

Fredrick Lear.

PATENTED JUL 11 1871

Impt's in Method of and Apparatus for
Preserving, Seasoning, and Coloring Timber.

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Fig. 1.

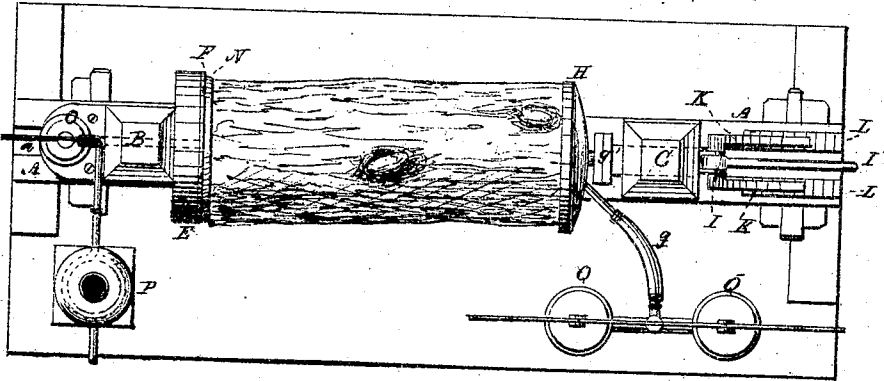


Fig. 2.

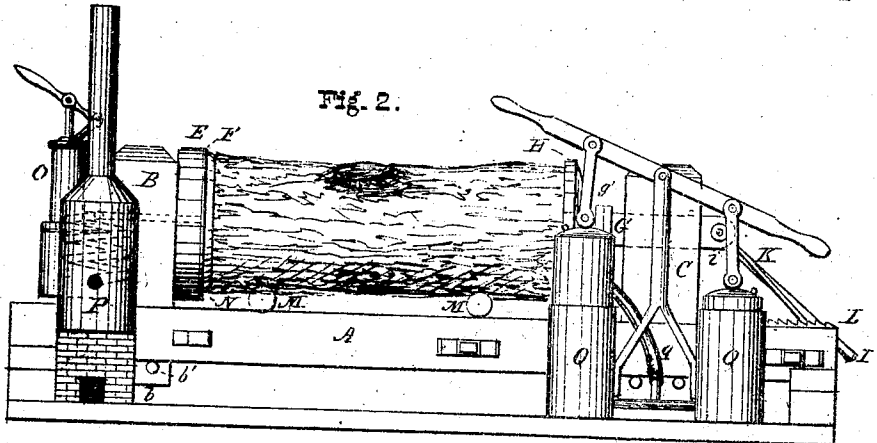


Fig. 7.

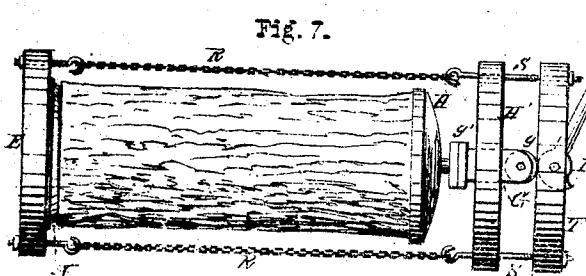


Fig. 3.

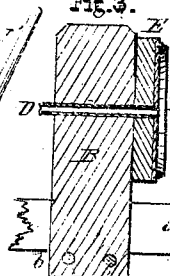


Fig. 4.

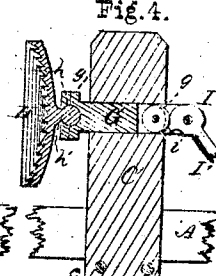


Fig. 5.

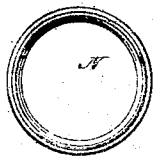
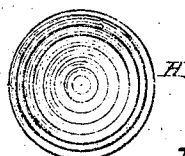


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

FREDERICK LEAR, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN PRESERVING, COLORING, AND SEASONING WOOD.

Specification forming part of Letters Patent No. 116,969, dated July 11, 1871.

