by evaporation of solvents, such as shellac and lacquer; by catalytic action, such as some epoxy and polyurethane resins; by baking such as some alkyds, hydrocarbon resins, some epoxy resins; by exposure to high energy electronic accelerator, and the like.

The vehicle should preferably be set up and hardened as rapidly as possible after development of the graining pattern, preferably in a few seconds. Depending upon mode of curing, baking, etc., the time may be closely controlled. Setting up of catalyst-curable vehicles can be accelerated by addition of more catalyst. Sufficient time is allowed to permit leveling, furrowing, etc. of the coating and then the coating is desirably set up immediately, ordinarily no more than a few (about 10 to 20) minutes after application.

## COLORING AGENTS

The coating vehicle used to prepare the coating, according to the method of the present invention, is colored by the inclusion of any one of or a combination of inorganic or organic color pigments, extender pigments or fillers, metallic pigments, stains or dyes, or clear pigments.

Typical inorganic pigments useful for wood graining include those iron pigments ranging in color from yellow through red, reddish-brown, brown to black, similar to those found in natural wood. Such iron pigments include yellow ocher, raw and burnt sienna, and raw and burnt umber. Other useful inorganic color pig-

ments include chrome yellow, cadmium sulfide, zinc yellow, cobalt blue, ultramarine blue iron oxide, chrome green, chromium oxide green, chromium hydroxide green, lamp black, and white pigments such as titanium dioxide, titanium calcium, zinc oxide, zinc sulfide, antimony oxide, lithopone, etc. Although lead pigments may be used, they are preferably avoided because of the safety hazard involved in their use. Organic pigments which may be used include toluidine red, phthalocyanine blue and green, Vandyke brown, alizarin, madder lake, lithol red, pearl essence, etc.

Useful metallic pigments include aluminum powder, copper powder, bronze powders available in various shades depending upon the alloy composition, zinc powder, gold and gold-like powders, and the like. Metallic pigments are used in combinations with each other or in combination with other pigments, usually in low concentration, so that no metallic appearance results. These are ordinary commercial "leafing" type products not subjected to treatment to prevent leafing. The thick viscous thixotropic vehicle is capable of holding ordinary leafing pigments in suspension. If metal pigment rises to the surface sufficient to give an all-over metallic leafing appearance, this can readily be removed by light sanding or rubbing with steel wool.

Stains and dyes are available in several types and colors. They may be soluble in water, alcohol or oil and are available in basic colors such as walnut, brown mahogany, red mahogany, cherry red, various shades of oak and maple, and the like. Oil stains consist of finely ground color pigments, such as the transparent earth pigments like raw and burnt sienna, burnt umber, and Vandyke brown in linseed oil, varnish, turpentine, etc.

Other colorants may be used including pearl essence in liquid, paste or powder form, phosphorescent, luminescent, fluorescent and irridescent pigment and dye materials, and the like.

## FILLERS AND OTHER ADDITIVES

Finely divided fillers or extender pigments provide little or no hiding power. However, they are used to stabilize pigment suspension, to improve leveling, control flow, build adequate film, lower gloss and influence opacity, etc. They affect film properties such as cleanability, scrubability and appearance. In the present instance, due to the transparency and translucency of the extender pigments, three-dimensional depth is imparted to the graining of other patterns. Typical fillers and extender pigments include calcium carbonate, barium sulfate, china clay, talc, quartz silica, tripoli, mica, quarry dust, calcium sulfate, magnesium carbonate, magnesium oxide, aluminum hydrate, slate flour, Cab-O-Sil brand fumed silica, volcanic ash, pumice, flint, garnet, emery, South Dakota stone, aluminum oxide, silicon carbide, rotten stone, ground mica, hollow or solid microspheres such as glass, saran and the like, glass chips, reinforcing fibers and pellets such as glass fiber, asbestos fibers, cellulosic fibers, wood flour, so-called "whiskers" (single crystal fibers of various minerals), metal fibers, ceramic fibers, synthetic resin fibers, graphite filaments, and the like, Fire retardant agents may also be included. Ultra-violet absorbers should be included in all coatings and usually are incorporated in the base resin as obtained from the supplier.

## PREPARING THE COLORED VEHICLE

The colored vehicle prepared for application of the coating is selected and prepared to simulate the particular wood or other material whose pattern is to be simulated. For example, if it is desired to simulate a walnut grain the vehicle may contain three portions of pigment in gradations of the same color such as found in natural walnut. A pale gold metal powder pigment, a pale copper powder pigment and antique bronze metal powder may be admixed.

Desirably an extender pigment, such as pumice, silica, Cab-O-Sil, quarry particles or dust, volcanic ash, slate powder, ground mica, South Dakota stone, or the like, is usually added to the vehicle to increase the viscosity of the vehicle and assist in making it thixotropic, and in some instances to impart a natural stone color. Several color portions, which need not be the same viscosity nor need they be colored by the same means, may be separately prepared and then admixed. For example, one portion may be colored with a dye, another with an oil stain, still another with metallic powders, or a combination of these may be used together. Where metallic pigments are used, extender pigments usually are desirably also admixed in order to mute and dull the color. Pickled wood effects are obtained by incorporating light pigments. Desirably a flattener may be admixed in the vehicle so as to provide a surface variation in glossiness, characteristic of natural woods where the harder portions of the grain tend to be more glossy than the intervening softer portions. Or, when the basic coating is stone-like and the flattener is dyed pale green a pattern and texture simulating lichen-growth is obtained.

