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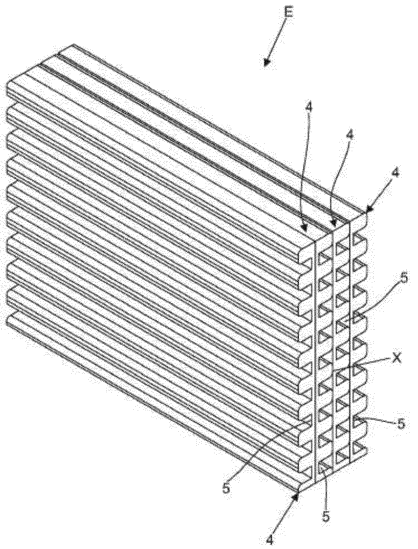
(54) **STRUCTURAL ARRANGEMENT FOR A MATTRESS**

(57) The present patent application refers to a mattress (1) composed of a center (2) and a perimeter edge (3), comprising threads (4) endowed with longitudinal cavities (5) which, when glued or welded to each other, form a mattress (1) capable of reducing costs and bringing significant improvements to the technological sector of mattresses, as well as making the mattress (1) recyclable to form a new mattress (1), whose field of application pertains to the technological sector of mattresses.

FIG. 1



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Description

Introduction

[0001] The present patent application refers to an unprecedented constructive arrangement applied to mattresses, and is designed to reduce costs and bring significant improvements to the technological sector of mattresses which, moreover, at the end of its useful life may be used to form a new perimeter edge by means of recycling.

Field of application

[0002] The innovation now claimed is applied to the technological sector of mattresses.

Technical problem to be solved

[0003] One of the oldest inventions of the world - the mattress - is currently manufactured with perimeter edges and center made of polyurethane foam, or cluster which is comprised of leftovers of polyurethane foams pressed and heated to shape the format and resistance necessary so that said perimeter edge receives the strength applied by the weight of the user.

[0004] However, the perimeter edges and the center of the conventional mattress are made of polyurethane and are not recyclable, which generates an environmental problem regarding the handling of the disposal of the mattresses.

[0005] Another technical drawback of polyurethane foam used in making the perimeter edge and the center of the mattress is that it comprises open cells, which leaves the mattress prone to the proliferation of fungi and bacteria. Nevertheless, being comprised of open cells to acquire resistance and compression, the conventional perimeter edges have their density increased, which leads to the increase in final weight of the mattress.

State of the art

[0006] The current state of the art anticipates certain patent documents which refer to the subject matter in question, such as document BR 102015003989-1 A2, entitled "Spring mattress and process for manufacturing same", which shows a mattress characterized by two sides (3) and (4), cut or manufactured from expanded polystyrene (EPS).

[0007] The above document discloses two sides that make up the edge of the mattress, both comprising a solid format. Therefore, it discloses different sides to the application now claimed, which proposes an edge endowed with hollow longitudinal cavities.

[0008] Document BR 102016003200-8 A2, entitled "ARRANGEMENT APPLIED TO DOUBLE-FACE MATTRESS, PROCESS FOR MANUFACTURING MATTRESS", is comprised of ends made of polyurethane *Polyframe* (2).

[0009] The above document discloses two sides that make up the edge of the mattress, both comprising a solid format made of *Polyframe* foam, which differs from the sides of the application now claimed which, as already mentioned above, is designed to shape a perimeter edge endowed with hollow longitudinal cavities for greater resistance to compression, as well as a reduction in weight of the perimeter edge.

Objectives of the innovation

[0010] It is an objective of the present innovation to propose a mattress that comprises a perimeter edge and its entire center made of polyethylene with closed cellular structure, which contributes with water impenetrability or a water vapor imperviousness; further, it is designed to decrease the possibility of propagating fungi and bacteria in the mattress;

[0011] It is an objective of the present innovation to propose a mattress with a perimeter edge and its center made of polyethylene having lower density and greater resistance to compression, compared to polyurethane foams;

[0012] Lastly, it is an objective of the present innovation to propose a mattress with a perimeter edge and center made of polyethylene, which at the end of its useful life is recycled for the production a new mattress, upon undergoing recycling.

Summary of the innovation

[0013] A **CONSTRUCTIVE ARRANGEMENT APPLIED TO A MATTRESS** presents a structure composed of threads endowed with longitudinal cavities, which are joined by way of plastic weld with a thermal blower, forming a perimeter edge for a mattress.

