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(54) PIECE OF FURNITURE WITH A NATURAL FIBRES PANEL

(57) A piece of furniture for interiors (1) comprising at least one boxlike container (2, 20, 21, 30) substantially with the shape of a parallelepiped and means to close (3) said boxlike container; the boxlike container (2, 20, 21, 30) comprising at least one chipboard panel (8, 23, 25, 35) made up of natural fibres firmly cemented by a binding matrix with a raw clay base.

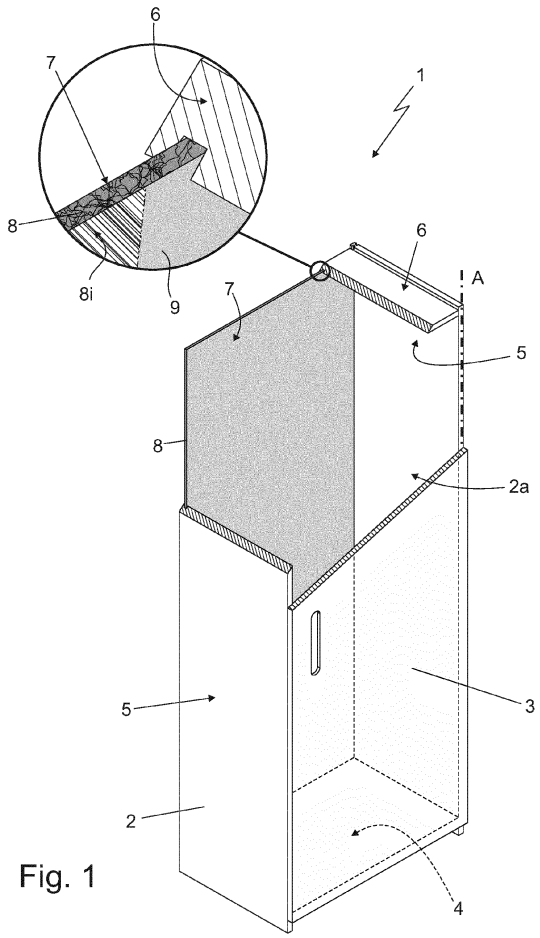

Fig. 1

EP 3 384 811 A1

Description

PRIORITY CLAIM

[0001] This application claims priority from Italian Patent Application No. 102017000037038 filed on April 4, 2017.

[0002] The invention relates to a piece of furniture for interiors.

[0003] More in detail, the present invention preferably relates to a wall wardrobe, to which the description below will make explicit reference without however loosing in generality.

[0004] As it is known, wardrobes traditionally consists of a large parallelepiped-shaped boxlike container which is structured so as to stand on the ground in a vertical position and which is usually internally provided with shelves and/or drawers and/or horizontal clothes-supporting bars adapted to store or hang items of clothing, underwear, shoes and the like; and of one or more movable shutters, traditionally called doors, which are usually flag hinged or fixed in sliding manner to the front part of the frame of the boxlike container, so as to be selectively arranged to close the front opening of the boxlike container.

[0005] Unfortunately, as they have a weight and sizes that make it very hard for them to be moved, wall wardrobes usually stand stably adjacent to the peripheral wall of the room for decades, very often creating, in the space behind the wardrobe, atmospheric conditions which are likely to encourage the proliferation of moulds, fungi and bacteria, with all problems that this entails.

[0006] In fact, experiments have shown that, in case of wall wardrobes, the circulation of air in the empty space behind the wardrobe is basically inexistent. As a consequence, in the free space between the brick wall and the walls of the wardrobe there is often a microclimate where the relative humidity of the air is permanently above 80% for very long amounts of time (even 6-8 days) and these atmospheric conditions are ideal for the uncontrolled proliferation of moulds, fungi and bacteria.

[0007] Unfortunately, if the wardrobe is not frequently opened, the same atmospheric conditions encouraging the uncontrolled proliferation of moulds, fungi and bacteria can also be generated inside the wardrobe, especially when it stores/accommodates for a long time objects that can directly become source of water vapour, bad smells, fungi, moulds and bacteria.

[0008] In order to remedy this drawback, very large wardrobes are usually provided with ventilation holes, which are made in a small area of one of the side walls of the boxlike container and have the function of ensuring a circulation of air inside the wardrobe, even if small.

