

No. 771,689.

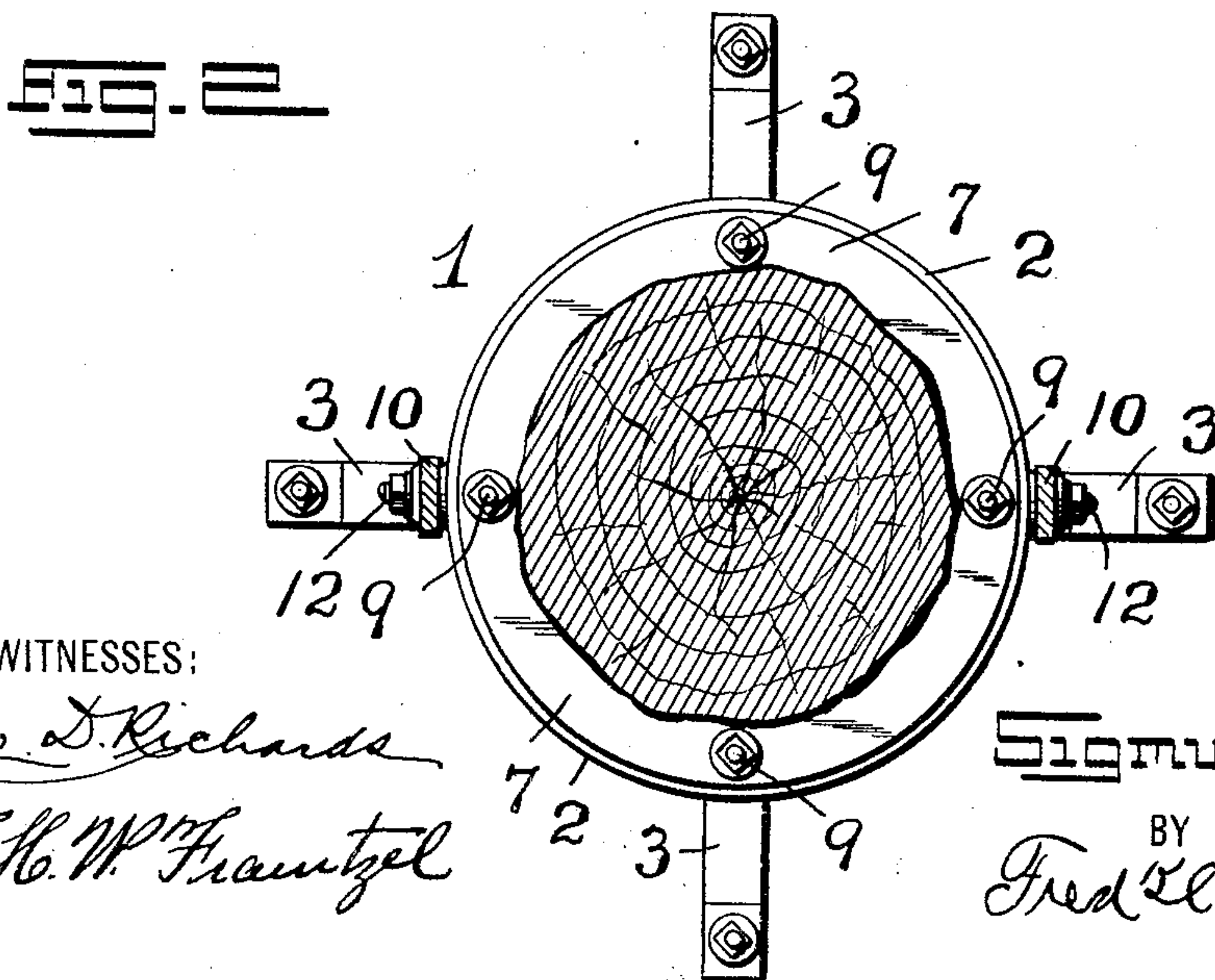
