

A quilt or a garment and a method of manufacturing a quilt or a garment

The present invention relates to a quilt or a garment and to a method of manufacturing a quilt or a garment.

A quilt generally comprises a structure which includes two sheets merged along their edges to form an envelope containing a filling of a soft material with appropriate heat insulating properties. The heat insulating material in the quilts of interest here comprises a resilient material in bulk form, such as feathers, down or synthetic fibres, e.g. the so-called hollow fibres. The sheets comprise a textile material adapted for containing the filling and for presenting a pleasant appearance and an agreeable feel. The sheet material is generally of a slightly porous nature to permit some ventilation and some absorption or dissipation of moisture in order to ensure a dry feel of the quilt.

It is known in the art to design and manufacture a quilt the interior of which is subdivided into a number of adjacent compartments, each compartment holding an amount of heat insulating material and serving to prevent the heat insulating material from travelling, the compartments being formed by stitching together the upper and the lower sheets along selected lines. However, this structure reduces the heat insulating properties of the quilt in the stitched areas. It is further known in the art to design quilts with a high degree of heat insulation, wherein the compartments are formed by inserting soft, porous partition walls which extend from one sheet to the opposite sheet so that the distance between the sheets nowhere needs to be smaller than the distance defined by the width of the partition wall.

Danish patent publications 161660B and 162626B disclose quilts with partition walls wherein the edges of the partition walls are adhered to the sheets by hot-melt glue applied

in the form of meltable foil tapes onto the partition walls and activated by subjecting the semi-manufactured quilt to heating from both sides, the heat being dissipated through the sheets. These disclosures explain how the partition walls may be arranged in different patterns and elaborates on the problems arising due to the propensity of glue excess to penetrate and bond together other portions of the quilt than those intended. The suggestion is to include additional barrier walls of glue-repellant materials.

The penetration of the glue through a portion of the sheet detracts from the softness of the sheet in the affected region and is undesirable with a view to appearance and comfort, and it is likely to change the mechanical properties of the affected area.

US patent No. 5,249,323 discloses a method of bonding fabric material together into an integral structure, e.g. for use in the production of quilts or garments. The document describes a quilt comprising a top sheet and a bottom sheet bonded to each other along the edges and a plurality of partition walls of a fabric material, each partition wall being stitched along the edges to a reinforcing strip by a stitching line running centrally of the reinforcing strip, the reinforcing strip having been treated on its one side with an adhesive coating by which the partition wall may be adhered to the sheets. The document suggests for the material in the partition wall synthetic fibres which are mechanically strong and for the reinforcement strip a non-woven fabric for reasons of high mechanical strength and ease in adhesive treatment.

There is a growing interest in the market for quilts which can be laundered and preferably laundered extensively. A recent proposal for a recommendation for quilts specifies that a quilt should tolerate laundering at 60°C up to a minimum of 20 times without significant signs of degradation.

Synthetic materials exhibiting a very low degree of shrinkage are available and may be used for quilts. However, many users perceive these materials as less comfortable and prefer cotton materials. Cotton materials inevitably shrink during this kind of laundering.

Shrinkage is generally tested by the textile manufacturers and shrinkage factors quoted, e.g. according to Japanese Standard JIS L102. Preshrunked textile materials with a comparatively low degree of subsequent shrinkage are available.

Uniform shrinkage of the quilt sheets in the order of a small percentage is considered acceptable. However, quilts comprising partition walls of materials which do not match those of the sheets and quilts where the sheets exhibit glue penetrations cannot be expected to shrink uniformly. Even in case of basically the same kind of materials, shrinkage may vary e.g. due to variations in structure or density or perhaps due to differences in exposure, the internal components of the quilt being more protected than the sheets. Because of non-uniform shrinkage the quilts tend to develop disfigured appearances following laundering. Furthermore, the shrinkage may lead to a weakening or a separation of the bondings between the sheets and the partition walls. Both are unacceptable.

The invention provides a quilt comprising a pair of textile material sheets interconnected along their edges to define a substantially closed envelope, a bulk filling of a soft, resilient, heat insulating material contained in said envelope, and a number of textile material partition walls interconnecting the sheets so as to subdivide the interior of said envelope into a plurality of compartments holding respective portions of said filling, each of said partition walls comprising a length of a textile material web with two opposite edges, and two corresponding lengths of tape being joined with respective edges of said web and being surface

bonded to a respective sheet, each length of tape comprising a textile material of a kind and a structure substantially identical to the kind and the structure of the textile material sheets. Two pieces of textile material are considered substantially identical in kind and structure if matching in thread thickness and thread density. It is important that they also match in respect of shrinkage properties and it is preferred that the materials are similar.

The invention takes a completely new approach to the problem of devising a quilt or a garment capable of withstanding extensive laundering by suggesting a design where the interior structure of the quilt matches the sheets in respect of its shrinkage properties as closely as possible to strain the sheets as little as possible.

The design suggested by the invention is advantageous in respect of quilts of any material, e.g. quilts with sheets of cottons, polyamide, polyester and similar materials which may be pure or mixed and which may be woven or non-woven. A wide selection of materials are desirable in order to be able to accomodate different requirements and different customer tastes.

In selecting the tape for any particular type of quilt for use in the invention, considerations of strength and ease in adhesive treatment are secondary in importance to the consideration of matching the properties of the tape closely to those of the sheets. The best match is expected by selecting a tape of a type and a structure substantially identical to those of the sheet where the tape is to be applied. Particular emphasis should be placed on the shrinkage factors quoted by the manufacturer in respect of the sheets as well as the tape. Preferably the tape shrinkage factor quoted according to Japanese standrad JIS L102 should

match the sheet shrinkage factor closely and most preferably to within a 1% deviation.

By selecting a proper tape the surface bonding is simplified, any shrinkage propensities are bound to be exactly alike and the doubling of the layer in the zone where the partition wall is attached strengthens the sheet and reduces the risk that forces due to disproportionate shrinkage of the partition walls will cause distortions of the outer sheets.

