

Aug. 24, 1926.

1,597,623

J. E. SCHUMACHER

FABRICATION OF PLASTER BOARD

Filed Dec. 24, 1924

3 Sheets-Sheet 1

Fig. 1

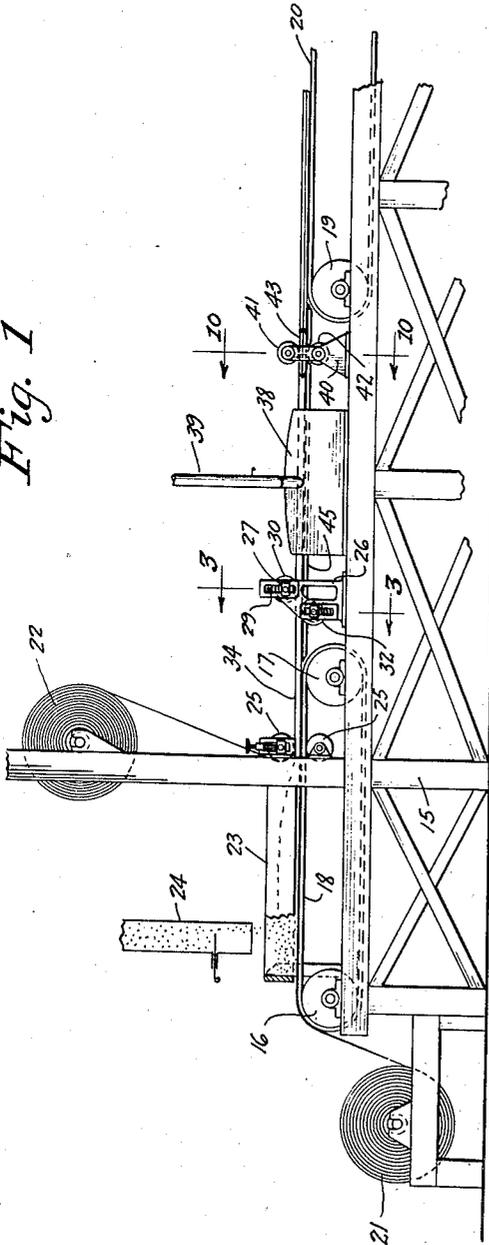
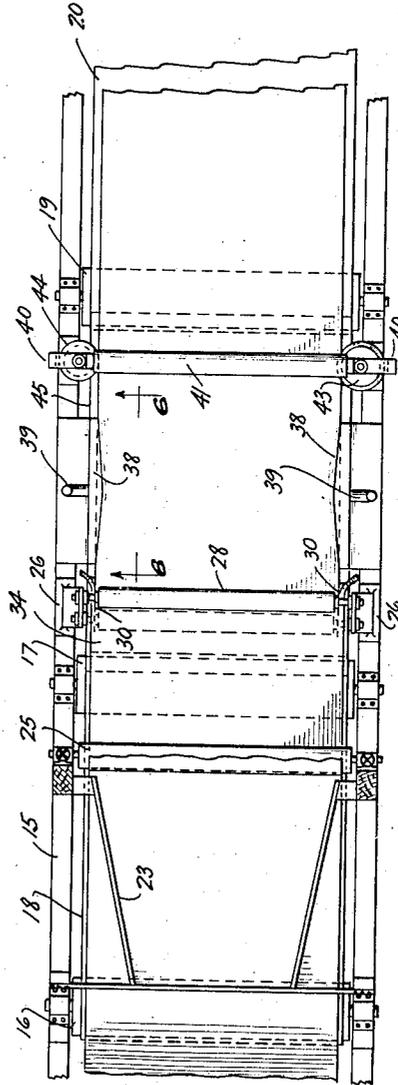