## APPLYING THE VEHICLE

The colored vehicle prepared for simulation of a given wood grain is thoroughly mixed and preferably applied from a single container. The mixture is applied to a base surface, generally by pouring, by extruding or flowing from different width openings or nozzles, or by spraying, from a curtain applicator, or the like. Alternatively, several portions of vehicle can be combined on the surface to be coated by pouring or otherwise applying them individually and then spreading the coating or permitting the coating to spread itself so as to cause the portions to merge and intermingle. Because of the viscous relatively non-free-flowing character of the vehicle it is necessary that substantially all of the surface to be coated be covered since relatively little spreading occurs after application.

The colored vehicle may be applied to the surface in a variety of directional configurations. Where a straight grain is to be simulated, the vehicle is desirably applied generally linearly. Where a burled or knotty effect is desired, the colored vehicle may be applied in a non-linear pattern and left to make its own burled or knotty effects. Since most natural wood samples of any appreciable size contain a variety of different grain configurations, desirably the colored vehicle is applied in non-uniform patterns, part linear, part circular, etc., giving the effect of different cuts of wood.

## LEVELING AND FURROWING

The coating is spread and leveled, as by means of a doctor blade or similar scraping or leveling device, so as to make it substantially smooth and uniform in thickness. The coating is leveled to the desired mil thickness by removing any excess material. Then, while the viscous coating is still liquid and unset, the leveled coating

is furrowed or otherwise acted upon to disrupt the coating and develop a grain pattern in the coating. The graining may be done at the same time the coating is applied in one operation by applying the coating directionally.

The furrowing may be done with any of a variety of tools including serrated blades, combs, rakes, wire whisks, air or vapor jets or streams, and the like, or the coating material may be poured onto the base through a barrier or obstacles creating flow lines on the surface. The furrowing or dragging tool is desirably dragged gently through the entire thickness of the coating, not merely the surface. One effective tool consists of a plurality of rotatable spaced apart discs of the same diameter on a common shaft. The spacing between adjacent teeth or discs may be uniform or, preferably, non-uniform. Alternatively, part of the coated surface may be furrowed with a tool having closely spaced apart elements. Other parts may be furrowed with tools having more widely spaced apart elements. The furrowing patterns may be superimposed upon one another in whole or in part at the same time. The tool should not pick up and transport coating material as in the case of a roller or brush.

The furrowing may be generally linear or it may be in zig-zag or circular patterns or combinations thereof. Furrowing of the coating initiates and stimulates a migration of the coloring. A concentration of the coloring agent, be it pigment, dye or stain, occurs in the ridges caused by the teeth or disc elements which, as they leave the coating, form the darker lines in the coating. This simulates the natural lines which tend to be darker in natural wood. A corresponding lightening of color occurs in the valleys between the ridges. The migration of color does not stop with the completion of the furrowing step, however. Instead, there is a slowly continuing movement and growth of pattern in the subsurface layers of the coating material. Less dense pigments, for example, may tend to rise toward the surface. Denser materials may tend to descend somewhat. These materials are not completely independent of one another, however, so that they influence one another in their movements with some adhering lighter particles descending and other denser particles remaining at the surface of the coating. In areas where the vehicle may be slightly less viscous and more fluid, there is greater migration. Similarly, where the coating is somewhat thicker, as in the ridges between the furrows, more movement and pattern growth may take place almost instantaneously. Volatile solvents may rise to the surface in isolated areas forming thin liquid films which upon evaporation leave distinctive pattern elements.

Alternatively, the pattern may be developed simultaneously with leveling when the coating material is applied in an irregular pattern and is disrupted as it is leveled. For example, if the coating material is applied as a series of side-by-side linear stripes which are either touching or spaced apart, or in a zig-zag pattern, or in a circular or swirl pattern, the coating spreads and one portion is brought into contact and merged with other portions. As this disruption occurs along with leveling, distinct color lines of demarcation appear at the merger boundaries and lesser patterns develop elsewhere in the coating. There is, of course, less predictability as to the resultant pattern when the coating is not subjected to a predetmined pattern of disruption, as by furrowing.

Where a consistently repeating graining pattern is desired, the graining pattern is formed from thin metallic or similar fins, or a wire frame, whose elements are secured together in the desired pattern and desirably treated with a release agent, such as a silicone. The coating surface is furrowed by pressing this array of fins into the coating and then lifting vertically. The lifting fins raise the coating corresponding to their pattern establishing the desired lined graining design.

## SPECIAL EFFECTS: SANDBLASTING

Ordinarily, the coating after furrowing is permitted to return to its substantially uniform thickness, either as a result of being level or by means of a leveling tool. Drying may be hastened by heat. In some instance, it is desired that the coating surface have a ridged or furrowed contour in simulation of rough hewn wood or wood which has been sandblasted. In the latter, the softer wood structure between the denser harder growth rings is eroded away and forms depressions. This effect can be achieved by permitting the coating to set up and harden while furrowed, without leveling or permitting the coating material to level itself. The discs cause the coating to be pulled up as the discs leave the coating and cause ridges to remain. This sandblasted effect may be achieved in a number of ways. For example, the coating material itself may be highly viscous such that it tends to retain the furrowed pattern when it is made. In the case of a bakeable coating material, the coated surface may by subjected to baking immediately after furrowing before the coating material has had an opportunity to level out. In the case of a catalyst curable vehicle, the furrowing step may be performed toward the end of the pot life of the material, or extra catalyst may be used to quicken setting up, such that permanent setting up and hardening begins while the coating is in the furrowed condition.

