June 14, 1938. A. ELMENDORF 2,120,642

METHOD OF VENEERING

Filed March 11, 1935

Fig. 1.

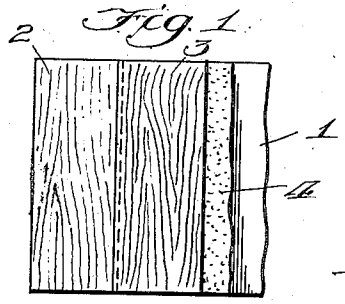


Fig. 2.

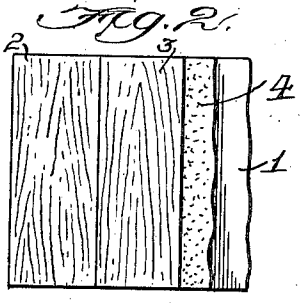


Fig. 3.

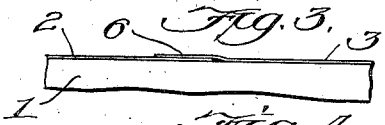


Fig. 4.

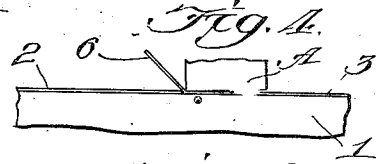


Fig. 5.

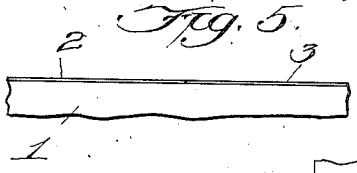


Fig. 6.

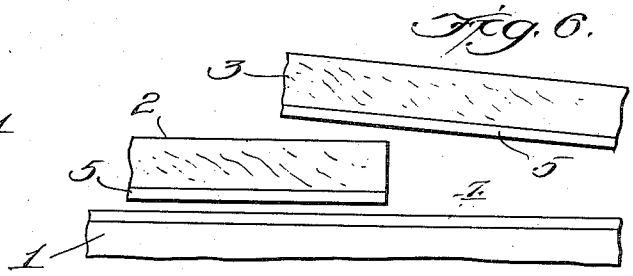


Fig. 7.

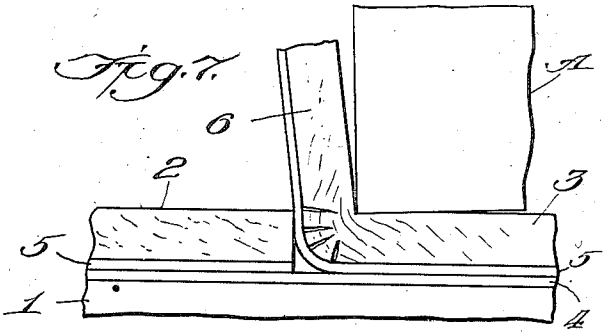


Fig. 8.

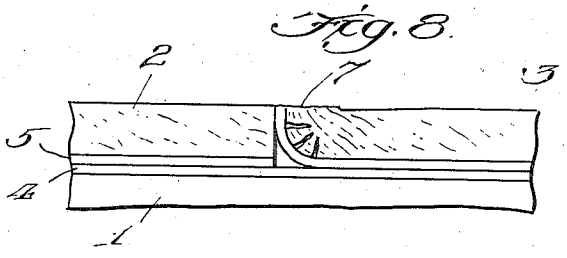
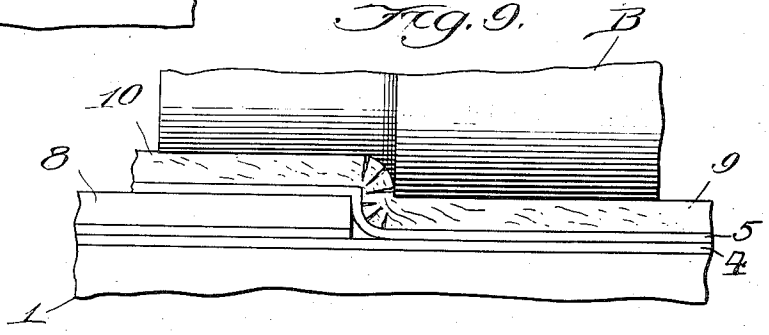


Fig. 9.