To all whom it may concern:

Be it known that I, FREDERICK LEAR, of St. Louis, in the county of St. Louis and in the State of Missouri, have invented new and useful Improvements in the Method of and Apparatus for Preserving, Coloring, and Seasoning Timber; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of my improved apparatus. Fig. 2 is a side elevation of the same. Figs. 3 and 4 are vertical longitudinal sections of the heads used for inclosing the ends of the timber. Figs. 5 and 6 are front elevations of the ring and disk, respectively, shown in Figs. 3 and 4; and Fig. 7 is a plan view of a modification of the clamping-frame.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to preserve, season, or color timber in the log before being cut up; and it consists, principally, in the method of preserving the timber, substantially as is hereinafter specified. It further consists in the method of seasoning the timber, substantially as is hereinafter shown. It further consists in the method of coloring the timber, substantially as is hereinafter set forth. It further consists in the means employed for forming air-tight chambers at the ends of a log, substantially as is hereinafter shown and described. It further consists in the means employed for forcing the heads inward against the log and securing the same in place, substantially as is hereinafter specified. It finally consists in the relative arrangement of the air and liquid or force-pumps and the press, substantially as and for the purpose hereinafter shown.

For convenience of illustration, I will first describe the methods employed for preserving, seasoning, and coloring timber, and afterward the apparatus used. To preserve the timber, it is necessary to thoroughly saturate the wood with some antiseptic composition, which is usually employed in a liquid form, and forced through the pores or sap-channels from one end; but experience has proved that this method is open to serious objections, as if the wood is unseasoned the moisture contained therein not only weakens the preservative but also obstructs its passage, while

if said wood is seasoned in the usual manner the sap-channels have become so contracted and shrunk as to render it almost impossible to force the liquid through a stick of ordinary length. To remedy these objections, I first draw and force a current of heated air through the timber from opposite ends until the moisture contained therein is thoroughly removed and the wood well heated, whereupon the preserving fluid is readily forced through the sap-channels and every part of the wood completely saturated, after which, if desired, a current of heated air may be again passed through the wood until it has become dry and ready for use. To season timber, a current of heated air is forced into one end and drawn from the opposite end until all moisture is removed and the grain of the wood shrunk and fixed, all of which can be accomplished in an incredibly short space of time, and at a comparatively small expense, and at the same time less injury inflicted upon the wood than would be possible by ordinary means. The usual method of coloring timber is to force a coloring fluid into the ends, but it is found that by such means the wood acts as a strainer and removes from the fluid the coloring matter and retains the same near the ends of the stick, so that the center of said timber, even if colored at all, has a much lighter shade. To obviate these objections I form the desired color by the chemical union of two or more liquids, which are successively forced and drawn through the timber, which has first been seasoned. It may sometimes prove advantageous to thoroughly dry the timber after the injection of each liquid, for which purpose the heated air is again employed. The advantage of this method is that, as the color is the result of chemical action between or of the fluids, its uniformity throughout the timber is rendered more certain than when said color is merely held in solution and the liquid employed as a vehicle for its transmission.

Having thus set forth the methods used for effecting the desired objects, I will describe the apparatus employed.

In the annexed drawing, A and A represent two planks resting upon their edges and secured together at their ends so as to leave between the same a vertical longitudinal opening, *a*, the whole forming the supporting-frame for the clamping devices. Extending vertically upward from