According to a preferred embodiment, the tapes are surface bonded to the respective sheets by a non-penetrating glue. A surface bonding with no or substantially no glue penetrations can be realized by selection of an appropriate glue, by applying a carefully balanced quantity of glue so as to avoid any excess, and by appropriate curing. It is preferred to match the area density of glue to every particular combination of textile materials in order to minimize excess of glue. The elimination of glue penetrations reduces the risk of modifying the mechanical properties of the sheet in the zone where the partition wall is attached and ensures a uniform appearance of the entire sheet area.

According to another preferred embodiment, the non-penetrating glue comprises a hot-melt glue with a melting point below 130°C and preferably below 110°C. The glue may e.g. comprise polyethylene and preferably a high-density polyethylene. With this kind of glue it is possible to heat the sheets from the outside to activate the bonding in a hot press where the temperature of the contacting areas may be in the range of about 140°C-150°C. By this method even sheets of heat-sensitive materials, such as polyamide, may be heat-bonded with none of the problems associated with the prior art, such as discolouration or degradation. It is believed that higher temperatures are generally used in quilt manufacturing methods of the prior art, temperatures leading to a discolouration of e.g. polyamide.

According to a preferred embodiment, the tape is prepared by selecting a web of textile material, applying a metered quantity of hot-melt glue controlled in respect of obtaining a predetermined area density of glue on the tape surface, and cutting the web longitudinally into parallel segments of the appropriate widths. This provides a very convenient method of manufacturing the tapes. The glue may be applied by any method which permits a finely tuned dosage, e.g. in atomized form, liquid form, granular form or powder form. This method is advantageous by making it possible to accomodate greatly differing types of web, ensuring for any type of web that an optimum glue dosage may be found where the quantity of the glue is just sufficient to provide the bonding but low enough to avoid glue penetration through the sheet or through the tape and to avoid the risk of glue excess seeping away from the bonding zone intended.

According to a preferred embodiment of the invention, each length of tape is joined with the respective strip edge by a stitching extending essentially along the center line of the tape.

According to this embodiment, the joint between the sheets and the partition walls essentially takes the shape of the capital letter T, the vertical leg corresponding to the partition wall portion and the horizontal leg corresponding to the portion adhered to the sheet. The resistance of this type of joint to forces pulling the partition wall away from the sheet is much superior to that of a joint in the form of the capital letter L. Should the partition wall be subjected to a pulling force of such magnitude that a separation of the bonding is initiated in the most affected area, this separation will be initiated at the central portion of the tape whereafter the load will be redistributed towards the edge portions of the tape where the load will be transferred through the joint in shear.

As a bonding is much stronger to loading in shear, it is unlikely that a pulling force would separate the elements in the joint completely. Any longitudinal forces between wall and sheets, e.g. due to non-uniform shrinkage upon laundering will be transferred gradually through the tapes into the sheets. This will serve to smooth out any disfiguring distortions so that the quilt will be able to withstand more extensive laundering before the appearance has degraded to an unacceptable degree.

The textile materials used for the sheets and for the partition walls may be woven or non-woven and may comprise cotton, polyester, polyamide or other similar materials applicable for this purpose, including pure materials and mixtures. The material used for the partition walls may be identical to that used for the sheets or it may be a different material. The material used for the tape is substantially identical to that used for the sheets of the particular type of quilt where it is applied.

The invention also provides a method of manufacturing a quilt, the method comprising the steps of selecting a pair of textile material sheets, selecting a number of strips, each strip comprising a length of textile material web with two opposite edges, selecting for each strip two corresponding lengths of tape, each length of tape comprising a textile material of a kind and a structure substantially identical to the kind and the structure of the textile material sheets, joining one length of tape with each edge of the strip, arranging the strip in the desired pattern between the sheets in the pair, surface bonding one side of each length of tape with a respective sheet so as to make said strips form walls extending from one sheet to the other, interconnecting the edges of the sheets to form a generally closed envelope subdivided into compartments by said walls, providing in the compartments of said envelope a bulk filling of a soft,

resilient, heat insulating material, and sealing said envelope to enclose said bulk filling.

This provides a convenient and effective method of manufacturing a quilt or a garment with the desirable advantages explained above.

Further embodiments of this method appear from the dependent method claims.

Further objects and features of the invention will appear from the part of the specification following below.

The invention will be more clearly understood from the following detailed description of preferred embodiments of the invention which is given with reference to the drawings, wherein

- Fig. 1 is a transverse section of a part of a quilt,
- Fig. 2 is a transverse section through a strip,
- Fig. 3 is a schematic view of a tape preparation station,
- Fig. 4 is a schematic view of a quilt manufacturing station,
- Fig. 5 is a planar view of a quilt with longitudinal compartments, and
- Fig. 6 is a planar view of a quilt with diamond shaped compartments.

All figures are schematic and not necessarily to scale and illustrate only features essential to the understanding of the invention whereas other features are omitted from the drawings to enhance clarity. The essential features are shown in a schematic form intended to represent illustrations only to the extent required to enable those skilled in the art to suggest appropriate practical materializations of such

features. Throughout the drawings, identical references are used to designate identical or similar features.

Reference is first made to fig. 1 which illustrates a transverse section through a portion of a quilt. Fig. 1 shows essentially a section through one partition wall 4 and the adjacent portions of an upper and a lower sheet both designated by the reference numeral 2. For the sake of clarity the thickness of the components shown in fig. 1 is greatly disproportional to the actual dimensions.

The partition wall 4 serves to connect the upper sheet to the lower sheet so as to ensure that the spacing between them cannot exceed the height of the partition wall 4 and so as to separate interior compartments within the quilt to ensure that the filling cannot travel across the boundary defined by the partition wall 4. The sheets are kept apart and the partition walls stretched by the compressional force of the compressed, resilient filling (not shown in fig. 1) between the sheets.

