

No. 748,033.

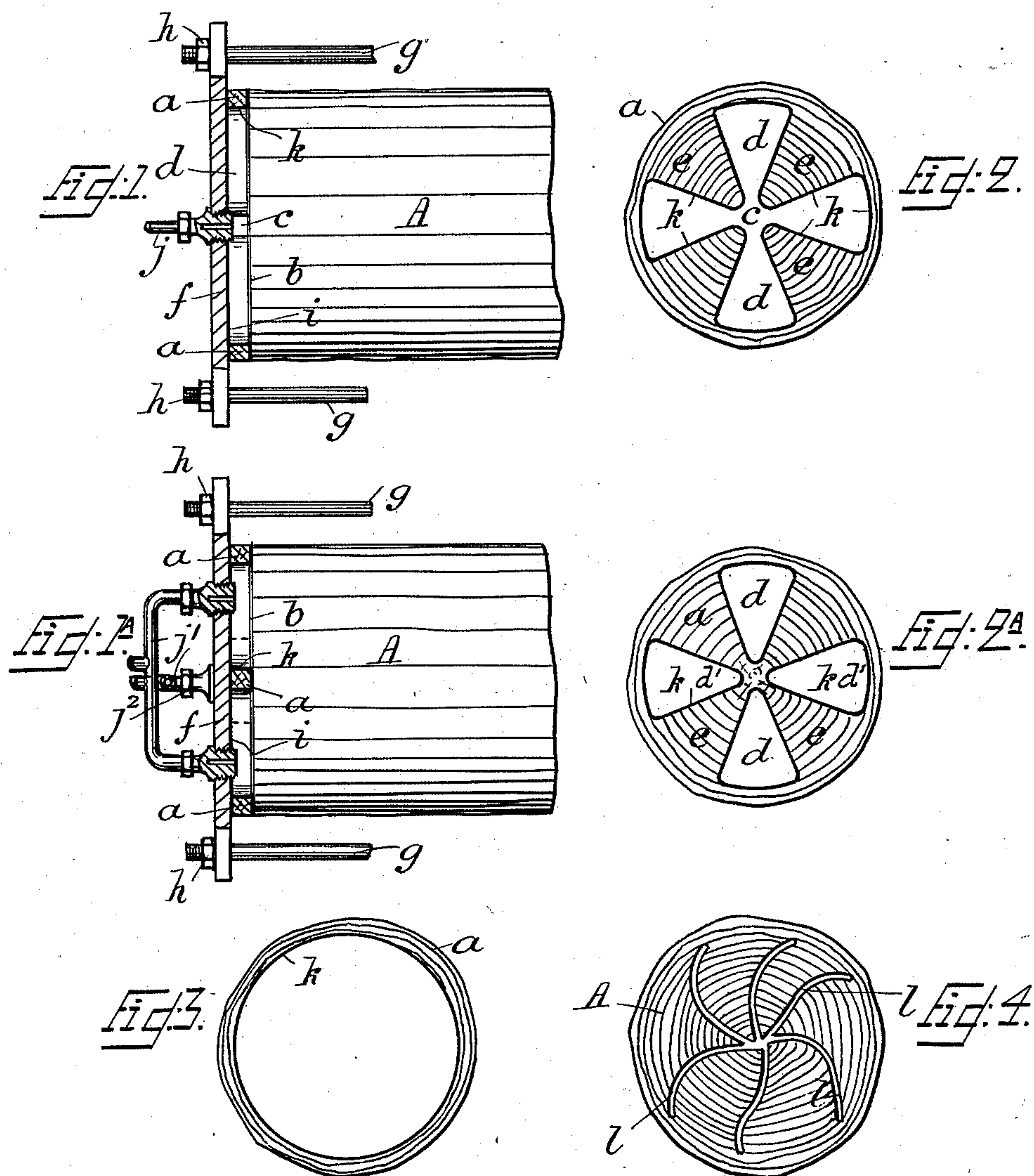
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W. ANGUS.

