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(54) **Procedure for manufacturing a mattress cover with a padded outer layer and a gusset, and a mattress cover thus manufactured**

Verfahren zur Herstellung einer Matratzenabdeckung mit einer gepolsterten Außenschicht und einer Seitenfalte und damit hergestellte Matratzenabdeckung

Procédure pour fabriquer une housse de matelas avec une couche externe matelassée et un gousset, et housse de matelas ainsi fabriquée

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Description

[0001] The present invention relates to a procedure for manufacturing a mattress cover with a padded outer layer and a gusset, and a mattress cover manufactured thereby.

[0002] In the mattresses of known type, the mattress panels are attached to the side bands by means of a seam that is concealed by a fabric edging tape that simultaneously joins and covers the join between the two component parts: this solution determines a tension on the surface of the mattress panels.

[0003] With reference to figures 1-4, in order to overcome this drawback, use is known of a procedure, as described in the Italian patent No. 1295277, according to which the side band 2 is joined to the mattress panel 1 not directly, but by means of a gusset 4 (fig. 1), which can open outwards and thereby transfer the tension due to the stitching 3 of the tape to the area underneath the mattress panel.

[0004] This manufacturing solution demands a series of time-consuming procedures that have to be implemented by suitably-trained personnel.

[0005] These steps include first preparing the gusset 4, the fabric 5 of which has to be coupled with a padding material 6 (generally similar to the material comprising the side band 2), folded in two parts 7 and 8, with a seam 9 stitched along the fold (figures 2.1, 2.2, 2.3).

[0006] The resulting gusset is then measured and cut into four portions A, B, C, D, two of which C, D, correspond approximately to the lengthwise dimensions of the mattress, and two A, B, correspond approximately to the width of the mattress (fig. 3).

[0007] The ends of each portion must be cut to form a 45° angle so that, when placed at a 90° angle with respect to another portion, at their point of contact E, they can be matched with the other portions without leaving any excess material: the joins between the four portions of gusset coincide with the corners of the mattress. In practical terms, the joining of the four portions of gusset gives rise to a frame that has the same dimensions as the mattress.

[0008] In the next step, the upper part 10 of the gusset 4 is attached to the mattress panel, then the lower part 11 of the gusset 4 is attached to the side band 2 by means of a seam 3, concealed with edging tape, all around the perimeter (fig. 1).

[0009] Then it becomes necessary.to join the inside of the gusset 9 to the mattress panel 1, because otherwise, when in use, the mattress would tend to "swell" with an "accordion" or "bellows" effect. In fact, the gusset attached to the side band would open out and return almost to its original extension (before it was folded and stitched 7, 8, 9).

[0010] The process for joining the gusset to the mattress panel demands the use of a special sewing machine fitted with a curved (instead of a straight) needle as there is no alternative method for joining the two materials because the thickness of the padding on the mattress panel would prevent the use of a conventional sewing machine. Moreover, given the difficulty of passing through the full thickness of the padding on the mattress panel combined with the thickness of the gusset, this stitching would prove particularly troublesome and slow to complete because any imperfections in the seam would carry the risk of reducing the life of the product and/or giving rise to an aesthetically unacceptable result.

[0011] In addition to being extremely laborious, this known method for manufacturing mattresses with a gusset and a padded surface layer on the mattress panel calls for highly-skilled workers and carries the risk of reducing the life of the mattress. It also has another drawback in common with traditional mattresses, in that the mattress panels are never perfectly flat; instead, where they are joined 12 to the side band, they become a few centimetres lower because of the tension generated at the interface between the side band and the mattress panels: see figure 4, showing the difference 13 between the height at the centre 11 and at the edge 12 of the mattress.

[0012] This imperfect planarity of the mattress panels poses the problem that the mattress cannot be used near the edges to avoid the user having the impression of sliding towards the outer edge of the mattress.

[0013] US-A-5782190 discloses a method for the assembly of a pillow-top mattress cover, in which the gusset for the pillow-top mattress cover is prepared in a single step in which the gusset material is folded longitudinally, and the flange material is attached thereto and the gusset material is sewn together in one stitch. Thereafter, the gusset is attached to each of the top and bottom panels of the cover along its outer edge. Each gusset is secured to the underside of its associated top or bottom panel at the folded edge using a blind stitch which is not visible externally of the panel.

[0014] Thus, the object of the present invention is a procedure for manufacturing a mattress cover with a padded surface layer and a gusset, and a mattress cover

[0015] manufactured thereby, with a view to overcoming the above-described problems.

[0016] The object of the present invention is therefore a procedure for manufacturing a mattress cover, said mattress cover comprising at least one mattress panel, a side band and at least one gusset joining said mattress panel to said side band, comprising the following steps:

- preparing said gusset folded lengthwise in two parts and placing it ready folded on the edge of the mattress panel internal to the mattress cover;
- stitching said folded gusset directly onto said mattress panel along a first seam inwardly recessed from the edge of the mattress panel, in correspondence with said fold dividing the gusset into two parts;
- said first seam passing through the full thickness of said mattress panel so that it is visible on the outer side of the mattress panel.

[0017] Another object of the present invention is a device for implementing the procedure according to any of the previous claims, **characterized in that** it comprises:

- a sewing machine;
- guiding and folding means suitable for cooperating with said sewing machine, and for preparing said gusset folded lengthwise into two parts and positioning it ready folded on the edge of the mattress panel internal to the mattress cover, to enable the stitching the gusset onto the mattress panel, along said first seam inwardly recessed from the edge of the mattress panel, in correspondence with said fold dividing the gusset into two parts;
- said sewing machine being suitable for completing said first seam by passing through the full thickness of said mattress panel.