Fig. 2



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3 Sheets-Sheet 2

Fig. 4

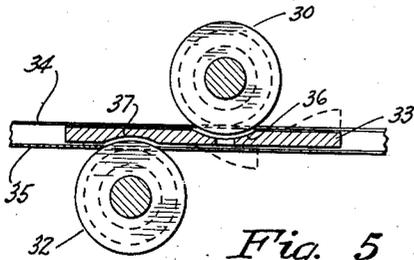


Fig. 3

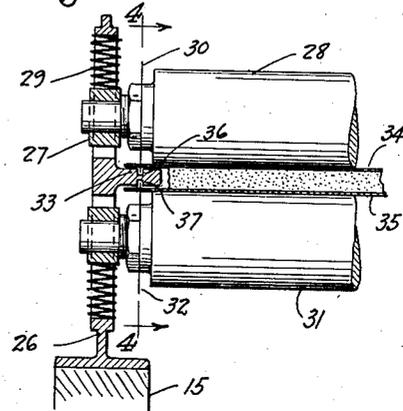


Fig. 5

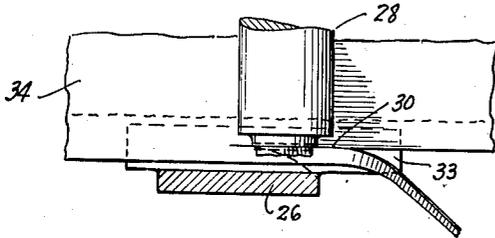


Fig. 8

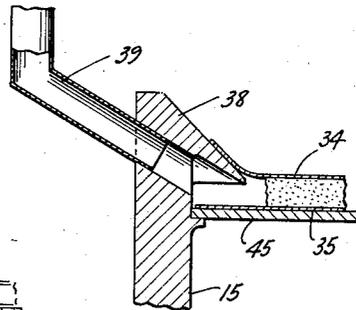


Fig. 6

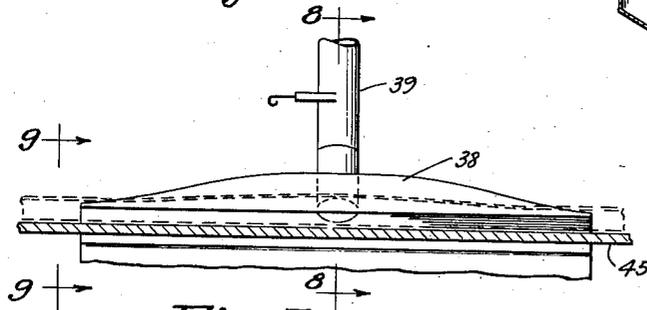


Fig. 9

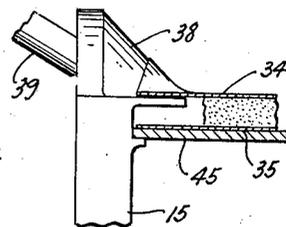
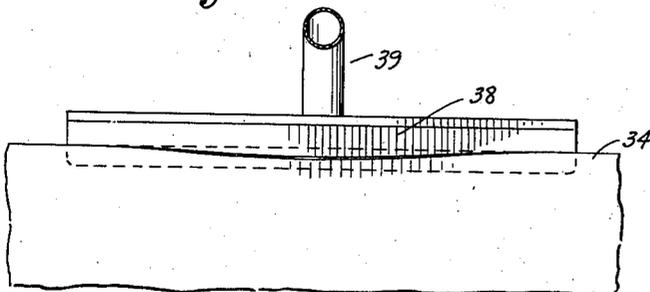


