S. SWARTZ.

PRESS PLATES FOR DRYING AND BENDING WOOD.

No. 170,915. Patented Dec. 7, 1875.

FIG. 1.

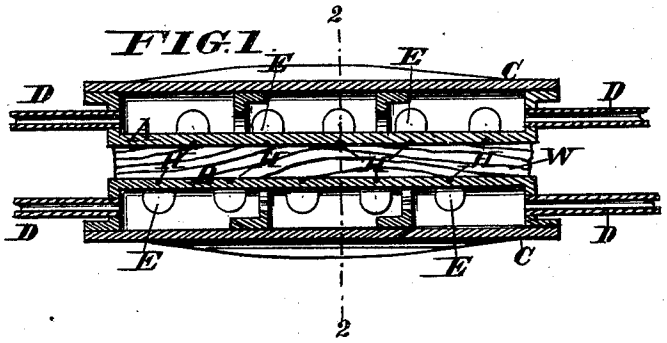


FIG. 2.

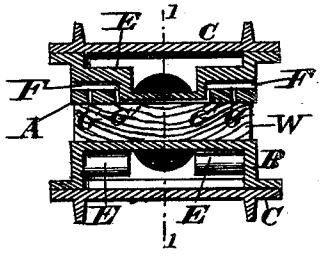


FIG. 3.

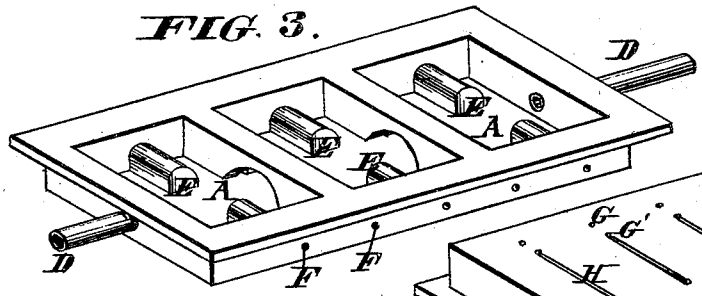


FIG. 4.

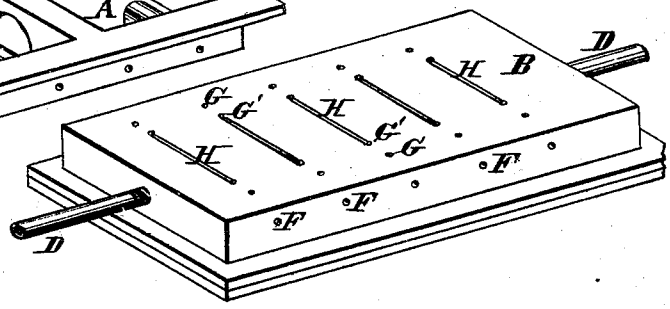
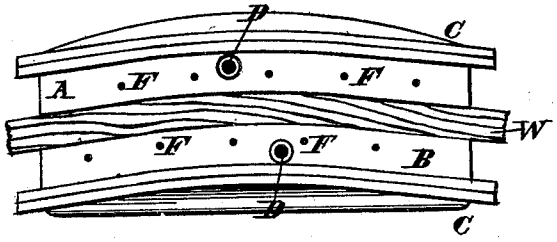


FIG. 5.



WITNESSES

Chas. J. Gooch

Alex. F. Gall

INVENTOR

Samuel Swartz

By Knight Bros. Attorneys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL SWARTZ, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND GILBERT R. SWARTZ, OF SAME PLACE.

IMPROVEMENT IN PRESS-PLATES FOR DRYING AND BENDING WOOD.

Specification forming part of Letters Patent No. **170,915**, dated December 7, 1875; application filed December 2, 1875.

