COMMONWEALTH OF AUSTRALIA

DU 9248

Patents Act 1952-1969

CONVENTION APPLICATION FOR A PATENT

(1) Here insert (in full) Name or Names of Applicant or Applicants, followed by Address (es).

I/We (1) SOMMER SA

of 4, rue Benjamin Constant, 91521 Neuilly sur Seine, France

(2) Here insert Title of Invention.

hereby apply for the grant of a Patent for an invention entitled: (2)

PROCESS FOR OBTAINING SPECIAL EFFECTS ON VERTICAL NEEDLED NONWOVEN FABRIC AS WELL AS THE NEEDLED FABRICS OBTAINED

(3) Here insert number(s) of basic application(s)

which is described in the accompanying complete specification. This application is a Convention application and is based on the application numbered (3)

8802185

(4) Here insert Name of basic Country or Countries, and basic date or dates

for a patent or similar protection made in (4) France

on 16th February 1988

APPLICATION ACCEPTED AND AMENDMENTS ALLOWED 31.1.91

My/Our address for service is Messrs. Edwd. Waters & Sons, Patent Attorneys, 50 Queen Street, Melbourne, Victoria, Australia.

DATED this 14th day of February 1989

(5) Signature (s) of Applicant (s) or Seal of Company and Signatures of its Officers as prescribed by its Articles of Association.

(5) SOMMER SA

by

Stephen K. Plymin

Registered Patent Attorney

M006609 15/02/89

To:

THE COMMISSIONER OF PATENTS.

Edwd. Waters & Sons, Melbourne.

(CONVENTION Company)

COMMONWEALTH OF AUSTRALIA

Patents Act 1952-1962

DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT OR PATENT OF ADDITION

(1) Here insert (in full) Name of Company.

In support of the Convention Application made by(1) SOMMER SA

(hereinafter referred to as the applicant) for a Patent

(2) Here insert title of Invention.

for an invention entitled:(2) PROCESS FOR OBTAINING SPECIAL EFFECTS ON VERTICAL NEEDLED NONWOVEN FABRIC AS WELL AS THE NEEDLED FABRICS OBTAINED.

(3) Here insert full Name and Address, of Company official authorized to make declaration.

I,(3) ALAIN LECLERC, of 4, rue Benjamin Constant, 92521 Neuilly-Sur-Seine, Cedex, FRANCE,

do solemnly and sincerely declare as follows:

1. I am authorised by the applicant for the patent to make this declaration on its behalf.

2. The basic application as defined by Section 141 of the Act was made in(4) FRANCE on the 16TH day of FEBRUARY, 19 88, by SOMMER SA

(4) Here insert basic Country or Countries followed by date or dates and basic Applicant or Applicants.

on the ..... day of ..... 19 ....., by .....

(5) Here insert (in full) Name and Address of Actual Inventor or Inventors.

3.(5) Andre Marchal of 39 rue Jean-Jacques Rousseau 0800 Charleville Mezieres, France, and Michel Beaussier of 1, rue Verger 59242 Cappelle en Pevele France

is/are the actual inventor of the invention and the facts upon which the applicant is entitled to make the application are as follow:

The applicant is the assignee of the actual inventors

4. The basic application referred to in paragraph 2 of this Declaration was the first application made in a Convention country in respect of the invention the subject of the application.

DECLARED at Cedex, France

this ninth day of February 19 89

(6) Signature.

(6) Alain LECLERC
Directeur
SOMMER S.A.
au Capital de 346.718.300 F
4, Rue Benjamin Constant
92521 NEUILLY-SUR-SEINE CEDEX

To: THE COMMISSIONER OF PATENTS.

Edwd. Waters & Sons, Melbourne.

