I. KITSEE.

MECHANISM FOR PRODUCING DESIGNS ON PILE FABRICS.

APPLICATION FILED FEB. 23, 1916.

1,253,049.

Patented Jan. 8, 1918.

2 SHEETS-SHEET 1.

FIG. 1.

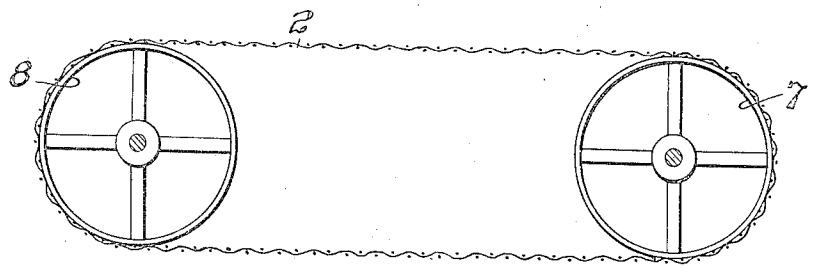
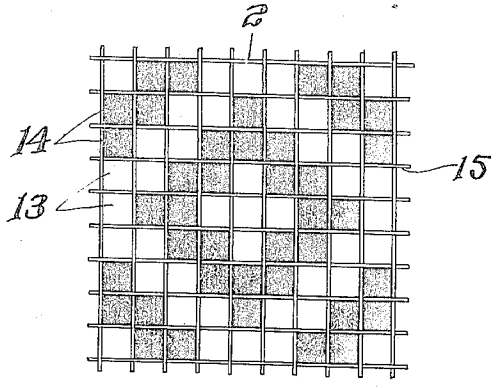


FIG. 2.



Witness

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2 SHEETS—SHEET 2.

FIG. 3.

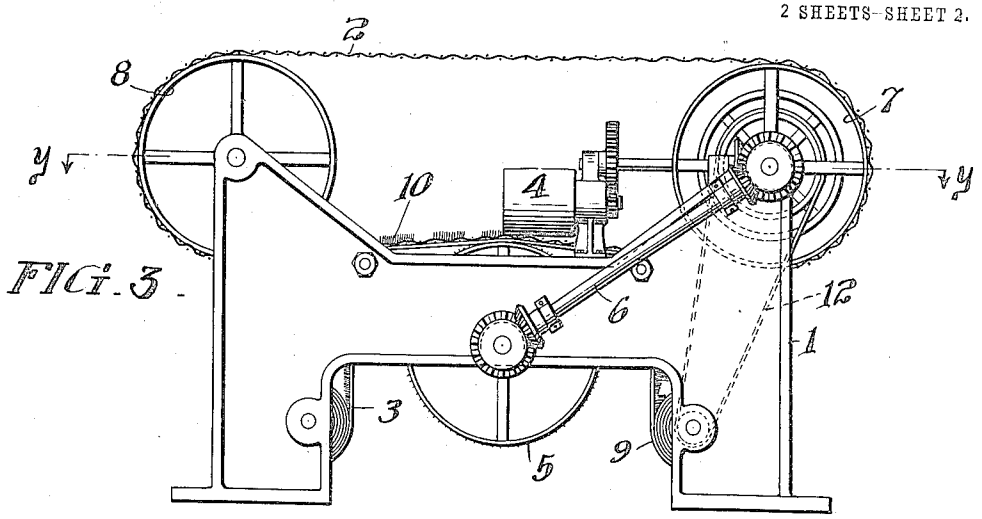


FIG. 4.