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2,120,642

METHOD OF VENEERING

Armin Elmendorf, Chicago, Ill.

Application March 11, 1935, Serial No. 10,450

2 Claims. (Cl. 144—309)

It is very difficult to glue sheets of wood veneer edge to edge by hand, because veneers are usually not flat but contain bulges which must be flattened out in the laying of the veneers. If, after the first sheet of veneer has been attached to a wall or other supporting base, a second sheet is placed beside it in edge contact therewith and is caused to become attached to the support along such edge, a closed butt joint may be produced but it may then be impossible to flatten out the rest of the second sheet. In other words, if one long edge of a sheet of veneer is held fixed, perhaps no amount of pressing or rolling of the body of the sheet can flatten it without producing folds or wrinkles to compensate for excess length or width of material in the bulging areas. If, on the other hand, the second sheet of veneer is applied to the base member in the same way as the first sheet, namely, in such a manner that the material of the sheet is free to adjust itself without regard to any fixed predetermined position for one of its long edges, the attachment may be effected without wrinkling or folding. This may be done if the second or any succeeding sheet of veneer is caused to overlap the first or immediately preceding sheet slightly, in order to permit the sheet that is being glued in place freely to adjust itself, in the smoothing process, without producing an open gap between it and the preceding sheet. In that case, however, there remains the problem of trimming the meeting edges of the veneers or, at least, one edge of each pair to get rid of the overlaps.

The present invention has to do particularly with the laying of comparatively thin veneers and may be said to have for its object to make it possible easily and quickly to join such veneers edge to edge in the process of gluing them to a base, without leaving open joints or overlaps.

I have found that when wood veneers are thin enough, a sheet may be laid beside and in slightly overlapped relation to a sheet already attached to a base, and be pressed down into the angle between the adjacent edge of the first sheet and the base sufficiently to leave a satisfactory butt joint between the two sheets upon the removal of the marginal strip of the second sheet that remains beyond the line of the joint. In the case of very thin veneer the grain in the second sheet may be transverse to the adjacent edge of the first sheet. Viewed in one of its aspects, the present invention may be said to have for its object to put this discovery to practical use by creating conditions which will cause a sheet of wood veneer to be successfully fixed to the base and the said marginal strip to be prepared for removal in a simple and easy way, in the process of smoothing out a sheet of veneer beside and slightly overlapping a sheet already on the base.

The consummation of this latter object is made possible by a further discovery which has to do with a way of preparing veneers and supporting bases therefor in a manner not only to bring about effective adhesion of the veneers to the base, but to make the work of attaching the veneers simple and, further, to permit the veneers themselves to be coated with adhesive at the factory; the adhesive strengthening the veneers so that they will not break or tear easily in handling, and being of such a character that the veneers may be shipped long distances and be applied in their final positions of use long after the application of the adhesive to the veneers. I have found that a glue consisting essentially of rubber latex possesses all of the properties required for my purpose.

Such a glue may be applied to the veneers long before they are to be used and at points remote from the places where they are eventually used; because the latex, after drying, will not adhere to any ordinary surfaces and veneers coated therewith in the factory may therefore be shipped in rolled or stack formation to remote points and be used where and when required. A dry latex film is tough and elastic and therefore strengthens and holds together a sheet of veneer for which it constitutes a backing. When a wall or other base is coated with a similar adhesive, which is then allowed to dry, the coated side of a sheet of veneer may be placed in contact therewith without becoming bonded thereto unless pressure is applied. It usually is advisable to reduce the affinity for each other of the two glue coatings upon coming in contact with each other, by adding to the latex a substance to reduce what may be termed the "grabbiness" of the latex; thereby permitting a sheet of coated veneer to be pulled loose more easily from a glue-coated base, as must be done from time to time in fitting it in place, than would otherwise be the case. A small amount of casein, or of a certain gum or gums, for example, added to the rubber latex will produce this effect.

