

No. 784,242.

PATENTED MAR. 7, 1905.

J. E. TRAVIS.

ART OR PROCESS OF PRODUCING ARTIFICIAL WOOD SURFACES.

APPLICATION FILED OCT. 19, 1903.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

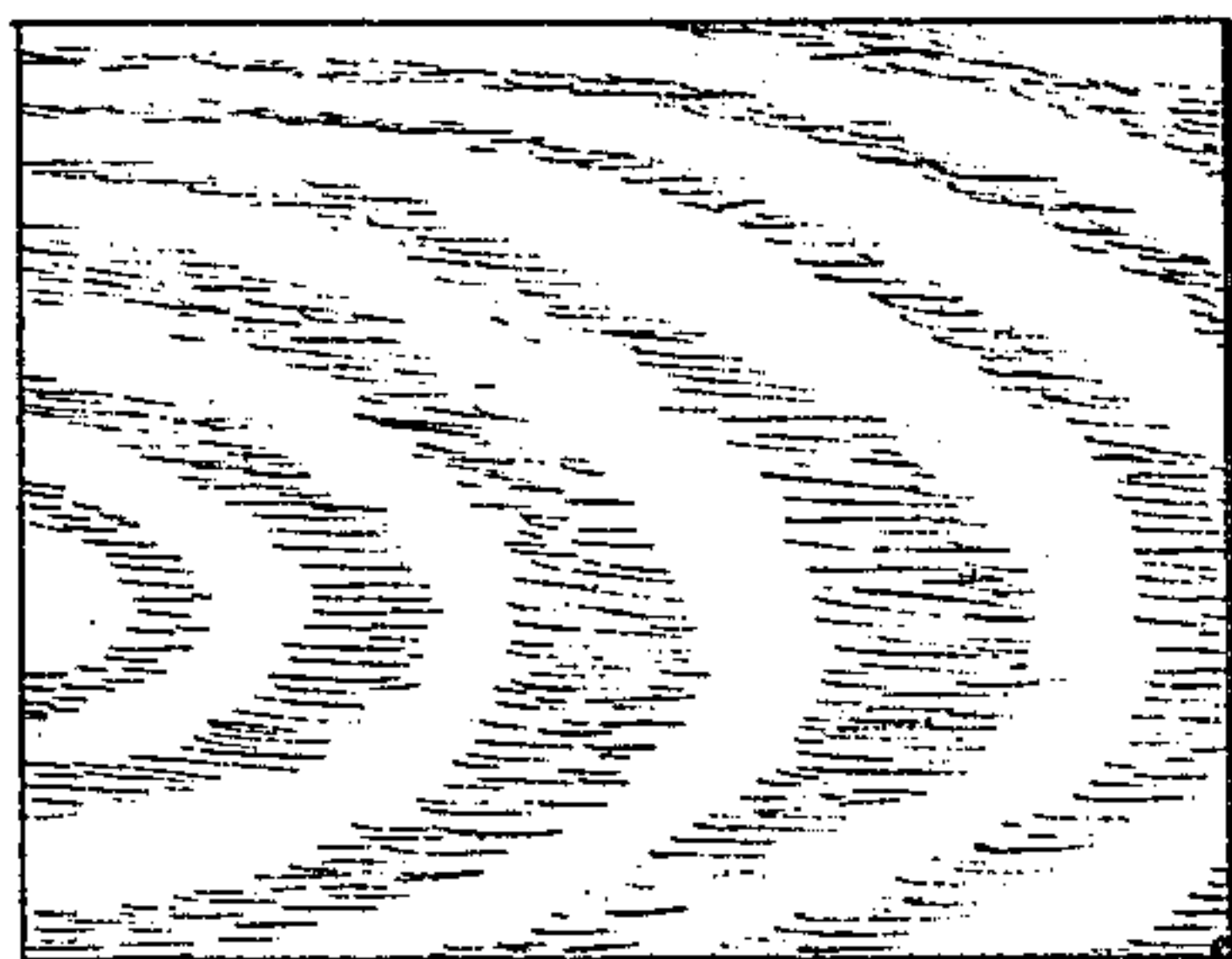


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

