United States Patent [19]

Ollinger

[11] **3,920,872**

[45] **Nov. 18, 1975**

[54] **CARPET-FACED WALLBOARD**

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[73] Assignee: **Armstrong Cork Company,** Lancaster, Pa.

[22] Filed: **Nov. 29, 1974**

[21] Appl. No.: **528,003**

Related U.S. Application Data

[63] Continuation of Ser. No. 305,471, Nov. 10, 1972, abandoned.

[52] **U.S. Cl.** ..... **428/95;** 181/33 G; 181/336 A; 428/96; 428/196; 428/198; 428/201; 428/138; 428/317

[51] **Int. Cl.**[2] **D04H 11/00;** D05C 17/00

[58] **Field of Search** ..... 428/85, 94, 95, 96, 196, 428/198, 200, 201, 304, 317, 137, 138; 181/33 G, 336 A

[56] **References Cited**

UNITED STATES PATENTS

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Primary Examiner—Marion E. McCamish

[57] **ABSTRACT**

A carpet material is applied to a fiberboard which has been provided with acoustical openings. The carpet is adhesively bonded to the fiberboard in such a manner as to prevent the obstruction of the entrances of the acoustical openings in the fiberboard. The carpet-covered fiberboard is utilized as a wallboard.

4 Claims, 2 Drawing Figures

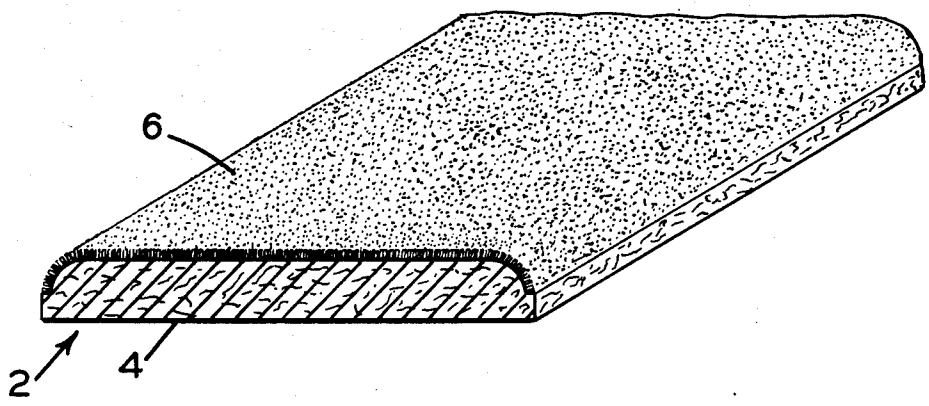


Fig. I

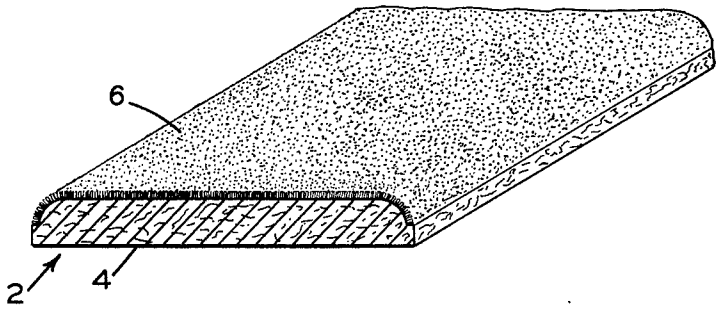
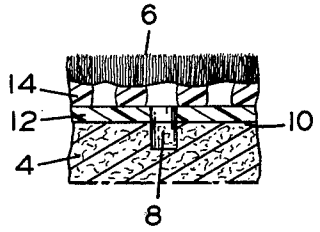


Fig II



CARPET-FACED WALLBOARD

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of application Ser. No. 305,471, filed Nov. 10, 1972 by James C. Ollinger and entitled "Carpet-Faced Wallboard" and now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention herein is directed to a carpet-faced fiberboard and, more particularly, to an acoustical wallboard which is covered with a carpet facing.