In accordance with my invention, I coat the veneers with such rubber latex adhesives which, together with similar adhesives on the surfaces to receive the veneers, are allowed to dry. Then in facing a wall or other base with very thin wood veneer, the first sheet of veneer is applied thereto and pressed or rolled to smooth

it and cause it to adhere. The second sheet is then laid beside the first, being caused to overlap it slightly. Since the adhesive coatings are in such a condition that they will not adhere to wood upon coming in contact therewith, the part of the second sheet that overlies the first sheet does not become bonded thereto when the second sheet is smoothed and pressed to secure it to the base. During this smoothing and pressing operation, the material of the second sheet is forced into the angle between the adjacent edge of the first sheet and the surface that is being faced with the veneers. The wood may break more or less along the line of the adjacent edge of the first sheet and cause the marginal strip that originally overlay the first sheet to become partially separated from the body of the second sheet. The body of the second sheet is very securely attached to the base all the way across the same to the very edge of the first sheet, while the marginal strip on the second sheet, outward from the joint, stands free. This strip may now easily be detached by running an ordinary scraper along the joint, for example, leaving a closed butt joint between the two sheets, with perhaps a very slight roughness in the second sheet where it meets the first sheet. Any roughness along the joint, which may exist, can be removed sufficiently, by lightly sanding the joint, to provide a satisfactory finish. In the case of veneers having a thickness of one-hundredth of an inch or more, I prefer to employ a scraper or other blade-like member, having a sharp corner, to smooth and press the second sheet. This sharp corner serves effectively to drive the wood of the second sheet sharply down beside the adjacent edge of the first sheet. With veneers thinner than one-hundredth of an inch a pad or soft roller will suffice to smooth out the second sheet and, as well, press it down into the angle along the adjacent edge of the first sheet. My invention is applicable to what may be termed thin and very thin veneers, the permissible thickness varying with the kind of wood. Ordinarily the veneers should not be much thicker than about one-fiftieth of an inch. In some instances, however, I have obtained fair results with veneers of twice that thickness.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is an elevation of a fragment of a panel illustrating the first step in the making of a butt joint between a sheet of veneer and a sheet already in place on the panel; Fig. 2 is a view similar to Fig. 1, showing the completed joint; Fig. 3 is an edge view, on a larger scale, showing a fragment of the panel as it appears in Fig. 1; Fig. 4 is a view similar to Fig. 3 showing the second sheet of veneer to be laid being pressed down by a blade; Fig. 5 is a view similar to Fig. 3, with the parts in the same conditions as in Fig. 2; Fig. 6 is an exploded edge view on a greatly magnified scale, showing a fragment of the panel and of the two sheets of veneer of Figs. 1 and 2 about to be secured to the panel; Figs. 7 and 8 are views on the same magnified scale as Fig. 6, but similar to Fig. 4 and Fig. 5, respectively; and Fig. 9 is a view similar to Fig. 7, illustrating the use of a pad or soft roller instead of a blade or other rigid member, in the laying of extremely thin veneers.

Referring to the drawing, 1 represents a wall or other base member to be faced with sheets of thin wood veneer meeting edge to edge; this member being illustrated as being a panel or wall having a flat surface to receive the veneer. 2 and 3 are sheets of thin wood veneer adapted to be glued to the member 1. There may, of course, be any number of sheets of veneer. The member 1 and the backs of the veneers are coated with thin layers of adhesive, indicated at 4 and 5, respectively. The adhesive is composed entirely, or almost so, of rubber latex which has been allowed to dry after application. If desired, a small amount of casein or other suitable substance, such as a gum, may be mixed with the latex to give it body and make it slower in effecting a union when two coatings thereof are brought into engagement with each other.

The first sheet of veneer, the sheet 2, is placed against the coated face of the base member 1 and is smoothed out and pressed until a good bond between the same and the base member is effected. Then the second sheet of veneer, the sheet 3, is laid against the base member beside, but slightly overlapping the sheet 2, as indicated in Figs. 1 and 3, and is smoothed and pressed against the base member as in the case of the sheet 2, until it is secured in place. To that area of the second sheet lying just beside and along the adjacent edge of the first sheet, pressure must be applied in such a manner as to cause the material of the second sheet to be bent sharply into the angle beside the edge of the first sheet. In the case of thin veneers of more than one-hundredth of an inch in thickness the pressure along the edge of the second sheet should ordinarily be applied by a hard instrument as, for example, a scraping tool, such as the tool A in Figs. 4 and 7. The edge of the first sheet serving as a guide, as the tool is moved over the sheet 3, the sharp corner of the tool forces the material of the latter sheet down into the angle between the edge of the sheet 2 and the face of the base member; the sheet 3 being given such an abrupt bend that it is ruptured or torn, more or less, as best shown in Fig. 7, along the line of the bend. The tearing of the wood may be so complete that the marginal strip 6, namely, the part of the sheet 3 that overlaps the sheet 2, is substantially separated from the body of the sheet. In any event, upon setting the scraper on the veneer, with its edge extending crosswise of the joint, and pushing it along the joint, the marginal strip is readily cut off. In the case of most woods the separation of the strip 6 from the body of the sheet occurs in approximately the plane of the upper or outer face of the latter, leaving only a slight roughness that can be eliminated sufficiently for all practical purposes by a light sanding. It should be noted that the narrow marginal area or band 7, shown in Fig. 8, of the sheet 3, extending along the adjacent edge of the sheet 2, in the finished product, presents a grain which normally would have been edge grain had the sheet, before bending, been cut along the proper plane to expose the face or surface 7. However, since the wood is very thin, the width of this little marginal band constitutes hardly more than a mere line and does not mar the appearance of the surface. Whereas in the highly magnified view, Fig. 8, it would appear that the joint is far from a perfect one, it can be seen that, when the