Fig. 7



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3 Sheets-Sheet 3

Fig. 10

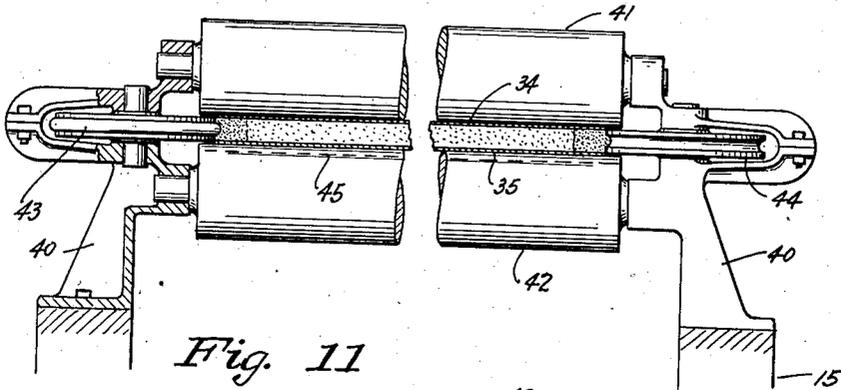


Fig. 11

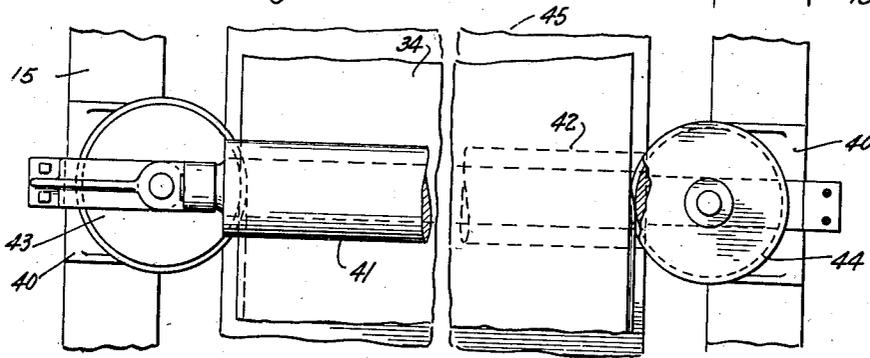
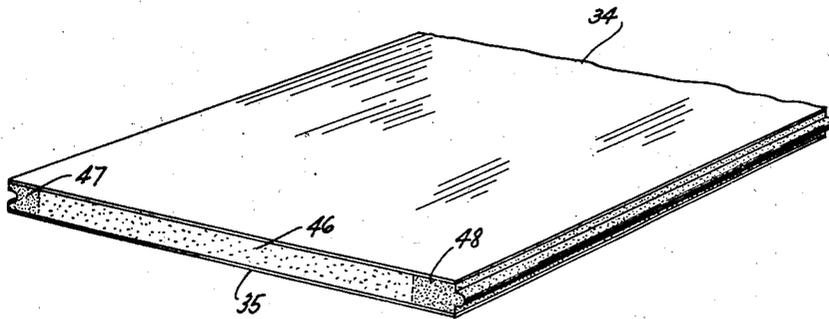


Fig. 12



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FABRICATION OF PLASTER BOARD.

Application filed December 24, 1924. Serial No. 757,929.

This invention relates to fabrication of building board, and more specifically panels comprising a cementitious body faced with a pliable cover. More particularly, the present invention appertains to the article known in the building trades as plaster board.

Finished plaster board should have finished edges such that when abutted they will form smooth, tight joints with the panels in proper alignment. With squared raw edge board having a body of the ordinary calcined gypsum, or aggregate and water, the plaster at the edges, in many instances, does not maintain the desired smoothness and shape so that it is found advantageous to finish the board by trimming the edges. This results in wasting of material and the addition of a step in the operation of manufacture, which detracts from economy of manufacture and ultimate capacity of the manufacturing plant.

