

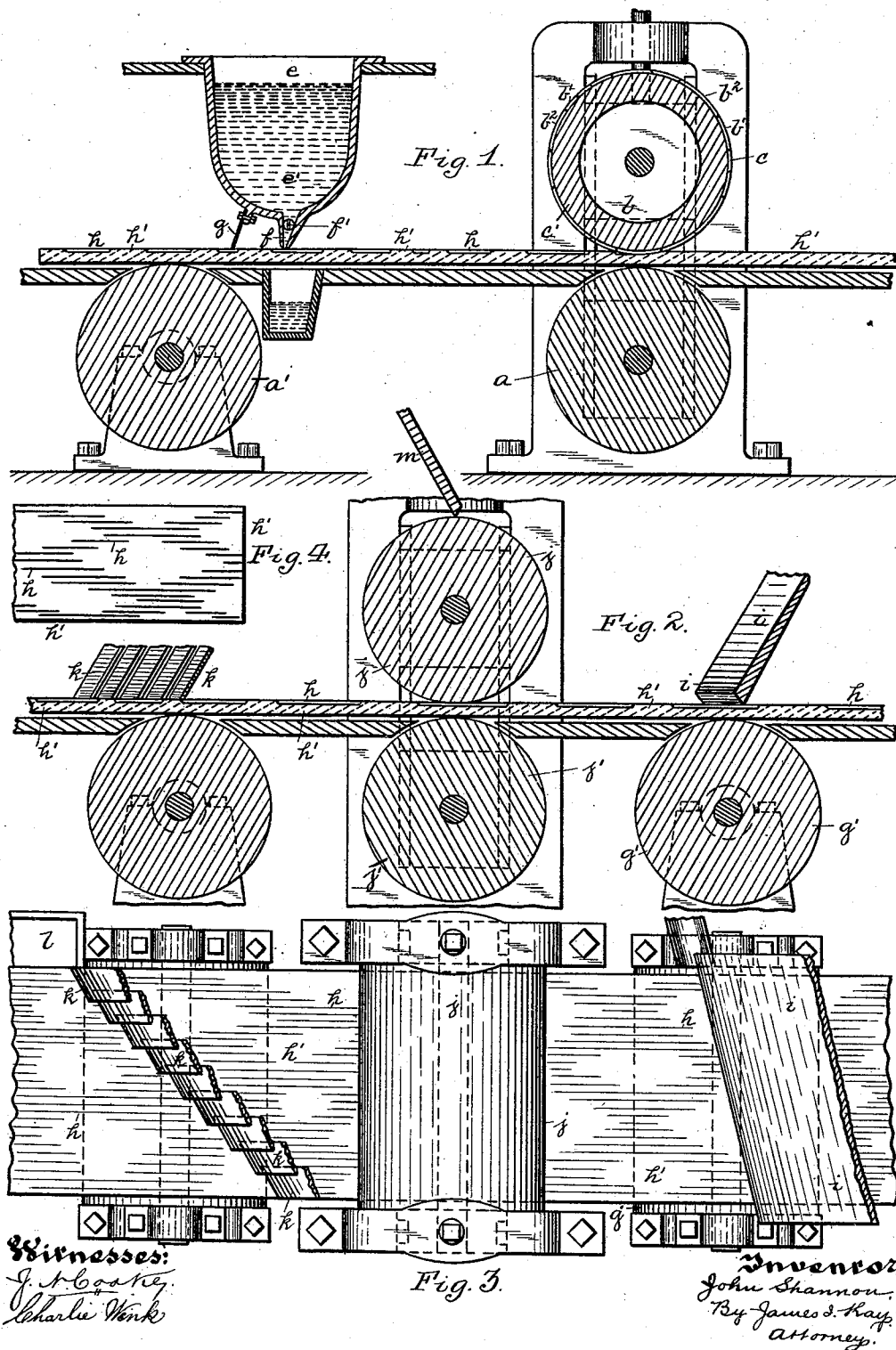
(No Model.)

J. SHANNON.

METHOD OF AND APPARATUS FOR GRAINING WOOD SURFACES.

No. 471,698.

Patented Mar. 29, 1892.



UNITED STATES PATENT OFFICE.

JOHN SHANNON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND PETER CASEY, OF SAME PLACE, AND WILLIAM W. GRIER, OF HUL-
TON, PENNSYLVANIA.

METHOD OF AND APPARATUS FOR GRAINING WOOD SURFACES.

SPECIFICATION forming part of Letters Patent No. 471,698, dated March 29, 1892.

