(No Model.)

A. BRYCE.

FINISHING WOOD SURFACES.

No. 446,962. Patented Feb. 24, 1891.

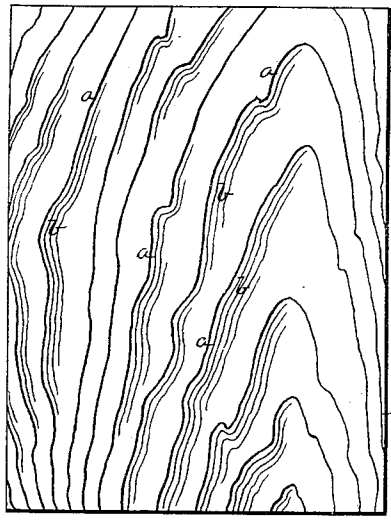
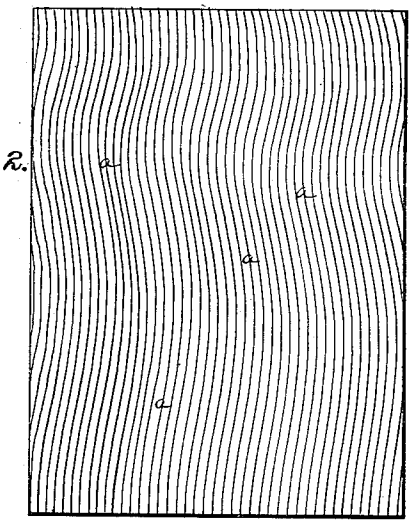


Fig. 1.

Fig. 2.



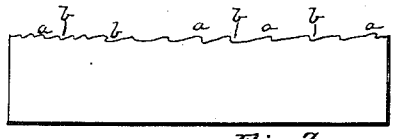


Fig. 3.

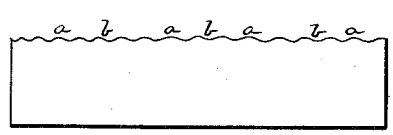


Fig. 4.

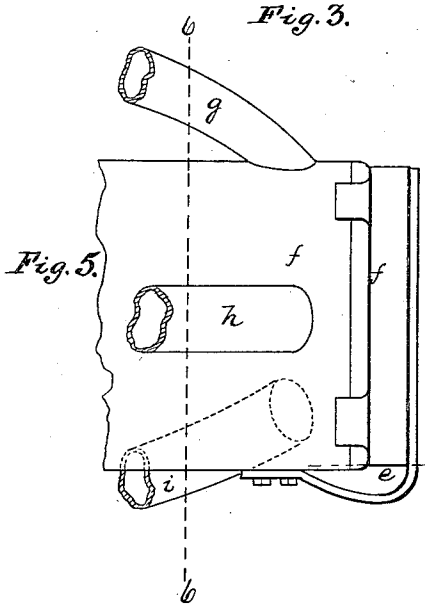


Fig. 5.

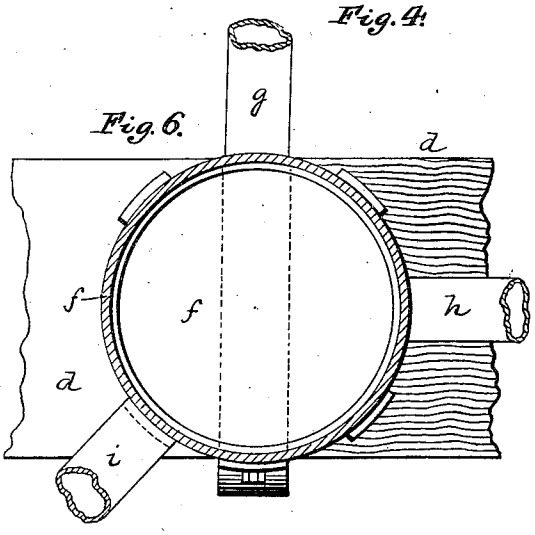


Fig. 6.

WITNESSES:

J. N. Cooke

Robt. D. Fetters

INVENTOR

Andrew Bryce

BY James F. Ray

ATTORNEY.

UNITED STATES PATENT OFFICE.