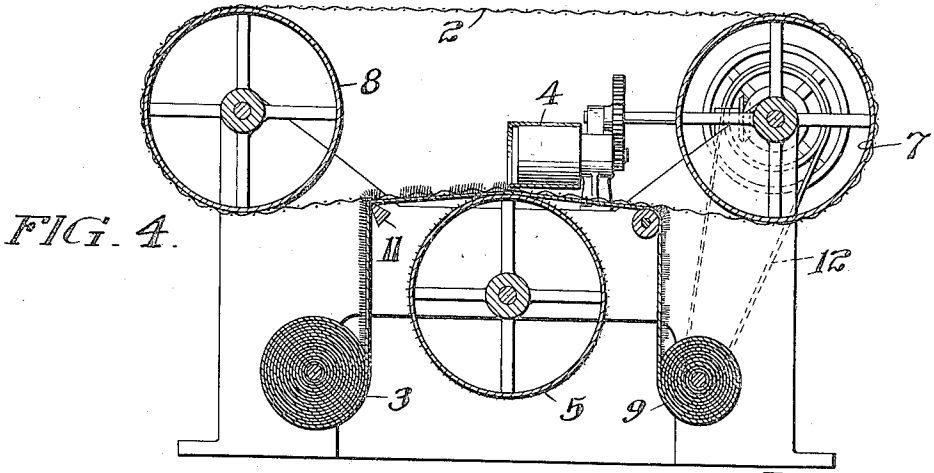
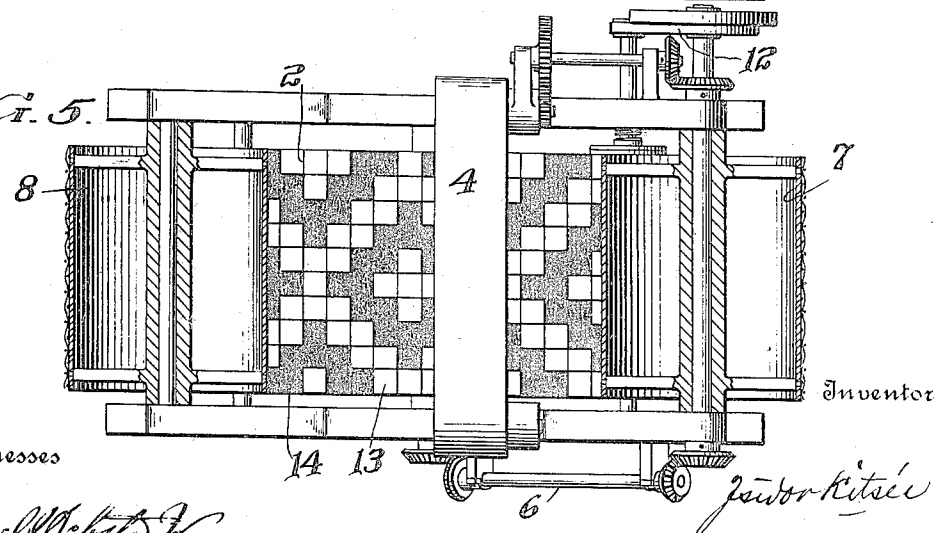


FIG. 5.



Witnesses

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MECHANISM FOR PRODUCING DESIGNS ON PILE FABRICS.

1,253,049. Specification of Letters Patent. Patented Jan. 8, 1918.

Application filed February 23, 1916. Serial No. 79,968.

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 Mechanism for Producing Designs on Pile Fabrics, of which the following is a specification.

My invention relates to an improvement in pile fabric, such as plush goods.

To produce an apparent change in shades, after the goods are dyed, designs are cut into the nap of the fabric, and to produce such designs in a more convenient and economical manner is one of the aims of my invention, a second aim of my invention is to produce these designs in, what I call half-tone, that is comprising a series of dot or square like formations.

To illustrate some forms my invention may take I have reference to the accompanying drawing:

In this drawing: Figure 1 is a plan view of an endless band provided with the required design and means to rotate this band. Fig. 2 is a plan view of part of this endless band illustrating part of the design. Fig. 3 is a vertical elevation of the means to produce the design on the pile fabric with the aid of said endless band. Fig. 4 is a vertical elevation taken through the center of Fig. 3. Fig. 5 is a top view of the means as illustrated in Fig. 3 taken on the lines y, y of said figure.

In Fig. 1, 2 is the endless band, 7 and 8 are two revoluble drums.

In Fig. 2, 2 indicates part of the endless band as an entirety; of this band, 15 are the threads or wires, 14 the spaces closed up and 13 the spaces left free. The endless band 2 is here shown as to consist of a netting, this netting may consist of a suitable fiber or may consist of a suitable metal and I prefer that this endless band should comprise a wire netting in which the wires forming the spaces or mesh should be of the smallest possible diameter or gage consistent with the required strength of the band.

