

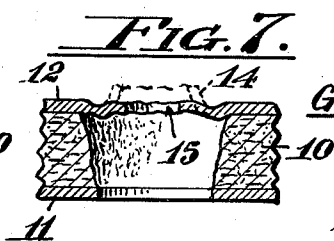
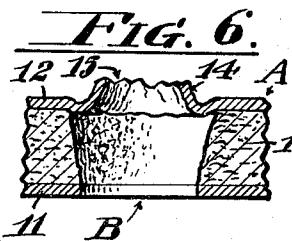
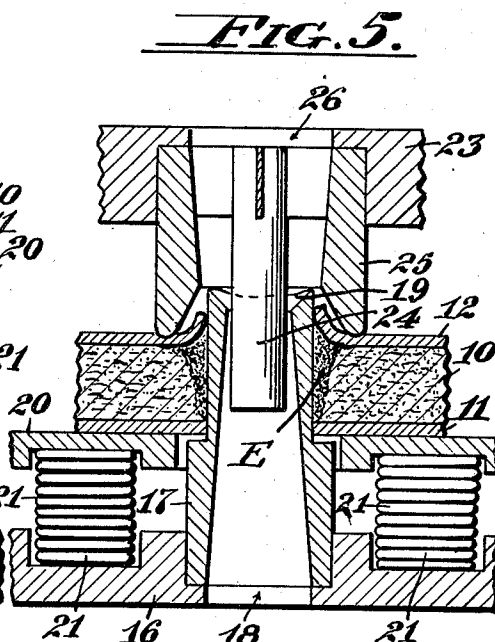
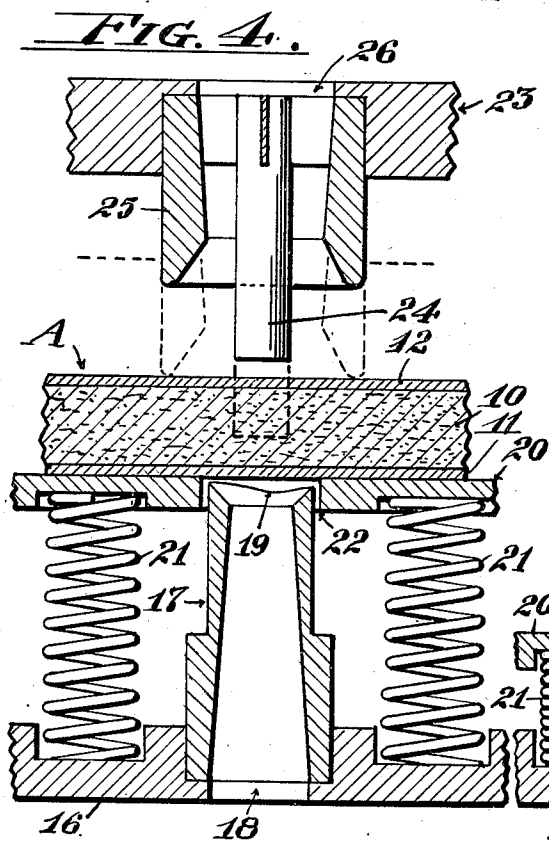
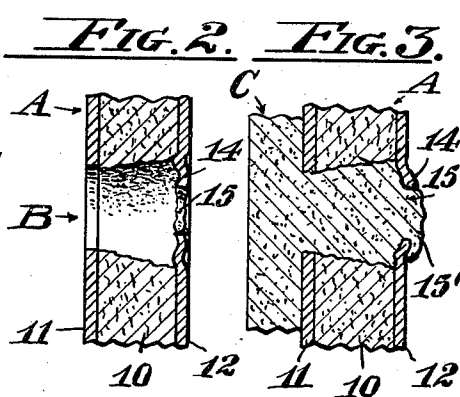
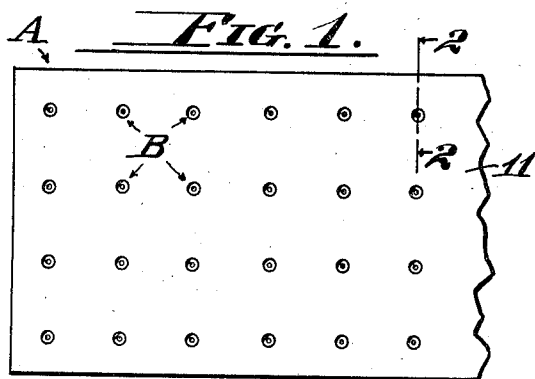
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LATH

