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(54) **DETACHABLE MODULAR SOFA**

(57) The invention describes a detachable modular sofa comprising a platform (1), seats and shaping elements (3), such as backrests and armrests, wherein the sofa comprises a structure (2) intended to be anchored to a base board (12) and to the platform (1), by means of anchoring legs (5), and the shaping elements (3) comprise a groove (9) intended to house the structure (2), so that the sofa is assembled by inserting the anchoring legs (5) of the structure (2) into the drill holes of the base board (12) until the support bars (6) rest on it and, subsequently, inserting the structure (2) into the groove (9) of the shaping element (3) to insert the assembly into holes (4) comprising the platform (1), which provides the configuration with great flexibility and great rigidity to the assembly.

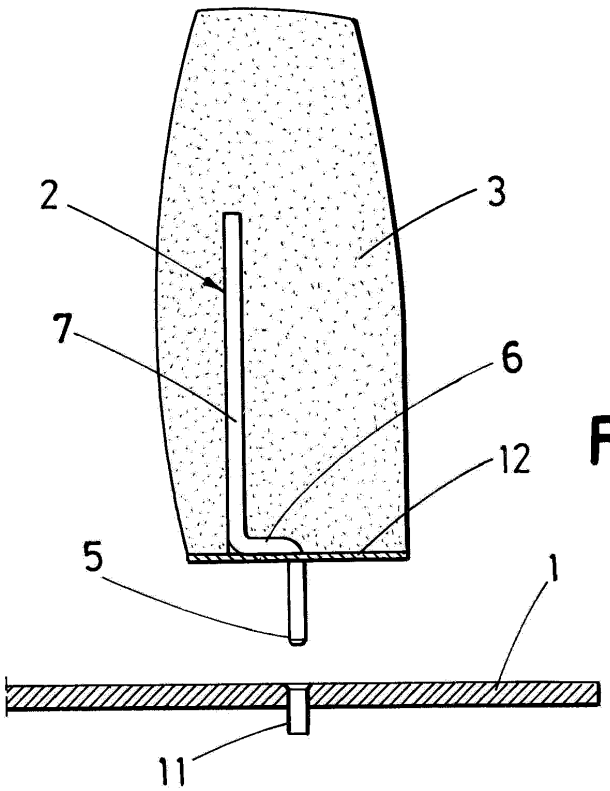

FIG.9

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Description

OBJECT OF THE INVENTION

[0001] This invention refers to a modular sofa comprising a platform on which seats are located, as well as shaping elements, such as backrests, armrests and the like, which can be detached and relocated to other positions on the platform so that different configurations of the sofa are achieved depending on the use to which it is to be put.

[0002] It finds a special application in the field of the sofa manufacturing industry.

TECHNICAL PROBLEM TO BE SOLVED AND BACKGROUND TO THE INVENTION

[0003] In the current state of the art, the manufacture of armchairs and sofas has evolved from sober and very immobile shapes to offering users more and more features, so that they can choose from a wide variety depending on their needs. These features include making the backrests reclinable, making the lower apron extend to make the footrest, providing openings for storing objects, among others.

[0004] Another way they have evolved has been to give differentiating shapes to each model so that they provide the originality sought for each space. The problem with these models is that they are not modular, which means that they can only be used for the purpose for which they are intended.

[0005] Modular sofas have also been developed wherein the option consists of making them larger or smaller. However, in practice, this modularity consists of achieving a reduction in the manufacturing cost by having standard elements for manufacturing and not so much in terms of the modularity of the models.

[0006] This invention goes a step further and presents a modular and detachable sofa, so that, either by incorporating new elements, or even just with the same elements that comprise it, different styles of sofa can be configured simply, immediately and intuitively.

DESCRIPTION OF THE INVENTION

[0007] In order to achieve the objectives and avoid the disadvantages mentioned above,
this invention describes a detachable modular sofa comprising a platform, seats and backrests and/or armrests, the latter elements being referred to as shaping elements. In fact, the backrests can be of different heights to configure high or low backrests and, in addition to the armrests, the shaping elements can also include tables, chests or shelves, for example, greatly extending the configuration capacity of the sofa.

[0008] The sofa has the peculiarity that each shaping element, and especially the backrests and armrests, being the elements that suffer most stress when a user leans on them, comprises a groove for inserting a structure. The structure is rectangular in shape and preferably symmetrical. It incorporates a main bar at each end and each one of these extends to form a support bar and an anchoring leg. Each one of these extensions is broken, so that the support bar is perpendicular to both the main bar and the anchoring leg, which, in turn, is parallel to the main bar. The structure also incorporates reinforcing rods that join the main bars, with the aim of providing rigidity to the shaping element.

[0009] The sofa also comprises a base board intended to act as the base of each of the shaping elements.

[0010] The support bars are intended to rest on the base board while the anchoring legs are intended to be anchored to the base board through the drill holes provided.

[0011] Once by the structure, the base board and the shaping element has been assembled, the assembly is inserted into holes included in the platform by means of the support legs, which, together with the base board, create a support surface that provides great rigidity to the joint of the shaping element in the platform of the sofa.