DEVICE FOR IMPREGNATING WOOD.

APPLICATION FILED FEB. 12, 1903.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

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DEVICE FOR IMPREGNATING WOOD.

SPECIFICATION forming part of Letters Patent No. 748,033, dated December 29, 1903.

Application filed February 12, 1903. Serial No. 143,068. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ANGUS, gentleman, a subject of the King of England, residing at 44 Paul street, London, England, have invented certain new and useful Improvements in Means for Impregnating Wood, (for which I have applied for a patent in Austria on the 12th of July, 1902, and which application is made by my attorney on my behalf, and in Hungary on the 15th of July, 1902, similarly made, and obtained British Letters Patent No. 17,012, dated August 1, 1902,) of which the following is a specification.

Many attempts have ere now been made to impregnate wood with dyes, coloring-matters, or preservatives by forcing the liquid with which the wood is to be impregnated or which forms the vehicle for the impregnating material into the pores of the wood by pressure, generally hydraulic pressure. Attempts have ere now been made to effect this by forming a connection between a force-pump and the end of a balk or block of timber (a whole tree or a portion of a tree) and driving the impregnating liquid along the fiber of the wood into the cells and pores therein.

This invention relates to improved means for effecting this.

It is illustrated in the accompanying drawings, in which—

Figure 1 shows so much of the apparatus employed and of a tree-trunk as they appear during the process of impregnation as is necessary for rendering clear the nature of this invention. Fig. 1^a similarly shows a modification. Figs. 2, 2^a, and 3 show a slab, disk, or cutting taken off the trunk and prepared as and for the purpose hereinafter referred to. Fig. 4 shows a modified manner of proceeding.

In practicing this invention I take the tree-trunk or the balk or log of timber to be impregnated and cut therefrom a slab or disk of suitable thickness, making the cut at right angles (or nearly so) to the grain. The freshly-cut surface of this slab I now coat or cover with an impermeable substance capable of preventing the flow of the impregnating liquid. If aqueous solutions of pigments are to be employed, I may brush over this freshly-cut surface india-rubber solution,

shellac, melted paraffin-wax, or the like. If preservatives are to be forced into the wood—such as creosote and the like, for instance—the substance used for coating the fresh-cut surface must be such as will not be attacked by the liquid. Instead of brushing on the impermeable substance I may cement to the freshly-cut surface a thin sheet of suitable nature—say, paraffined paper, sheet gutta-percha, thin sheet india-rubber, or the like—or place and retain it there by pressure applied, as will presently appear. When the slab, disk, or cutting is thus prepared, I perforate it to permit the passage of the impregnating liquid at the required parts. Thus if I wish to make the log party-colored I cut the slab as shown in Fig. 2—that is to say, from the solid part *a*. I remove portions *d d*, which unite at *c*. If the whole is to be uniformly impregnated, I cut out the central part, as shown in Fig. 3, in which a mere shell or ring is left. The slab, disk, or cutting so prepared will, it is obvious, exactly fit the outline of the trunk, balk, or log from which it is taken, the more so as the very thin layer of impermeable substance on the fresh-cut face will generally just make up for the minute waste (in the direction of the grain) caused by the saw-cut. I now place the disk or slab upon the face of the log or trunk from which it was cut, fitting it with some care to occupy the same place it did before cutting. I may temporarily fix it in position by any means—say a couple of thin wire nails. Over the original face of the log or trunk—that is to say, over the replaced slab—I now place a solid metal plate faced on the side nearest the wood with india-rubber or other impermeable material. In the middle of the plate (or otherwise conveniently placed) is a passage communicating with the central aperture *c* in the slab and with a force-pump, and I press this plate against the log with sufficient force to make tight joints. All this is clearly illustrated in Fig. 1, wherein *a* is the slab, disk, or cutting. (Shown in plan in Fig. 2, but here in section.) *b* is the coating or facing of impermeable material, here shown for clearness of illustration as being of some thickness, though in practice I make it a mere film or very thin sheet. *c* is the central passage in the slab