In particular, the object of the present invention is a procedure and a device for manufacturing a mattress cover with a padded surface layer and a gusset, a mattress cover manufactured thereby, and also a modified sewing machine for implementing the procedure, and a gusset, all as described in more detail in the claims, which form an integral part of the present description.

[0018] Further objects and advantages of the present invention will emerge more clearly from the following detailed description of an embodiment of the same (and variants thereof) and from the attached drawings, which are provided merely as a non-limiting example, wherein:

figures 1 to 4 show steps in the manufacture of a mattress of known type;
figures 5 and 6 show a mattress manufactured according to the procedure forming the object of the present invention;
figures 7 and 8 show a sewing machine modified according to the present invention.

[0019] The same reference numbers and letters in the figures identify the same elements or component.

[0020] The procedure according to the present invention involves concentrating the previously-described steps forming part of the known state of the art into a single step, i.e.

1. folding the gusset;
2. attaching it by means of stitching in its folded position;
3. preparing the gusset frame by cutting the four portion of gusset comprising said frame;
4. shaping the two ends of each portion with a 45° angle;
5. joining the corners of the frame by means of stitching;
6. fixing the inner side of the gusset, shaped in the form of a frame, to the padded mattress panel;
7. repeating all these steps on the other side of the mattress.

[0021] This is achieved with the aid of a special sewing machine, described below, the needle of which is particularly sturdy and capable of passing through any layers of padding in the mattress panel (generally combined with the fabric by means of quilting) and emerging on the opposite side in order to simultaneously form a seam that includes the inner, folded side of the gusset. The mattress panel may not necessarily be padded, it may consist of fabric alone.

[0022] As shown in fig. 5, the result is a quilted panel 1' with the gusset 14 attached to its underside all around its perimeter by means of a seam 15 for attaching the gusset that is also visible on the upper side, forming a contour in the mattress panel that lies a constant distance away from its edge corresponding to approximately the width of the underlying folded gusset.

[0023] This "visible" seam also makes it possible to avoid what was previously unavoidable, i.e. the curvature of the mattress panel. In fact, where this seam is made between the mattress panel and the gusset, the thickness of any padding is reduced to a few millimetres due to the effect of the through stitching.

[0024] As shown in figure 6, the parts unaffected by the seam, but located in its immediate vicinity, tend to swell due to the effect of the tension generated by the seam 15. The parts 16 around the edge of the quilted panel, particularly the outermost part 17, all around the perimeter of the mattress can even rise towards the inner part of the panel 1', because they are no longer restricted, thus avoiding the above-described problem of the mattress sloping away at its edges.

[0025] The gusset according to the invention can be achieved by coupling the fabric used for lining the mattress (on the outer side) with a backing material (a fabric, nonwoven, PVC, polyurethane or other material suitable for the purpose) of suitable thickness, which may also be considerably less than the one used in the previously-described known procedures.

[0026] Alternatively, the gusset according to the invention can be achieved using a different fabric from the one used for lining the mattress, e.g. a heavy fabric, in a single layer, instead of being coupled to a backing material.

[0027] The coupling of any backing material can be done using adhesives, heat, ultrasound methods or simply by stitching straight seams along the length of the strip of fabric, or by any other means suitable for keeping the two (or more) materials joined together.

[0028] It is not necessary to perform any other steps to prepare the gusset.

[0029] With reference to figures 7 and 8, a sewing machine 20, modified according to the present invention, comprises a head 21 fitted with a straight needle 22 that performs a vertical reciprocating movement to stitch seams. The internal components of the machine can be made according to the known state of the art.

[0030] The sewing machine 20 comprises guiding

means 23 consisting of the following elements:

- an arm 24 hinged at one of its ends 25 to the body of the sewing machine at a certain distance from the needle 22;
- a feeding and folding device 26 placed at the opposite end of the arm 24 in a position facing the needle 22. The device 26 comprises a hollow saddle 27, capable of sliding along a guide 28 attached to the sewing machine's flat bed. A hollow feeding and folding member 29 is connected to the outer end of the saddle 27, with a variable cross-section that starts externally with a curved gore-shaped cross-section 30, and ends with a folded cross-section facing the saddle 27, to which it is connected;
- a pair of parallel cylindrical guide rollers 31, at the outer end 30 of the member 29. This pair of rollers is attached to the arm 24 by means of a bracket 32. The height of the pair of rollers and the distance between them are such as to enable the strip of material used to form the gusset 14, consisting of an open band 14', to slide between them. Said band 14' is carried by the rollers 31 and enters the opening in the outer end 30 of the member 29, emerging folded in two through the slot in the saddle 27 that faces towards the needle 22, thereby forming the gusset 14. The two folded parts may be of the same size, or they may be of different sizes, depending on the shape of the feeding and folding member 29, and especially on the part connected to the saddle 27.

