Feb. 6, 1945. H. FOUNTAIN 2,368,706

MULTICOLOR FLOCK PRINTED FABRIC

Filed Aug. 7, 1943 2 Sheets-Sheet 1

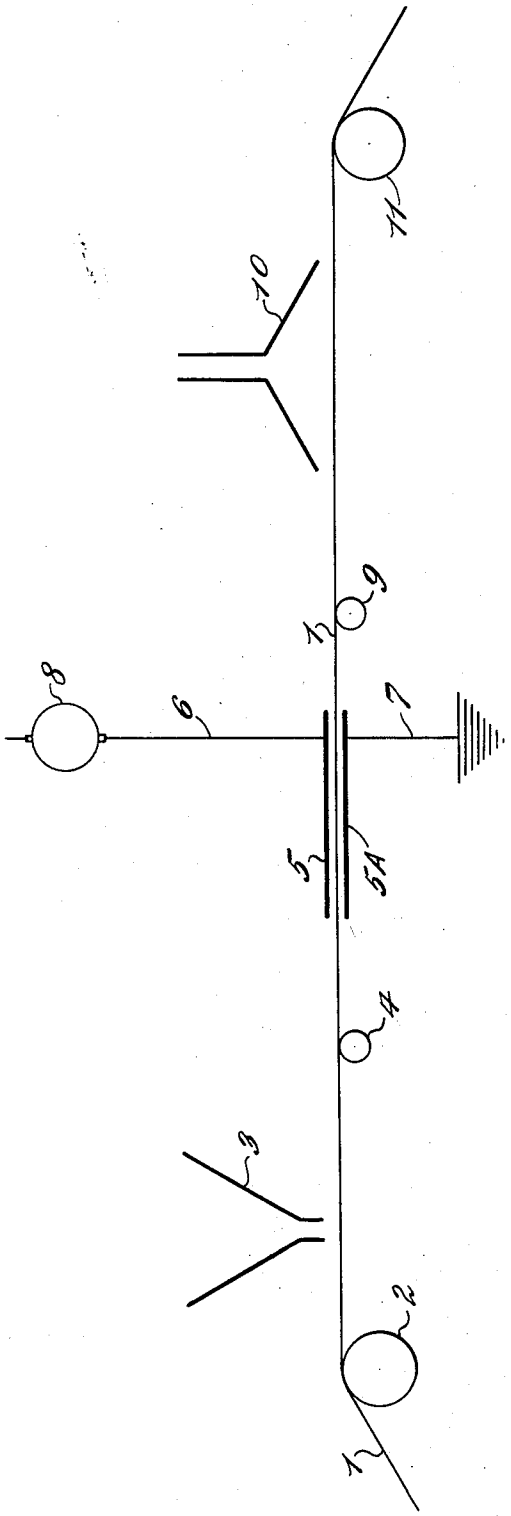

Fig. 1.

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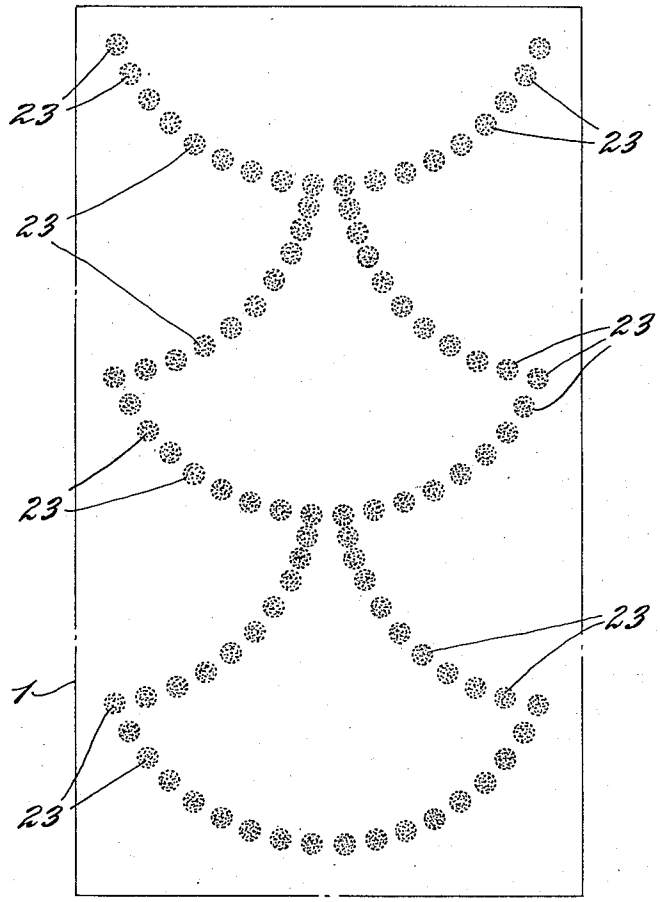