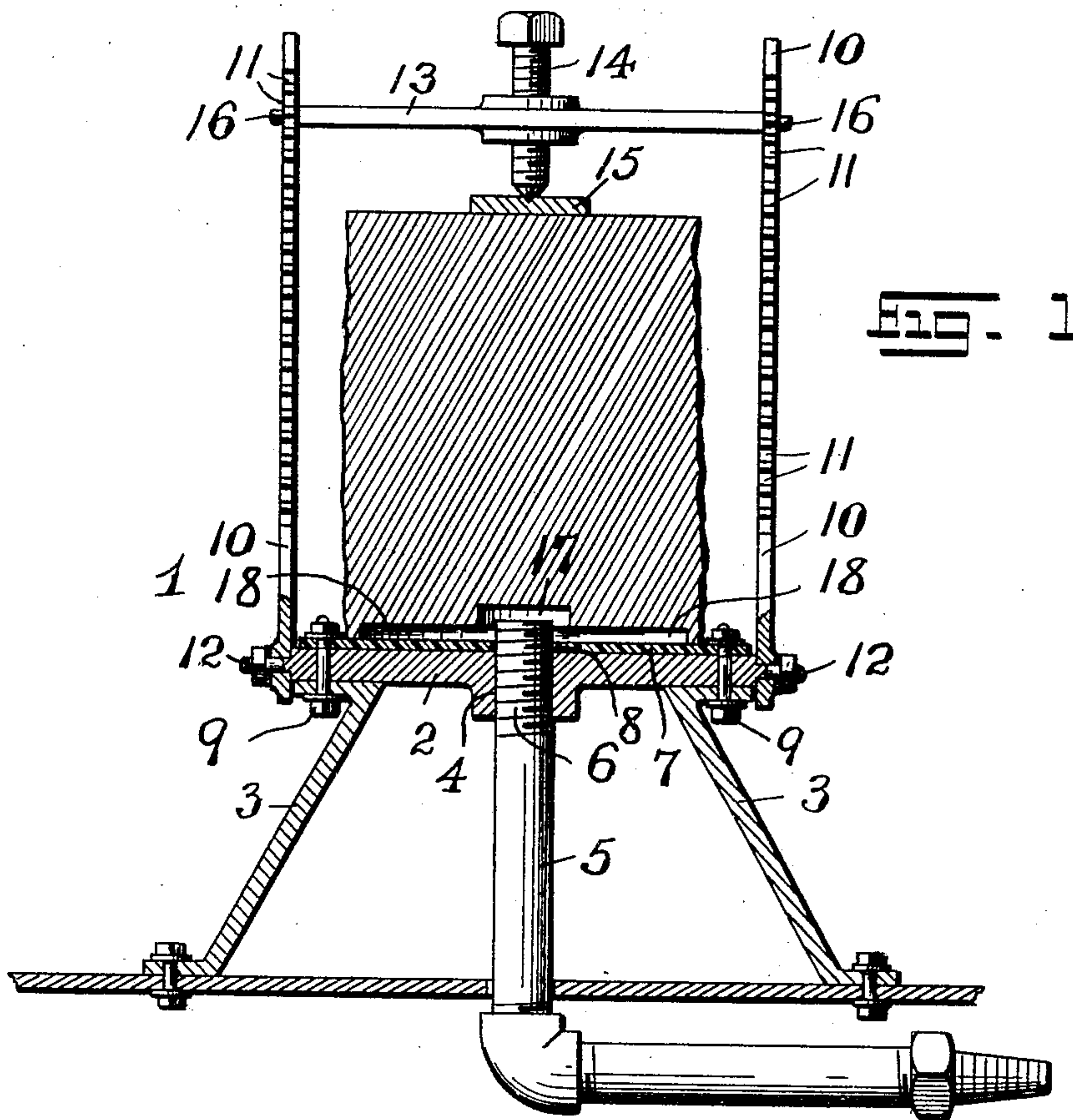
PATENTED OCT. 4, 1904.

