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[54] **DECORATIVE WALL COVERING**

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Related U.S. Application Data

[62] Division of Ser. No. 165,269, July 22, 1971, Pat. No. 3,778,337.

[52] **U.S. Cl.** **427/358;** 427/359; 427/390; 156/278

[51] **Int. Cl.²** **B32B 3/26;** B32B 5/18

[58] **Field of Search** ..... 117/64 R, 111 R, 111 H; 161/94; 156/278; 427/358, 359, 390

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[57] **ABSTRACT**

A decorative wall covering including a woven material such as jute having strands therein of different and varying thicknesses. A fire-retardant foam backing is bonded to the woven material and penetrates the weave to varying depths, depending upon the thickness of the strands at any given location.

3 Claims, 2 Drawing Figures

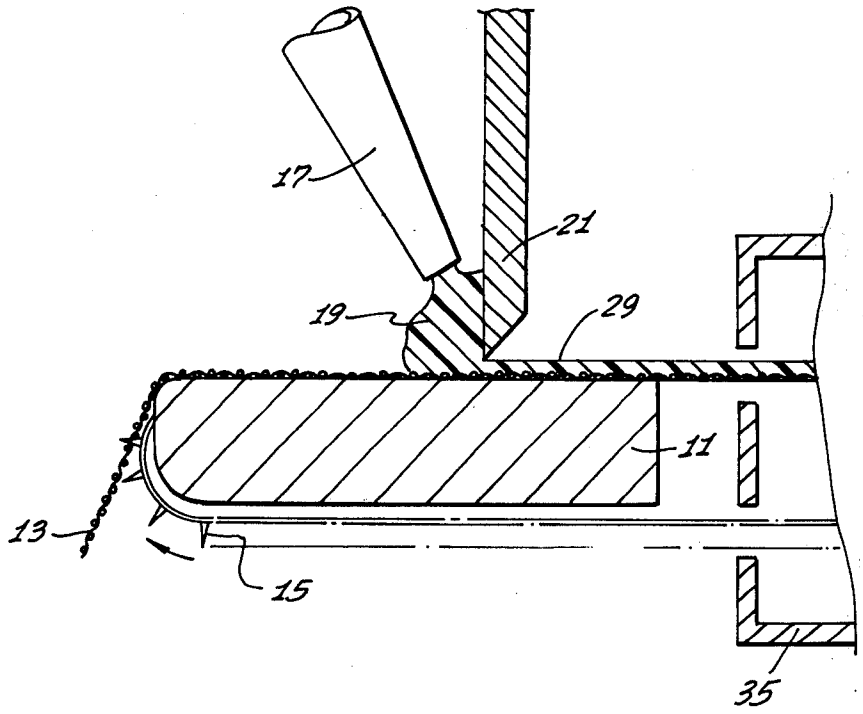


Fig. 1

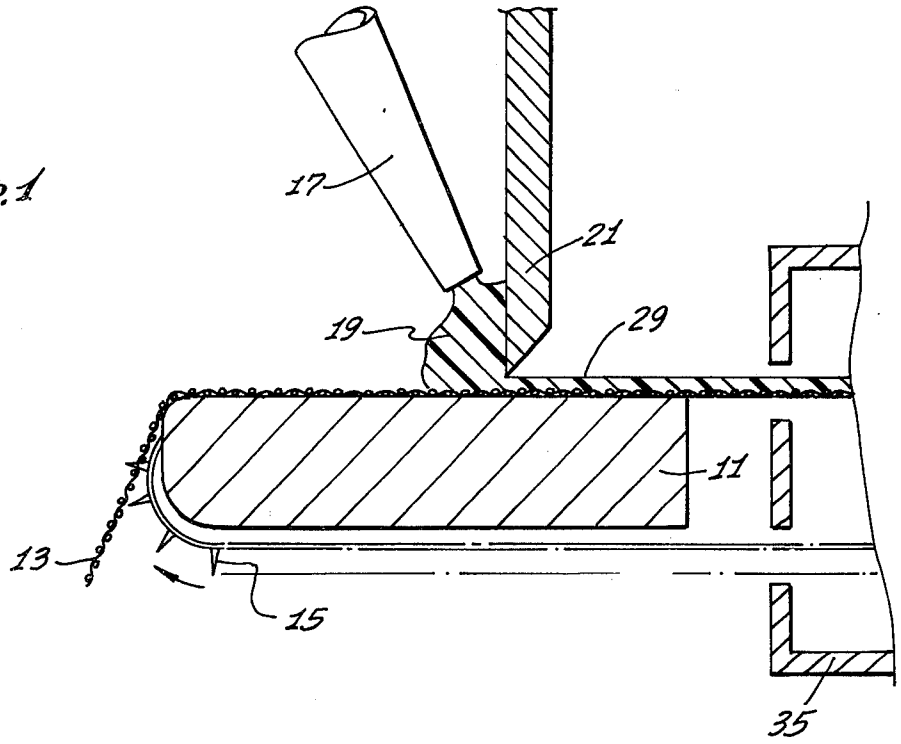
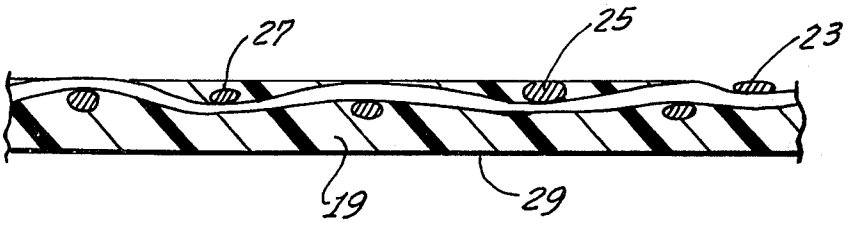