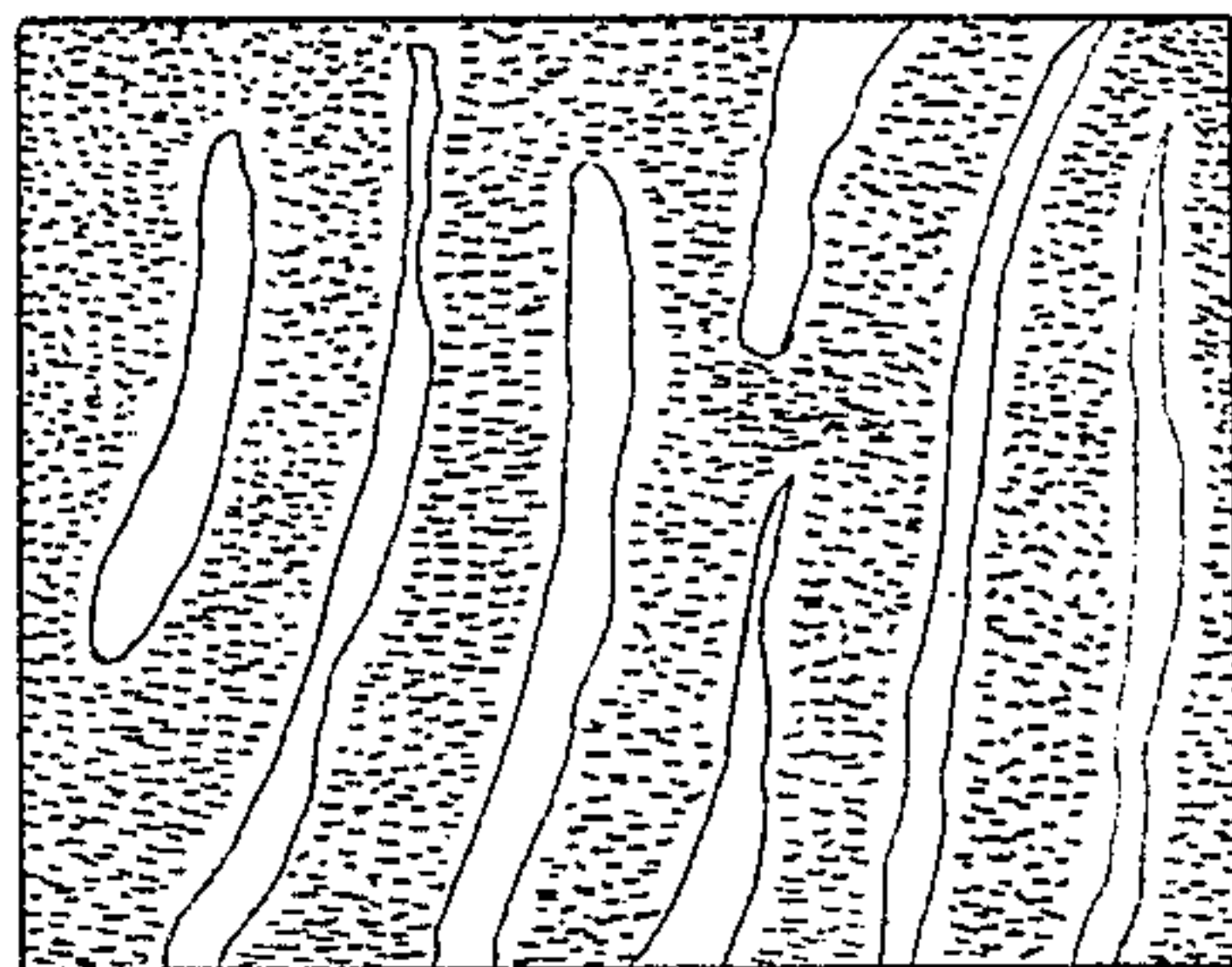
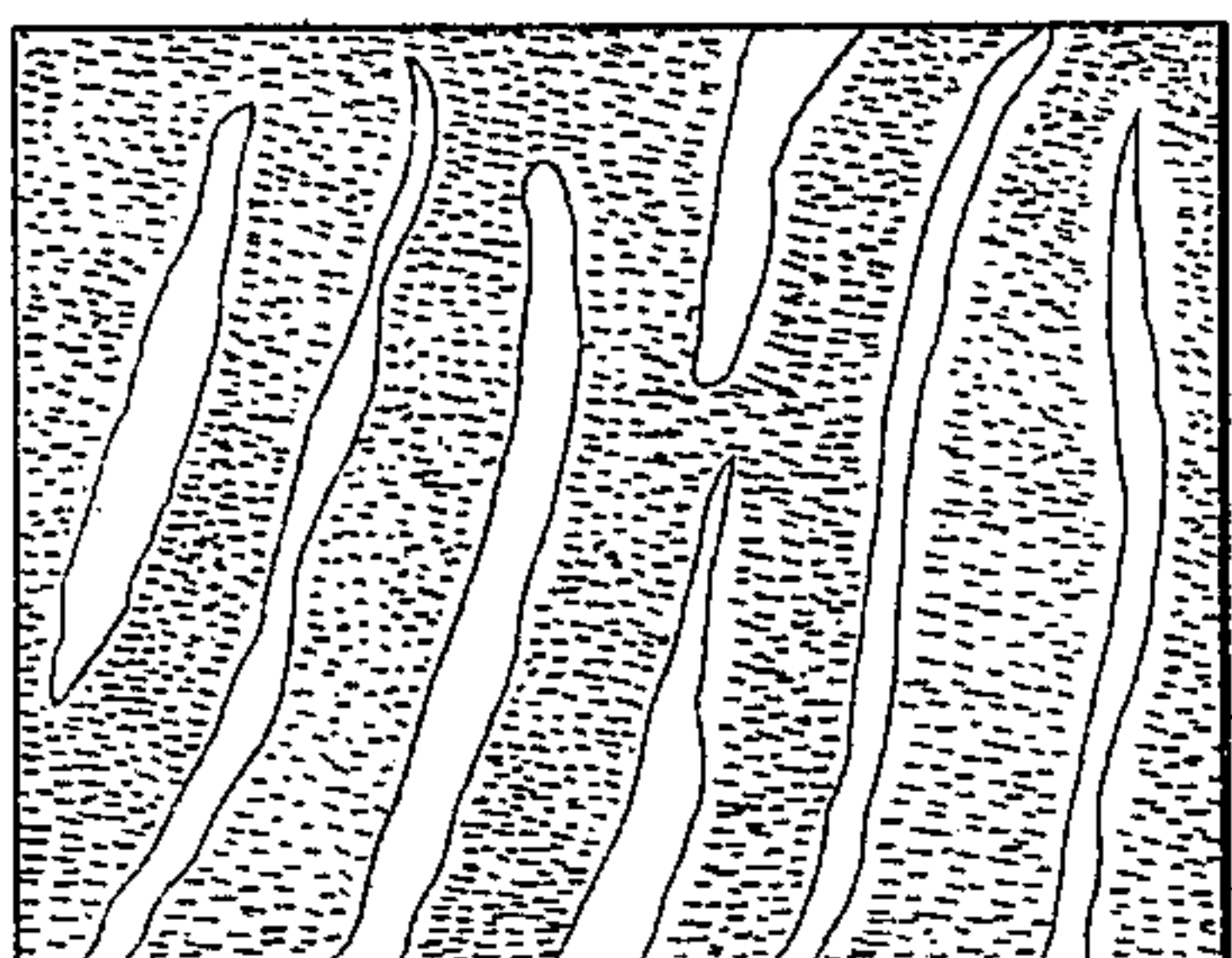
