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METHOD OF WAXING A WOOD PANEL

Filed April 18, 1960

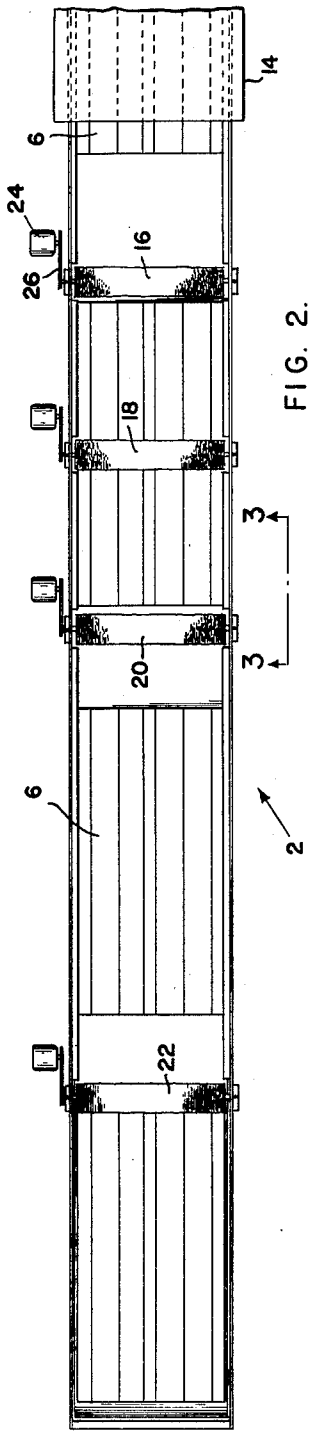


FIG. 2.

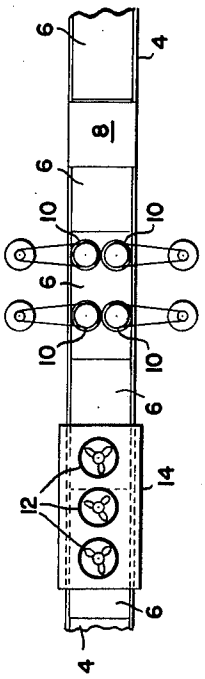


FIG. 1.

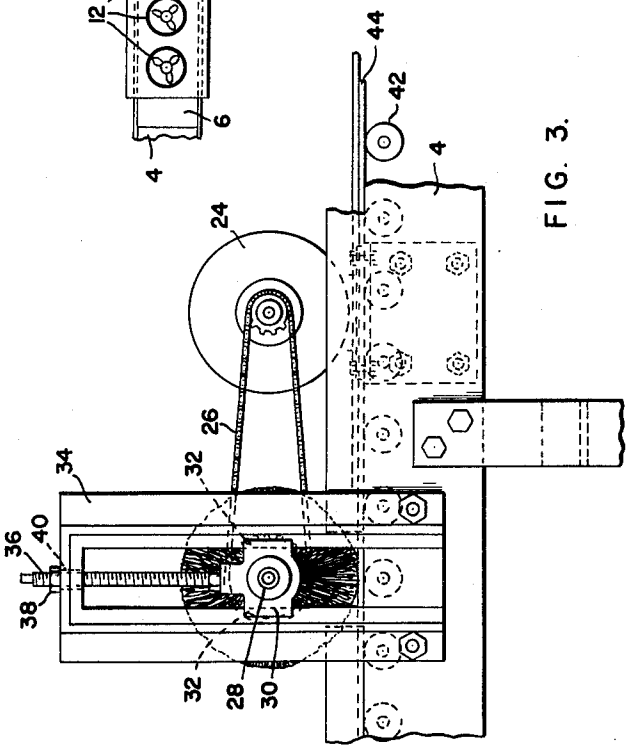


FIG. 3.

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METHOD OF WAXING A WOOD PANEL

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This invention relates to a method of waxing a wood panel which in the terms of this application can be either a relatively small panel such as is employed in flooring or a relatively large panel such as, for example, a plywood panel employed in paneling a wall.

It is well-known to wax wood panels. Such waxing is normally carried out after the application of a finish to the surface of the panel, a penetrating seal finish advantageously being employed. The wax is applied in molten form to the panel which has previously been heated. Brushes rotating on a vertical axis are then immediately employed to rub the wax into the wood and spread it evenly on the surface of the wood panel. While this method of waxing a wood panel is in many instances satisfactory, it has deficiencies where the appearance of the waxed panel is of great importance. The conventional brushing results in the leaving of well defined brush marks which, to a degree, mar the appearance of the finished product. Further, this method of the prior art does not result in a finish having as high a polish as is desired.

The method in accordance with this invention eliminates the above discussed deficiencies by removing the brush marks and providing the waxed panel with a highly glossed final finish. Further it eliminates distortions resulting from the different shrinkage rates of the wax and wood on cooling.

The method of this invention will be further clarified by reading of the following description in conjunction with the drawing in which:

FIGURE 1 is a schematic view of a portion of a conventional factory finishing line for wood panels;

FIGURE 2 is a plan view of the terminal end of the factory finishing line shown in part in FIGURE 1; and

FIGURE 3 is a side elevation of a brush employed in the structure of FIGURE 2, FIGURE 3 being taken on the line 3—3 of FIGURE 2.

