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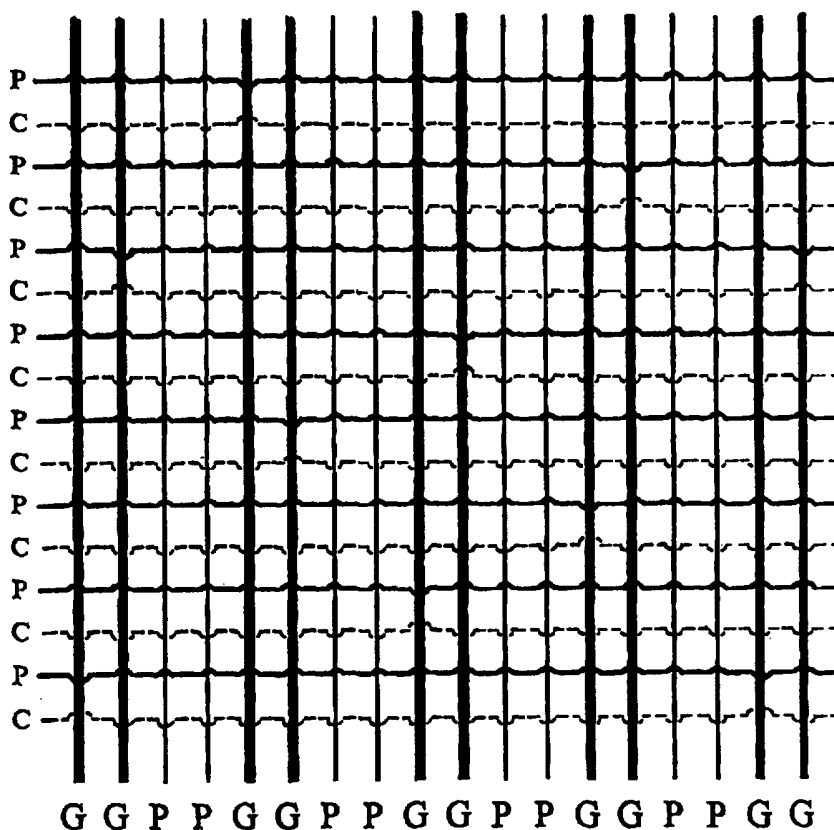
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(54) Title: METHOD OF MANUFACTURE OF TERRY CLOTH ITEMS

(57) Abstract

A method of manufacturing an item formed of terry cloth incorporating a decorative panel comprising: weaving the item of terry cloth with a panel which is loopless and is double-sided and where at least one face of the panel is formed of a synthetic fusible fibre; applying heat and pressure to the at least one face to at least partially fuse the fusible fibre; and to form a smooth patterned surface to the at least one face.



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‘METHOD OF MANUFACTURE OF TERRY CLOTH ITEMS’

THIS INVENTION relates to the weaving of textile items formed of terry cloth such as towels and the like.

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In order to apply a pattern to terry cloth, there are several limitations upon the manner in which the pattern can be applied. The principal reason for this difficulty relates to the nature of the terry cloth which by its nature does not lend itself to a detailed pattern. Generally, in the past, a pattern has been applied to items formed of terry cloths such as a towel by weaving a pattern into the cloth. Though proposals have been made in the past for printing patterns onto towels and other terry cloth items, these methods have generally been unsatisfactory for several reasons. One of the principle reasons comprises the textured characteristic of the terry cloth which prevents a detailed and distinct pattern being printed onto the towel.

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In order to achieve an improved definition in design reproduction, proposals have been made to shear the terry loops from the cloth, however this is costly and can substantially detract from the principal function of the towel which is to absorb and store moisture. Another proposal for applying printed or relief patterns to towels has comprised utilising a panel which may comprise a header panel at one or both ends of the towel and weaving into that panel a decorative pattern. There have also been proposals to apply printed or relief patterns to the panels.

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It is however, not generally possible to apply a printed pattern directly onto the header panel of a towel since the dyes used in the printing process are washed from the cotton fibre in normal use of the towel. To date, the only successful means of providing a printed header panel has generally comprised the application of a separate piece of printed fabric over the towel in the region of the header panel. This technique however suffers from the difficulty that the separate piece of material is of a different nature to the terry cloth of which the

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- 2 -

of fabric to the towel can be damaged causing the separate piece to be separated from the towel resulting in a rapid deterioration of the appearance of the towel.