2. Description of the Prior Art

Installation of carpet material to walls or ceilings requires complicated techniques by specialized craftsmen. It would be desirable to make carpeting available as a wallboard material of the same dimension as presently marketed gypsum wallboard so that it could be substituted directly for gypsum wallboard in wall and ceiling systems. Application to solid walls or studs could be by means of an adhesive system.

It is not unusual in many countries to use carpeting as a covering for walls. The carpeting would either be hung on the wall or permanently affixed to the wall.

U.S. Pat. Nos. 2,369,658 and 2,839,442 disclose panel structures wherein a carpet-like structure is placed upon a panel structure.

The invention herein is directed to the use of a carpet on a perforated acoustical fiberboard which will provide a wallboard structure of improved sound absorption characteristics. The carpet is carefully mounted on the perforated fiberboard so as not to obstruct the perforation openings in the fiberboard to maintain the sound absorbing ability of the fiberboard structure.

SUMMARY OF THE INVENTION

A conventional fiberboard structure is utilized as the base for the wallboard invention herein. This fiberboard structure may be any of the conventional mineral wool or wood fiber panel structures which are currently available on the open market. The base structure is provided with a perforated surface wherein the perforations in the surface provide acoustical pockets to increase the sound absorption ability of the base structure surface. An adhesive coating is placed upon the perforated surface in such a manner as not to close over the perforation openings on the base surface. A carpet material is provided with a latex tie coat on the back surface thereof. The latex tie coat is placed on the carpet surface to provide a discontinuous film on the back of the carpet surface. The carpet material is applied to the perforated surface of the base material, and the adhesive on the base material and the tie coat on the carpet backing bond the base material and carpet facing together to form the carpet-faced fiberboard which is now capable of being used as a wallboard.

There is provided a wallboard structure with improved sound absorption features over conventional gypsum or wood wallboards. The board structure is provided with a very pleasing decorative effect and is quite capable of being mounted directly to a wall structure or being used as a free-standing dividing wall.

BRIEF DESCRIPTION OF THE DRAWING

FIG. I is a perspective view of the wallboard invention herein; and

FIG. II is a cross-sectional view of a portion of the wallboard structure of FIG. I.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention herein is directed to a wallboard structure **2** which is composed of a base structure or board **4,** which is a fiberboard structure, and a carpet facing **6** placed on the surface of the board **4.**

The fiberboard or base board material can be any conventional fiberboard structure made of either mineral wool or wood fiber material. The fibers of the board are bound together by appropriate binder material. Typical of the boards which could be used are the boards which are sold under the Armstrong trademarks "Minaboard" or "Trilon." These are fiberboard structures of approximately ½ inch in thickness and are of relatively dense fiberboard material with a substantial degree of rigidity. Almost any base material could be used including plywood. The base material **4** is provided with a plurality of acoustical perforations **8.** These perforations extend from one surface **10** of the board structure into the board structure. The perforations act as sound pockets for absorbing sound which is directed against the surface **10** of the board. The board shown with its perforations is exactly the same as the conventional acoustical ceiling boards which are installed in many building structures, particularly in suspended ceilings.

The carpet material is a nylon or like-type carpet material which is composed of a plurality of fibers which have been needled together by the conventional needle-bonded technique which is used for forming the so-called indoor-outdoor carpeting which was initially made famous by the Ozite Corporation. The carpet material is approximately ⅛-inch thick and is very similar in nature to a heavy felted material.

The surface **10** of the base material board is roll coated with an adhesive which is placed on the surface **10** at a very low application rate so that the adhesive **12** does not bridge the openings of the perforations **8.** Consequently, after the application of the adhesive **12** to the surface **10** of the base material **4,** the perforations will still all be exposed to view and will be unobstructed by an adhesive. The back of the carpet material is sprayed with a conventional latex tie coat which is normally applied to carpet materials to bond the needle-bonded carpet material to an appropriate backing material. The tie coat is sprayed on the carpet to provide a very light application of the tie coat to the carpet as a discontinuous coating to the back of the carpet; that is, continuous film of tie coat material is not applied to the back of the carpet. The carpet is actually sprayed with dots of adhesive to provide a discontinuous coating **14** on the back of the carpet **6.**