## KNARLING, ETC.

Effects simulating burled, knarled and knotty graining can be simulated by stirring gas, such as air bubbles, or vapor forming substances into the vehicle prior to application to the base surface. The gas bubbles tend to rise to the surface of the coating. They are broken spontaneously, or as a result of the spreading or leveling steps or as a result of the furrowing step. This causes migration of the coloring agents somewhat similar to that achieved by furrowing. The darker coloring tends to concentrate around the periphery of the collapsed bubble. Pleasing effects are obtained, particularly when bubbles of varying sizes are incorporated into the coating, broken at the surface and the surface levels itself. Leather in simulation of reptiles such as alligator, lizard, etc., can be produced by permitting the coating containing the burst bubbles to set up and harden. Flatteners, thinners, etc. dispersed throughout the coating cause different viscosities and surface tensions and similar burling or scaling effect.

## DISTRESSING

A distressed effect on the surface can be achieved by incorporating small masses of a low-density incompatible conglomerated material in the vehicle prior to or upon application. The distressing agent is incompatible in that it does not mix intimately with or combine with the vehicle and can be readily removed from the surface after the coating has set up. A commercial flatting

or flattening agent, usually a metallic soap such as calcium, aluminum or zinc stearate, may be used for this purpose. Alternatively a synthetic flatting agent may be used, such as fine Styrofoam particles which dissolve in the vehicle and solvent. It is folded into the homogeneous colored vehicle just prior to application in an agglomerated mass or "glob" and is only slightly stirred so as to be distributed on a non-uniform basis. It is spread and acted upon to some extent by the leveling and furrowing operations and tends to rise to the surface. After the coating has set up and hardened, the surface is flushed with water or with a jet of air or is brushed or blasted to wash out or otherwise remove the exposed spots of flattening agent leaving pits, pores and fissures in simulation of distressing. Material such as dissolved Styrofoam leaves pits and fissures as the coating sets up so that flushing is not necessary. Preferably the flattener or other distressing agent is strained or dyed a compatible color before incorporation into the coating vehicle so as to avoid any whitish appearance in the distressing material. Other substances, such as talc, whiting chalk, and the like, may also be used for this purpose.

Simulated pitted or open-veined stone, such as travertine, dolomitic limestone, terra cotta and the like, showing geological flaws, voids, veins and lines of separation can be prepared in a similar manner utilizing appropriate pigments in simulation of stone. The application of heat and/or cold to the resin prior to setting up also causes expansion and contraction which leaves the surface with varying textures.

## SIMULATED MATTE POLISHED SURFACE

Epoxy resin and similar catalyst curable resins set up and harden with a very high gloss finish. For some purposes, this is desirable. For other purposes, it is necessary to buff and polish the surface to provide a smooth non-glossy muted or matte finish. It has been discovered that this latter operation may be eliminated and that the epoxy or similar coating may be cured to a non-glossy surface finish by gently applying water or vapor under varying temperature conditions to the surface after acting upon the coating to develop a pattern but before the coating has completely set up, and then permitting it to set up and harden. Thereafter, the water evaporates very quickly. The resulting finish resembles that of a finely buffed and polished non-glossy surface or very dull rich surface. A suede-like finish may be obtained by admixing talc and thinners with the resin.

## RIPPLED SURFACE

A pleasing leather-like or "elephant hide" effect can be achieved by using a catalyst curable coating vehicle, flushing it with water at a different temperature, hotter or colder, after development of the pattern but prior to completely setting up and hardening and then permitting to harden. The water causes contraction and/or expansion of the surface skin. The finish has a slightly rippled surface contour and pleasing matte appearance.

## COATING PROPERTIES

The coating has generally the properties of the vehicle from which it is primarily formed. Thus, the requisite properties of resistance to stains, acid, moisture, impact scratching, etc., can be achieved by using resins or other vehicles known to possess these properties. Because the graining pattern extends through most of and sometimes through the entire thickness of the coating, in contrast to printed and photographically reproduced simulated woods and stone and the like, any superficial surface scratches, cigarette burns, or the like, can easily be removed by sanding with fine grain sandpaper and polishing with a mild polishing agent (such as Wright's Silver Cream) to match the luster of the adjoining surfaces. If the surface is dull, it may be rubbed with fine steel wool.