- 5 In situations where the pattern is three dimensional, it has been the practice to shear the terry loops from the cloth to form the pattern. However, this as indicated above, is costly and detracts from the absorption characteristics of the towel. Other methods have included use of a specialised weaving technique to achieve the relief pattern however, this can add significantly to the cost of the
10 towel.

It is an object of this invention to provide a technique whereby a pattern can be applied to a panel of a item formed of terry cloth whereby the pattern is stable.

- 15 Accordingly, the invention resides in a method of manufacturing an item formed of terry cloth having a decorative panel said method comprising weaving an item of terry cloth with a panel which is loopless and is double sided where at least one face of the panel is formed of a synthetic fusible fibre, applying heat and pressure to the at least one face to at least partially fuse the fusible fibre and to
20 form a patterned surface on the at least one face.

According to a preferred feature of the invention, the other face of the terry cloth item is formed from a fibre substantially corresponding to the remainder of the terry cloth item.

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According to an alternative preferred feature of the invention both faces of the terry cloth item can be formed from the synthetic fusible fibre.

According to a further preferred feature of the invention, the synthetic fusible
30 fibre comprises a polyester fibre.

- 3 -

One embodiment of the invention comprises the method of manufacturing an item formed of terry cloth having a decorative printed panel, said method comprising weaving the item of terry cloth with a panel which is loopless and is double sided, where at least one face of the panel is formed of a synthetic
5 fusible fibre, applying heat and pressure to the at least one face to form a smooth substantially uniform surface and applying a decorative printed pattern to the one face.

According to a further preferred feature of the above embodiment, the
10 application of heat, pressure and the printed pattern is effected substantially simultaneously. It is preferred that the printed pattern is applied by application of a transfer master over the panel prior to the application of heat and pressure to the panel. It can be a feature of the embodiment that the pattern is also three dimensional. The creation of the pattern can be affected by a heated platen
15 which is applied under pressure to the at least one face wherein the surface of the platen is formed with a relief pattern. At least a portion of the relief pattern may correspond with the printed pattern.

Another embodiment of the invention comprises a method of manufacturing an
20 item formed of terry cloth having a decorative panel formed with a relief pattern said method comprising weaving the item of terry cloth with a panel which is loopless and double sided, where at least one face of the panel is formed of a synthetic fusible fibre, applying heat and pressure to the at least one face to form a patterned surface comprising a relief pattern. The application of the heat and
25 pressure can in accordance with one preferred feature of the embodiment be effected by the application of a heated platen to the at least one face under pressure where the surface of the platen is formed with a relief pattern.

According to a further preferred feature of the above embodiment, the fusible
30 fibre comprises a yarn formed of a viscose fibre.

- 4 -

According to one feature of the embodiment, the synthetic fusible fibre. Fibre can be of the form in a coarse viscose chenille yarn.

According to a further preferred feature of the invention, the terry cloth item
5 comprises a towel.

The invention will be more fully understood in the light of the following description of several specific embodiments. The description is made with reference to the accompanying drawings of which:

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Figure 1 is a peg plan which illustrates the weaving pattern of the header panel of a towel manufactured according to the method of the first embodiment; and

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Figure 2 is a schematic illustration of the weaving pattern illustrated in Figure 1.

The first embodiment of the invention relates to the manufacture of cotton towels which are formed with a panel which is capable of being printed and whereby the
20 printed pattern is resistant to washing and whereby the surface of the panel can accept a detailed pattern with little loss of definition. The towel is woven according to the embodiment according to conventional practice with the exception of one or more panels which may be provided on the towel.

25 Each panel is formed as a double-sided loopless panel. The weaving of the panel is effected utilising two differing weft yarns in accordance with the peg plan shown at Figure 1 where one yarn P is formed of a synthetic fusible fibre such as polyester and the other weft yarn C is formed of the same fibre as the remainder of the towels. The weft yarns P and C are alternatively woven across the two
30 warp yarns P and G which comprise the pile and ground yarns respectively in accordance with the peg plan shown at Figure 1 and which is schematically illustrated at Figure 2. By so weaving the weft yarns, the synthetic weft P yarn is

- 5 -

woven such that it is positioned to lie predominantly on one face of the panel and the cotton weft yarn C is positioned to lie predominantly on the other face of the panel. There is only limited exposure of yarn which predominantly lies at one face of the panel, at the opposed face of the panel.