ANDREW BRYCE, OF PITTSBURG, ASSIGNOR OF ONE-HALF TO JOHN A. McCONNELL, OF ALLEGHENY, PENNSYLVANIA.

FINISHING WOOD SURFACES.

SPECIFICATION forming part of Letters Patent No. 446,962, dated February 24, 1891.

Application filed June 26, 1890. Serial No. 356,789. (No model.)

To all whom it may concern:

Be it known that I, ANDREW BRYCE, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Finishing Wood Surfaces; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the finishing of wood surfaces, its object being to form a wood surface which will bring out into clear relief the natural grain or fiber of the wood. It is known, of course, that practically all wood has a grain or fiber and between such grain or fiber a filling of softer or porous material, which is generally known as "pith," and the ordinary planed and polished wood surfaces expose to view the surface as it appears in taking a section through both the fiber and pith of the wood.

The mass of surface-finishing processes heretofore employed have had for their object the closing up of the pores of the pithy portion of the surface of the wood, the sawing and finishing of the surface, cutting through the fibers or growths of the wood body, and so exposing the softer portions, which are liable, on account of their more porous nature, to rapid disintegration or decay when so exposed to the atmosphere, and also are liable to catch and hold the dirt, so that in order to impart a durable surface it is necessary to fill up these pores of the wood with paint, varnish, or other filling material, as employed in the many different processes for finishing wood surfaces.

The special object of my invention is to remove this pithy portion of the surface of the wood and bring out into relief the harder wood fibers, which, as they stand above the softer portions of the wood, are enabled to take the wear, and as the pith is removed a greater surface of the fiber is exposed and the pith is protected by the fiber thus raised into relief and extending above it, so that so great a portion of varnish, filler, paint, or like for closing the pores of the wood is not required, while at the same time the grain of the wood is brought into clear relief and a very handsome finish is imparted to the wood surface, this finish, while irregular, according to the irregularity of the grain-fiber, presenting, according to the different woods treated and the grain of that wood, an infinite variety of surfaces, which, while rougher than the ordinary planed surfaces, may yet be smoothly finished, according to the fibers of the wood, and very durable.

To these ends my invention consists, generally stated, in removing the pithy or soft or porous portions of the wood between the grain or fiber, leaving the grain of the wood raised in relief above the body thereof, this being generally accomplished by the employment of a properly regulated and applied blast of sand or other abrading material, which will cut out such pithy or soft portions of the wood, while it has but little action upon the harder and fibrous portion thereof.

It also consists in a wood body having the pithy portion of the surface thereof removed therefrom and having the fibrous portion raised in relief above the body thereof.

To enable others skilled in the art to practice my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figures 1 and 2 are face views of wood surfaces in accordance with my invention. Figs. 3 and 4 are end or edge views of the surfaces so finished. Fig. 5 is a view of the mouth-piece of sand-blasting apparatus suitable for practicing my invention; and Fig. 6 is a cross-section on the line 6 6, Fig. 5.

Like letters of reference indicate like parts in each.

In the forming of wood surfaces for the finishing of any desired wood-work it is of course customary by means of saws, planes, or other suitable tools to bring the surface of the wood to a flat, curved, or other desired surface corresponding in shape to the article or surface to be formed, whether it be for any article of furniture, the wood-work of apartments, such as doors, windows, panels, molding, or like uses. After the wood has been brought to the desired shape, that illustrated in the drawings being the ordinary flat surface, by any suitable means I remove the pithy portion of the wood-surface, leaving the grain or fiber in

