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(54) **A REST MATTRESS STRUCTURE**

(57) A rest mattress structure is proposed, comprising:

- a case body formed by two overlapping halves (10) (10') faced by their respective open sides, wherein said halves are molded bodies of an elastic material formed by respective boundary walls (11) (11') and respective closure walls (12) (12'), defining corresponding pneumatic chambers (c) (c') which are connected to the atmosphere via holes (13) (13') in boundary walls (11) (11'),
- an intermediate molded body of elastic material (20) which constitutes a shock absorber assembly comprising a wall (21) with uniform thickness, which perimeter is supported between the facing edges of the respective boundary walls (11) (11') of the two halves (10) (10') of the case body, having in its larger faces a plurality of truncated cone shaped protrusions (22) (22') arranged to form several regular orthogonal lines, wherein said protrusions (22) (22') have heights similar to the height of cavity (c) (c') of the respective half (10) (10') of the case body, and
- a peripheral support means (30) of said halves (10= (10') and intermediate body (20).

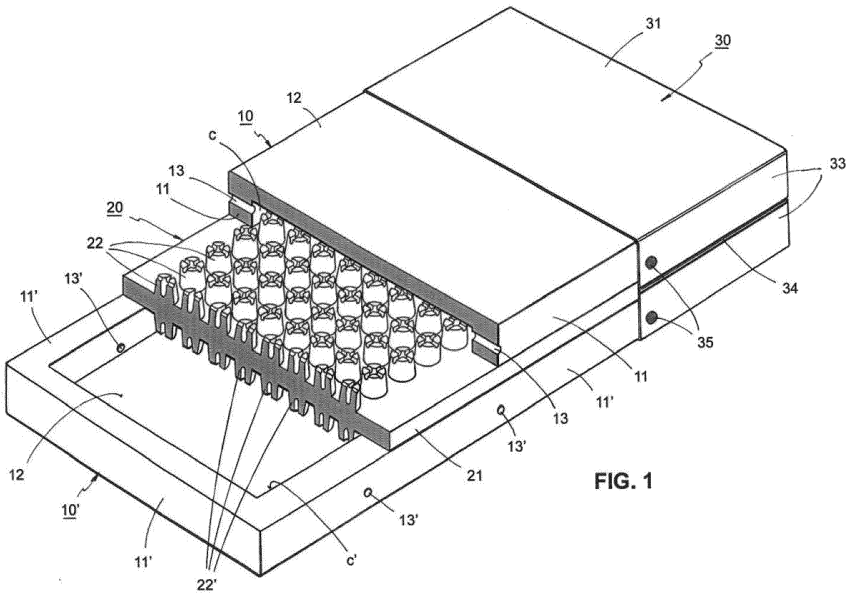

FIG. 1

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Description

[0001] The present invention relates to a new rest mattress structure that efficiently exceeds its prior art.

Background of the art

[0002] Traditional mattresses are made of flexible foam (tdi) with densities between 20 kg. to 35 kg. They are foamed forming big blocks that are cut in the form of layers which are then overlapped to form the mattress structure. These mattresses have short useful time, since they easily become deformed due to the low density and bad quality of the foams. In the mattresses made in such a way, the material used is a heat and moisture transmitter and in the absence of internal ventilation, they accumulate thus affecting the structure of the mattress.

[0003] There also exist a variety of mattresses that include springs in their structure, for instance "pocket" type springs, made with foam (tdi) and having iron or steel springs in its inside. These mattresses form pressure points in support aereas, they become deformed and break easily, thus generating pressure points in support areas and movement during sleep.

[0004] In known structures, springs are associated to a metal cage or framework that limits the useful surface of the spring.

[0005] In consideration of the state of the art and based on the present invention, it is provided a rest mattress structure essentially formed by a case body made by two halves molded in elastic material (foam) and an intermediate body also wholly made of the elastic material obtained by molding, formed by a layer having in its largest sides sets of opposed truncated cone shaped protrusions axially matching forming a shock absorber assembly. The structure is complemented with a cover with a zip closing that keeps the parts together.

[0006] According to a characteristic of the present invention, truncated cone shaped protrusions have in their respective lower bases, a central hole or recess and grooves perpendicular to said hole, thus incrementing the buffering function of said protrusions.