[0009] Unfortunately, this solution is disliked by many people because it allows dust to freely access the inside of the wardrobe and, furthermore, turns out not to be very effective when the inner volume of the wardrobe is partitioned by a series of horizontal shelves, which interfere with the circulation of the air.

[0010] As an alternative to ventilation holes, the generation of a microclimate ideal for the uncontrolled proliferation of moulds, fungi and bacteria can be countered by placing, inside the wardrobe, perfumed objects or objects containing humidity-absorbing substances. Unfortunately, this type of objects has an effectiveness limited to a few cubic decimetres of volume and tends to run out fairly quickly, with all problems that this entails.

[0011] Aim of the present invention is to prevent or at least stably and significantly limit the proliferation of moulds, fungi and bacteria inside and behind the wardrobe.

[0012] In compliance with the above aims, according to the present invention there is provided a piece of furniture for interiors as specified in claim 1 and preferably, though not necessarily, according to any one of the claims depending on it.

[0013] The invention will now be described with reference to the accompanying drawings, which show three non-limiting embodiments thereof, wherein:

- Figure 1 is a perspective view of a wall wardrobe realized according to the teachings of the invention, with parts in section and parts removed for greater clarity;
- Figure 2 is a perspective view of a chest of drawers realized according to the teachings of the invention, with parts in section and parts removed for greater clarity; whereas
- Figure 3 is a perspective view of a container bed realized according to the teachings of the invention, with parts in section and parts removed for greater clarity.

[0014] With reference to Figure 1, number 1 denotes as a whole a piece of furniture for interiors of the container type.

[0015] In other words, the piece of furniture 1 basically comprises: a preferably parallelepiped-shaped, large boxlike container 2 having a preferably substantially rectangular-shaped, large opening 2a through which it is possible to access the inside of the container; and closing means structured so as to selectively close the access opening 2a.

[0016] In the example shown, in particular, the piece of furniture 1 for interiors is preferably a wall wardrobe, particularly adapted to accommodate items of clothing, underwear, shows, and the like.

[0017] In other words, the piece of furniture 1 preferably comprises: a preferably substantially parallelepiped-shaped, arge boxlike container 2 structured to stably stand on the ground and/or be firmly fixed to the wall in a substantially vertical position, i.e. with the access opening 2a arranged vertically; and one or more movable shutters 3, traditionally called doors, which are structured so as to be able to selectively close the opening 2a of boxlike container 2.

[0018] In addition, the boxlike container 2 is provided with a series of preferably flat and substantially rectangular-shaped, perimeter walls that are joined to one another so as to form a preferably substantially parallelepiped-shaped and preferably substantially self-supporting, rigid boxlike structure.

[0019] In the example shown, in particular, the piece of furniture 1 is preferably provided with a single movable door 3, which is preferably substantially complementary in shape to the opening 2a, i.e. substantially rectangular, and is preferably flag hinged to the front part of the boxlike container 2 beside the opening 2a, so as to be able freely to rotate about a preferably substantially vertical, reference axis A to and from a closing position in which the movable door 3 closes/obstructs the opening 2a of boxlike container 2.

[0020] In a different embodiment, however, the opening 2a of boxlike container 2 could be closed by a plurality of movable doors 3, which are fixed in vertical position and in axially sliding manner to the front part of the boxlike container 2, so as to be able to move horizontally in front of opening 2a, while remaining on their own lying plane.

[0021] With reference to Figure 1, in addition, at least one of the walls of boxlike container 2 includes, or - rather - partially consists of, a hygroscopic and breathable chipboard panel, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base, i.e. clay that is not subjected to high-temperature firing.

[0022] In other words, the boxlike container 2 comprises at least one chipboard panel made up of natural fibres firmly cemented by a binding matrix with a raw clay base.

[0023] Preferably, the percentage of binding matrix is furthermore greater than 25% of the overall weight of the hygroscopic and breathable chipboard panel.

[0024] More in detail, the percentage of binding matrix is preferably greater than 40% of the overall weight of the hygroscopic and breathable chipboard panel.

[0025] In addition, the binding matrix preferably has a percentage of raw clay higher than 70%.

[0026] More in detail, the binding matrix is preferably a mixture of raw clay and other organic adhesives preferably with a protein and/or starch base, with the percentage of clay preferably exceeding 70%.

