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(56) Documents Cited
EP 0505568 A1 EP 0388072 A2 EP 0264112 A2
EP 0106604 A2 WO 93/22486 A1 US 4551378 A
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(54) Non-woven valance material

(57) A valance material comprises a thermally bonded felt having a loft lying in the range 3 - 5mm and a weight lying in the range 100 - 450 gms per sq.m. The felt is preferably made from a blend of base fibres and binder fibres. The latter may be of bicomponent or multi-component type both fibres may be of polyester. The felt may be needle-punched from both sides prior to heating to bond the fibres.

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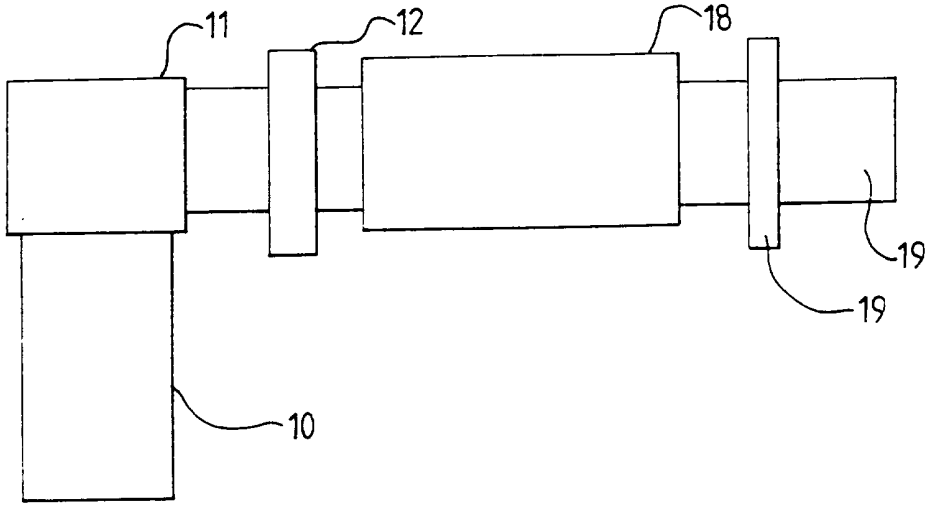

