July 7, 1936. E. LA VERNE ET AL 2,046,954

METHOD OF IMITATING WOOD AND RESULTING PRODUCTS

Filed Aug. 19, 1935

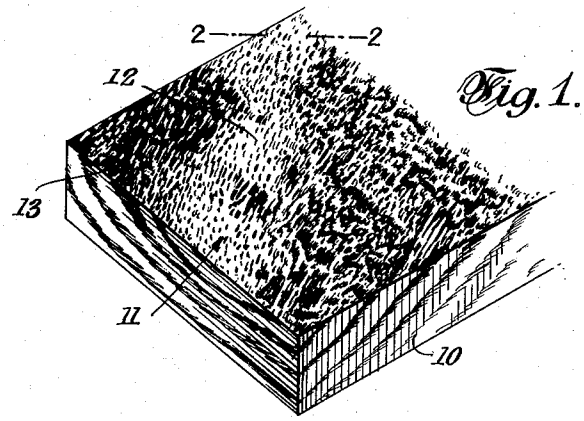


Fig. 1.

Fig. 2.

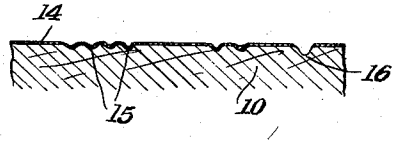


Fig. 3.

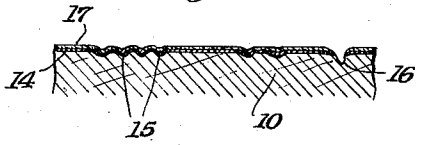


Fig. 4.

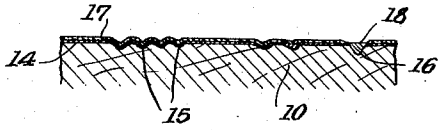
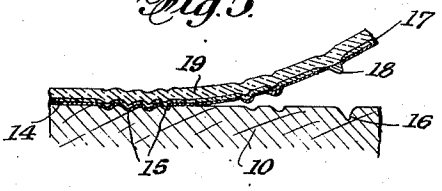


Fig. 5.



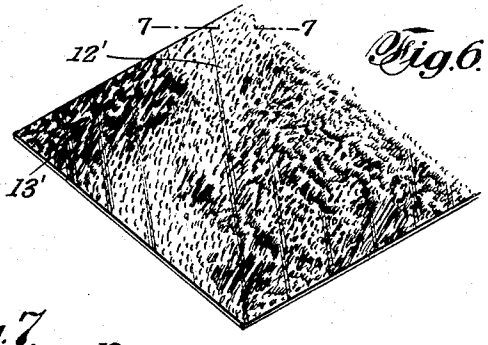
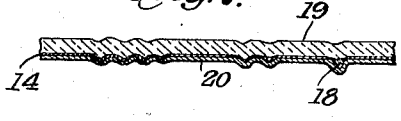


Fig. 6.

Fig. 7.



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METHOD OF IMITATING WOOD AND RESULTING PRODUCTS

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New York, N. Y.

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26 Claims. (Cl. 41—33)

Our present invention relates to a method of simulating wood and aims to devise a method of the general character indicated, which is simple and easy to practise and which results in a product so closely resembling the original, that the most expert eye is necessary to detect the reproduction from the original, if this can be done at all. Our present invention also relates to the product resulting from the practise of the aforesaid method, and has for an additional object, the production of a replica of the original which is relatively inexpensive, and which enables an observer to derive therefrom the full beauty and attractiveness of the original.

It has heretofore been customary to use wood veneer and the like, finished in a particular manner, for decorating walls requiring wood decoration. We have found that the use of such materials has certain disadvantages. In the first place the cost is prohibitive. Furthermore we have found that such materials tend to blister and peel away from the wall upon which they are affixed, due to changes in temperature, thus requiring expensive repairing or in some instances, replacement. The present invention overcomes these disadvantages and brings forth certain advantages which will hereinafter be more fully pointed out.

In the accompanying specification we shall describe an illustrative embodiment of the method of the present invention. In the accompanying specification we shall also describe and in the annexed drawing show the product resulting from the process of the present invention. It is however to be clearly understood that the practise of the aforesaid illustrative embodiment of the method of the present invention is not necessarily restricted to the production of the exact product herein described, and it is to be further clearly understood that the product herein described is not necessarily restricted in its production to the aforesaid illustrative embodiment of the method of the present invention.