[0027] Preferably, the percentage of raw clay is moreover greater than 40% of the overall weight of the panel.

[0028] In addition, the natural fibres preferably include hemp fibres. Furthermore, the percentage of hemp fibres is preferably greater than 60% of the overall weight or volume of the natural fibres.

[0029] In a different embodiment, however, the natural fibres could include straw and/or coconut fibres and/or corn fibres. In addition or as an alternative, the natural fibres could include wool and/or cotton.

[0030] Finally, at least one of the two faces of the hygroscopic and breathable chipboard panel is preferably coated with a plastered surface layer preferably with a base of raw clay and/or inert silica, which are preferably left to dry at ambient temperature.

[0031] Preferably, the hygroscopic and breathable chipboard panel furthermore has a thickness ranging between 3 and 30 mm (millimetres), whereas the thickness of the plastered layer preferably ranges between 0.1 and 4 mm (millimetres).

[0032] Preferably, the hygroscopic and breathable chipboard panel finally has a height and/or a width which are substantially equal to the height and/or the width of the corresponding wall of the boxlike container 2.

[0033] More in detail, with reference to Figure 1, in the example shown the boxlike container 2 is preferably provided with a substantially horizontal, bottom wall 4; with two substantially vertical, side walls 5 arranged parallel and facing to one another; with a substantially horizontal top wall 6 vertically aligned to the bottom wall 4; and with a substantially vertical, rear wall 7 perpendicular to the two side walls 5.

[0034] The bottom wall 4, the two side walls 5 and the top wall 6 preferably at least partially consist of as many panels made of solid wood and/or plywood and/or MDF (acronym for medium-density fibreboard) or other wood-based agglomerates. Alternatively, the bottom wall 4, the two side walls 5 and the top wall 6 could at least partially consist of sheet metal panels, plastic material panels or composite material panels.

[0035] The rear wall 7, on the other hand, at least partially consists of an hygroscopic and breathable chipboard panel, hereinafter indicated with 8, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres further include hemp fibres.

[0036] More in detail, in chipboard panel 8, the percentage of binding matrix with a raw clay base is preferably greater than 40% of the overall weight of the panel and, preferably even greater than 50% of the overall weight of the panel.

[0037] In addition, the binding matrix has a percentage of raw clay preferably higher than 80%.

[0038] More in detail, the binding matrix is preferably a mixture of raw clay and other organic adhesives preferably with a protein and/or starch base, with the percentage of clay preferably exceeding 80%.

[0039] Preferably, the organic adhesives moreover consist of a mixture comprising soy flour, magnesium oxide and magnesium chloride, preferably in approximately equal percentages. The magnesium chloride furthermore can be replaced by or mixed with magnesium sulphate. The soy flour, on the other hand, can be replaced by or mixed with broad bean flour and legume flour or it can be replaced with acid casein.

[0040] In the example shown, in particular, the percentage of raw clay is preferably equal to approximately 50% of the overall weight of the panel.

[0041] In addition, the natural fibres preferably include hemp fibres in a percentage preferably greater than 60% of the overall weight or volume of the natural fibres.

[0042] In the example shown, in particular, the percentage of hemp fibres is preferably greater than 90% of the

total weight of the natural fibres.

[0043] In other words, the chipboard panel 8 is made up of natural fibres firmly cemented by a binding matrix with a raw clay base, wherein at least 90% of the natural fibres consist of hemp fibres.

[0044] In a different embodiment, however, the natural fibres could include straw and/or coconut fibres and/or corn fibres. In addition or as an alternative, the natural fibres could include wool and/or cotton.

[0045] Finally, the surface of the inner face 8i of chipboard panel 8, i.e. of the face of the panel facing the inside of the boxlike container 2, is preferably substantially completely coated/covered by a plastered layer 9 preferably with a raw clay and/or inert silica base.

[0046] More in detail, the chipboard panel 8 has a thickness preferably ranging between 3 and 20 mm (millimetres), whereas the plastered layer 9 has thickness preferably equal to approximately 1 mm (millimetre).

[0047] Furthermore, the chipboard panel 8 has a mean density preferably ranging between 600 and 1500 kg/m^3 (kilograms per cubic metre).

[0048] Preferably, the chipboard panel 8 finally has a height and/or a width which are substantially equal to the height and/or the width of the rear wall 7.