Fig. 2



DECORATIVE WALL COVERING

CROSS-REFERENCES TO RELATED APPLICATIONS

This is a divisional application of application Ser. No. 165,269, filed on July 22,. 1971 for DECORATIVE WALL COVERING now U.S. Pat. No. 3,778,337, patented Dec. 11, 1973.

BACKGROUND OF THE INVENTION

In the field of decorative wall coverings, many materials are commercially available which can be applied to walls to produce an effect somewhat more pleasing than a blank, painted wall surface. For example, the use of various wall papers, burlap, grass cloth, etc., has been well known for a long time. Burlap and grass cloth, as well as similar materials, are normally used to produce a rather dignified effect such as might be found in an office, library, etc. On the other hand, this latter type of wall covering is not extensively used in homes; it has not been used in areas in which colors are desired because the materials are generally of a single, rather monotonous color tone which dignifies a room but does not brighten and enliven it.

Further, wider use of these materials has also been prevented since they are usually manufactured in rolls having widths of approximately three feet. Consequently, when they are applied to wall surfaces, adjoining strips must be butted against one another. Since the color patterns which do occur in the materials are not recurrent and successive, it is impossible to match the adjoining strips in any satisfactory manner. As a result, the butt line between each pair of stips is clearly visible and presents an unattractive appearance.

The materials have been manufactured in three foot widths since their strength is often so low that wider widths result in tears and breaks. Attempts have been made to coat the materials with strengthening compounds but these tend to harden and crumble. Consequently, it is difficult to roll, store, or handle rolls of the prior art materials.

As a further disadvantage, these materials are not only not fire resistant, but, in fact, are sufficiently inflammable that they can act as wicking to ignite materials, furniture, etc., with which they are in contact.

In the past, when paintings, etc., have been mounted on walls which have been covered with such wall coverings, later removal of the painting and the nail upon which it was hung results in an unsightly hole being left in the wall covering. This can only be hidden by hanging another painting in place thereof, or by replacing an entire strip of covering.

Another reason that such wall coverings have not found extensive use in homes and high traffic areas is the fact that they are easily damaged. For example, if a person should hit such a wall covering with a sharp object or frequently push a chair up against it, the wall covering will become worn and/or torn and will become very unsightly.

When burlap, grass cloth, and similar materials are applied to a wall surface, the entire wall and/or material must be coated with adhesive to prevent blistering and/or sagging in the material later on. Obviously, this requirement results in high labor and material costs and effectively reduces the number of homeowners, etc., who are willing to apply the wall covering themselves.

As will be apparent from the above discussion, it has become highly desirable to produce a decorative wall covering which is inexpensive, interesting and colorful to look at, has no seams, will completely hide any holes formed by nails when the nails are withdrawn, is fire retardant, can withstand rough usage without showing any wear or undesirable appearances and is resilient, tough, and durable so that it can easily be rolled, stored, and used. It is also highly desirable to produce such a decorative wall covering which can quickly and inexpensively be bonded to a wall with a minimum amount of work and materials so that, if desired, the average homeowner can decorate his home with the coverings without incurring installation expenses or undertaking a messy and difficult job.

SUMMARY OF THE INVENTION

The present invention disclosed hereby comprises a decorative wall covering which can be produced in such a form as to accomplish all of the above-described features.