scale is reduced to more nearly a normal size, as in Fig. 5, the joint appears as a substantially perfect butt joint between two accurately fitting meeting edges on two adjacent sheets of veneer.

In Fig. 9 the sheets of veneer 8 and 9, assuming the scale to be the same as in Figs. 7 and 8, are thinner than the sheets 2 and 3. In the case of this extremely thin veneer it is not necessary to use a hard tool or implement to press the material of the sheet 9 down into the angle beside the adjacent edge of the sheet 8, but the pressure of a pad or a soft roller B is sufficient to accomplish the desired end. In this instance the marginal strip section 10 of the sheet 9 may remain flat upon the sheet 8, the pad or roller producing an S-bend in the sheet 9. In other words, while a pad or other device may be moved lengthwise of the sheet 9 with the edge of the sheet 8 as a guide, but not overlapping the sheet 8, in order to press the material of the sheet 9 down into contact with the edge face of the sheet 8, this is not necessary when the veneers are very thin or have a thickness of, say, less than one-hundredth of an inch. In the case of these very thin veneers there is probably less rupturing or tearing of the wood during the process of pressing the second sheet down into the angle beside the adjacent edge of the first sheet than there is with the thicker veneers. However, the wood is so thin that the marginal strip 10 can easily be cut off, in the manner heretofore explained, by means of an ordinary scraper, or the like, used somewhat in the manner of a shovel.

While I have described with particularity what I believe to be the best form of my invention, I do not wish to be limited in all respects to the details specifically pointed out, but intend to cover all variations of the specific method disclosed which come within the definitions of my invention constituting the appended claims. For example, viewed in one of the aspects of the present invention, the important thing is that what I have termed the second sheet be securely adhered to the underlying base in close contact with the adjacent edge of the first sheet, without leaving any open joint after the free marginal strip has been removed, and it is of lesser importance how the glue coatings are disposed and of what the particular glues are made; it being obvious that any types of glues and any disposition of glue coatings over the various surfaces to be united, which will accomplish the purposes sought, come within my invention.

I claim:

1. The method of producing a butt joint between thin wood veneers in the bonding of the same to a supporting base, which consists in coating such base and a plurality of sheets of such veneers with an elastic glue that will not adhere to wood when brought in contact therewith in a dry condition but may be caused to effect a union with similar glue under pressure, drying such glue, pressing the coated side of one of said veneers against the coating on said base, laying a second of said sheets on the said base beside the first sheet while the adhesive on the second sheet remains dry, with a marginal portion overlapping the first sheet, pressing the material of the second sheet into the angle between the adjacent edge of the first sheet and said base, and then removing the marginal strip of the second sheet that initially overlay the first sheet.

2. The method of producing a butt joint between thin wood veneers in the bonding of the same to a base, which consists in coating such base and a plurality of sheets of such veneers with a rubber latex adhesive and permitting the adhesive to dry, bonding one of said sheets to said base, laying a second sheet of the veneer beside the first and slightly overlapping the same while the adhesive on the second sheet remains dry, pressing said second sheet against said base and into the angle between the adjacent edge of the first sheet and said surface with sufficient force to substantially rupture the second sheet along said edge, and then removing the free marginal strip of the second sheet along said edge.

ARMIN ELMENDORF.