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(54) **SLEEPING SUPPORT**

(57) The invention relates to a sleeping support (100, 200), comprising a foldable mattress (30) having at least one folded state and an unfolded state; and a case (10) for housing said foldable mattress (30) in a specific folded state, said case (10) including at least two casing parts (12, 14) provided in a manner so as the two casing parts (12, 14) to be placeable underneath of different portions (32, 34) of said foldable mattress (30) when said foldable mattress (30) is removed from the case (10) and transformed to a folded state different from the specific folded state, or to its unfolded state.

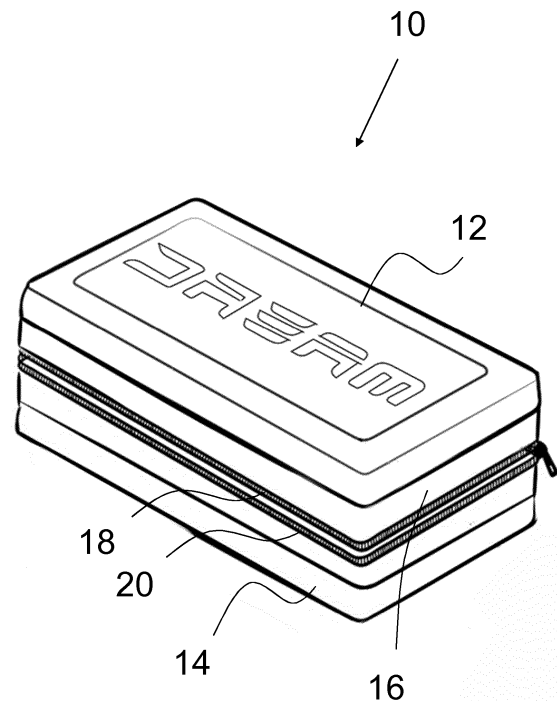


Fig. 1a

Description

[0001] The present invention relates to a sleeping support and specifically to a sleeping support usable in a vehicle. The invention also relates to a vehicle with such sleeping support included therein and tailor-made for the vehicle.

[0002] A high number of road accidents are caused by a driver's fatigue. It is generally difficult and complicated to take a nap in a car for freshening up. For instance, some cars have foldable back rests but there is a shoulder provided between back rest and the footwall of the car, impeding persons from comfortably laying down.

[0003] It is an object of the present invention to facilitate freshening up in a vehicle by providing for comfortable, secure and convenient rest facilities.

[0004] The above object is solved by the subject-matter of the independent claims.

[0005] According to the invention, a sleeping support comprises a foldable mattress having at least one folded state and an unfolded state; and a case for housing said foldable mattress in a specific (e.g., totally) folded state, the case including at least two casing parts provided in a manner so as the two casing parts to be placeable underneath of different portions of said foldable mattress when said foldable mattress is removed from the case and transformed to another folded state (e.g., partly folded only), or to its unfolded state.

[0006] One is thus able to use the case both for housing the mattress and as a height propping structure. Specifically, such height propping structure can bridge the difference in the height of the floor in the vehicle's trunk on the one hand and that of folded down rear seats on the other hand, one thereby obtaining a more or less even and horizontal surface to sleep on. No space is thus lost for the housing of the mattress. No pumping or other inflating of the mattress is needed.

[0007] In a preferred embodiment, one casing part is removable from another casing part so as these two casing parts to be separately placeable underneath of the foldable mattress. In one preferred embodiment thereof, two casing parts are connected via a zipper. They can then most easily be separated and connected again. In an alternative, two casing parts are fixedly coupled, e.g., by a hinge, in a manner that the case can be opened widely (casing part opened by 180°) in order to have the two casing parts arranged adjacent to each other.

[0008] The set preferably comprises a duvet and a pillow. Preferably then, if not in a separate bag, these are as well housed in the casing.

[0009] Generally, in one embodiment, the case together with the mattress is placed in a bag. The bag can then include duvet and pillow and/or comprise bag parts that can as well be used for the overall arrangement when preparing for sleeping thereon. That leads to a compact provision of the sleeping support. Preferably, the bag includes two bag halves connectable via a zipper, wherein at least one of the casing parts and/or at least one of the

portions of the foldable mattress allows for connecting one of the two bag halves by means of a zipper thereto. Hence, the bag is useful both for transport and for the situation of sleeping.

[0010] It is preferred that the foldable mattress is comprised of different portions (or panels), wherein at least one portion is connected to another portion by means of a zipper. For example, the foldable mattress may comprise at least 3 or 4 panels/portions. Such modular arrangement is generally more flexible for different uses.

[0011] For instance, the panels of the foldable mattress can be configured to be able to be coupled in the following manners: 1. All (e.g., four) panels of the mattress can be set out flat and horizontally for rest or sleep. 2. Else, some (e.g., two) panels of the mattress can be set out horizontally and the others (e.g., two) panels of the mattress can be arranged vertically to give a raised surface for casual resting or for head support while lying. 3. Still further, one could use some (e.g., two) separate individual panels and one further (e.g., double) panel as sitting pads.

[0012] In addition or alternatively, one hinged panel unfolds from another ("head") panel of the mattress at an angle of 90° to form a strut that supports the entire mattress, e.g., when placed in the rear passenger footwell of the vehicle, for preventing the mattress to slide down into the void of the vehicle's back portion.

[0013] In a further preferred embodiment, the case is made at least partly out of plastics, and/or the foldable mattress is made at least partly out of foamed material. These materials are cheap but reliable.

[0014] An inventive vehicle comprises the inventive sleeping support, wherein at least one of the dimensions of the casing parts is adapted to the dimensions of a shoulder provided by an element in the vehicle, said shoulder preferably provided by a foldable rear seat when folded down with respect to a footwell of said vehicle. Hence, the sleeping support can most easily be arranged within the vehicle.