[0049] Obviously, in a different embodiment, the rear wall 7 of boxlike container 2 could consist of a traditional panel made of wood, MDF (acronym for medium-density fibreboard) or another wood-based agglomerate. Instead, at least one of the remaining walls or shelves of the boxlike container 2 (i.e. the bottom wall 4 and/or any one of the side walls 5 and/or the top wall 6) could at least partially consist of an hygroscopic and breathable chipboard panel similar to the aforesaid panel 8, i.e. a chipboard panel made of natural fibres firmly cemented by a binding matrix with a raw clay base.

[0050] As regards the functioning of piece of furniture 1, the special structure of chipboard panel 8 allows the chipboard panel 8 to easily absorb and release large quantities of humidity, thus significantly reducing the fluctuations of the relative humidity rate of the air surrounding the chipboard panel 8.

[0051] More in detail, experimental tests have shown that the micro-molecule structure typical of the raw clay allows the chipboard panel 8 to quickly absorb and release a quantity of humidity/water that can reach up to 200 gr/m^2 (grams per square metre) every 10 mm of thickness.

[0052] As a consequence, by absorbing and releasing humidity, the chipboard panel 8 succeeds in maintaining, in a more or less continuous manner, the relative humidity rate of the air inside the boxlike container 2 within an interval ranging between 55% and 65%. Similar observations apply also to the space behind the piece of furniture 1.

[0053] In addition, the use of hemp fibres allows water molecules to easily penetrate into the chipboard panel 8, thus improving the absorption and the release of humidity.

[0054] Last but not least, hemp fibres additionally have an insecticide and pesticide function, which obstacles the proliferation of insects, mites, nematodes, fungi, bacteria and protozoa.

[0055] The use of one or more chipboard panels 8 to realize the structure of the boxlike container 2 offers numerous advantages.

[0056] First of all, the chipboard panel(s) 8 made of natural fibres firmly cemented by a binding matrix with a raw clay base allow (s) to keep below 80% the humidity rate of the air stagnating inside the boxlike container 2 and, optionally, also of the air stagnating behind the piece of furniture 1, thus avoiding the proliferation of moulds, fungi and bacteria.

[0057] Moreover, as it has a height and/or a width which are substantially equal to the overall height and/or the overall width of the wall of the boxlike container 2, the chipboard panel 8 succeeds in keeping the relative humidity rate between 55% and 65% inside the entire volume of the boxlike container 2, even when the same volume is partitioned by one of more shelves that can limit or even prevent the free circulation of air inside the container.

[0058] In addition, the use of hemp fibres allows users to eliminate insects and mites, which usually hide in clothes, underwear and the like.

[0059] Finally, the chipboard panels 8 made of natural fibres firmly cemented by a binding matrix with a raw clay base can be cut and milled with machine tools already used for machining traditional wood panels and by-products thereof, with all the advantages that this entails.

[0060] It is finally clear that modifications and variants can be made to can be made to the piece of furniture 1 for interiors without however departing from the scope of protection of the present invention.

[0061] For example, the movable door(s) 3 could be replaced by one or more roller shutters.

[0062] In addition, with reference to Figure 2, in a different embodiment the piece of furniture 1 for interiors is a chest of drawers.

[0063] More in detail, in this case, the piece 1 of furniture basically comprises: a substantially parallelepiped-shaped, large boxlike container 20 which is structured to stand on the ground and is provided, at the front, with a large access opening 20a substantially rectangular in shape; and a series of drawers 21 preferably having the shape of a substantially rectangular cup and which are inserted in axially sliding manner into the boxlike container 20, preferably one over the another, with the capability of moving horizontally and separately from one another between a retracted position in which the body of the drawer 21 is completely recessed into the boxlike container 20, and an extracted position in which the body of the drawer 21 projects from the opening 20a of boxlike container 20 to allow access to the same drawer 21.

[0064] Also in this case, at least one of the walls of the boxlike container 20 preferably at least partially consists of an hygroscopic and breathable chipboard panel, which

is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres furthermore include hemp fibres.

[0065] The other walls of boxlike container 20, on the other hand, preferably at least partially consist of as many panels made of solid wood and/or plywood and/or MDF (acronym for medium-density fibreboard) or other wood-based agglomerates.

