Jan. 13, 1925. 1,523,104

W. B. DOE

COMPOSITE BOARD

Filed Dec. 7, 1923

FIG I

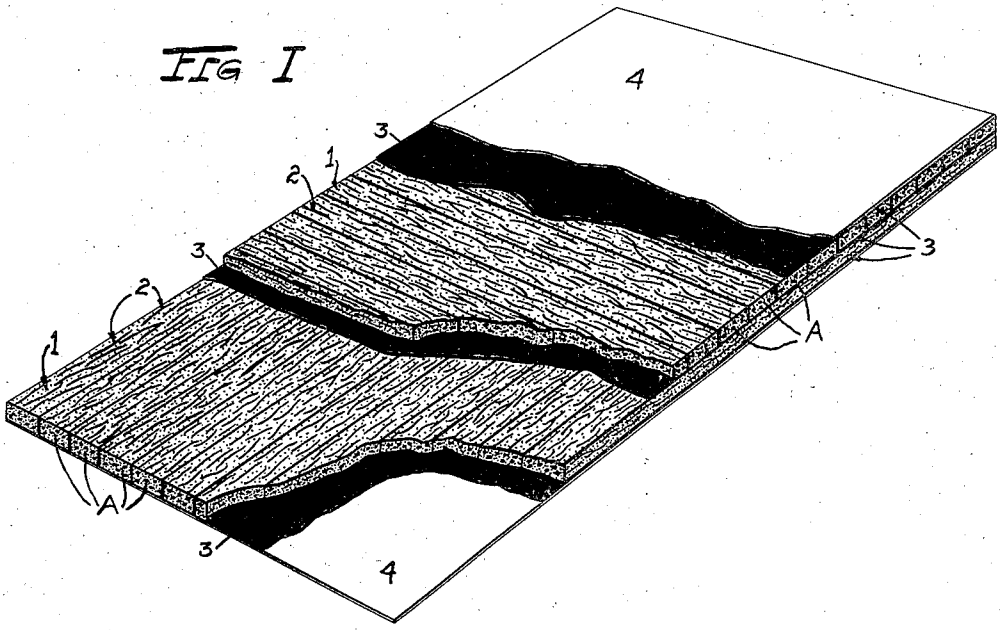
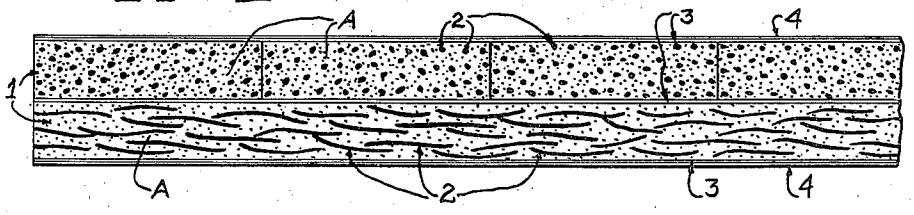


FIG. II



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UNITED STATES PATENT OFFICE.

WILLIAM B. DOE, OF JACKSONVILLE, FLORIDA, ASSIGNOR OF ONE-HALF TO EDWIN W. GROVE, OF ST. LOUIS, MISSOURI.

COMPOSITE BOARD.

Application filed December 7, 1923. Serial No. 679,094.

To all whom it may concern:

Be it known that I, WILLIAM B. DOE, a citizen of the United States of America, a resident of Jacksonville, in the county of Duval, State of Florida, have invented certain new and useful Improvements in Composite Boards, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in composite boards adapted for use as wall boards, although it is to be understood that the new boards can be used as a substitute for lumber and also as insulating material and sound-deadening material in buildings as well as other structures wherein such materials are desirable.

The main object of the invention is to produce valuable material from palmetto trees known as "cabbage palmettos" and "cabbage palms." This wood consists of very coarse and hard fibers enclosed by a body of soft pith corresponding to the pith in ordinary cornstalks. Immense forests of these trees are found in certain sections of the United States, and my experience has shown that the trees invariably grow in rich soil. However, the use of the peculiar wood is so limited that it is ordinarily regarded as an obnoxious growth preventing the production of valuable crops in the fertile land, and the problem of clearing the dense palmetto forests involves the labor and expense of removing numerous very large and substantially worthless trees. If the logs could be successfully destroyed by fire, the problem would be relatively simple, but the mixture of pith and fibers is substantially fireproof. Consequently, there is a continued growth of these undesirable palmetto trees in fertile soil that would be very valuable if the trees were removed.