## BASE SURFACES

The coating is most instances is applied to low-grade wood surfaces, such as plywood, particle-board, pressed board, paper board, and the like. However, it may be applied to virtually any surface, flat or otherwise. Although generally applied to horizontal surfaces, it may be applied to vertical surfaces as well, especially if the vehicle has thixotropic properties. It may be applied directly to surfaces such as floors, table tops, counter tops, desk tops, insulation board, acoustical tile, fiber board, foam panels, concrete blocks, metal surfaces, patio blocks, wood, fiberglass, asbestos board, paper honeycomb panels, etc. It can be applied to either rigid surfaces or flexible surfaces, such as paper, textile fabrics, plastic films, metal, and the like. The latter provides a material which lends itself to application in the manner of wallpaper and the like. The surface coated is usually flat but may be any appropriate shape, such as molding, carving, spindles, and the like. The coating may be formed adherent to the base surface. Alternatively, it may be formed as a thin self-sustaining film by application to a smooth polished surface from which the set up and hardened coating may be stripped off. Surfaces from which the coating may be readily stripped include polished metal, glass, cellophane, Mylar, waxed and greased surfaces, and the like. Depending upon its thickness, it may be cut into strips or panels or squares for use as flooring, inlays, wall paneling, station wagon paneling, boat paneling, luggage, handbags, shoes, wearing apparel, and the like. Films formed from appropriate thermoplastic resins may be vacuum formed, pressure molded, or the like, or "wrap-around" molded into appropriate shapes for applying a veneer to irregularly shaped articles.

The surface from which the coating is stripped is in most instances a flat smooth surface from which a wallpaper-like film is produced having the qualities of the resin used. However, the coating may likewise be applied as the liner surface, by vacuum forming or otherwise, in molds used for manufacture of intricately carved furniture, plaques, false beams and the like. Such molds are usually formed from glass/epoxy, beryllium-copper, silicone rubber, urethane elastomer, and the like, depending upon the nature of the molding material. According to the present invention, the mold is lined with a relatively thin layer of material in simulation of wood graining and then backed up with foamed polystyrene, rigid polyurethane foam, polyesters, expanded ABS (acrylonitrile-butadiene-styrene), or the like.

The resinous vehicle may also be molded, cast or formed so long as access may be had to the material so that it may be acted upon to produce the desired surface pattern. For example, the vehicle may be cast in an open rectangular mold, acted upon by furrowing with a rake-like tool whose teeth are long enough to

reach the bottom of the mold to develop the desired pattern, and then permitted to set up as a thick slab or block from which veneer panels may be cut or shaved, or which may otherwise be tooled or molded. Some resins are desirably cut into thinner sheets before setting up completely, while still in the "gel" state. The resin may be cast as a cylinder, disrupted in a pattern to simulate growth rings and, after setting up, shaved as being rotated to produce veneer, as from logs.

The method described herein is entitled a "one-coat" method because the decorative and ornamental graining effect is achieved and contained in a single coating layer. In most instances, the graining or similar patterned coating layer is applied to an otherwise unfinished plywood, pressed board, particle-board or fiber board surface, or the like. It may, however, be applied to a previously finished surface. In some instances, that surface may be prepared so as to serve as a base layer of complementary or contrasting color compatible to the graining design being produced. In most instances, it is contemplated that the set and hardened surface of the applied coating will not be provided with any additional finishing material. In some instances, however, it may be desirable to provide a further transparent top coat over the decorative grained coating in order to impart additional protection.

The process according to the present invention lends itself readily to mechanization and automation. The surface to which the coating is applied may be stationary and the manipulative steps of applying, leveling, furrowing, etc., may be carried out by moving the appropriate utensils or tools relative to the surface or vice versa. Under mechanized conditions, however, in most instances the surfaces being treated are flat panels carried on a conveyor and moved relative to fixed or movable applicator means, leveling means, furrowing means, drying and baking ovens, water applicators, jet streams, and the like. As the surfaces being coated are moved longitudinally, the coating applicator means, leveling means, furrowing means, etc., may be fixed against longitudinal movement but adapted for slight transverse movement in order to introduce pattern variations. The coating applicator means may include continuously charged hoppers, dispensers, such as funnels, tubing, nozzles, sprays, etc., for applying the coating materials to the surface to be coated. A series of nozzles or tubes or similar dispensers of different sizes or other devices causing flow lines are spaced at different intervals so that when the coating material is flowed onto the surface, it may be applied in different strips of different widths similar to the pattern of wood grain. Where the coating is uniformly applied, no mechanical leveling is ordinarily needed.

Certain resins, such as polyesters, may be catalyzed by passing through a vapor tunnel or catalyst. Alternatively, catalyst cured resins, after development of the pattern, may be moved past spray nozzles applying catalyst to the coating. In the case of air inhibited coating resins, such as certain polyester resins, the coating is cured while sealed from contact with air. The applied coating is covered with a film of cellophane, Mylar, or the like, which may have a high gloss or frosted surface. The film is gently smoothed over the unset coating with a roller or the like in intimate contact with the top surface of the coating without any entrapped air present. After the coating is cured, the covering film is removed. The surface of the coating mirrors the contacting surface of the covering film, be it glossy or matte. No further surface treatment is then necessary. Alternatively, a silicone treated embossed or engraved surface, such as a roller or printing plate, may be used to impart predetermined surface textures.