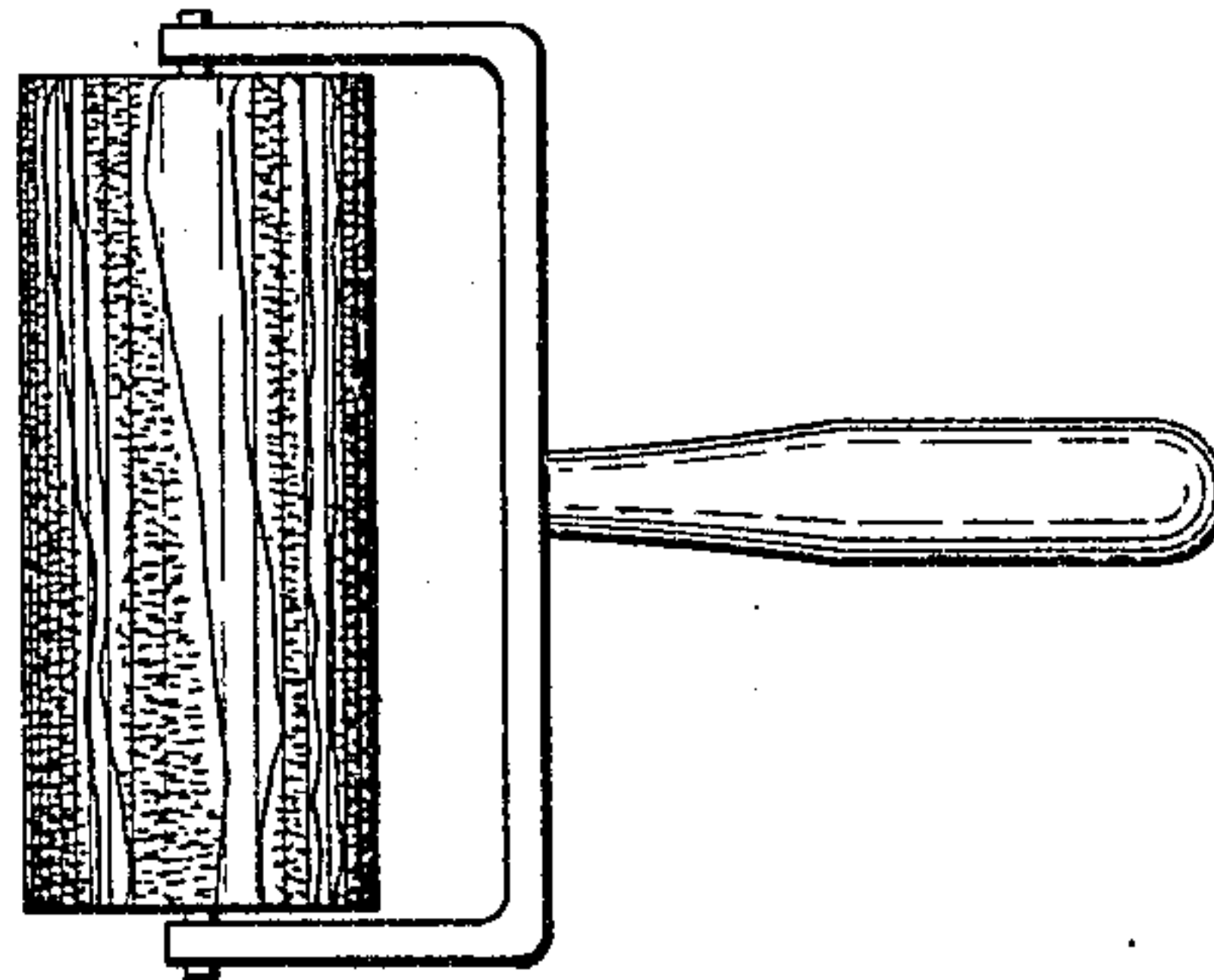
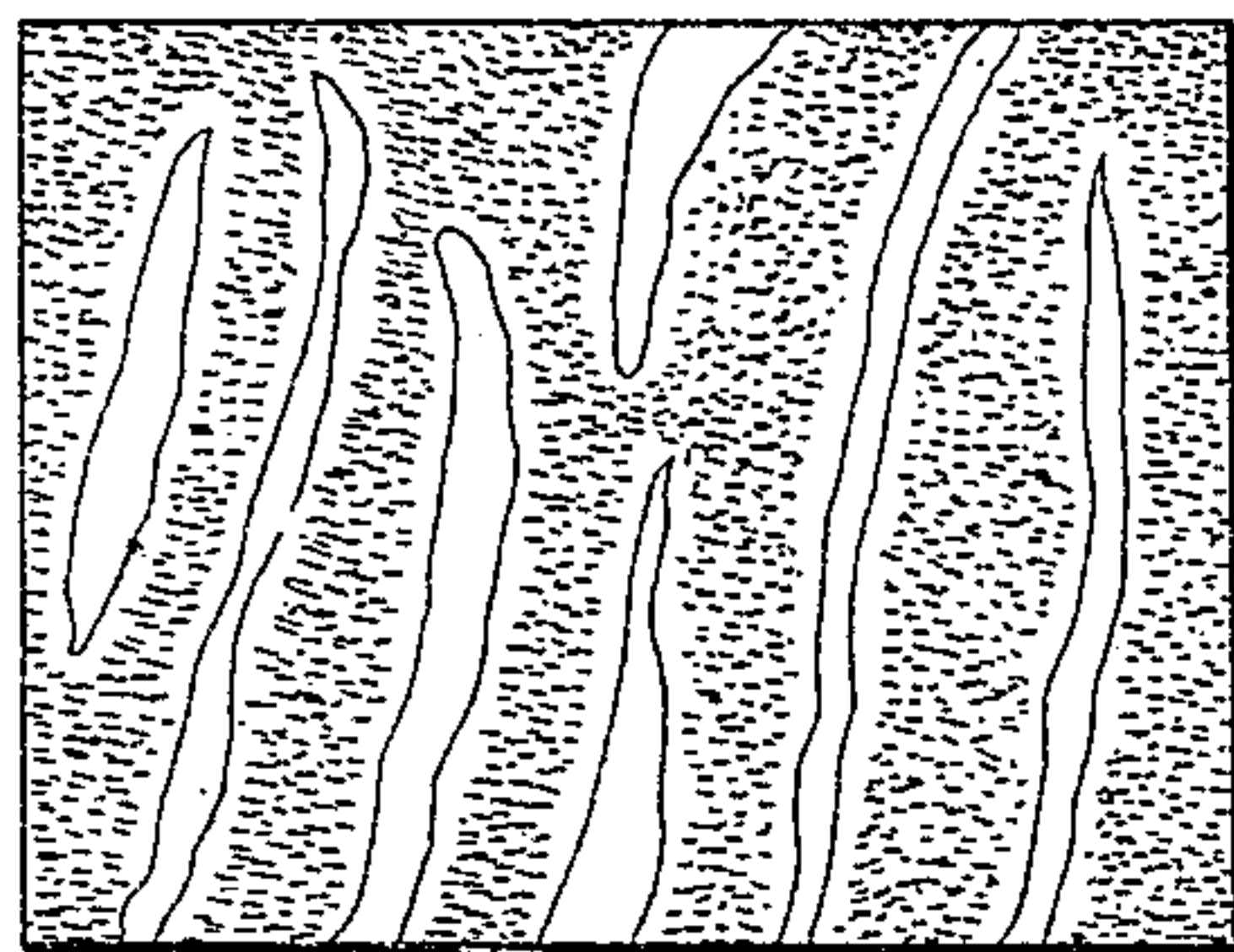