[0012] Thus, as mentioned above, the anchoring leg breaks to form the support bar perpendicularly and the support bar breaks again to form the main bar, also perpendicularly, so that, when the anchoring legs are inserted into the platform, the support bars are supported on the base board and this, in turn, on the platform so that, when pressure is exerted on the main bars, by being leant on by the user, they support a stress that would otherwise be unviable.

[0013] For its part, the platform comprises a plurality of holes distributed around the entire perimeter area, into which the anchoring legs are inserted. In fact, on the one hand, to ensure that the anchoring legs are better fastened, the holes preferably incorporate plastic bushes as a lining for the hole in order to, on the one hand, prevent the hole from being deformed by friction due to use and, on the other hand, increase the area of contact between the anchoring leg and the platform, providing greater rigidity to the fastening.

[0014] Furthermore, both the base board and the supporting rod that joins the support bars, preferably incorporate drill holes intended to receive fastening screws to fasten the two elements and thus provide even greater rigidity to the sofa.

[0015] On the other hand, the screws can even be manually operated, in order to completely avoid the use of tools to modify the configuration of the sofa. In fact, instead of screws, it is also possible to use any type of fastening, with the sole condition being that it is reversible.

[0016] For their part, the shaping elements are manufactured as a single piece, in polyurethane, for example, and, as mentioned above, comprise a groove into which the structure is inserted to form the sofa.

[0017] In this way, the sofa is formed by inserting the anchoring legs of the structure into the drill holes of the

base board where the support bars are supported, and then inserting the structure into the groove of the shaping element, and, subsequently, inserting the assembly into the holes in the platform by means of the anchoring legs, which gives the sofa great rigidity and enormous flexibility in its configuration, allowing the creation of multiple shapes by simply incorporating the elements required on each occasion.

[0018] It should be borne in mind that, in order to prevent the shaping element from becoming detached from the base board, once the assembly has been assembled, it can be placed in a cover from which only the anchoring legs protrude. On the other hand, the base board can optionally be fastened to the structure using screws.

[0019] The invention allows a multi-purpose or modular sofa in which the location of the shaping elements can be changed, with the seats facing in one direction or another, or by putting the backrests in the position for the armrests or vice versa.

[0020] The elements can be interchanged manually and quickly without the use of any tools. It should be borne in mind that the platform on which all the options are implemented is a thin base barely two centimetres thick. The invention allows, with such a small thickness, the shaping elements, especially the backrests and armrests, to have the required thickness and rigidity without it being necessary to screw them to the platform.

[0021] To increase the rigidity and consistency of the sofa, bushes can be inserted into the holes where the anchoring legs of the structure will subsequently be inserted, creating a tighter joint with a larger contact surface. This improved joint, and the fact that the support bar rests on the platform by means of the base board, gives the strength and resistance required to provide the stability and comfort sought.

[0022] The combination of all these elements also gives a flexibility that provides exceptional comfort.

[0023] On the other hand, the assembly system, by means of the groove made in the shaping elements for the insertion of the structure, fastened to the base board, as well as fastening the assembly to the platform, offers a new construction solution in which neither glues nor adhesives are used, being highly recyclable at the end of its useful life.

BRIEF DESCRIPTION OF THE FIGURES

[0024] To complete the description of the invention and in order to help with a better understanding of its characteristics, in accordance with a preferred embodiment of the same, a set of drawings is provided in which the following figures are shown for illustrative and non-limiting purposes:

- Figure 1 represents a perspective view of the sofa of the invention.
- Figure 2 represents a perspective view of the sofa of the invention with some elements detached to see the functionality.
- Figure 3 represents a perspective view of the platform where the elements of the sofa are located.
- Figure 4 represents perspective views of various types of structures used in the formation of the sofa depending on the size of the part to be incorporated.
- Figure 5 represents an exploded view of the structure and the base board, showing the fastening screws.
- Figure 6 represents a shaping element in position to be inserted into the structure that is already fastened to the base board.
- Figure 7 represents the assembly formed by the shaping element, the structure and the base board, which has already been assembled and is ready to be located on the platform.
- Figure 8 represents figure 7 wherein the shaping element has been sectioned through an intermediate area to show the grooving where the structure is housed.
- Figure 9 represents a structure inserted into a shaping element and with the base board already assembled before being inserted through the anchoring legs into the holes of the platform, where the bushes have been previously incorporated.
- Figure 10 represents the shaping element together with the structure and the base board represented in figure 9 already inserted into the bushes of the holes of the platform.

[0025] A list of the references used in the figures is provided below:

1. Platform.
2. Structure.
3. Shaping element.
4. Holes.
5. Anchoring leg.
6. Support bar.
7. Main bar.
8. Reinforcing rod.
9. Groove.

10. Screw.

11. Bush.

12. Base board.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0026] This invention refers to a modular sofa whose parts are detachable so that it can be configured in different ways according to the needs of the user. In this way, there is a variety of shaping elements (3), which, depending on their location, achieves a different effect on the sofa.