[0015] The dimensions of the foldable mattress, in the folded state, are preferably in a range between 890 mm to 1200 mm (width) and between 440 mm to 505 mm (length). In the unfolded (outfolded) state, the mattress may have the dimensions preferably in a range between 890 mm to 1200 mm (width) and between 1790 mm to 2100 mm (length).

[0016] Further aspects and embodiments of the invention are explained with reference to the drawings, which show in

Fig. 1a a perspective view of the complete case used with the inventive sleeping support;

Fig. 1b an exploded view of a casing half being a part of the case shown in Fig. 1a;

Fig. 2a to 2d perspective views of a foldable mattress used with a sleeping support at

- different stages when being put into the case;
- Fig. 3** a perspective view of the mattress when supported by the case parts and with a strut panel attached thereto;
- Fig. 4a** a perspective view of the mattress in its unfolded state;
- Fig. 4b** a perspective view of the mattress in a first folded state;
- Fig. 4c** a perspective view of the mattress in a second folded state;
- Fig. 5** a perspective view of the mattress when being assembled by individual panels; and
- Fig. 6a to 6c** perspective views of the sleeping support in another embodiment with a bag.

[0017] A case for use with a sleeping support is shown in Figs. 1a and b and indicated at 10.

[0018] The case 10 includes a first casing half 12 and a second casing half 14. At least one additional frame 16 can optionally be included. The two casing halves 12, 14 are coupled to each other by a zipper having a first portion 18 connectable to the first casing half 12 (or the frame 16) and a second portion 20 connectable to the second casing half 14. Fig. 1a shows the case 10 when closed.

[0019] Fig. 1b shows the first casing half 12 and the related components in an exploded view in more detail. The first casing half 12 may be considered as an upper top plate. On the inner side (underside in Fig. 1b) of the first casing half 12, an inner top plate 13 may be provided which is glued together with the first casing half 12. Therefore, the inner top plate 13 fits into the underside 12 so that the frame 16 and the zipper first portion 18 may follow. The frame 16 is connectable to the first casing half 12.

[0020] The frame 16 may be partly sandwiched between the first casing half 12 and the inner top plate 13 for a strong bonding and simplified construction. The frame 16 may be like a band. It can be fitted into the first casing half 12, and then inner top plate 13 may be inserted to for a sandwich construction using glue. It is also possible that the frame 16 covers the inner top plate 13 like an envelope and is glued with the inner top plate 13. The first casing half 12 is then added over the top to form a sandwich construction.

[0021] The plate of the first casing half 12 may be thin because it is strengthened and stabilized by the support of the inner top plate 13. On the outside of the first casing half 12, a logo design or decorative elements may be provided.

[0022] The second casing half 14 being arranged on

the underside of case 10 may have the same structure as the first casing half 12. Therefore, a further inner top plate 13 may be provided which is glued to the inner side of the second casing half 14.

[0023] Figs. 2a to 2d illustrate how a foldable mattress 30 can be put into the case 10 for transport purposes.

[0024] Fig. 2a shows the mattress 30 (having four panels) in its unfolded state, Fig. 2b in a folded state, Fig. 2c shows how the mattress fits into the case 10, and Fig. 2d shows the case 10 with the mattress inside to form a sleeping support in the state suitable for transport, indicated in total at 100.

[0025] Fig. 3 depicts sleeping support in the state suitable for laying down thereon.

[0026] Fig. 3 shows again the foldable mattress 30, however in more detail: it is comprised of four panels 32, 34, 36, 38.

[0027] Whilst the two panels 34 and 36 are attached to each other by means of a tissue envelope, panel 32 can be connected to panel 34 by means of a zipper 42, and, panel 38 can be connected to panel 36 by means of a zipper 44. An additional element or panel 40 is connected to panel 38 by means of a zipper 46. The additional element or panel 40 can as well be part of a bag (not shown), used for housing parts of the sleeping support. As an alternative to the zipper 46, a tissue envelope may be provided so that the panels 40 and 38 are connected by sewn tissue.

[0028] Whilst the panels 32, 34, 36, 38 serve for being laid down on, the panel 40 provides support for the entire mattress in the sense of a strut, being able to be placed on a footwell in a vehicle's rear side.

[0029] Underneath of the panels 32 and 34, the two halves 12, 14 of the case 10 are placed: These are connected via a hinge enabling to open the casing halves by 180°. They could as well be separable from each other. The casing halves 12, 14 help to bridge height differences where the sleeping support is to be placed on. E.g., in a vehicle, there might be a shoulder formed by a foldable rear seat when folded down - there would then be the need to equalize the heights for obtaining a planar, horizontal sleeping surface.

[0030] Fig. 4a shows the mattress 30 alone in its unfolded state.

[0031] Fig. 4b illustrates a first folded state where the panels 36 and 38 together form a back rest for a seat.

[0032] Fig. 4c depicts a second folded state wherein the panels 36 and 38 form a double panel for sitting higher.

[0033] Fig. 5 illustrates how the panels 32 and 28 can be connected to the other two panels 34 and 36.

[0034] Figs. 6a to 6c show a further embodiment with two casing panels 12, 14 surrounding the mattress 30 and together placed into a bag 50 to form a sleeping support 200.

Claims

1. A sleeping support (100, 200), comprising:

a foldable mattress (30) having at least one folded state and an unfolded state;
 a case (10) for housing said foldable mattress (30) in a specific folded state, said casing including at least two casing parts (12, 14) provided in a manner so as the two casing parts (12, 14) to be placeable underneath of different portions (32, 34) of said foldable mattress (30) when said foldable mattress (30) is removed from the case (10) and transformed to a folded state different from the specific folded state, or to its unfolded state.