The height of the partition wall is generally uniform inside one quilt whereas different quilts may be designed with any height comprised within the interval ranging from $1\frac{1}{2}$ to 12 cm so that the quilts can be tailored to satisfy particular heat insulation requirements and particular customer tastes.

Fig. 1 shows the partition wall 4 in a curved state as might occur in case the filling was partially compressed by external pressure applied onto the outer surfaces of the sheets although the figure is purely schematic and not intended to accurately depict the dimensions and forms that may occur during practical use.

The structure of the partition wall 4 is more clearly illustrated in fig. 2 where the essential components are shown in a state before they are entered into the quilt

manufacturing station. Fig. 2 illustrates the strip 6 formed by a band or a web of textile material. Adjacent each of the two margins 7 of the strip, a respective length of tape 8 is adhered to the strip by means of a stitching 11. The stitching extends essentially along the center line of each tape, i.e. along essentially the midline between the edges 9 of the tape.

A layer of glue 22 has been applied onto the upper surface of each length of tape as shown in fig. 2. In order to perform the stitching, each length of tape is placed in surface contact with the respective strip margin, the tape being so arranged that the layer of glue 22 is oriented away from the strip 6. In fig. 2 small gaps between the different components are shown in order to allow the individual components to be seen more clearly. These gaps will of course not be present in an actual quilt.

Although the tape is adhered to the strip by a stitching in the preferred embodiment, the tape could alternatively in other embodiments of the invention be joined with the strip by other methods, e.g. by gluing, welding, or spot welding as appropriate according to particular circumstances. However, it is essential to all embodiments that the joint does not impair or substantially reduce the inherent capability within the tape of adapting to sheet distortions, such as shrinkage caused by laundering. It is considered advantageous that any zone of joining between tape and strip be arranged between the tape edges, i.e. there must be a zone of the tape adjacent to each tape edge which is left unattached to the strip in order to ensure a smooth transition of any longitudinal forces from the strip into the sheet and vice versa.

The unattached zones of the tape are also important to the overall strength of the joint as it will be understood by simultaneous reference to fig. 1 and by imagining the distribution of forces likely to develop when the strip is

stressed in the transverse direction, i.e. when the two sheets are pulled apart. In this case the strip 6 will be stressed into a linear configuration extending perpendicularly to the surface of the sheet. In this case the bonded joint 12 will be stressed in the region immediately adjacent to the stitching in the direction towards separation of the tape and the sheet. The portions of the bonded joint 12 adjacent to the tape edges, however, will be stressed in shear.

This is most advantageous since bonded joints tend to be weak to forces of separation perpendicularly to the bonding and much stronger to shear forces generally parallel to the plane of bonding. Should the stress in the partition wall be high enough to separate a part of the bonded joint such separation is likely to initiate in the region most highly affected by the forces, i.e. the region immediately adjacent to the stitching where the bonded joint is affected by pulling forces.

Should some degree of separation be developed due to excessive pulling forces, the forces will then be redistributed to be transferred through portions of the tape closer to both of the tape edges and through the bonded joint as shear forces. Since the bonded joint is likely to exhibit much greater resistance to shear forces, there is very little risk that such separation will progress and it is likely that the joint will be able to withstand substantial forces without loss of integrity.

Although the stitching in the preferred embodiment is arranged essentially along the center line of the tape, this does not exclude that such stitching or other kind of joint could deviate from the center line or extend across a portion of the area of the tape. However, it is considered advantageous that the zone of the tape which is joined to the strip is restricted to extend only over an area spaced from the edges

of said tape, i.e. there must be at least one region adjacent to each edge of the tape which lies outside the strip joint and in which region the side of the tape opposite the strip is adhered to the sheet.

According to the preferred embodiment the tape is covered with glue over the entire area of one of its surfaces. This, however, does not exclude that the invention may be practiced in other embodiments where the tape is only partially covered with glue.

It is advantageous that the glue extends some distance away from the zone of the strip joint so as to ensure zones in which the forces can be transferred through the bond in a shear action. Glue in the area directly over the strip joints could in fact be dispensed with. The width of the region or the regions actually covered with glue must be sufficient to ensure the required strength. It is convenient for ease of manufacture to let the layer of glue extend to both edges of the tape but the invention could also be practised in embodiments where the glue does not extend completely to the edges.

While it is a practice in the state of the art to use a hot-melt glue which penetrates the sheet material and the material used for the partition wall completely, the invention teaches the use of a non-penetrating glue. This eliminates the problems encountered in the prior art caused by glue seeping through and glueing together other portions than those intended making extra glue repellant barrier walls redundant, and avoids the disadvantage of modifying the properties of the portion of the sheet penetrated by the glue. The sheets of the quilts according to the invention will have a uniformly smooth feel over the entire area.

Reference is now made to fig. 3 for a brief explanation of the preparation of the tape.

Fig. 3 shows in schematical view a tape preparation station 16 wherein a web 23 is unrolled from the feeder roll 17, covered with a layer of glue in granular form or in powdered form dispensed over the upper side of the web in the orientation shown in the figure by passing the glue applicator 18, fed through an oven 35 where the web is baked in order to make the glue powder adhere to the web surface, and fed through a guide roll pair 19 to be taken to the cutter 20. The cutter 20 slits the web longitudinally into a number of separate bands of tape of the desired width which are taken through another guide roll pair 19 and wound onto a number of tape rolls 21 each holding one length of tape.

The raw material used for preparing the tape is a textile material of the same kind as the one used for the sheets, e.g. a web exactly similar to the web used for the sheets. According to the invention a particular type of tape is selected for every particular type of sheet in order that the type and structure of the web used for the tape will be substantially identical to that of the web used for the sheets for every type of quilt.

The tape rolls are used in the preparation of the partition wall illustrated in the sectional view in fig. 2. The preparation of the partition wall 4, which is not shown in the drawings, generally comprises the combination of a web of a suitable material for forming the strip 6 with respective lengths of tape, both tapes being arranged on the same side of the strip and each tape being arranged adjacent to a respective strip margin, the glued side facing away from the strip. The combined web is fed through the conventional stitching station wherein each tape is stitched basically along its center line together with the strip material whereafter the combined web is rolled onto a strip supply roll 28 (shown in fig. 4). The raw material used for preparing the strip is preferably a textile material generally of the same kind as the one used for the sheets.

