No. 652,653. Patented June 26, 1900.

E. P. WHITE.

COMPOSITE BOARD.

(Application filed Feb. 9, 1900.)

(No Model.)

Fig. 1.

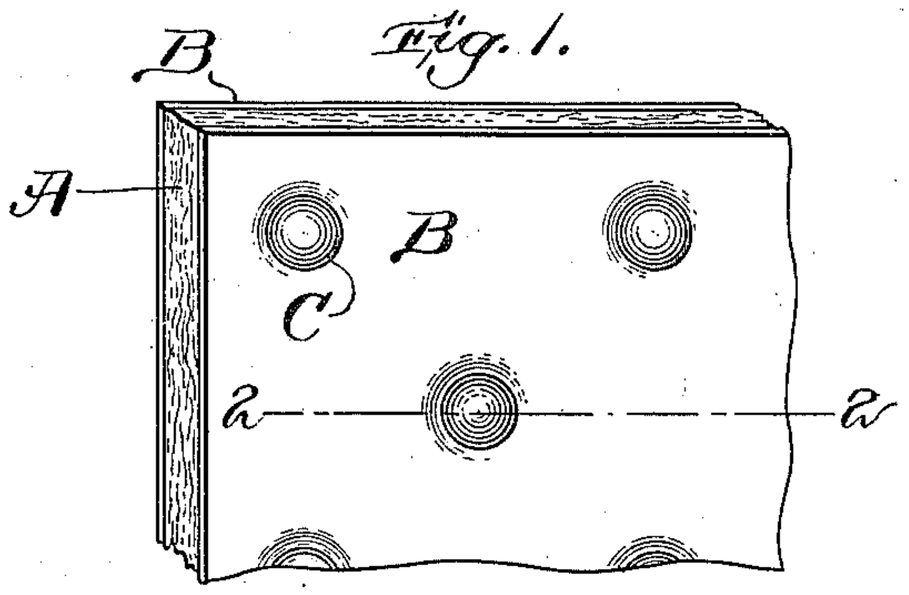


Fig. 2.

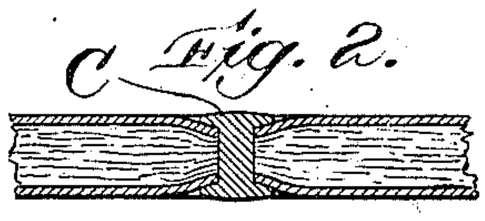


Fig. 3.

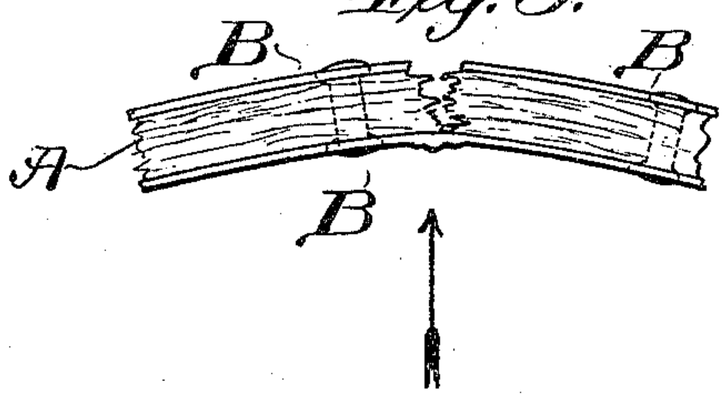
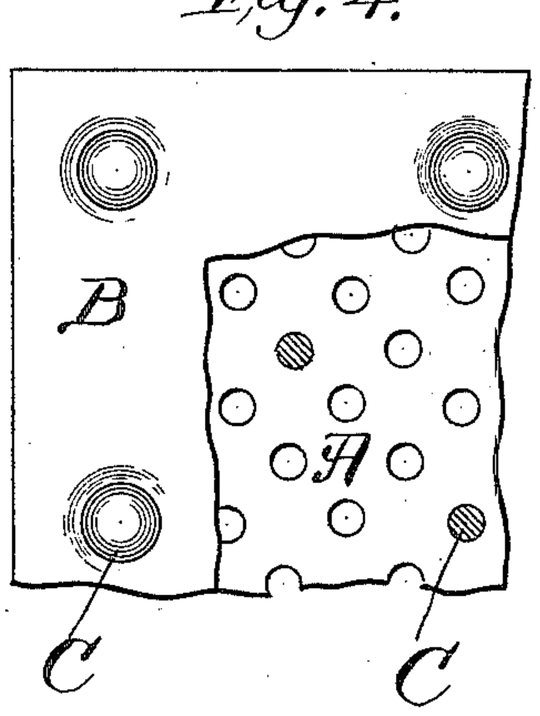


