

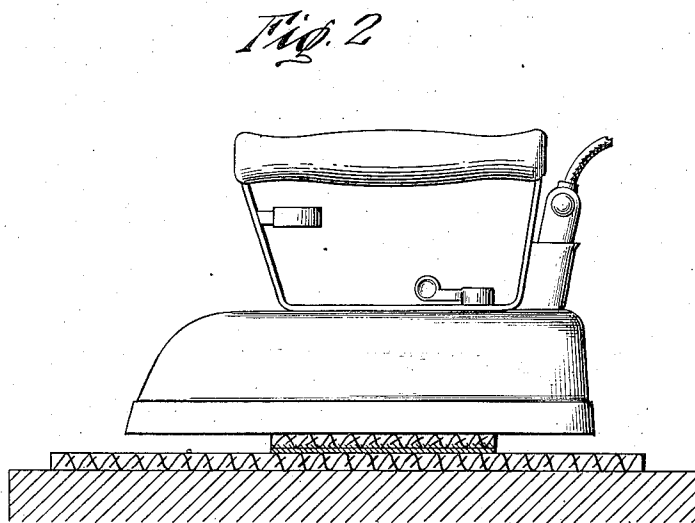
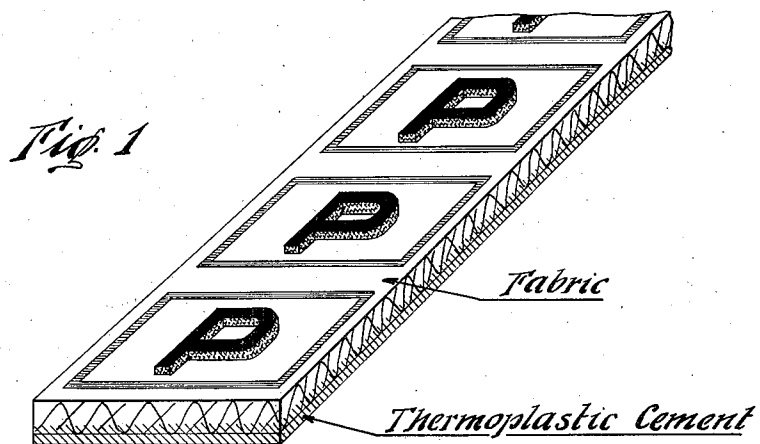
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METHOD OF PRINTING SELF ATTACHING FABRIC LABELS

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METHOD OF PRINTING SELF-ATTACHING
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8 Claims. (Cl. 41—34)

This invention relates to a process of printing upon fabrics and to the fabric so produced. More particularly the invention relates to a process of printing upon fabric to form labels which are adapted to be attached to garments by the mere application of heat and pressure.

Printing upon ordinary fabrics is rendered very difficult due to the inherent elasticity or stretching qualities of fabric. This difficulty is particularly apparent in printing processes where accurate registration of the printed matter is required, such as in multi-color work. Fabrics are also subject to variations in size, due to changes in humidity, and this interferes with accurate registration of the printed matter, particularly where large pieces of fabric are being printed.

One of the objects of my invention is to apply to a fabric a material which will facilitate printing on the fabric and avoid these difficulties, and which will render it possible to secure accurate registration of the various colors when the fabric is printed by a multicolor process.

In securing a piece of fabric to a surface it is often convenient to employ an adhesive. It is therefore a further object of my invention, in treating the fabric, to employ a material which not only permits accurate registration of the printing, but also has adhesive properties, so that the material may also be used in adhesively securing the printed fabric to another surface.

In the application of labels to garments, it is common practice to employ labels in which the indicia is woven in the fabric. The production of labels in this manner and their attachment to garments by sewing is a costly operation due to the time and skill required.

It is an object of my invention to provide a printed fabric label which may be secured in garments by a thermoplastic adhesive.

It has heretofore been proposed to secure fabric to a sheet of stiff paper by suitable means, for example, a flour or starch paste, and then print upon the fabric while it is secured to the paper. It has also been proposed to fill or stiffen a fabric by means of starch or similar material before printing. These materials, including the paper, will take up moisture and change in size. The fabric will alter its dimensions with corresponding variations in humidity. The results obtained have not been as satisfactory as desired. Starch and analogous materials are not satisfactory adhesives for securing printed fabrics to other surfaces, and for this reason such a use of

fabrics printed in this manner has not heretofore been proposed.

In the accompanying drawing which diagrammatically illustrates my invention:

Figure 1 is a diagrammatical illustration, in part a perspective and in part a cross-section, of a fabric printed by my process.

Figure 2 is a diagrammatical cross-section view illustrating the application of the printed fabric to another surface by means of heat and pressure.

In carrying out my invention I coat one side of the fabric to be printed with a non-hygroscopic material. The material is also preferably thermoplastic so that it may function as an adhesive when the printed fabric is applied to other surfaces, such as garments, by heat and pressure. The material, preferably should not be affected by water or dry cleaning when garments in which labels have been secured are subjected to these treatments. The material should possess sufficient flexibility so that it may bend without cracking, yet it should possess sufficient rigidity to prevent distortion in the surface of the fabric in printing.

The non-hygroscopic material is such that it will not alter its dimensions with a change in humidity. When this material is applied to one side of the fabric it keeps the fabric from altering its dimensions even though the fabric is subjected to physical stresses and changes in humidity.