In other embodiments other kinds of textile material than those used for the sheets are used for the strips depending on the particular requirements.

Although the tapes are stitched to the strip in the preferred embodiment, the tapes may in other embodiments be joined with a strip by glueing, welding or spot welding.

Reference is now made to fig. 4 for a brief explanation of the manufacturing of the quilts.

Fig. 4 shows a quilt manufacturing station 24 comprising a table 25 onto which a web for the lower sheet is unrolled from the lower sheet supply roll 26, a web for forming the partition walls is unrolled from the strip supply roll 28, and a web for forming the upper sheet is unrolled from the upper sheet supply roll 27.

It is noted that the strip supply roll 28 comprises a roll of the partition wall material illustrated in the sectional view in fig. 2, i.e. a length of strip material with a length of tape joined along each margin, said tapes provided with respective areas of glue. The strip material is folded and placed on the lower sheet in a selected pattern, e.g. by any method known in the art, some patterns comprising continuous lengths of strip material, other patterns requiring combinations of shorter lengths of strip material. The strip material is folded with the glue area of one tape facing downwards and the glue area of the opposite tape facing upwards.

After the above-mentioned components for the quilts have been brought together they pass the welding station 30 which comprises essentially a lower heating shoe 31 and an upper heating shoe 32, the upper heating shoe being mounted in a fixture 33 adapted for controlled vertical movement of the upper heating shoe 32. In the welding station heat is

dissipated through the sheet material from both sides so as to melt the glue and produce a bonding fixing the tapes and thus the partition walls 4 to the sheets as desired. Following the welding station, the combined web runs through a quilt finishing station 36 serving the purpose of cutting the combined web transversely into quilt-length sections and the purpose of interconnecting the sheet edges.

Some openings in the envelope formed remain in order that filling material can be filled into the quilt sections in the space between the sheets by inserting a pipe 34 connected with a filling material dispenser 29 and activating the dispenser to drive appropriately metered doses of filling material through the pipe to be ejected between the sheets. The pipe may be entered into selected compartments through narrow slits in the partition walls, said slits being too narrow for the filling material to escape when uncompressed. After filling the quilt sections are taken through other stations (not shown in the drawings) intended for sealing the sheet edges and for finishing the quilt. Such operations are not shown or described herein as they are considered to be obvious to those skilled in the art.

Reference is now made to fig. 5 showing a quilt according to an embodiment where the partition walls 4 are arranged to extend longitudinally from one end of the quilt to the other so that the interior compartments form longitudinal channels. This quilt is designated by reference numeral 14. The edges of the quilt are designated by reference 3, the partition walls by reference 4 and the interior compartments by reference 5.

Reference is now made to fig. 6 which shows a different embodiment of the quilt wherein the partition walls 4 are so arranged that the interior compartments 5 form a diamond pattern. This quilt is designated by reference numeral 15.

Although the invention has been explained with reference to particular embodiments, this explanation is intended only to facilitate the understanding of the invention and not to limit the scope hereof. It is obvious that numerous modifications may be suggested by those skilled in the art, the invention comprising all such embodiments as lie within the framework of the appended claims.

References

1. Quilt
2. Sheet
3. Sheet edge
4. Partition wall
5. Interior compartment
6. Strip
7. Strip margin
8. Tape
9. Tape edge
10. Tape centerline
11. Stitching
12. Bonded joint
13. Filling
14. Quilt with longitudinal channels
15. Quilt with diamond pattern
16. Tape preparation station
17. Feeder roll (tape)
18. Glue applicator
19. Guide roll pair
20. Cutter
21. Tape roll
22. Glue
23. Web
24. Quilt manufacturing station
25. Table
26. Lower sheet supply roll
27. Upper sheet supply roll
28. Strip supply roll
29. Filling material dispenser
30. Welding station
31. Lower heating shoe
32. Upper heating shoe
33. Fixture for upper heating shoe
34. Pipe
35. Oven
36. Quilt finishing station



Claims

1. A quilt or a garment comprising
a pair of textile material sheets interconnected along their edges to define a substantially closed envelope,
a bulk filling of a soft, resilient, heat insulating material contained in said envelope, and
a number of textile material partition walls interconnecting the sheets so as to subdivide the interior of said envelope into a plurality of compartments holding respective portions of said filling,
each of said partition walls comprising a length of a textile material web with two opposite edges, and two corresponding lengths of tape being joined with respective edges of said web and being surface bonded to a respective sheet,
each length of tape comprising a textile material of a kind and a structure substantially identical to the kind and the structure of the textile material sheets.
2. A quilt or a garment according to claim 1, c h a - r a c t e r i z e d by each length of tape being surface bonded to the respective sheet by a non-penetrating glue.
3. A quilt or a garment according to claim 2, c h a - r a c t e r i z e d by said non-penetrating glue comprising a hot-melt glue with a melting point below 130°C and preferably below 110°C.
4. A quilt or a garment according to claims 1-3, c h a - r a c t e r i z e d by said non-penetrating comprising polyethylene and preferably high-density polyethylene.
5. A quilt or a garment according to claims 1-4, c h a - r a c t e r i z e d by each length of tape being prepared from a textile material selected to match the shrinkage properties of the textile material sheets.