[0007] According to another favorable characteristic, lateral walls of the halves forming the case body are provided with holes for the internal ventilation of the mattress.

[0008] The constructive solution provides the following comparative advantages:

- The mattress can be used on its entire surface, since its structure shows no metallic element.
- The cavities of the molded halves that form the case body conforms respective pneumatic chambers in which foam protrusions forming shock absorbers are housed, thereby avoiding the accumulation of heat and moisture in the mattress structure.
- The position of the protrusions (shock absorbers) gives the mattress good stability and prevents that the movements of a person are transferred to the adjacent areas of the mattress.
- The structure is not deformed thus avoiding the need to rotate the mattress.
- The obtained mattress is fully detachable and washable as well as the cover. Other features and advantages of the object of the invention will be explained in the following description.

Summary of the invention

[0009] For the specified purposes, a resting mattress structure is provided wherein:

- a case body formed by two overlapping halves (10) (10 ') faced by their respective open sides, wherein said halves are molded bodies of an elastic material formed by respective boundary walls (11) (11') and respective closure walls (12) (12 '), delimiting respective pneumatic chambers (c) (c') which are connected with the atmosphere through holes (13) (13 ') of the boundary walls (11) (11'),

- an intermediate molded body of elastic material (20) forming a shock absorber assembly, comprising a wall (21) with uniform thickness which perimeter is supported between the facing edges of the respective boundary walls (11) (11 ') of the two halves (10) (10 ') of the case body, respectively having in its larger faces a plurality of truncated cone shaped protrusions (22) (22') arranged so as to form several orthogonal lines, wherein said protrusions (22) (22 ') have a height equal to the height of the cavity (c) (c ') of the respective half (10) (10') of the case body, and

- a peripheral support means (30) of said halves (10) (10 ') and an intermediate body (20).

Brief description of the drawings.

[0010] Considering the above and other related purposes, the invention consists of construction details and combination of parts as will be understood from the following description referring to the accompanying drawings in which:

Figure 1 is a partially fragmented perspective view of a single mattress having the structure of the present invention.

Figure 2 is a fragmentary plan view of the mattress according to Figure 1.

Figure 3 is a fragmentary side view of the mattress according figures 1 and 2.

Figure 4 is a partial plan view of the intermediate

molded body.

Figure 5 is a cross sectional view along the trace V - V of Figure 4.

[0011] In these figures the same reference numbers indicate equal or corresponding parts.

LIST OF MAIN REFERENCES:

[0012]

(C) Pneumatic chamber formed by the cavity (10).
(C ') Pneumatic chamber formed by the cavity of (10').
(10) Upper half of the case body.
(11) Boundary walls of (10).
(12) Upper closure wall of (10).
(13) Holes of walls (11) for the inlet/ outlet of air from the chamber (c).
(10 ') Lower half of the case body.
(11 ') Boundary walls of (10').
(12 ') Lower closure wall of (10').
(13 ') Holes of walls (11') for the inlet /outlet of air from the chamber (c ').
(20) Intermediate molded body forming a shock absorber assembly.
(21) Wall of (20) with uniform thickness and boundary geometry equal to halves (10) (10').
(22) Upper truncated cone shaped protrusions of wall (21) contained in chamber (c) and having a height similar to the height of said chamber.
(22 ') Lower truncated cone shaped protrusions of wall (21) contained in chamber (c') and having a height similar to the height of said chamber.
(23) Blind axial hole of the smaller base of each protrusion. (22).
(23 ') Blind axial hole of the smaller base of each protrusion. (22').
(24) Grooves perpendicular to the recess (23) formed in the smaller base of each protrusion (22).
(24 ') Grooves perpendicular to the recess (23') formed in the smaller base of each protrusion (22 ').
(30) Cover.
(31) Upper wall of (30).
(32) Lower wall of (30).
(33) Perimeter skirt of (30).
(34) Closing with zipper (30).
(35) Windows of the skirt (33).

Detailed description of the preferred embodiments

[0013] The mattress structure object of this invention essentially comprises a case body molded in elastic material, formed by two overlapping halves (10) (10 ') faced by their respective open sides, an intermediate molded body of elastic material (20) forming a shock absorber assembly, and a surrounding peripheral support means (30) of said halves (10) (10 ') and intermediate body (20).