[0031] In operation (figure 8), the band 14' is passed between the guide rollers 31 and inserted in the opening 30; then the arm 24 is turned so as to bring the saddle 27 into position opposite and juxtaposing the needle 22. The saddle can be fitted with a recess so that it surrounds the area in which the needle punctures the fabric.
The band 14' is thus fed through the member 29 so that it emerges from the saddle 27 ready folded in two and opposite the needle. Then the quilted panel 1' is positioned underneath the needle, so that the folded gusset 14 comes to lie above it, aligned with its outer edge. The sewing machine 20 is operated, making the needle 22 pass through both the gusset 14 and the panel 1', producing the above-described seam 15 in line with the fold in the gusset as the juxtaposed mattress panel and gusset are progressively fed forward. The seam 15 is sewn at a distance from the edge of the panel 1' that approximately corresponds to the width of the side of the folded gusset in contact with the mattress panel.
[0032] The seam can thus be completed even at the rounded edges of the mattress panel 1', which is generally rectangular in shape, simply by turning the panel through 90°, without interrupting or cutting the gusset 14, but simply making it curve around the panel as it proceeds, obtaining a result as shown in the previously-mentioned figure 5.
[0033] The subsequent steps involve:

- stitching the edge of the upper side 10 of the gusset to the edge of the panel 1';
- stitching the edge of the underside 11 of the gusset to the edge of the side band 2;
- finishing the edges of both the side band 2 and the panel 1', with a seam concealed with edging tape, for instance, around the perimeter 3.

[0034] The sewing machine 20 can be of the type operated entirely manually, or it can be fitted with suitable automatic or semiautomatic, possibly computer-aided controls. Its automatic control can be implemented in any known manner.
[0035] There may be variants to the embodiment of the non-limiting example described herein without departing from the scope of the present invention protected by the patent, including all the equivalent embodiments for a person skilled in the art.
[0036] The advantages deriving from the application of the present invention are self-explanatory.
[0037] The new method for manufacturing a mattress with a padded surface panel is in fact:

- economically advantageous because it eliminates the numerous steps needed to manufacture the product according to the known state of the art;
- it enables the product to be manufactured by less skilled workers;
- it enables a mattress to be manufactured with mattress panels that are perfectly flat or even with a slightly raised edge all around its perimeter;
- it reduces the use of materials because the gusset can be less padded than in the known state of the art.

The gusset is the only element that is modified: both the side bands and the mattress panels remain the same as in a traditional mattress.
[0038] From the above description, a person skilled in the art is capable of achieving the object of the invention without introducing any further structural details.

Claims

1. A procedure for manufacturing a mattress cover, said mattress cover comprising at least one mattress panel, a side band and at least one gusset joining said mattress panel to said side band, comprising the following steps:

   - preparing said gusset (14') folded lengthwise in two parts and placing it ready folded on the edge of the mattress panel (1') internal to the mattress cover;
   - stitching said folded gusset (14') directly onto said mattress panel (1') along a first seam (15) inwardly recessed from the edge of the mattress panel, in correspondence with said fold dividing

the gusset into two parts;
- said first seam (15) passing through the full thickness of said mattress panel (1') so that it is visible on the outer side of the mattress panel.

2. A procedure according to claim 1, **characterized in that** said first seam (15) is inwardly recessed at a distance sufficient to substantially make the edges of the mattress panel (1') coincide with the outer edges of the folded gusset.

3. A procedure according to claim 1, **characterized in that** said seam is also made in correspondence with the corners of said mattress panel (1'), by making said mattress panel rotate through 90° while making said gusset (14) curve on said mattress panel, without the need for any interruptions or cuts.

4. A procedure according to claim 1, **characterized in that** the part of the edge of the mattress panel (1') external to said first seam (15) is able to rise with respect to the remainder of the mattress panel.

5. A procedure according to claim 1, **characterized in that** said gusset is made by coupling mattress lining fabric with a backing material such as a fabric, a non-woven, PVC or polyurethane.

6. A procedure according to claim 5, **characterized in that** said coupling is achieved by means of adhesives or flame, or ultrasound or stitching.

7. A procedure according to claim 1, **characterized in that** said gusset is made of a different fabric from the one used for lining the mattress, such as a single-layer heavy fabric.

8. A procedure according to claim 1, **characterized in that** it comprises the following further steps:

- stitching the outer edge of a first part (10) of the folded gusset to the edge of the mattress panel (1');
- stitching the outer edge of the second part (11) of the folded gusset to the edge of the side band (2);
- possible finishing of the edges (3) of the side band (2) and/or mattress panel (1') with a seam concealed with edging tape.

9. A device for implementing the procedure according to any of the previous claims, **characterized in that** it comprises:

- a sewing machine (20);
- guiding and folding means (23) suitable for co-operating with said sewing machine, and for preparing said gusset (14') folded lengthwise into two parts and positioning it ready folded on the edge of the mattress panel (1') internal to the mattress cover, to enable the stitching the gusset onto the mattress panel, along said first seam (15) inwardly recessed from the edge of the mattress panel, in correspondence with said fold dividing the gusset into two parts;
- said sewing machine (20) being suitable for completing said first seam (15) by passing through the full thickness of said mattress panel (1').

10. A device according to claim 9, **characterized in that** said guiding and folding means (23) are suitable for determining the position of said first seam (15) inwardly recessed at a distance such as to make the edges of the mattress panel (1') coincide with the outer edges of the folded gusset.