Fig. 1 is a fragmentary, perspective view of a block of wood, the surface of which it is desired to simulate;

Fig. 2 is a transverse, sectional view, taken along line 2—2 of Fig. 1, and showing the result of the first step of the process of the present invention;

Fig. 3 is a view similar to Fig. 2 after the second step of the present process has been performed;

Fig. 4 is a like view after the third step, which is alternative, has been performed;

Fig. 5 is a similar view after the next step of the process has been performed;

Fig. 6 is a fragmentary, perspective view of the final product; and

Fig. 7 is a transverse, sectional view taken along line 7—7 of Fig. 6.

Other objects and advantages of the present invention will become apparent to those skilled in the art to which the present invention relates as the detailed description thereof progresses.

Referring now more in detail to the aforesaid illustrative embodiment of the method of the present invention, we proceed by selecting a type of wood to be imitated. Any of the well known woods may be utilized with equal success in the reproduction of the appearance thereof. For the purpose of the practise of the method of the present invention, we have found that woods may be divided particularly into two classes; 1—those woods which have a more or less rhythmic relation between the hard and soft sections, that is a repetitious design structure; and 2—those which have accidental spots of hard and soft sections, for example, white pine. We have found that in the case of the former class, the wood substantially uniformly absorbs liquid, whereas in the case of the latter class, this is not true. We have found that because of this difference, it is necessary, in practising the method of the present invention, to proceed in a slightly different manner, depending upon the type of wood started with.

Assuming that we desire to reproduce a wood which has uniform grain and is of a repetitious design structure, such as curly maple, oak, walnut, etc., we proceed with our process by first applying to the surface to be reproduced, whether wood or a plate made from wood, a stain. The purpose of this is to more definitely bring out the graining and coloring and tones of the wood and to furnish a medium for transferring these variations to a subsequent surface, which will be described in later portions of this specification. In the drawing the numeral 10 generally designates a block of wood to be reproduced, having the surface 11 to which there has been applied the stain. Where the surface is soft, such as at 12, a great deal of the stain is absorbed and very little of it remains on the surface, but where the surface is hard as at 13, very little of the stain is absorbed, and a great deal of it remains on the surface. In Fig. 2 of the drawing, the stain is designated by the reference character 14. It is to be noted that the stain follows the physical contour of the surface of the wood, and flows into the grain or pits 15, more or less, uniformly. Of

course, some of the pits are very deep, such as the one indicated at 16, and occasionally such pits do not become filled, but the manner of treating such pits will be described in later portions of this specification. After staining the wood, we continue our process by spraying or flowing upon the stained surface a thin layer of a transparent colloidal substance, such as celluloid, lacquer, shellac, varnish, etc. In Fig. 3 of the drawing the numeral 17 designates the thin layer of the colloidal substance. The purpose of applying this substance is twofold. In the first place it follows the pitting and other irregularities of the wood, and actually acquires the same on the under surface thereof so as to give the appearance to the substance when it subsequently dries of the exact contour of the original wood. Secondly, we use the substance mentioned for the purpose of picking up from the wood being reproduced, the staining previously applied. We have found that the stain transfers from the wood to the colloidal substance in such a manner that where the grain is more open and therefore more absorbent, little of the stain attaches to the colloidal substance, whereas where the grain is compact, a greater amount of the stain is transferred to the colloidal substance so that the colloidal substance in addition to acquiring the contour of the wood, also takes on the color and tone variations.

We now permit the substance sprayed or flowed on to the wood to dry, and after it has dried, if it appears that there are many large open pores, or deep pits therein due to the peculiar structure of the wood which is being reproduced, such as oak, chestnut and the like, we fill the same with a plastic filler having color. This step is needed to provide the finished product with an even, unbroken surface and to accentuate by the use of color and filler, the deep pits characteristic of the wood, in exactly the same manner as such wood would be treated in the ordinary natural wood finishing process. In Fig. 4 of the drawing the plastic filler just referred to is designated by reference character 18 and it will be noted that such filler has been placed in the deep pit 16.