[0014] The referred structure can be made for all sizes according to conventional mattresses, single size, three quarter size, double size, etc., also the case body may have any typical format, for example square, rectangular, circular, etc.

[0015] Molded parts of elastic material (10), (10 ') and (20) are made by injection molding technique. The material used is preferably flexible foam molded by cold curing, of the type obtained by mixing Polyol and Isocyanate, for example the ones known and used under marks Elastoflex XBF-017CMC and Elastoflex XBF-024, wherein the first component is a polyol mixture containing catalysts, stabilizers and blowing agent and wherein the second component is Methylene diphenyl diisocyanate (modified MDI).

[0016] Please note that the aforementioned parts forming the mattress can be made in other elastic materials with different densities.

[0017] Halves (10) and (10 ') are molded bodies formed by respective boundary walls (11) (11') and respective closure walls (12) (12 '), delimiting cavities that form pneumatic chambers (c) (c'), which are connected with the atmosphere through holes (13) (13') in boundary walls (11) (11 ').

[0018] The intermediate body (20) comprises a wall (21) with uniform thickness which perimeter is supported between the facing edges of the respective boundary walls (11) (11 ') of the two halves (10) (10') of the case body, thus forming the support of the mattress shock absorber assembly. This wall (21) respectively has on its larger faces a plurality of arranged truncated cone shaped protrusions (22) (22 ') forming several matching orthogonal lines. The protrusions (22) (22 ') are contained in the respective pneumatic chambers (c) (c') having heights similar to the height of said cavities.

[0019] In order to improve the shock absorbing function of truncated cone shaped protrusions (22) (22 '), on their smaller bases, they are provided with respective axial blind holes (23) (23') and respective grooves (24) (24 ') perpendicular to said holes.

[0020] Preferably, some of the grooves (24) (24 ') are aligned with some of the holes (13) (13') of the boundary walls (11) (11 ').

[0021] With the inventive solution of this mattress, when applying a force on the surface of the wall (12), said force is concentrated axially compressing immediate protrusions (22) (22 ') and the air can freely exit through the holes (13) (13'), whereas, on withdrawing said pressure the elastic memory of the material causes the shock absorbers to return to the initial format, being the chambers (c) (c') filled again through said holes (13) (13 ').

[0022] The peripheral support (30) is a fabric laminar cover formed according to the geometry of the case body.

[0023] In more detail and according to the example illustrated, the cover (30) comprises a top wall (31), a bottom wall (32) and a perimeter skirt (33) sewn along the

perimeter. The skirt (33) has an opening with zipper closing (34) and windows (35) coincident with the holes (13) (13 ') of the boundary walls of the two halves that form the case body.

[0024] Having specifically described and established the nature of this invention and the way it should be put into practice, sole right and ownership is claimed on:

Claims

1. A rest mattress structure WHEREIN it comprises:

- a case body formed by two overlapping halves faced by their respective open sides, wherein said halves are molded bodies of an elastic material formed by respective boundary walls and respective closure walls, defining corresponding pneumatic chambers, which are connected to the atmosphere via holes in boundary walls,
- an intermediate molded body of elastic material which constitutes a shock absorber assembly comprising a wall with uniform thickness which perimeter is supported between the facing edges of the respective boundary walls of the two halves of the case body, having in its larger faces a plurality of arranged truncated cone shaped protrusions forming several matching orthogonal lines, wherein said protrusions have heights similar to the height of said cavities of the respective half of the case body, and
- a surrounding peripheral support means of said halves and intermediate body.

2. A rest mattress structure, according to claim 1, WHEREIN the truncated cone shaped protrusions on both sides of the intermediate body are arranged in several matching orthogonal lines.

3. A rest mattress structure, according to claim 1, WHEREIN each truncated cone shaped protrusion is provided at the smaller base of a blind axial hole and grooves perpendicular to said hole,

4. A rest mattress structure, according to claims 1 and 3, WHEREIN some of the grooves formed in the smaller bases of truncated cone shaped protrusions are aligned with some of the holes of the surrounding walls of both halves connecting the pneumatic chambers with the atmosphere.

