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2,294,513

GLUE APPLYING ROLLER

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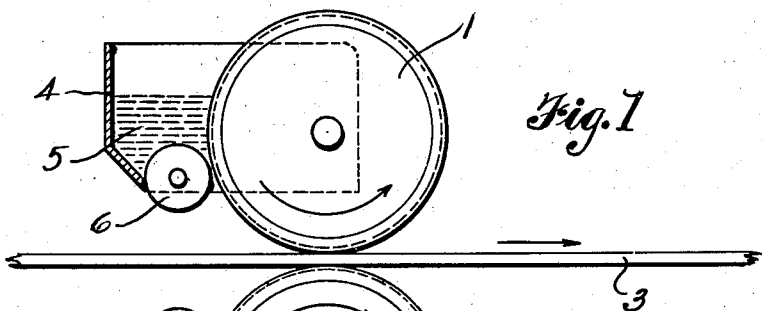


Fig. 1

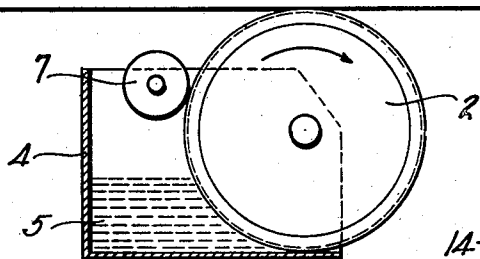


Fig. 4

Fig. 2

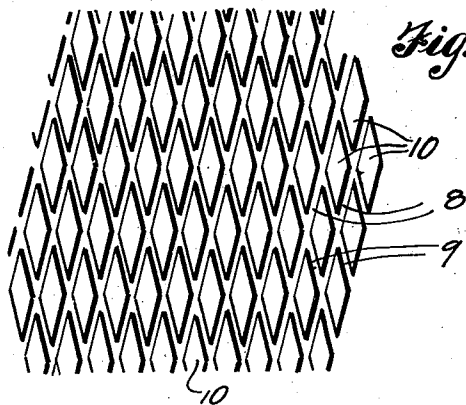
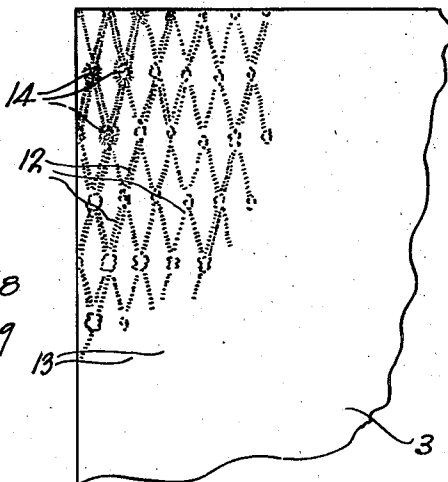
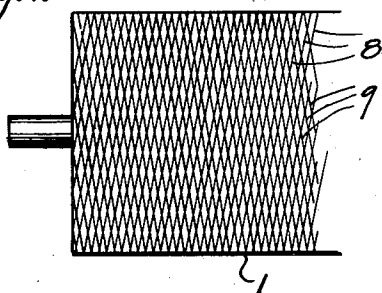


Fig. 3

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GLUE APPLYING ROLLER

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2 Claims. (Cl. 91-49)

This invention relates to glue applying machines, and has reference more particularly to improvements in glue spreading rollers as used in such machines as those employed in the manufacture of plywood panels; the invention dealing especially with the surfacing of the rollers for better application of glue.

It is the principal object of the present invention to provide a novel and improved surface pattern for glue spreading rollers, formed by a novel arrangement or relationship of grooves that may be ground, cut or molded in the roller surface, whereby to insure, through their use, a better glued connection between the layers or plies of wood, both from the standpoint of holding efficiency and of water-tightness of the seams or joints between plies.

More specifically stated, the objects of the present invention reside in the provision of a glue applying roller having a surface pattern that is formed by the crossing of spirally directed, oppositely inclined series of equally spaced, parallel grooves, setting off diamond shaped panels, or areas, that will result in a more even distribution of glue over a surface with which the roller has functional contact, and in such manner as to insure the sealing of joints or seams between the layers of plywood against any possible inlet of moisture, particularly along the edges of the plywood panel, or along any edge that may be formed by cutting the panel in pieces.

Explanatory to the present invention, it will here be mentioned that the desirability of having grooves in such rollers is well recognized, and it has been customary, in the past, to provide such rollers with longitudinal grooves which, incident to the roller having rolling contact with a wood panel, deposited distinct lines of glue across the panel at intervals corresponding to the spacing of the grooves. Also, such rollers have been made having encircling glue pick-up grooves, which likewise laid a pattern of lines of glue longitudinally or diagonally on the wood panels.

The principal objection to either, or both of the above mentioned methods of grooving the rollers resides in the fact that the plywood panels of material so glued are quite apt, if subjected to water or moisture, to absorb or admit water along the edges of the panel between the lines of applied glue, and this results in quick deterioration of the panel.

