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(54) **Ventilation device for mattresses**

(57) A ventilation device for a mattress (1) composed of two flat and parallel sheets (2, 3), between which an elastic insert is arranged, the sheets being mutually con-

nected by a perimetric band (4), the device comprising a plurality of openings (8) which are formed at least in the perimetric band (4) and a strip (9) of breathable material which is arranged so as to cover the openings (8).

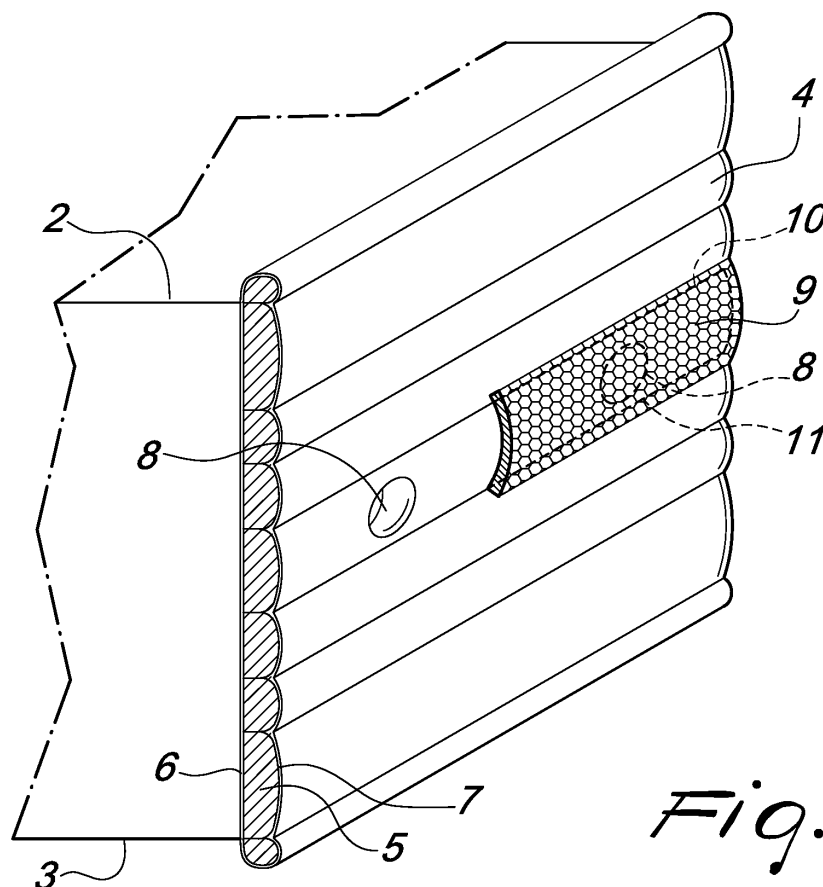


Fig. 2

Description

[0001] The present invention relates to a ventilation device for mattresses.

[0002] As is known, the structure of mattresses comprises in general an upper multilayer sheet and a lower sheet, between which there is an insert constituted by a panel of expanded elastic material or by a cage of springs. The upper and lower sheets are mutually connected by a perimetric band which closes the mattress along its perimeter.

[0003] In order to allow internal ventilation of mattresses, the perimetric band is provided with a plurality of openings which are formed by annular studs made of metal or plastics which, by means of appropriate machines, are applied during the preliminary step of band preparation.

[0004] The application of such annular studs has drawbacks, which can be ascribed to the need to have the necessary equipment and to the application costs, since in order to achieve effective ventilation of the mattress it is necessary to provide a substantial number of said studs.

[0005] The aim of the present invention is to provide a device which allows to overcome the technical and economic drawbacks of traditional ventilation studs.

[0006] Within this aim, an object of the present invention is to provide a device which does not limit the possibility of ventilation of the mattress to the perimetric band but allows to extend its use also to other regions of the mattress, such as for example in the upper and lower sheets.

[0007] This aim and this and other objects which will become better apparent hereinafter are achieved with a ventilation device for a mattress composed of two flat and parallel sheets, between which an elastic insert is arranged, said sheets being mutually connected by a perimetric band, characterized in that it comprises a plurality of openings which are formed at least in the perimetric band and a strip of breathable material which is arranged so as to cover said openings.

