March 31, 1959 J. J. SPINELLI 2,879,662

PLASTERBOARD CONSTRUCTION

Filed Nov. 13, 1957

Fig. 1

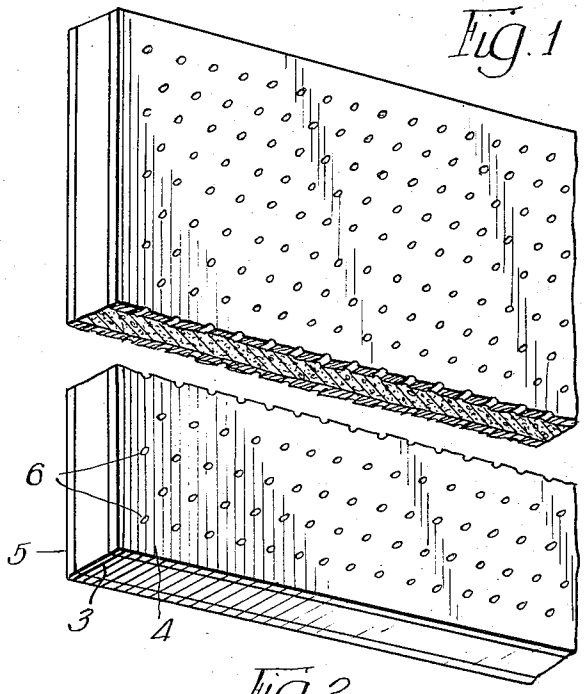


Fig. 2

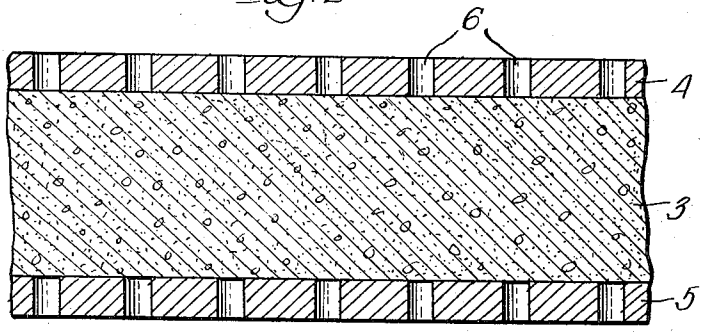


Fig. 3

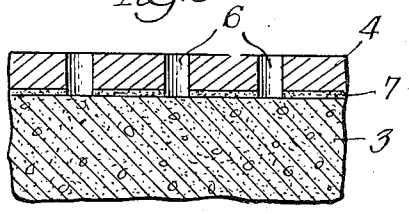
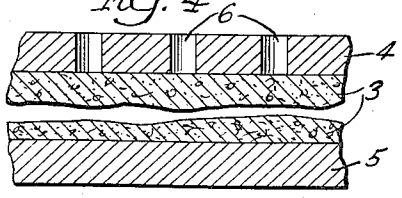


Fig. 4



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PLASTERBOARD CONSTRUCTION

John J. Spinelli, Chicago, Ill.

Application November 13, 1957, Serial No. 696,210

8 Claims. (Cl. 72—124)

This invention relates to improvements in plasterboard constructions and this application is a continuation-in-part of my application, Serial No. 673,220, filed July 22, 1957.

In the current preparation of walls and ceilings for plastering, extensive use is made of what is technically known as gypsum plasterboard lath, which in the trade is frequently referred to merely as plasterboard or as rock lath. This material is used as a foundation for plaster and comprises a dehydrated gypsum core generally one half inch thick interposed between facings of heavy pressed paper sheets each approximately one-sixteenth of an inch thick.

The paper facings are firm and comparatively smooth. The nearly standard dimensions of such plasterboard are 16 inches and 48 inches. Panels of this are nailed to the studding for the walls and the joists for the ceilings. Over these panels is spread one or two base coats of plaster and finally a finish coat.

Whether one or two base plaster coats are employed, and their respective thicknesses, depends upon several factors which are not particularly important here. The primary problem, in applying the first base coat of plaster, is the adhesive bond which can be effected between the plaster base and the plasterboard foundation. This adhesive bond is determined by the capacity of the plasterboard facings to create suction by absorbing moisture from the freshly-applied base coat of plaster.

The hard, comparatively-smooth pressed paper facings of the plasterboard have a relatively low porosity and are highly resistant to the absorption of moisture from the freshly-applied plaster. The slowness with which such absorption takes place can be demonstrated by spreading a film of water over the surface and observing the slowness with which the water penetrates the pores of the paper facing.

Because of the slowness with which moisture tends to penetrate the paper facings of the currently-used imperforate plasterboard, the application of one or two thicknesses of base plaster may result in a "rolling" of portions of the freshly-applied plaster, or such a settling—especially on walls—as to produce slight ridges and valleys or other surface irregularities in the fresh plaster base before it is ready for darbying. Even where these deformations do not occur, the slow absorption of moisture, by the hard paper facing of the conventional plasterboard, delays darbying to the point of creating some inconveniences and/or delays in a continuous plaster operation.

The main objects of this invention, therefore, are to provide an improved plasterboard construction with a superior suction coefficient due to a greatly enhanced capacity of the plasterboard facings to absorb moisture from the overlaid coating of fresh plaster; to provide an improved form of plasterboard having the paper facings perforated with small apertures closely-spaced; and to provide an improved plasterboard with perforated paper facings wherein the apertures are of a nature to have virtue only in their capacity to drain away the moisture from the fresh plaster, and a total lack of capacity to afford a mechanical bond between the freshly applied plaster and the plasterboard.