11. A device according to claim 9 or 10, **characterized in that** the guiding and folding means (23) comprise:

- an arm (24) hinged at one end (25) to the body of said sewing machine (20) at a given distance from a needle (22) on the sewing machine;
- a feeding and folding means (26), suitable for carrying and folding the gusset (14), placed at the opposite end of said arm (24) in a position facing said needle (22), and comprising:
- a hollow saddle (27) capable of sliding or shuffling along a guide (28) attached to the sewing machine flatbed, in the vicinity of said needle (22), so that said saddle can be juxtaposed with said needle by turning said arm (24);
- a feeding and folding member (29) located at the outer end of said saddle (27), said member being hollow, of variable cross-section, starting on the outer side with a curved gore-shaped cross-section (30) and ending with a folded cross-section facing towards said saddle (27), to which it is connected, said gusset (14) entering open through said curved gore-shaped portion (30) and emerging folded through said saddle (27) on top of said mattress panel (1').

12. A device according to claim 11, **characterized in that** it also comprises a pair of parallel cylindrical guide rollers (31) facing said curved gore-shaped portion (30), said pair of rollers being designed to enable and guide the passage of said gusset (14) between them so as to ensure its proper insertion in said curved gore-shaped portion (30), and attached by means of a bracket (32) to said arm (24).

13. A mattress cover manufactured using a procedure according to any of the claims from 1 to 8.

14. A mattress comprising a cover manufactured using

a procedure according to any of the claims from 1 to 8.

Patentansprüche

1. Verfahren zur Herstellung einer Matratzenabdekkung, wobei die Matratzenabdeckung wenigstens eine Matratzen-Stoffbahn, ein Seitenband und wenigstens eine Seitenfalte umfasst, die die Matratzen-Stoffbahn mit dem Seitenband verbindet, umfassend die folgenden Schritte:

   - Vorbereiten der Seitenfalte (14'), die in Längsrichtung in zwei Teile gefaltet ist, und fertig gefaltet Platzieren an der Kante der Matratzen-Stoffbahn (1') innerhalb der Matratzenabdekkung;
   - Absteppen der gefalteten Seitenfalte (14') direkt auf der Matratzen-Stoffbahn (1') entlang eines ersten Saumes (15), der nach innen von dem Rand der Matratzen-Stoffbahn zurückgesetzt ist, in Verbindung mit der Falte, die die Seitenfalte in zwei Teile unterteilt;
   - wobei der erste Saum (15) durch die gesamte Dicke der Matratzen-Stoffbahn (1') hindurchführt, so dass er von der Außenseite der Matratzen-Stoffbahn sichtbar ist.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der erste Saum (15) nach innen in einem Abstand zurückgesetzt ist, der ausreichend ist, um die Kanten der Matratzen-Stoffbahn (1') im Wesentlichen übereinstimmend mit den äußeren Kanten der gefalteten Seitenfalte zu gestalten.

3. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der Saum auch in Übereinstimmung mit den Ecken der Matratzen-Stoffbahn (1') hergestellt wird, **dadurch** dass die Matratzen-Stoffbahn um 90° gedreht wird, während die Seitenfalte (14) an der Matratzen-Stoffbahn abgebogen wird, ohne den Bedarf für irgendwelche Unterbrechungen oder Schnitte.

4. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** der Teil des Randes der Matratzen-Stoffbahn (1') außerhalb des ersten Saumes (15) geeignet ist, um hinsichtlich des Restes der Matratzen-Stoffbahn zuzunehmen.

5. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** die Seitenfalte durch das Verbinden von Matratzen-Futterstoff mit einem Trägermaterial, wie etwa ein Gewebe, ein Faservlies, PVC oder Polyurethane, hergestellt wird.

6. Verfahren nach Anspruch 5, **dadurch gekennzeichnet, dass** das Verbinden mittels eines Klebers oder einer Flamme, oder Ultraschall oder Steppen erreicht wird.

7. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** die Seitenfalte aus unterschiedlichen Geweben von dem einen, das für Abfütterung der Matratze verwendet wird, wie etwa eine Einzelschicht eines schweren Gewebes hergestellt wird.

8. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** es die folgenden weiteren Schritte umfasst:

   - Absteppen des äußeren Randes eines ersten Teils (10) der gefalteten Seitenfalte zu dem Rand der Matratzen-Stoffbahn (1');
   - Absteppen des äußeren Randes des zweiten Teils (11) der gefalteten Seitenfalte an den Rand des Seitenbandes (2);
   - mögliches Abschließen der Ränder (3) des Seitenbandes (2) und/oder der Matratzen-Stoffbahn (1') mit einem Saum, der mit einem Saumband abgedeckt ist.

9. Vorrichtung zur Implementierung des Verfahrens nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie umfasst:

   - eine Nähmaschine (20);
   - Führungs- und Faltmittel (23), die geeignet sind, um mit der Nähmaschine zusammenzuarbeiten, und um die Seitenfalte (14'), die in Längsrichtung in zwei Teile gefaltet ist, vorzubereiten und diese fertig gefaltet an dem Rand der Matratzen-Stoffbahn (1') innerhalb der Matratzenabdeckung zu positionieren, um das Absteppen der Seitenfalte auf der Matratzen-Stoffbahn entlang des ersten Saumes (15), der nach innen von dem Rand der Matratzen-Stoffbahn zurückgesetzt ist, in Übereinstimmung mit der Falte zu ermöglichen, die die Seitenfalte in zwei Teile unterteilt;
   - wobei die Nähmaschine (20) geeignet ist, um den ersten Saum (15) fertig zu stellen, in dem durch die gesamte Dicke der Matratzenstoffbahn (1') hindurch gedrungen wird.

10. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** die Führungs- und Faltmittel (23) geeignet sind, um die Position des ersten Saumes (15), der in einem Abstand nach innen zurückgesetzt ist, zu bestimmen, um so die Ränder der Matratzen-Stoffbahn (1') übereinstimmend mit den äußeren Rändern der gefalteten Seitenfalte auszugestalten.

11. Vorrichtung nach Anspruch 9 oder 10, **dadurch gekennzeichnet, dass** die Führungs- und Faltmittel

(23) umfassen:

- einen Arm (24), der an einem Ende (25) an dem Körper der Nähmaschine (20) in einem vorgegebenen Abstand von einer Nadel (22) an der Nähmaschine hängt;
- ein Zuführ- und Faltmittel (26), das geeignet ist, um die Seitenfalte (14) zu tragen und zu falten, die an dem gegenüberliegenden Ende des Armes (24) in einer Position angeordnet ist, die der Nadel (22) gegenüberliegt, und umfassend:
- einen Hohlsattel (27), der in der Lage ist, entlang einer Führung (28) zu gleiten oder zu schieben, die an dem Flachbett der Nähmaschine befestigt ist, in der Nähe der Nadel (22), so dass der Sattel mit der Nadel durch das Drehen des Armes (24) nebeneinander gestellt werden können;
- ein Zuführ- und Faltelement (29) das an dem äußeren Ende des Sattels (27) angeordnet ist, wobei das Element hohl, von variablem Querschnitt ist, an der Außenseite mit einem gebogenen, zwickelförmigen Querschnitt (30) beginnt und mit einem gefalteten Querschnitt endet, der in Richtung des Sattels (27) liegt, mit dem es verbunden ist, wobei die Seitenfalte (14) geöffnet durch den gebogenen, zwikkelförmigen Abschnitt (30) eintritt und gefaltet durch den Sattel (27) oben aus der Matratzen-Stoffbahn (1') herauskommt.

12. Vorrichtung nach Anspruch 11, **dadurch gekennzeichnet, dass** sie ein Paar von parallelen, zylindrischen Führungsrollen (31) umfasst, die dem gebogenen, zwikkelförmigen Abschnitt (30) zugewandt sind, wobei das Paar von Rollen ausgestaltet ist, um den Durchgang der Seitenfalte (14) zwischen diesen zu ermöglichen und zu führen, um so ihre exakte Einführung in den gebogenen, zwickelförmigen Abschnitt (30) sicherzustellen, und mittels eines Bügels (32) an den Arm (24) befestigt ist.

13. Matratzenabdeckung, die mittels eines Verfahrens nach einem der Ansprüche von 1 bis 8 hergestellt ist.

14. Matratze, die eine Abdeckung umfasst, die mittels eines Verfahrens nach einem der Ansprüche 1 bis 8 hergestellt ist.

Revendications

1. Procédé pour fabriquer une housse de matelas, ladite housse de matelas comprenant au moins un panneau de matelas, une bande latérale et au moins un soufflet assemblant ledit panneau de matelas à ladite bande latérale, comprenant les étapes suivantes consistant à :

préparer ledit soufflet (14') plié dans le sens de la longueur en deux parties et en le plaçant déjà plié sur le bord du panneau de matelas (1') à l'intérieur de la housse de matelas ;
coudre ledit soufflet plié (14') directement sur ledit panneau de matelas (1') le long d'une première couture (15) enfoncée vers l'intérieur à partir du bord de panneau de matelas, en correspondance avec ledit pli divisant le soufflet en deux parties ;
faire passer ladite première couture (15) à travers toute l'épaisseur dudit panneau de matelas (1') de sorte qu'elle est visible sur le côté externe du panneau de matelas.

2. Procédé selon la revendication 1, **caractérisé en ce que** ladite première couture (15) est enfoncée vers l'intérieur à une distance suffisante pour faire coïncider sensiblement les bords du panneau de matelas (1') avec les bords externes du soufflet plié.

3. Procédé selon la revendication 1, **caractérisé en ce que** ladite couture est également réalisée en correspondance avec les coins dudit panneau de matelas (1'), en faisant tourner ledit panneau de matelas à 90° tout en faisant incurver ledit soufflet (14) sur ledit panneau de matelas, sans avoir besoin d'interruptions ni de coupes.

4. Procédé selon la revendication 1, **caractérisé en ce que** la partie du bord de panneau de matelas (1') externe à ladite première couture (15) peut monter par rapport au reste du panneau de matelas.

5. Procédé selon la revendication 1, **caractérisé en ce que** ledit soufflet est réalisé en couplant le tissu de doublure du matelas avec un matériau de renfort tel qu'un tissu, un intissé, du PVC ou du polyuréthane.

6. Procédé selon la revendication 5, **caractérisé en ce que** ledit couplage est obtenu au moyen d'adhésif ou de flamme, ou d'ultrasons ou de couture.

7. Procédé selon la revendication 1, **caractérisé en ce que** ledit soufflet est réalisé avec un tissu différent de celui utilisé pour doubler le matelas, tel qu'un tissu lourd à couche unique.