## EXAMPLES

The invention may be further understood by the following illustrative examples:

### EXAMPLE 1

A simulated pecan wood panel was prepared as follows, parts being by volume: 6 parts of a mixture of 3 parts Sears thixotropic polyester resin and 2 parts Northwest Fiberglass polyester resin (PPG) was mixed with 0.50 parts of commercial flatting paste (General Mills R.C. 8349), 0.3 parts of finely ground South Dakota stone, and 0.08 parts of rotten stone, 0.02 parts of Venus statuary bronze metal powder, and 0.02 parts Venus smooth pale gold metal powder. The resultant mixture was catalyzed by thoroughly mixing in 1/60 part of volume of methyl ethyl ketone and then pouring onto a flat level panel of Masonite. The surface was then bladed and furrowed in one operation before the resin cured. This operation left the surface smooth and wherever the furrowing occurred there was a darker, more intense color then the unfurrowed areas which gave the appearance of a piece of fine pecan wood with dark and light growth lines as in natural wood. The wood simulation had ticking caused by the rotten stone, as in pecan wood.

### EXAMPLE 2

A simulated smooth dull stone panel was prepared as follows: 4 parts by volume of liquid epoxy resin (Genepoxy 190 - General Mills) and 2 parts by volume of polyamide resin (Versamid 140 - General Mills) were mixed thoroughly with 0.72 parts xylene-butanol (90% xylene and 10% butanol), 0.72 parts of commercial flatter (General Mills R.C. 8349), and 0.24 parts fine Sourth Dakota quarry stone dust of a pale beige color, 0.02 parts Venus white gold metal powder, 0.01 parts of Venus martin gold metal powder, 0.02 parts of Venus fire red metal powder and 0.04 parts of rotten stone. The resultant coating material was mixed and poured in strips onto a flat level Masonite panel in such a manner as to have the strips overlap and run into one another resulting in irregular lines similar to stone. The rotten stone causes a pattern to result which resembles fossils and is darker in color surrounded by material of lighter color giving the finished material a pleasant natural look. The entire panel had a texture which was sanded smooth. The pattern is through the material, not just on the surface.

### EXAMPLE 3

A piece of simulated red mahogany was prepared in the following manner: 6 parts by volume of a mixture of 3 parts Sears thixotropic polyester and 2 parts of N. W. Fiberglass polyester (PPG) were mixed with 0.06 parts Venus turkey red metal powder, 0.16 parts rotten stone, 0.02 parts red poly dye, 0.08 parts brown poly dye and 0.24 parts finely ground Sourth Dakota stone. This was thoroughly mixed in one container and catalyzed with 1/60 parts by volume of methyl ethyl ketone and poured onto a smooth level piece of Masonite. The surface was then bladed and furrowed in one operation

before the resin cured. This operation left the surface smooth and wherever the furrowing occured there was a darker, more intense color than the unfurrowed areas which gave the appearance of a piece of fine dark mahogany wood with dark and light growth lines as in natural wood. The wood simulation had ticking caused by the rotten stone.

## EXAMPLE 4

A simulated textured stone panel was prepared as follows: 4 parts by volume of liquid epoxy resin (Genepoxy 190 - General Mills) and 2 parts by volume of polyamide resin (Versamid 140 - General Mills) were mixed thoroughly with 0.3 parts of xylene-butanol (90% xylene and 10% butanol), 0.12 parts of white polyester pigment, 0.12 parts of yellow poly dye, 0.12 parts of green poly dye, 0.12 parts of South Dakota quarry dust, 0.02 parts of Venus martin gold metal powder, 0.02 parts of rotten stone, 0.02 parts of Venue red fire metal powder, and 0.04 parts of brown poly dye, and the resultant mixture was poured in generally uniform strips on a level piece of Masonite board. This was allowed to cure without any action on or distrubance of the material. The result was a textured, mottled green stone with the appearance of many separate small stones that look like they have been cut through to form the surface. there was also a pattern that gave the appearance of stratas of fossilized moss.

## EXAMPLE 5

A panel of burled rosewood was prepared in the following manner: 4 parts of volume of epoxy resin (Genepoxy 190 - General Mills) was mixed with 2 parts by volume of polyamide resin (Versamid 140 - General Mills), with 0.02 parts Venus antique bronze metal powder, 0.16 parts of xylene-butanol (90% xylene and 10% butanol), 0.04 parts rotten stone, and 0.16 parts of commercial flatting paste (General Mills R.C. 8349). This was thoroughly mixed in one container and flowed onto a smooth level piece of quarter inch plywood which was not specially prepared in any manner. This was furrowed with a sharp instrument and allowed to set up and cure. The result was a panel resembling rosewood that had dark slow growth lines and beautiful burls lighter in the center and a definite appearance of cell structure with the perimeter outlined in a very dark shade of the mixture.

## EXAMPLE 6

A novelty panel was prepared in the following manner: 4 parts by volume of epoxy resin (Genepoxy 190 - General Mills) was mixed with 2 parts by volume of polymide resin (Versamid 140 - General Mills) and 0.24 parts of xylene-butanol (90% xylene and 10% butanol), 0.02 parts green poly dye, 0.02 parts yellow poly dye, 0.2 parts light brown poly dye, 0.04 parts white poly pigment, and 0.10 parts of a flatter made of 8 parts of powdered talc and 2 parts of coast to Coast general purpose thinner that was composed of 95% mineral spirits and 5% methyl isoamyl ketone. The combination was thoroughly mixed in one container and flowed ont$_o$ a smooth level piece of Masonite and allowed to level itself and cure without any mechanical action applied to it in any manner. The result was a panel of quince green color with irregular stippled areas of different color intensity, the darker color intensity being glossy in appearance in irregular areas and the other areas be[illegible]ighter color and having a dull finish resembling [illegible]en growth. The different finish in the two types [illegible] areas caused the panel to have a pleasing texture. The dull licken-like lighter areas are caused by areas of the flatter collecting and rising to the surface.