2. The sleeping support according to claim 1, wherein one casing part is removable from another casing part so as these two casing parts (12, 14) to be separately placeable underneath of the foldable mattress (30).

3. The sleeping support according to claim 2, wherein the two casing parts (12, 14) are connected via a zipper (18, 20).

4. The sleeping support according to any one of the preceding claims, further including a duvet and a pillow in the case.

5. The sleeping support (200) according to any one of the preceding claims, wherein the case (10) together with the mattress (30) is placeable in a bag (50).

6. The sleeping support (200) according to claim 5, wherein said bag (50) includes two bag halves connectable via a zipper, wherein at least one of said casing parts (12, 14) and/or at least one of said portions (38) of said foldable mattress (30) allows to connect one of the two bag halves (40) by means of a zipper (46) or by means of a tissue thereto.

7. The sleeping support according to any one of the preceding claims, wherein said foldable mattress (30) is comprised of different panels (32, 34, 36, 38), wherein at least one portion (32, 38) is connected to another panel (34, 36) by means of a zipper (42, 44) or by means of a tissue.

8. The sleeping support according to any one of the preceding claims, wherein said foldable mattress (30) has at least three and preferably four portions (32, 34, 36, 38), at least two adjacent portions (32, 34, 36, 38) having the same size, allowing these two adjacent portions to be folded one on top of the other so as to form a rest.

9. The sleeping support (100, 200) according to any one of the preceding claims, wherein said case (10) is made by using plastics.

10. The sleeping support (100, 200) according to any one of the preceding claims, wherein said foldable mattress (30) is made by using foamed material.

11. A vehicle with a sleeping support (100, 200) according to any one of the preceding claims, wherein at least one of the dimensions of the casing parts (12, 14) is adapted to the dimensions of a shoulder provided by an element in the vehicle, said shoulder preferably provided by a foldable rear seat when folded down with respect to a footwell of said vehicle.