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2,371,734

LATH

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This invention relates to lath board and more particularly pertains to lath board of the type formed of a hardened plastic composition interposed between paper facing sheets and produced in slabs that are perforated, at intervals to form plaster anchoring or bonding holes for the reception of plaster applied to the surface of the slabs when the latter are assembled on walls and ceilings.

The purpose of the present invention is to provide a lath board of the above character in which the side walls of the plaster bonding holes therein diverge from the front of the board whereby the holes will have a frusto-conical shape so as to effect a keyed or dove-tailed bond with the plaster applied therein and in which the enlarged inner ends of the holes are partly but not wholly covered by the backing sheet so that while permitting a portion of the applied plaster to pass to the back of the board will offer such resistance to this passage of the plaster as to minimize the discharge of excess plaster through the board. This construction is designed to conserve plaster and also to effect a substantial bond between the plaster and the board.

An object of the invention is to provide a means and method of forming the holes in the board to impart thereto the characteristics above stated.

Another object is to provide a means whereby the facing and backing sheets of the board may be punctured with holes of different sizes with the hole in the backing sheet smaller than that in the facing sheet and whereby the hardened plastic composition interposed between the sheets will be ruptured and removed in such fashion as to form a tapered hole through the composition the larger end of which is presented to the small opening in the backing sheet.

The invention and the mode of carrying it into effect is depicted in the accompanying drawing, in which:

Fig. 1 is a view in front elevation of a fragmentary portion of a slab of the lath board;

Fig. 2 is an enlarged detail in section taken on the line 2—2 of Fig. 1 showing the formation of the plaster receiving holes;

Fig. 3 is a view similar to that shown in Fig. 2 illustrating the manner in which plaster is received in the holes and bonded to the board;

Fig. 4 is a view in section, partly in elevation, of a fragmentary portion of a mechanism for punching and forming the holes in the lath board with the parts shown in position preliminary to punching the board;

Fig. 5 is a view similar to Fig. 4 illustrating the parts as positioned in punching the board;

Fig. 6 is a detail in section depicting the holes as initially formed on completion of the punching operation shown in Fig. 5 wherein the margin of the hole in the backing sheet is extended outwardly;

Fig. 7 is a view similar to that of Fig. 6 showing the margin of the hole in the backing sheet pressed so that it extends substantially flush with the latter.

Referring to the drawing more specifically, A indicates generally a sheet of lath board comprising a composition body 10 interposed between paper surfacing sheets including a facing sheet 11 and a backing sheet 12 as is common in composition wall board construction. The board A is formed with a series of holes B to receive portions of a coat of plaster C applied to the lath board when the latter is assembled in surfacing walls and ceilings. Heretofore it has been a common practice to punch holes through the board of equal diameter throughout.

The composition body 10 is ordinarily formed of a mixture of gypsum and sawdust and is applied in a wet plastic state to the backing sheet in a layer of requisite thickness to which layer the facing sheet is applied resulting in a panel which is subsequently dried and perforated.

