

UNITED STATES PATENT OFFICE.

ROBERT H. ISBELL, OF NEW MILFORD, CONNECTICUT.

IMPROVEMENT IN PREPARING WOOD FOR THE MANUFACTURE OF BUTTONS.

Specification forming part of Letters Patent No. 134,286, dated December 24, 1872.

To all whom it may concern :

Be it known that I, ROBERT H. ISBELL, of New Milford, county of Litchfield, State of Connecticut, have invented an Improved Process in Manufacturing Wood Buttons, of which the following is a specification :

My invention consists, first, in removing the albuminous matter from the ducts of the wood; also removing impurities and matter soluble in alcohol that impregnate the lignine of the tissues; second, of changing or impregnating to the greatest possible extent the fiber of the wood with a gum soluble in alcohol, acid, or alkalies, and afterward evaporating all the fluid matter by heat; third, in closing all the ducts or cells of the wood, while hot, by a revolving or rotating press; the object being to produce a button hard and ductile, and impervious to moisture.

Description.

For the blanks of buttons I use thoroughly-seasoned wood, whose fiber is tough and close—maple, box, pear, birch, or apple tree being good. The timber is first sawed into square strips a little larger in diameter than the blank. From these strips the blanks are sawed crosswise, and double the thickness of the finished button; they are then turned in a lathe to nearly the form of the finished button. The blanks are then soaked in a weak solution of hydrate of soda to remove the albumen; then they are thoroughly washed in clear water. These blanks are then placed in an iron vessel with a steam-tight cover, and then covered with gum lac, or use painters' japan dissolved in alcohol, the cover secured, and 284° Fahrenheit heat applied till a pressure of fifty pounds per inch is obtained, and then the heat is regulated to keep the pressure at that point for an hour, or till they sink in the varnish. This forces the gum into the wood, filling all the ducts and impregnating the fiber thoroughly, the alcohol or alkali extracting from the wood the soluble parts, which rise to the top, the wood absorbing and retaining the gum lac. The cover of vessel is then removed, and temperature re-

duced to 174°, till the alcohol is evaporated; then reduced to 90°, till the gum lac is well absorbed by the wood and blanks are quite dry. The blanks are then put into a steam-box, and heated with steam at a pressure of two pounds per inch till the gum and wood are moderately soft. They are then taken while hot and pressed in a die with revolving or rotating punch to one-half the thickness of blank. This forces all the fiber together and fills all ducts of the wood, and leaves the button hard and similar to horn, with a finely-finished face. I can use other preparations to fill the fiber, such as resinous varnishes, japan, &c.; but they do not give as good a result. I can also impregnate the blanks by simply boiling them in an open vessel; but it requires more time, and does not force the lac into the ducts and fiber as thoroughly as the pressure. Then, the after heating by steam prepares the lac for retaining the fiber in its compressed state.

It is very essential that all the albumen and other solvent matters should be removed from the wood to prevent their action on the gum lac, or impede its penetrating the woody fiber. The pressure applied in a revolving or rotary motion turns the fiber over and knits them together more than if the pressure were direct downward; that would only press them together endwise, and would not destroy the line of fracture, (or split seams, as usually termed.) This revolving pressure greatly facilitates filling all the pores, ducts, &c., of the wood, and turns a hard, bright enamel onto face of button.

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

The process herein described for preparing, filling, pressing, and polishing wood, as and for the purpose specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

ROBERT H. ISBELL.

Witnesses:

LAURA A. HUBBELL,
A. SKAATS.