

Dec. 7, 1954

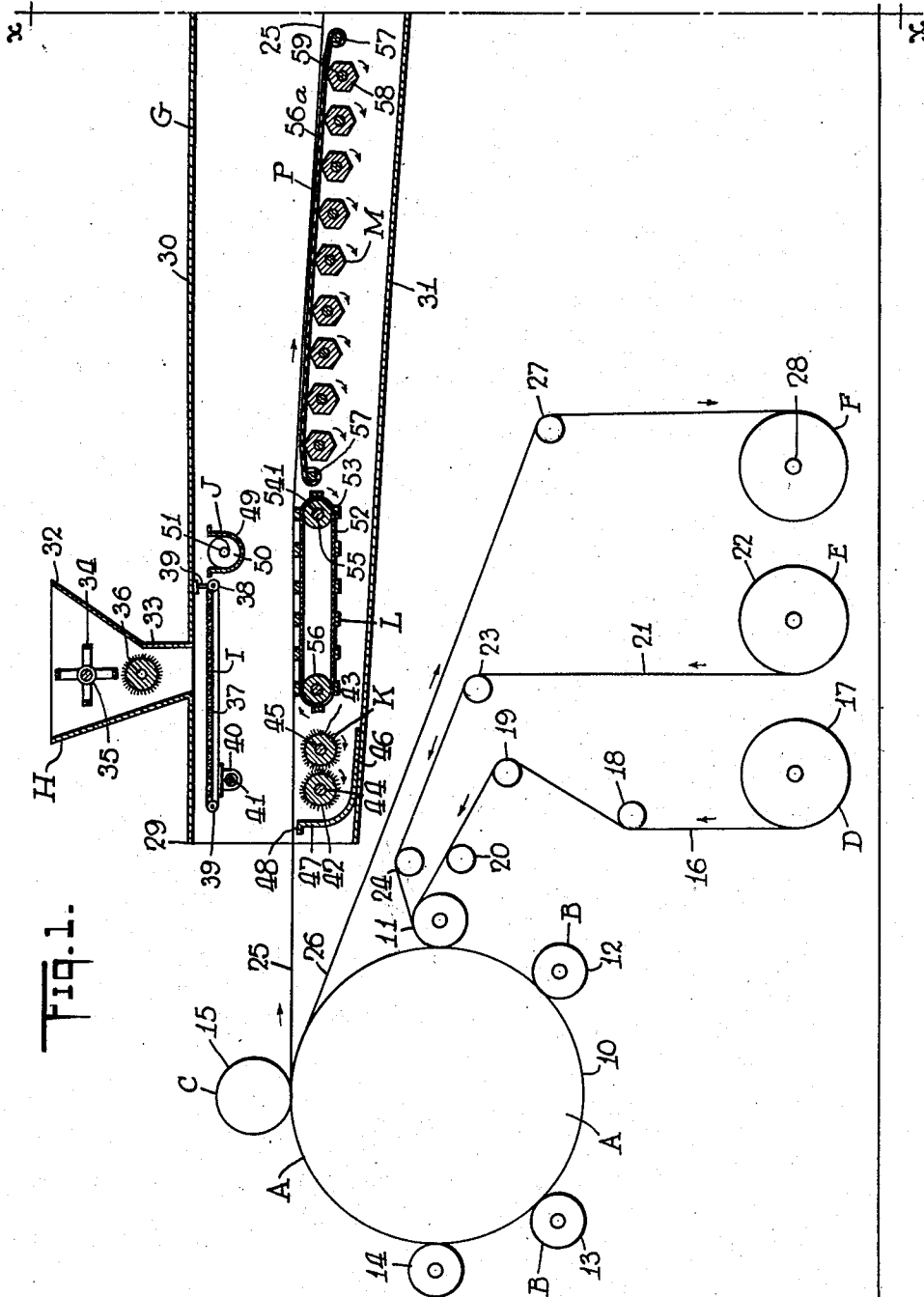
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PROCESS AND APPARATUS FOR FLOCKING FABRIC

Filed March 10, 1947

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PROCESS AND APPARATUS FOR FLOCKING FABRIC

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Application March 10, 1947, Serial No. 733,566

5 Claims. (Cl. 117—9)

The present invention relates to fabric decoration and it particularly relates to a method of producing a novel flock printed effect upon fabrics.

The present invention will be particularly described in connection with its application to producing a novel decorative effect upon textile fabrics and it will be especially directed to the method and means for accomplishing such result.