S. WILLNER.
APPARATUS FOR IMPREGNATING WOOD.

APPLICATION FILED JULY 9, 1903.

NO MODEL

2 SHEETS—SHEET 1.



WITNESSES:

Geo. S. Richards
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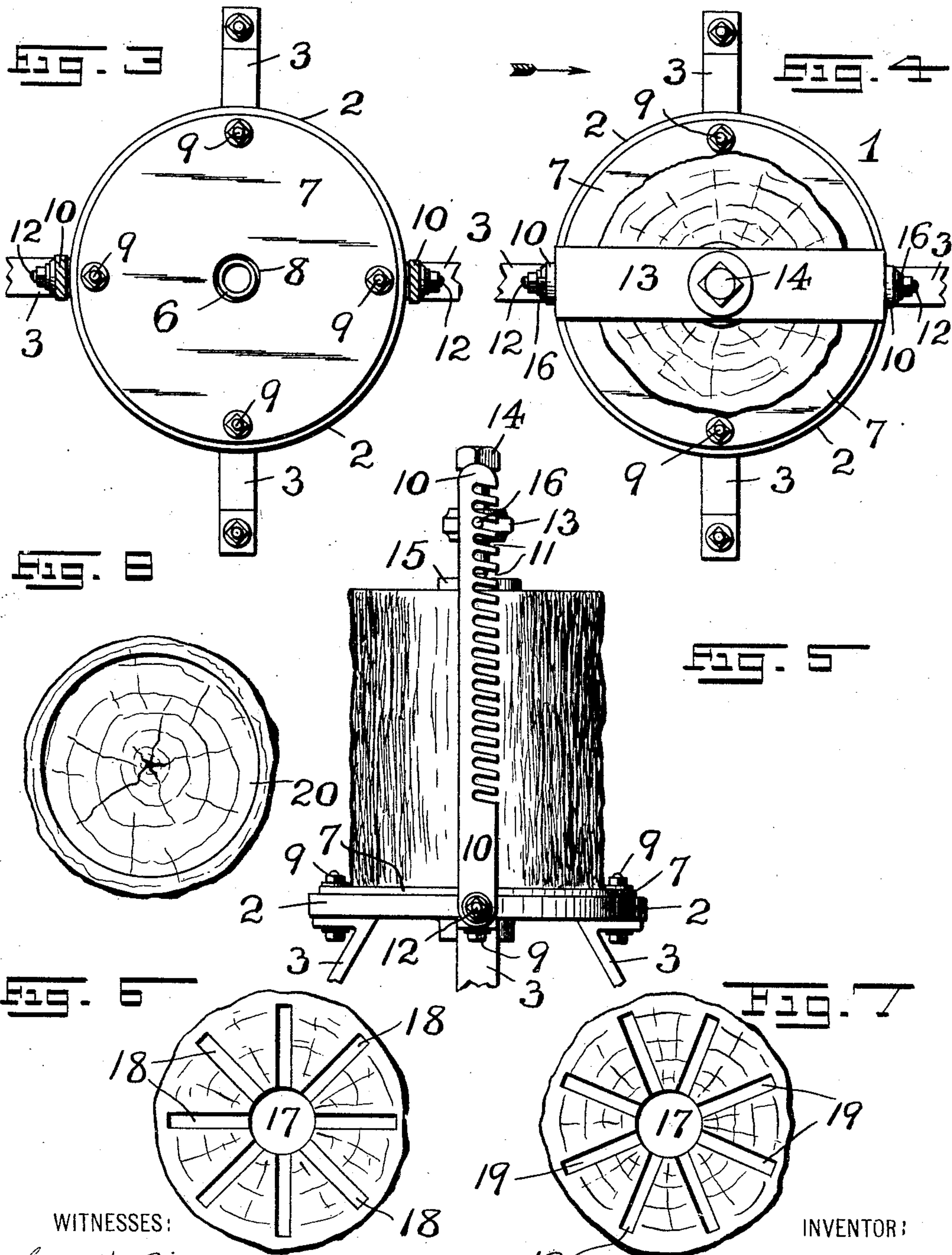
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2 SHEETS—SHEET 2.



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SIGMUND WILLNER, OF NEW YORK, N. Y.

APPARATUS FOR IMPREGNATING WOOD.

SPECIFICATION forming part of Letters Patent No. 771,689, dated October 4, 1904.

Application filed July 9, 1903. Serial No. 164,830. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND WILLNER, a subject of the Emperor of Germany, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Impregnating Wood; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The present invention has reference to a novel form and construction of apparatus or machine for the treatment of wood of the various kinds, preferably in the shape of logs, beams, blocks, and the like, with a chemical dye or dyes for coloring the body of the wood or for the treatment of the wood with chemical mixtures having excessive hardening and fireproofing properties, the arrangement and construction of the devices and parts of the apparatus being such that one or more coloring-dyes for providing the block with but one single or a uniform color throughout its pores or with a multiform coloring, as may be desired, or for rendering the wood resistible to pressure or fireproof may be produced by forcing the coloring dye or dyes or other chemical fluid mixture into portions in one end of the log, block, or beam, so as to thoroughly permeate the log, block, or beam longitudinally with the long grain of the wood, as will hereinafter more fully appear.