As represented in figure 1, the sofa, as well as being configured in a standard way, can also be configured in a "you&me" fashion, with the users seated facing each other.

[0027] Figure 2 represents the sofa with some of the shaping elements (3) detached to show the simplicity of configuring a new shape.

The main elements that form the sofa are: a platform (1), as represented in figure 3, a structure (2), as represented in figure 4, a base board (12), as represented in figure 5 and shaping elements (3), as represented in figure 6.

The platform (1) serves as a base for locating the seats and the shaping elements (3), including the backrests and armrests of the sofa.

The structure (2), preferably metallic, is responsible for providing rigidity to the assembly.

The base board (12) is responsible for providing rigidity to the shaping element (3), for which it is preferably fastened to the structure (2) by means of screws (10).

[0028] It should be noted that among the shaping elements (3), in addition to backrests and armrests, these may also include elements such as tables or shelves, among others.

The structure (2) can represent various configurations, as shown in figure 4, depending on the shaping element (3), which is intended to house either an armrest or a low or high backrest.

In this way, the assembly process for a given sofa configuration consists, once the seats have been located on the platform (1), in positioning the different structures (2), fastened to the base boards (12) with screws (10) and by inserting the anchoring legs (5) into the drill holes, to insert the structures (2) into the grooves (9) of the different shaping elements (3) and then inserting the assembly into the holes (4) of the platform (1) through the anchoring legs (5).

Figure 5 represents the structure (2) before being inserted into the base board (12). Also shown are the screws (10), which are intended so that, once it has been inserted, the two elements are fastened more securely.

This figure also shows a configuration of the structure (2), which is preferably symmetrical, to provide flexibility when it comes to configuring different designs. It is made up of anchoring legs (5), preferably two, support bars (6) as a continuation of the anchoring legs (5), in a broken shape, intended to rest on the base board (12) to give rigidity to the shaping element (3) when a user exerts pressure on it, main bars (7), intended to span the volume occupied by the shaping element (3) vertically, and reinforcing rods (8) that join the main bars (7) to provide the rigidity required and support bars (6) to provide greater stability.

[0029] Once the structure (2) has been inserted and fastened to the base board (12), the next step consists of inserting the shaping element (3), as shown in figure 6, to arrive at the final situation shown in figure 7.

For assembly, the shaping element (3) includes a groove (9) intended to house the structure (2). In figure 8, the shaping element (3) has been sectioned to clearly show the assembly represented in figure 7.

Figure 9 represents a shaping element (3), in which a structure (2) and the base board (12) have already been assembled, in order to be inserted into the platform (1) by inserting the anchoring legs (5) into the holes (4), where bushes (11) have been previously inserted.

Figure 10 represents the elements of figure 9 with the structure (2) already inserted into the holes (4) of the platform (1).

The use of bushes (11) in the holes (4) is optional, although very interesting and recommended whenever possible. The effect it causes is to increase the thickness of the contact area of the anchoring leg (5) in the hole (4). Given that the platform is usually no more than two centimetres thick, the forces transmitted to the platform (1) by the structure (2) when depressed by an area away from the support bar (6), for example, when used as a backrest and leant on by a user, creates torque on the walls of the hole (4) that can easily damage it.

One advantage that the modular sofa of the invention is that each and every one of its component elements is fully independent and detachable, making it 100% recyclable.

[0030] The system designed allows the required rigidity to be provided to the shaping element (3) so that it can function as an armrest or a backrest without the need to use any kind of adhesive, which facilitates recycling tasks when it is no longer in use. Furthermore, assembly can be undertaken without the need for tools, it being possible to use the screw (10) for manual fastening or can even be optional. For their part, the shaping elements (3) are manufactured as a single piece, which is preferably polyurethane, sheathed inside a cover.

Finally, it should be borne in mind that this invention should not be regarded as being limited to the embodiment described herein. Other configurations can be realised by those skilled in the art in light of this description. Accordingly, the scope of the invention is defined by the following claims.

Claims

1. Detachable modular sofa comprising a platform (1), seats and shaping elements (3), such as backrests and armrests, **characterised** because it comprises:

    a structure configured by means of main bars (7) that extend by means of support bars (6) and anchoring legs (5) and reinforcing rods (8), the support bars (6) being perpendicular to the main bars (7) and the anchoring legs (5),
    a base board (12) intended to be fastened to the structure (2),

    wherein,

    the anchoring legs (5) are configured to be anchored in drill holes located in the base board (12);
    the support bars (6) are intended to rest on the base board (12);
    each of the shaping elements (3) comprises a groove (9) intended to house the structure (2);

    so that:

    the sofa is formed by inserting the anchoring legs (5) of the structure (2) into the drill holes of the base board (12) until the support bars (6) rest thereon and, subsequently, by inserting the structure (2) into the shaping element (3) to insert the assembly into the holes (4) of the platform (1), and
    the fastening of the structure (2) to the base board (12) by means of support bars (6) is configured to stiffen the joint between the shaping element (3) and the platform (1) when a user exerts pressure on it.