6. A quilt or a garment according to claims 1-5, c h a -
r a c t e r i z e d by said tape having been prepared by
selecting a web of textile material,
applying a metered quantity of hot-melt glue controlled
in respect of obtaining a predetermined area density of glue
on the tape surface, and
cutting said web longitudinally into parallel segments
of the appropriate width.
7. A quilt or a garment according to claim 6, c h a -
r a c t e r i z e d by said hot-melt glue being applied in
atomized form or liquid form.
8. A quilt or a garment according to claim 6, c h a -
r a c t e r i z e d by said hot-melt glue being applied by
dispensing a layer of the glue in granular form or powdered
form onto one surface of the tape, and
baking said web to make the glue adhere to the tape.
9. A quilt or a garment according to claims 1-8, c h a -
r a c t e r i z e d by each length of tape being joined
with the corresponding web edge by stitching.
10. A quilt or a garment according to claim 9, c h a -
r a c t e r i z e d in that the stitching extends sub-
stantially along the center line of said tape.
11. A quilt or a garment according to claims 1-10, c h a -
r a c t e r i z e d in that the web used for the partition
walls comprises a textile material of a kind and a structure
substantially identical to the kind and the structure of the
textile material sheets.
12. A method of manufacturing a quilt or a garment, the
method comprising the steps of:
selecting a pair of textile material sheets,



selecting a number of strips, each strip comprising a length of textile material web with two opposite edges,

selecting for each strip two corresponding lengths of tape, each length of tape comprising a textile material of a kind and a structure substantially identical to the kind and the structure of the textile material sheets,

joining one length of tape with each edge of the strip,

arranging the strip in the desired pattern between the sheets in the pair,

surface bonding one side of each length of tape with a respective sheet so as to make said strips form walls extending from one sheet to the other,

interconnecting the edges of the sheets to form a generally closed envelope subdivided into compartments by said walls,

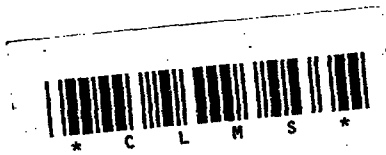
providing in the compartments of said envelope a bulk filling of a soft, resilient, heat insulating material, and sealing said envelope to enclose said bulk filling.

13. A method according to claim 12, c h a r a c t e r i - z e d by selecting a non-penetrating glue for effecting said surface bonding.

14. A method according to claim 12, c h a r a c t e r i - z e d by selecting for said non-penetrating glue a hot-melt glue with a melting point below 130°C and preferably below 110°C.

15. A method according to claims 12-14, c h a r a c t e - r i z e d by selecting for said tape a textile material which matches the shrinkage properties of the textile material sheets.

16. A method according to claims 12-15, c h a r a c t e - r i z e d by preparing said tape by selecting a web of textile material,



This Sheet Has Been Replaced



applying a metered quantity of hot-melt glue controlled in respect of obtaining a predetermined area density of glue on the tape surface, and

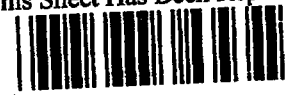
cutting said web longitudinally into parallel segments of the appropriate width.

17. A method according to claim 16, characterized by applying said hot-melt glue in atomized form or in liquid form.

18. A method according to claim 16, characterized by applying said hot-melt glue by dispensing a layer of hot-melt glue in granular form or powdered form onto one surface of the tape, and baking the web to make the glue adhere to the tape.

19. A method according to claims 12-18, characterized by each length of tape being joined with the respective strip edge by stitching.

20. A method according to claim 19, characterized by the stitching being performed essentially along the center line of the tape.



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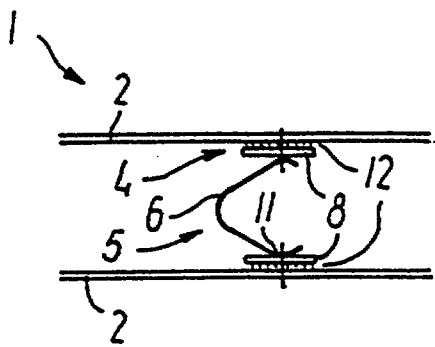


