

J. PETSCHAUER.
 APPARATUS FOR TREATING WOOD.
 APPLICATION FILED JUNE 10, 1912.

1,062,550.

Patented May 20, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

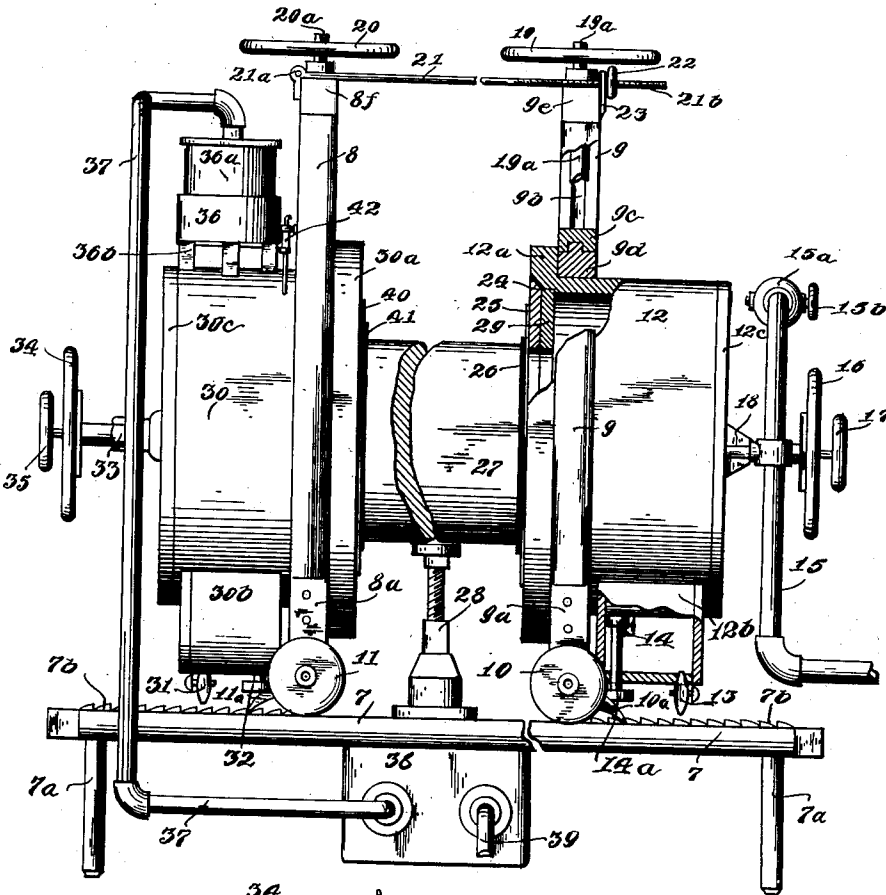
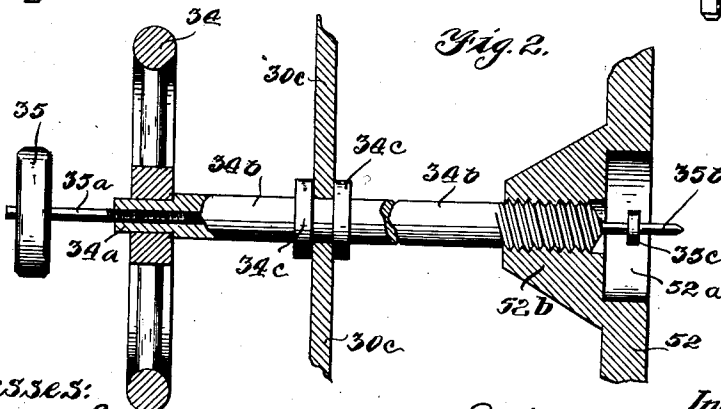


Fig. 2.