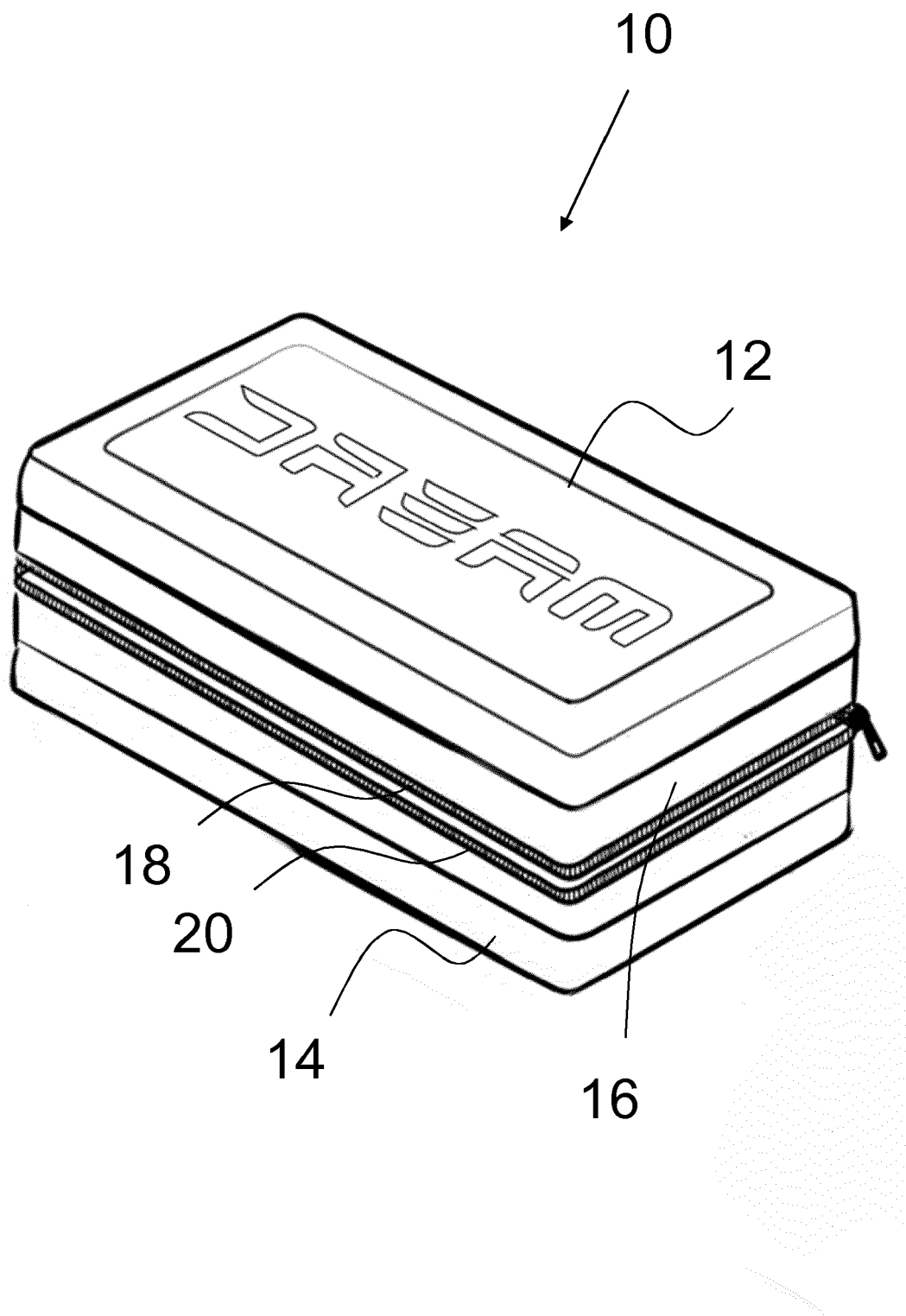


Fig. 1a

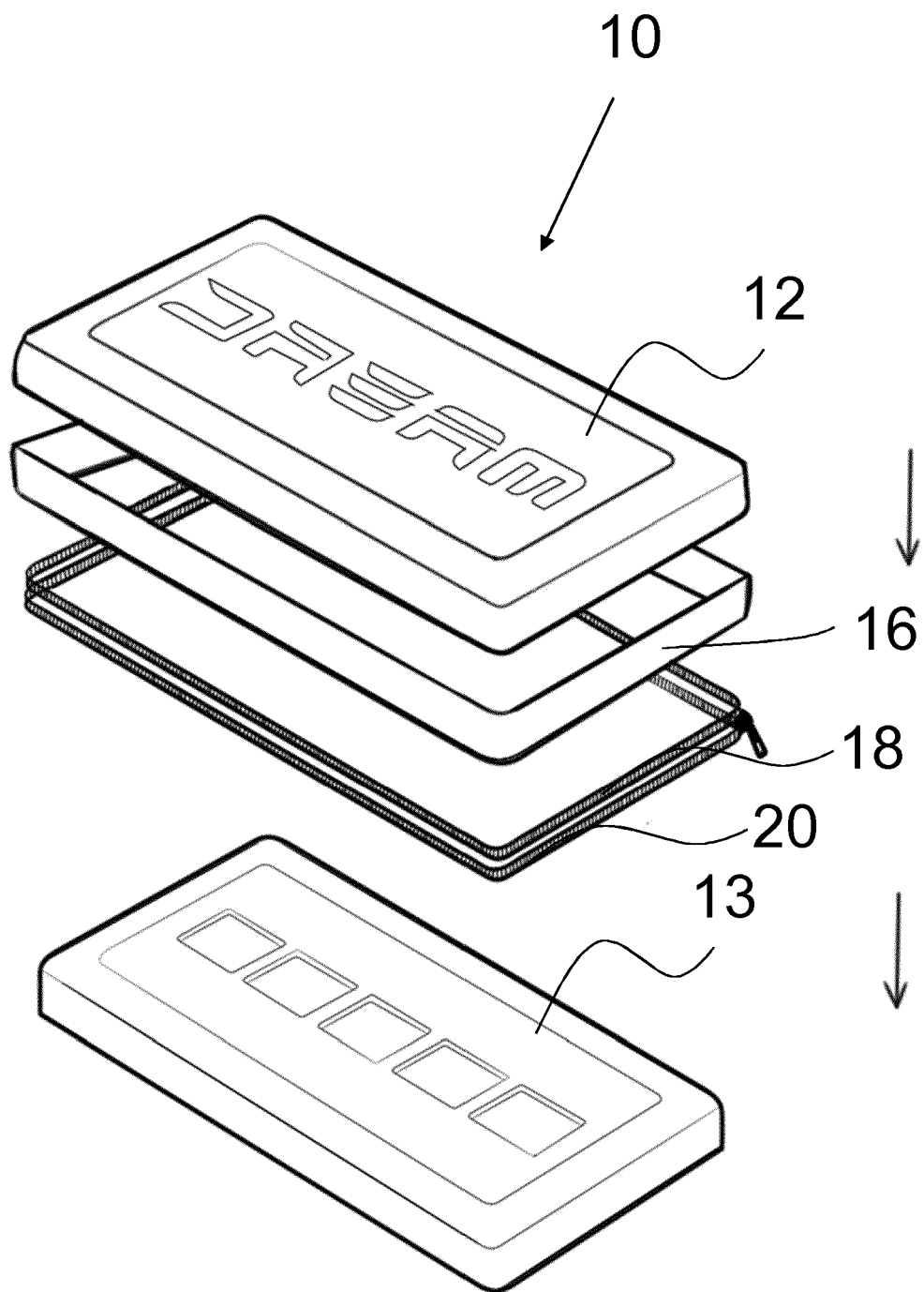


Fig. 1b

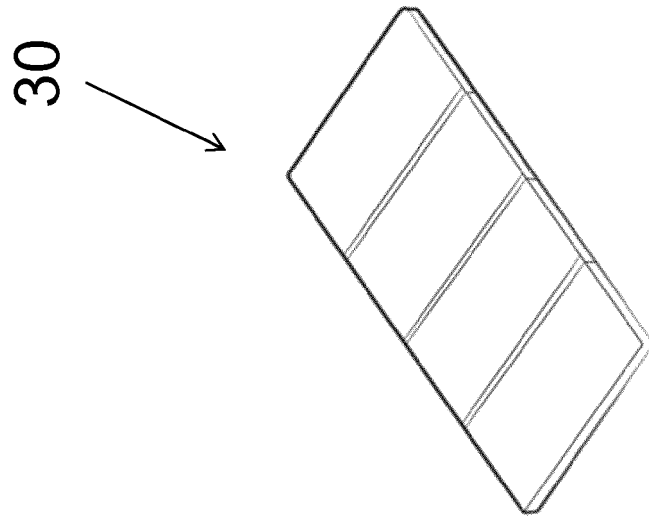


Fig. 2a

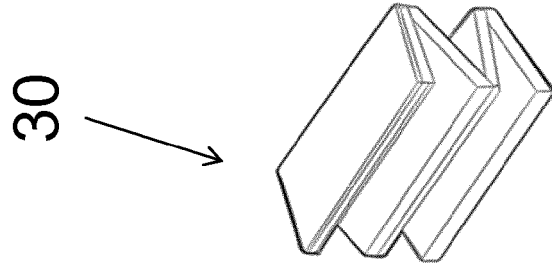


Fig. 2b

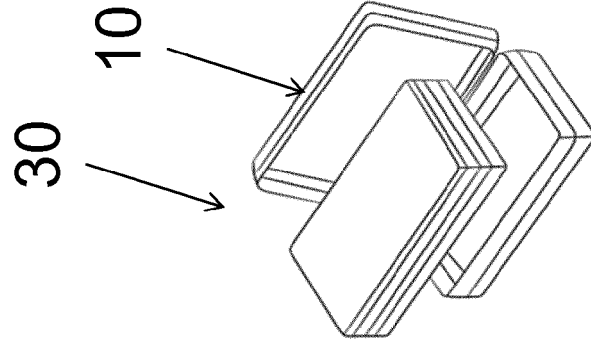


Fig. 2c

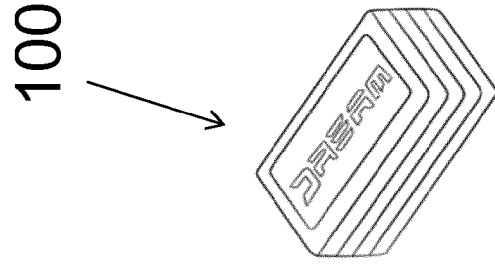