The principal objects of this invention, therefore, are to provide a novel, simple, durable, and efficient apparatus of the general character hereinafter more particularly described and for the purposes above specified in which a log, beam, block, or other suitable piece of wood can be subjected to the action of a dye or dyes or any other chemical mixture for other purposes than the coloring of the wood for treating the wood with a fireproofing mixture or other fluid mixture for rendering the wood resistible and tenacious to the pressure from dies. The main and essential purpose

of the present invention, however, is to provide a novel apparatus for treating the wood by impregnation with one or more coloring-dyes of a very fluid and soluble character, whereby the wood may be made throughout its entire body of one single or uniform color or may be rendered throughout its entire body with any suitable number of various colors in the form of innumerable combinations.

With these various objects of my invention in view the same consists generally in the novel apparatus hereinafter set forth for the treatment of wood in the form of logs, beams, blocks, and the like with an impregnating fluid, either for coloring the interior grain of the wood or for rendering the wood fireproof or resistible to pressure; and the invention consists, furthermore, in the various novel arrangements and combinations of devices and parts, as well as in the details of the construction thereof, all of which will be more fully described in the following specification and then finally embodied in the clauses of the claim which form a part thereof.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of the apparatus and a block of wood thereon supported in its position for treatment with the fluid with which the block is to be impregnated. Fig. 2 is a horizontal section of the apparatus and the said block of wood, the said section being taken above the supporting bed or frame of the apparatus looking down upon the bed. Fig. 3 is a similar view of the apparatus, but with the block of wood omitted from said view; and Fig. 4 is a top or plan view of the said apparatus with the block of wood in position. Fig. 5 is a side elevation of the apparatus and block of wood looking in the direction of the arrow in Fig. 4 of the drawings. Figs. 6 and 7 are end views of a log, beam, or block of wood prepared with a central recess and radially-disposed grooves or channels in its end to render the said log, beam, or block ready for impregnation with a fluid or fluids when placed in the apparatus. Fig. 8 illustrates another manner of preparing the end of a log,

beam, or block of wood which is to be treated with but one coloring medium or with a hardening or fireproofing fluid.

Similar characters of reference are employed in all of the said above-described views to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates the complete apparatus for the impregnation of wood with a coloring dye or dyes or other fluid for rendering the wood resistible to pressure or fireproof, said apparatus comprising a suitable support 2, preferably in the form of a table or bed, to which may be secured in any desirable manner suitable legs or standards 3. The said support 2 in the present case is made with a centrally-disposed opening 4, preferably provided with screw-threads for the reception and the securing therein of the screw-threaded end portion 6 of a feed-pipe 5. The free end of this portion 6 of the said pipe extends above the upper face of the support 2 and through a corresponding hole or opening 8 in a soft-rubber or other suitable packing-sheet 7, the said end of the pipe 5 projecting also above the upper surface of this sheet 7 for the purposes of the present invention, as will hereinafter appear. The said sheet 7 may be suitably secured upon the said support 2 by means of bolts 9; but it will be understood that any other fastening means may be employed or the said sheet 7 may be loosely placed upon the said support 2.

That the log, beam, or block, or other piece of wood which is to be treated in the manner to be presently described may be properly and securely held upon the sheet 7, so as to produce a tight joint between the lower surface of the log, beam, or block of wood and the upper surface of said sheet 7, a tightening device of any suitable form and construction may be employed. One form and construction of tightening device is shown in the accompanying drawings, and the same consists, essentially, of bars or links 10, having a suitable arrangement of receiving-notches 11, as illustrated in Fig. 5 of the drawings, and being pivotally connected at their lower ends to laterally-extending journal-pins 12 on opposite sides of the said support 2, as clearly illustrated in the several figures of the drawings. A suitable plate or yoke 13, provided with a centrally-disposed tightening-screw 14, having its lower end resting upon a plate 15, usually placed upon the upper end of the log, beam, or block, is then arranged in such a manner above the said log, beam, or block that the ends 16 of the said plate or yoke are arranged in the receiving-notches 11 of the oppositely-located bars or links 10. Then by turning the tightening-screw 14 in the proper direction the beam, log, or block of wood is tightly forced in a downward direction against the upper face of the said sheet 7,

and a tight joint is the result, as will be clearly evident.