5. A rest mattress structure, according to claim 1, WHEREIN the surrounding peripheral support means is a cover formed according to the geometry of the case body and provided with a perimeter closure, said cover having windows matching with the holes in the boundary walls of the two halves that form the case body.

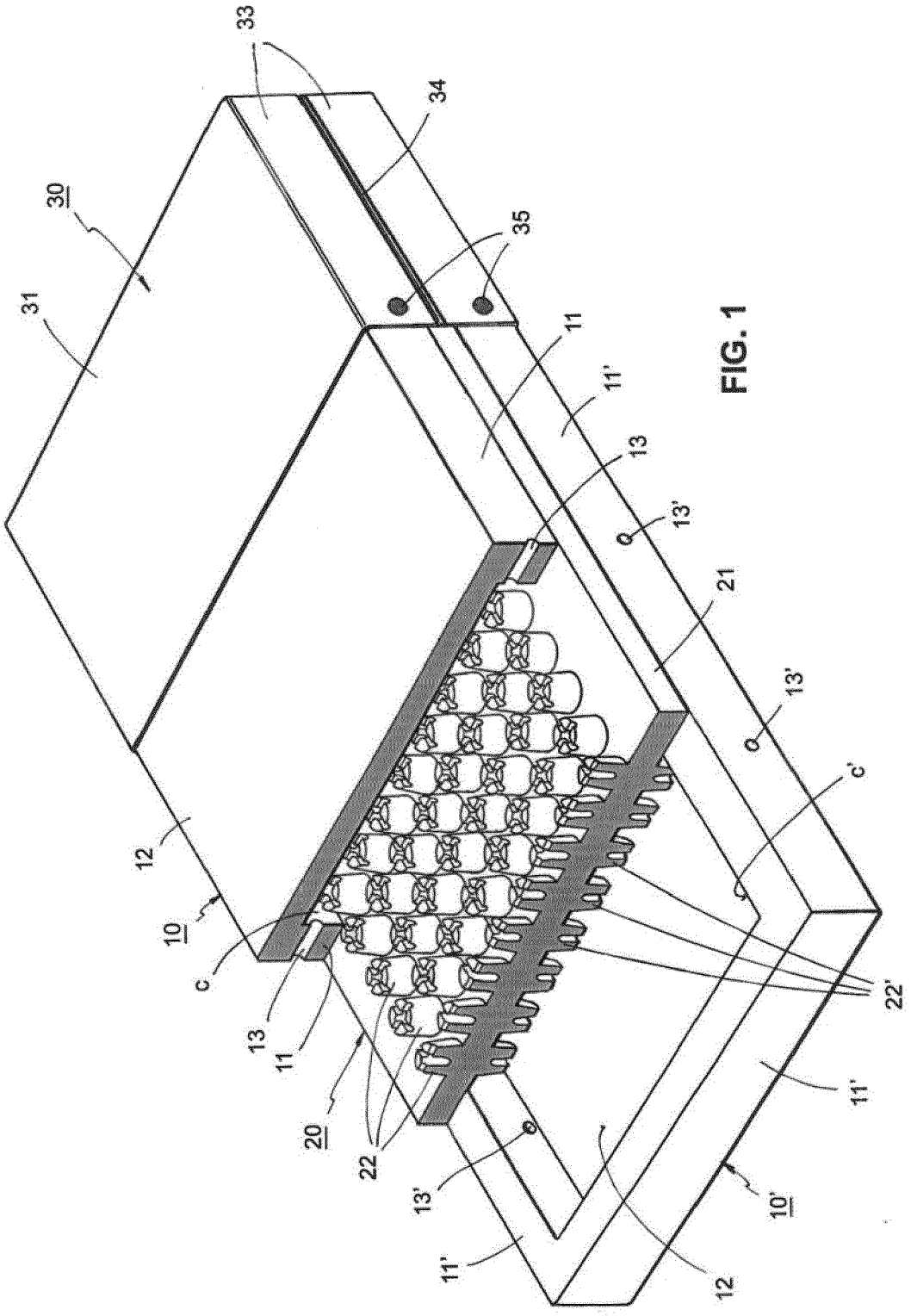


FIG. 1

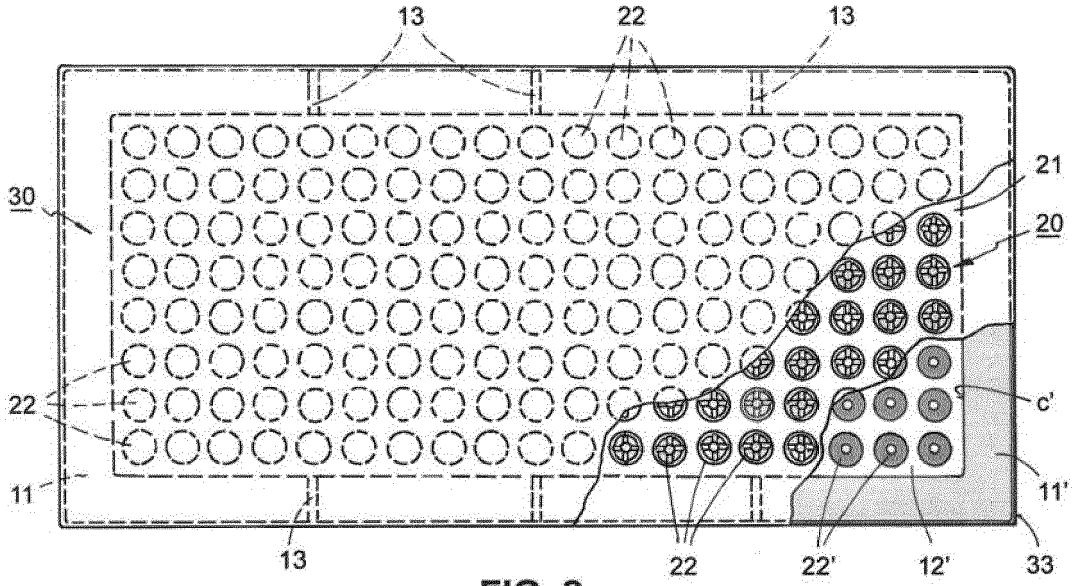