Fig. 2d

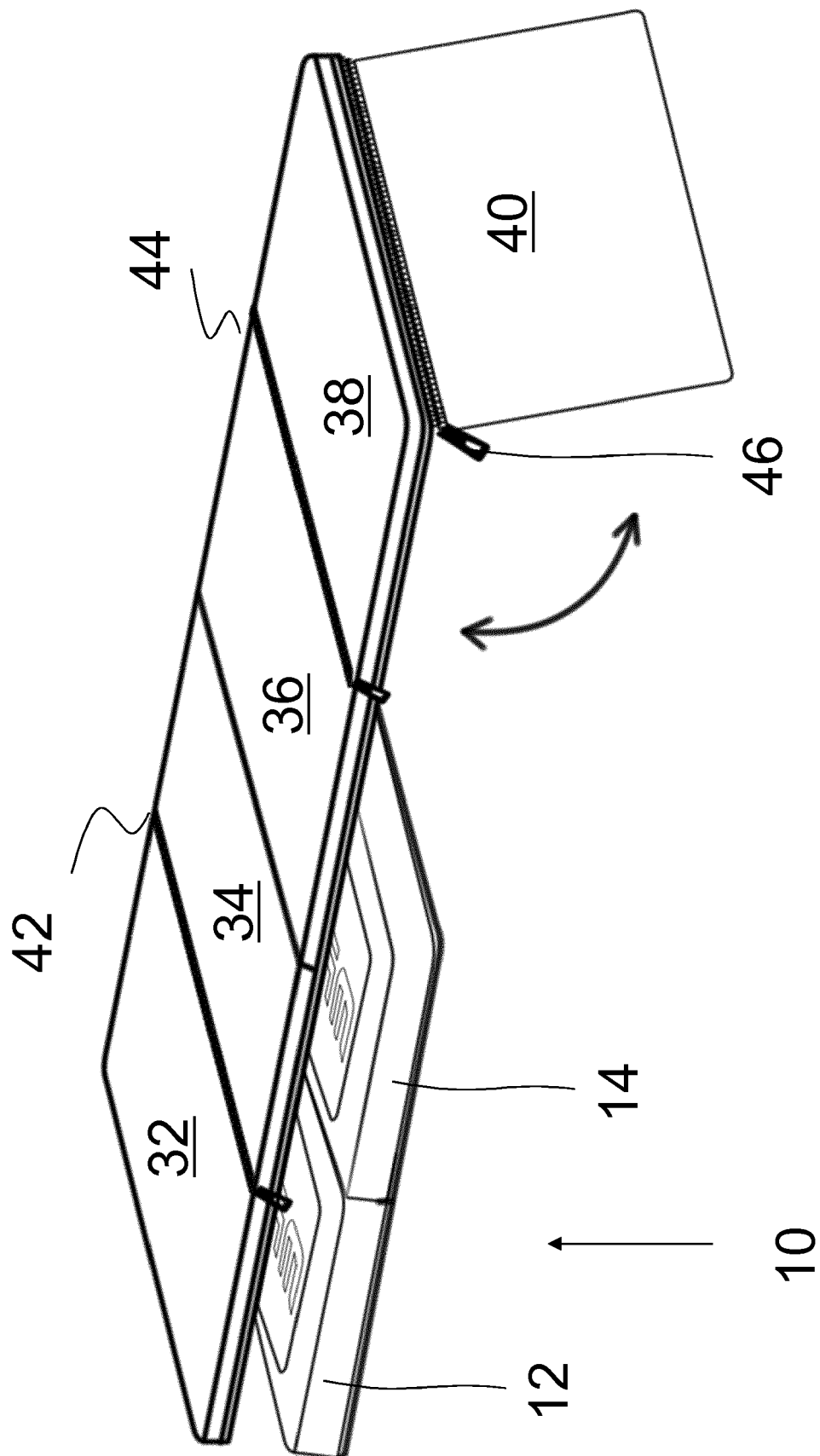


Fig. 3

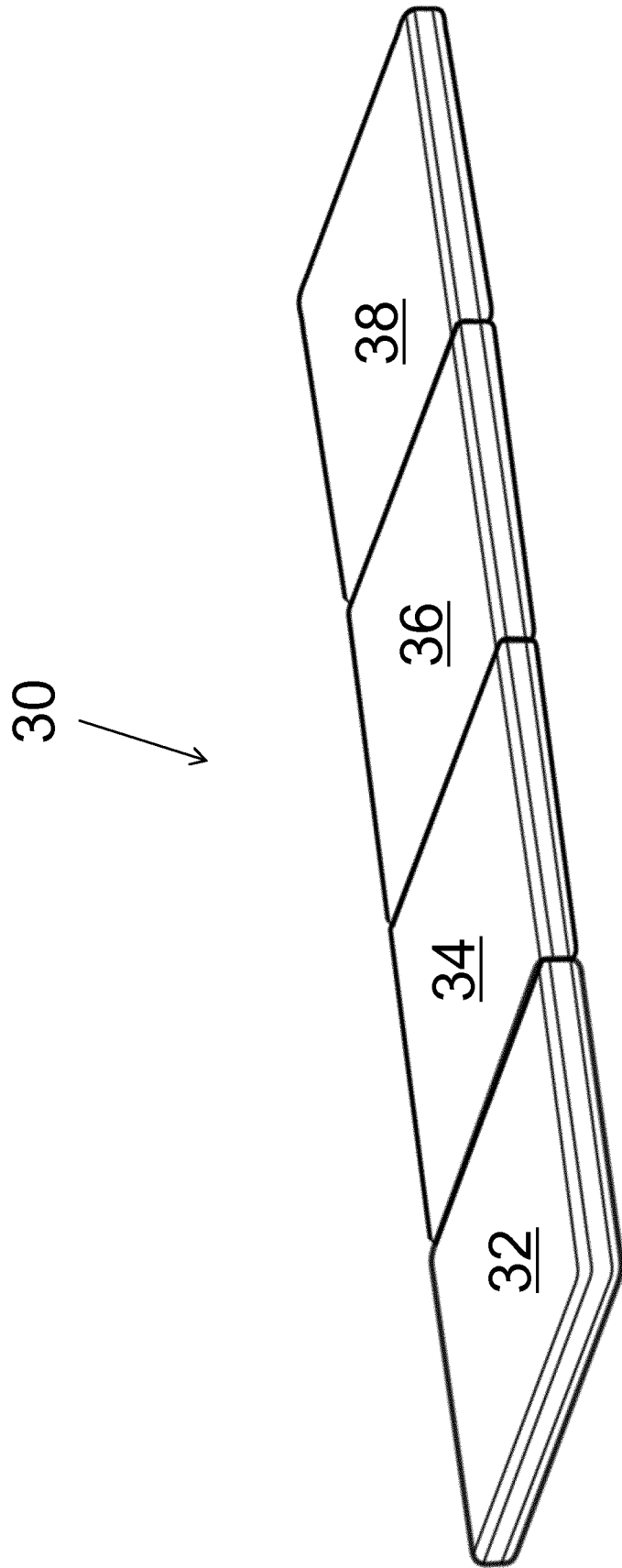


Fig. 4a

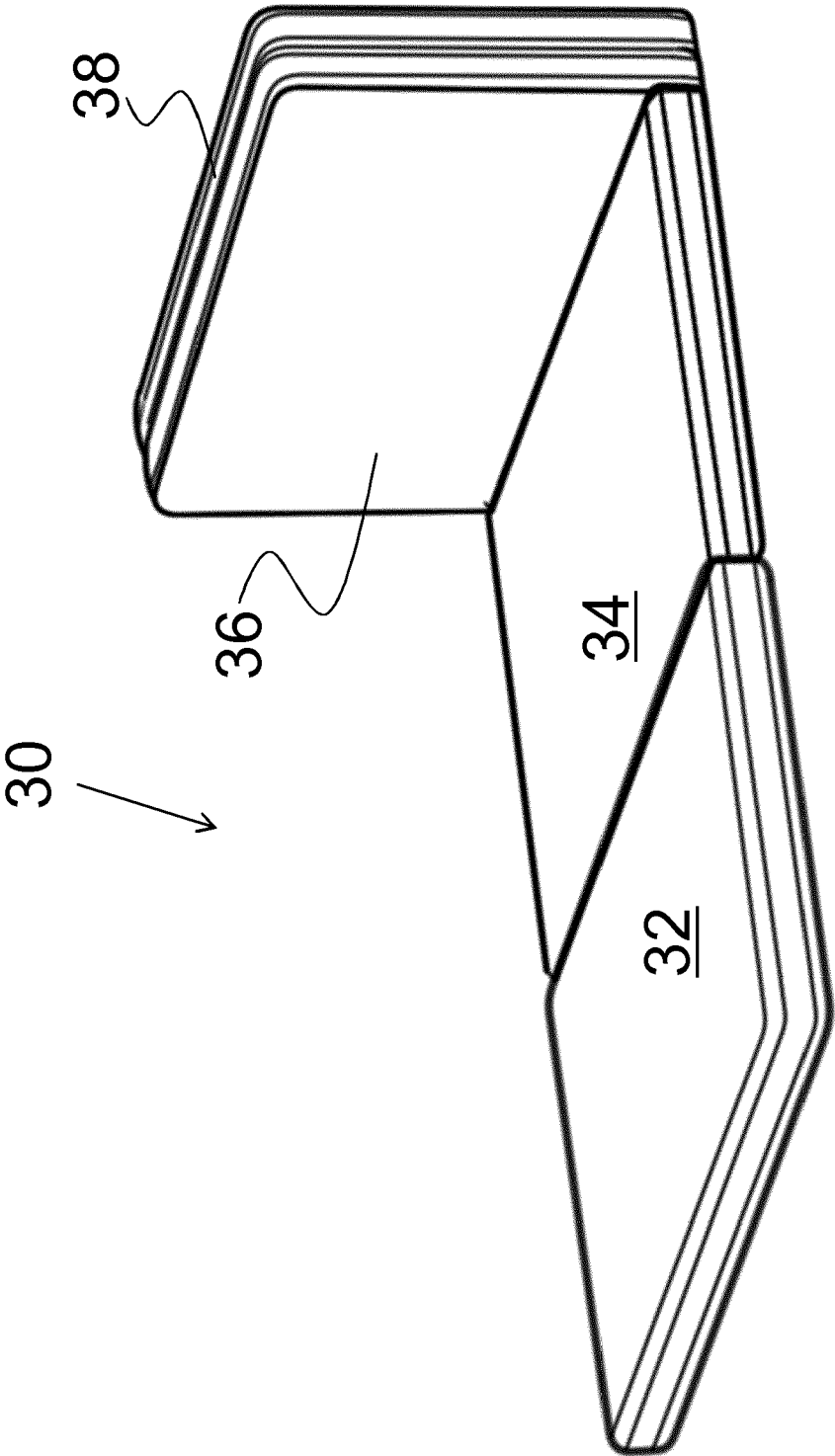


Fig. 4b

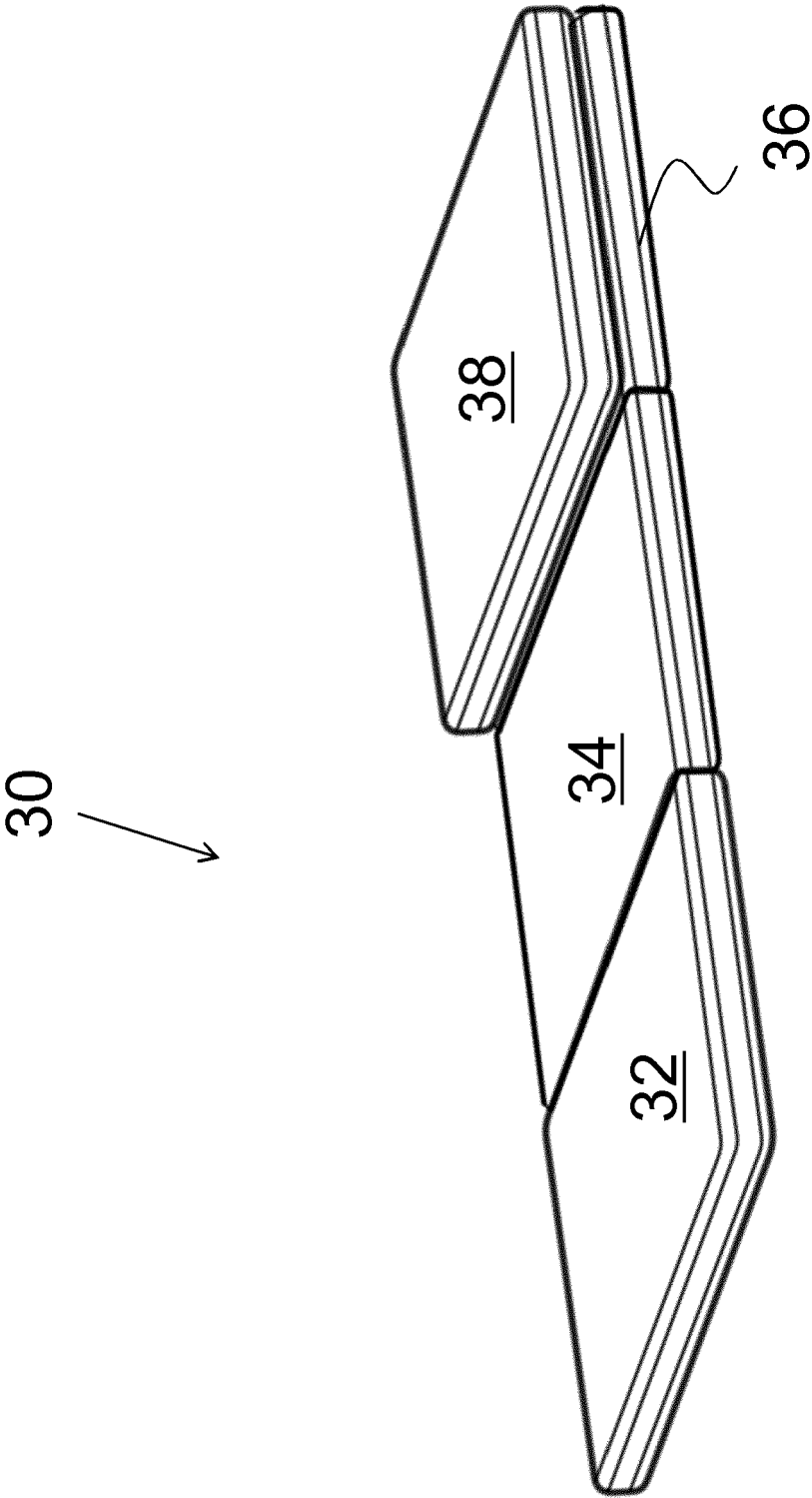


Fig. 4c

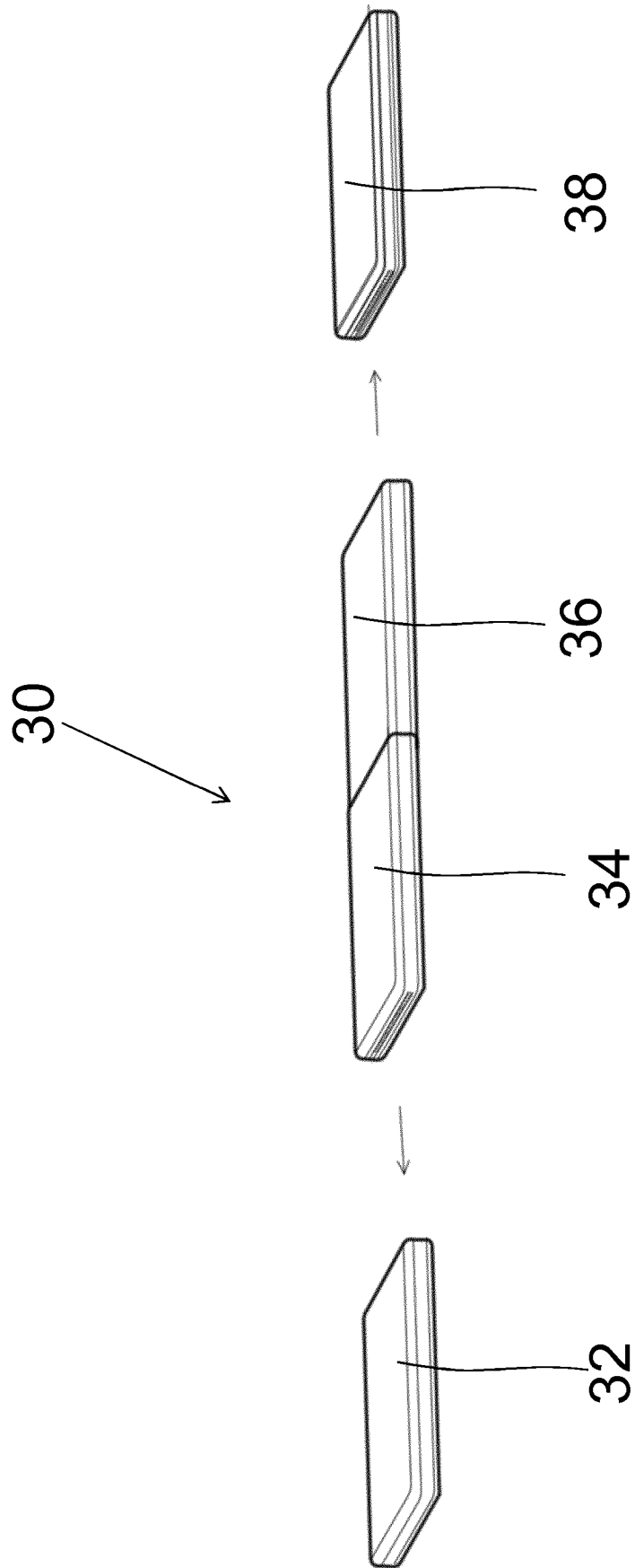


Fig. 5

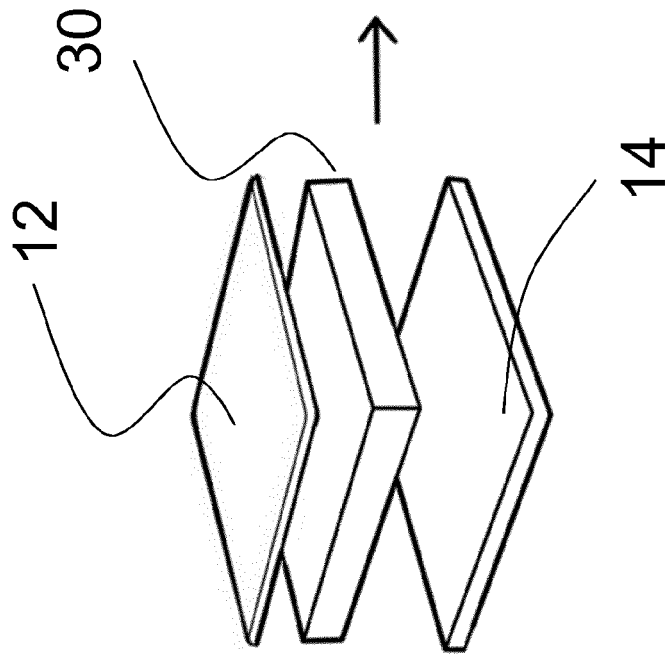