relief, and to accomplish this I preferably cause the impingement of sand or like abrading material upon the surface with properly-regulated force to cut out and remove such softer or pithy portions of the wood. This abrading action on the wood surface leaves the grains, fibers, tubes, &c., raised in relief above the body of the wood. This is illustrated in the accompanying drawings in Figs. 1 to 4, showing in Figs. 1 and 3 a wood of fine grain or fiber having the softer portions removed in the manner above described, while Figs. 2 and 4 show a like surface of coarse grain or fiber having the softer or pithy portions thereof removed in the same manner and the grain or fiber raised in relief. In said figures, *a a* represent the grain or fiber of the wood thus raised in relief, while the depressions between them (see *b b*, Figs. 2 and 4) illustrate the spaces from which the pith or softer portion has been removed. By this process the wood surface reveals the natural fiber of the wood raised up in clear relief, while at the same time, as it cuts away the softer portions from between the grain or fiber, it exposes a greater portion of the hard fiber of the wood, the only pithy or soft portion exposed being that at the bases of the grain or fiber, which portion is protected by the raised grain or fiber extending above it. The wood surface therefore presents to the eye an irregular or carved appearance, varying according to the grain or fiber of the wood, and bringing into relief the almost innumerable differences of surface, according to the different woods treated, the process therefore enabling me to produce a surface very much enhanced in beauty over the ordinary plain surface produced by planing and polishing. At the same time as the sand or like blast employed acts upon the surface of the grain or fibers it smooths and polishes the sides or faces thereof, imparting to the finished surface a smoothness of finish extending over the different fibers so raised in relief and producing a finished surface, in which the ribs or ridges formed by the grains are all smoothed and finished, and may, if desired, be employed without any surfacing.

At the same time as the only portion of the soft or pithy portion of the wood exposed is that lying at the bases of the fibers any finishing substance—such as paint, varnish, filling, or the like—will more perfectly seal and close the same, since so much of the pithy portion of the wood is not exposed and the grains or fibers stand up above the same, and the varnish or like protecting substance is supported by the harder grain or fiber in such way that a thick coat of varnish will act to perfectly seal the wood and protect it from the action of the atmosphere, any such surfacing being employed according to the use to which the wood is to be applied.

In the treatment of the wood the sand or other blast acts, of course, principally on the softer portions, so that there is not the cutting away of the harder body thereof as occurs in the ordinary sawing or planing of the wood, and the weaker or softer parts of the wood will thus lie back of the harder growths thereof, which project out on the surface and protect the softer body from deterioration by the atmosphere, while at the same time the liability of injury to the surface of the wood from expansion and contraction, which in the ordinary surface often causes the cracking or breaking away of the softer or pithy portions of the wood is reduced to a minimum.

In Figs. 5 and 6 of the drawings is shown the mouth-piece of apparatus suitable for practicing my invention, and as any suitable form of sand or like blasting apparatus may be employed for the purpose I will simply describe the same generally. The wood to be treated, as shown at *d*, is fed over any suitable guideway *e* past the mouth *f* of the abrading apparatus, the board, block, timber, &c., to be treated being preferably of as great width as the mouth *f*, so as to prevent the escape of the sand. Communicating with this mouth *f* are any desired number of sand-blast pipes, such as *g h i*, through which the sand or other abrading material may be projected upon the wood passing the mouth-piece in any desired quantity and at any regulated speed, as may be found desirable. For the purpose of acting upon the pithy portion of the wood I prefer to project the sand against the same at one or more angles, as shown.

In practicing my invention with the apparatus above described the wood to be finished is fed across the mouth-piece *f* over the guideway *e*, being held close to that mouth-piece in any suitable way, and the blast or blasts of sand or other abrading material cause the same to strike against the surface of the wood in the manner above described.

It is evident, of course, that one, two, or any suitable number of blast-pipes may communicate with the mouth-piece, these pipes being arranged to strike against the wood surface at any desired angle, and the blast from the several pipes being so regulated as to exert a force sufficient to abrade or cut away the pithy portions without destroying the fiber or grain, and at the same time to polish and finish the surface of the fiber or grain. The process may be employed in finishing any form or shape of wood prior to constructing the articles of furniture or wood-work therefrom, or may be applied to finished wood-work, the abrading apparatus being in that case properly mounted, so that its blast or blasts may be brought directly against the surface to be treated.

The wood surfaces treated in the way above described have thus the grain or fiber raised in relief, imparting to the surface of the wood the beauty and variety of finish, and having all of the advantages above described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The herein-described method of finishing

wood surfaces, consisting in removing the soft or pithy portions of the wood surface, leaving the grain or fiber thereof raised in relief above the body thereof, substantially as and for the purposes set forth.

2. As a new article of manufacture, a wood body having the pithy portion of the surface thereof removed, and having the grain or fiber extending in relief above the body of the wood, substantially as and for the purposes set forth.

In testimony whereof I, the said ANDREW BRYCE, have hereunto set my hand.

ANDREW BRYCE.

Witnesses:
JAMES I. KAY,
J. N. COOKE.