8. Procédé selon la revendication 1, **caractérisé en ce qu'**il comprend les étapes supplémentaires suivantes consistant à :

coudre le bord externe d'une première partie (10) du soufflet plié sur le bord du panneau de matelas (1') ;
coudre le bord externe de la seconde partie (11) du soufflet plié sur le bord de la bande latérale

(2) ;
finir éventuellement les bords (3) de la bande latérale (2) et/ou du panneau de matelas (1') avec une couture dissimulée avec une bande de passepoil.

9. Dispositif pour mettre en oeuvre le procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'**il comprend :

une machine à coudre (20) ;
des moyens de guidage et de pliage (23) appropriés pour coopérer avec ladite machine à coudre, et pour préparer ledit soufflet (14') plié dans le sens de la longueur en deux parties et le positionner déjà plié sur le bord du panneau de matelas (1') à l'intérieur de la housse de matelas pour permettre de coudre le soufflet sur le panneau de matelas, le long de ladite première couture (15) enfoncée vers l'intérieur à partir du bord du panneau de matelas en correspondance avec ledit pli divisant le soufflet en deux parties ; ladite machine à coudre (20) étant appropriée pour terminer ladite première couture (15) en passant par toute l'épaisseur dudit panneau de matelas (1').

10. Dispositif selon la revendication 9, **caractérisé en ce que** lesdits moyens de guidage et de pliage (23) sont appropriés pour déterminer la position de ladite première couture (15) enfoncée vers l'intérieur à une certaine distance afin de faire coïncider les bords du panneau de matelas (1') avec les bords externes du soufflet plié.

11. Dispositif selon la revendication 9 ou 10, **caractérisé en ce que** les moyens de guidage et de pliage (23) comprennent :

un bras (24) articulé au niveau d'une extrémité (25) par rapport au corps de ladite machine à coudre (20) à une distance donnée d'une aiguille (22) sur la machine à coudre ;
des moyens d'alimentation et de pliage (26), appropriés pour réaliser et plier le soufflet (14), placés au niveau de l'extrémité opposée dudit bras (24) dans une position faisant face à ladite aiguille (22), et comprenant :

une selle creuse (27) pouvant coulisser ou se traîner le long d'un guide (28) fixé au lit plat de la machine à coudre, à proximité de ladite aiguille (22), de sorte que ladite selle peut être juxtaposée à ladite aiguille en faisant tourner ledit bras (24) ;
un élément d'alimentation et de pliage (29) positionné au niveau de l'extrémité externe de ladite selle (27), ledit élément étant creux, de section transversale variable, commençant du côté externe avec une section transversale incurvée en forme de godet (30) et se terminant par une section transversale pliée orientée vers ladite selle (27), à laquelle elle est raccordée, ledit soufflet (14) entrant ouvert à travers ladite partie en forme de godet incurvé (30) et ressortant plié par ladite selle (27) sur la partie supérieure dudit panneau de matelas (1').

12. Dispositif selon la revendication 11, **caractérisé en ce qu'**il comprend une paire de rouleaux de guidage cylindriques parallèles (31) faisant face à ladite partie en forme de godet incurvé (30), ladite paire de rouleaux étant conçue pour permettre et guider le passage dudit soufflet (14) entre eux afin de garantir sa bonne insertion dans ladite partie en forme de godet incurvé (30) ; et fixée au moyen d'une console (32) sur ledit bras (24).

