

Nov. 29, 1955

F. A. HOLES

2,725,324

PROCESS FOR MAKING WALL COVERING

Filed Aug. 5, 1950

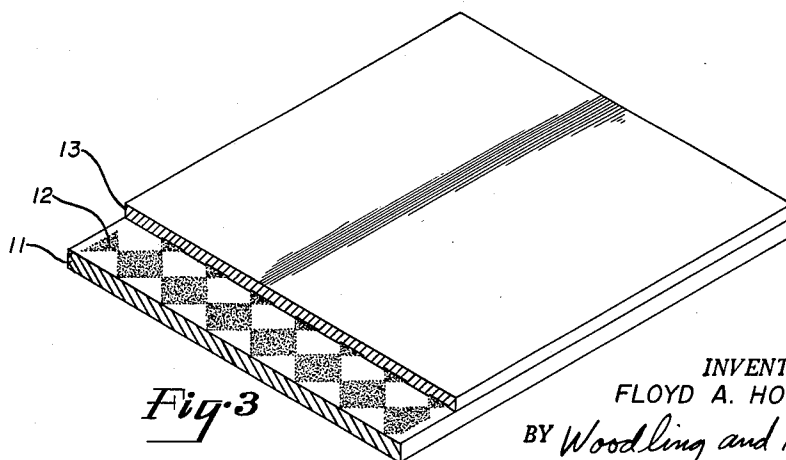
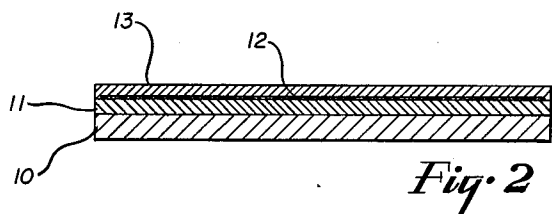
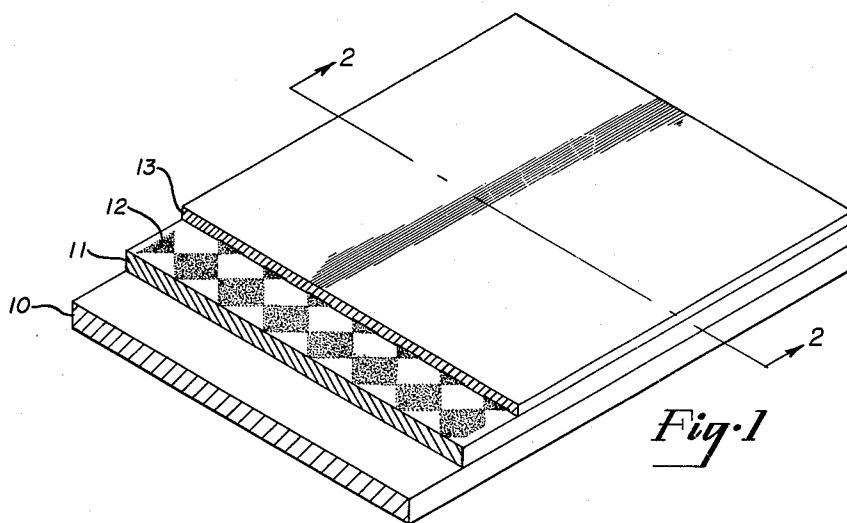


Fig. 3

INVENTOR.
FLOYD A. HOLES
BY *Woodling and Kroost*
attys

1

2,725,324

PROCESS FOR MAKING WALL COVERING

Floyd A. Holes, Solon, Ohio, assignor, by mesne assignments, to The Dobeckmun Company, a corporation of Ohio

Application August 5, 1950, Serial No. 177,967

1 Claim. (Cl. 154—120)

This invention relates to fabric printing in general, but relates specifically to the process of making a fabric wall covering.

My invention is embodied in the process of producing a decorative wall covering. In my process a backing sheet, usually strong paper or any suitable sheet of dimensionally stable material, is used as a mount for cloth. Cloth, or fabric, is usually quite flimsy. It is dimensionally unstable. This dimensionally unstable material is removably bonded to the backing sheet, and thereby is held dimensionally stable by the backing sheet. The laminated structure of flimsy material and backing sheet may then be printed to provide a pattern printed directly upon the cloth. The printed cloth, at this stage of my process, is not satisfactory for a wall covering. It is still flimsy and will stretch, and therefore the pattern of two strips cannot easily be matched when wetted and hung on a wall. After printing, a film of flowable material which will harden into a flexible but dimensionally stable water-resistant film is used as a sizing on the cloth. As an alternative, a film may be placed over the cloth and laminated thereto, such for example as by calenderizing on hot rolls with thermoplastic films. After the film is hard, the cloth is separated from the backing sheet. The cloth is now dimensionally stabilized by the film. The cloth will not stretch, and therefore the patterns of two strips will match when the covering is hung. Furthermore, the covering is water resistant.