Fig 1

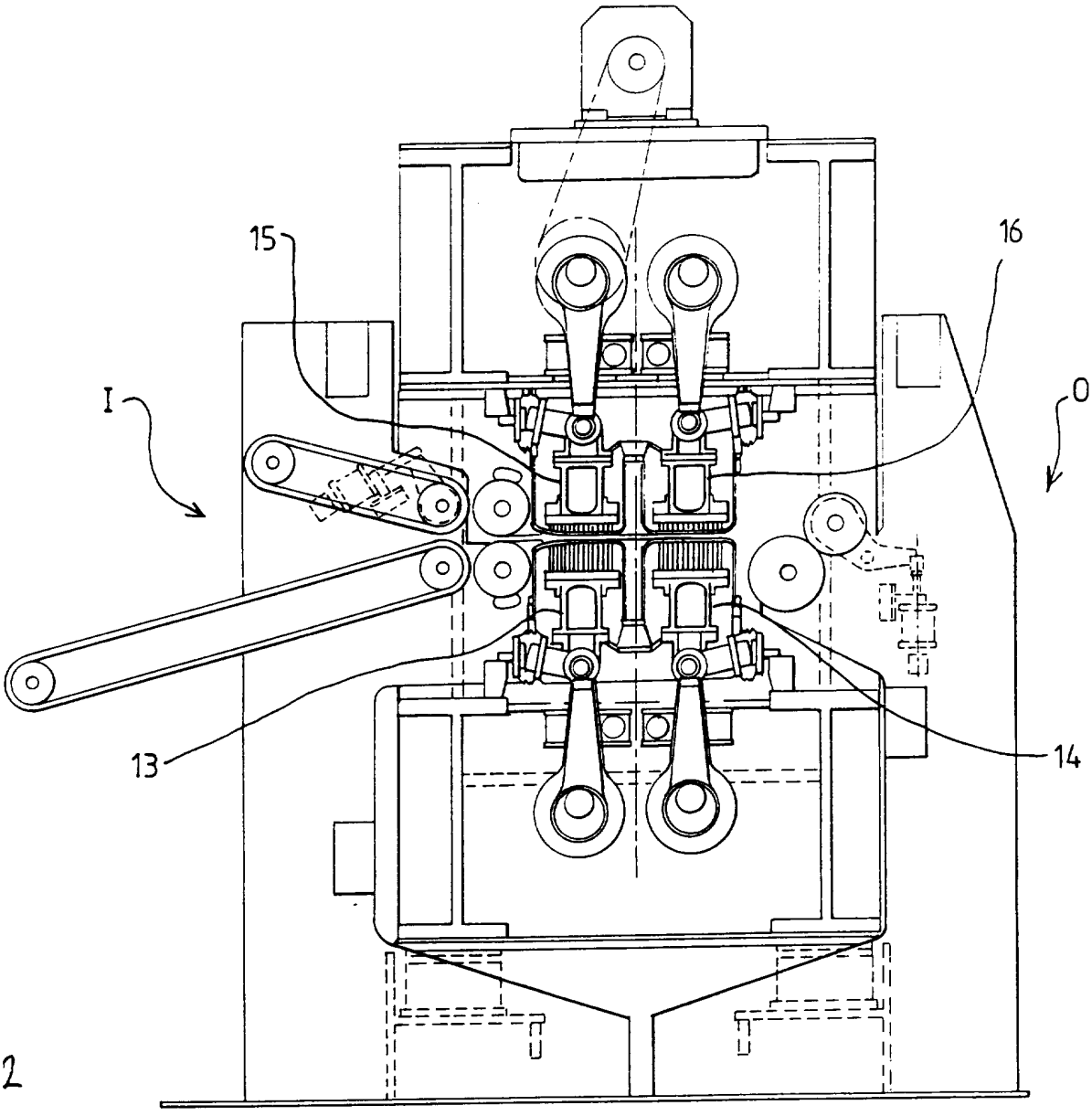

Fig 2

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PATENTS ACT 1977

Title: "Valance and material therefor"

Description of Invention

This invention relates to a valance and to material for a valance and to a method of making material for a valance.

According to one aspect of the present invention we provide a valance material comprising a thermally bonded felt having a loft lying in the range 3 - 5mm and a weight lying in the range 100 - 450 gms per sq.m.

The felt may comprise a blend of 50 - 90% of base fibres and 50 - 10% of binder fibres.

The binder fibres may have a lower softening or melting point than the base fibres and may be of homogeneous composition or may be of bi or multi component type comprising one component having a higher melting or softening point which may be the same as that of the base fibre, and a lower softening or melting point component.

The components may be arranged side by side or the lower melting or softening point component may comprise a sheath around the higher melting or softening point component.

The base fibre may be of 1.7 - 18 d.tex and 38 - 150mm long.

The binder fibre may be of 1-13 d.tex and 38-150mm long.

The base fibres may comprise polyester.

The binder fibres may comprise polyester.

The material may have a crease resistance such as to permit of bending in any direction through a radius of down to 5mm without the material incurring a crease or other permanent deformation.

According to a second aspect of the invention we provide a method of making a thermally bonded valance material comprising the steps of producing

a bat comprising a blend of base fibres and binder fibres, needle punching the bat to form a felt and heating the felt to thermally bond the fibres.

The bat may comprise a plurality of webs.

The webs may be layered by a cross-lapper to obtain a predetermined bat weight.

The bat may comprise between eight and twelve layers.

Each web may have a weight of approximately 19gms per sq.m and the bat may have a weight lying in the range 180 - 250gms per sq.m.

The bat may be subjected to a double sided needle punching operation.

The double sided needle punching operation may be performed in a double sided needle punching loom which may utilise two upstroke and two downstroke boards.

The boards on the input side may have 38 gauge needles and the boards on the output side 40 gauge needles.

All the needles may have six barbs.

The barbs may be of the "formed zero protrusion" type.

Different needle types may be used if found appropriate, for example, different barb configuration, and gauges.

Alternatively, the double sided needle punching operation may be carried out by using a separate down punch loom or looms and a separate up punch loom or looms.

Alternatively, the double sided needle punching operation may be performed by passing of the material through a single punching machine a plurality of times punching from opposite sides of the material as desired.

Alternatively, if desired, the bat may be subjected to a single sided needle punching operation.

The needles may have a penetration depth of 6.2mm top and bottom of the bat.

The needles may have a needle density of 200 - 700 needles per sq.cm.

The thus formed felt may be heated to give a surface temperature of 110 - 200°C.

According to a third aspect of the invention we provide a valance comprising material according to the first aspect of the invention or material made in accordance with the second aspect of the invention.

According to the fourth aspect of the invention we provide an article of furniture having a valance according to the third aspect of the invention.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings wherein

FIGURE 1 is a diagrammatic plan view of apparatus for use in making a valance according to the invention, and

FIGURE 2 is a diagrammatic cross-section on the line 2-2 of Figure 1.