13. Housse de matelas fabriquée à l'aide d'un procédé selon l'une quelconque des revendications 1 à 8.

14. Matelas comprenant une housse fabriquée à l'aide d'un procédé selon l'une quelconque des revendications 1 à 8.

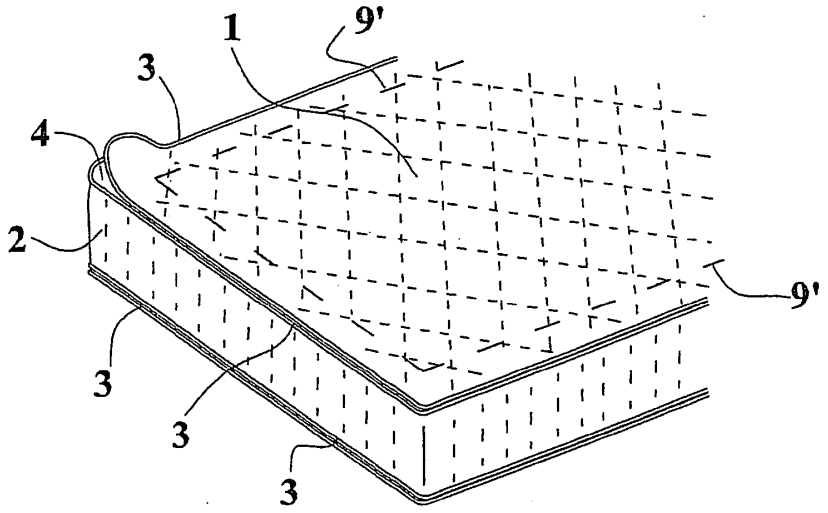


Fig. 1

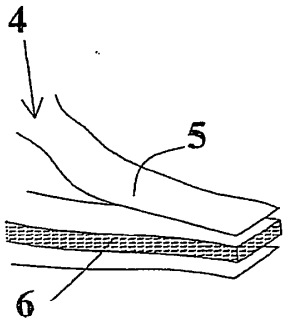


Fig. 2.1

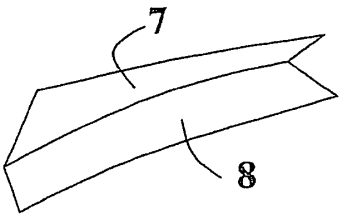


Fig. 2.2

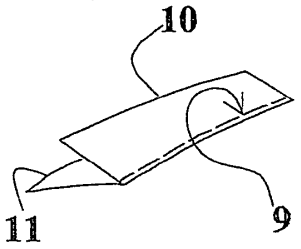


Fig. 2.3

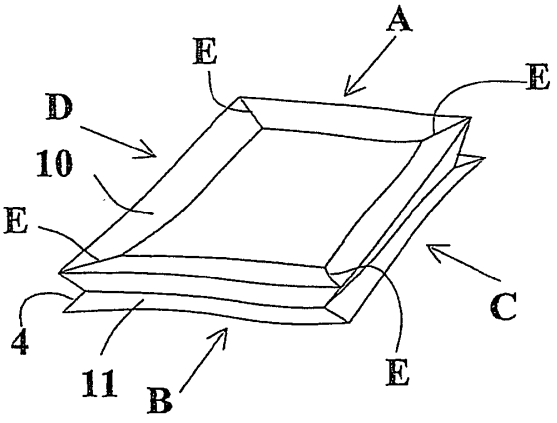


Fig. 3

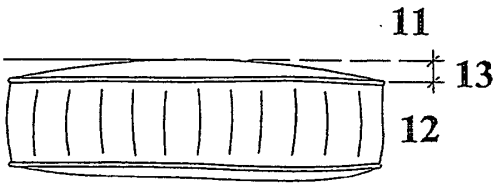