Printed fabric wall coverings, particularly when made water resistant for washability, are usually considered to be superior to paper. However, there have been difficulties in the production and use of fabric wall coverings which have added to their cost and detracted from their usefulness. At least one large manufacturer of decorative wall covering materials first applies a water-resistant film to strips of cloth, and then prints on the coated cloth. This cloth is dimensionally stable before printing. This manufacturer has learned that unsupported cloth cannot be printed and then coated because the cloth will stretch and distort during coating, and has overcome this problem by first applying the film of water-resistant material, and thereafter printing on the coated cloth. The printing, however, is on the surface of the film, and not in the cloth. Therefore, when this wall covering is used around wash sinks, stoves, and similar places where excessive washing is necessary, the pattern soon washes away, leaving the unattractive base material exposed.

Therefore, an object of this invention is to provide a decorative wall covering having a cloth base with the pattern printed into the cloth and covered with a film.

Another object of the invention is to provide a decorative wall covering having a cloth base substantially stabilized dimensionally by a water resistant film, and having a decorative pattern under the film.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claim, taken in conjunction with the accompanying drawings, in which:

2

Figure 1 is a diagrammatic illustration of a temporary paper base member with a print cloth secured thereto and coated with a clear film;

Figure 2 is a section taken along line 2—2 of Figure 1; and

Figure 3 is a view like Figure 1 but with the paper removed, therefore it is a view of the finished product.

Although permanent conveyor belts may be used as a dimensionally stable backing sheet to which a flimsy dimensionally flexible sheet of cloth 11 may be temporarily mounted, I prefer to use paper strips 10. Prepared paper strips may be stored for future use, and if necessary, even the strips 10 with cloth 11 bonded thereto may be stored for future use. Further, a permanent conveyor would have to be quite long for surface preparation and mounting of the cloth.

Tough paper strips are flexible, yet strong and dimensionally stable. The surface of the paper may be made adhesive by any one of several types of bonding agents. Common starch paste has been suggested. Water softening adhesives may be used. I have found an exceptionally satisfactory bonding agent which has the property of permitting the paper 10 and cloth 11 to be mechanically ripped apart without any preparation, and without damage to either the paper or cloth. Furthermore, it is desirable that no adhesive remain upon the wall covering after separation. The adhesive which I have found most satisfactory for this purpose is nitrocellulose plasticized with castor oil and thinned with isopropyl acetate. This adhesive is applied preferably to the surface of the paper strip, rather than the cloth, and permitted to dry. At any time thereafter, the cloth may be applied to the adhesive surface of the paper, and the adhesive nature of the nitrocellulose regenerated by heat. The cloth will then adhere to the paper backing strip, and although the adhesive coating may be spotty, nevertheless the cloth will be held substantially dimensionally stable, yet will be flexible for rolling and printing. Printing may then be done in any suitable manner with standard equipment. The adhesive, being of extremely thin dimension, is not set forth in the drawing.

After the mounted cloth has been printed, a coating or film surface 13 is applied to the cloth. The coating or film surface serves the dual function of substantially stabilizing the cloth dimensionally, and of making the surface water resistant and washable. The pattern in cloth 11 is indicated by reference character 12 in the drawing.

I have found that a desirable coating or film forming material may be composed of a vinyl resin, such, for example, as a copolymer of vinyl acetate and vinyl chloride. The material is plasticized and stabilized for proper handling. Dioctyl phthalate is a desirable plasticizer, and barium ricinoleate and cadmium ricinoleate are desirable stabilizers. If desired this material may first be sheeted, and thereafter calendered to laminate it with the cloth.

The coating or film forming material will unite with the cloth, and inasmuch as the film is dimensionally stable, the cloth will be substantially stabilized. Further, the surface of the cloth will be washable, and the print will be united with the cloth under the film. The print is protected by the film.

After printing followed by coating or film stabilizing, the substantially stabilized wall covering is separated from the temporary paper backing. With an adhesive of the type used as an illustration, the separation is done by mechanically pulling the sheets apart. Also with this preferred type of adhesive, the adhesive has a stronger affinity for paper than for cloth, and therefore substantially all the adhesive clings to the paper, thereby leaving the wall covering clean.

3

Although this invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

The process of producing a decorative fabric wall covering, comprising the steps of, providing a backing sheet of paper, providing a dimensionally unstable fabric sheet, providing an adhesive composed of nitrocellulose plasticized with castor oil and thinned with isopropyl acetate, applying said adhesive to said paper and drying the adhesive, placing said fabric and paper together with the fabric against said adhesive, reactivating said adhesive to bond the fabric to said paper, thereafter printing a design on said fabric, then stabilizing the printed fabric

4

dimensionally by applying a film forming resin copolymer of vinyl acetate and vinyl chloride plasticized with dioctyl phthalate and stabilized with barium ricinoleate and cadmium ricinoleate, causing said film to harden, and finally stripping the fabric wall covering from the paper backing.

References Cited in the file of this patent

UNITED STATES PATENTS

333,881	Mencke	Jan. 5, 1886
1,690,179	Sadtler	Nov. 6, 1928
1,951,620	MacLaurin	Mar. 20, 1934
1,973,403	Borden	Sept. 11, 1934
1,974,883	Swift	Sept. 25, 1934
1,986,954	Abrams et al.	Jan. 8, 1935
1,998,638	Reese	Apr. 23, 1935
2,029,377	Kaplan	Feb. 4, 1936
2,556,078	Francis	June 5, 1951