FIG. 1

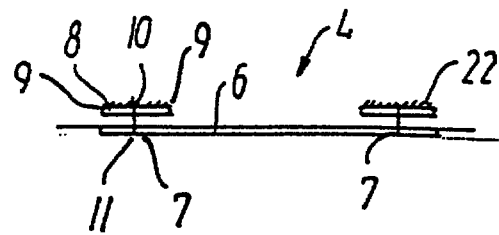


FIG. 2

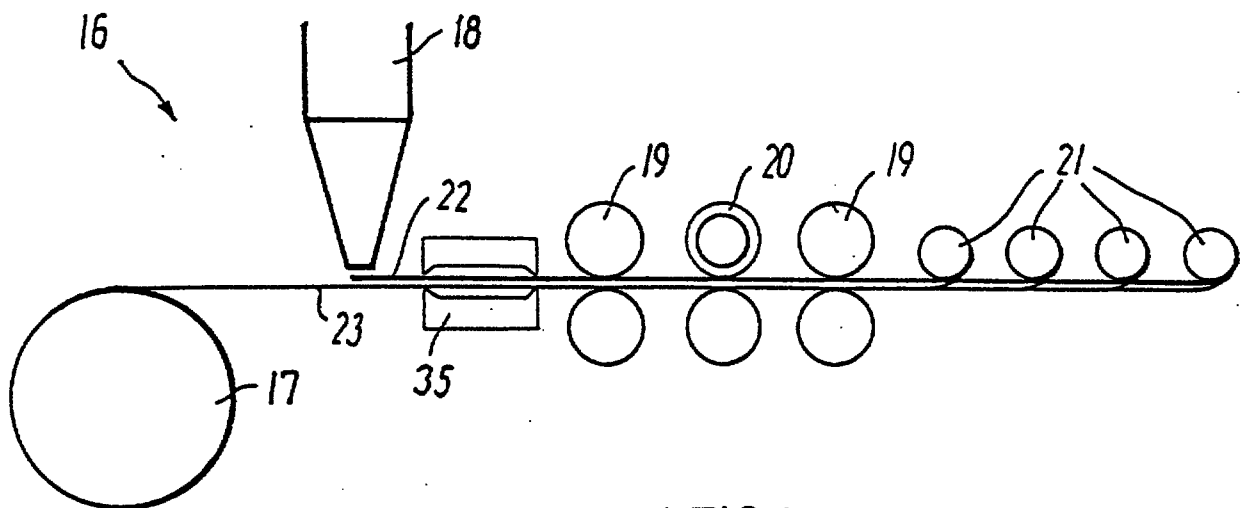


FIG. 3

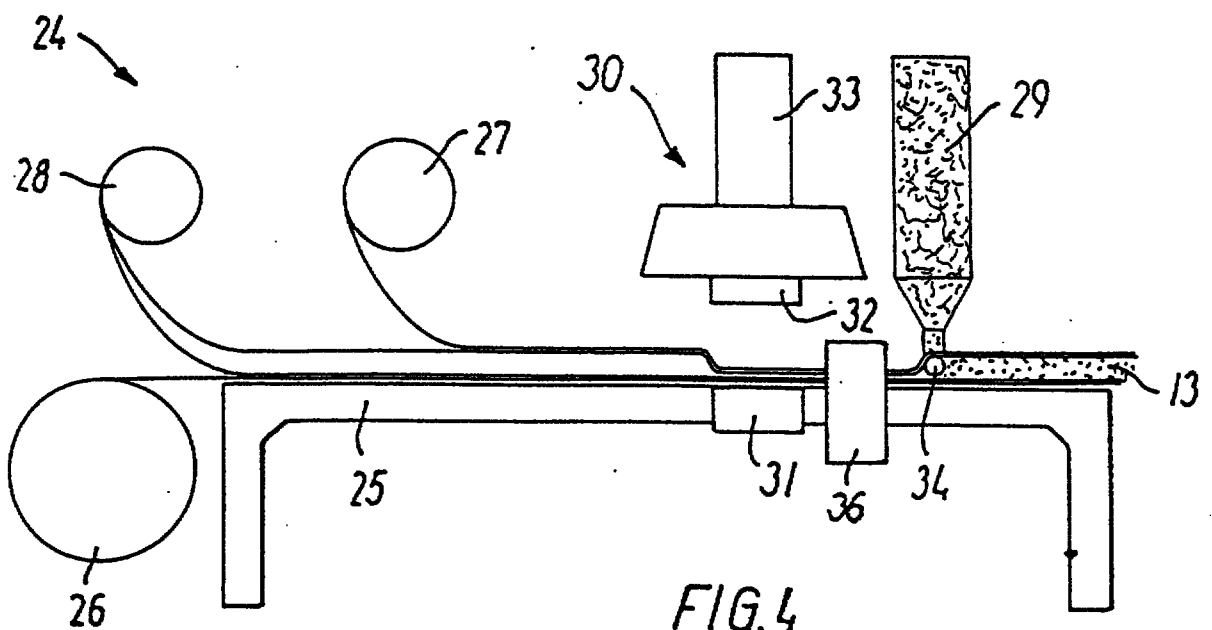


FIG. 4

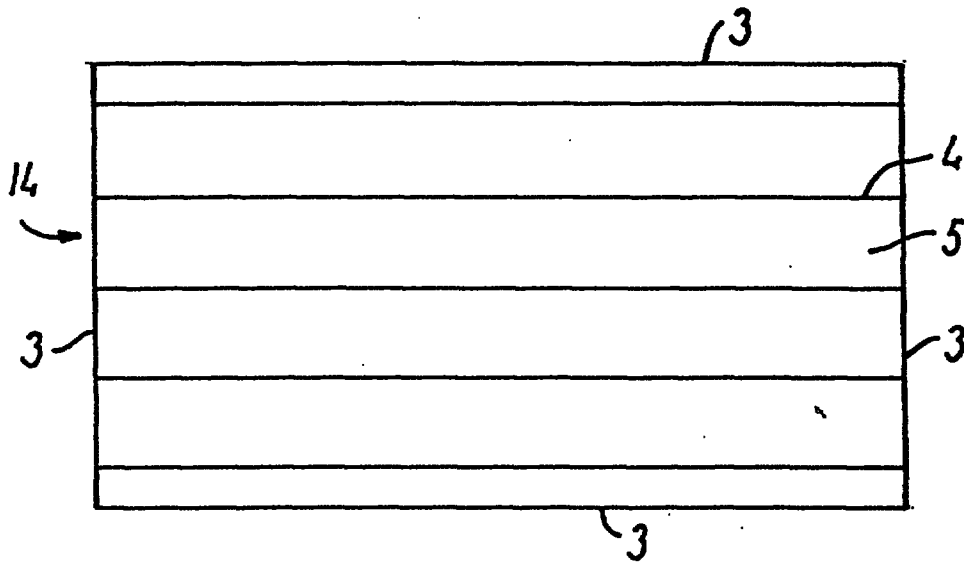


FIG. 5

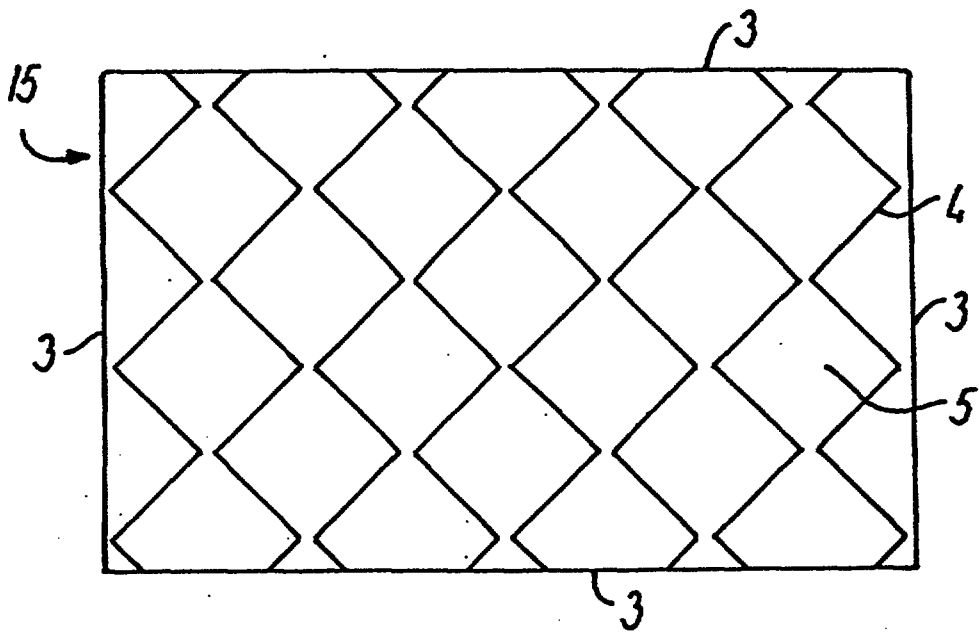


FIG. 6

ABSTRACT

A QUILT OR A GARMENT AND A METHOD OF MANUFACTURING A QUILT OR A GARMENT

A quilt or a garment (1) comprises a pair of textile material sheets (2) interconnected by their edges and connected by a textile material partition wall (4) to define a closed structure having a plurality of compartments (5). Each of said partition walls comprises two opposite marginal regions, each of said marginal regions being joined with a respective textile material sheet by means of a length of tape (8), said tape being surface bonded to the respective sheet along one tape surface, whereas said tape is joined with a respective marginal region of the partition wall by a stitching extending centrally of said tape. The tape comprises a textile material of a type and a structure identical to that of the sheets. The invention further comprises a method of manufacturing the quilt or garment.