2. Detachable modular sofa, according to claim 1, **characterised in that** the fastening of the structure (2) to the platform (1) is reinforced by means of screws (10).

3. Detachable modular sofa, according to claim 2, **characterised in that** the screws (10) are for manual fastening.

4. Detachable modular sofa, according to claim 1, **characterised in that** it comprises bushes (11) intended to be inserted into the holes (4) of the platform (1) by way of reinforcement.

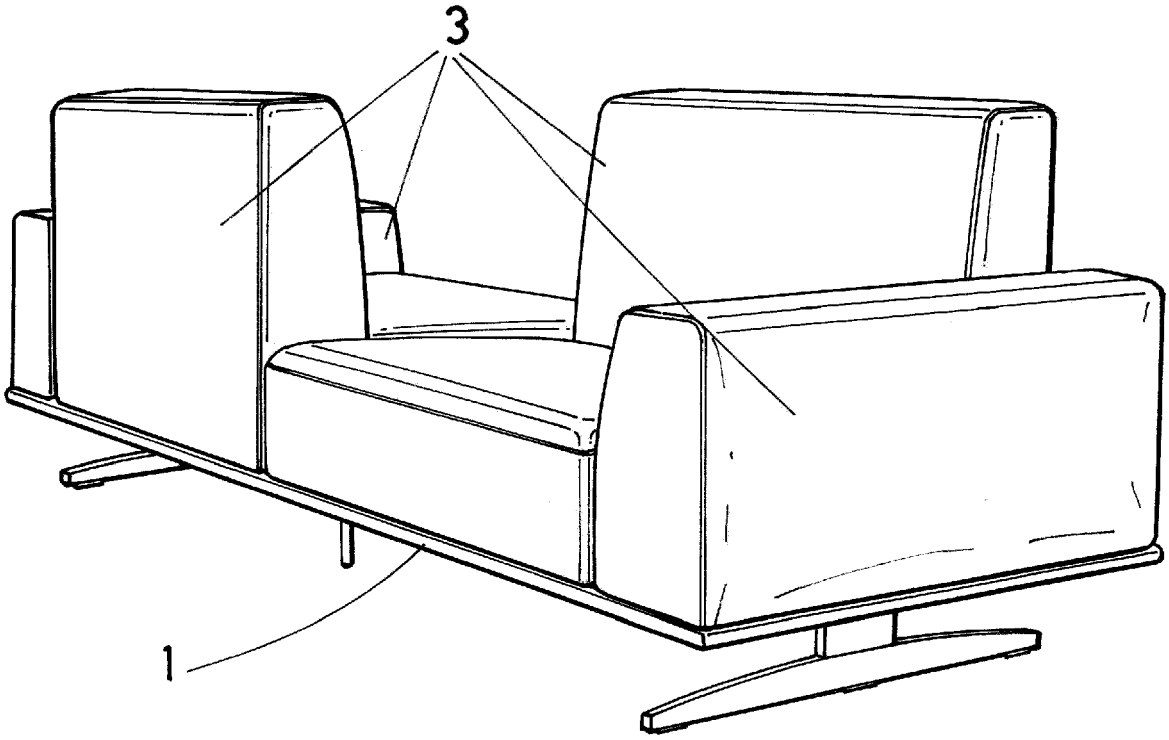

FIG.1

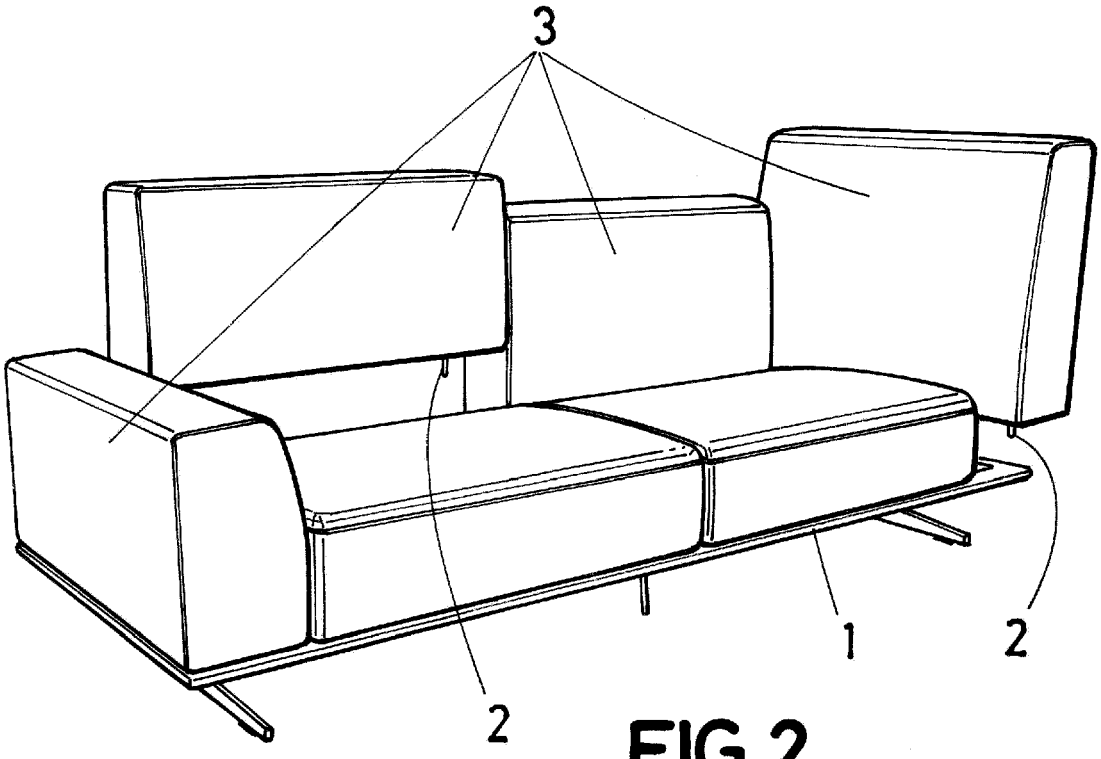

FIG.2

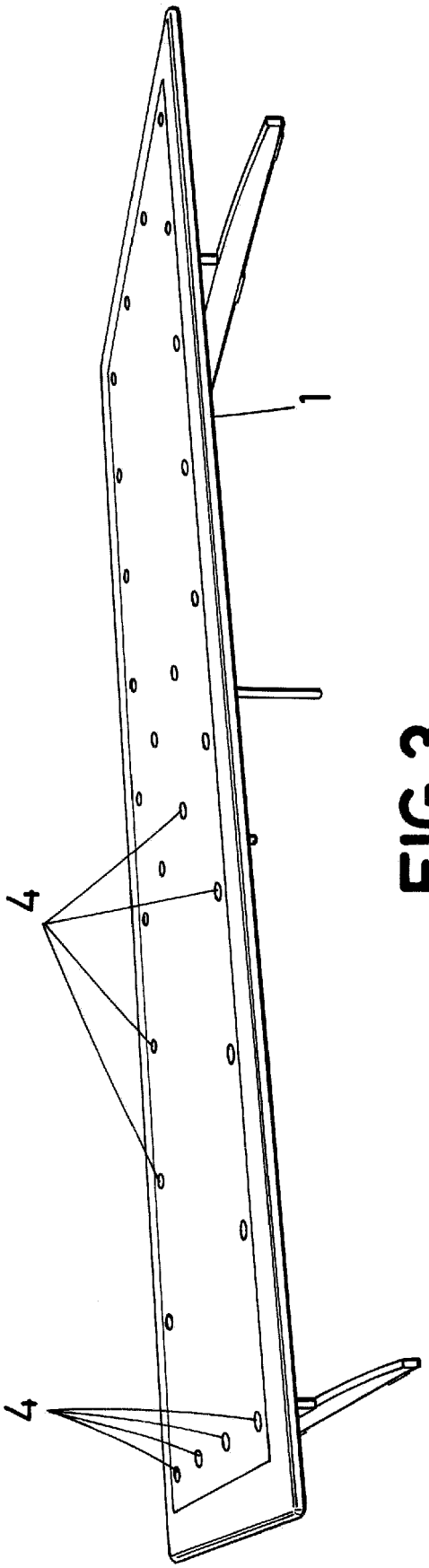

FIG.3

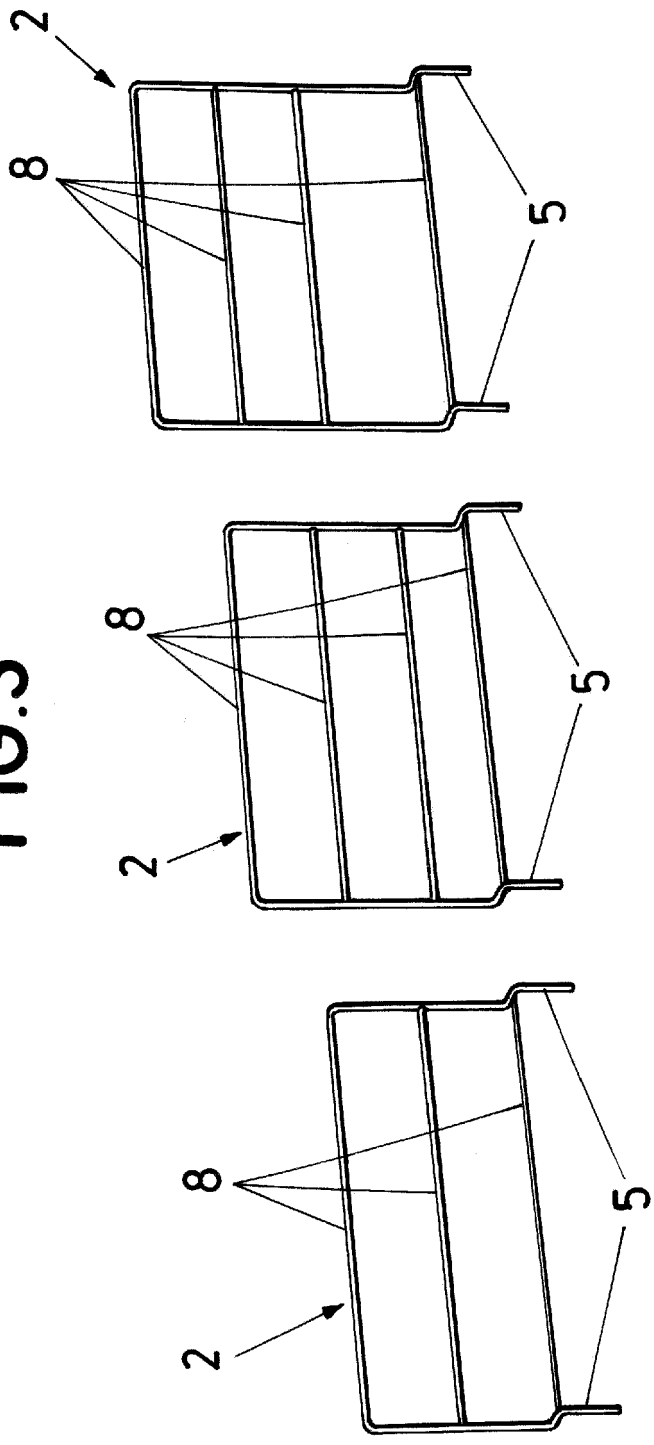

FIG.4

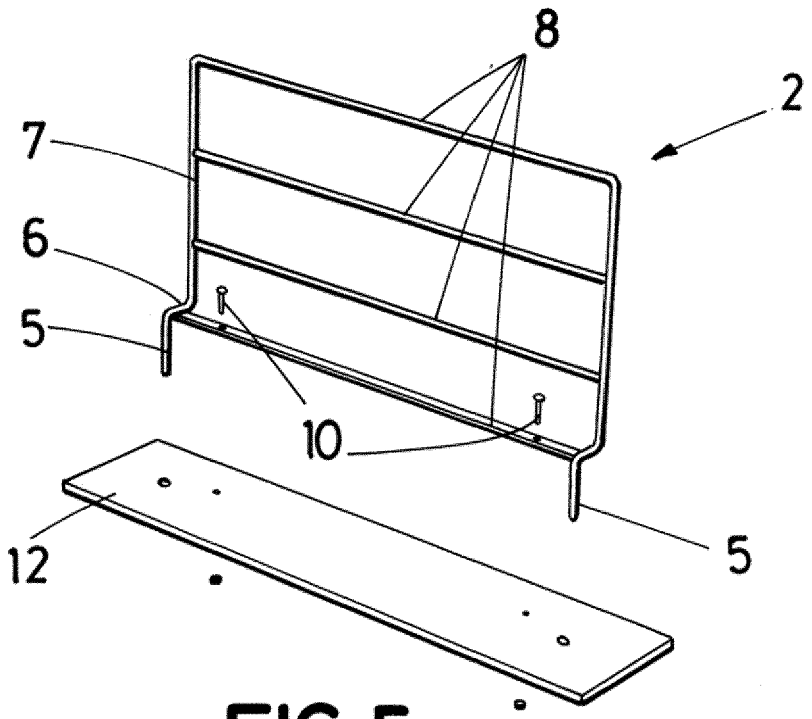

FIG.5

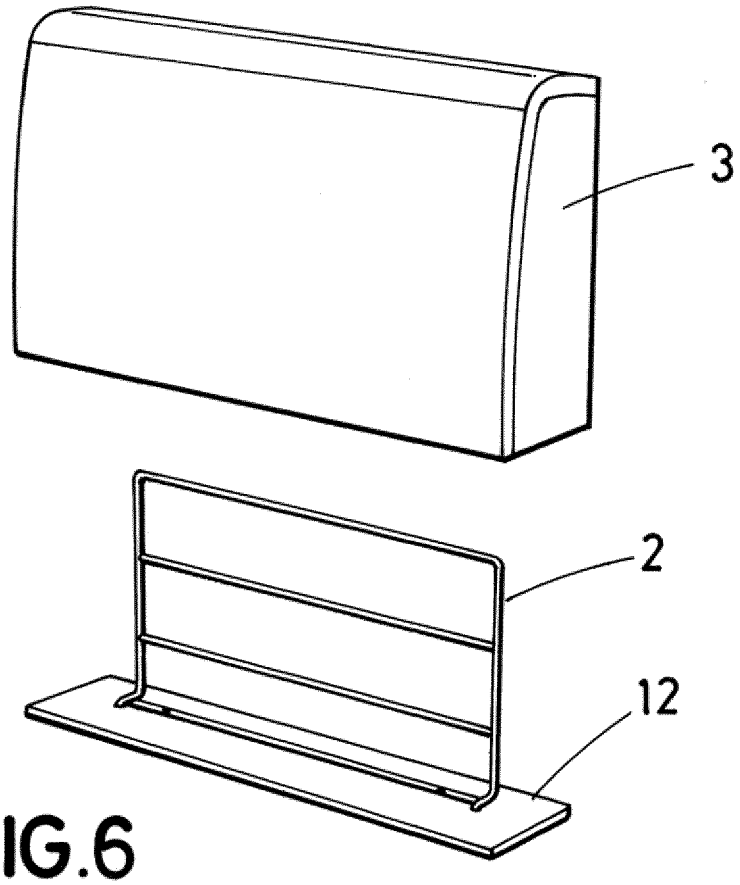

