

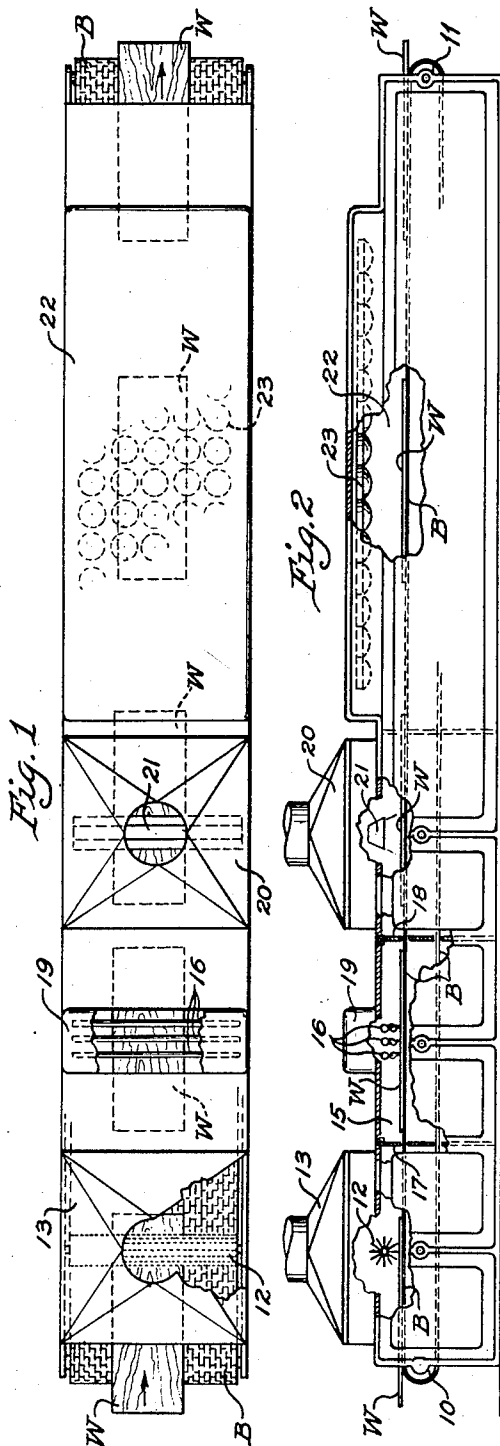
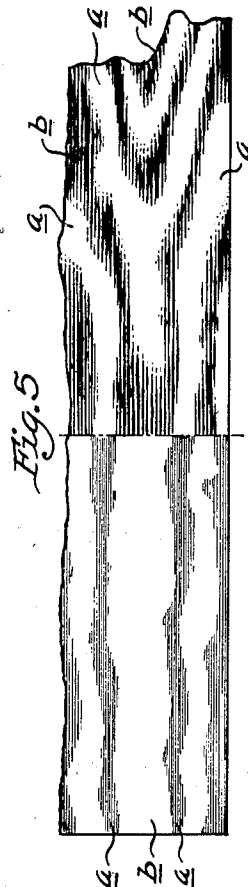
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FINISHING OF WOOD

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FINISHING OF WOOD

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1

My invention relates to a finish applied to the surface of wood, the purpose being to produce an enhanced and distinctive ornamental appearance. The finish is applicable equally to single ply or multi-ply boards. The treated surfaces which are attractive to the eye are well adapted for panels and other shapes in wood that are to be installed in exposed places within the interior of homes and other buildings.

The present finish is simple and inexpensive to produce. It may be modified within rather wide limits, or be held to a uniform standard of appearance. The apparatus required for its production may consist of readily available units whose operations require no specially skilled attendants. For these, as well as other reasons which will hereinafter appear, my improved wood finish is particularly advantageous.

The production of the present finish on a wooden board or sheet may be readily understood by reference to the accompanying drawing wherein:

Figure 1 is a top plan view of an apparatus suitable for production of the present wood finish;

Fig. 2 is a side elevation thereof;

Fig. 3 is a diagrammatic sectional view, somewhat exaggerated, illustrating the condition of the wood surface at the conclusion of the first step of the treatment;

Fig. 4, which is a similar view, illustrates the condition of the wood surface at the conclusion of the flame treatment; and

Fig. 5 is a fragmentary view in elevation of a typical wood surface showing two portions thereof as they appear before and after application of my improved finish.

As shown in Figs. 1 and 2, an endless belt conveyor B, preferably of metallic link construction, is mounted for movement over a pair of rollers 10 and 11, one at each end of the apparatus. The belt conveyor travels within a framework enclosing partially or completely a plurality of units which operate upon the work W which I have shown to be in the form of boards, either single or multi-ply.

Near the starting end of the machine I provide within the framework an abradant means which performs the initial operation. Any suitable instrumentality may be employed for the purpose, such as a revolving wire brush 12. The work when placed upon the upper run of the belt will travel beneath the brush to be engaged thereby so that its surface will be treated in the manner hereafter explained. A hood 13 in

2

connection with an exhaust system may be provided to educt the loose particles that are dislodged in this operation.

Continuing onward from the abradant means, the work while still traveling on the conveyor enters into a flame chamber 15 wherein is located a (one or more) fuel burner pipe 16 having openings or nozzles from which may issue flames which are projected on to the work. A scorching treatment is thereby applied to the upper surface of the work as it passes through the flame chamber. To confine the flames, and also the heat therefrom, I may provide gates 17 and 18, hinged if desired, so as to yield with the passing work. A duct 19 is provided to remove the products of combustion.