Application filed October 31, 1890. Renewed February 1, 1892. Serial No. 419,885. (No model.)

To all whom it may concern:

Be it known that I, JOHN SHANNON, a resi-
dent of Pittsburg, in the county of Allegheny
and State of Pennsylvania, have invented a
new and useful Improvement in Methods of
and Apparatus for Graining Wood Surfaces;
and I do hereby declare the following to be a
full, clear, and exact description thereof.

My invention relates to a method of and
apparatus for ornamenting soft wood in imi-
tation of hard wood, so presenting to said soft
wood the appearance of a hard-wood finish.

My invention comprises, generally stated,
the method of ornamenting soft wood in imi-
tation of hard wood, consisting in forming in
the surface of the soft wood indentations or
crevices in imitation of the grain of the hard
wood, then applying a liquid filler to the wood
surface, subsequently passing a metallic
scraper over the wood surface to smooth the
wood surface, force the filler into the indenta-
tions, and remove the surplus filler.

My invention further includes the form of
apparatus for carrying out the above-described
process, all of which will be fully hereinafter
set forth and claimed.

To enable others skilled in the art to make
and practice my invention, I will describe the
same more fully, referring to the accompany-
ing drawings, in which—

Figure 1 is a sectional side view of the ap-
paratus for producing the indentations or
crevices and applying the filling substance
thereto. Fig. 2 is a like view of apparatus for
pressing the filler into the indentations and
removing any surplus. Fig. 3 is a plan view
thereof, and Fig. 4 is a view of a wood surface
finished in accordance with my invention.

Like letters indicate like parts in each.

The initial steps of the process are per-
formed by the apparatus shown in Fig. 1, in
which a a' are plain-faced rollers journaled
in suitable bearings. The roller b , which will
be termed the "indentation-roller," is jour-
naled in suitable bearings and is adapted to
be driven by any suitable means, the rollers
 a a being also driven at the same surface
speed. The indentation-roller b is preferably
constructed in accordance with an application

for Letters Patent filed by me on the 6th day 50
of May, 1890, Serial No. 350,748, said roll be-
ing made up of a series of steel disks c with
intervening washers c' , the whole then en-
veloped in wax and the edges of the steel
disks exposed at certain intervals by remov- 55
ing portions of the wax covering, according
to the design to be formed by the roller, and
such exposed portions of the disks subjected
to an acid bath, so that such portions are eaten
away, as at b' , leaving the blades b^2 extending 60
out, so as to puncture or indent the wood
passed under the same. When the blades or
knives of the roller b come in contact with the
soft wood, they will enter the same and im-
part to it certain indentations, crevices, or 65
punctures of different lengths in imitation of
the grain or growth of the hard wood to be
imitated.

Situated beyond the indenting-roller b , and
in line therewith, is the tank or receptacle e , 70
containing the filling substance e' . This fill-
ing substance e' consists of certain suitable in-
gredients—such, for example, as soapstone,
corn-starch, pumice-stone, turpentine, oil,
&c.—with the proper coloring-matter, the 75
whole being mixed to bring it to a consistency
suitable for the purpose. The ingredients of
the filler may of course be varied, as desired,
according to the surface to be imitated or the
wood to be treated. The tank e is supported 80
in any convenient manner and is supplied
with the outlet-spout f , controlled by a suit-
able valve f' . A spreader g , preferably me-
tallic, is secured to the tank e just beyond the
spout f to aid in spreading the filler flowing 85
from the spout f evenly over the wood sur-
face and into the crevices and indentations h ,
formed for its reception in the wood to be or-
namented.

In Figs. 2 and 3 are illustrated apparatus 90
by which the final steps of the process may
be carried out, in which g' represents a plain-
faced feed-roller mounted in suitable bear-
ings, over which roller the wood to be treated
passes. Above the feed-roller a scraper i is 95
supported in a suitable manner at the for-
ward end of the apparatus, said scraper pre-
ferably extending across the wood at an angle,

as shown in Fig. 3, so that any surplus filler withdrawn by said scraper will be carried to one end of said scraper where a receptacle may be situated to receive the same. This scraper *i* acts to remove the major part of the filler, though in most cases part thereof will remain on the board. Back of the scraper *i* are the compressing-rolls *j j'*, which are preferably though not necessarily employed, their function being to force the filler entering the indentations down into the same and assist the scraper in imparting a smooth surface to the board. Beyond the roller *j* a series of scrapers *k* are arranged at an angle, as shown in Fig. 3, the first one overlapping the succeeding one, and so on until the lowest one is reached at the inner end of the angle formed by the series of scrapers. A tank *l* is provided at that point for the reception of any surplus filler not absorbed by the wood being treated. A scraper *m* may also be arranged above the roller *j* with its working edge in contact with the face of said roller in order to keep the face of said roller smooth and clean.