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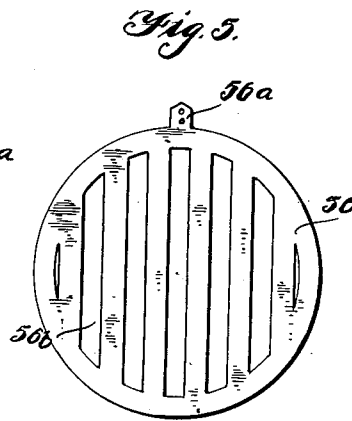
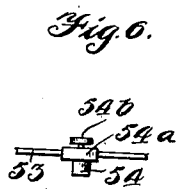
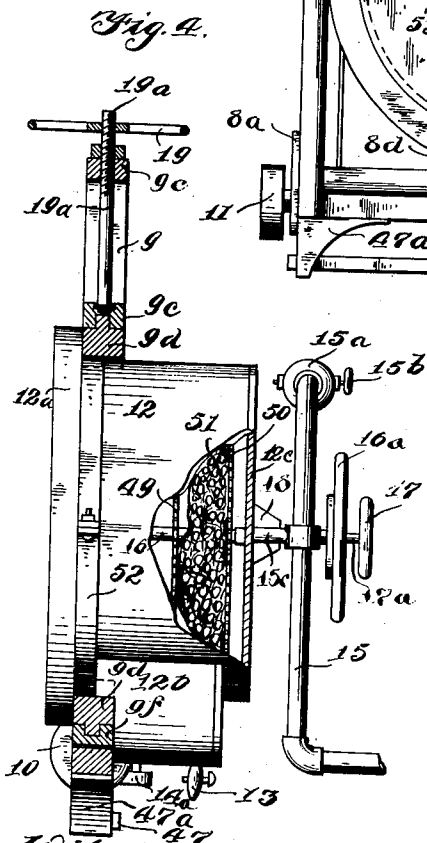
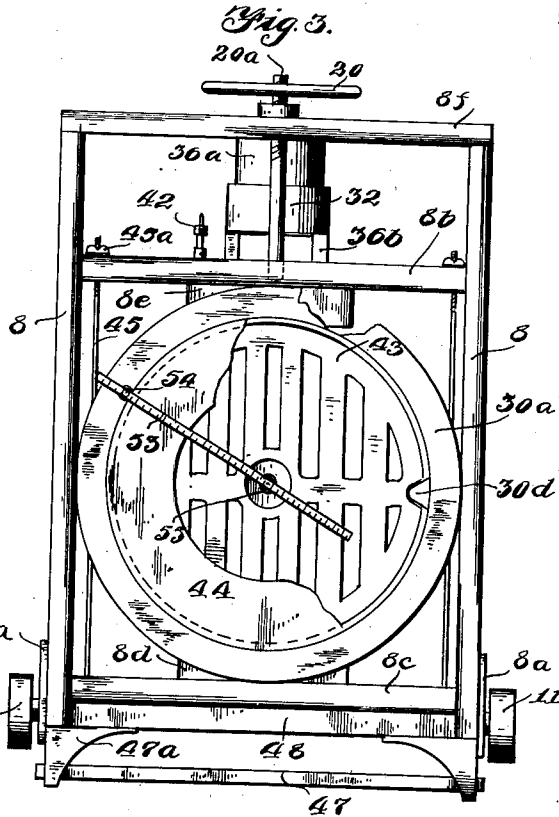
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN PETSCHAUER, OF CHICAGO, ILLINOIS.

APPARATUS FOR TREATING WOOD.

1,062,550.

Specification of Letters Patent.

Patented May 20, 1913.

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To all whom it may concern:

Be it known that I, JOHN PETSCHAUER, a subject of the Emperor of Austria-Hungary, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Treating Wood, of which the following is a specification.

This invention relates to improvements in apparatus for treating wood in the log and especially to means for impregnating the fiber with suitable dyes or coloring compound.

The apparatus hereinafter described in detail consists generally of a supporting frame on which are adjustably mounted two cylinders one of which serves as a charging retort and the other as an exhausting chamber; of means for clamping the stick or log of wood to be treated; of means for supplying the retort with the liquid dye, and of means for carrying off the sap or water which is withdrawn from the log in the operation of my appliance.