[0008] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a preferred embodiment thereof, illustrated by way of non-limiting example in the accompanying drawing, wherein:

Figure 1 is a perspective view of a mattress provided with a device according to the invention, and

Figure 2 is an enlarged-scale view of a portion of the perimetric band of the mattress of Figure 1.

[0009] With reference to the figures, the reference numeral 1 designates a generic mattress composed of two sheets 2, 3, which are connected perimetrically to each other by a band 4 so as to cover completely an internal insert which has elastic properties. The insert can be constituted, for example, by a cage of springs or by a panel

made of expanded plastic material. The internal insert is not shown in the drawing, since it is not relevant to the present invention.

[0010] As shown more clearly by Figure 2, the perimetric band 4 is composed of an inner layer 5 of expanded plastic material, which is contained between two layers of fabric 6, 7 which lie inside and outside the mattress. Likewise, the sheets 2, 3 can have any multilayer composition, which will be chosen according to the quality requirements and to the required physical properties of the mattress, such as resistance to wear, thermal properties and quality of the materials of the various layers, and others. Of course, the band 4, like the sheets 2, 3, can have respective mutually different multilayer compositions by resorting to the most disparate suitable materials, such as for example non-woven fabrics, felt, polyurethane foam, et cetera.

[0011] The innovative concept of the present invention resides fundamentally in the formation, along the perimetric band, of an adequate number of through openings 8, which are covered by a strip 9 of breathable material.

[0012] The through openings 8 are distributed along the peripheral region of the mattress 1 and their number and dimensions are chosen so as to ensure an effective passage of air between the inside and the outside of the mattress.

[0013] The strip 9 is applied so as to cover the slots 8 by means of a pair of stitch lines 10, 11, which run parallel along the central region of the band 4 and can act as a quilting for the various layers that compose the band 4.

[0014] As can be seen, the described invention perfectly achieves the intended aim and objects. In particular, it allows to adjust the vapor permeability of the mattress by varying appropriately the number of slots 8 and their arrangement along the perimetric band. A substantial advantage of the invention resides in that in order to allow ventilation of the mattress it is no longer necessary to apply the usual annular studs with corresponding perforation of the band and mechanical riveting for their fixing, but the openings covered with the breathable strip can be formed during the formation of the band with simple operations for die-cutting the openings and sewing the breathable strip, with obvious functional and economic advantages.

[0015] The described invention is susceptible of numerous modifications and variations, all of which are within the protective scope formulated in the appended claims.

[0016] Thus, for example, the openings may be provided not only in the perimetric band but also in the upper and lower sheets. In this manner it is possible to affect the softness of the mattress.

[0017] In the practical embodiment of the invention, the materials chosen to form the breathable strip 9 for covering the openings may be any according to requirements. Advantageously, the strip 9 is provided by means of a breathable material which is known commercially by the abbreviation 3D.

[0018] Finally, it is noted that the application of one or more strips 9 to the bands or sheets allows to obtain decorative patterns on the surface of the mattress.