[0014] The innovation is made of polyethylene comprised of pores or closed cells which contributes with water impenetrability or water vapor imperviousness, as well as decreased possibility of propagating fungi and bacteria in the mattress. However, it may undergo modifications in its resistance and weight, and also be used to shape a new perimeter edge for a mattress at the end of its useful life, by recycling.

Advantages of the innovation

[0015] In short, the main advantages of the perimeter edge are:

- Reduction of weight in the mattresses;
- Reduction of fungi and bacteria in the mattress;
- Recycling;
- Flexibility;
- Resistance to compression;
- Water impenetrability or water vapor imperviousness.

Description of the drawings

[0016] Next, drawings are presented for improved explanation of the patent application in an illustrative, not limitative, manner:

Figure 1: Perspective view of the constructive arrangement applied to a mattress;
Figure 2: Exploded perspective view of the constructive arrangement applied to a mattress;
Figure 3: Front view of the constructive arrangement applied to a mattress;
Figure 4: Perspective view of the constructive arrangement applied to a mattress, showing the closed cells in blown-up detail;
Figure 5: Perspective view of the constructive arrangement applied to a mattress, showing use;
Figure 6: Perspective view showing a conventional perimeter edge used in the current state of the art.

Detailed technical description of the innovation

[0017] The **CONSTRUCTIVE ARRANGEMENT APPLIED TO A MATTRESS** refers to a mattress (1) endowed with a center (2) with a perimeter edge (3), composed of threads (4) endowed with longitudinal cavities (5) which, when welded or glued to each other, form a center (2) and a perimeter edge (3), capable of reducing costs and bringing significant improvements to the technological sector of mattresses, and also of making the center (2) and the perimeter edge (3) recyclable to form a new mattress (1).

[0018] More particularly, the mattress (1) is composed of a structure (E), which is arranged by the center (2) and the perimeter edge (3), comprising threads (4) endowed with longitudinal cavities (5), and the threads (4) are joined by way of glue or plastic weld (X) with the assistance of a thermal blower, forming an innovated mattress (1).

[0019] It is worth pointing out that the mattress (1) is composed of a center (2) and a perimeter edge (3) made of polyethylene, comprising pores or closed cells (S) which contribute with water impenetrability or water vapor imperviousness, and also decreases the possibility of propagating fungi and bacteria in the mattress (1). Nevertheless, it may undergo modifications to improve its resistance to compression and weight, and to be used to shape a new mattress (1) at the end of its useful life, by recycling.

Claims

1. **CONSTRUCTIVE ARRANGEMENT APPLIED TO A MATTRESS** refers to a mattress (1) comprised of a structure (E), composed of a center (2) and a perimeter edge (3), wherein said mattress comprises threads (4) endowed with longitudinal cavities (5), wherein the structure (E) is sufficiently capable of being joined by glue or plastic weld (X); the center (2) and the perimeter edge (3) comprise pores or closed cells (S), forming a mattress (1).