The objects of the present invention are first, to provide an economical, speedy method, whereby a finished raw edge board is obtained which requires no trimming and is of such a character that panels thereof will fit against one another to form smooth joints; second, to provide a method of forming a board having hardened edge margins; the material for the margins being introduced after the body of the board has been formed; and third, to provide a board having raw rabbeted edges.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of a fragment of a machine for carrying out steps of this process; Fig. 2 is a plan view; Fig. 3 is a section on an enlarged scale showing a fragment of the trimming mechanism as seen on the line 3—3 of Fig. 1; Fig. 4 is a section as seen on the line 4—4 of Fig. 3; Fig. 5 is a plan view of the mechanism shown in Figs. 3 and 4; Fig. 6 is a section on an enlarged scale of a fragment of the machine showing a folder as seen on the line 6—6 of Fig. 2; Fig. 7 is a plan view of the structure shown in Fig. 6; Fig. 8 is a section as seen on the line 8—8 of Fig. 6; Fig. 9 is a section as seen on the line 9—9 of Fig. 6; Fig. 10 is a section as seen on the line 10—10

of Fig. 1 on an enlarged scale showing the edge forming mechanism; Fig. 11 is a plan view of the structure shown in Fig. 10; and Fig. 12 is a perspective view showing the finished board.

In this art it is customary to make plaster board continuously on a machine which continuously advances top and bottom cover sheets, depositing the plastic material between the sheets, advancing the board formed upon a conveyor, severing the advancing board into panels, removing the panels from the conveyor and then following the usual steps to produce the finished board. A machine for carrying out this method and the additional steps pertinent to the present invention is disclosed in the drawing and described herein. However, it will be understood that the method is not limited to performance by the particular machine shown and described, such disclosure being for illustrative purposes only.

As shown in the drawings, the machine for carrying out this invention comprises a frame 15. Journalled upon one end of the frame are rollers 16 and 17 over which a conveyor belt 18 is passed. The initially formed board is produced upon belt 18. Another roller 19 is shown journalled on the frame and a conveyor belt 20 passes thereover. Conveyor belt 20 advances the finally formed board, and, as none of the steps performed after the green board has been finally formed are pertinent to the present invention, the remainder of the machine is not shown. A supply roll of paper 21 for the lower cover sheet is rotatably mounted upon a sub-frame. A similar supply roll 22 for the upper cover sheet is rotatably mounted on the frame above the conveyor. Plaster mud is fed between the advancing sheets from a box 23 to which the mud is delivered by a spout 24. The sheets with the interposed plaster are carried between pressure rollers 25. As much of the structure as just described is well known in the art and differs therefrom only in that the length of the conveyor belt between rollers 16 and 17 is short, and the amount of mud supplied is such as to leave an unfilled marginal portion between the edges of the sheets.

Mounted upon the side bars of the frame are brackets 26. These brackets have upper ways in which are slidably mounted

bearing blocks 27. Journalled in the blocks is a roller 28. The roller 28 is pressed downwardly by means of compression springs 29 disposed in the ways and exerting pressure upon the blocks 27. Secured to the ends of the roller are disk knives 30. Similarly mounted in the bracket 26 is a roller 31 having at the ends thereof disk knives 32. A block 33 projects inwardly from each bracket, the block being of the thickness of the plaster core and serving as a support for the cover sheets indicated by 34 and 35 while the latter are being trimmed. Kerfs 36 and 37 are formed on the upper and lower sides of blocks 33 for the knives 30 and 32 to enter. Knives 30 are spaced so as to trim the upper cover sheet to provide a width exactly equal to the final width of the board without further trimming, and knives 32 are similarly spaced.

Folders 38 are arranged at the sides of the frame to lift the marginal edges of the upper sheet 34 preparatory to the introduction of the edge material. This may be a portion of a similar plastic mass as the body mixed with a colloidal body that has the property of toughening the gypsum when set, so that the edge material will stand more abuse during manufacture and after completion of the product. It may be of material having any desired quality. The edge material may be introduced through courses 39 which are fed from any suitable source of supply. Enough of the edge plastic mass is introduced on one edge of the board so that when the sheets are brought back into proper position, some of the plastic material will exude. This provides for the tongue portion of the rabbeted edge which is next formed.