To all whom it may concern:

Be it known that I, SAMUEL SWARTZ, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Steam-Presses for Drying and Bending Wood and other Materials, of which the following is a specification:

My invention is applicable to drying and bending lumber in general, but is more especially designed for drying veneers, cabinet cut lumber, and boards of moderate thickness—such, for example, as are employed in the construction of coffins—and for imparting any desired bend or curvature to the material at the same operation.

The invention consists, first, in an appliance, hereinafter described, by which wood may be pressed into any desired shape and dried at the same operation.

The invention further consists in constructing drying press-plates with face-grooves, to permit the escape of vapor from the material being pressed or dried.

The invention further consists in the combination of grooves and perforations, as hereinafter described, to permit the escape of vapor from the material.

In the accompanying drawings, Figure 1 is a longitudinal section on the line 1, Fig. 2, of a pair of hollow plates or drying-chambers illustrating the invention. Fig. 2 is a transverse of the same on the line 2, Fig. 1. Fig. 3 is a perspective view of the upper press-plate with the back thereof removed. Fig. 4 is a perspective view of the lower press-plate. Fig. 5 is a longitudinal section of a pair of curved plates for imparting a bend to the material being dried.

The face of the bed and platen of the press are formed each of a hollow plate, A B, flanged for the reception of a back plate, C, which is bolted thereto to form a tight steam-chamber, through which steam is circulated with any necessary pressure to impart the required heat to the press-plates, which may be 300° Fahrenheit, more or less, according to the pressure of steam used. D D represent pipes for passing steam to and from the chambers. The hollow plates A B are cast with internal ridges or prominences E, extending from either edge a third, more or less, across the chamber, and drilled, as illustrated in Figs. 1, 3, and 4, with longitudinal openings F, from the exterior nearly to the inner ends of said ribs, so as to communicate with the atmosphere, but not with the interior of the chambers. Vertical perforations G G′ communicate from the faces of the plates to the openings F.

In the face of each plate I form any desirable number of grooves or channels, H, to facilitate the escape of vapor from the material.

It will now appear that when the plates are pressed together upon an interposed body of wood or other material, as shown at W, and steam is admitted to the chambers, the wood will be immediately heated, so as to vaporize the moisture therein contained, and the vapor escaping through the grooves H and apertures G′, G, and F will be discharged into the atmosphere. The grooves H and apertures G G′ in the faces of the respective plates are arranged as shown, with those in one plate opposite the center of the space between those in the other, so as to bring the discharge-openings near all parts of the surfaces to be dried. As illustrated in Figs. 1 to 4, inclusive, the apparatus is adapted for the rapid drying of straight boards, veneers, or other lumber. As illustrated in Fig. 5, where the press-plates are shown in curved form, it is adapted for imparting at the same operation any desired curvature to the material.

It is found in practice that wood may thus be bent permanently into any required form, requiring but a few minutes, varying with the thickness of the material, to impart a bend, curvature, or other shape, which will not subsequently change, as the fibers of the wood are fixed by the combined heat and pressure, and in the case of unseasoned lumber it is effectually seasoned at the same operation by keeping it a little longer in the press.

The invention is thus of great utility in dispensing with the preliminary steaming of the wood to prepare it for bending, and subsequently placing it in drying-kilns, together with the form on which it is bent, in which kilns the material generally remains for several days to become thoroughly dried and

permanently set. This device is applicable to bending and drying coffin-sides, chair-backs, or any curves, by shaping the face of the chambers to suit the curve desired.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. An apparatus for drying and bending wood, constructed with curved pressure-plates, heated by steam or other suitable means, and grooved or perforated to carry off the vapor from the wood, substantially as set forth.

2. The combination, in a pressure-plate, of grooves on the working face of said plate, communicating with the external air, to permit the escape of vapor, substantially as set forth.

3. The combination of the drying press-plates A B, constructed with chambers for the reception of steam, and with face-grooves H and perforations G, G′, and F, to permit the escape of vapor, as explained.

SAMUEL SWARTZ.

Witnesses:

OCTAVIUS KNIGHT,

CHAS. J. GOOCH.