Referring to the drawings, a web having a weight of approximately 9gms per sq.m is produced on a card 10. The web is made from a blend of base and binder fibres. The fibres comprise 70% base fibre of 7 d.tex and 58mm length comprising polyester fibres and 30% of binder fibres of 4.4 d.tex and 58mm long and comprising bi-component fibres having a core of polyester and a sheath of polyester.

If desired the base fibre may be of between 1.7 and 1.8 d.tex and 38 - 150mm long and preferably 50 - 80mm long whilst the binder fibre may be of between 1 - 13 d.tex and 38 - 150mm long and preferably between 50 - 80mm long. The blend may comprise 50 - 90% of base fibres and 50 - 10% of binder fibres.

If desired, the binder component fibres may comprise a lower melting point/softening point component side by side with a higher melting point or softening point component. Further alternatively, the binder component may comprise wholly a lower softening/melting point component. The lower softening/melting point component may have a softening/melting point lying in the range 100°C to 120°C and the higher softening/melting point component may have a softening/melting point lying in the range 200°C to 260°C.

A bat is layered by the cross-layer 11 to achieve a desired bat weight. In the present example the cross-layer produces a bat comprising eight layers of web having a bat weight of 180gms per sq.m but in a second example the bat comprises twelve layers and has a weight of 250gms per sq.m. If desired the bat may have a weight lying in the range 100 - 450gms per sq.m.

In each example the bat is fed through a Dilo double sided needle punching loom 12 of type OUG11 utilising two upstroke boards 13, 14 and two downstroke boards 15, 16 which give a total needle density of 18,000 needles per metre.

The two boards 13, 15 on an input side I of the loom have 38 gauge needles whilst the boards 14, 16 on the output side O of the loom have 40 gauge needles.

All needles have six barbs which are of "formed zero protrusion" type and the loom is arranged to provide a penetration depth of 6.2mm top and bottom with a total needle density of 480 needles per sq.cm. That is a density of 240 needles per sq.cm from the top and a density of 240 needles per sq.cm from the bottom. If desired the total needle density may lie in the range 200 - 700 needles per sq.cm and preferably in the range 350 - 550 needles per sq.cm. This total needle density may be distributed as desired between top and bottom or may be provided wholly from one side.

Different needle types may be used if found appropriate, for example, different barb configuration, and gauges.

After thus being formed into a felt the felt is passed through a gas fired oven 18 which provides a surface temperature on the felt of 154°C. If desired, however, the temperature may lie in the range 110 - 200°C.

The felt shrinks approximately 10% in length, breadth and thickness during passage through the oven during which thermal bonding between the fibre components takes place.

The thus formed felt is then passed to a cutting stage 19 where the material can be slit longitudinally and cross cut as desired to form pads or rolls.

Although in the above described examples a particular arrangement has been described, if desired similar needle densities may be attained by using separate down punch loom or looms and up punch loom or looms or by passing the material several times through a single punching machine punching from opposite sides of the material as desired. Further alternatively the felt may be formed by passing the material several times through a single punching machine punching from one side of the material only. Although similar needle densities to those described hereinbefore may be attained, generally speaking, the needle densities would tend to be towards the lower ends of the above mentioned ranges. In all cases, if desired, needles of similar configuration and penetration to those mentioned above may be used.

By adjusting the temperature to which the felt is subjected, the stiffness of the valance material can be adjusted, higher temperatures producing higher stiffness.

The resultant felt may have a loft lying in the range 3 - 5mm and a weight lying in the range 100 - 450 gms per sq.m.

The resultant valance material is relatively stiff and has a relatively high resistance to creasing. The material may have a crease resistance, for example, such as to permit of bending in any direction to a radius of down to 5mm without the material incurring a crease or other permanent deformation.

The valance material embodying the present invention may be used to provide valance material by stitching or adhesive bonding the furnishing fabric to the valance or the valance is inserted into a fabric pocket.

Such valance material may be used in any desired application. For example it may be used as a valance around the bottom of an article of furniture such as a chair, settee or bed to hide the base structure and/or legs or castors.

Alternatively the valance may be used to provide a pelmet or the like to provide curtain rails.

The features disclosed in the foregoing description, or the accompanying drawings, expressed in their specific forms or in terms of a means

for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

CLAIMS

1. A valance material comprising a thermally bonded felt having a loft lying in the range 3 - 5mm and a weight lying in the range 100 - 450 gms per sq.m.

2. A valance material according to Claim 1 wherein the felt comprises a blend of 50 - 90% of base fibres and 50 - 10% of binder fibres.

3. A valance material according to Claims 1 and 2 wherein the binder fibres have a lower softening or melting point than the base fibres.

4. A valance material according to Claim 3 wherein the base fibres are of homogeneous composition.

5. A valance material according to Claim 3 wherein the base fibres are of bi or multi component type comprising one component having a higher melting or softening point and a lower melting or softening point component.