The wet plaster board next passes to the edge forming mechanism. Brackets 40 on opposite sides of the frame have journalled thereon upper and lower forming rollers indicated by 41 and 42. These rollers are for smoothing the cover sheets and for maintaining the board at its proper thickness. Mounted in the bracket 40 upon vertical shafts are the edge formers 43 and 44. These formers are disks which roll against the edges of the board, as best shown in Figs. 10 and 11. Disk 43 has a tongue on its edge to form a groove in the board. The disk 44 has a corresponding groove to form a tongue of raw plaster.

From the forming mechanism, the finished green board passes upon the conveyor belt 20 and is handled in the usual manner. There is a space between conveyor belts 18 and 20 between which the plaster board must pass. For the purpose of aiding in supporting the board in this space, plates 45 may be provided, these plates being formed in sections to provide the table

upon which the board may rest. In Fig. 12 a section of a finished panel is shown. The plaster body 46 may be made of a retarded plaster, the edge margins 47 and 48 of a hard or quick setting plaster and having a rabbeted raw portion. It will be understood that it is within the scope of my invention to provide a board of the character shown without the edge margin being of a different material.

What I claim is:

1. The method of fabricating plaster board having a body and upper and lower cover sheets, which comprises interposing a cementitious mass between the sheets so as to leave an unfilled edge margin, and then introducing another plastic mass to said edge margin.

2. The method of fabricating plaster board having a body and upper and lower cover sheets which comprises interposing a cementitious mass between the sheets so as to leave an unfilled edge margin, lifting the edge margin of the upper sheet, and introducing another plastic mass to fill said edge margin.

3. The method of fabricating plaster board having a body and upper and lower cover sheets, which comprises continuously advancing upper and lower cover sheets, interposing a cementitious mass between the advancing sheets so as to leave an unfilled margin, lifting the edge margin of the upper sheet, and introducing another plastic mass between said edge margin so as to fill the latter.

4. The method of fabricating plaster board having a body and upper and lower cover sheets, which comprises continuously advancing the upper and lower sheets, interposing a cementitious mass between the advancing sheets so as to leave unfilled edge margins, trimming the edge margins of said sheets, and then introducing another plastic mass between said edge margins.

5. The method of fabricating plaster board having a body and upper and lower cover sheets which comprises continuously advancing said sheets, interposing a cementitious mass between the advancing sheets so as to leave unfilled edge margins, trimming the edge margins of said sheets, lifting the edge margins of the upper sheet, and then introducing another plastic mass between said edge margins.

6. The method of fabricating plaster board having a body and upper and lower cover sheets comprising advancing the lower cover sheet, depositing a cementitious mass upon said lower cover sheet, applying the top cover sheet thereover so as to leave unfilled edge margins, and then introducing another plastic mass between said edge margins.

7. The method of fabricating plaster

board having a body and upper and lower cover sheets, which comprises continuously advancing the lower cover sheet, depositing a cementitious mass upon the lower cover sheet, applying the top cover sheet thereover, so as to leave unfilled edge margins, lifting the edge margins of the upper cover sheet, and then introducing another plastic mass between said edge margins.

8. The method of fabricating plaster board having a body and upper and lower cover sheets, which comprises continuously advancing the lower cover sheet, depositing a cementitious mass upon the lower cover sheet, continuously applying an upper cover sheet so as to leave between said sheets unfilled edge margins, trimming the edge margins of said sheets, and then introducing

another plastic mass between said edge margins.

9. The method of fabricating plaster board having a body and upper and lower cover sheets which comprises continuously advancing the lower cover sheet, depositing on said lower cover sheet a cementitious mass, continuously applying the upper cover sheet so as to leave unfilled edge margins between said sheets, trimming the edge margins of said sheets, lifting the edge margins of the upper cover sheet, and then introducing another plastic mass between said edge margins.

In witness that I claim the foregoing I have hereunto subscribed my name this 16th day of December, 1924.

JOSEPH E. SCHUMACHER.