Fig. 1 to be published with the abstract

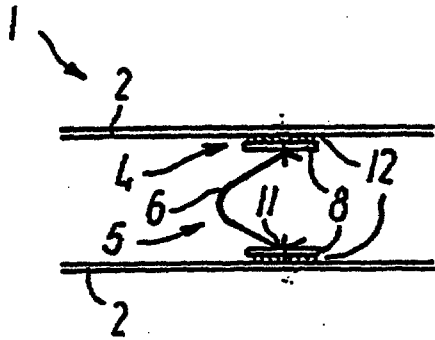


FIG. 1

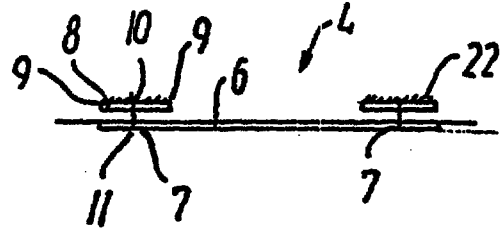


FIG. 2

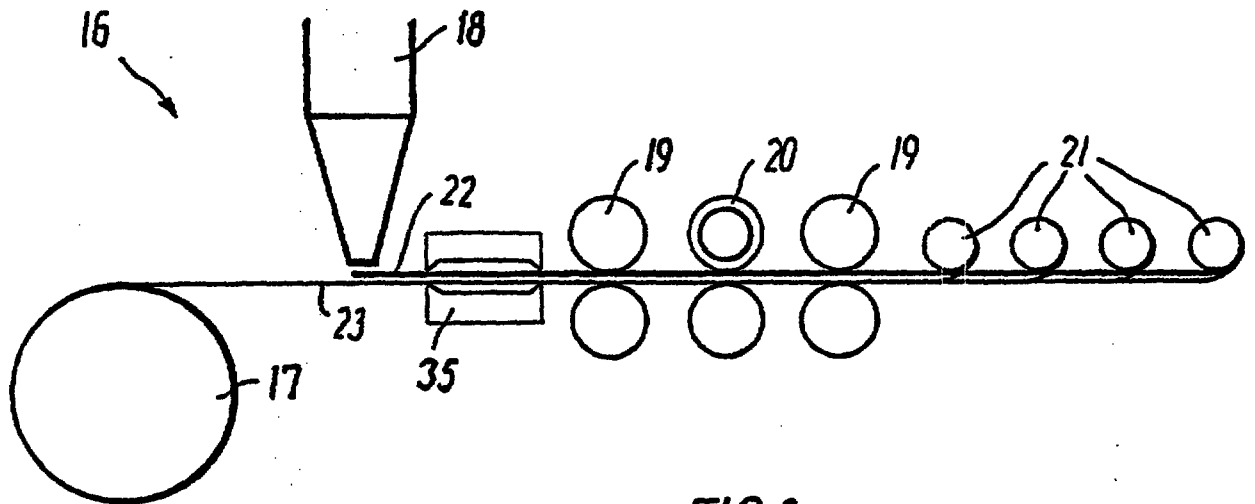


FIG. 3

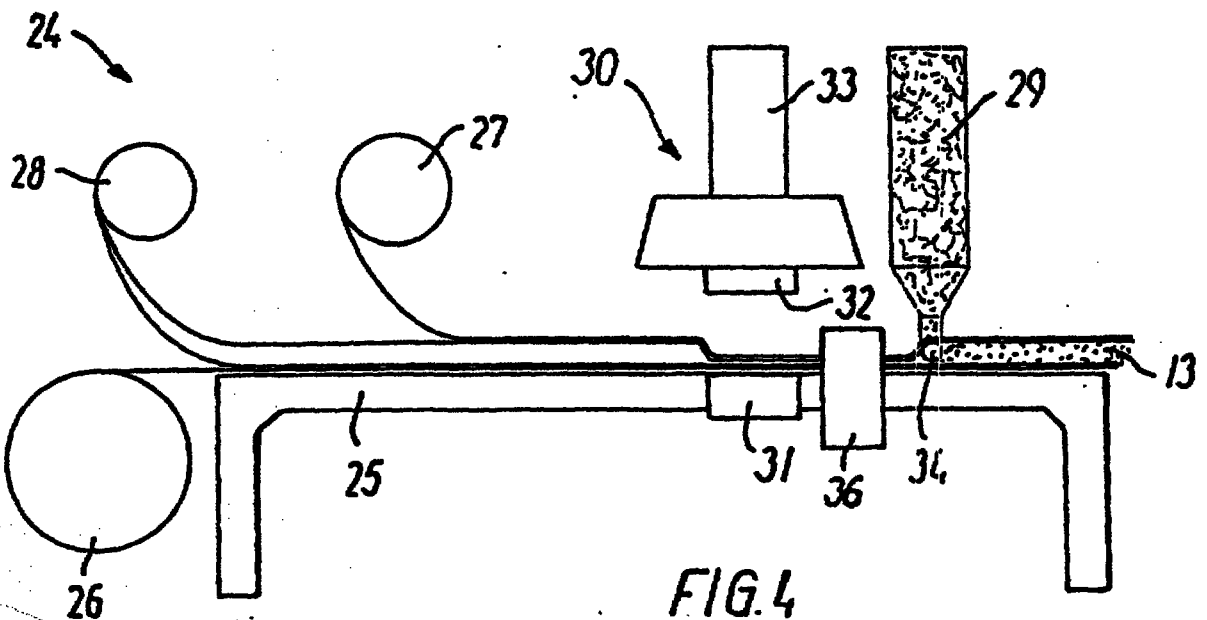


FIG. 4



REPLACEMENT SHEETS		SG
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Claims

1. A quilt or a garment comprising
 - a pair of textile material sheets interconnected along
5 their edges to define a substantially closed envelope,
 - a bulk filling of a soft, resilient, heat-insulating material contained in said envelope, and
 - a number of textile material partition walls interconnecting the sheets so as to subdivide the
10 interior of said envelope into a plurality of compartments holding respective portions of said filling,
 - each of said partition walls comprising a length of a textile material web with two opposite edges, and two corresponding lengths of tape being joined with
15 respective edges of said web and being surface bonded to a respective sheet by a non-penetrating glue,
 - each length of tape comprising a textile material of a kind and a structure selected to match the kind and the structure of the textile material sheets in respect of
20 thread thickness, thread density, and shrinkage properties.
2. A quilt or a garment according to claim 1, c h a r a c t e r i z e d by said non-penetrating glue comprising a holt-melt glue with a melting point below 130°C, and
25 preferably below 110°C.
3. A quilt or a garment according to claim 1 or 2, c h a r a c t e r i z e d by said non-penetrating glue comprising polyethylene, and preferably high-density polyethylene.



4. A quilt or a garment according to claims 1-3, c h a -
r a c t e r i z e d by each length of tape being
prepared from a textile material selected to match the
shrinkage properties of the textile material sheets to
5 within a 1% deviation.

5. A quilt or a garment according to claims 1-4, c h a -
r a c t e r i z e d by said tape having been prepared by

- selecting a web of textile material,

10 - applying a metered quantity of hot-melt glue controlled
in respect of obtaining a predetermined area density of
glue on the tape surface, and

- cutting said web longitudinally into parallel segments
of the appropriate width.

15 6. A quilt or a garment according to claim 5, c h a r a c
t e r i z e d by said hot-melt glue being applied in
atomized form or liquid form.

20 7. A quilt or a garment according to claim 5, c h a r a c
t e r i z e d by said hot-melt glue being applied by
dispensing a layer of the glue in granular form or
powdered form onto one surface of the tape, and baking
said web to make the glue adhere to the tape.

8. A quilt or a garment according to claims 1-7, c h a -
r a c t e r i z e d by each length of tape being joined
with the corresponding web edge by stitching.

25 9. A quilt or a garment according to claim 8, c h a r a c
t e r i z e d in that the stitching extends substantially