Beyond the flame treating zone is a coating chamber 20 through which the work is required to pass while still traveling upon the conveyor. Within this chamber is provided means 21 for applying (as by spraying) lacquer or other desired finishing material upon the freshly scorched surface of the work. Beyond the coating chamber is a drying chamber 22 wherein may be installed means, such as infrared lamps 23, to accelerate hardening of the coating on the work. Upon emerging from the drying chamber, the work is safe for handling and may then be placed on tables or trucks for stacking or shipment, as the case may be.

Fig. 3 shows in a somewhat exaggerated way the cross-sectional contour of a board of wood (such as fir, for example) as it appears at the conclusion of the abrading operation. Here it will be noted its treated surface consists of areas a which are generally smooth with other interspersed areas b which, if the work be advanced endwise of its own grain, will be rather deeply furrowed. These smooth areas a which represent the relatively hard winter growth of the wood are affected very little, if at all, by the abrading operation; that is, their surfaces are somewhat polished, but not roughened appreciably in this initial step of the treatment. The natural color of these harder areas continues to remain so through to the conclusion of several operations herein set forth.

As for the roughened areas b, these are the softer parts of the wood grain (the summer growth) which are naturally of a lighter hue or color. Initially in the dressed wood, these softer areas are smooth and even, the same as the harder areas; in the abrading operation, however, this smooth even surface in the softer areas is appreciably roughened, or optionally furrowed.

3

There is also removed from these softer areas the more loosely anchored particles which are incapable of withstanding the dislodging force of the abrading treatment. An interesting effect is thereby produced—an appearance of age and years of exposure. It is in this condition, viz. with the soft areas furrowed and freed of loose particles and the hard areas polished, that the work is left as a result of the initial abrading.

The second step is the flame treatment of the wood that is specially pre-conditioned by the abrading operation just described. I aim to subject the raw cleaned work surface, furrowed in part and elsewhere polished, to the action of flames at a temperature and for a period of time which will produce a scorching thereof. There need be no burning or charring of the wood for best results. The effect of scorching, which may be likened to toasting, is the prime objective.

In this flame treating operation there are no loose particles to be oxidized and then removed at a later stage. Because of the furrowing of the softer areas *b*, the extent of the surface area thereby exposed to the flame treatment is somewhat increased. These roughened areas, in particular, become darker colored, as a result of contact with the flames. This change in appearance requires a flame temperature, or time of treatment, that is less than would be the case if the initial abrading had been omitted. The scorching action may be confined largely to the furrow ridges *c* (see Fig. 4), or it may extend down between the ridges of the furrows (depending upon the factors of temperature and time). It will be apparent that a treatment at a higher temperature or a longer duration will result in a deeper penetration of the scorching action into the furrows but in any event within a rather wide permissible operating range there is a definite contrast between the darker colors along the ridge tops and the lighter colors within the furrows between the ridges. The naturally harder and polished areas *a* may remain relatively light in color, almost unaffected by the flame treatment, so as to enhance the highlighting effect of the surface in its entirety. As a result of this selective flame treatment, controlled to produce a scorching or toasting effect, a very interesting and attractive finish is achieved, and one that will continue unchanged in appearance for an extended period of time.

The final step of coating the treated wood surface is primarily to provide protection thereto. A clear lacquer is suggested since this will not impair the appearance of the finish. Such a coating will facilitate cleaning or washing of the finished wood surface whenever such an operation is to be performed.

I claim:

1. The method of finishing a wood surface which comprises the steps of subjecting the surface initially to an abrading treatment which polishes the harder areas and furrows the softer areas while removing therefrom the looser particles, and of thereafter subjecting the surface so abraded to a flame treatment to scorch and

4

thereby discolor the high points of the softer furrowed areas while leaving the remainder of the wood surface relatively unaffected.

2. The method of finishing a wood surface which comprises the steps of subjecting the surface initially to an abrading treatment in a manner to produce a roughening of certain areas while removing therefrom the looser particles, and of thereafter subjecting the surface so abraded to a flame treatment to scorch, and thereby discolor, the high points of the roughened areas while leaving the remainder of the wood surface relatively unaffected.

3. The method of finishing a wood surface which comprises the steps of subjecting the surface initially to an abrading treatment so applied as to polish certain areas and roughen certain other areas from which the looser particles are simultaneously removed, and of thereafter subjecting the surface so abraded to a flame treatment to scorch, and thereby discolor, the high points of the roughened areas while leaving the remainder of the wood surface relatively unaffected.

4. A board of wood, one of whose surfaces comprises relatively hard and soft areas, the former smooth and the latter rough, characterized by a differential scorched discoloration which is dark in the high points of the rough, soft areas and light in the low points of the same areas and over the entire surface of the smooth hard areas.

5. A board of wood, one of whose surfaces comprises a plurality of relatively soft, naturally lighter areas wherein are cleaned-out furrows extending lengthwise of the grain, the ridges along the tops of the furrows being scorched to a dark hue in contrast with a lighter scorched hue in the furrows therebetween.

6. A board of wood, one of whose surfaces comprises areas some of which are hard and dark and others soft and light, the latter roughened with the looser particles removed, the top parts of the roughened areas being scorched to a dark hue in contrast with the surrounding low parts.

7. The method of finishing a wood surface having hard and softer areas which comprises the steps of subjecting the surface initially to an abrading treatment while advancing the surface lengthwise of the grain of the wood to polish the hard areas and furrow the softer areas, removing loose particles from the abraded surface to clean the same, and thereafter subjecting the cleaned abraded surface to a flame treatment to scorch, discolor and darken the ridges or high points of the softer furrowed areas while leaving the hard areas and the bottoms of the furrows a lighter color.

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