My object is to convert the peculiar wood, consisting of soft pith and hard fibers, into boards having sufficient value to justify the expense of removing the trees. Considerably more than one-half of the body of the wood is formed by the soft pith, and the only other constituent is a mass of coarse hard fibers extending through the mass of soft pith. If the wood is cut into boards, portions of the hard fibers are exposed in irregular lines at various points throughout the surfaces of the boards. Owing to the difference between the tough coarse fibers and the soft pith, the surfaces of the boards are not smooth, and they cannot be smoothed or polished by the ordinary wood-working machines. The soft pith can be readily removed from the firm fibers, and it will cling to the edges of the cutting tools, so that attempts to smooth the boards result in the removal of irregular bodies of pith, while the relatively free portions of the strong fibers are jerked and otherwise displaced to lie in the form of irregular ridges or sharp splinters at the surfaces of the soft pith.

The individual boards, or strips, of pith and fibers are relatively weak and flexible, for the fibers extend lengthwise of the boards and there are no transverse strengthening elements in the pith. One of my objects is to produce a strong, stiff board, and this can be accomplished by uniting several of the strips. In the preferred form of the invention, the weak strips are arranged in plies with the fibers in one ply at an angle to the fibers in another ply, and all of the plies are cemented together.

Another object is to produce a board having a comparatively smooth surface, and a suitable coating is therefore applied to the splinter-like ends of the fibers which extend from the pith.

A further object is to produce a substantially water-proof board which is not liable to become warped when subjected to atmospheric conditions. This may be accomplished by coating the absorbent pith with a water-proof material, such as asphalt. In addition to this, a smooth non-adhesive surface can be obtained by covering the asphalt with paper.

The resultant product is a smooth, strong and stiff board, much lighter than ordinary wood, and the main constituents of the new composite board are pith and fibers of palmetto wood, which is ordinarily regarded as a substantially worthless or undesirable product. Furthermore, the new boards may have any desired width, length and thickness. For example, they may conform to the standard dimensions for wall boards, and they will then possess all of the advantages of the best plaster-board, as well as the additional strength and insulating properties, and the advantage of very light weight for

the transportation and installation of the boards.

With the foregoing and other objects in view, the invention comprises the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications which come within the scope of the claims hereunto appended.

Fig. I is a perspective view of a composite board embodying the features of this invention, some of the parts being broken away to expose the several elements of the board.

Fig. II is an enlarged edge view of a portion of the board.

As an illustration of one form of the invention I have shown a board comprising two plies of palmetto wood cemented to each other and covered with thin sheet material, such as paper.

Palmetto trees are not large in diameter, but it is desirable to produce large boards, not only for use as wall boards but also to reduce the labor of erecting the structure in which the boards are used. The palmetto wood is very light, so the large boards can be easily handled.

Each ply comprises strips A of soft pithy material 1 with coarse hard fibers 2 formed therein and extending lengthwise thereof. The strips A in each ply are approximately parallel with each other, but at an angle to the strips in the other ply. In the form shown, the strips of one ply lie at a right angle to the strips in the other ply. Consequently, the strong, tough fibers in each ply lie at an angle to the fibers in the other ply, and although each individual strip of pith and fibers is weak and flexible, the several strips are combined to produce a large, strong board. Each strip may be relatively thin, for instance, one-fourth of an inch, or less, in thickness, so the total thickness of the composite board may conform to that of an ordinary wall board made of plaster. However, the new board is lighter and stronger than plaster board, and it has the insulating properties of the soft pith.

When a palmetto log is cut into strips, portions of the fibers are exposed at the surfaces of the pith, and sharp splinters are formed by some of the projecting portions of the fibers. Both sides of each strip are, therefore, preferably coated to cover the rough surfaces, and a suitable adhesive material may be used for this purpose. It is also desirable to coat the absorbent pith with a waterproof substance. Asphaltic material is an inexpensive substance having all of these properties, and the strips can be readily covered with asphalt to provide the coating material 3.