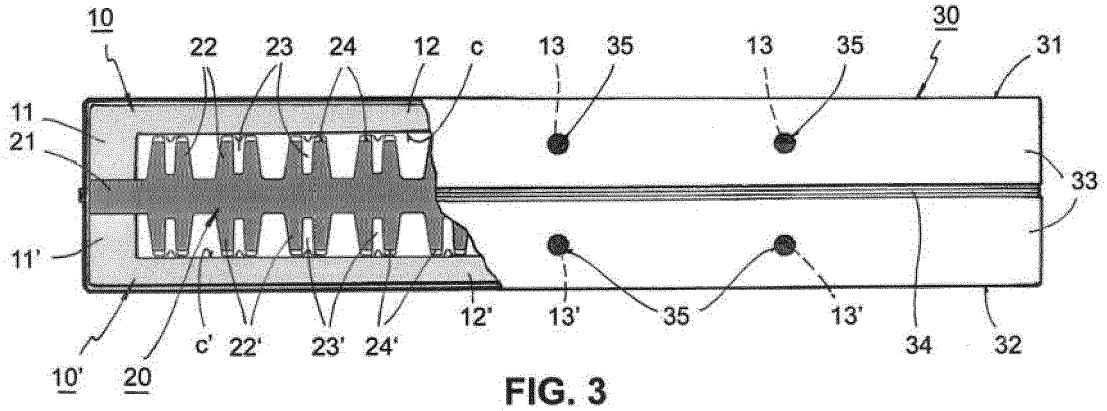

13
22
13
30
21
20
22
c'
11
11'
13
22
22'
12'
33

FIG. 2


10
22
23
24
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c
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30
31
11
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11'
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34
32
10'
20
c'
22'
23'
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FIG. 3

