I. KITSEE.

SUPPLYING PILE FABRICS WITH DESIGNS.

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1,253,050. Patented Jan. 8, 1918.

Fig. 1.

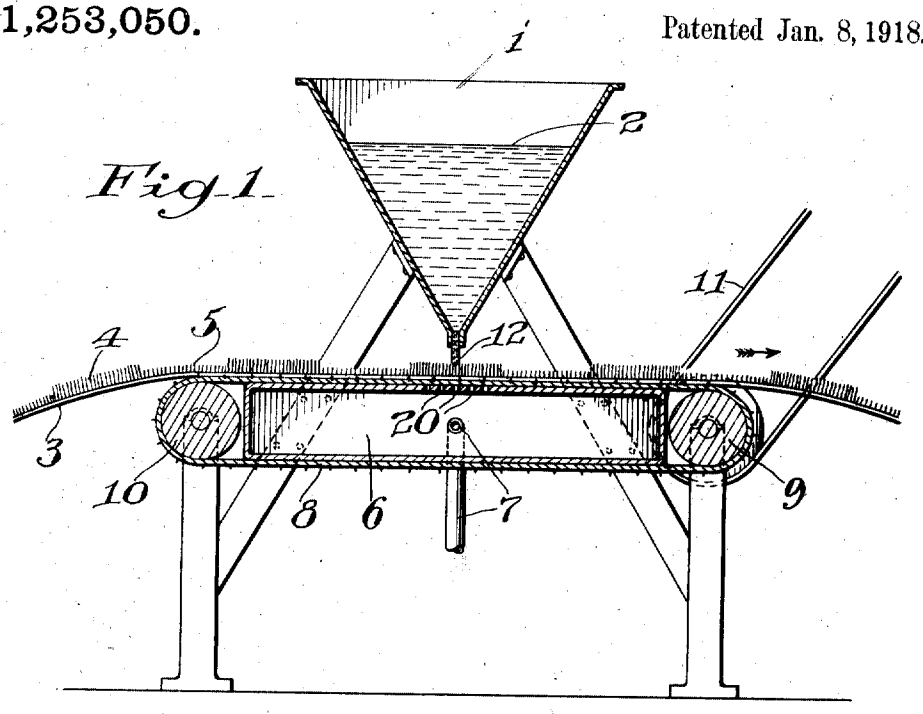
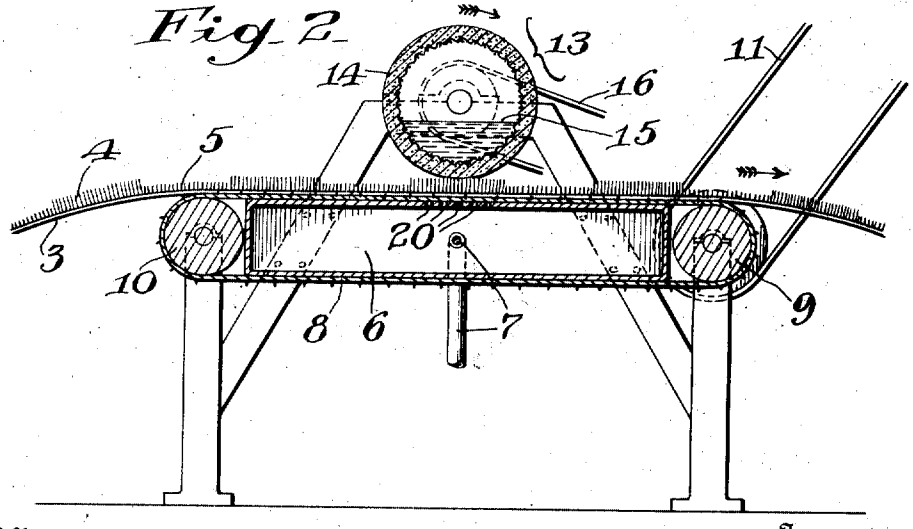


Fig. 2.



Witnesses

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Supplying Pile Fabrics with Designs, of which the following is a specification.

My invention relates to an improvement in supplying pile fabrics with designs.

Pile fabrics, such for instance as plush goods, are provided with the design by the simple process of cutting or shearing part of the fibers on the surface of said fabric.

In some cases it is desired to increase the dissimilarity in shade or color between the fibers shortened and the fibers not shortened and this may be accomplished with the aid of the "tipping" process, that is a process whereby only the tips of the fibers are brought in contact with the medium adapted to change the condition of the fiber as to color or shade.

This difference of shade or color may be produced with the aid of a bleaching agent, but I have found that a very efficient mode or method to produce the difference in shade or color is, to provide the extreme ends or tips of the fiber with the color complementary to the color with which the fabric is dyed. This mode needs a further explanation and I therefore will recite:—

a. Let us suppose that the fabric is dyed a certain shade of blue, say a blue-violet, through the cutting-in of the design, the cutting-in part will present a darker shade than the tip of the fibers not shortened and when the upper parts of these fibers are provided with a slight coloration of green, then these tips will present a kind of blue-green in contrast to the deep blue-violet of the cut-in part.

b. Let us suppose that the fabric is dyed a deep blue and the tips of the unshortened fibers are provided with a slight coloration of pink, then the tips will present a blue-violet, contrasting beautifully with the blue of the cut-out part.

c. Suppose the fabric is dyed a certain shade of red, the design cut-in, and it is required to increase the dissimilarity between the unshortened and the shortened fibers. If the tips of the unshortened fibers are provided with a blue-violet, the tips will assume a pinkish color and will present a greater difference than before the "tipping."