My invention consists of further details whereby the efficiency of the apparatus is increased.

In the accompanying drawings which form a part of this application, I have illustrated a preferred construction of my improved apparatus in the following views:—

Figure 1 is a side elevation of the complete apparatus with portions broken away to make certain details clearer; Fig. 2 is an enlarged sectional detail of the means for operating one of the clamping heads in the machine; Fig. 3 is a view in end elevation looking from the inside, of one of the clamping heads and end frames surrounding same; Fig. 4 is a side elevation, with portions broken away and other portions shown in section, of the exhausting chamber and adjacent parts of my machine; Fig. 5 is a plan view of one of the gaskets used in my machine, and Fig. 6 is a fragmentary detail of the mounting of a measuring device adapted to facilitate the centering of the log to be treated.

Referring to the details of the drawing, 7 represents a frame of suitable material and proportions supported on legs 7^a and having along its top longitudinal rack bars 7^b.

8 represents the side members of a rectangular frame arranged vertically above the supporting frame 7 and made up of cross bars 8^b, 8^c, and 8^f, rigidly secured to

the side members and having reinforcing plates 8^a at the lower ends of the side members of the frame, said members 8^a affording journals for the spindles of wheels 11. Secured to the frame members 8^b, 8^c, are blocks 8^e, 8^d, respectively, which afford a support for parts to be described.

9 represents the side members of a frame corresponding generally to the frame 8 just described and consisting of cross bars 9^c, 9^e, and 9^f. Between the cross bars 9^c, 9^f, is a collar 9^b formed with an annular flange which fits the corresponding groove in the frame members 9^c, 9^f, so as to permit the collar to turn in said frame members if desired. The frame 9 is also provided with reinforcing and spindle bearing plates 9^a to correspond with the plates 8^a above described, and journaled in said plates 9^a are the spindles or axles of wheels 10. Surrounded by the collar 9^b is the cylinder chamber 12 formed with an annular flange 12^a with an extension 12^d at the bottom and with a cover plate 12^c at the outer side. The extension 12^b communicates with the lower portion of the chamber 12 and is provided with a relief cock 13 by which the contents of said chamber may be discharged. The opening between the chamber 12 and the extension 12^b is controlled by a valve 14 the stem of which extends through the chamber 12^b and is provided with a hand operated wheel 14^a at its lower end, as clearly shown in Fig. 1. An exhaust pipe 15 which may be suitably connected with any preferred form of pump or pumps is arranged at the end of the chamber 12, and is preferably formed in U-shape or with two parallel branches connected at the top by a valve casing and coupling 15^a supplied with a hand operated valve 15^b. This pipe 15 communicates and is connected with the chamber 12 by suitable couplings consisting of brackets 18 and pipes 15^c the latter passing through openings provided therefor in the cover 12^c and at their inner ends communicating with the interior of the chamber 12 at a point at the rear of a filter consisting of two reticulated opposed disks 49, between which is held a suitable absorbent and filtering medium 51. The valve 15^b is of such form that if it be desired to increase the suction applied to the chamber 12 upon opening said valve both branches of the pipe 15 will be in communication with said chamber, whereas if the valve is closed

only one branch of said pipe will be in operation.

Passing through the center of the chamber 12 is a spindle 17^a on the outer end of which is a hand wheel 17 and surrounding said spindle is a sleeve 16 on the outer end of which is a hand wheel 16^a said parts corresponding to the construction shown in detail in Fig. 2 which will be hereinafter particularly described.