Fig. 2.

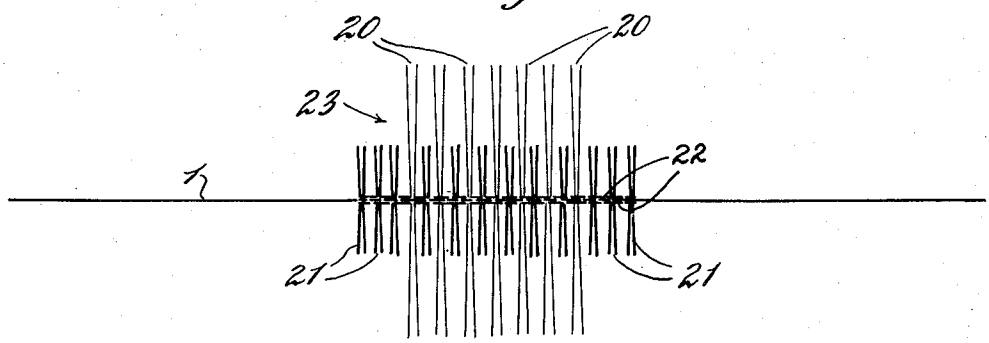

Fig. 3.

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MULTICOLOR FLOCK PRINTED FABRIC

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Application August 7, 1943, Serial No. 497,793

3 Claims. (Cl. 28—80)

This invention relates to the art of flock printing.

It is an object of the invention to produce novel color and other effects in flock printed textiles.

In accordance with the present invention, use is made of the known electrostatic method of orienting flock fibers in producing artificial pile fabrics and before describing the present invention, that process will be briefly described by reference to the accompanying drawings, in which Fig. 1 shows diagrammatically a process of electrostatic flock printing and in which the fabric 1, having been coated with a suitable adhesive in accordance with flock printing technique, is passed over guide roll 2 and under a hopper 3 from which flock is delivered onto the adhesive-treated fabric and caused to adhere thereto in the areas provided with the adhesive. The fabric then passes over guide roll 4 and between spaced electrodes 5 and 5A connected by leads 6 and 7 to a source of high potential 8 and the ground, respectively. The fabric 1 then passes over guide roll 9 and excess flock is removed by any suitable device indicated generally by 10 which may be a hood through which excess flock is blown to an accumulation thereof for re-use. The fabric containing the flock adhering thereto in the desired design is then passed over guide roll 11 and thereafter treated to dry or set the adhesive so that the flock becomes permanently anchored therein.

What has just been described is a known process for orienting the flock fibers, and the diagrammatic representation and brief description herein given is sufficient to identify that process.

As the fibers pass in spaced relation to the electrodes, they are subjected to an electric or magnetic field which causes the fibers to become substantially erect on the surface of the fabric. The difference of potential applied to the electrodes 5 and 5A is ordinarily rather high, e. g., of the order of 10,000 to 25,000 volts per centimeter of electrode spacing, so that the electric field developed is of sufficient intensity to cause the desired fiber orientation. This process may be referred to as the electrostatic process for producing imitation pile fabrics.