A continuous length of carpet having a tie coat applied on the back thereof is applied to sheets of fiberboard **4** which are fed under the carpet material. The back of the carpet material containing the tie coat **14** is pressed against the adhesive-coated surface **10** of the fiberboard **4** to bond the carpet to the fiberboard **4.** Normally the carpet is wrapped partly around the edge of the fiberboard to give a neat edge to the finished product. The carpet is cut off from the continuous length of carpet at the end of each fiberboard to provide panel structures which are normally **4** feet by **8** feet in size. Due to the discontinuous nature of the tie coat **14** and the adhesive coat **12,** the perforations **8** are

open to the back of the carpet fabric **6.** Consequently, sound waves impinging against the surface of the carpet will be transmitted through the carpet to the perforations in the base board. This will result in not only absorption of sound within the carpet structure, but also absorption of sound by the perforations within the base structure **4.**

Consequently, there is provided a decorative board structure having very good absorption and low sound transmission. The structure is quite capable of being mounted directly upon a wall structure, or it could be used as a free-standing wall divider.

The adhesive coating which is applied to the carpet back is a conventional latex tie coat such as is used in the carpet industry. A conventional tie coat material is as follows:

	Parts by weight
Carboxylated Styrene Butadiene Rubber latex	500
Tetrasodium Pyrophosphate dispersant	2
Paragum 104 thickener, sodium polyacrylate	10
Aluminum Trihydrate fire retardant	500
Water	500

This material is mixed to a viscosity of approximately 150 to 200 cps and is spray coated on the carpet back at a coverage rate of about 3 to 5 ounces per square yard.

The adhesive coating for the fiberboard is a conventional neoprene latex sold by Armstrong Cork Company under the trade name "LD 780." Any conventional latex adhesive could be utilized, but the above particular latex has been found to be particularly useful. Its formulation is as follows:

	Parts by Weight
Solvent-toluol	148
Resin-Hercules Polypule 10—glycerol ester of polymerized rosin	220
Resin-Diamond alkali Chloroway 70—Chlorinated paraffin	220
Neoprene-Du Pont-polychloroprene (58% solids)	763
Anti-oxidant-Du Pont Neozone D-N-phenyl-beta-naphthylamine	13
Water	340

This is applied to the board structure by either roll coating or spraying at a coverage rate of about **10** grams per square foot.

As is obvious from FIG. I and FIG. II of the drawing, the base material **4** has a flat surface **10** on which the adhesive **12** is applied as a film. However, the carpet **6,** as clearly shown in FIG. II, does not have a flat back, but has an irregular or rough back surface.

What is claimed is:

1. A wallboard structure which is composed of a rigid fiberboard base having on one surface thereof a plurality of perforations therein, an adhesive coating applied at a very low application rate to the surface of the fiberboard in such a manner as to not close over any of the perforation openings in the fiberboard, and a carpet material which is approximately ⅛ inch thick and which is composed of a plurality of needle-bonded fibers, the back surface of the carpet material, which is placed adjacent the adhesive-coated surface of the fiberboard, being an irregular surface and having a discontinuous coating of latex adhesive applied thereto in the form of dots of adhesive, said latex-coated surface of the carpet material being placed adjacent the adhesive coating of the fiberboard structure whereby the latex coating on the carpet and the adhesive coating on the fiberboard bond the carpet material to the fiberboard, the perforations of the fiberboard in the fiberboard-carpet material combination not having their openings bridged by either the adhesive coating of the fiberboard or the latex coating of the carpet so as to close off these openings which provide the carpet-covered fiberboard structure with good acoustical properties.

2. The structure of claim **1** wherein the composite structure is composed of a fiberboard base, a carpet material and therebetween an adhesive bond which is in two parts, the one part of the adhesive bond being dots of latex adhesive adhering to the irregular back of the carpet surface and the second part of the adhesive bond, and the second part of the adhesive bond being a film of adhesive fastening the rigid fiberboard to the dots of latex adhesive.

3. A wallboard structure as set forth in claim **2** wherein the perforations in one surface of the rigid fiberboard extend from one surface into the board structure, but not through the board structure.

4. The wallboard structure of claim **3** wherein the carpet material is wrapped partly around the end of the rigid fiberboard.

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