

UNITED STATES PATENT OFFICE.

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VENEERING PROCESS.

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Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, FRANK V. TISCHER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Veneering Process, of which the following is a specification.

Veneer which has been put on in the ordinary way is very likely to be unsatisfactory; sometimes it bulges away from the core (the piece covered by the veneer); the polished surface very often, in the vernacular of the trade, goes "dead." In such cases close examination reveals the fact that the surface is covered by innumerable minute cracks, appearing in streaks or spots, which are found to take the form of the marking of certain portions of the grain in the veneer. Frequently short cracks or gaps appear. These, and other imperfections, are due to one or more of several causes: the great amount of moisture contained in the glue swells both veneer and core; but, because of the difference in their thickness and texture, being usually dissimilar woods, the swelling is unequal. Therefore, as the moisture dries out the shrinkage is unequal. This is shown by the fact that a piece of wood veneered on one side only always warps. But when measures are adopted to prevent warping, such as veneering both sides, the unequal shrinkage is certain to produce strains which frequently result in the imperfections above described.

Another cause probably resides in the air trapped in the pores of the wood. This is seen to be plausible when it is recalled that a rather thick layer of glue, the core and veneer usually being coated, is confined between the veneer and core, which, not being able, when the veneer covers much of an area, to escape is forced into the pores of the wood. Naturally, air contained in the pores of the core is compressed to make room for the glue. Owing to the thinness of the veneer the air compressed in its pores probably escapes in course of time. The moisture probably remains in the glue for a long time. Moreover, glue being very hygroscopic, it is possible that in moist weather it becomes soft and while in this condition it is forced through the pores of the veneer by the compressed air in the core. The fact that imperfections in the veneer frequently do not develop until a

long time after it is put on may be due to the air taking a long time to escape from the pores of the veneer; so long as there is pressure in the pores of the veneer the pressure in the core is neutralized. It is possible that in some cases chemical action takes place which results in minute explosions and disruption of the veneer.

Whatever the causes of trouble with veneer are they are eliminated by my process, which is as follows: The core is given a thick coat of glue which is allowed to become thoroughly dry; twenty-four hours is usually long enough for the glue to dry, although it may be allowed a longer time if preferred. After the glue on the core is dry the veneer is given a coat of glue and applied to the core; it is then subjected to pressure in the usual or in any suitable manner, until the glue is dry. It is preferable to apply glue of rather stiff consistency to the core, and of rather fluid consistency to the veneer.

The glue applied to the core has an opportunity to enter the pores of the wood, capillary attraction assisting in its absorption. Obviously, there can be no compressed air under the glue, nor, if sufficient time is allowed for drying, will there be any moisture. The pores of the core will be entirely filled with glue. When the veneer, having a coat of fresh glue on its under side, is applied, if there is any compression of air it is in the pores of the veneer alone. There is but slight tendency, however, to compress air in its pores, because of the comparatively thin stratum of fresh glue to be disposed of. Owing to the affinity of glue for moisture the moisture in the fresh glue on the veneer is absorbed by the dry glue on the core, thereby causing it to amalgamate with the glue on the veneer and produce perfect adhesion. The moisture is so quickly absorbed by the dry glue on the core that comparatively little of it enters the veneer. Moreover, as there is but the moisture contained in one layer of glue, as against two layers in the old process, there is but little tendency to swell the core or veneer; hence there is correspondingly little strain due to unequal subsequent shrinkage. This is shown by the fact that a piece of wood veneered by my process, though veneered on one side only, retains its original shape; *i. e.*, it is not warped by the veneer.

While my process is especially applicable

to veneering of the higher class; *i. e.*, where a thin layer of costly or ornamental wood is applied to a comparatively thick core, it is obvious, and I wish it understood, that it is valuable for other uses; *e. g.*, gluing two pieces of equal thickness and similar wood together. Allowing the glue to dry on the first piece restores it to its normal size. Then when the piece coated with fresh glue is placed in contact with it the moisture in the fresh glue is so quickly absorbed by the dry glue that there is little if any tendency for the second piece to swell; and what little of such tendency there may be is counteracted by adhesion, and by the pieces being under pressure while drying.

Having described and explained my process, I claim:

1. The process of veneering consisting of applying a coat of glue to the core and permitting it to dry, after which the veneer is served with a coat of glue, its glue coated side then being placed in contact with the

glue coated side of the core, the veneer and core being then pressed together and kept under pressure till the glue dries.

2. The process of veneering consisting of applying a coat of liquid adhesive substance to the core and permitting it to dry, after which the under side of the veneer is served with a coat of liquid adhesive substance, placed in contact with the prepared side of the core and subjected to pressure; the substance applied to the core being such that when it is in a sufficiently liquid state it is capable of amalgamating with the substance on the veneer and causing adhesion of the veneer to the core, the substance applied to the veneer containing an agent capable of acting upon the substance on the core and rendering it capable of amalgamating as and for the purpose aforesaid.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."