In accordance with the present invention, use of the process above described and the principles thereof is made in producing novel effects, particularly multi-color effects, and the invention will be further described by reference to Figs. 2 and 3 of the accompanying drawings, in which Fig. 2 represents a flock printed marquisette fabric, and Fig. 3 is an enlarged fragmentary view illustrating the structure of the individual tufts of flock indicated generally at 23.

Referring to Fig. 3, the flock fibers 20 and 21 are of different lengths, as shown, and are secured to the fabric by means of adhesive 22. The fibers 20 and 21 are oriented so that they are substantially perpendicular to the surface of the fabric 1. The fibers 20 have a different color from the fibers 21. In the practice of the method of the invention, the adhesive 22 may be applied to the fabric 1 in areas constituting a predetermined design, as for example by means of a suitable stencil, intaglio roll or coating machine, and the fibers 20, 21 may extend through the interstices and become oriented, as shown in Fig. 3, on both sides of the fabric. It will be noted that the lengths of fibers of a given or predetermined color are different from the lengths of the fibers having a different color. For example, the long fibers 20 may be white and the short fibers 21 blue. In such a case the blue fibers show up as a blue background against which the white fibers stand out. In some cases it is desirable that the fibers of one color have not only a different length from the fibers of another color, but also a different diameter or denier. In Fig. 3, for example, the white fibers 20 may have a total length of about 2.5 millimeters and a diameter of 5.5 deniers and the blue fibers 21 a length of about 1 millimeter and a diameter of about 3.5 deniers. The multi-color effect is not obtained where the fibers have the same length. It is only where the groups of fibers having different lengths or different average lengths also have different colors, that the contrasting color effect is obtained. It will be clear that the invention is not limited to a two-color or two-shade effect, but includes as many different colors and shades as may be desired. In obtaining the vari-colored or multi-color effect it is also necessary that the fibers be oriented so that they are substantially erect on the fabric. It is not meant that they be precisely perpendicular to the surface of the fabric, as shown in Fig. 3. It is merely meant that the fibers should all extend in a general direction transverse to the surface of the fabric, as distinguished from a random arrangement.

The preferred method of orienting the fibers of different lengths and colors preferably involves the use of the so-called electrostatic process above briefly described. In using this process, the flock employed is a mixture containing fibers of a predetermined length and color mixed in predetermined proportions with fibers of a different length and different color and, as previously stated, the

fibers of a given color may differ from those of another color not only in length but also in thickness. For example, one part by weight or volume of blue rayon flock having a length of 1 millimeter and a diameter of 3.5 deniers may be mixed with three parts by weight of white rayon flock having a length of 2.5 millimeters and a diameter of 5.5 deniers. It will be clear that numerous other mixtures may be employed, the particular mixture specified being merely one of a great many possible variants.

As previously stated, the number of colors is not limited to two but may be more than two. The mixture is fed through the hopper 3 onto the fabric 1 previously coated with adhesive and is then passed through an electric or magnetic field in accordance with the process above described, the effect of which is to orient the fibers. Instead of applying adhesive and flock in predetermined areas, the entire fabric may be treated with flock and adhesive.

The invention is not limited to the treatment of textile fabrics and may be employed with pliable sheet material in general, e. g., sheet rubber, paper, various polymeric and plastic materials in sheet form, e. g., cellulose acetate, regenerated cellulose (Cellophane) vinyl polymers and rubber hydrochloride in sheet form.

I claim:

1. A double-faced, decorative fabric comprising a relatively coarse weave cloth having colored pattern areas composed of a mixture of a predetermined proportion of flock fibres of one average length and color with a predetermined proportion of flock fibres of a different average length and color, said mixed fibres extending through the interstices of the cloth, adhered thereto and projecting from each face of the cloth.

2. A double-faced, decorative fabric comprising a relatively coarse weave cloth having colored pattern areas composed of a mixture of flock fibres of different lengths and different colors, said fibres extending through the interstices of the cloth, adhered thereto and projecting from each face of the cloth.

3. A decorative fabric presenting on each face thereof identical pattern areas composed of flock printed fibres extending through the interstices of the cloth in a direction substantially normal thereto and projecting from each face thereof.

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