Fig. 4

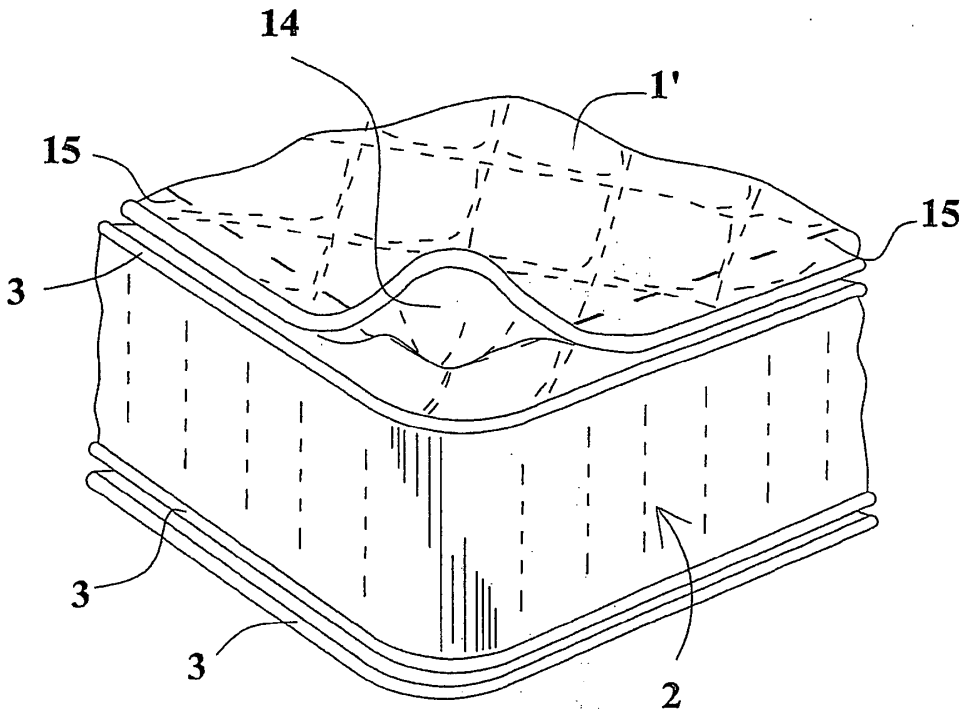


Fig. 5

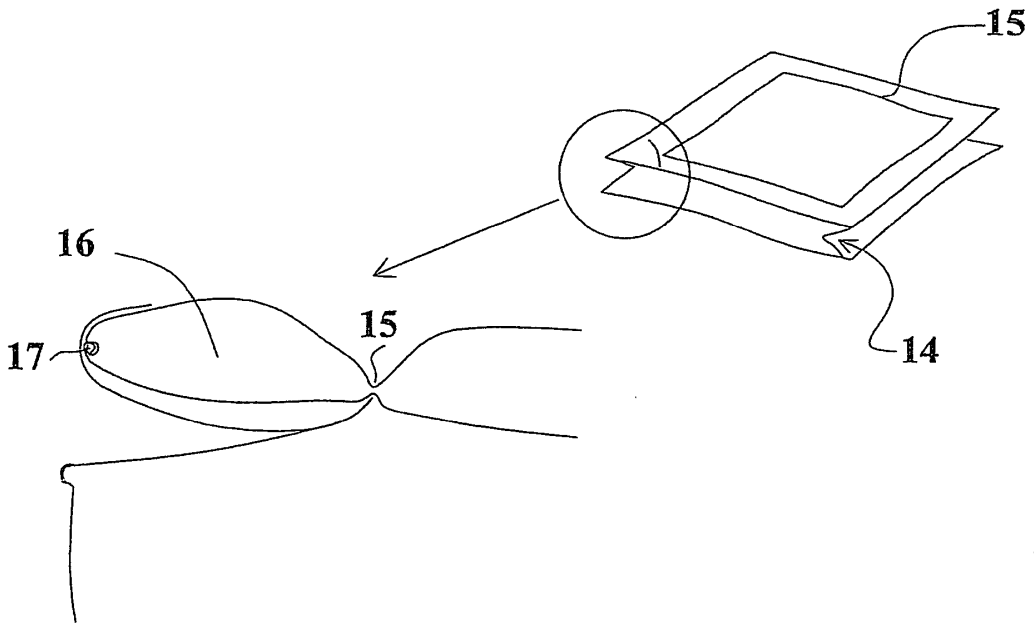


Fig. 6

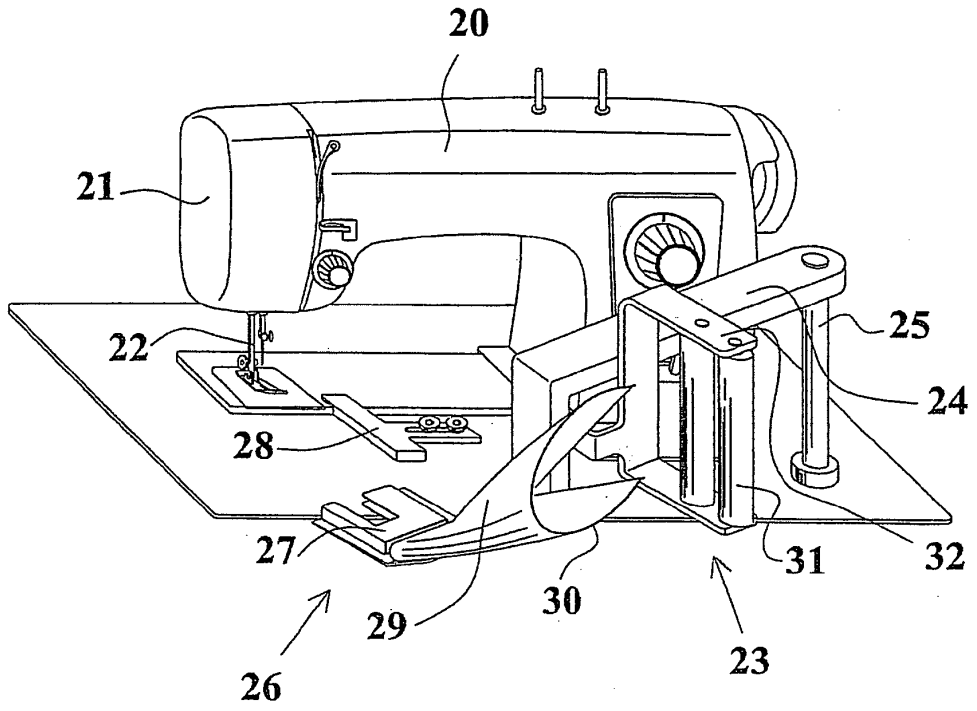

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Fig. 7

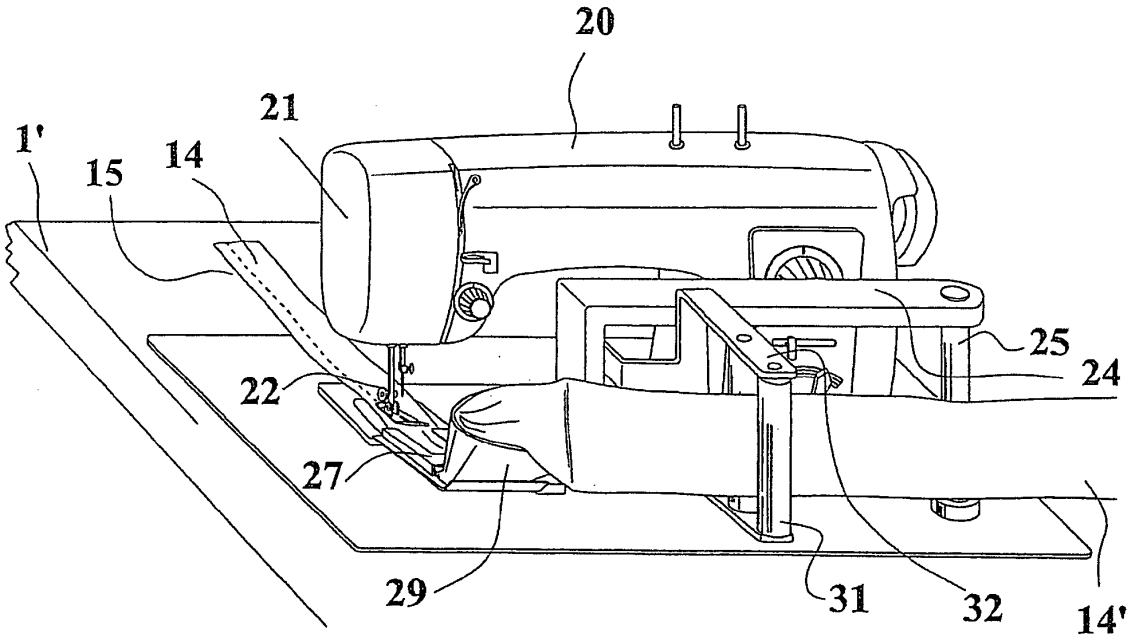

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1'
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14'

Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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- US 5782190 A **[0013]**