After the coated strips A have been assembled, they will be securely united by the cementitious asphaltic material, and sheets of paper 4 may be applied to the outer faces of the cementitious coating, so as to provide smooth, non-adhesive surfaces at both sides of the board.

The several inexpensive elements of the composite board are thus cemented to each other, so as to convert the weak pith and coarse fibers into a strong, durable, moisture-proof board, with smooth surfaces, and containing a large mass of insulating material. The resultant product is much lighter than ordinary wood or plaster, and can be made in any convenient sizes to save time and labor in erecting the structure, or to conform to the standard dimensions of wall boards, and the composite board can be readily cut by an ordinary saw.

I claim:

1. A composite board comprising plies of soft pithy material with coarse fibers therein, and cementitious material uniting the plies.

2. As a new article of manufacture, a stiff board comprising plies of pithy palmetto wood, each ply consisting of hard coarse fibers in soft pithy material, and sementitious material uniting the plies.

3. As a new article of manufacture, a board comprising plies of soft pithy material with coarse fibers therein, the fibers in one ply being at an angle to the fibers in the other ply, and cementitious material uniting said plies.

4. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers formed therein and extending lengthwise thereof, the strips in each ply being approximately parallel with each other but at an angle to the strips in the other ply, and cementitious material uniting all of said strips.

5. A composite board comprising plies of pithy palmetto wood, each ply consisting of hard coarse fibers in soft pithy material with portions of the fibers extending from the pithy material, cementitious material uniting the plies, and an outer coating adhering to one of the surfaces of the board so as to cover the extended portions of the fibers.

6. A composite board comprising plies of pithy palmetto wood, each ply consisting of soft pithy material with coarse fibers therein, said plies being cemented to each other, and a waterproof coating covering the outer face of one of said plies.

7. A composite board comprising plies of pithy palmetto wood, each ply consisting of soft pithy material with coarse fibers there-

in, said plies being cemented to each other, and a paper covering adhering to the outer face of one of said plies.

8. A composite board comprising plies of pithy palmetto wood, each ply comprising absorbent pithy material with coarse fibers therein, a layer of waterproof cementitious material interposed between and adhering to said plies, and a waterproof coating on the outer face of the absorbent pithy material.

9. A composite board comprising plies of pithy palmetto wood, each ply comprising absorbent pithy material with coarse fibers therein, a layer of waterproof cementitious material interposed between and adhering to said plies, a waterproof coating on the outer face of the absorbent pithy material, and a paper covering adhering to the coating on each of said outer faces.

10. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers therein, and cementitious material uniting all of said strips.

11. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers therein, the strips of each ply being cemented and connected by the strips of another ply.

12. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers therein, the strips of each ply being cemented and connected by the strips of another ply, and waterproof material covering the outer faces of said pithy material.

13. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers therein, the strips of each ply being cemented to and connected by the strips of another ply, waterproof material covering the outer faces of said pithy material, and sheets of paper covering and adhering to said waterproof material.

14. As a new article of manufacture, a board comprising piles of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers formed therein and extending lengthwise thereof, the strips in each ply being approximately parallel with each other but at an angle to the strips in the other ply, cementitious material uniting all of said strips, each strip having rough surfaces formed partly by the pithy material and partly by portions of the coarse fibers, and an outer covering of protective material adhering to the rough outer face of each strip.

15. As a new article of manufacture, a board comprising plies of pithy palmetto wood, each ply comprising strips of soft pithy material with coarse fibers formed therein and extending lengthwise thereof, the strips in each ply being approximately parallel with each other but at an angle to the strips in the other ply, cementitious material uniting all of said strips, each strip having rough surfaces formed partly by the pithy material and partly by the coarse fibers, a coating of asphaltic material adhering to the rough outer face of each strip, and paper covering the asphaltic material.

In testimony that I claim the foregoing I hereunto affix my signature.

WILLIAM B. DOE.