Dec. 23, 1952 W. E. WILSON 2,622,276

PROCESS FOR MANUFACTURING COMPOSITE BOARD

Filed July 24, 1948

Fig. 1

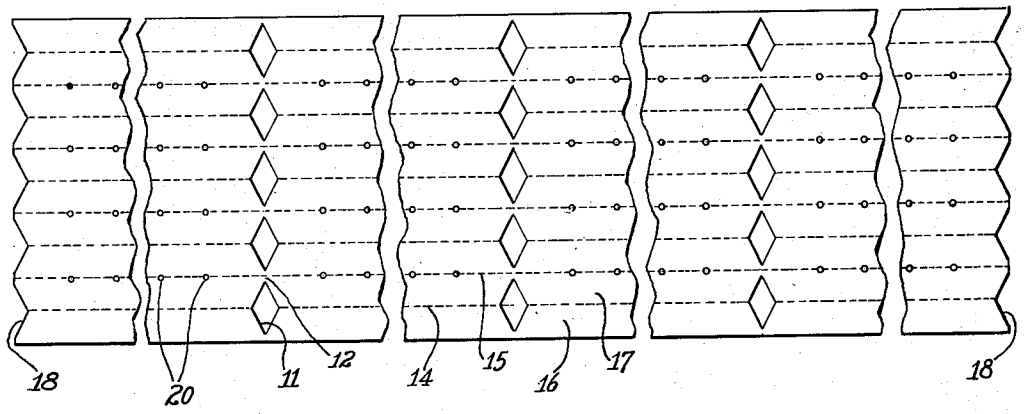


Fig. 3

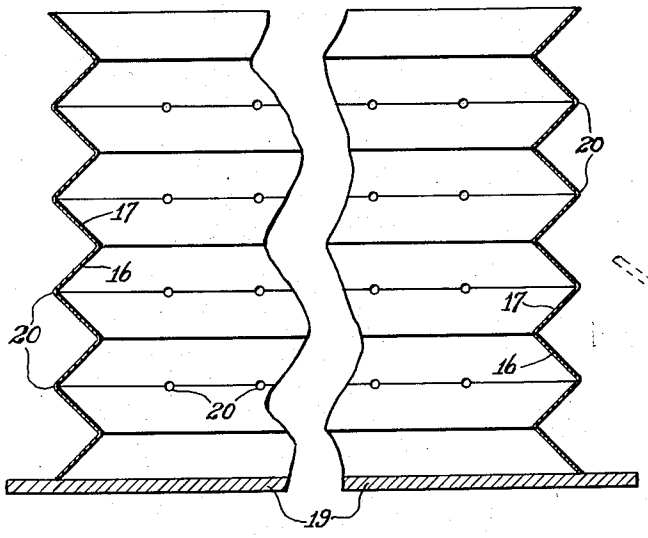
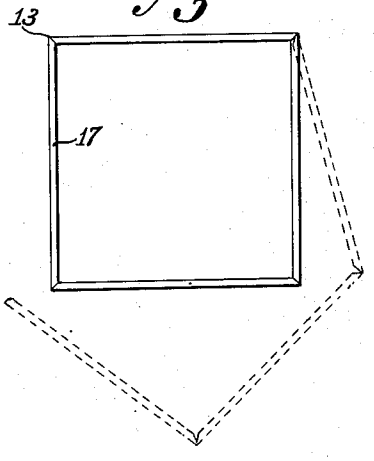


Fig. 2



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PROCESS FOR MANUFACTURING COMPOSITE BOARD

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3 Claims. (Cl. 18—47.5)

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This invention relates to the manufacture of composite boards from loose material, such as wood fibers, or the like.

The loose material for such boards, when combined with resins or thermo-setting adhesives, as a binder, occupies about 6 to 12 times the volume of the finished product. In pressing these materials, in the usual manner, in a metal tray by means of a plunger or ram fitting closely within the sides of the tray, the press employed must have an opening equal to approximately twice the height of the loose material since the plunger must be long enough to extend, in its final position, to within a short distance from the bottom of the tray.

When, for example, Douglas fir planings having a moisture content of about 20% are employed, the depth of the loose material required to make a finished board of standard ¼ inch thickness is approximately 2¾ inches. Ordinary presses, such as those for making plywood, have an opening of only 3 inches, and it is, therefore, impossible to employ such presses for the manufacture, in a single operation, of standard-thickness board from the loose material; it having been the practice to pre-press the material, in a cold state, to about one-half its original thickness and then transfer it to standard equipment, such as plywood presses, for final pressing.