## EXAMPLE 7

A black and brown reflective novelty panel was prepared in the following way: 4 parts by volume of epoxy resin (Genepoxy 190 - General Mills) was mixed with 2 parts by volume of polyamide resin (Versamide 140 - General Mills), 0.08 parts of finely ground South Dakota stone, 0.16 parts of xylene-butanol (90% xylene and 10% butanol), 0.16 parts of black poly dye, 0.02 parts of Venus bright copper metal powder, 0.16 parts of Coast to Coast platinum stain, and 0.16 parts of brown poly dye. This was mixed thoroughly in a single container. The resultant mixture was flowed onto a smooth level panel of Masonite and scrolled with a sharp instrument consisting of two tines. The result when cured was a decorative panel of beautiful areas of very shiny and reflective surface which was lightly textured as a result of areas surrounding the reflective portions that were flat or dull. It gave the appearance of etched black polished glass.

## EXAMPLE 8

A simulated pecan wood panel was prepared as follows: 4 parts by volume of epoxy resin (Genepoxy 190 - General Mills) was mixed with 2 parts by volume of polyamide resin Versamid 140 - General Mills), 0.5 parts commercial flatter paste (R.C. 8349 - General Mills), 0.3 parts Coast to Coast general purpose thinner (95% mineral spirits and 5% methyl isoamyl ketone), 0.3 parts finely powdered South Dakota stone, 0.08 parts rotten stone, 0.02 parts Venus statuary bronze metal powder and 0.02 parts Venus smooth pale gold metallic powder. The resultant mixture was poured onto a smooth level Masonite panel and was bladed and furrowed in one operation. This left the material of even thickness and with darker lines where the furrowing occurred which when curred gave the appearance of a piece of fine pecan wood with definite slow and fast growth lines as in natural wood.

## EXAMPLE 9

A simulated panel of black walnut was prepared in the following manner: A mixture of 90% Valspar polyester resin and 10% Northwest Fiberglass polyester resin was mixed with 0.04 parts Venus brilliant fire metal powder, 0.04 parts of rotten stone, and 0.01 parts of black poly pigment. This was thoroughly mixed in one container and catalyzed with 1/60 part of methyl ethyl ketone peroxide and poured onto a level smooth panel of Masonite. The outside fourth of both side edges of the panel were furrowed with an instrument which left lines simulating growth lines in natural wood and the center of the panel was left without any distrubance and allowed to set up and cure. The result was a piece of black walnut with black growth lines and lighter areas in between similar to the fast growth areas in natural walnut. The center had the appearance of a cut knot with much ticking and shading from dark into black with the appearance of a polished piece of black walnut. The panel was sanded with a very fine sandpaper giving it the appearance of polished wood.

EXAMPLE 10

A panel of simulated solidified molten stone was prepared in the following manner: 4 parts by volume of epoxy resin (Genepoxy 190 - General Mills) was mixed with 2 parts by volume of polyamide resin (Versamide 140 - General Mills), 0.24 parts of commercial flatter paste (General Mills R.C. 8349), 0.24 parts of finely ground South Dakota stone, 0.06 parts rotten stone, 0.24 parts of xylene-butanol (90% xylene and 10% butanol). This mixture was divided into three containers and into one was mixed 0.08 parts of black poly dye, 0.02 parts Venus light copper metal powder and 0.08 parts of Coast to Coast black stain. The second portion was mixed with 0.08 parts of dark brown poly dye. The third portion was mixed with 0.08 parts of Coast to Coast platinum stain. The contents of the three containers was then put into a single container and mixed and flowed onto a level, smooth panel of Masonite and allowed to level itself and cure. The result was a panel of a richly textured material of flat and glossy areas of different colors. The irregular pattern pops up and through the surface leaving the pattern throughout. It has a rich appearance of islands of light brown in a predominantly black background that has many minute cracks that expose a very shiny background. Some of the islands of color are surrounded by small scales that become smaller at the center and are very glossy around the perimeter of each island. It is a combination of dull, satin, and high gloss. It has the appearance of molten boiling rock whose bubbles have suddenly flattened and become solidified.

EXAMPLE 11

A simulated panel of golden teak wood was prepared in the following manner: A mixture of 90% of Valspar polyester resin and 10% Northwest Fiberglass polyester resin was put into a container and to this was added 0.04 parts of Venus pale flat gold metal powder and 0.04 parts of red poly dye. This was thoroughly mixed and was catalyzed with 1/60 part of methyl ethyl ketone peroxide and poured onto a smooth level panel of Masonite and bladed and grained on both side edges leaving the center without any disturbance. The result was a panel simulating golden teak wood with wood graining on both sides of the panel and slightly burled mid section. The middle had a much darker shade of gold than the grained areas which had definite dark lines as growth lines in natural wood with lighter areas in between. There were many small burls throughout the panel giving it the rich look of wood.