Having now described one arrangement of apparatus for impregnating logs, beams, or blocks of wood with various kinds of fluids or chemical mixtures for the purposes previously stated, I will now set forth the manner of using the apparatus and the method of treating the wood by means of this or any other suitable construction of apparatus.

As has been stated, one principal purpose of this invention is to multicolor the wood throughout its entire body. To accomplish this, the log, beam, or block of wood is provided in one of its ends (the end which is to be placed upon the sheet 7) with a centrally-disposed recess, as 17, and with any desired number of channels or grooves 18, which radiate from said recess 17 to points near the outer peripheral edge of the log, beam, or block, as clearly illustrated in Fig. 6. This grooved or channeled end of the log, beam, or block of wood is now placed against the sheet 7, as indicated in Fig. 1, whereby the radiating and fluid-conducting chambers are formed between the wood and the upper surface of the said sheet 7, as illustrated. The log, beam, or block of wood is then securely tightened in place by means of the fastening or tightening device above described. From an inspection of said Fig. 1 it will be seen that the free end of the pipe 5 is in communication with the centrally-disposed recess 17 in the log, beam, or block of wood. A coloring medium or dye is now forced into and through the pipe 5 under sufficient pressure and from the free end portion 6 of said pipe into the recess 17 and the channels or grooves 18. The action of the fluid with the pressure back of it is such that it will be forced longitudinally through the wood approximately on radial lines above the grooves or channels 18 in the end of the log, beam, or block of wood, the coloring liquid or dye following the long grain of the wood on these radial lines and thoroughly impregnating the wood with the dye. By referring to said Fig. 1 of the drawings it will also be seen that the cross area of the said recess 17, into which the delivery end of the pipe 5 extends, is made larger than the area of the delivery-opening of said pipe, thereby providing a chamber or compartment of sufficient size in which quite a quantity of the impregnating fluid is collected, with the pressure from the liquid in the delivery-pipe directly within the said recess and upon the fluid therein, whereby the latter is delivered under such pressure into the radial channels 18 instead of beneath the solid end portions of the wood between the said channels. The log, beam, or block of wood is then removed from the support 2 and the end of the said log, beam, or block of wood sawed or cut away, so that the radial grooves or channels 18 are

removed. Other radially-disposed grooves or channels 19 (see Fig. 7) are then produced in the end of the log, beam, or block of wood, in the non-treated portions thereof, so as to provide another arrangement of radial grooves or channels. The log, beam, or block of wood is then again arranged upon the support 2 and secured in place, as before, and a coloring medium or dye of another color forced through the pipe 5 into the central recess 17 in the wood and then into this new arrangement of radial channels 19. This fluid with the pressure back of it is thus forced longitudinally through the wood, but on a different set of radial lines from those previously mentioned, and the coloring liquid or dye follows the long grain between the previously-colored portions of the wood, as will be clearly understood. As soon as the log, beam, or block of wood has been sufficiently treated in this manner it is removed from the apparatus, and its end may be again cut away and provided with another arrangement of radial grooves or channels for the impregnation of the wood with another coloring fluid or dye. In this manner the log, beam, or block of wood may be provided from time to time with any number of radial grooves or channels, and the wood can be variously colored with any number of dyes or coloring fluids. When the log, beam, or block of wood is to be impregnated with but a single color or where it is to be treated with a mixture for rendering the wood resistible to pressure, or fireproof, the end of the log, beam, or block may be dished out, as at 20, (see Fig. 8 of the drawings,) the log, beam, or block of wood being secured upon the support 2 and being treated with the impregnating fluid in the same manner as hereinabove described.

From the above description it will be clearly evident that I have devised a simple and effective apparatus for the purposes stated.

I am aware that changes may be made in the several arrangements and combinations of the devices and parts, as well as in the details of the construction thereof, without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the devices and parts as described in the foregoing specification and as illustrated in the accompanying drawings; nor do I confine myself to the exact details of the construction of the said parts.

Having thus described my invention, what I claim is—

1. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting means

connected with said supporting-plate having a delivery portion extending into the central recess in the end of the log, substantially as and for the purposes set forth.

2. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting means connected with said supporting-plate having a delivery portion extending into the central recess in the end of the log, and a fastening device connected with said supporting-plate for holding the piece of wood in its tightened position, consisting of pivotally-secured links provided with receiving-notches, a yoke having its ends adjustably connected with the respective links, and a tightening-screw connected with said yoke, substantially as and for the purposes set forth.

3. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface provided with a central opening, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe extending through the central opening in said supporting-plate and having its delivery end projecting above the upper surface of said supporting-plate into the central recess in the end of the log, substantially as and for the purposes set forth.

4. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface provided with a central opening, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe extending through the central opening in said supporting-plate and having its delivery end projecting above the upper surface of said supporting-plate into the central recess in the end of the log, and a fastening device connected with said supporting-plate for holding the piece of wood in its tightened position upon said supporting-plate, consisting of pivotally-secured links provided with receiving-notches, a yoke having its ends adjustably connected with the respective links, and a tightening-screw connected with said yoke, substantially as and for the purposes set forth.

5. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface, and a flexible and compressible sheet of plastic material

thereon, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting means connected with said supporting-plate having a delivery portion extending into the central recess in the end of the log, substantially as and for the purposes set forth.

6. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken flat surface provided with a central opening, and a flexible and compressible sheet of plastic material thereon, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conveying pipe extending through the central opening in said supporting-plate and having its delivery end projecting above the upper surface of the supporting-plate into the central recess in the end of the log, substantially as and for the purposes set forth.

7. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe having a screw end screwed into said screw-hole in the said supporting-plate, said pipe having a portion of its screw end projecting above the upper surface of the supporting-plate into the central recess in the end of the log, substantially as and for the purposes set forth.

8. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe having a screw end screwed into said screw-hole in the said supporting-plate, said pipe having a portion of its screw end projecting above the upper surface of the supporting-plate into the central recess in the end of the log, and a fastening device connected with said supporting-plate for holding the piece of wood in its tightened position upon said supporting-plate, substantially as and for the purposes set forth.

9. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, upon

which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe having a screw end projecting above the upper surface of the supporting-plate into the central recess in the end of the log, and a fastening device connected with said supporting-plate for holding the piece of wood in its tightened position upon said supporting-plate, consisting of pivotally-secured links provided with receiving-notches, a yoke having its ends adjustably connected with the respective links, and a tightening-screw connected with said yoke, substantially as and for the purposes set forth.

10. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, a compressible sheet of plastic material on said supporting-plate having a centrally-disposed hole corresponding to the hole in said supporting-plate, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe having a screw end screwed into said screw-hole in the said supporting-plate, said pipe having a portion of its screw end projecting above the upper surface of said sheet of plastic material into the central recess in the end of the log, substantially as and for the purposes set forth.

11. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, a compressible sheet of plastic material on said supporting-plate having a centrally-disposed hole corresponding to the hole in said supporting-plate, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the marginal edge of the log, of a coloring-medium-conducting pipe having a screw end screwed into said screw-hole in the said supporting-plate, said pipe having a portion of its screw end projecting above the upper surface of said sheet of plastic material into the central recess in the end of the log, and a fastening device connected with said supporting-plate for holding said piece of wood in its tightened position upon said supporting-plate and said plastic sheet, substantially as and for the purposes set forth.

12. In an apparatus for multicoloring wood by impregnation with coloring-matter into the interior of the wood, a supporting-plate having an unbroken and flat surface provided with a centrally-disposed screw-hole, a compressible sheet of plastic material on said supporting-plate having a centrally-disposed hole

corresponding to the hole in said supporting-plate, upon which is placed a log of wood provided in its end with channels radiating from a centrally-disposed recess to points near the
5 marginal edge of the log, of a coloring-medium-conducting pipe having a screw end screwed into said screw-hole in the said supporting-plate, said pipe having a portion of its screw end projecting above the upper surface of said sheet of plastic material into the
10 central recess in the end of the log, and a fastening device connected with said supporting-plate for holding said piece of wood in its tightened position upon said supporting-plate

and said sheet, consisting of pivotally-secured 15 links provided with receiving-notches, a yoke having its ends adjustably connected with the respective links, and a tightening-screw connected with said yoke, substantially as and for the purposes set forth. 20

In testimony that I claim the invention set forth above I have hereunto set my hand this 6th day of July, 1903.

SIGMUND WILLNER.

Witnesses:

MAE FIELD,
FRANK FENNER.