Fig. 10.

Fig. 11.

Fig. 9.



WITNESSES:

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ART OR PROCESS OF PRODUCING ARTIFICIAL WOOD SURFACES.

SPECIFICATION forming part of Letters Patent No. 784,242, dated March 7, 1905.

Application filed October 19, 1903. Serial No. 177,641.

To all whom it may concern:

Be it known that I, JAMES E. TRAVIS, a citizen of the United States, residing at Westgrove, Chester county, Pennsylvania, have invented certain new and useful Improvements in the Art or Process of Producing Artificial Wood Surfaces, of which the following is a full, clear, and exact description.

My invention relates to the general art or process of mechanical graining of wood surfaces to produce or effect thereon an imitation of the surface appearance of some other wood; but it is so extended an advance over that art as to be practically different therefrom in principle. In "graining" as commonly understood in the art the new appearance produced thereby is a mere imitation, which is obviously an imitation only of the wood surface sought to be copied thereby on a different wood.

The object of my invention, on the other hand, is the artificial production, or rather an exact reproduction, in every detail on the surface of the wood to be treated, of the natural surface appearance of another wood, including not only the outline arrangement of the pore or flake and of the pulp or grain, but the respective colors and shades of colors thereof, so that the resultant wood treated can seldom, if at all, be distinguished even by one familiar with woods from the surface of the wood copied.

My invention therefore relates, broadly, to the art or process broader than mere graining of the transference and reproduction of the natural surface appearance of one wood—for example, quartered oak—upon that of another—for, example ash, chestnut, elm, or upon plain-sawed oak—so that the resultant finished surface of the latter after the application of my process shall present not only an exact surface reproduction in appearance of the pore or its contained pulp and the flake or grain and colors of the well-known quartered oak, but also of any particular piece of such wood sought to be copied; and my invention consists of the successive steps hereinafter described constituting my new or improved process.

The best results of attempts heretofore made to produce artificially by mechanical graining or otherwise of the surface appearance of one kind of wood upon that of another have at best resulted in mere imitations and not reproductions, and all such, so far as I know and believe, have involved color-painting as a groundwork to imitate the surface appearance of the pulp and pore, the graining to imitate the appearance of the "flake" on the ground-surface, being an obvious surface effect only apparent to any one. My process involves a radically different principle. I will now proceed to describe it as applied to reproducing on plain-sawed oak an exact surface reproduction in appearance of quartered oak, or, indeed, of any particular piece of quartered oak selected to be copied and reproduced.

In the accompanying drawings, illustrating my invention so far as it is possible to illustrate it by drawings, Figure 1 is a plan view of the cut surface of a piece of plain-sawed oak, and Fig. 2 a cross-section thereof. Fig. 3 is a like view of the same when sandpapered and treated with a transparent filler, and Fig. 4 is a cross-section thereof. Fig. 5 is a plan view of the cut surface of a piece of quartered oak, and Fig. 6 a cross-section thereof. Fig. 7 is a plan view of the same when the surface has been treated to remove the pulp in the pores, and Fig. 8 is a cross-section thereof. Fig. 9 is an elevation of a grainer's roller, the soft surface of which has been passed over the etched surface of the prepared wood of Figs. 7 and 8 and taken up the natural pattern of the wood. Fig. 10 is a plan view of the prepared wood of Figs. 3 and 4 after the roller of Fig. 9 has passed over it, causing it to imitate or reproduce Fig. 5; and Fig. 11 is a cross-section thereof.

As is well known, the fibers of the oak tree extend radially outward from the center to the circumference. Usually in cutting to obtain quartered oak the tree-stump is longitudinally sawed into quarters and these quarters sawed into boards as near parallel to the direction of the fibers as possible. This method of cutting results in much waste of timber and makes this kind of sawed oak ex-

pensive; but the result is the well-known beautiful quartered-oak-surface effect, due to the irregular appearance of the light flake interspersed with and on the dark pore.