It is the aim of my invention to produce dissimilarity in shade or color and to illustrate some forms my invention may take I have reference to the accompanying drawing, in which:—

Figure 1 is a vertical, sectional view illustrating an improved way of applying the material, adapted to produce this dissimilarity to the tips or upper parts of the fibers of the pile fabric. Fig. 2 is a view similar to Fig. 1 illustrating a modified form of applying material to the fibers.

In Fig. 1, 1 is a reservoir, in which is contained the material 2, to be applied to the tips of the fibers. This material may consist of a free flowing liquor or may consist of an inert material suitable as a carrier for the active agent to produce the required result. This agent may be, as said above, a plain bleaching agent, such as a peroxid or chlorin, or other suitable bleaching agents, or it may consist of a coloring-material, as mentioned above; 3 is the fabric. Of this fabric, 4 are the fibers not shortened and 5 the fibers shortened by the cutting or shearing process, thereby producing a design on the fabric; 6 is an air tight inclosure; 7 a pipe communicating with the inner space of the inclosure; 8 is an endless band of any suitable material, such as strong canvas. This endless band may be provided with slight corrugations or pins so as to hold always the pile fabric in place; 9 and 10 are two rollers, with the aid of which the endless band 8 is revolved; 11 are the means to revolve the roller 9; 12 are the means to collect the material with which the fibers are to be tipped and to transfer the same to the tips of such fibers; it may consist if no strong acids are present (as is usually the case in bleaching) of suitable hair brushes, or pieces of suitable fibers, but where strong acids are present, it is best to use an asbestos textile. I have stated above, that the inclosure 6 is air tight, but this inclosure is also provided with perforations 20 in alinement with the means to transfer the tipping material to the fabric.

When in operation the air within the inclosure 6 is partly exhausted with the aid of the tube 7 and therefore will tend to pre-

vent the pile fabric from changing its position vertically, that is from bulging out, when in motion.

In Fig. 2, 13 is a revoluble drum or cylinder adapted to be put in motion with the aid of the belt 16; 15 is the tipping-material and 14 an absorbent covering for the drum or cylinder 13; this drum or cylinder may consist of a solid material perforated with holes or it may consist simply of a suitable wire netting, so that the tipping-material, if in its fluid or semi-fluid state may be absorbed by the absorbent covering 14 and thus be transferred to the fibers when in contact therewith.

Instead of this arrangement, the cylinder may be provided with aid of rollers on the outside with the required tipping-material and then transfer the same during its revolution to the tips of the fibers.

I have illustrated in these figures the pile goods as already provided with the design in intaglio, but it is obvious, that this my invention is also applicable to pile fabric not formally designed at all.

I have also shown the fibers 5 of the pile fabric as being free and uncovered, so as to illustrate the same better, but in actual practice it is preferred that such parts should be covered so that the same may not be stained with the tipping fluid.

The general operation of the device is as follows:—

The pile fabric is placed on the endless band in a position so that the upper parts or tips of the uncut fibers are just touching the brush or other implement at the same time that the air is in part exhausted from the compartment 6, so that, that part of the goods and therefore the fibers attached thereto should always be, horizontally considered, in one and the same position, neither higher up or lower down as originally intended. With the aid of the belt 11 and through suitable means the roller 9 is revolved and therefore the endless band is moved say in the direction of the arrow.

During this movement the upper tips of the fibers 4 will come in contact with the brushes or other similar implements 12 and the bleaching or coloring material is then transferred to the tips of these fibers.

In Fig. 2 the operation is similar with the exception that instead of the brush or similar implement 12 the revolving drum transfers the material to the tips of the fibers. In this case it is best to revolve the drum in the opposite direction from the moving of the fabric; the direction of the fabric and the direction of the revolving drum are indicated by the arrows; but it is obvious that the direction of the movement of the drum may be reversed if occasion requires it.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In the art of treating colored pile fabrics the improvement which consists in shortening certain fibers and providing the tips or upper parts of the unshortened fibers with a color complementary to the original color of said fiber.

2. In the production of designs for colored pile fabrics the improvement which consists in shortening certain fibers and increasing the dissimilarity in shade between the shortened and unshortened fibers through the tipping of part of the unshortened fibers with a color complementary to the color of the other fibers.

3. In the art of treating colored pile fabrics the improvement which consists in producing a design on said fabric by cutting predetermined fibers and producing a dissimilarity between the shade of the cut and uncut fibers by tipping the uncut fibers with a color complementary to the color of the whole fabric.

4. As a new article of manufacture a colored pile fabric provided on its surface with fibers of different heights, the tip of the fibers of greater height provided with a color complementary to the original color.

In testimony whereof I affix my signature in the presence of two witnesses.

ISIDOR KITSEE.

Witnesses:

FRANCES RUTHERFORD,

EDWARD SELDEN.