communicating with the recesses $d d$, cut as shown in Fig. 2 or otherwise. f is the metal plate, which by bolts $g g$ and nuts $h h$ or by chains or other means is forced down upon the face of the slab a . i is the impermeable facing of the plate f . j' is a pipe which communicates with a force-pump or a reservoir containing the impregnating liquid, the latter being under pressure. It will be self-evident that if the pressure on the plate f is sufficient to make tight joint at both sides of slab a and the liquid supplied by pipe j' is also under suitable pressure it will be driven into the log, balk, or trunk A along the grain of the wood. When the slab a is cut out, as shown in Fig. 2, those parts of the log which are covered by the solid parts $e e$ of the slab are not affected by the impregnation. In coloring wood it may, however, be desirable to give one color to some parts—say those corresponding to $d d$, Fig. 2—and another to the others, and not to leave them in their natural state. This I effect by turning the slab and refixing it if the shape of the trunk is sufficiently symmetrical to admit of this. If not, I fix into their original place the pieces cut out from the parts $d d$ and then cut out other portions—say the whole or part of $e e$ —and then proceed as before described, varying the impregnating liquid of course.

As illustrated in Figs. 1^a and 2^a, I may use the following means for coloring different parts of the log or trunk differently: From the slab a I cut out parts $d d$ and parts $d' d'$, so that there is no communication between the spaces so formed. The plate f in this case has several apertures and nozzles—say four—as shown in Fig. 1^a. In this arrangement I provide one pipe j' to convey liquid to the nozzles serving the spaces at $d d$ and another pipe j'' supplying the nozzles for spaces at $d' d'$. This arrangement may be varied in details, as will be obvious. Thus each nozzle may have a separate supply and convey a different impregnating liquid. In order to prevent irregularity in the outline of the coloring as far as practicable, I may coat the perpendicular faces $k k$ in the cut-out portions of the slab in the same manner as the inner face of such slab is made impermeable.

The shape and nature of the removable pieces herein referred to is evident from inspection of Fig. 2^a. The parts in that figure in which the grain of the wood is indicated are those of the slab, disk, or cutting. The parts inclosed by the same show the removable pieces, the outline of the latter corresponding

with the inner contour of the recesses or apertures left in the said slab, cutting, or disk.

In Fig. 4 I have illustrated a further modification. In this I make a small aperture only in the slab a . In the log, balk, or trunk A , I cut one or more shallow grooves $l l$, of any suitable form, which lead from under the aperture in the slab to the other parts of the log or trunk. Such channels will convey the impregnating liquid with less interference with and weakening of the slab a and will be quite effective.

I claim—

1. The combination with devices for injecting liquid into a piece of timber and means for holding together said devices and the piece of timber, of a slab cut from such trunk or piece, and of removable parts placed in position to prevent the flow of liquid where desired.

2. The combination with means for injecting liquid into a piece of timber, and with devices for holding together the piece and injecting means, of a slab cut from the piece and coated with impermeable material, and of removable pieces coated with impermeable material and placed within the slab.

3. In combination with means for injecting liquid into a piece of timber, devices for holding together the timber and injecting means, and with a slab cut from said timber of removable pieces and of a sheet or film of impermeable material interposed between the timber on the one hand and the slab and removable pieces on the other.

4. A slab interposed between a piece of timber and a source of liquid under pressure, combined with pieces cut from and replaced into such slab, the slab and replaced pieces having their faces made impermeable to the liquid or pigment.

5. The combination of a piece of timber, a metal plate fitted with pipes and covered, on the side adjacent to the timber, with a film of india-rubber, a slab cut from the piece of timber, removable pieces fitting into apertures in said slab, and an impermeable film interposed between said piece of timber on the one hand and the slab and removable pieces on the other, together with a force-pump and means for connecting the whole of these parts.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM ANGUS.

Witnesses:

BERNHARD JONES,
T. J. OSMAN.