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD PAYSON WHITE, OF ARLINGTON, MASSACHUSETTS.

COMPOSITE BOARD.

SPECIFICATION forming part of Letters Patent No. 652,653, dated June 26, 1900.

Application filed February 9, 1900. Serial No. 4,589. (No model.)

To all whom it may concern:

Be it known that I, EDWARD PAYSON WHITE, of Arlington, in the county of Middlesex, State of Massachusetts, have invented a new and Improved Board for Use in the Mechanic Arts, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view; Fig. 2, a section on line 2 2 of Fig. 1; Fig. 3, a view showing the result of a breaking cross-strain; Fig. 4, a plan view with part of the top layer removed, showing a modification.

My invention is a board for use in various arts; but I have more especially contemplated applying it in the manufacture of trunks and the like, for which it is especially adapted, being very stiff and at the same time light and durable. These qualities of lightness, stiffness, and durability are especially requisite in trunks and the like which are employed in foreign travel, where the limit of weight allowed to travelers for their personal effects is small.

The board which I make according to my invention in its best form is composed of three parts—viz, a central portion A, which is made of light material—such, for example, as ground cork, which after being ground is mixed with suitable cement materials and formed into sheets. It will be obvious that this material has practically no strength to resist cross-strains—that is to say, force applied crosswise of its length and thickness will easily fracture it. The outer and inner portions B of my new board, which form the other two parts of the completed whole, are formed of thin sheets of material—such, for example, as that known commercially as "fiber"—or of strong leather-board. It will be obvious that such sheets will possess practically no stiffness against cross-strains, but will bend readily to the force applied. I have therefore the result that the various parts of which my new board is composed give little or no resistance to cross-strains, but yield or break when such strains are applied. The thin sheets of fiber or the like possess, however, in a considerable degree tensional strength, and possess also in a considerable degree the power of resistance to abrasive action.

To form my new board, the parts are assembled as shown in the drawings, the light and bulky material in the middle and the sheets of fiber on the outside. The combined sheet is then secured and made one by rivets C or the like passing through all three and tightly clenched. The result of this organization and attachment is to form from materials which have little or no power of resistance to cross-strains in themselves a new article which is exceedingly stiff, being, weight for weight or thickness for thickness, stiffer than wood. The reason for this new result is that the interposition between the sheets of fiber material of the cork sheet and the fixing of the three together gives, in effect, a truss construction, translating cross-stresses into a longitudinal strain in the sheet of fiber material remote from that side from which the cross-strain comes and translating the cross-strain into a crushing stress in that sheet of fiber material which is near to the point from which the cross-strain comes. A reference to the drawings will make this proposition clear, for it is obvious that the three parts being fixedly secured in their relation the one to the other these relations cannot be altered unless the sheet remote from the point from which the cross-strain comes shall tear, or unless the sheet toward the point from which the cross-strain comes shall buckle or crush, or unless both these effects are produced, or unless all three parts be loosened and disorganized in their relation the one to the other.

It will be obvious that my improved board is practically waterproof, and among the advantages of the construction described may be mentioned that the heads of the rivets used exposed upon the outside of the board greatly increase its resistance to abrasive action.

For the purpose of lessening weight holes may be formed at convenient intervals in the middle layer of my board, as shown in Fig. 4. In this way a considerable saving in

weight may be effected without in any appreciable degree reducing the effectiveness of the middle portion of my board.

I claim—

The board above described made up of the bulky middle portion A and the outer sheets B of material having tensile strength all clamped and fixed in their relations the one to the other by bolts or the like.

EDWARD PAYSON WHITE.

Witnesses:
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