The coating, while being firmly attached to one side of the fabric, does not impregnate the entire fabric, so that the uncoated surface will be free to take the printing inks or dyes in the usual manner during the subsequent printing operation.

After the fabric has been coated on one side with the material above described, the other side of the fabric is printed upon in one or more colors. The coating serves to keep the fabric from stretching or changing its dimensions during or between the several printing operations. In this manner accurate registry of the colors is obtained. The coating also gives the fabric greater rigidity so that it may be handled in the printing press with greater facility and speed.

If the fabric to be printed is in separate pieces, each of these may be separately coated and then printed in any type of a sheet printing device. If the fabric is in the form of a web, it may be printed in any type of a web press. In this latter case the coating may be applied as a separate operation before the fabric is introduced into the printing machine or it may be applied by

a roller or similar device in the printing machine.

The printing operation may be carried out by any conventional process such as relief, intaglio, planographic or stenciling, and any conventional ink or dye suitable for printing upon fabrics may be employed.

The material applied to the reverse face of the fabric is preferably in the form of a solution in a volatile solvent. Compositions including as a base one or more cellulose esters, for example, cellulose nitrate and cellulose acetate, are particularly suitable. Synthetic resins may also be employed, for example, the polybasic acid—polyhydric alcohol resins, a more specific example of this class being glycerol phthalate. Other synthetic resins, such as vinyl resins, and phenol formaldehyde resins, are also suitable. A suitable softening agent, or plasticizer, such as an oil or wax may be added to impart the required degree of flexibility to the material.

When my invention is employed in the production of fabric labels adapted to be attached to garments, and the printing is to be done on separate pieces of fabric, it is generally convenient to print a large number of labels in a single impression. When printed on a web the labels are printed consecutively on the web in one or a plurality of rows. The labels may then be cut apart after the printing operation. If they are of irregular shape they may be die-cut. The adhesive coating on the back of the fabric label prevents the edges of the fabric from fraying. The labels therefore have a neat appearance.

When the labels are to be attached to garments or other surfaces they are placed in proper position and secured by means of heat, such as a hot iron or a suitably heated press. The adhesive softens and becomes attached to the garment so that the label is securely fastened to the garment by the intervening layer of adhesive. This type of adhesive will be referred to hereinafter as a thermo-adhesive.

Fabric printed with indicia other than that of a label may similarly be secured to surfaces. It may also be secured to another fabric to form a laminated fabric.

Such a laminated fabric or a garment containing a label secured in the manner described may be washed or dry cleaned without affecting the printed fabric, since the adhesive resists these operations.

It will be apparent from the above description that the adhesive on the back of the fabric serves two purposes, namely, it permits accurate registration of printing on fabric and serves as an adhesive when the fabric is to be secured to another surface.

It is apparent that many modifications may be made in my process, such as variations in the specific composition of the adhesive, as well as in the details of applying the coating and the printing. I intend all such variations to be included within the scope of my invention as defined in the following claims.

I claim:

1. The process of making a printed fabric which is attachable to materials by the application of heat and pressure which comprises coat-

ing one side thereof with a non-hygroscopic thermoplastic thermo-adhesive and printing on the other side, said coating stiffening the fabric to facilitate printing and serving as an adhesive for securing the fabric to a surface.

2. The process of making a printed fabric which is attachable to materials by the application of heat and pressure which comprises coating one side thereof with a non-hygroscopic, thermoplastic thermo-adhesive and printing on the other side in a plurality of colors, said coating maintaining the dimensions of said fabric so that the colors will be in register, and serving as an adhesive for securing the fabric to a surface.

3. The process of making a printed fabric which is attachable to materials by the application of heat and pressure which comprises coating one side thereof with a thermo-adhesive comprising a cellulose ester and a synthetic resin and printing on the other side, the coating maintaining the dimensions of the fabric so that the colors will be in register and serving as an adhesive for securing the fabric to a surface.

4. The process of making a printed fabric which is attachable to materials by the application of heat and pressure which comprises coating one side thereof with a thermo-adhesive comprising a cellulose ester and a synthetic resin and printing on the other side in a plurality of colors, said coating maintaining the dimensions of said fabric so that the colors will be in register, and serving as an adhesive for securing the fabric to a surface.

5. The process of printing upon fabric and securing it to a surface which comprises coating one side thereof with a thermoplastic thermo-adhesive to maintain the dimensions of the fabric, printing on the other side, and securing said printed fabric to the surface by means of said adhesive with the aid of heat and pressure.

6. The process of printing upon fabric and securing it to a surface which comprises coating one side thereof with a thermo-adhesive comprising a cellulose ester and a synthetic resin, to maintain the dimensions of the fabric, printing on the other side in a plurality of colors and securing said printed fabric to the surface by means of said adhesive with the aid of heat and pressure.

7. The process of printing fabric labels and securing them to a surface which comprises coating one side of a piece of fabric with a thermoplastic thermo-adhesive to maintain the dimensions of the fabric, printing a plurality of labels on the other side, cutting said fabric to separate the labels and securing one of said labels to a surface by means of said adhesive with the aid of heat and pressure.

8. The process of printing fabric labels and securing them to a surface which comprises coating one side of a piece of fabric with a thermo-adhesive comprising a cellulose ester and a synthetic resin, to maintain the dimensions of the fabric, printing a plurality of labels on the other side, cutting said fabric to separate the labels and securing one of said labels to a surface by means of said adhesive with the aid of heat and pressure.

WINTHROP S. LAWRENCE.