It is among the objects of the present invention to provide a novel mechanism and method for producing modified flock as well as panne effects upon textile fabrics as well as other sheet materials.

Another object is to provide a novel panne effect on fabrics which will withstand desirable wear and stand up during normal garment uses.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects it has been found most suitable according to one embodiment of the present invention to provide a flock printing mechanism for applying successively adhesive and then flock to a textile fabric with or without a single or multi-color roller printing design, following which the flock is partly set and then flattened or panned between closely contacting rubber blankets under sufficient pressure to assure desired alignment of the flock without weakening or distorting the attachment of the flock.

The invention also consists in certain new and original features of construction and combination of parts hereinafter set forth and claimed and as to its other objects, features and advantages, the mode of operation and manner of its organization, these inter alia, may be better understood by referring to the following description considered in connection with the accompanying drawings forming part thereof in which:

Fig. 1 is a side diagrammatic sectional view of a combined stencil and roller printing mechanism with a flock applying mechanism up to the line X—X;

Fig. 2 is a similar side diagrammatic elevational view of the right hand side of the mechanism beyond the line X—X showing the part of the treating chamber in which the fabric is panned or in which the flock is modified;

Fig. 3 is a fragmentary diagrammatic vertical sectional view of the fabric with the flock attached before the panne effect is applied, and

Fig. 4 is a fragmentary transverse sectional view of the fabric after the panne effect is applied.

Referring to Fig. 1 there is shown a main drum A with the intaglio or engraved printing rollers B and with the stencil roll C. There is also a fabric feed D, a paper feed E and a paper take-up F. The flocking chamber G has a flock feed H and a shaker screen I, a back flocking device K, an excess flock remover J and a fabric support and beater L.

At the right of Fig. 1 is shown the rubber blanket P and the cooperating beater rolls M. In Fig. 2 is positioned the panne device N.

Referring particularly to Fig. 1 there are four printing rollers 11, 12, 13 and 14 and a stencil roller 15 all pressing against the main drum 10.

The fabric 16 is wrapped on the feed roll 17 and passes

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over the tensioning rolls 18, 19 and 20 to the printing roller 11 and drum 10. The fabric then passes around the main drum A when it is successively acted upon by the engraved rollers 11, 12, 13 and 14 and the stencil 15.

At the same time the paper or fabric backing 21 passes from the supply roll 22 over the roller 23 and the roller 24 on to the drum A in back of the fabric 16 as best shown in Fig. 1.

After being printed and stencilled upon the drum A the fabric as indicated at 25 passes toward the flocking chamber G while the paper as indicated at 26 passes toward the roller 27 back to the take-up roller 28.

The fabric 25 is flocked both on its upper and lower sides in the chamber G. The flock supply system H consists of a hopper 32 having the agitator 34 turning on the shaft 35 and the distributor brush 36. The flock passes down the hopper section 33 into the shaker screen I. The brush 36 will control the rate of feed of the flock onto the shaker screen I.

The shaker screen I (see Fig. 1) has a top screen 37 mounted upon the rods 38 and 39. The screen 37 is mounted upon a frame 40 which is vibrated by an eccentric 41.

The screen 37 inclines slightly downwardly toward the screw conveyer J which has a central screw 50 turned by the shaft 51 in a receiver 49. The screw 50 removes the excess flock from the vibrating screen 37.

The screen 37 will desirably be of such a mesh as only to permit the right size of flock to pass onto the fabric 25.

Below the fabric 25 as it passes through the flocking chamber G is positioned the under or back flocking arrangement K consisting of the two brushes 42 and 43 on axles 44 and 45 which turn in the same direction and throw the flock upwardly as indicated against the lower side of the fabric 25.

Sufficient adhesive will have penetrated through the fabric 25 from the stencil roll C to assure adherence of the flock to the bottom or back side of the fabric. The pan 47 terminating at 48 will cooperate with the brush rollers 42 and 43 to divert the flock upwardly. Sufficient flock will pass onto the bottom 31 of the chamber G to supply the flocking rollers K with sufficient flock to throw up against the bottom side or under side of the fabric 25.

Directly below the flock hopper H is positioned a fabric support and beater arrangement L which consists of a belt 52 having the beater members 53 which are turned by the cylinders 55 and 56.

The fabric 25 then passes over the rubber blanket 56a which is continually beaten by the hexagonal wooden beaters 58 turning on the shafts 59. The rubber blanket 56a is stretched on the rods 57.

After the flock thus has been beaten into the fabric 25 by the arrangement M the fabric passes into the chamber Q. The chamber Q has the entrance 60, the side walls 61 and 62, the base 63 resting on the slats 64, and the reinforced roof 65.