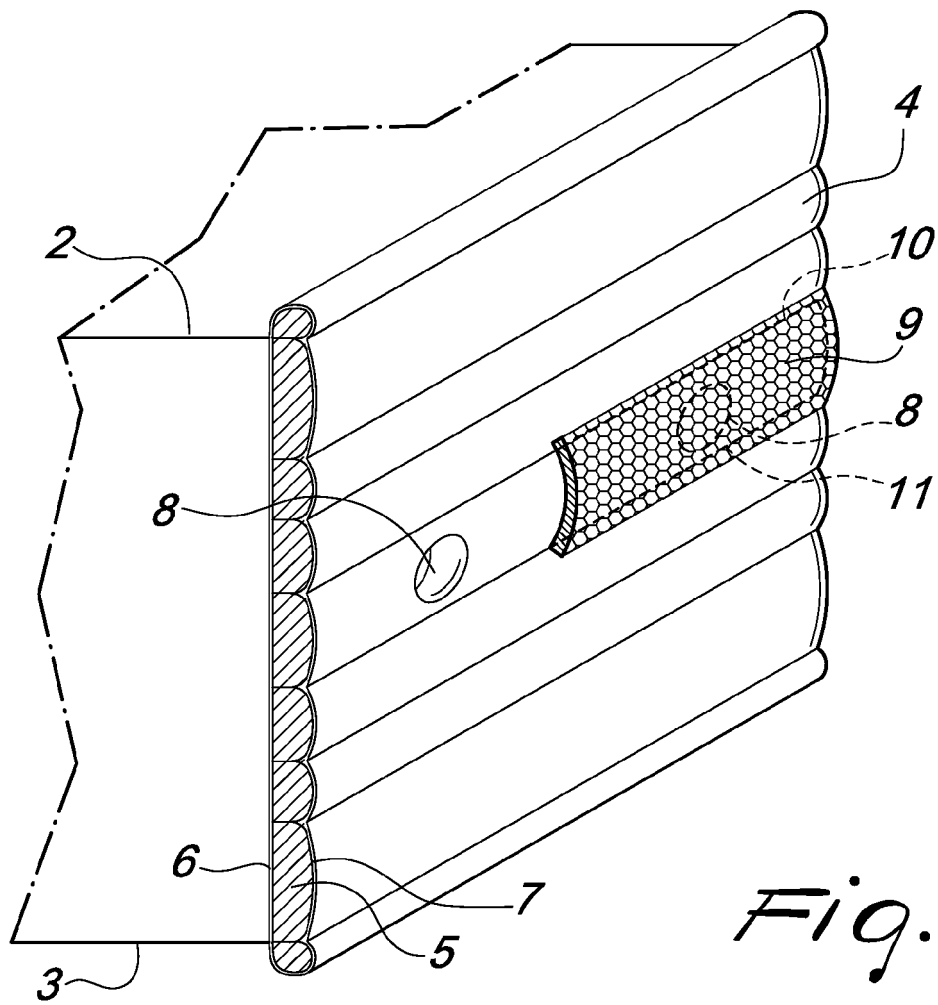
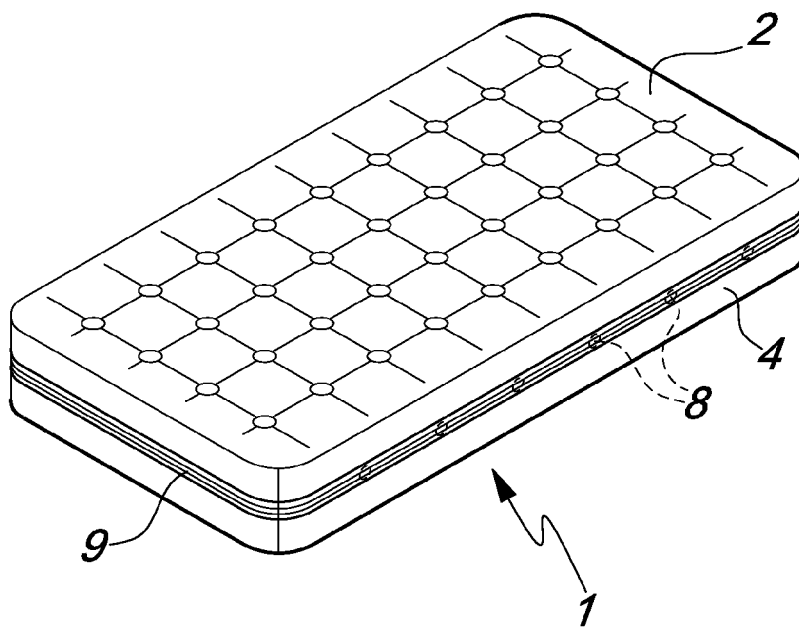
[0019] The disclosures in Italian Utility Model Application No. BO2006U000085 from which this application claims priority are incorporated herein by reference. 5

[0020] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs. 10

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Claims

1. A ventilation device for a mattress (1) composed of two flat and parallel sheets (2, 3), between which an elastic insert is arranged, said sheets being mutually connected by a perimetric band (4), **characterized in that** it comprises a plurality of openings (8) which are formed at least in the perimetric band (4) and a strip (9) of breathable material which is arranged so as to cover said openings (8). 20 25
2. The device according to claim 1, **characterized in that** said strip (9) is fixed so as to cover said openings (8) by means of stitch lines (10, 11). 30
3. The device according to claim 1 or 2, **characterized in that** said openings (8) are formed in the upper and/or lower sheets of said mattress (1).
4. The device according to claim 1 or 2, **characterized in that** said openings (8) and said strip (9) are arranged in the central region of said band (4). 35 40
5. The device according to one of the preceding claims, **characterized in that** said strip is made of a material known commercially by the abbreviation 3D. 45 50 55





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 4821

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 1 February 2008	Examiner Kus, Slawomir
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 11 4821

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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