EXAMPLE 12

A novelty coating was prepared in the following manner: A mixture of 95% Valspar polyester resin was mixed with 5% Northwest Fiberglass polyester resin to which was added 0.02 parts Venus red fire metal powder, 0.02 parts of Venus martin gold metal powder, 0.04 parts rotten stone, 0.04 parts of red poly dye and 0.04 parts of yellow poly dye. This was mixed thoroughly in one container and catalyzed with 1/60 part of methyl ethyl ketone peroxide and poured onto a flat level panel of Masonite in many closely spaced puddles about the size of a quarter and allowed to flow into one another to cover the panel. The result was a novelty coating having a beautiful cell-like structure containing thousands of minute cells with a light colored perimeter around them. There were other areas that have a chain-like structure which filled in the areas around the circular areas which look like circular cross cut sections of petrified wood having very dark lines outlining the perimeters.

EXAMPLE 13

A panel of simulated finely burled walnut was prepared as follows: Valspar polyester resin (60% unsaturated polyester resin and 40% styrene monomer) was mixed with 0.02 parts of Venus martin gold metal powder, 0.02 parts of Venus pale gold metal powder, 0.04 parts rotten stone, 0.04 parts red poly dye, 0.04 parts yellow poly dye, 0.04 parts Glidden flatter, and 0.08 parts of Glidden Solvent No. 5568. This was thoroughly mixed in one container and was catalyzed with 1/60 part of methyl ethyl ketone peroxide and poured onto a smooth level panel of Masonite and allowed to cure without any further action on the mixture. The result was a panel of finely burled coating resembling expensive burled walnut.

The precise manner in which the patterns are formed in the coating according to the present invention are not fully understood. It is obvious that non-compatible materials within the coating are antagonistic or allergic to one another such that they cause forces to act upon the materials to create interfaces, migration of pigment into separated areas of greater and lesser concentrations, a constantly changing ebulition within the coating until it begins to set up resulting in growing patterns. The pattern is influenced by flow induced as a result of leveling and/or furrowing, but may also occur as the portions of the applied coatings flow into one another as they level themselves. In this instance, the coating is acted upon wholly by forces induced by the mixture forming the coating material.

The metallic powder pigments which appear to contribute significantly to the production of the ususual results of this invention, are used in much lesser quantity than is customary in the production of metallic pigmented paints. Usually not more than about 3 per cent maximum metallic powder is used and preferably, as illustrated by the Examples, the amount should be between about 1 per cent (Example 3) and about 0.3 per cent (Example 5) of metallic pigment relative to the vehicle base. However, where a metallic appearance is desirable, more may be used. The extender pigment or other inert filler (such as rotten stone, flattener, etc.) is generally present in greater proportion than the metal pigment and, as illustrated by the Examples, is preferably present in amounts as great as about 13 per cent (Example 1) relative to the vehicle base, although as little as 0.33 per cent (Example 4) may be used in some instances, as when dyes are the primary colorants. However, where the extender pigment is used to increase the viscosity of the vehicle, the extender pigment may be present in amounts as great as 50 per cent relative to the vehicle base. The flattener is an optional constituent of the coating material depending upon the desired effects. Where the flattener is not used for its normal flattening function, but is used instead as an agglomerated distressing agent, the amounts may be considerably greater, for example about 16.7 per cent relative to the vehicle base. Where lesser distressing is desired, lesser amounts are used, and vice versa. Likewise the presence of a thinner admixed with the vehicle base is optional. When used, the thinner is desirably present

in amounts of about 5 per cent relative to the vehicle base. This amount can vary widely depending upon the thickness and viscosity of the vehicle base and the desired thickness and viscosity of the coating to be applied.

It is apparent that many modifications and variations of this invention as hereinbefore set forth may be made without departing from the spirit and scope thereof.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

**1.** A one-coat method for producing a decorative and ornamental protective simulated wood grain coating which comprises the steps of:

A. preparing a colored coating material consisting essentially of a viscous quickly settable liquid resinous thixotropic coating vehicle containing at leas one colorant, said colorant and any additional colorant which may be present being capable of entering into and being thoroughly admixed with and substantially uniformly dispersed throughout the vehicle, at least part of the colorant having physical properites whereby migration of the colorant within the vehicle may occur, said colorant being present in gradations of the same color corresponding to the colors of the wood grain to be simulated,

B. thoroughly mixing said vehicle and colorant to homogenize the same, and

C. spreading the resulting viscous liquid homogeneous mixture onto a base surface over substantially the entire surface in a directional pattern corresponding generally to the desired wood grain pattern,

D. while said base surface is maintained flat and level, gently acting upon the coating mixture while still liquid and viscous, without brushing, to level the same into a layer substantially uniform thickness and to disrupt the surface of the coating to induce migration and concentration of colorant within the coating to develop a wood grain pattern having visible color lines of demarcation in the coating, and

E. permitting said coating to set-up and harden quickly in from a few seconds to no more than 10 to 20 minutes.

**2.** A method according to claim **1** further characterized in that said coating vehicle contains at least one finely divided metallic powder pigment along with at least one finely divided inert inorganic extender pigment, said metallic pigment being present in total amount between about 0.3% and 3.0% relative to the vehicle base and said extender pigment being present in amount between about 2.5% and 50% relative to the vehicle base.

**3.** A method according to claim **1** further characterized in that said lined pattern is developed in said coating layer by furrowing the coating mixture while still liquid and viscous.

**4.** A method according to claim **3** further characterized in that the furrowed coating is permitted to return to its substantially uniform thickness before the coating sets up and hardens.