The next step in our process is to spray or flow on to the colloidal sheet covering the original wood, another layer of the same, or similar substance. A sufficient quantity of the substance is applied, either in one or more successive coats, to build up enough thickness so as to give body and finish to the sheet and enable it to be subsequently stripped off. After this layer has dried, it is stripped from the original wood and will be found to contain the pitting, contour and the graining of the wood started with. In Fig. 5 of the drawing, the numeral 19 generally designates the successive layer or layers of the colloidal coating, and it will be noted that such coating retains any plastic filler it might have been necessary to apply in the deeper pits.

However, we have found that the sheet thus treated is somewhat dull and lacks the lively appearance of a finished and polished piece of wood, and we have therefore devised a means for causing the light which strikes the surface of the sheet to become reflected and refracted, thus giving to the product a natural appearance. In carrying out this phase of our process, we coat either side of the stripped sheet with a reflecting material, such as metallic paint or lacquer, or a fish scale lacquer, the reverse side being the side exposed in actual use. By so doing, the light passing through the sheet to the backing, transverses the ridges corresponding to the pitting and is refracted, reflected and again refracted in the same manner as from natural finished wood, so that it is practically impossible to tell the reproduction from the original wood. In Fig. 7 of the drawing, the reflective backing is generally designated by reference character 20. The product is completed by applying to the back thereof any protective substance or material, such as cloth or paper, and can now be utilized for any of the purposes, decorative or otherwise, for which wood, wood veneer and simulated wood sheets are regularly used. It possesses the advantages however, among other advantages enumerated, in that it is completely finished, weather resistant, and has a polished appearance. In Fig. 6 of the drawing we have shown the completed article and in such figure it will be noted that the portions 13' correspond to the portions 13 of the original block of the wood 10, and the portions 12' correspond to the original portions 12 in the wood simulated.

We have found in the case of certain woods that after applying the reflecting material, the color variations are not as strong as they should be and in order to overcome this defect, we therefore apply over the reflecting material a stain, the color particles of which are picked up by the lacquer which carries the reflecting particles, thus supplying the color variations which would otherwise be lacking.

In the case where the wood started with is of an uneven and accidental grain, such as knotty pine, the process is exactly the same as in the case where a wood of uniform grain is utilized, except that in the beginning no stain is applied to the surface of the wood but instead the stain is applied entirely near the end of the process immediately after the reflecting back is applied to the colloidal sheet.

This completes the description of the aforesaid illustrative embodiment of the method of the present invention. It will be seen that such process is simple and is therefore easy and economical to practise. It furthermore results in a product which has all of the graining, pitting, color variations and light refraction and reflection of finished and polished wood and provides a very attractive and inexpensive decoration to take the place of wood veneer and the like.

What we claim as our invention is:

1. The process of simulating wood which consists of the steps of transferring the physical contour of the surface and the color of the wood to be simulated to a transparent sheet of a colloidal substance, and thereafter treating such sheet to reflect and refract the light striking the transferred surface and color.

2. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, transferring the physical contour of the surface and color of the stained wood to a transparent sheet of a colloidal substance, and thereafter treating such sheet to reflect and refract the light striking the transferred surface structure and color.

3 The process of simulating wood which consists of the steps of transferring the surface structure and the color of the wood to be simulated to a transparent sheet of a colloidol substance, then accentuating parts of the surface structure transferred to such sheet, and thereafter treating such sheet to reflect and refract

the light striking the transferred surface structure and color.

4. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, transferring the surface structure and color of the stained wood to a transparent sheet of a colloidol substance, then accentuating parts of the surface structure transferred to such sheet, and thereafter treating such sheet to reflect and refract the light striking the transferred surface structure and color.

5. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and the color thereof, then stripping said substance from the wood in the form of a sheet and thereafter treating such sheet to reflect and refract the light striking the surface and color transferred from the original wood to such sheet.

6. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and the color thereof, then stripping said substance from the wood in the form of a sheet and thereafter treating such sheet to reflect and refract the light striking the surface and color transferred from the original wood to such sheet.

7. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the surface structure and color thereof, then accentuating parts of the surface structure picked up by said substance, then stripping said substance from the wood in the form of a sheet and thereafter treating such sheet to reflect and refract the light striking the surface structure and color transferred from the original wood to such sheet.

8. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the surface structure and color thereof, then accentuating parts of the surface structure picked up by said substance, then stripping said substance from the wood in the form of a sheet and thereafter treating such sheet to reflect and refract the light striking the surface structure and color transferred from the original wood to such sheet

9. The process of simulating wood which consists of the steps of transferring the physical contour of the surface and the color of the wood to be simulated to a transparent sheet of a colloidal substance, and thereafter applying a backing to such sheet to reflect and refract the light striking the transferred surface and color.

10. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, transferring the physical contour of the surface and the color of the stained wood to a transparent sheet of a colloidal substance, and thereafter applying a backing to such sheet to reflect and refract the light striking the transferred surface and color.

11. The process of simulating wood which consists of the steps of transferring the surface structure and the color of the wood to be simulated to a transparent sheet of a colloidal substance, then accentuating parts of the surface structure transferred to such sheet, and thereafter applying a backing to such sheet to reflect and refract the light striking the transferred surface structure and color.

12. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, transferring the surface structure and color of the stained wood to a transparent sheet of a colloidal substance, then accentuating parts of the surface structure transferred to such sheet, and thereafter applying a backing to such sheet to reflect and refract the light striking the transferred surface structure and color.

13. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and the color thereof, then stripping said substance from the wood in the form of a sheet and thereafter applying a backing to such sheet to reflect and refract the light striking the surface and color transferred from the original wood to such sheet.

14. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and the color thereof, then stripping said substance from the wood in the form of a sheet and thereafter applying a backing to such sheet to reflect and refract the light striking the surface and color transferred from the original wood to such sheet.

15. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the surface structure and color thereof, then accentuating parts of the surface structure picked up by said substance, then stripping said substance from the wood in the form of a sheet and thereafter applying a backing to such sheet to reflect and refract the light striking the surface structure and color transferred from the original wood to such sheet.

16. The process of simulating wood which consists of the steps of applying a stain to the wood to be simulated, applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the surface structure and color thereof, then accentuating parts of the surface structure picked up by said substance, then stripping said substance from the wood in the form of a sheet and thereafter applying a backing to such sheet to reflect and refract the light striking the surface structure and color transferred from the original wood to such sheet.

17. As an article of manufacture, a sheet of material provided with the physical contour of the surface and the color of wood and means to reflect and refract light striking the same so as to simulate a finished and polished sheet of decorative wood.

18. As an article of manufacture, a sheet of material provided with indentations, markings and staining corresponding to the pitting, graining and color variations of wood, and further provided with means to reflect and refract light striking the same to simulate the play of light upon natural wood.

19. The process of simulating wood which con-

sists of the steps of transferring the physical contour of the surface of the wood to be simulated and the color thereof to a transparent sheet of a colloidal substance, and thereafter applying means to such sheet, cooperable with the transferred surface, to reflect and refract the light striking such sheet.

20. The process of simulating wood which consists of the steps of transferring the physical contour of the surface of the wood to be simulated and the color thereof to a transparent sheet of a colloidal substance, and thereafter applying a reflective backing to such sheet, cooperable with the transferred structure, to reflect and refract the light striking such sheet.

21. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and color thereof, then stripping said substance from the wood in the form of a sheet, and thereafter applying to such sheet means, cooperable with said picked up surface, to reflect and refract the light striking such sheet.

22. The process of simulating wood which consists of the steps of applying to the wood to be simulated at least one layer of a transparent colloidal substance to pick up from the wood the physical contour of the surface and color thereof, then stripping said substance from the wood in the form of a sheet, and thereafter applying to such sheet a reflective backing, cooperable with said picked up surface, to reflect and refract the light striking such sheet.

23. As an article of manufacture, a sheet of material provided with the physical contour of the surface and color of wood and having means, cooperable with the surface with which it is provided, to reflect and refract light striking the same.

24. As an article of manufacture, a sheet of material provided with the physical contour of the surface and color of wood and having a reflective backing, cooperable with the surface with which it is provided, to reflect and refract light striking the same.

25. As an article of manufacture, a sheet of material provided with indentations, markings and staining corresponding to the pitting graining and color variations of wood and having means, cooperable with said indentations, to reflect and refract light striking the same.

26. As an article of manufacture, a sheet of material provided with indentations markings and staining corresponding to the pitting graining and color variations of wood and having a reflective backing, cooperable with said indentations, to reflect and refract light striking the same.

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