In carrying out the present invention the holes B are tapered or frusto-conical with the smaller ends of the filler thereof opening through the facing sheet 11 while the larger ends thereof open partly through the backing sheet 12. The side walls of the holes B thus diverge outwardly from the front of the board which arrangement permits of ready passage of portions of the plaster C when the latter is applied in a plastic state to the surface of the board. In order to prevent the too free flow of plaster through the holes B to the back of the board and which would result in considerable waste of plaster, the enlarged ends of the holes B are at least partly covered as by portions 14 of the backing sheet 12 protruding inwardly from the margins of the enlarged ends of the holes; the portions 14 having a perforation 15 therein to prevent the entrapment of air in the hole B on applying plaster thereto and to permit a portion of the plaster to pass through the hole B to the back of the board as shown at 15' in Fig. 3 and effect a bond with the backing sheet 12 as indicated. The portion 14 of the backing sheet thus serves to retard the flow of plaster into and through the holes B such as to insure filling of the holes with the plaster and

thus effect a dove-tailed or key bond between the lath board and the portions of the plaster extended into the holes B.

While various means and methods may be employed in forming the holes B including perforating the sheets 11 and 12 and removing portions of the plaster composition of the board to form the tapered hole, such as by initially punching the board to form holes therein of the size of the perforation 15 and thereafter enlarging the hole in the facing sheet and reaming the walls of the holes in the plaster composition to form the holes with the requisite taper. I have here shown a means and method of accomplishing the purpose in a single operation. The means shown embodies a bed plate 16 from the upper face of which projects an open ended tubular combined punch and die 17 the lower end of which opens to the underside of the bed plate 16 through an aperture 18 in the latter, and the upper end of which is formed with an annular cutting edge 19 having a serrated contour.

Superimposed above the bed plate 16 is a vertically movable stripper plate 20 supported on springs 21 interposed between the bed plate and the stripper plate. An opening 22 is formed in the stripper plate to loosely receive the upper end of the punch and die member 17. Arranged above the stripper plate is a vertically movable press 23 on which is carried a downwardly extending punch 24 adapted to be advanced into the open upper end of the tubular member 17 and which punch is designed to penetrate the lath board A superimposed on the stripper plate 20 to punch the hole 15 in the backing sheet 12. Surrounding the punch 24 and carried by the press 23 is an annular abutment member 25 the lower margin of which is spaced upwardly and outwardly from the lower end of the punch 24; the member 25 being tubular and having its inner periphery spaced from the punch 24. The upper end of the member 25 leads to an opening 26 in the press 23.

The mechanism above described is designed to carry out my particular method of forming the holes B which consists in punching the facing sheet 11 and the backing sheet 12 with opposed holes of different diameters and with the larger hole formed in the facing sheet and the smaller hole formed in the backing sheet and at the same time punching the plaster body 10 with holes of the diameter of that formed in the facing sheet and in a fashion to rupture the plaster around the hole being punched in such fashion that on removal of the ruptured plaster from the hole the requisite taper of the latter will be attained.

Any suitable number of the punch and die elements are provided in a single machine as to punch a plurality of holes in the board at one time; it being contemplated to punch all the holes in a lath board of commercial size in a single operation.

In punching the board as here shown a panel thereof is placed front or face side down on the stripper plate 20 where the panel will be supported horizontally above the punch and die members 17 as shown in Fig. 4. The press 23 is then depressed by suitable mechanism (not shown) whereby the punches 24 will be initially brought into contact with the upper face of the panel and on continued downward movement of the press the punches 24 will act to shove the lath panel and the stripper plate downwardly in opposition to the springs 21 until the underside of the panel is brought into contact with the sharp

upper ends 19 of the punch and die members 17. Continued downward movement of the press will cause the punches 24 to penetrate the backing sheet 12 and to enter the composition body 10 as indicated by the dotted lines in Fig. 4. In penetrating the backing sheet the punches 24 will punch out circular portions of the sheet and will force same downwardly into the composition and at the same time effect downward displacement of the composition 10 underlying the cut out portions of the backing sheet. The composition thus displaced is forced downwardly into the open upper end of the tubular punch and die members 17 which are then in process of penetrating the sheet 11. As the press 13 continues to move downward the abutment rings 25 are brought to bear on the panel of lath board as indicated in dotted lines so as to exert increased downward pressure on the panel such as to cause the cutting edges 19 to penetrate the facing sheet 11 and puncture holes through the composition 10 of larger diameter than those previously formed by the punches 24. The panel is thus advanced until the upper ends of the punch and die members 17 protrude above the upper surface of the panel; the cutting edges of the members 17 then outwardly pressing the marginal portions of the holes 15 previously punched in the sheet 12 as shown in Fig. 5. Forcing of the panel downward over the upper ends of the members 17 by the abutment rings 25 bearing on the upper face of the panel in spaced relation and concentric with the upper ends of the members 17 effects rupturing of the dry composition along the walls of the hole formed by the members 17. This rupturing occurs progressively outward from the lower to the upper surface of the composition between the sheets 11 and 12; the ruptured portion being granular and powder-like as indicated at E in Fig. 5. A portion of the material removed from the panel by the punching operation will be passed downwardly through the tubular members 17 while other portions will be directed upwardly into the annular abutment member 25.