In its basic form, the present invention comprises a decorative wall covering manufactured from a material such as closely woven jute; the material is provided with a back-up foam coating which may, if desired, be resilient. The foam may be a vinyl or latex material which is manufactured with an aluminum hydrate therein. An example of such a foam has been disclosed in U.S. patent application Ser. No 15,677 filed Mar. 2, 1970 now U.S. patent No. 3,663,345 , and assigned to the assignee hereof. The disclosure of that application is hereby incorporated herein insofar as the fire retardant foam compounds are disclosed therein. Although that application is substantially directed, in its disclosure, to a latex foam, the foam used with the wall covering may be, if desired, a vinyl foam. It has been found that, in some instances, a vinyl foam may be more suitable due to its somewhat greater strength and its resistance to decomposure.

In any event, the foam includes a hydrate such as aluminum hydrate, aluminum hydroxide, or hydrated aluminum oxide, all of which decompose at a temperature greater than that at which the foam cures. If flame contacts the decorative wall covering, the heat generated by the flame will cause the hydrate to break down, releasing moisture which will retard and/or prevent further flame propagation.

Although nearly any closely woven material may be used with the invention, jute is preferred since it presents a good appearance, can easily be dyed, and has strands which vary in thickness.

The foam used with the decorative wall covering is provided with a color pigment and, if desired, the material may be dyed any desired color. When applied, the foam is relatively viscous and can pass between the strands of jute. If the strands are of varying thicknesses, the amount of foam which passes through the weave at any given point, as well as the distance it passes through the weave, will be directly dependent upon the thickness of the strands at that location. In other words, although the covering thickness will be constant throughout, more foam will appear to pass through the weave at some locations than at others as a result of the variation in strand thickness. The result is a random color pattern occuring in the wall covering which can be accentuated by differences in the colors of the jute and the backing.

The resiliency of the foam results in a wall covering which is highly resistant to damage since nearly any contact between objects and the wall covering will be absorbed by the foam rather than by the jute. Thus, it will be relatively impossible to damage the jute or the wall covering unless it is attached with a specific intent to do so. Additionally, the resiliency of the foam allows the wall covering to close and completely seal any holes left when nails are withdrawn from the wall covering — for example, when decorations such as pictures and paintings are removed. As the foam moves into position to close the holes remaining when nails are removed, it will draw the jute with it so that the hole will be completely hidden from view and will even be difficult to relocate, much less be readily apparent to a casual viewer.

The resiliency and pliability of the foam also allows the covering to be handled in wide rolls and to be easily rolled, unrolled, stored, handled, etc., without tearing, deteriorating, etc.

Since jute is a relatively strong material and the foam, when cured, adds to its strength, decorative wall coverings formed in accordance with the present invention may be manufactured in nearly any desired width such as 8 or 12 feet. Thus, for example, if it is desired to cover a wall having a height of eight feet and a width of any determined dimension, it would merely be necessary to purchase an eight foot wide roll of wall covering having a length equal to the length of the wall. Thus, the wall can be covered with a single roll and no butt lines or seams will be present in the unsightly manner of the currently available materials.

Application of a roll of decorative wall covering is a relatively simple matter. A bonding or adhesive substance is applied about the periphery of the wall area and/or covering. The covering is then applied along the upper edge of the wall. The sides and lower edge of the covering may then be pressed against the adhesive. If desired, a slight tensile force is applied to the covering, causing the rear surface of the foam to adhere very closely to the surface of the wall between the locations at which the adhesive is applied. In this manner, the wall covering is held tightly against the wall. At the same time, its resistance to damage is increased due to the small amount of adhesive used; any applied force will be dissipated over a wider surface area than would be possible if adhesive were applied throughout the wall surface.

In forming wall coverings in accordance with this invention, the woven jute can be drawn across a smooth table or roller by a moving tenter. Foam is applied to the side of the jute opposite to that in contact with the table by any suitable means such as a nozzle. The amount of thickness of the foam actually applied to the jute is controlled by the positioning of a doctor blade or roller relative to the table. Since the foam is in a substantially liquid state, its viscosity allows it to pass through the jute in varying degrees according to the thickness of the jute strands at various location. However, the thickness of the covering will be constant across its surface due to the relationship of the table and the doctor bar.

The jute and applied foam are then passed through a suitable oven which is maintained at a temperature sufficient to cure the foam. As the wall covering is removed from the oven, it is delivered to a suitable storage means such as a machine for rolling it and/or severing it at suitable locations to produce rolls of desired lenghts.

In this manner, a relatively inexpensive decorative wall covering can be produced having relatively great aesthetic appeal and a high degree of wearability, and possessing fire retardant properties which serve to create a degree of safety not heretofore present in such products.

Further objects, advantages, modes, and embodiments of the invention will now be readily understood by those skilled in the art through reference to the following Detailed Description and the accompanying drawing which, taken together, illustrate what is presently considered to be a preferred embodiment of the best mode contemplated for utilizing the novel principles set forth in the claims.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a side sectional view showing apparatus which may be used to form decorative wall coverings in accordance with the present invention; and

FIG. **2** is a greatly magnified cross sectional issustration of such a decorative wall covering.