In the carrying out of my improved process in connection with the above-described apparatus, the plank *h'*, of soft wood, is first fed to the roller *b*, said roller having the cutting edges or blades formed thereon, as above described, in accordance with the design to be imparted to the plank *h'*. Accordingly, when the plank *h'* has passed between the supporting-roller *a* and the indentation-roller *b*, it has imparted to its upper face a series of indentations, punctures, or crevices *h*, prearranged to resemble the grain or growth of some hard wood. In entering the wood the blades necessarily push the body thereof to one side, and it is found that the wood will be raised or bulged slightly on each side of the indentations made, the action of indenting the wood therefore roughening its surface. The plank *h'*, indented in this manner, approaches the tank or receptacle *e*, and when beneath the spout *f* the valve *f'* is opened and the liquid filler permitted to escape, flowing onto the said plank and occupying the indentations *h* formed therein. The spreader *g* then spreads the filler evenly over the surface of the plank and causes part thereof to enter the indentations, the filler thus covering the entire surface of the plank. When the filler has been spread over the surface of the plank, it is allowed to rest for a short period, in order that the moisture of the filler may have opportunity to enter all the pores of the wood, the filler itself being of too great consistency to enter the natural minute pores thereof, so that it remains on the surface, a portion of its moisture entering the pores and acting to soften the wood surface. After this, the second stage of the process is carried out. This consists in feeding the plank under treatment to the apparatus shown in Fig. 2, the first scraper *i* coming into contact with said plank and scraping off the major part of the filler, forcing

it in front of the scraper and causing it to enter more thoroughly into the indentations formed in the wood surface and also removing any surplus of the filler and carrying it into the tank or other receptacle adapted to receive it. At the same time, as the surface of the plank is softened by the absorption of the moisture of the filler, as above described, the even edge of the scraper *i* will act to smooth the surface thereof, pressing down the portions raised by the indenting-knives and bringing the surface to the desired evenness of finish. This may complete the process, though generally I prefer to pass the plank through the rolls *j j'* and under the scrapers *k k*, the compressing-roll tending to smooth the surface of the plank and reduce any little unevenness not reduced by the scraper *i*, while the series of scrapers *k* insure the entire removal of any surplus filler and act to still further smooth the surface of the plank, carrying off the residue of the filler into the tank *l*.

The resultant wood surfaces obtained have the indentations, punctures, or crevices formed in the surfaces thereof, according to the desired design properly filled with the coloring-matter, so as to impart to them the appearance of the hard wood imitated, and have also the surfaces thereof even and smooth and ready for the ordinary finishing thereof according to the uses to which they are applied, while the boards can be rapidly and cheaply finished.

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

1. The herein-described method of ornamenting soft wood, consisting in forming in the surface of the soft wood indentations or crevices in imitation of the grain of hard wood, then applying a liquid filler to the wood surface, and subsequently scraping such surface to smooth the wood surface, force the filler into the indentations, and remove the surplus filler, substantially as described.

2. In apparatus for ornamenting soft wood in imitation of hard wood, the combination, with a roll having indentations thereon for imparting corresponding indentations to the wood to be treated, of a tank or other receptacle back of said roller for supplying a liquid filling material to the wood and a spreader back of the tank for spreading the filler over the wood surface, substantially as described.

3. In apparatus for ornamenting soft wood in imitation of hard wood, the combination, with a roll having indentations thereon for imparting corresponding indentations to the wood to be treated, of a tank for supplying a liquid filler to the wood and a scraper adapted to pass over the wood surface and force the filler into the indentations and remove the surplus filler, substantially as and for the purposes set forth.

4. In apparatus for ornamenting soft wood in imitation of hard wood, the combination

of a scraper adapted to pass over the wood surface and compressing-rolls back of said scraper and in line therewith, substantially as and for the purposes set forth.

5 5. In apparatus for ornamenting soft wood in imitation of hard wood, a series of scrapers arranged to pass over the wood surface, the edge of one scraper extending back of the

scraper in front thereof, substantially as and for the purposes set forth.

In testimony whereof I, the said JOHN SHANNON, have hereunto set my hand.

JOHN SHANNON.

Witnesses:

ROBT. D. TOTTEN,
J. N. COOKE.