[0066] In the example shown, in particular, the vertical rear wall 22 of boxlike container 20 preferably consists of at least one hygroscopic and breathable chipboard panel 23, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres further include hemp fibres.

[0067] Likewise chipboard panel 8, the inner face of the hygroscopic and breathable chipboard panel 23, i.e. the face of the panel facing the inside of boxlike container 20, is preferably covered/coated by a plastered surface layer preferably with a raw clay and/or inert silica base.

[0068] In other words, the structure of chipboard panel 23 is substantially identical to the structure of chipboard panel 8.

[0069] In addition or as an alternative, the bottom 24 of at least one drawer 21, i.e. the lower horizontal wall of at least one drawer 21, preferably at least partially consists of an hygroscopic and breathable chipboard panel 25, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres further include hemp fibres.

[0070] In other words, the drawer 21 is a boxlike container arranged horizontally and at least one of its perimeter walls preferably consists of an hygroscopic and breathable chipboard panel, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base.

[0071] In the example shown, in particular, the bottom 24 of each movable drawer 21 preferably at least partially consists of a respective hygroscopic and breathable chipboard panel 25.

[0072] Preferably, the upper face of the chipboard panel 25, i.e. the face of the panel facing the inside of drawer 21, furthermore is coated/covered by a plastered surface layer 26 preferably with a raw clay and/or inert silica base.

[0073] In other words, the structure of chipboard panel 25 is substantially identical to structure of the chipboard panels 8 and 23.

[0074] With reference to Figure 3, in a further embodiment the piece of furniture 1 for interiors is a container bed.

[0075] In other words, the piece of furniture 1 basically comprises: a substantially parallelepiped-shaped, large boxlike container 30 which is structured so as to firmly rest on the ground in a substantially horizontal position and is provided, on top, with a large access opening 30a substantially rectangular in shape; a headboard 31 with a substantially plate-like structure, which projects from the boxlike container 30 in a substantially vertical direction, preferably so as to form an extension of one of the side walls of boxlike container 30; and a large horizontal plate-like frame 32, traditionally called bed frame, which is substantially complementary in shape to the opening 30a of boxlike container 30, is arranged to close the access opening 30a and is suited to support the mattress 33.

[0076] Preferably, the plate-like frame 32 is furthermore hinged to the boxlike container 30 close to the headboard 31, so that it can freely rotate about a substantially horizontal reference axis B to and from an open position in which the plate-like frame 32 is lifted and inclined with respect to the vertical (see figure 3) so as to allow easy access to the empty space inside the boxlike container 30.

[0077] Also in this case, at least one of the walls of the boxlike container 30 preferably at least partially consists of an hygroscopic and breathable chipboard panel, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres further include hemp fibres.

[0078] The other walls of boxlike container 30, on the other hand, preferably at least partially consist of as many panels made of solid wood and/or plywood and/or MDF (acronym for medium-density fibreboard) or other wood-based agglomerates.

[0079] In the example shown, in particular, the bottom 34 of boxlike container 30, i.e. the lower horizontal wall of the boxlike container 30, preferably at least partially consists of an hygroscopic and breathable chipboard panel 35, which is made of natural fibres firmly cemented by a binding matrix with a raw clay base. Preferably, the natural fibres further include hemp fibres.

[0080] Preferably, the upper face of the hygroscopic and breathable chipboard panel 35, i.e. the face of the panel facing the inside of boxlike container 30, furthermore is coated/covered by a plastered surface layer preferably with a raw clay and/or inert silica base.

[0081] In other words, the structure of chipboard panel 35 is substantially identical to the structure of chipboard panels 8, 23 and 25.

[0082] Obviously, the container bed 1 could also lack the headboard 31.

Claims

1. A piece of furniture for interiors (1) comprising at least one boxlike container (2, 20, 21, 30) and means to close (3) said boxlike container;
   said piece of furniture (1) being **characterised in that** the boxlike container (2, 20, 21, 30) comprises at least one chipboard panel (8, 23, 25, 35) made up of natural fibres firmly cemented by a binding matrix with a clay base.

2. Piece of furniture according to claim 1, **characterised in that** the natural fibres include hemp fibres.

3. Piece of furniture according to claim 2, **characterised in that** the percentage of hemp fibres is greater than 60%.

4. Piece of furniture according to claim 1, 2 or 3, **characterised in that** the percentage of the binding matrix is greater than 25% of the overall weight of the panel.