It is an object of this invention to obviate the requirement for the conventional tray and cooperating plunger in the manufacture of composite board from loose material, so that the necessity for pre-pressing the material to conform to the opening of a standard press is avoided. I accomplish this object by providing for the loose material a container which is adapted to collapse in the pressing operation.

With the above set forth and other objects in view, the invention consists in the novel and useful provision, formation, construction, association, and relative arrangement of parts, members and features, all as shown in a certain embodiment in the accompanying drawing, described generally, and more particularly pointed out in the claims.

In the drawing:

Figure 1 is a view showing a scored and apertured blank for a container embodying this invention,

Figure 2 is a plan, to reduced scale, showing the blank of Figure 1 folded to form the finished container, and,

Figure 3 is an enlarged sectional view of the container.

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The blank shown in Figure 1 is of material such as relatively stiff paper, or other thin foldable material; the material preferably being of some inexpensive kind so that the container may be discarded after a single use without adding materially to the cost of manufacture of the board. This blank is provided with vertical rows of diamond-shaped openings 11 separated by uncut portions 12, which are adapted to form the corners 13 (see Figure 2) of the container. The blank is scored or creased horizontally, as indicated at 14 and 15, in alternate opposite directions so that the portions 16 and 17 of the blank between the scores can form the accordion folds indicated by the same numerals in Figure 3.

In Figure 1 a break in the blank is indicated between each of the rows of diamond-shaped openings; the reason for these breaks being that the actual length of the portions between these openings may be 50 to 100 inches (corresponding to the side dimension of a standard composite board), while the height of the unfolded blank may be about 5 inches.

After the blank has been bent horizontally to form the accordion folds, it is folded vertically at the uncut portions 12 to form, in plan, the rectangle shown in Figure 2; the broken lines in that figure indicating the shape of the blank during this folding operation. The ends of the blank are notched, as indicated at 18, so that when they are brought together, the notches form the equivalent of the diamond-shaped openings 11. The openings 11 serve to facilitate the folding, so that when the folds of the container are expanded, as shown in Figure 3, there are only small openings at the corners; the ends of the blank conveniently being joined by flexible material, or by being overlapped and stapled.

In use, the container is placed upon a support, such as a thin metallic caul-plate 19, shown in Figure 3, and filled with the required amount of loose board-material premixed with a suitable binder. Another caul plate is then conveniently placed on top of the container, and the whole assembly slid between the platens of a conventional press for pressing and simultaneous application of heat, as required by the particular binder employed.

To permit uniform escape of excess vapors and gases driven off during the pressing and heating operation, small perforations 20 are provided in the outer ridges of the side walls of the container. With continued pressure, the corrugations or accordion folds of the container collapse, so that at the termination of the op-

eration, these folds are substantially abutting; the loose material between the folds, which is not greatly compacted during the pressing operation, facilitating escape of vapor through the perforations **20**.

After removal of the assembly from the press, the caul plates are stripped from the board, which is then trimmed to remove the margins constituted by the container folds.

Some of the advantages of the device of this invention are: (1) elimination of the necessity for pre-pressing the loose board material to fit the openings of standard plywood presses now in use in the industry; (2) elimination of the necessity for special metallic trays and plungers, or other expensive equipment; and (3) economy, since the containers can be constructed of material so inexpensive that its waste, by trimming from the board, is unimportant.

I claim:

1. A process for manufacturing composite board, which comprises placing particles of wood or the like and a suitable binder in a container having an unrestrained and collapsible side wall of thin material, and subjecting the whole to pressure to form the board, the container side wall serving as the sole means for limiting the lateral spread of the particles of wood and binder when the container and particles of wood are subjected to pressure.

2. A process for manufacturing composite board, which comprises placing particles of wood or the like and a suitable binder in a container having a collapsible side wall of thin material, subjecting the whole to pressure to form the board, and then trimming the marginal portions of the product which includes said container side-wall.

3. The process of manufacturing composite board from loose material, which comprises placing the loose material in a collapsible container, subjecting the whole to pressure to form the board, and then trimming the marginal portions of the product which includes said container side-wall.

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