FIG.6

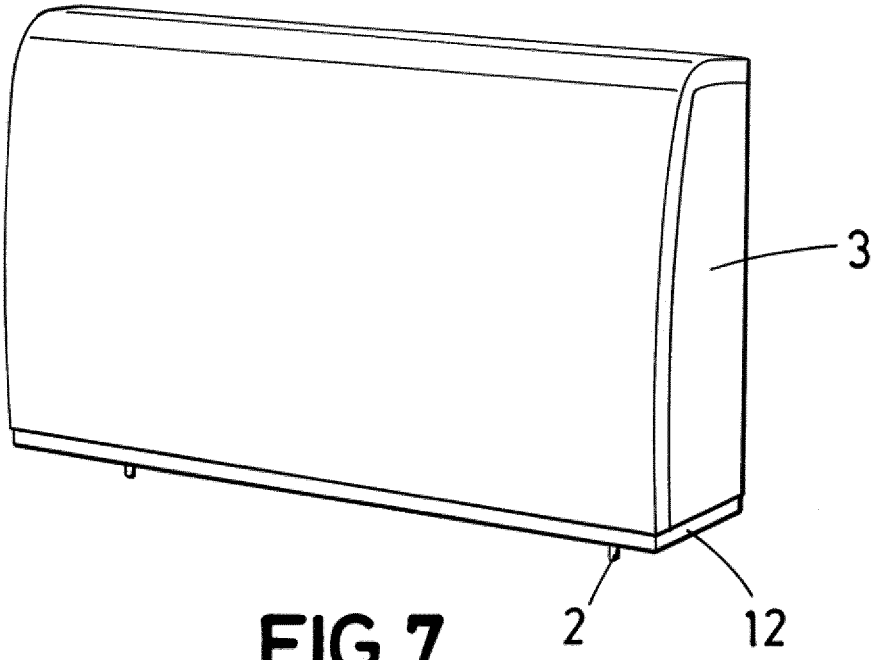

FIG.7

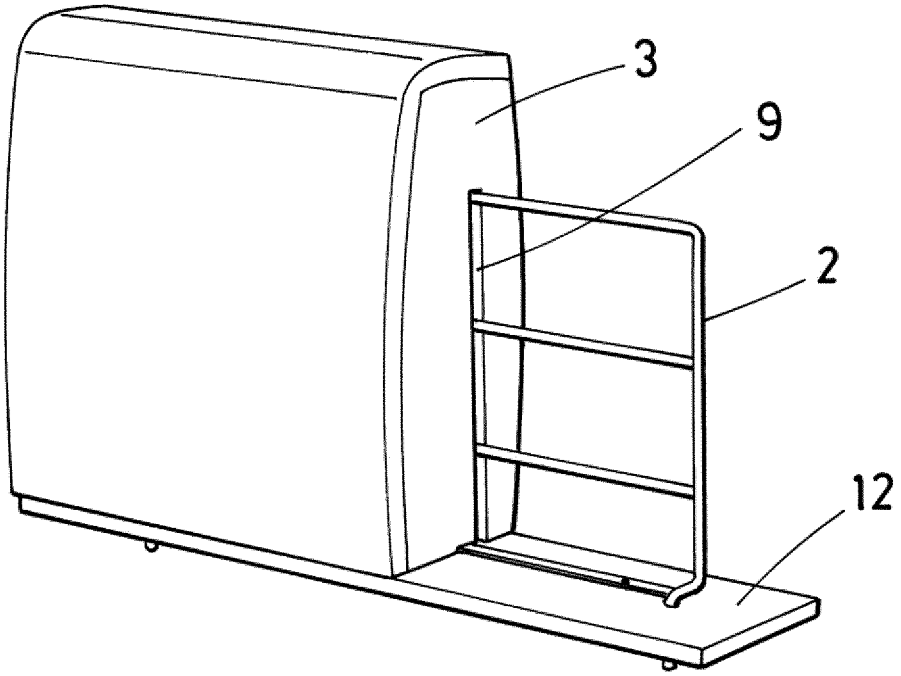

FIG.8

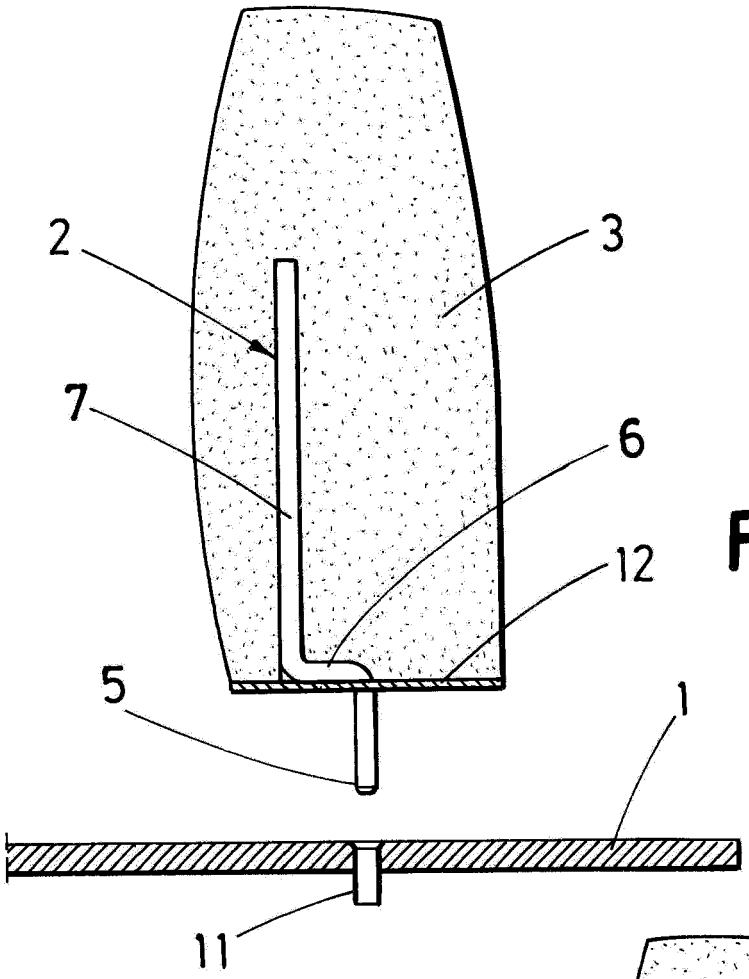

FIG.9

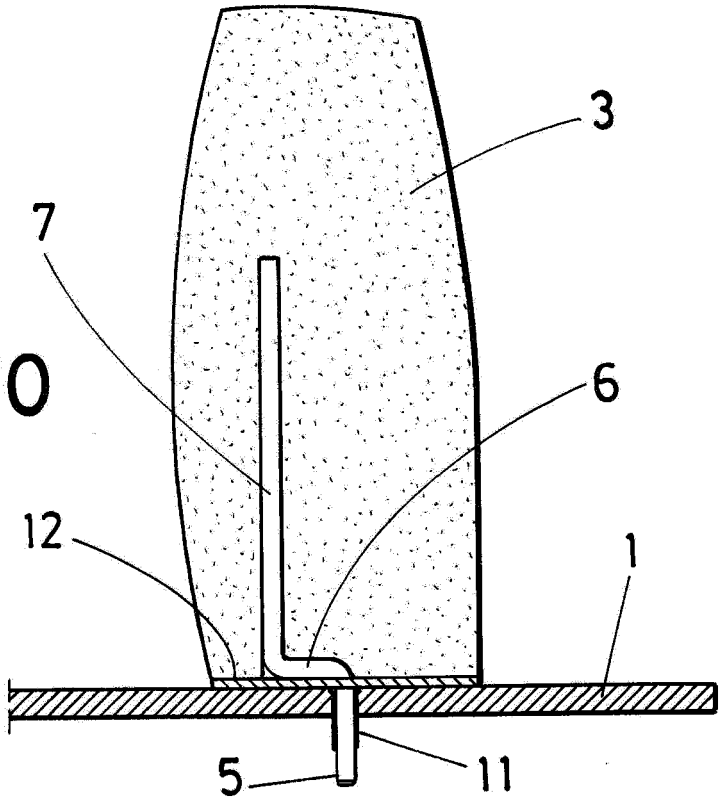

FIG.10

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EUROPEAN SEARCH REPORT

Application Number
EP 21 20 1831

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	US 2005/217022 A1 (OLDHAM JACKY T [US]) 6 October 2005 (2005-10-06) * paragraph [0007] - paragraph [0030]; figures 1-5 *	1-4	INV. A47C13/00 A47C17/02 A47C17/86
A	ES 2 137 793 B1 (SOTO MARTINEZ VICENTE [ES]) 16 August 2000 (2000-08-16) * column 1, line 34 - column 2, line 66; figure 1 *	1	

TECHNICAL FIELDS SEARCHED (IPC)
A47C

1 The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 March 2022	Lehe, Jörn

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 21 20 1831

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11-03-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005217022 A1	06-10-2005	CA 2502090 A1	30-09-2005
		US 2005217022 A1	06-10-2005
ES 2137793 B1	16-08-2000	NONE	

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82