(12) PATENT ABRIDGMENT (11) Document No. AU-B-29975/89
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 609248

(54) Title
NEEDLED EFFECT

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(71) Applicant(s)
SOMMER SA

(72) Inventor(s)
ANDRE MARCHAL; MICHEL BEAUSSIER

(74) Attorney or Agent
WATERMARK PATENT & TRADEMARK ATTORNEYS, Locked Bag 5, HAWTHORN VIC 3122

(57) Claim

1. A process for obtaining special effects on a vertical needled fabric having at least one looped face comprising:

subjecting said face to the action of an embossing cylinder having a depth of engraving less than the height of the loops of said needled fabric;

said embossing cylinder being brought to a temperature markedly less than the softening temperature of the fibers of said needled fabric;

and subjecting said fabric to a heated countercylinder.

Form 10

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952-69

COMPLETE SPECIFICATION

(ORIGINAL)

609248

Class Int. Class

Application Number:
Lodged:

Complete Specification Lodged:
Accepted:
Published:

Priority :

Related Art :

Name of Applicant : SOMMER SA

Address of Applicant : 4, rue Benjamin Constant, 91521 Neuilly sur Seine, France

Actual Inventor: ANDRE MARCHAL and MICHEL BEAUSSIER

Address for Service : EDWD. WATERS & SONS,
50 QUEEN STREET, MELBOURNE, AUSTRALIA, 3000.

Complete Specification for the invention entitled:

PROCESS FOR OBTAINING SPECIAL EFFECTS ON VERTICAL NEEDLED NONWOVEN FABRIC AS WELL AS THE NEEDLED FABRICS OBTAINED

The following statement is a full description of this invention, including the best method of performing it known to : us

PROCESS FOR OBTAINING SPECIAL EFFECTS ON VERTICAL NEEDLED NONWOVEN FABRIC AS WELL AS THE NEEDLED FABRICS OBTAINED

Field of the Invention

This invention relates to a process for obtaining special effects on vertical needled nonwoven fabrics as well as the needled fabrics obtained.

Background of the Invention

Nonwoven fabrics consolidated by traditional needling and on which a velour or looped appearance has been obtained by the action of special fork needles have been used for years for making floor coverings, and then wall coverings.

An effort has already been made to modify the appearance of this type of needled fabric, called vertical needled, fabric by making the penetration of the looping needles vary; thus it is possible to obtain loops of different height as a function on the pattern to be obtained.

It is quite obvious that this type of effect should be provided during the production of the vertical needled fabric.

The applicant had the aim of developing a process for obtaining special effects and particularly structured effects on this type of vertical needled

fabric, a process that could be used as late as possible in the production line, particularly to allow a differentiation of product just before its delivery to the retailers.

The embossing techniques seemed especially advantageous for this purpose.

It is known that standard embossing processes consist in making the support or layer to which it is desired to impart the structure effects pass between a cylinder engraved according to the pattern it is desired to obtain and a smooth countercylinder. In the increasingly frequent case where the support comprises a considerable proportion of fibers or thermoplastic yarns, the engraved cylinder is brought to a temperature close to the softening point of these fibers or yarns, and the combined action of heat and pressure, joined to the depth of the engraving, give the support the desired permanent structure effect.

When the support it is desired to engrave is an article exhibiting relatively great pile heights (about 3 mm), as is the case of vertical needled fabrics, it seems essential -- to achieve advantageous and permanent structure effects -- to use embossing cylinders whose engraving depth corresponds essentially to the height of the piles.

Now, the applicant was able to determine that the use of engraving cylinders of this type had numerous drawbacks of which there can be cited the high engraving cost and especially the "plasticized" appearance that they give to the vertical needled fabric; the latter loses practically all textile appearance that is so desired in the field of mural coverings.

Summary of the Invention

It has now been determined, in a surprising way, that it was possible to obtain very advantageous

structured effects on a vertical needled fabric without impairing its appearance and its feel, by acting on two important factors:

-- the depth of the engraving,

-- the temperature of the embossing cylinder and the countercylinder.