5. Piece of furniture according to claim 4, **characterised in that** the percentage of the binding matrix is greater than 40% of the overall weight of the panel.

6. Piece of furniture according any one of the preceding claims, **characterised in that** said binding matrix is a mixture of raw clay and other organic adhesives preferably with a protein and/or starch base.

7. Piece of furniture according any one of the preceding claims, **characterised in that** said binding matrix has a percentage of raw clay higher than 70%.

8. Piece of furniture according any one of the preceding claims, **characterised in that** the percentage of raw clay is greater than 40% of the overall weight of the panel.

9. Piece of furniture according any one of the preceding claims, **characterised in that** at least one of the two faces of said chipboard panel (8, 23, 25, 35) is coated with a plastered surface layer (9, 26).

10. Piece of furniture according to claim 9, **characterised in that** said plastered surface layer (9, 26) has a raw clay and/or inert silica base.

11. Piece of furniture according to any one of the preceding claims, **characterised in that** said chipboard panel (8, 23, 25, 35) has a thickness ranging between 3 and 30 mm (millimetres).

12. Piece of furniture according to any one of the preceding claims, **characterised in that** said boxlike container (2, 20, 21, 30) is substantially parallelepiped in shape.

13. Piece of furniture according to any one of the preceding claims, **characterised in that** the boxlike container (2, 20, 21, 30) is structured to stand on the ground and/or to be fixed on a wall.

14. Piece of furniture according to any one of the preceding claims, **characterised in that** said boxlike container (2, 20) is vertically arranged; and **in that** said chipboard panel (8, 23) concurs to form the rear vertical wall (7, 22) of the boxlike container (2, 20).

15. Piece of furniture according to any one of the claims from 1 to 13, **characterised in that** said boxlike container (21, 30) is horizontally arranged; and **in that** said chipboard panel (25, 35) concurs to form the bottom (24, 34) of the boxlike container (21, 30).

16. Piece of furniture according to claim 14, **characterised in that** the piece of furniture (1) is a wardrobe.

17. Piece of furniture according to claim 15, **characterised in that** the piece of furniture (1) is a chest of drawers and **in that** said boxlike container (21) is a drawer (21) of said chest of drawers.

18. Piece of furniture according to claim 15, **characterised in that** the piece of furniture (1) is a container bed, and **in that** said chipboard panel (35) concurs to form the bottom (34) of the boxlike container (30) of said container bed.