near one end of the frame is a post, B, provided at its lower end with a tongue, *b*, which passes downward through the opening *a* and receives immediately below the frame a pin or key, *b'*, by means of which said post is firmly locked in place. A second post, C, constructed like that just described, is placed within the opening and upon the frame, but, unlike said post B, is capable of longitudinal adjustment upon said frame. Passing horizontally through the post B, midway between its upper end and the frame, is an opening through which passes a metal tube, D, having upon its inner end a circular disk or head, E, the outer face of which bears against said post, while its inner face is covered with a plate of lead, rubber, or other soft material, F. Extending horizontally through the movable post C, in a line with the opening through the opposite post B, is a square opening which contains a correspondingly-shaped metal bar, G, provided at its rear end with a friction-roller, *g*, and at its forward or inner end with a suitable socket, *g'*, within which is pivoted a ball, *h*, that is attached to a neck, *h'*, projecting rearward from a circular metal disk, H. Said disk H is concave upon its inner face and provided with a series of concentric teeth, (shown in Figs. 4 and 6,) which rake forward and are very sharp. Pivoted within two ears, *i*, immediately in rear of the opening containing the square bar G, is a cam, I, which bears against the roller *g*, and is provided with a bar or lever, I', by means of which the same may be rotated so as to force said roller and its bar forward, or allow the same to be pressed outward or rearward. Two dogs or pawls, K, each pivoted at its forward end to one of said ears *i*, and having its opposite end resting upon and engaging with a toothed rack, L, secured upon the face of the frame A, completes this portion of the device, the operation of which is as follows:

A log being placed between the posts B and C, with its weight supported by two or more rollers, M, and its end resting against the head E, the adjustable post is moved inward so as to bring the concave head H against the end of said log, after which said post is secured in place by dropping the pawls into engagement with their ratchet-bars. If, now, the lever I' be pressed downward the concave head will be forced against the end of the log so as to embed therein one or more of the concentric teeth, and form within the same and between the end of said log and the face of the disk or head an air-tight chamber, into and through which the preserving or coloring fluids may be forced. An air-tight chamber may be formed upon the opposite end of the log by substituting a corresponding concave and toothed disk for the head E, or, when the latter is used, such chamber may be formed by the employment of a metal ring, N, slightly rounded upon one side or face and sharp upon its opposite face, which ring is placed between the log and head, with its rounded face resting upon the rubber plate attached to the latter, in which position the endwise pressure applied to said log will be sufficient to cause the sharpened face of the ring

to become firmly embedded therein and form a tight joint, while the rubber upon the opposite side will prevent the passage of air or liquid at that point. The air-pump O is placed at one end of the frame and connected with the outer end of the pipe D and with a suitable furnace, P, for heating air, while the force-pump Q is placed at the opposite end of said frame and connected by means of a suitable pipe, *q*, with the interior of the disk or head H; and, both pumps being provided with reversing-valves, heated air or liquids can be forced or drawn through the timber as may be desired. In Fig. 7 is shown a modification of the clamping devices, in which the frame and posts are dispensed with, and the head E connected by means of chains R and rods S with a corresponding head, T, which serves as a substitute for the post C. The head H' slides upon the rods S, and is operated by the same mechanism as before. It will be seen that the concavity of the head or disk H enables it to fit over and find a bearing upon the end of any log having a diameter less than that of said head; but as the irregularity of shape of some logs might present an obstacle to a bearing sufficiently perfect for the purpose, the ring N is made flexible so as to enable it to be bent to the shape of the log.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The hereinbefore-described method of preserving timber, substantially as shown and specified.
2. The hereinbefore-described method of seasoning timber, substantially as and for the purpose set forth.
3. The hereinbefore-described method of coloring timber, substantially as and for the purposes shown.
4. The concave serrated disk or head H, substantially as shown, and for the purpose described.
5. The ring N, constructed as described and combined with the head E and the rubber plate F, or its equivalent, substantially as and for the purpose specified.
6. In combination with the head H and post C, the bar G provided with the roller *g*, and the cam I provided with the lever I', substantially as shown and for the purpose set forth.
7. In combination with the frame A and movable post C, the pawls K and racks L, substantially as and for the purpose shown.
8. The relative arrangement of the clamping-press A, B, and C, the air-pump O, and the force-pump Q, substantially as and for the purpose specified.
9. The clamping-press, composed of the heads E and T connected together by means of the chains R and rods S, the bar G, the sliding head H', and the cam and lever I, substantially as shown and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of April, 1871.

FREDERICK LEAR.

Witnesses:

ALEXANDER LOWRY,
HENRY PETERS.