The process for obtaining special effects on a vertical needled fabric is characterized in that it consists in subjecting the looped face of the needled fabric to the action of a embossing cylinder whose engraving depth is less than the height of the loops of the needled fabric, the embossing cylinder being brought to a temperature markedly less than the softening temperature of the thermoplastic fibers of the needled fabric, and the countercylinder also being heated.

Thus, it is possible to obtain an entire series of extremely advantageous effects without thereby altering the feel of the needled fabric and without causing plastification of the fibers.

Brief Description of the Drawings

This invention will be better understood and its advantages will come out from the following description of an embodiment of the process according to the invention with reference to the accompanying diagrammatic drawing in which:

Figure 1 is a diagrammatic section of a vertical needled fabric subjected to the process according to the invention;

Figure 2 is a diagram of the apparatus used for using the process.

In the drawings, the vertical needled fabric is designated in a general way by 2, the engraved cylinder by 3 and the countercylinder by 4.

The apparatus used for using the process according to the invention and represented very diagrammatically in figure 2 comprises essentially a

station 6 for storage and unwinding vertical needled fabric 2, a station 7 for storage and unwinding of paper sheet 8 provided to be applied by gluing to the back of needled fabric 2, means 9 making it possible to assure integration of this sheet 8 on the back of needled fabric 2, and a unit of embossing cylinder 3 and countercylinder 4 intended to impart to vertical needled fabric 2 the desired structure effect, according to the invention.

Detailed Description of the Invention

The process for obtaining special effects on a vertical needled fabric according to the invention will now be described in detail, by way of nonlimiting example.

First, a layer of polypropylene fibers of fine denier (from 3 to 6 decitex) is prepared which is subjected, in a standard way and on an apparatus not shown, to the successive operations of carding, consolidation by flat needling and looping by special needles. Thus, vertical needled fabric 2 exhibiting loops or piles 5a about 3 mm high is obtained.

Then, this needled fabric 2 is continuously made to pass over a smooth calender 9 which assures gluing to back 4 of needled fabric 2 of paper support 8 coming from roller 7. A glue application means (not represented in the drawing) is provided before reaching calender 9.

The unit of needled fabric 2 and paper 8 is then subjected to a hot embossing process by passage between engraved cylinder 3, acting on piles 5a, and countercylinder 4.

The engraving of embossing cylinder 3 is selected so that its depth in all cases is less than the height of piles 5a of vertical needled fabric 2. In this case, the depth of this engraving is 1 to 2 mm depending on the effect it is desired to obtain.

Embossing cylinder 3 is brought a temperature between 120 and 140°C, a temperature markedly below the softening temperature (170°C) of the polypropylene fibers; the countercylinder is brought to a temperature of about 160°C and the embossing action is performed at a pressure of about 40 bars.

After passage in the embossing device, vertical needled fabric 2 exhibits the appearance diagrammed in figure 1 where it is quite clear that the part of piles 5b subjected to the embossing action is not completely crushed; therefore the article retains its appearance and textile feel without plastification being observed as would be the case if the softening temperature of the thermoplastic fiber were reached, or if the operation were performed with such engraving depths that piles 5a are crushed over their entire height.

It is quite evident that by acting on the engraving design given to engraving cylinder 3, it is possible to obtain a quite advantageous effect engraving; also special effects can be obtained by prior dyeing or printing of vertical needled fabric 2.

The foregoing description of the specific embodiments will so fully reveal the general nature of the invention that others can, by applying current knowledge, readily modify and/or adapt for various applications such specific embodiments without departing from the generic concept, and therefore such adaptations and modifications are intended to be comprehended within the meaning and range of equivalents of the disclosed embodiments. It is to be understood that the phraseology or terminology herein is for the purpose of description and not of limitation.

WHAT IS CLAIMED IS:

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A process for obtaining special effects on a vertical needled fabric having at least one looped face comprising:

subjecting said face to the action of an embossing cylinder having a depth of engraving less than the height of the loops of said needled fabric;

said embossing cylinder being brought to a temperature markedly less than the softening temperature of the fibers of said needled fabric;

and subjecting said fabric to a heated countercylinder.