The terminal end of a wood panel factory finishing line **2** for carrying out the method of this invention is shown in FIGURES 1 through 3. Referring particularly to FIGURE 1, a belt conveyor **4** conveys grooved plywood panels **6** which have previously been heated to dry the previously applied finish, for example, a penetrating seal finish as for example disclosed in Partee et al. Patent 2,341,161, below a waxer **8** which applies a molten wax to the upper surface of panel **6**. The panel **6** is at a temperature in the range of from about 155° F. to about 200° F. Such waxers are well-known to the art and reference may be made to F. H. Lyons et al. Patent 2,468,266, issued April 26, 1949, for a typical waxer suitable for this purpose. Panels **6** are then conveyed below bristle brushes of the type rotated on a vertical axis and indicated at **10**. Panels **6** are then conveyed below fans indicated at **12** which blow cooling air down onto panels **6**, and which are mounted in a fan housing **14**.

Referring now to FIGURE 2, after panels **6** leave fan housing **14** they are conveyed below a series of four rotating brushes **16**, **18**, **20** and **22**, each brush is a drum type bristle brush rotating on a substantially horizontal axis. Each brush is driven by an electric motor **24** and a chain drive indicated at **26**, which drives a shaft **28** having each end mounted in a bearing block **30** (only one of which being shown in FIGURE 3). Each bearing block is provided with opposed grooves **32** which engage a slide indicated generally at **34** to provide for a floating mounting of bearing block **30**. The downward travel of bearing block **30** is limited by a stud **36** and a nut **38** which is adapted to engage the top of opening **40** in slide **34**. As shown in FIGURE 3, slide **34** is bolted to belt conveyor **4** which as is further shown in FIGURE 3 may be provided with rollers **42** for the support of the conveying belt **44**.

While the above outlined structure is suitable for carrying out the method of this invention, it will be understood that the method as hereinafter described can be carried out by alternative structures.

In carrying out the method of this invention, a wax having a softening point in the range of from about 177° F. to about 185° F. (open capillary tube method) will be employed. Exemplary of such waxes are blends of microcrystalline, paraffin, carnauba wax, hydrogenated castor oil, paraffin wax with depolymerized polyethylene added. A preferred wax is a mixture containing 55% by weight of hydrogenated castor oil, 30% by weight of carnauba and 15% microcrystalline wax containing 18% depolymerized polyethylene. The wax will be liquified by heating and applied to the wood panel, for example panel **6**, by conveying panel **6** below waxer **8**. Advantageously the wax will be applied in an amount from ½ pound per 1000 square feet to 3 pounds per 1000 square feet.

The liquid wax is then brushed by means of brushes rotating on a vertical axis to spread the wax evenly on the wood panel and to brush the wax into the wood, this operation for example being carried out by brushes **10** in FIGURE 1. At this stage the wax will be at a relatively high temperature being at least above 155° F., the minimum temperature of the panel at this stage.

After having been thus brushed the wax is cooled. The cooling may be accomplished in a continuous line by passing the panels under fans illustrated at **12** in FIGURE 1.

When the wax has been cooled to a temperature in the range of about 125° F. to about 135° F. the waxed panels are brushed by a bristle drum brush rotating on a substantially horizontal axis such as the brush illustrated at **16** in FIGURE 2. The brushing with a bristle drum brush rotating on a substantially horizontal axis is repeated three more times, such brushing being accomplished by the apparatus shown in FIGURE 2 by brushes **18**, **20** and **22**. These brushings are carried out at successively decreased temperatures of the wax. Thus the second brushing (as by brush **18**) is carried out with the wax at a temperature in the range of about 120° F. to about 125° F., the third brushing (as by brush **20**) is carried out with the wax at a temperature in the range of about 110° F. to about 120° F. and the fourth brushing (as by the brush **22**) is carried out with the temperature of the wax about 110° F. or below. The cooling of the wax between successive brushings is accomplished simply by its exposure to the lower room temperature. The wax will cool at the rate of approximately 15° F. per minute when exposed to room temperature. Hence, the spacing between the brushes, such as brushes **16**, **18**, **20** and **22**, must be selected in accordance with the speed of conveyor **4** to provide for the requisite cooling period for the waxed panel between brushes so that the temperature of the wax can drop into the desired range for the next brushing step.

It has been found that by following the above method the finished wax surface will have a high degree of polish and will be substantially free of brush marks. It has also been found that, quite unexpectedly, the method of

this invention eliminates distortions of the wax surface incident to the different rates of shrinkage of the wax and the wood as they are gradually cooling.

It is not desired to be limited except as set forth in the following claims.

What is claimed is:

1. The method of waxing a wood panel which is in a substantially horizontal plane consisting essentially of applying a heat liquified wax having a softening point of from about 177° F. to about 185° F. in an amount from ½ pound to 3 pounds per 1000 square feet to the surface of a wood panel heated to a temperature of from about 155° F. to about 200° F., brushing the waxed panel with a brush rotating on a vertical axis while the wax is at a temperature of over 155° F., cooling the waxed panel and subsequently brushing said panel with a bristle brush rotating on a substantially horizontal axis while the wax is at a temperature in the range of from about 125° F. to about 135° F., cooling and subsequently brushing the waxed panel with a bristle brush rotating on a substantially horizontal axis while the wax is at a temperature in the range of from about 120° F. to about 125° F., cooling and subsequently brushing the waxed panel with a bristle brush rotating on a substantially horizontal axis while the wax is at a temperature in the range of from about 110° F. to about 120° F., cooling and subsequently brushing the wax panel with a bristle brush rotating on a substantially horizontal axis while the wax is at a maximum temperature of about 110° F.

2. The method of claim 1 characterized in that the wax comprises 55% by weight hydrogenated castor oil, 30% by weight carnauba wax, and 15% by weight microcrystalline wax containing 18% by weight depolymerized polyethylene.

References Cited in the file of this patent

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