In view of the above and other disadvantages, the design of the present glue roller pattern has

been made such as to provide a glued connection between plies of material that insures that a plywood panel will be sealed effectively about its outer edges and the same sealing effect will be provided about the edges of smaller pieces that might be formed by the dividing of the original panel.

In accomplishing the above stated, and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawing, wherein—

Fig. 1 is a side view of a part of a glue applying machine, equipped with rollers embodying the present invention.

Fig. 2 is a view of a part of a glue applying roller diagrammatically indicating the grooving pattern thereon.

Fig. 3 is a detailed view of a section of the grooving pattern.

Fig. 4 indicates the glue pattern as laid on a wood panel by the rollers.

Referring more in detail to the drawing—

1 and 2, respectively, designate a pair of glue applying rollers, mounted on parallel axes, and between which a strip, sheet or ply of wood 3 is being advanced, as indicated by the arrows, for the application of glue to its opposite surfaces. The rollers 1 and 2, in this case, are partially contained in glue pots 4, and glue, indicated at 5, is picked up on their surfaces from the pots and then partly wiped therefrom, to leave a film of predetermined thickness, by rollers 6 and 7, which are mounted parallel with and slightly spaced from the surfaces of the glue rollers, as illustrated. This machine is merely illustrative of one of various machines that might be employed, and its arrangement of parts might be altered to suit conditions.

The feature of the present invention resides in the particular pattern, or the surfaces of the glue rollers as formed by the particular arrangement of the grooving in their surfaces.

As will be understood by reference to Fig. 2, the surface of each roller is formed with two series of parallel, equally spaced spiral grooves; one series, designated by the lines 8 that extend spirally of the roller in a right-hand turn, and the other series, designated by lines 9, extending spirally in the opposite direction, or in a left-hand turn. The two series of grooves cross each other at an obtuse angle. The result of the two series of grooves is to provide a surface pattern, shown best in Fig. 3, wherein the grooves define diamond shaped panels 10, in rows both

encircling and extending lengthwise of the roller, and it is important also to note that the diamond shaped panels of adjacent longitudinal rows, and also of adjacent encircling rows intermesh with, or overlap each other, and thus there will be no bumping, bouncing or vibration due to the rolling contact of rollers with the wood ply.

In the present preferred form of construction, using a roller having a diameter of eight inches, the grooves in each series are square cut, located one-fourth inch apart, are one-tenth inch wide and thirty-five thousandths of an inch deep, and have a lead of six inches to each turn about the roller. These dimensions, however, might be varied to suit conditions without departing from the spirit of the invention.

In use of rollers of this kind, the glue is picked up from the glue pots, then wiped off to the required film thickness by the rollers 6 and 7, and is then transferred to the surface of the wood ply 3 in a pattern or patterns complementary to those of the rollers, as will be understood by reference to Fig. 4. On rotation of a roller through the glue supply, each groove therein will be filled with glue and there will be a thin film left over the surface of each diamond shaped area. The glue transfer to the wood ply or sheet leaves a glue pattern or crossed lines 12 and 13 with heavy areas of glue as at 14 where the lines of glue cross. The film of glue applied to the areas within the crossing lines acts to draw and spread the lines of glue so that a very effective glued connection between plies of wood will result.

The particular advantage in this glue pattern resides in the fact that there are no open channels or passages defined between lines of glue, either across or lengthwise of the panel, that are open to the edges of the panel, and thus no moisture can enter between plies. Each diamond shaped area on the wood ply as defined by the glue pattern, is definitely sealed and thus in dividing a panel by cross cuts or longitudinal cuts, the sealing effect about the edges of the pieces is still maintained.

Rollers of this character may be made in var-

ious sizes and of various materials. In the present instance, it has a surface layer of rubber laid on a metal core, with the grooves formed by a grinding operation. However, it is possible to mold the pattern either in rubber or to form it in metal.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:

1. In a glue applying machine, a glue container, a rotatably mounted glue transfer roller supported with a surface thereof in contact with glue in the container, and a glue wiping member operable in contact with the glue transfer roller for the removal of excess glue and to leave a film on the roller of pre-determined thickness, said transfer roller having a surface pattern formed by grooving in the roller, said grooving comprising two series of spaced, parallel, square-cut and relatively narrow channels, one series of channels extending spirally of the roller in a right hand turn, and the other series of channels extending spirally of the roller in a left hand turn with the channels of the two steps crossing each other in a manner to define diamond-shaped surfaces of substantial area that extend in rows lengthwise of and encircling the roller.

2. In a glue applying machine, a glue container, a rotatably mounted glue transfer roller supported with a side surface thereof in contact with the glue in said container, and a wiping roller operable in contact with the glue transfer roller to remove excess glue, said transfer roller having a surface pattern formed by two series of spaced, parallel channels, one series of channels extending spirally of the roller in a right hand turn, and the other series of channels extending spirally of the roller in a left hand turn, with the channels of the two series crossing each other at an obtuse angle and defining between them diamond-shaped areas that are approximately three times the width of the channels, and which extend in rows lengthwise of and encircling the roller.

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