One embodiment of this invention is shown in the accompanying drawing, in which:

Figure 1 is a perspective view of a piece of conventional plasterboard constructed in accordance with this invention; and

Fig. 2 is a very much enlarged, cross-sectional view of a fragment of the plasterboard shown in Fig. 1.

Fig. 3 is a very much enlarged, cross-sectional view of a fragment of the plasterboard shown in Fig. 1 but illustrating one manner of attachment of the facing to the gypsum core.

Fig. 4 is a cross sectional view, greatly enlarged, of a fragment of the plasterboard shown in Fig. 1 but illustrating that the upper facing sheet is perforated while the lower facing sheet is imperforate.

The essential concept of this invention involves overlaying a gypsum core with paper sheets having closely-spaced and very small perforations or puncturing the paper facings of the currently conventional plasterboard with closely-spaced and very small apertures.

Plasterboard lath embodying the foregoing concept comprises a core 3 of gypsum overlaid with paper facings 4 and 5 both of which have relatively small apertures 6 extending through the area of the facings.

The gypsum core 3 and the overlaid paper facings 4 and 5 are such as currently used in the manufacture of plasterboard. As with most currently-available plasterboard the core 3 is the usually prepared gypsum and is substantially one-quarter inch thick and is absolutely imperforate and has the relatively smooth faces or surfaces. The paper facings 4 and 5 are approximately one-sixteenth of an inch thick. The core 3 and the facings 4 and 5 are secured together in the conventional manner.

The apertures 6 are very small, so small as rightly designated as "miniature." In fact, experiments indicate that they might need to be no more than good-sized pin pricks. Certainly they need not be more than substantially in the neighborhood of one-sixteenth of an inch in diameter, preferably about one thirty-second of an inch.

The function of these miniature-size apertures is wholly to provide for an accelerated absorption of moisture from the overlaid fresh coating of plaster. To accelerate the absorption is to enhance the suction process which determines the adhesive bond effected between the plaster base and the plasterboard foundation. Experiments have shown that with these miniature-size apertures the moisture absorption from the overlaid plaster base is accelerated ten to twenty times over that which occurs with a plaster base overlaid on the hard surface of currently-used plasterboard. Such acceleration occurs because these small apertures open up the internal pores of the paper facings over what obtains with the hard, smooth imperforate surface of the conventional plasterboard. Also, the apertures expose the gypsum core to the absorption of moisture. The gypsum core capacity to absorb moisture is much greater than that of the paper facings.

The apertures 6 should be spaced fairly close together and staggered so as to expose as great a perforate area as possible of the paper facings to the overlaid coat of plaster. An efficient spacing has been found to be between one-half and about a quarter inch preferably in rows with the apertures in adjacent rows staggered.

Fig. 2 of the drawing discloses the perforations 6 being disposed on both facings 4 and 5 for convenience of use by the plasterers but it should be understood that as only one face is normally ever covered with plaster

one perforated face is all that is necessary to carry out the concept of this invention as shown in Fig. 4, wherein facing 4 is perforated but facing 5 is imperforate.

This concept is especially valuable in this modern day and age with the advent of "spray plastering" which requires a quick adhesion of the sprayed plaster to the rock lath.

It is to be understood that in the event any adhesive or sizing 7 is interposed between the core and the paper facings to adhere the facings to the core, the perforations likewise extend through the adhesive or sizing layer, as illustrated in Fig. 3.

It is to be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. Plasterboard comprising a solid imperforate core of gypsum having relatively smooth faces, a perforate paper facing overlaid in bonded relation on each said core face, the perforations being unobstructed and not in excess of substantially one-sixteenth of an inch in diameter and spaced apart approximately between one-quarter and one-half of an inch over the entire area of the paper facing, the perforations being open from the facing exterior to the core so as to enhance suction on an overlaid base-coat of fresh plaster by the accelerated absorption of moisture from the fresh plaster by the core areas exposed to the plaster coating through the apertures.

2. The product according to claim 1 wherein the perforations are staggered with respect to each other.

3. Plasterboard comprising a solid imperforate core of gypsum having relatively smooth faces, and overlaid on one side with an imperforate paper facing and on the other side with a perforate paper facing, the perforations being unobstructed and not in excess of substantially one-sixteenth of an inch in diameter and spaced apart approximately between one-quarter and one-half of an inch over the entire area of the paper facing and are positioned

one to the other in staggered relationship, the perforations being open from the facing exterior to the core so as to enhance suction on an overlaid base-coat of fresh plaster by the accelerated absorption of moisture from the fresh plaster by the core areas exposed to the plaster coating through the apertures.

4. A plasterboard product comprising an imperforate core of cementitious material having at least one substantially smooth surface, and a paper facing sheet applied to said surface, said sheet being provided with through unobstructed perforations of a lateral dimension sufficient to permit the passage therethrough of water but insufficient to permit passage of increments of a coating of applied plaster, whereby water from such applied plaster may penetrate to and be absorbed by said core through said perforations while said coating is prevented from reaching said core.

5. A claim as in claim 4, wherein the lateral dimension of the perforations are of the order of about one thirty-second of an inch to one-sixteenth of an inch.

6. A claim as in claim 5, wherein the perforations are spaced apart of the order of about one-quarter to one-half of an inch.

7. A claim as in claim 5, wherein the perforations are arranged in staggered relation over the area of said paper facing sheet.

8. A claim as in claim 4, wherein the paper facing sheet is adhesively applied to said cementitious material.

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