6. A valance material according to Claim 5 wherein the higher melting point is the same as that of the base fibre.

7. A valance material according to Claim 5 or 6 wherein the components are arranged side by side.

8. A valance material according to Claim 5 or 6 wherein the lower melting or softening point component comprises a sheath around the higher melting or softening point component.

9. A valance material according to Claim 7 or 8 wherein the base fibre is of 1.7 - 18 d.tex and 38 - 150mm long.

10. A valance material according to any one of Claims 2 to 9 wherein the binder fibre is of 1-13 d.tex and 38-150mm long.

11. A valance material according to any one of Claims 2 to 10 wherein the base fibres comprise polyester.

12. A valance material according to Claims 2 to 11 wherein the binder fibres comprise polyester.

13. A valance material according to any one of the preceding Claims wherein the material has a crease resistance such as to permit of bending in any direction through a radius of down to 5mm without the material incurring a crease or other permanent deformation.

14. A valance material as hereinbefore described with reference to the accompanying drawings.

15. A method of making a thermally bonded valance material comprising the steps of producing a bat comprising a blend of base fibres and binder fibres, needle punching the bat to form a felt and heating the felt to thermally bond the fibres.

16. A method according to Claim 15 wherein the bat comprises a plurality of webs.

17. A method according to Claim 16 wherein the webs are layered by a cross-lapper to obtain a predetermined bat weight.

18. A method according to Claim 16 or 17 where the bat comprises between eight and twelve layers.

19. A method according to any one of Claims 16 to 18 wherein each web has a weight of approximately 19gms per sq.m.

20. A method according to Claim 19 wherein the bat has a weight lying in the range 180 - 250gms per sq.m.

21. A method according to any one of Claims 15 to 20 wherein the bat is subjected to a double sided needle punching operation.

22. A method according to Claim 21 wherein the double sided needle punching operation is performed in a double sided needle punching loom.

23. A method according to Claim 22 wherein the loom utilises two upstroke and two downstroke boards.

24. A method according to any one of Claims 22 to 23 wherein the loom comprises boards on an input side which have 38 gauge needles and boards on the output side which have 40 gauge needles.

25. A method according to any one of Claims 22 to 24 wherein all the needles have six barbs.

26. A method according to Claim 25 wherein the barbs are of the "formed zero protrusion" type.

27. A method according to Claim 21 or any one of Claims 24 to 26 when dependant on Claim 21 wherein the double sided needle punching operation is

carried out by using a separate down punch loom or looms and a separate up punch loom or looms.

28. A method according to Claim 21 or any one of Claims 24 to 26 when dependant on Claim 21 wherein the double sided needle punching operation is performed by passing of the material through a single punching machine a plurality of times punching from opposite sides of the material as desired.

29. A method according to any one of Claims 15 to 20 wherein the bat is subjected to a single sided needle punching operation.

30. A method according to any one of Claims 21 to 29 wherein the needle has a penetration depth of 6.2mm top and bottom of the bat.

31. A method according to any one of Claims 21 to 30 wherein there is a total needle density of 200 - 700 needles per sq.cm.

32. A method according to any one of Claims 15 to 31 wherein the felt is heated to give a surface temperature of 110 - 200°C.

33. A method substantially as hereinbefore described with reference to the accompanying drawings.

34. A valance comprising material according to any one of Claims 1 to 14 or material made in accordance with any one of Claims 15 to 33.

35. An article of furniture having a valance according to Claim 34 of the invention.

36. Any novel feature or novel combination of features hereinbefore described and/or shown in the accompanying drawings.

The Patent Office

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Application No: GB 9606853.1
Claims searched: 1-14

Examiner: Alexander Littlejohn
Date of search: 8 May 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): D1R (RBX, RFG, RFZ, RGG, RGZ)

Int Cl (Ed.6): D04H 1/48, 1/54, 1/56, 3/14, 5/06

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	EP0505568A1	(Teijin) see e.g. Example 1 and comp. Example 1 on page 9	1-13
X	EP0388072A2	(Emhart) see e.g. Example 3 in table on page 4	1-13
X	EP0264112A2	(Chisso) see e.g. comp. Examples 19,20 on page 15	1-13
X	EP0106604A2	(Chicopee) see e.g. Examples 1 and 2 on pages 6,7	1-13
X	US4551378	(Carey) see e.g. col 4 lines 12,13 and 26,27	1-13
X	US4488928	(Ali Khan) see e.g. Example 10 in table	1-13
X	US4296168	(Ambrose) see e.g. col 4 lines 62-68	1-13
X	WO93/22486A1	(BUSM) see e.g. page 9 lines 2-31	1-13

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.