5 By my method or process I can produce that exact surface effect on plain oak, or rather plain-sawed as distinguished from quarter-sawed oak, or on elm, chestnut, or
10 ash, for example, or any other naturally uniform-colored wood of the light shades of yellow not inconsistent with or unlike the natural appearance of oak.

In carrying out my process practically I take, for example, a plank of plain-sawed
15 oak, dress it as usual by planing and sandpapering to give it a perfectly smooth surface, then apply thereto a transparent or colorless filler (such as corn-starch, flour, and soapstone) to fill up the pores of the wood
20 and make a perfectly smooth surface without affecting substantially the original ground color and grain appearance of the wood, and this is best applied by a brush and rubbed into the pores by wiping by a motion across
25 or transversely to the grain, the wiping also removing all surplus filler not embedded in the pores. The wood surface is now prepared to be further treated by the second series of steps in my process. These consist of taking a
30 selected piece of genuine quartered oak, planed and sandpapered to a level surface. This surface, as before stated, consists of flake (light) and pores (darker) fibers, and I apply thereto as evenly as possible a potash-lye so-
35 lution or an acid solution, such as muriatic acid, so as to eat out the pulp in the pores of the wood (which pores give the dark shade effects) to a depth of an eighth or a sixteenth of an inch, or thereabout, and this leaves the flake
40 (which gives the light shade effects) intact. The result is that the flake is in alto-rilievo—that is, it stands up like a plate of type or a woodcut relatively to the reduced pulp surface—and as this step leaves the former sur-
45 face somewhat rough I then remove the roughness by sandpapering. On the relatively lower or pulp surface I apply a coat of graining color the exact color of the pore of the wood, (dark.) Now taking a grainer's
50 roll, the periphery of which is covered with a thick layer of impressionable material, such as a composition made of boiled glue and glycerin, as usual, I pass this roller over the plank of so-prepared genuine quartered oak with a
55 light hand-pressure in order to impart to the covered surface of the roller, first, an inset impression of the relatively raised flake (light)

surface, and, second, to take up on the roller-surface the graining color from the pore-sur-
face—namely, that which is contained in the 60 interstices between the raised flake. The roller so prepared is then applied to the surface prepared as aforesaid of the plank of plain sawed oak, with the result that there is produced thereon not a graining imitation, 65 but an exact reproduction in appearance of the surface of the piece of genuine quartered oak used as a model. After this the resultant plain-sawed oak plank with the quartered-oak impression thereon will take any usual finish 70 commonly applied to quartered oak.

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

1. The art or process of reproducing the sur- 75 face appearance of one kind of wood upon that of another, which consists in first preparing the latter by smoothing its surface and filling its pores with a transparent filler to obtain a level surface without substantially altering its 80 natural ground effects and appearance, then preparing the surface of a piece of the wood to be copied, to form a matrix, by etching its surface to give a raised effect to the flake or figure surface and a depressed effect to the 85 pore-surface, and filling said pores with an appropriate graining color, then taking up the counterpart of said matrix-surface upon the impressionable surface of a grainer's roller, and finally using the latter to transfer the im- 90 pressions thereon to the surface of the prepared wood to be treated.

2. The art or process of reproducing upon plain-sawed oak the surface appearance of quartered oak, which consists in planing the 95 former and obtaining a perfectly smooth surface by filling its pores with a colorless filler which will not alter its natural ground effects, then preparing the surface of a piece of quartered oak, to form a matrix, by removing the 100 pulp from the pores of the wood and filling them with a suitable graining color, then taking up the counterpart thereof on the surface of a grainer's roller and finally transferring the surface impressions thereon to the pre- 105 pared surface of the plain-sawed oak first mentioned.

In testimony whereof I have hereunto affixed my signature this 8th day of October, A. D. 1903.

JAMES E. TRAVIS.

Witnesses:

HENRY T. GULLMANN,
JOSEPH ROSS.