Passing through a threaded opening in the top frame member 9^e is a screw 19^a supplied with a hand wheel 19 at its upper end and having its lower end engaging the collar 9^c so as to prevent upward movement of said collar unless said screw is adjusted to permit such movement, and to provide for the downward movement of said collar upon the screw being turned downwardly by operating the hand wheel 19. The frame 8 is supplied with a screw 20^a and hand wheel 20 which engages the frame members 8^f, 8^b, and operates in substantially the same manner as described with reference to the screw 19. The two frames 8 and 9 are adjustably connected at their upper ends by bolts 21 hinged at one end as at 21^a and having their free ends threaded as at 21^b. The threaded portions of said bolts pass through slotted brackets 23 mounted on the frame members 9 and are supplied with adjusting nuts 22 whereby the upper portions of the frames 8 and 9 may be adjusted relative to each other and held in their adjusted position. One of said bolts and connections is clearly shown in Fig. 1, and it will be understood that its complementary member will be at the other side of the apparatus. The outer face of the flanges 12^a is counter-sunk annularly to provide a seat for a plate 24 removably arranged on said seat and having a central opening therethrough. Superposed on this plate is a metal plate 25 in which there are vertically arranged slots said plate corresponding to the form shown in Fig. 5 and superposed on the plate 25 is a rubber gasket 26 corresponding in shape to the plate 25 but of somewhat less diameter and having openings therethrough which correspond to the openings in the plate 25. Back of and forming a rigid support, for the plate 24 is a second annular plate 29 which is preferably fixed in the corresponding end of the chamber 12 and is provided with a central opening co-extensive with the opening in the plate 24. The opposite chamber, which for the purpose of description we will call the charging chamber of the apparatus, is indicated by the reference character 30 and corresponds in size, shape and general construction to the exhausting chamber 12 above described. It is supplied with an annular flange 30^a on its inner end with a chambered extension 30^b at the bottom with a rear cover 30^c with a relief cock

31, a valve 32 controlling the opening between the chambers 30, 30^b. Passing through a central opening in the cover 30^c of said chamber is a screw 34^b supplied with a hand wheel 34 at its outer end and having a threaded engagement at its inner end with a boss 52^b on a plate 52 which corresponds in all essential particulars with the plate 29 of the chamber 12. The collars 34^c on the screw 34^b are arranged on opposite sides of the cover 30^c and the interior of said screw is longitudinally threaded to receive the external threads on the stem 35^a of the hand wheel 35. The inner end of said stem projects beyond the inner end of the screw 34^b and beyond the inner face of the plate 52 and is supplied with a fixed collar 35^c. Mounted on top of the chamber 30 and communicating with the interior of the latter is an auxiliary chamber 36, 36^a, with the latter portion of which communicates with the upper end of a pipe 37 the opposite end of which communicates with a tank 38 which in the operation of my apparatus is supplied with the dye or liquid which is to be forced into the log to be treated. This chamber 38 is supplied with a pipe 39 through which air under pressure is conducted to said chamber from any suitable source of supply. The inner face of the chamber 30 is supplied with the plate 40 and gasket 41 corresponding to the similar parts 25, 26, above described in connection with the chamber 12. Said chamber 30 is also supplied with a suitable gage 42 for indicating the liquid pressure within said chamber. The frame members 8^b, 8^c, and 9^c, 9^f, are supplied with strain rods 45 having nuts 45^a at their upper ends said rods adapted to hold said inner frame rigid. At the bottom of each of the frames 8 and 9, is a cross bar 47 the ends of which are secured in brackets 47^a depending from a cross frame member 48. Mounted on the spindles of the wheels 10 and 11 are pawls 10^a, 11^a, respectively, the free ends of which are adapted to engage the rack bar 7^b as clearly shown in Fig. 1.

27 represents a log to be treated in my improved apparatus for the central portion of which an adjustable jack 28 is provided, as shown in Fig. 1. To facilitate the centering of the log to be treated with respect to the two cylinders and especially the gaskets 26, 41, and plates 25, 40, respectively, I provide a marking device shown in elevation in Fig. 3 and in fragmental detail in Fig. 6, the same consisting of a graduated bar 53 having a hub 55 adapted to fit over one of the spurs 35^b and carrying adjustably mounted thereon a marker consisting of a crayon 54, a sleeve 54^a and a set screw 54^b by which the sleeve is adjustably held on the graduated bar 53.

In Fig. 5 I have shown a plate or grid

consisting of a circular disk 56 having a series of openings 56^b extending therethrough and provided with a tang 56^a by which it may be conveniently handled.