Fig. 6a

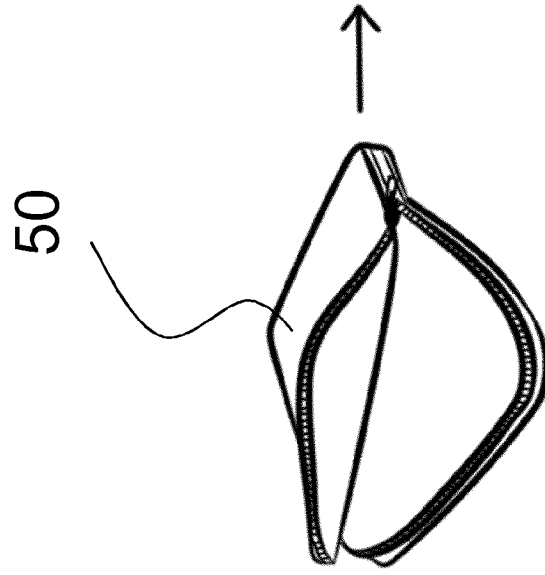


Fig. 6b

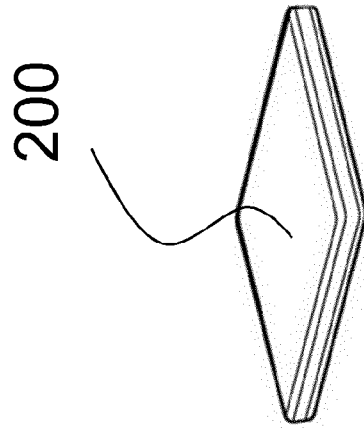


Fig. 6c



EUROPEAN SEARCH REPORT

Application Number
EP 18 17 7989

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2016/088951 A1 (MCGUINNESS KAREN [US]) 31 March 2016 (2016-03-31)	1-11	INV. A47C17/04 A47C27/00
Y	* claims 1,15,18,33; figures 1-7 * -----	6	
Y	US 2013/276238 A1 (VEGA-WOLLER ANA B [US] ET AL) 24 October 2013 (2013-10-24) * last sentence, paragraph 33; claim 1; figures *	6	
A	FR 754 879 A (HAESSELI) 16 November 1933 (1933-11-16) * claim 2; figures * -----	5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47C A47D
Place of search		Date of completion of the search	Examiner
The Hague		31 August 2018	Amghar, Norddin
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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31-08-2018

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