After completion of the punching operation the press 23 is elevated to its initial position whereupon the stripper plate will move upward under the urge of the springs 21 and thereby elevate the panel clear of the members 17. The granular particles E and such other broken or powdered portions of the dry composition 10 as may have accumulated on the upper surface of the panel and in the members 17 and 25 are removed as by means of a blower.

The holes in the panel will then be cleaned of loose particles and will appear substantially as shown in Fig. 6 with the margins 14 of the holes 15 in the backing sheet extended outwardly, which margins are then pressed inwardly to extend substantially flush with the backing sheet as by passing the panel between rollers.

While I have shown and described a specific embodiment of my invention I do not limit myself to the exact details of construction set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. The method of forming a composition lath board with diverging plaster-receiving holes therethrough consisting in simultaneously punching holes in the board from opposite sides thereof with one of the holes of larger diameter than the other and rupturing the composition of the

board progressively outward from one side thereof to the other in the operation of punching the larger hole and removing the ruptured portion of the composition.

2. The method of forming plaster-receiving recesses in a lath board embodying a plaster composition body interposed between a facing sheet and a backing sheet, consisting in punching small holes in the backing sheet and into the contiguous portion of the composition body, then punching larger holes in the facing sheet opposite the smaller holes and through the composition body, rupturing the walls of the larger holes in the composition body progressively outward from one side thereof to the other during the punching operations, and effecting removal of the ruptured portions of the composition body.

3. The method of forming plaster receiving recesses in a composition board embodying a plaster composition body interposed between fibrous sheets consisting in punching opposed holes in said fibrous sheets and into and through the contiguous portions of the composition body from opposite sides thereof and coincidentally enlarging the marginal portions of the holes in the composition body adjacent one of the fibrous sheets relative to the marginal portions of the holes adjacent the other fibrous sheet.

4. The method of forming plaster receiving recesses in a composition board embodying a plaster composition body interposed between fibrous sheets consisting in punching opposed holes in said fibrous sheets and into and through the contiguous portions of the composition body from opposite sides thereof and coincidentally enlarg-

ing portions of the holes in the composition body relative to the holes in the fibrous sheets.

5. The method of forming plaster receiving holes in a lath board embodying a composition body interposed between a facing sheet and a backing sheet, consisting in inwardly punching a series of opposed holes in said sheets and at the same time removing portions of the composition body between said holes to form holes extending therethrough between the opposed holes in the sheets.

6. The method of forming plaster receiving holes in a lath board embodying a composition body interposed between a facing sheet and a backing sheet, consisting in inwardly punching a series of opposed holes in said sheets and at the same time removing portions of the composition body between said holes to form holes extending therethrough between the opposed holes in the sheets, and coincidentally enlarging the holes in the composition body relative to the holes in the facing and backing.

7. The method of forming plaster receiving holes in a lath board embodying a composition body interposed between a facing sheet and a backing sheet, consisting in inwardly punching a series of opposed holes in said sheets and at the same time removing portions of the composition body between said holes to form holes extending therethrough between the opposed holes in the sheets, and coincidentally enlarging the holes in the composition body relative to the holes in the facing and backing sheets, and extruding the margins of the holes in the backing sheet relative to the adjacent holes in the composition body.

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