The design may be formed on the band, by first tracing the design on a suitable material, such for instance as a sheet of paper, preferably divided into spaces equal to the mesh of the netting. Those spaces then, which cover the design on the paper are closed up in the netting, so that in reality those parts which are not closed up will, later on, form that part of the design on the fabric which is in intaglio.

The filling-in material may consist of any of the suitable cements and I will in a later application specify more specifically the mode and manner of filling-in these spaces and the preferred cementitious material.

In Fig. 2, I have illustrated part of the band as consisting of wire netting, but it is obvious, that the band itself may consist of a suitable material, such as a thin sheet metal and that, that part of the design, which in the pile fabrics should be reproduced in intaglio, may be produced on the band in the shape of holes or perforations of suitable size.

In Fig. 3, 1 is the device for cutting-in the design as an entirety; of this device, 2 is the endless band carrying the design, this endless band is supported and adapted to be rotated with the aid of the two drums and rollers 7 and 8, 4 is the rotating cutter or knife and 3 the pile fabric into the surface of which the designs have to be cut, 5 is the feeding roller connected through gearing with the shaft 6 and through the same and an additional gearing with the driving roller 7, 9 indicates the roll of the fabric after the design was impressed thereon, 10 indicates the nap of the pile goods to be cut away by the knife 4.

In Fig. 4, 11 is a triangular shaped straight-edge adapted to spread the nap of the pile goods, so that it may freely enter the open mesh or perforation of the endless band, 12 indicates the means for winding up the finished pile fabrics and these means consist here of an endless band and friction pulleys or wheels.

In Fig. 5, 2 is the endless band of which 13 are the free and 14 are the filled-in parts forming the design proper, 4 is the revolving knife, 7 and 8 are the drums with the aid of which the endless band is put in motion, 12 are the means for winding up the finished goods as illustrated in Fig. 4 and 6 is the connecting shaft, as more clearly shown in Fig. 3.

It is obvious, that the different moving parts of the device, such as the drums or the rollers 5, 7 and 8 and the knife 4 have

to be geared so as to conjointly produce the required synchronous movement.

In practising my invention, the goods are carried with the aid of the roller or drum 5, nap upward, and the endless band 2 is pressed against the surface of the fabric, whereby the fibers of the nap are pressed through the spaces left open in the endless band, and the revolving knife 4, will then cut off those parts of the fibers which are protruding through the free spaces. Care should be taken, that the frictional arrangement 12 is of sufficient and yet not too strong a tension so as to allow the winding of the finished product at the required speed.

I have described and illustrated in this application the removing of the fiber as to be produced by the process of cutting, but the removing may also be produced with the aid of a high temperature, such as a gas flame or electric wire brought to the necessary high temperature, and as this process will form the subject matter for another application, I deem it unnecessary to go here into more detail of same.

I have illustrated the endless band, carrying the design, as a netting and in such case the parts of the pile which will be cut away and therefore in intaglio will represent squares. But in some cases it is desired, that those parts of the design which are in intaglio should be formed of dot-like formations, and in this case the endless band should be formed of suitable solid matter, such for instance as a thin sheet of metal and that part of the design, which has to be in intaglio should be, either stamped or otherwise pressed out in small perforations, such for instance as round holes of about one-fourth or one-half of an inch in diameter.

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

1. Means to produce designs on pile fabric, said means comprising a netting, predetermined parts of the interstices of said netting closed, means to move said netting in conjunction with the pile goods to be designed and means to remove such parts of the fibers of said pile goods as are protruding above said netting.

2. In a device for producing designs on pile fabric, a netting, a design produced on said netting during the closing of predetermined parts of the interstices between the threads of said netting and means to force such parts of the nap of said fabric as are designed to be removed through the open spaces of said netting and means to remove the so protruding parts.

3. In a device of the class described, a pile fabric, an endless band of netting, part of the free spaces of said netting closed, means to revolve said endless band, means to press said band on the face of said pile fabric and means to shorten the fibers protruding through the open spaces of said netting.

4. In a device of the class described, a metallic netting, part of the free spaces of said netting closed up, a pile fabric, means to press said netting on said pile fabric, whereby the fibers below the open spaces of said netting are made to protrude through said open spaces and means to shorten such fibers as are protruding.

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

ISIDOR KITSEE.

Witnesses:
FRANCES RUTHERFORD,
ALVAH RITTENHOUSE.