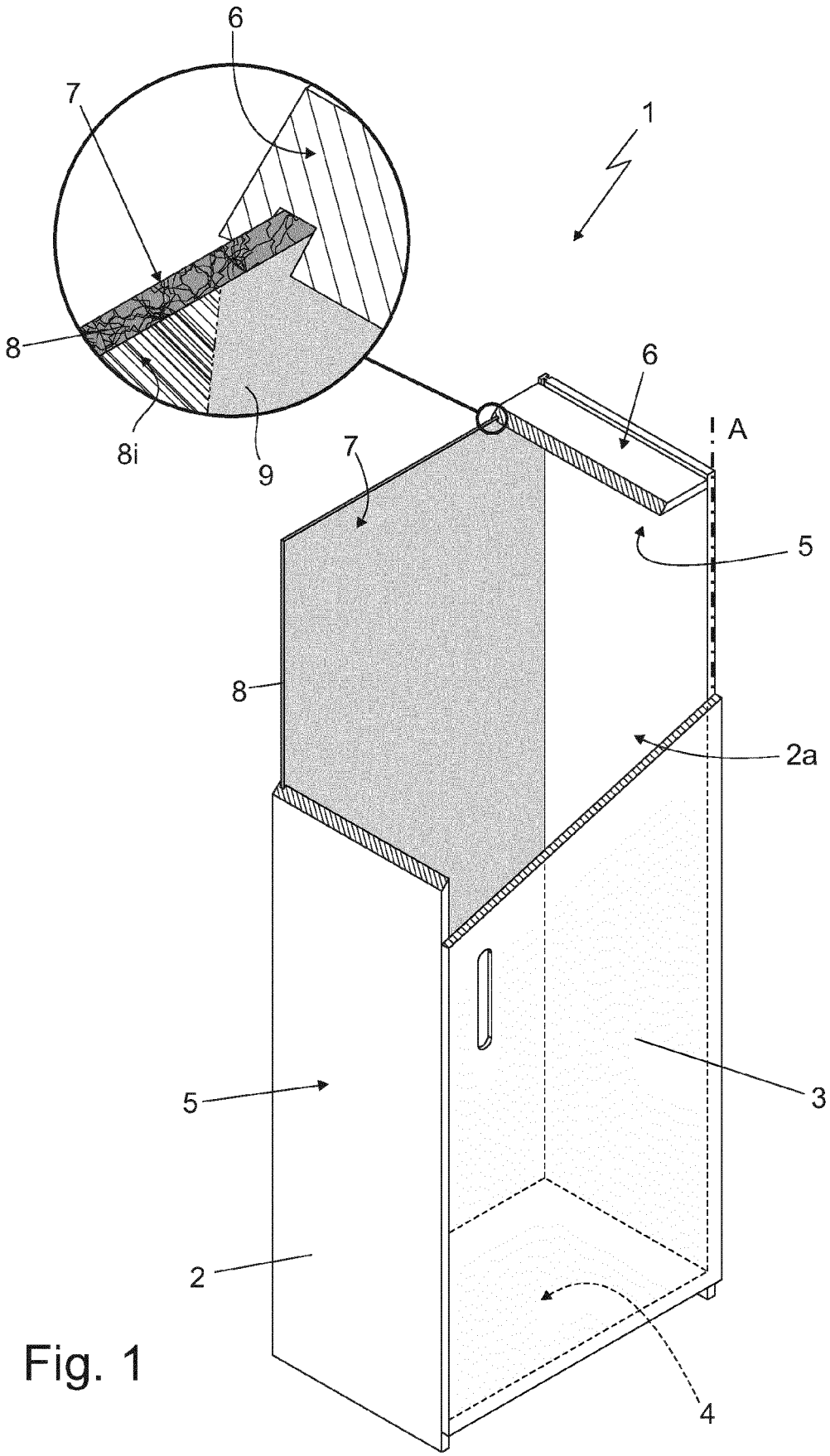

Fig. 1

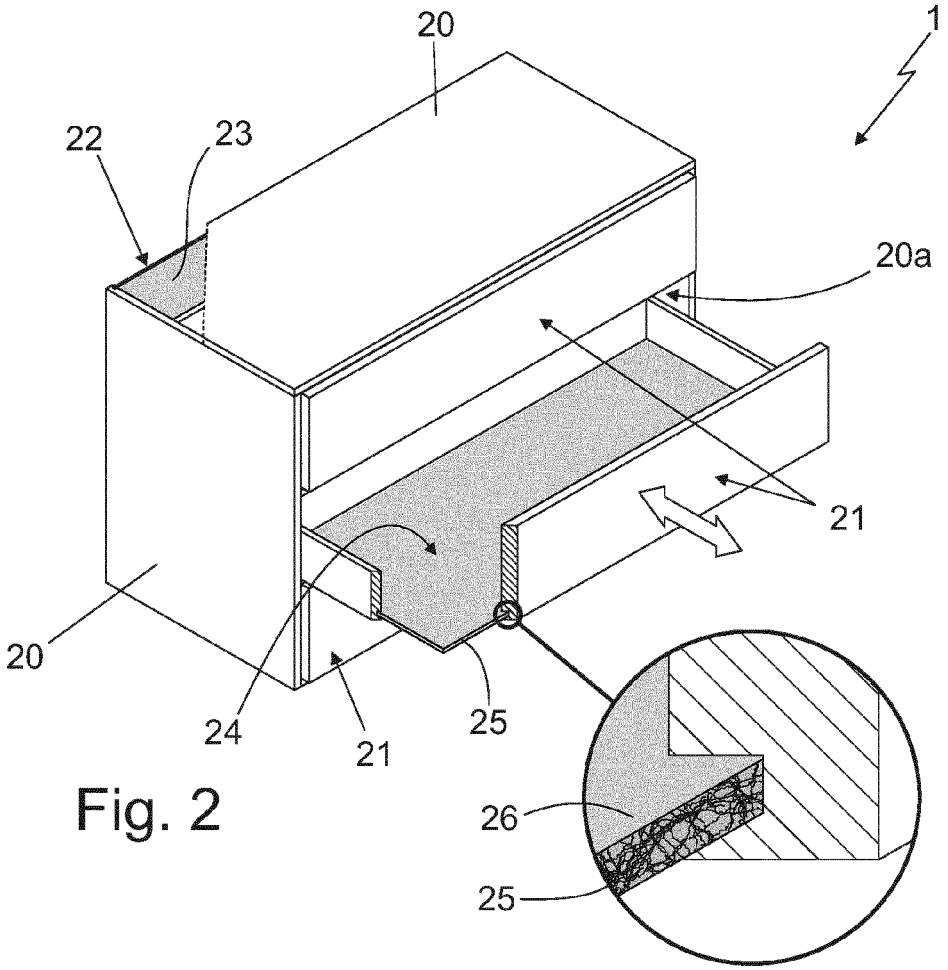

Fig. 2

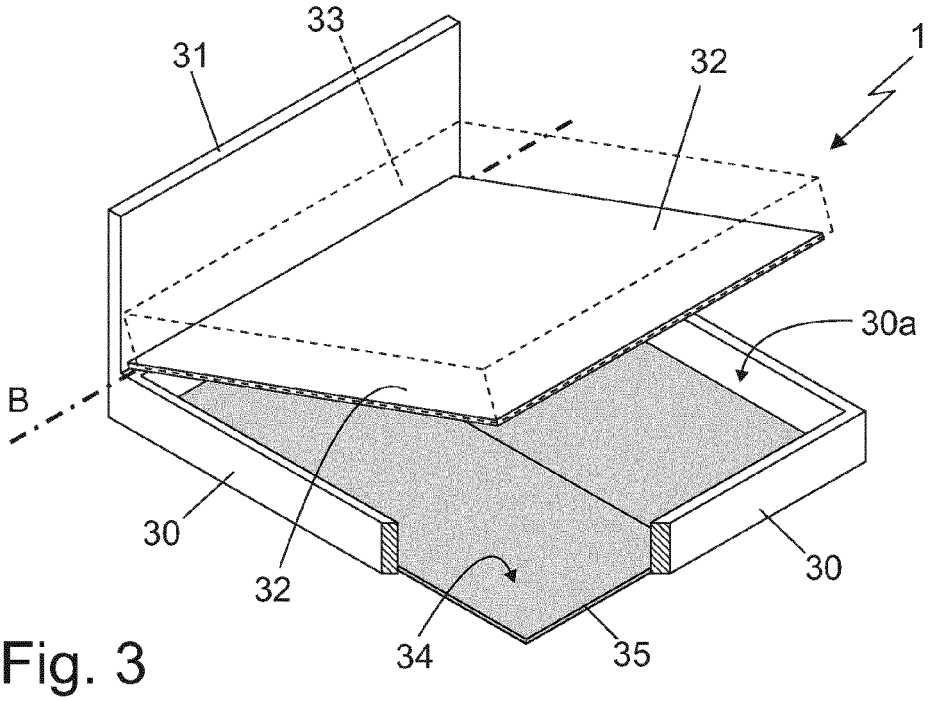

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 18 16 5791

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	JP 2004 181091 A (PANAHOME CORP) 2 July 2004 (2004-07-02) * figure 2 * * paragraphs [0010], [0012], [0015] *	1-18	INV. A47B96/20
A	AT 11 690 U1 (EMOT ON TON INNENPUTZ GMBH) 15 March 2011 (2011-03-15) * paragraph [0012] *	1-18	
A	JP 2008 237590 A (MATSUSHITA ELECTRIC WORKS LTD) 9 October 2008 (2008-10-09) * paragraphs [0025], [0028] * * figures 1,3,5,6 *	1-18	

TECHNICAL FIELDS SEARCHED (IPC)

A47B
E04C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 June 2018	de Cornulier, P

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 16 5791

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21-06-2018

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2004181091 A	02-07-2004	NONE	
AT 11690 U1	15-03-2011	NONE	
JP 2008237590 A	09-10-2008	JP 4867747 B2	01-02-2012
		JP 2008237590 A	09-10-2008

EPO FORM P0459

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

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Patent documents cited in the description

- IT 102017000037038 **[0001]**