along the center line of said tape.

10. A quilt or a garment according to claims 1-9, c h a -
r a c t e r i z e d in that the web used for the



partition walls comprises a textile material of a kind and a structure substantially identical to the kind and the structure of the textile material sheets.

11. A method of manufacturing a quilt or a garment, the
5 method comprising the steps of:

- selecting a pair of textile material sheets,
- selecting a number of strips, each strip comprising a length of textile material web with two opposite edges,
- selecting for each strip corresponding lengths of tape,
10 each length of tape comprising a textile material of a kind and a structure selected to match the kind and the structure of the textile material sheets in respect of thread thickness, thread density, and shrinkage properties,
- 15 - joining one length of tape with each edge of the strip,
- arranging the strip in the desired pattern between the sheets in the pair,
- surface bonding one side of each length of tape with a respective sheet by means of a non-penetrating glue so as
20 to make said strips form walls extending from one sheet to the other,
- interconnecting the edges of the sheets to form a generally closed envelope subdivided into compartments by said walls,
- 25 - providing in the compartments of said envelope a bulk filling of a soft, resilient, heat-insulating material, and
- sealing said envelope to enclose said bulk filling.



12. A method according to claim 11, c h a r a c t e r i -
z e d by selecting for said non-penetrating glue a holt-
melt glue with a melting point below 130°C and preferably
below 110°C.
- 5 13. A method according to claims 11 or 12, c h a r a c -
t e r i z e d by selecting for said tape a textile
material which matches the shrinkage properties of the
textile material sheets to within a 1% deviation.
14. A method according to claims 11-13, c h a r a c t e -
10 r i z e d by preparing said tape by
- selecting a web of textile material,
 - applying a metered quantity of hot-melt glue controlled
in respect of obtaining a predetermined area density of
glue on the tape surface, and
 - 15 - cutting said web longitudinally into parallel segments
of the appropriate width.
15. A method according to claim 14, c h a r a c t e r i -
z e d by applying said hot-melt glue in atomized form or
liquid form.
- 20 16. A method according to claim 14, c h a r a c t e r i -
z e d by applying said hot-melt glue by
- dispensing a layer of hot-melt glue in granular form or
powdered form onto one surface of the tape, and
 - baking the web to make the glue adhere to the tape.
- 25 17. A method according to claims 11-16, c h a r a c t e -
r i z e d by each length of tape being joined with the
repsective strip edge by stitching.



18. A method according to claim 17, c h a r a c t e r i -
z e d by the stitching being performed essentially along
the center line of the tape.

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