2. The process according to claim 1 wherein said fibers are polypropylene fibers.

3. The process according to claim 1 wherein said embossing cylinder is brought to a temperature between about 120 and 140°C and said countercylinder is brought to a temperature of about 160°C., and the embossing pressure is about 40 bars.

4. A needled fabric obtained from the process according to claim 1.

DATED this 14th day of February 1989.

SOMMER SA

EDWD. WATERS & SONS
PATENT ATTORNEYS
50 QUEEN STREET
MELBOURNE. VIC. 3000.

FIG_1

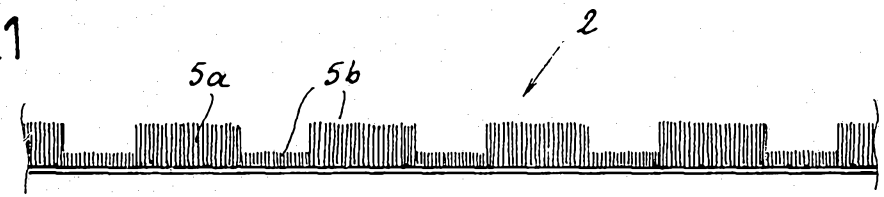
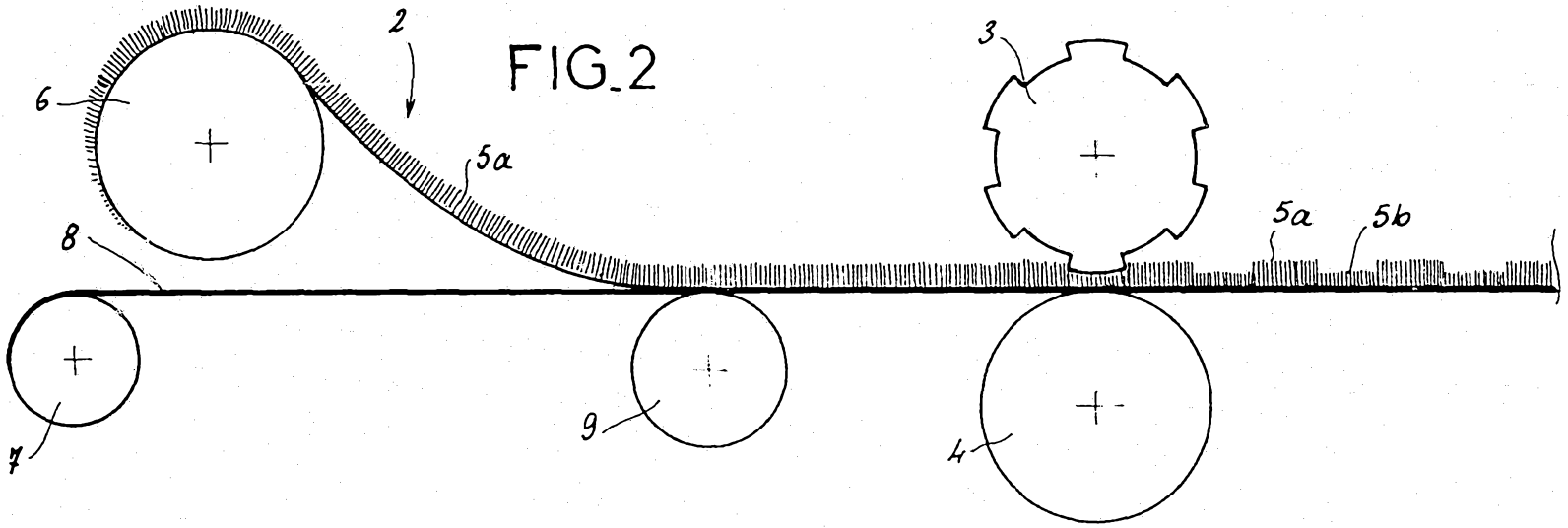


FIG_2



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