5 In Fig. 3 I have shown a similar grid with the openings differently arranged however consisting of a plate 43 in the margins of which are notches adapted to fit lugs 30^a projecting inwardly from the flange 30^a, and have also shown a gasket 44 of ring like form placed over the grid 43.

In carrying out my invention I may provide various grids and gaskets having openings differently arranged and of different proportions and of different shapes thus providing for the impregnation of the fibers of the wood in various forms so that portions will be more deeply colored than others and incidentally providing for using dyes of different colors on the same logs.

15 In using my invention for the purpose set forth, the frames 8 and 9 with their attached devices, will be separated on the supporting table or frame 7, and the log to be dyed will be arranged therebetween and supported on the jack 28. The frames will then be moved toward each other until in contact with the ends of the log which will be sawed to make as close a fit as possible with the gaskets 26, 41. The lower ends of the frames will be pushed along the rack bars so that the pawls 10^a, 11^a, will prevent slipping of said frames and the rods 21 will then be adjusted and their nuts 22 screwed up so as to bring the upper portions of the frame as close together as possible, the object being to effect a tight fit between the ends of the log to be treated and the inner faces of the cylinders 12 and 30. The plates and grids 24, 25, 29, 43, and 44, will be so arranged as to provide direct communication between the ends of the logs and the interior of the respective chambers without permitting atmospheric air to enter either of said chambers. The log it will be understood has been centered with respect to said plates through the engagement of the spurs 35^b which will be inserted in the centers of the log as nearly as possible such centers being found by the use of the gage 53 above described. The air being exhausted from the chamber 12 through suitable pump connected with the pipes 15 and the tank 38 being supplied with a suitable dyeing compound and with air pressure supplied through the pipe 39, on said compound, the latter will flow through the pipe 37, chambers 36^a, to the interior of the chamber 30. As the water and sap in the log will be drawn out through the exhaust action of the partial vacuum produced in the chamber 12, the dye will follow the retreat of said water and sap by osmotic or capillary action. The surplus wa-

ter and sap flowing into the chamber 12 will be drawn out through the auxiliary chamber 12^b and the exhaust cock 13. The screen or filter made up of the parts 49, 50, and 51, will prevent the clogging of the exhaust pipe 15^c communicating with the pipe 15 and the interior of the chamber 12. Any residue of dyeing material left in the chamber 30 after the log is dyed may be drawn off through the chamber 30^b and the relief cock 31.

While I have shown and described a form of apparatus for carrying out my invention, I do not wish to be limited to the details of construction set forth as the same results can be accomplished by substantially similar apparatus, but

What I claim and desire to secure by Letters Patent, is:—

1. In an apparatus for coloring wood in log form, a main supporting frame, an auxiliary frame mounted on rollers and longitudinally adjustable on said main frame, a charging cylinder vertically and laterally adjustable on said auxiliary frame, flexible means for conducting coloring fluid to said cylinder, a second frame mounted on rollers and adjustably mounted on said main frame, an exhaust cylinder vertically and longitudinally adjustable on said second auxiliary frame, a filter arranged in said exhaust cylinder, means for locking the tops of said auxiliary frames together, means for exhausting air from said exhaust cylinder, means for withdrawing residues from said charging and exhaust cylinders, and means for centering a log relative to said cylinders.

2. In an apparatus for coloring wood in log form, a main supporting frame, a roller supported auxiliary frame longitudinally adjustable on said main frame, means for holding said frame in adjusted position, a charging cylinder vertically and laterally adjustable on said auxiliary frame, log centering means passing through said cylinder, means for conducting coloring fluid to said cylinder, means for drawing off surplus fluid from said cylinder, a second auxiliary frame longitudinally adjustable on said main frame, an exhaust cylinder vertically and laterally adjustable on said auxiliary frame, log centering means passing through said cylinder, means for drawing off residues from said exhaust cylinder, means for locking said frames together, and means for effecting tight joints between the ends of a log and said cylinders.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN PETSCHAUER.

Witnesses:

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M. A. MILORD.