In the chamber Q the fabric 25 is given a panne effect by the friction device N. In acquiring a panne effect, the fabric 25, while the adhesive is still moist, is pulled between the rubber blanket 66 stretched between the rods 68 and 69 and the rubber blanket 67 stretched between the rods 70 and 71. The blankets 66 and 67 forming part of the device N hang somewhat loosely between the rods 68 and 69 and 70 and 71 so that the fabric 25 can only be drawn between them with substantial friction.

At the same time the hexagonal wooden rods 72 mounted on the axes 73 support the blankets 66 and 67 and the intervening fabric 25.

The panned fabric 25 will then pass to the dryer (not shown) through the opening 74 in the wall 62 of the chamber Q.

As shown in Fig. 3, the fabric 25 before being panned will have the upstanding flock 78 and 79 carried by the adhesive 76 and 77 applied by the stencil roll 15.

In Fig. 4, the upstanding flock will be flattened as indicated at 178 and 179 to form a plush or smooth effect which is quite novel.

By beating the fabric at M in Fig. 1 immediately after the flock is applied, the flock will adhere sufficiently during the compression and beating in Fig. 2 at N to retain a permanent flattened set.

If desired, the printing rollers B may be omitted and the fabric only decorated by a flock application and if also desired the rear flocking device K may also be omitted.

As many changes could be made in the above mechanism method and means for producing a panne effect and many widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. An apparatus for producing a panne effect upon flock printed textile fabrics, which comprises means for applying adhesive in a desired design to a textile fabric, means for applying a flock to the face of the fabric, carrying said adhesive, means for removing the excess flock material from the fabric, and means for frictionally simultaneously rubbing and pressing the flock down upon the fabric to flatten against said fabric, said last mentioned means including closely contacting stationary non-moving rubber blankets, said flock in its final position extending away from the fabrics and the individual threads being substantially unattached and extending away from the fabric except at one end thereof and the fibers being all bent in one direction without being crushed into the fabric or down upon the fabric.

2. An apparatus for producing a panne effect upon flock printed textile fabrics, which comprises means for applying adhesive in a desired design to a textile fabric, means for applying a flock to the face of the fabric, carrying said adhesive, means for removing the excess flock material from the fabric, and means for frictionally simultaneously rubbing and pressing the flock down upon the fabric to flatten against said fabric, said last mentioned means including closely contacting stationary non-moving rubber blankets and means for beating said rubber blankets, said flock in its final position extending away from the fabrics and the individual threads being substantially unattached and extending away from the fabric except at one end thereof and the fibers being all bent in one direction without being crushed into the fabric or down upon the fabric.

3. A flock printing machine comprising means for holding a supply of fabric, a main drum for carrying said fabric, a stencil roller for applying a fluid adhesive to one

side of said fabric on said drum, a flock feeder, a shaker screen to receive flock from said feeder and sprinkle it upon the imprinted side of said fabric, a flexible support over which the reverse side of the fabric passes after application of the flock, beaters below said support to beat and vibrate said support to beat the flock into the fabric and remove excess flock, another flexible support beyond said first support over which said fabric passes after passing the first support, additional beaters below said second flexible support to beat and vibrate said support and the fabric thereon and a lightly contacting frictional device contacting the imprinted side of said fabric as it passes over said second support to flatten the flock in one direction, said second flexible support and said frictional device consisting of stationary non-moving devices.

4. The machine of claim 3 in which said flexible supports and said frictional device consist of stationary non-moving rubber blankets.

5. A process of flattening a flock upon a fabric which comprises pulling a flock printed fabric while the adhesive is still wet between two stationary contacting rubber blankets which are only pressed together by the gravity weight of the upper blanket and beating the rubber blankets while the fabric is therebetween.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
65,038	Adamson -----	May 28, 1867
296,428	McMillen -----	Apr. 8, 1884
1,658,844	Hanington -----	Feb. 14, 1928
1,912,625	Dreyfus -----	June 6, 1933
2,150,139	Wampner -----	Mar. 7, 1939
2,223,476	Amstuz -----	Dec. 3, 1940
2,303,202	Faris et al. -----	Nov. 24, 1942
2,338,499	Faris et al. -----	Jan. 4, 1944
2,351,265	Hiers -----	June 13, 1944
2,388,999	Riggenbach -----	Nov. 13, 1945

FOREIGN PATENTS

Number	Country	Date
1,288	Great Britain -----	1863
307,241	Great Britain -----	1929