FIG. 1

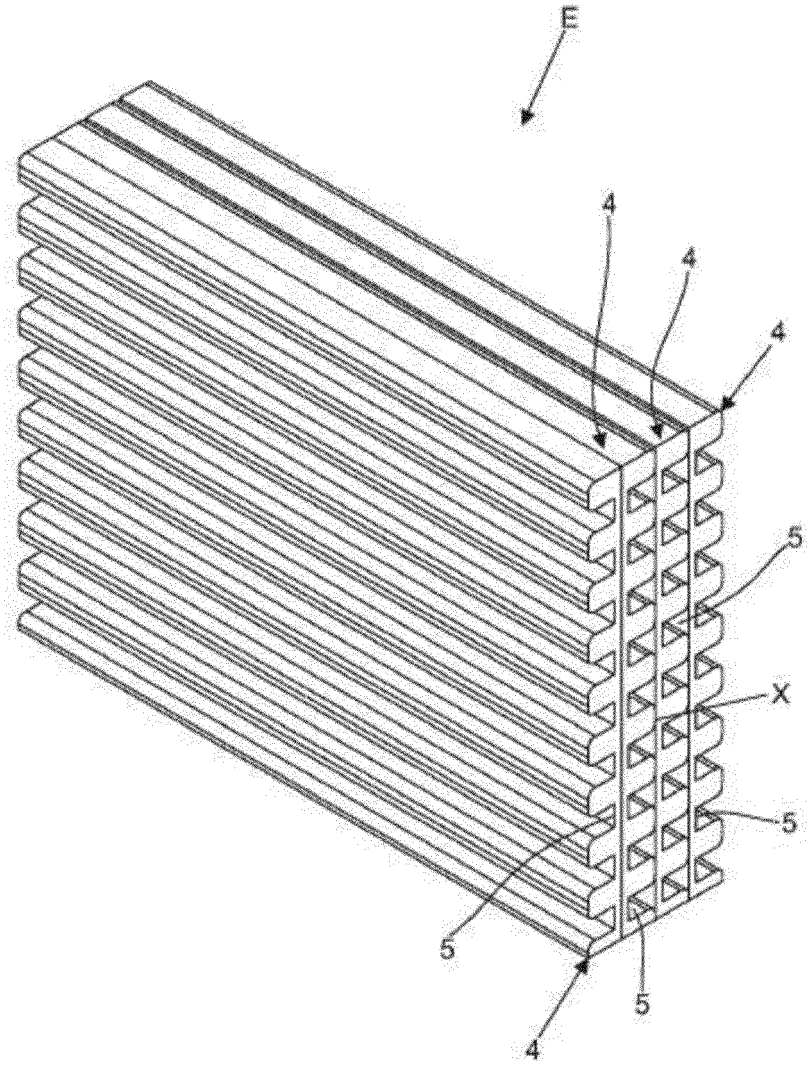


FIG. 2

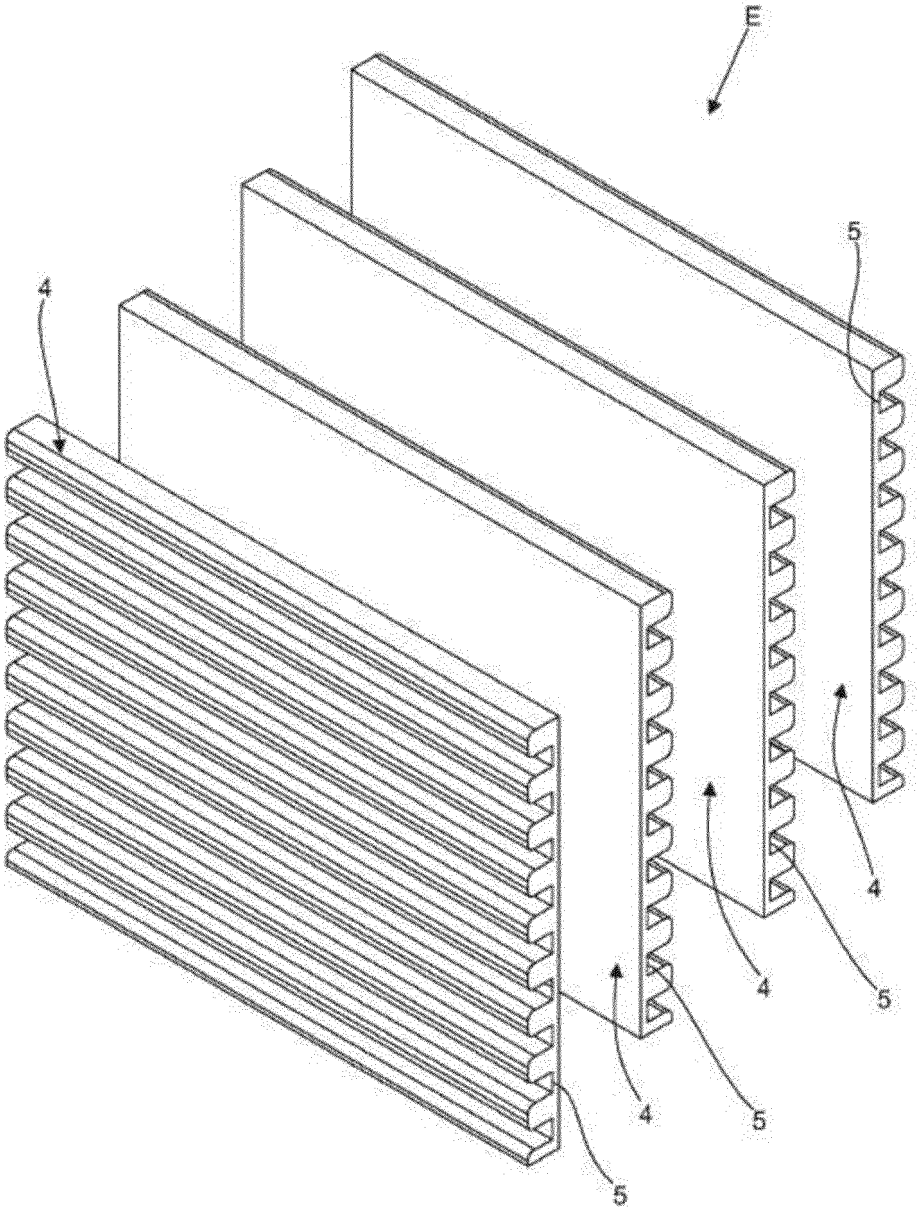


FIG. 3

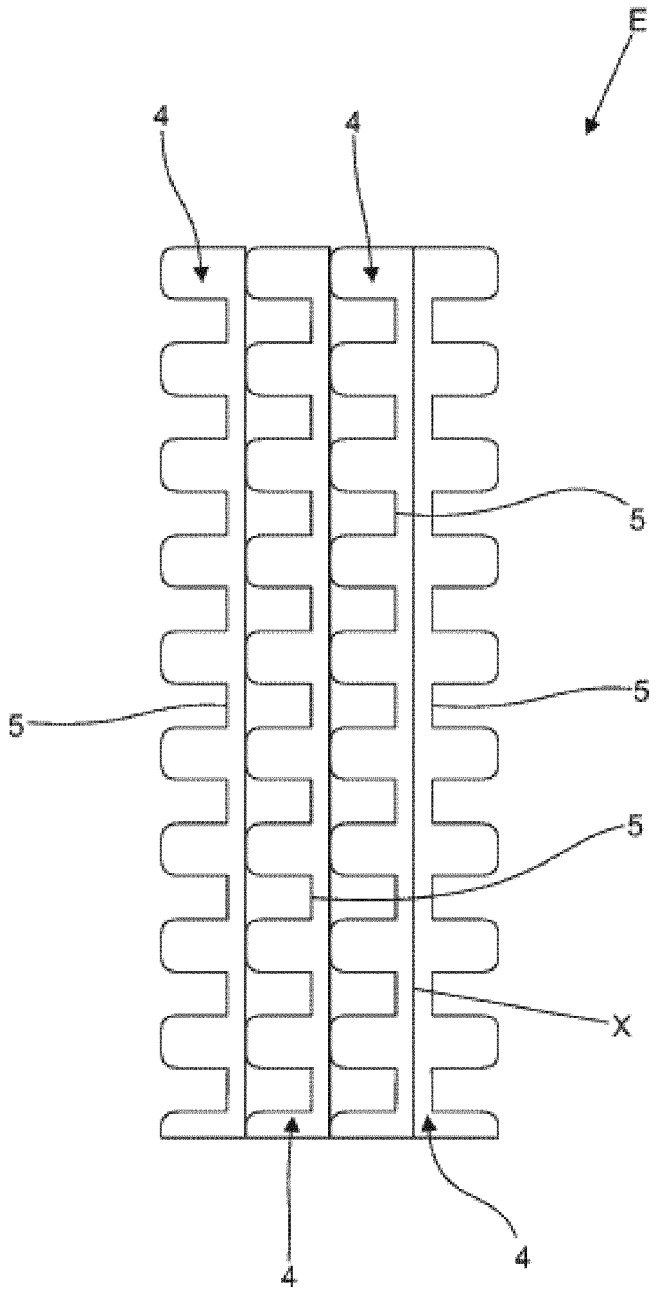


FIG. 4

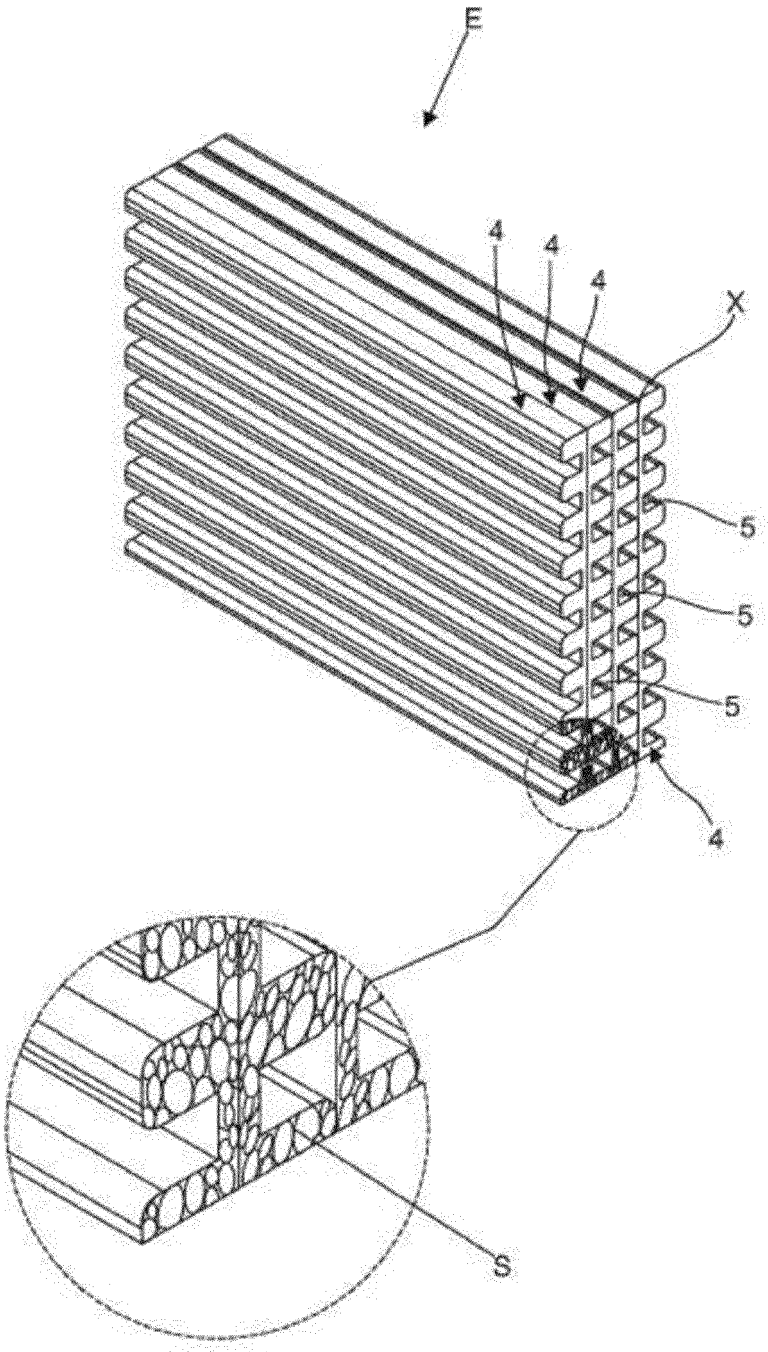


FIG. 5

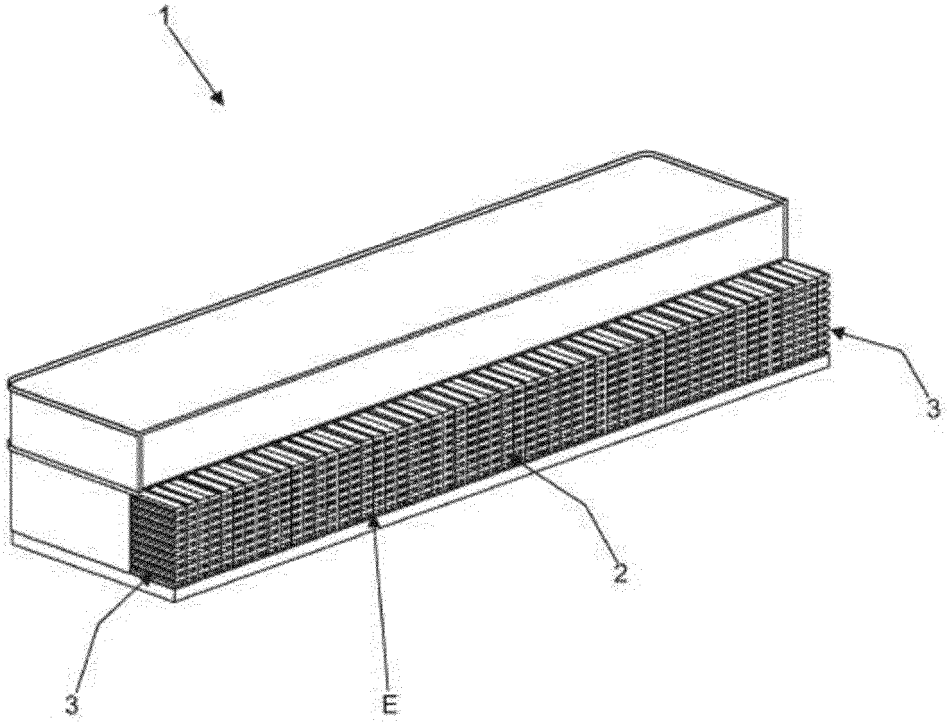
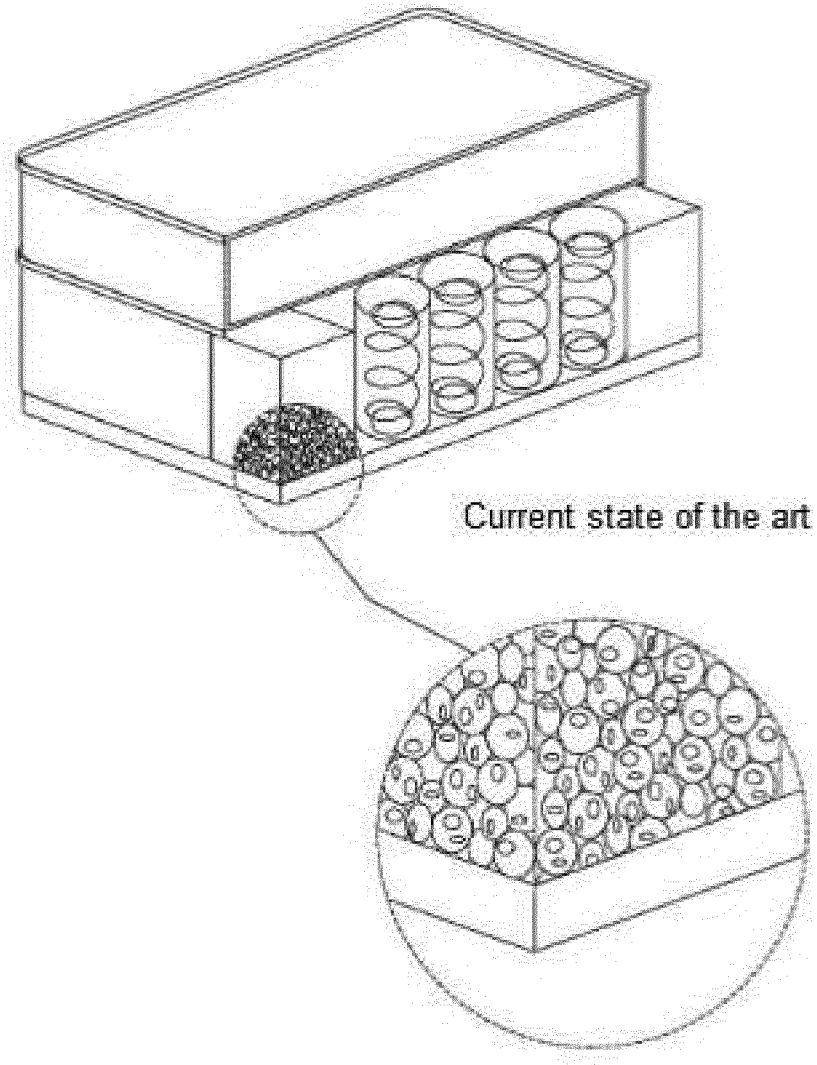


FIG. 6



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

A47C 27/14 (2006.01), A47C 27/15 (2006.01), A47C 27/05 (2006.01), A47C 27/06 (2006.01), A47C 23/00 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A47C27, A47C23; CPC: A47C27/142, A47C27/144, A47C27/05, A47C27/066, A47C23/007

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

BANCO DE PATENTES DO INPI-BR

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ESPACENET, CLARIVATE ANALYTICS

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A	DE 2930750 A1 (METZELER SCHAUM GMBH) 19 February 1981 (1981-02-19) The whole document	1
A	US 8375493 B2 (SEALY TECHNOLOGY LLC [US]; DEMOSS LARRY K [US]; YOUNG JULIAN T [US]; WITHERELL TIMOTHY M [US]; PAGE CHRISTOPHER D [US]) 19 February 2013 (2013-02-19) The whole document	1

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
27/02/2019	07/03/2019

Name and mailing address of the ISA/**BR**

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International application No.
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