5

The effect of the weaving process according to the method described above is that the weft yarns are floated to one or the other surface of the panel and such that they are formed as a loose weave on the respective surface of the panel. The result is that the one face of the panel is such that it is substantially
10 composed of the synthetic fibre although as a result of the weaving process, some of the cotton yarn does extend through to the one face.

On completion of the weaving of the towel incorporating the panel as described above, the towel can be dyed according to conventional techniques. However
15 the synthetic fibre, because of its nature, will not accept the dye. The result is that the one face of the panel which is predominantly formed by the synthetic fibre will remain undyed while the other face of the panel which is predominantly formed of cotton fibre does accept the dye and will be in conformity with the remainder of the towel.

20

Once the dyeing of the towel has been completed, the panel is then placed in a press and the one face is subjected to pressure and heat by means of a heated platen whereby as a result of the high pressure and heat applied to the one face of the panel, the synthetic fibres formed on the one face are softened and
25 become fused together. In the weaving of the synthetic weft yarns on the one face, there is sufficient bulk in the fibres such that on them becoming compressed and fused by the heated platen they form a substantially smooth or silky surface in which the cotton weft yarns which also lie on the one face are effectively embedded. The one face then has a printed pattern applied to it by
30 application of a printed transfer master by application of the appropriate heat and pressure.

- 6 -

In the heating and compression of the panel, the cotton fibres located on the other side of the panel are stabilised by their contact with the inside face of the synthetic fibres with which they come into contact, whereby the previously loose nature of the cotton layer is eliminated.

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According to a preferred form of the embodiment, the fusing and compression of the fibres on the one face of the panel by the application of heat and pressure and the application of the printed pattern by means of the transfer master can be effected simultaneously. This is done by applying the master of the transfer
10 which bears the printed pattern in position on the one face of the header panel and then placing the panel within a press whereby the movable heated platen is applied over the one face of the panel with the transfer master located between the one face and the heated platen. The application of the heat and pressure to the one face partially melts the synthetic fibres and causes them to be bonded
15 one to another while the printed pattern is applied to the surface of the fused layer of fibres.

The result of the process of the embodiment is a towel having a panel which has one face which is formed with a smooth silky finish having a printed pattern
20 applied to it and where the other face is formed substantially of the same material and has the same colouring as the remainder of the towel. Furthermore, the printed pattern which has been applied to the one face of the panel is resistant to washing and the other usual requirements of the towel and the pattern can be one having a higher definition of the pattern and than has
25 previously been possible.

The second embodiment is a variation of the first embodiment and comprises using a heated platen which is formed with a relief pattern. The platen can be formed with the pattern by a photo engraving or etching technique. The
30 application of the engraved platen to the panel results in the fusible fibre of the panel being fused to form a relief pattern in addition to the printed pattern

- 7 -

whereby the two forms of pattern can complement each other to provide a visually distinctive panel.

5 The third embodiment relates to a method of providing a towel having a panel with a relief pattern only. The method is a variation of the second embodiment in that the printed transfer is not applied to the panel and whereby a relief pattern only is formed in the surface of the header panel. The surface of the fabric forming the pattern has a smooth or "silky" texture as a result of the application of the heat and pressure.

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The fourth embodiment of the invention comprises a variation of the third embodiment and uses a viscose fibre as the synthetic fusible fibre. According to the embodiment, the fibre is spun to form a coarse viscose chenille yarn and the loopless panel is woven using the yarn. This results in the panel having a soft, spongy and velvety surface. Because of the nature of the viscose fibres, the panel will dye in the same manner as the rest of the towel. In forming the pattern on the panel an engraved heated platen is applied on to one or both sides of the panel. The heat of the platen fuses the viscose fibre in contact with it and causes the surface of the header panel to form to accommodate the surface of the platen. This results in the creation of a noble complex patterning on the header panel which can be of a similar form to a wood carving.

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The degree of accuracy and detail of the relief that can be attained by the second, third and fourth embodiments cannot be replicated by any conventional techniques.

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It should be appreciated that the scope of the present invention need not be limited to the particular scope of the embodiment described above.