DETAILED DESCRIPTION

Referring now to FIG. **1,** there is shown a platen or table **11** across which a relatively closely woven or knit material **13** such as jute may be drawn at a predetermined apeed by any suitable means such as a moving tenter **15.** Alternatively, a suitable roller could be substituted for the table **11** and the material **13** could be drawn by the roller.

A dispensing nozzle **17** is situated above the table in such a way as to move back and forth across it and desposit foam **19** on top of the material **13** in front of a doctor blade **21.** Again alternatively, a doctor roller could be used in place of the doctor blade **21.** Such a roller could be used in cooperation with the roller proposedly substituted in place of table **11** to aid in drawing the material **13** past the position in which the foam **19** is applied.

In the illustrated embodiment, as the material **13** is drawn past the doctor blade **21,** the thickness of the foam **19** and the jute is controlled by the location of the doctor blade **21** relative to the table **11.**

Referring to FIG. **2,** it is seen that the foam **19** will pass through the weave of the jute **13** in an amount which is dependent only upon the viscosity of the foam as it is applied. However, since the thickness of each strand varies from point to point, and thickness also varies from strand to strand, it will appear that the depth of the foam varies from location to location. For example, at the location of strand **23,** it appears that the foam has not penetrated the jute at all due to the strand size and weave closeness at that location. At the location of strand **25,** it appears that the foam has penetrated the jute to a depth nearly equal to the thickness of the strand **25** and, at strand **27,** it appears that the foam has penetrated the weave to a depth greater than the thickness of the jute. As is apparent from the showing of FIG. **2,** the amount of penetration at any given location is dependent upon the thickness of the strands.

The application of a suitable color pigment to the foam **19** will result in a random color pattern appearing on the exposed face of the jute which will present a very pleasant and colorful effect to a person viewing the wall covering. Further, if the jute **13** is dyed to some desired shade before the foam is applied, the combina-

tion of the jute coloring and the foam coloring can be used to produce a very decorative effect upon a wall.

The doctor blade **21** produces a relatively flat, porous surface on the back of the foam which will allow the wall covering to very closely adhere to a wall even though adhesive or other bonding materials are not distributed throughout the area of contact of the wall covering and the surface of the wall.

The foam **19** can be either a latex or a vinyl foam of the type described in the above-referred to application Ser. No. 15,677. It is preferred that the selected foam be highly resilient so that, when a sharp object is passed therethrough and then removed, the hole formed by the sharp object will be substantially closed and will not be visible — even to a person making a careful search of the wall to try to locate it.

Additionally, as disclosed in said patent application, the foam may be provided with a suitable hydrate such as aluminum hydrate, aluminum hydroxide, or hydrated aluminum oxide. When flame contacts foam having such a hydrate filler therein, the hydrate will decompose and release moisture which will retard and/or extinguish the flame. This results in an added degree of safety since it will prevent the jute from either burning or acting as a wick for igniting materials in contact with it at other locations along the wall.

After the material **13** and foam **29** pass from the application table **11,** they are directed by the tenter **15** through a suitable oven **35** which is maintained at a predetermined temperature such as 280°F, in order to cure the foam. Curing transforms the foam from a relatively liquid substance to solid matter having the above-described desired qualities. As the foam is drawn out of the oven **35,** it may be delivered to suitable storage and/or packaging devices (not shown) for later use.

Thus, the applicants have provided an embodiment of a new and improved concept in the art of decorative wall covering which yields a true advance in that art in view of the increased safety, durability, and beauty of such wall coverings. Many modifications and alterations of this invention within the scope thereof will now become apparent to those skilled in the art, wherefore,

What is claimed as the invention is:

1. The method of producing a decorative wall covering comprising the steps of

passing a woven material having variable strand thickness and separation across a first surface,

applying a relatively viscous backing material to one side of said woven material,

forcing said backing material to pass through said woven material at a constant thickness to cover strands of small thickness on the other side of said woven material, thus

allowing said backing material and those strands having larger thicknesses to be clearly visible from the other side thereof while only said backing material is visible from said one side thereof,

spreading the backing material uniformly over the surface of said woven material to provide the wall covering with a substantially constant thickness across its area, and

curing the backing material to form a relatively resilient and pliable substance.

2. The method of producing a decorative wall covering as set forth in claim **1** and including the further step of

providing the backing material with a substance which will release moisture upon the application of heat thereto at a temperature at least as high as the curing temperature of the backing material.

3. The method of producing a decorative wall covering as set forth in claim **1** and including the further step of

providing the woven material and the baking material with different color pigmentation to produce a colorful and decorative effect.

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