**5.** A method according to claim **3** wherein said coating is in simulation of sandblasted wood graining characterized in that said furrowed coating is set up and hardened before said coating can return to its substantially uniform thickness, the ridges of said furrows simulating harder growth lines of wood and the valleys of said furrows simulating softer wood removed by sandblasting.

**6.** A method according to claim **1** wherein said coating is in simulation of distressed surfaces further characterized in that:

A. a low-density agglomerated finely divided agent which is non-compatible with said vehicle is folded non-uniformly into said vehicle after homogenization and applied to said base surface therewith,

B. at last part of said non-compatible agent is permitted to rise to the surface of the coating before the coating sets up and hardens, and

D. after the coating has set up and hardened said non-compatible agent is removed from the surface of the coating to produce pits in the surface of the coating in simulation of distress marks therein.

**7.** A method according to claim **6** further characterized in that said non-compatible agent is dyed or stained a color complementary to the color of the portion of vehicle in which it is admixed.

**8.** A method according to claim **1** further characterized in that a flattening agent is admixed uniformly throughout said vehicle whereby the set-up coating has areas of alternating glossy and dull finish.

**9.** A method according to claim **1** further characterized in that:

A. said vehicle is catalyst curable resin,

B. water is gently applied over the substantially uniformly coated surface prior to complete setting up and hardening of the coating, and

C. the coating is permitted to set up and harden completely whereby the coating has a smooth uniform matte surface in simulation of a non-glossy buffed and polished surface.

**10.** A method according to claim **1** further characterized in that:

A. said vehicle is catalyst curable resin,

B. said substantially uniformly coated surface is flushed with water to create surface ripples in the coating before the coating has completely set up and hardened,

C. said water having a substantial temperature differential relative to said coating, and

D. the coating is permitted to completely set up and harden, whereby the coating has a rippled matte surface in simulation of leather.

**11.** A method according to claim **1** further characterized in that:

A. said vehicle is stirred to admix bubbles of air therein prior to application to a base surface, and

B. said vehicle is spread on the base surface with said air bubbles therein, whereby the coating after setting up and hardening simulates knarled natural wood.

**12.** A method according to claim **1** further characterized

A. the base surface has a smooth non-adhering surface, and

B. after setting up and hardening the coating is stripped from the surface.

**13.** As a new article of manufacture the self-sustaining film product produced by the method of claim **12.**

**14.** As a new article of manufacture the coated product produced by the process of claim **1.**

15. As a new article of manufacture the simulated sandblasted wood grained product produced by the method of claim 5.

16. As a new article of manufacture the simulated distressed product produced by the method of claim 6.

17. As a new article of manufacture the rippled surface product produced by the method of claim 10.

18. As a new article of manufacture the simulated knarled wood product produced by the method of claim 11.

19. A method according to claim 1 further characterized in that the coating is applied to a substantial depth and thinner self-sustaining films are cut therefrom.

20. A method according to claim 19 further characterized in that said films are cut while the coating is in a set-up gel state before hardening.

* * * * *

# UNITED STATES PATENT OFFICE

# CERTIFICATE OF CORRECTION

PATENT NO. : 3,904,791

DATED : September 9, 1975

INVENTOR(S) : Elizabeth M. Iverson and Kenneth G. Iverson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 14, "made" should be --make--.

Column 1, line 59, "or" (2nd occurrence) should be --of--.

Column 2, line 19, after "method", --of-- is omitted.

Column 3, line 35, "strips" should be --stripes--.

Column 3, line 39, "is" (1st occurrence) should be --as--.

Column 4, line 16, "rsins" should be --resins--.

Column 4, line 35, after "iron driers", --zinc driers-- is omitted.

Column 7, line 67, "predetmined" should be --predetermined--.

Column 9, line 18, "strained" should be --stained--.

Column 9, line 21, after "the", --distress marks upon the removal of the-- is omitted.

Column 10, line 13, "is" (1st occurrence) should be --in--.

Column 11, line 50, "strips" should be --stripes--.

Column 11, line 55, "or" should be --of--.

Column 12, line 41, "Sourth" should be --South--.

Column 12, line 63, "Sourth" should be --South--.

Column 13, line 19, "Venue" should be --Venus--.

(continued)

# UNITED STATES PATENT OFFICE
# CERTIFICATE OF CORRECTION

PATENT NO. : 3,904,791 

DATED : September 9, 1975

INVENTOR(S) : Elizabeth M. Iverson and Kenneth G. Iverson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

(continued)

Column 13, line 23, "distrubance" should be --disturbance--.

Column 13, line 53, "polymide" should be --polyamide--.

Column 13, line 58, "coast to Coast" should be --Coast to Coast--

Column 14, line 4, "licken" should be --lichen--.

Column 14, line 43, "curred" should be --cured--.

Column 14, line 59, "distrubance" should be --disturbance--.

Column 17, line 17, "leas" should be --least--.

Column 17, line 37, after "layer", --of-- is omitted.

Column 18, line 14, "D." should be --C.--.

Column 18, line 58, after "characterized", --in that:-- is omitted.

**Signed and Sealed this**

*second* **Day of** *December 1975*

[SEAL]

*Attest:*

**RUTH C. MASON**
*Attesting Officer*

**C. MARSHALL DANN**
*Commissioner of Patents and Trademarks*