Claims defining the invention are as follows:

1. A method of manufacturing an item formed of terry cloth having a decorative panel comprising; weaving an item of terry cloth with a panel which is loopless and is double-sided where at least one face of the panel is formed of a synthetic fusible fibre, applying heat and pressure to the at least one face to at least partially fuse the fusible fibre and to form a patterned surface on the at least one face.
2. A method as claimed at claim 1 wherein the one face of the terry cloth item is formed from a synthetic fusible fibre and the other face is substantially formed from a fibre corresponding to the remainder of the terry cloth item.
3. A method as claimed at claim 1 wherein both faces of the panel are formed of a synthetic fusible fibre.
4. A method as claimed at claim 1, 2, or 3 wherein the synthetic fusible fibre comprises a polyester fibre.
5. A method as claimed at any one of the preceding claims wherein the terry cloth item is formed of cotton fibre.
6. A method of manufacturing an item formed of terry cloth incorporating a decorative printed panel comprising; weaving the item of terry cloth with a panel which is loopless and is double-sided and where at least one face of the panel is formed of a synthetic fusible fibre; applying heat and pressure to the at least one face to form a smooth substantially uniform surface; and applying a decorative printed pattern to the one face.
7. A method as claimed at claim 6 wherein the one face of the terry cloth item is formed from a synthetic fusible fibre and the other face is formed from a fibre corresponding to the remainder of the terry cloth item.

8. A method as claimed at claim 6 wherein both faces of the panel are formed of a synthetic fusible fibre.
- 5 9. A method as claimed at claim 6, 7 or 8 wherein the synthetic fusible fibre comprises a polyester fibre.
10. A method as claimed at any one of claims 6, 7, 8 or 9 wherein the terry cloth item is formed of cotton fibre.
- 10 11. A method as claimed at any one of claims 6, 7, 8, 9 or 10 wherein the application of heat, pressure and the printed pattern is effected substantially simultaneously.
- 15 12. A method as claimed at any one of claims 6 to 11 wherein the printed pattern is three dimensional.
13. A method as claimed at claim 12 wherein the application of heat and pressure is effected by applying a heated platen under pressure to the at least
20 one face wherein the surface of the platen is formed with a relief pattern.
14. A method as claimed at claim 12 or 13 wherein the relief pattern corresponds with at least a portion of the printed pattern.
- 25 15. A method of manufacturing an item formed of terry cloth having a decorative panel formed with a relief pattern said method comprising weaving the item of terry cloth with a panel which is loopless and is double-sided where at least one face of the panel is formed of a synthetic fusible fibre applying heat and pressure to the at least one face to form a patterned surface comprising a
30 relief pattern.

- 10 -

16. A method as claimed at claim 15 wherein the one face of the terry cloth item is formed from a synthetic fusible fibre and the other face is formed from a fibre corresponding to the remainder of the terry cloth item.

5 17. A method as claimed at claim 15 wherein both faces of the panel are formed of a synthetic fusible fibre.

18. A method as claimed at claim 15, 16, or 17 wherein the synthetic fusible fibre comprises a polyester fibre.

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19. A method as claimed at claim 15, 16 or 17 wherein the synthetic fusible fibre comprises a viscose fibre.

20. A method as claimed at claim 19 wherein the viscose fibre is in the form
15 of a coarse viscose chenille yarn.

21. A method as claimed at any one of claims 15 to 20 wherein the terry cloth item is formed of cotton fibre.

20 22. A method as claimed at any one of the preceding claims wherein the terry cloth item is a towel.

23. A method of manufacturing an item formed of terry cloth substantially as herein described with reference to the accompanying drawings.

25

24. An item formed of terry cloth having a decorative panel which is manufactured according to the method of any one of the preceding claims.

1/2

P					X											
C	X	X	X	X		X	X	X	X	X	X	X	X		X	X
P														X		
C	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
P		X														
C	X		X	X	X	X	X	X	X		X	X	X	X	X	X
P										X						
C	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
P						X										
C	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
P													X			
C	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
P									X							
C	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
P	X															
C		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
G G G G G G G G																
P' P' P' P' P' P'																

P – POLYESTER

16 ENDS

C – COTTON

P' - PILE
G - GROUND

Fig. 1.