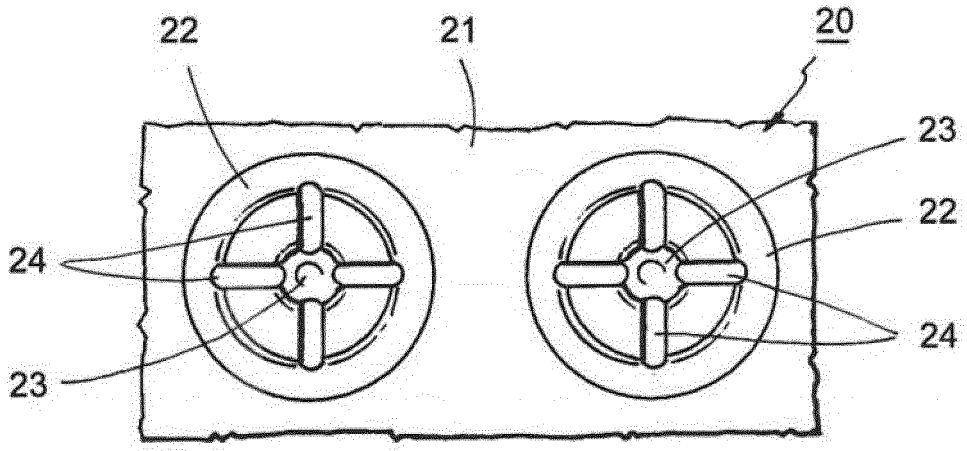

FIG. 4

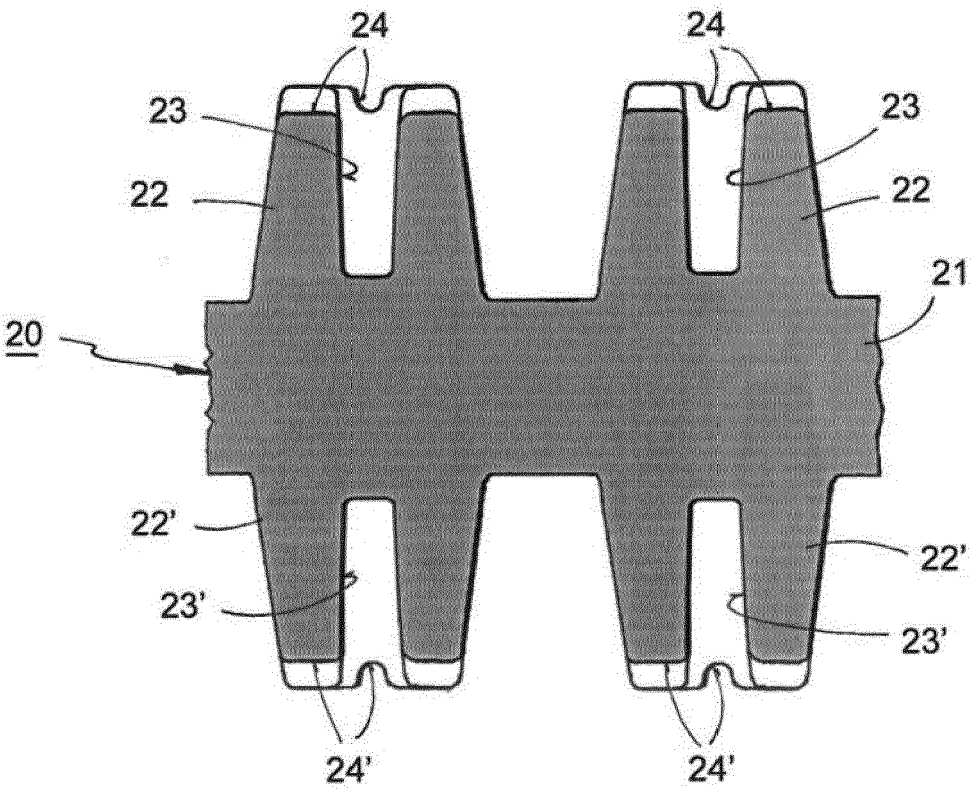

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 15 18 0896

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	ES 2 496 391 A1 (COLCHONES GOMARCO S L) 18 September 2014 (2014-09-18) * page 6, lines 29-33; figures * -----	1-5	INV. A47C27/14 A47C27/15
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A	JP H08 112168 A (TOYO PACKAGE KK; JSP CORP) 7 May 1996 (1996-05-07) * figures * -----	1-5	
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A	BE 554 703 A (VELDEMAN) 29 January 1960 (1960-01-29) * figures * -----	1-5	
A	EP 1 149 547 A1 (BASTIAENS ; BIESMANS) 31 October 2001 (2001-10-31) * figures * -----	1-5	TECHNICAL FIELDS SEARCHED (IPC) A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 January 2016	Kis, Pál

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 18 0896

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