2/2

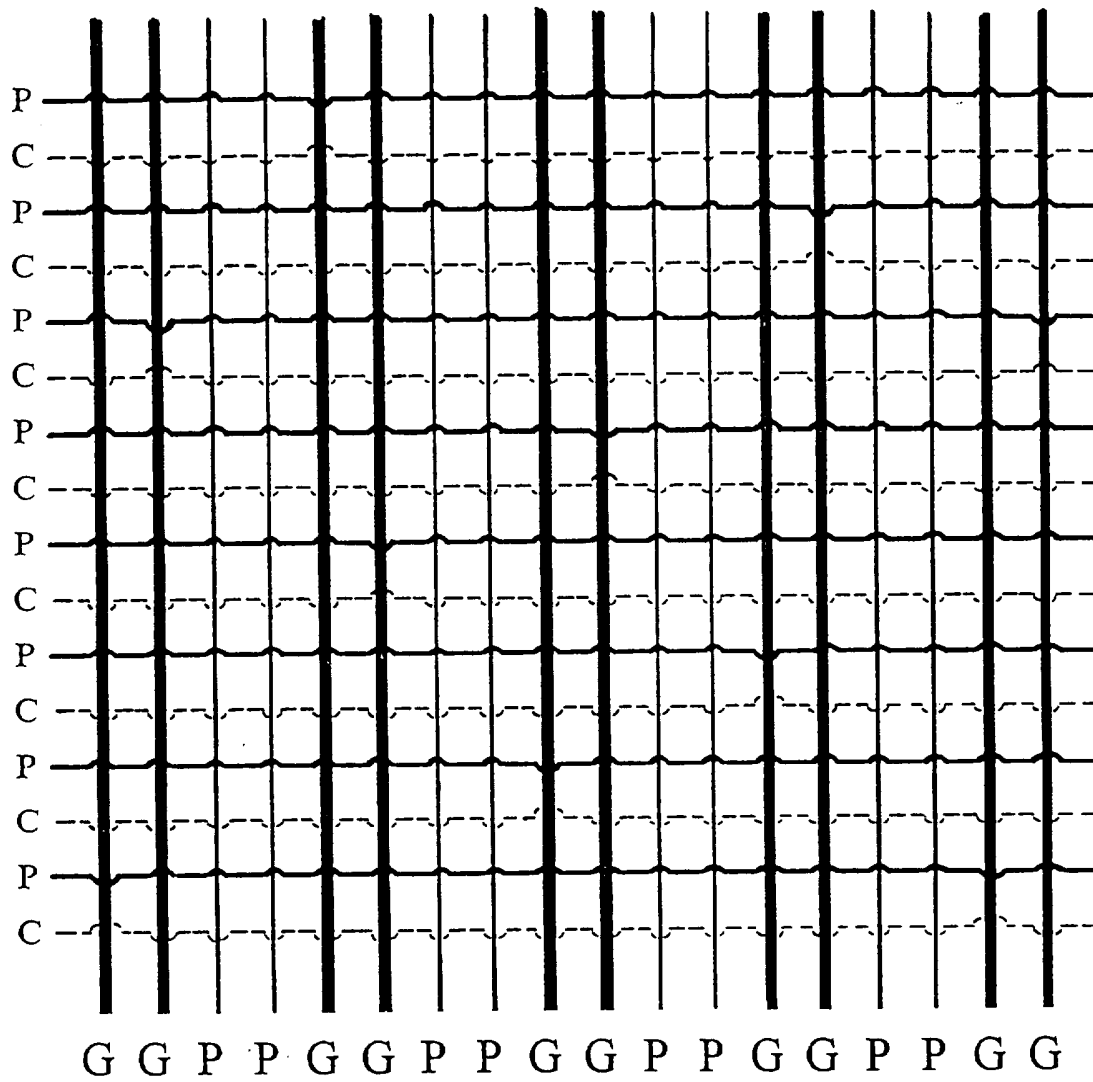
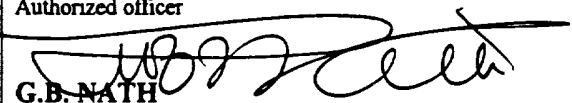


Fig. 2

INTERNATIONAL SEARCH REPORT

International Application No.
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A. CLASSIFICATION OF SUBJECT MATTER				
Int Cl ⁶ : D03D 15/00, 27/08 D03C 19/00				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) IPC: D03D 15/00, 27/08, D03C 19/00				
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
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☒ Further documents are listed in the continuation of Box C ☒ See patent family annex				
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INTERNATIONAL SEARCH REPORT

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C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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INTERNATIONAL SEARCH REPORT
Information on patent family members

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Patent Document Cited in Search Report				Patent Family Member			
US	4462683	IT	1135206	JP	57078516		
EP	515206	CA	2061584	JP	5179534	US	5312667
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