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(54) PROTECTIVE PACKAGING

(57) The invention relates to protective packaging (2) for a panel and, particularly for use to protect the edges of windscreens when stored or in transit. The packaging is formed as one or more elongate members which include a channel (4) depending inwardly from a first surface (8) and into and along which the edge of the panel is located and at spaced intervals along at least a portion of the said member there are provided at least one set of a plurality of cuts or notches (30) and typically a second set of cuts or notches (34) on a second opposing surface (18) and typically of a different form to the first set of cuts or notches (30). The sets of cuts or notches aid the elongate member in being sufficiently flexible to follow the shape of the edge of the panel and thereby retain the elongate member in position with respect to the panel to provide the required protection.

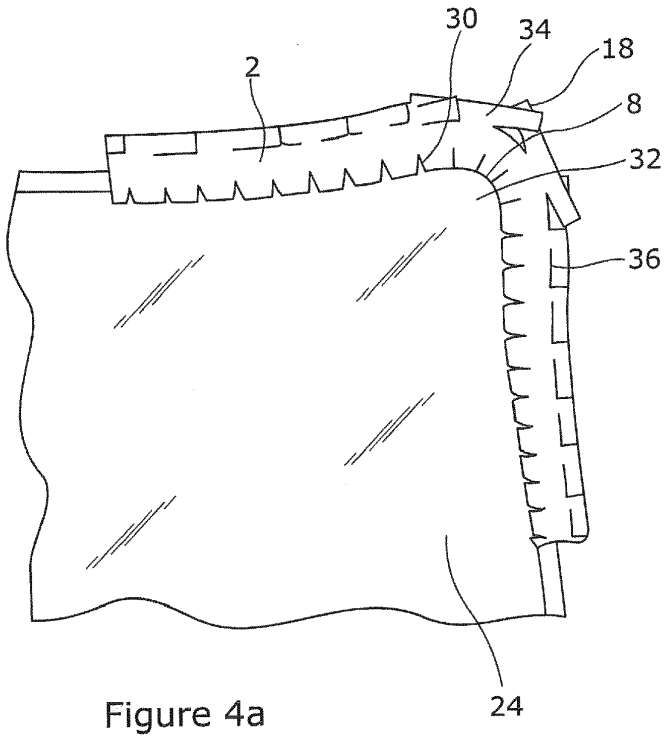

Figure 4a

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Description

[0001] The invention to which this application relates is a form of protective packaging which is particularly, although not necessarily exclusively, adapted for use with panels and, more particularly, to provide protection for the edge of glass panels in the form of curved panels for example of a type which can be used as a windscreen for a vehicle.

[0002] It will be appreciated that from time to time, it is necessary for a vehicle windscreen to be handled and transported, separately from the vehicle in relation to which the same is to be fitted. This handling and transport may be during the delivery of the windscreen to the factory at which the vehicle is being assembled, transport of the windscreen within the factory to allow the same to be moved to the location at which the same is to be fitted to the vehicle and/or the transport, movement and storage of windscreens which are provided to be available to be fitted as a replacement windscreen for a vehicle.

[0003] While the current invention is now described with reference to use of the packaging in relation to windscreens, it should be appreciated that this is for ease of illustration and does not limit the use of the packaging in relation to other forms of glass panels and indeed for use in other forms of panels where the edge of the same is to be protected. As such, the advantages and features of the packaging which are described herein may be applicable when used with these other forms of panels.

[0004] It is known to provide for the transport of windscreens a packaging material which is placed along and around the edge of the windscreen and the packaging is formed as a foam extrusion which has a profile which is relatively shallow and narrow in order to allow the same to be adapted by the user or machinery to follow the shape of the windscreen edge. However the disadvantage is that the shallowness and narrowness of the packaging means that the same does not afford particularly useful protection for the edge and windscreen to prevent damage from impact. In order to attempt to reduce the risk of damage it is known to provide additional packaging items which are typically provided to be fitted at the corners of the windscreen edge and which are particular susceptible to damage. As such the fitting of the additional packaging items at the corners means that an additional protection is provided.

[0005] However, disadvantages of using this known packing arrangement are, firstly, two different types of packaging items are required to be used for each windscreen and therefore in order for the windscreen to be appropriately protected, both types of profiles are required to be available at the location of fitting onto the edge of the windscreen. Furthermore, the requirement to fit two types of packaging items is more time consuming and the use of the relatively thin profile along the majority of the edge of the windscreen still leaves the same susceptible to damage.

[0006] An aim of the present invention is therefore to provide an improved packaging of a form which allows the same to be sufficiently adaptable to follow and be fitted to the contour and shape of an edge of a panel, such as a windscreen whilst also providing an improved resistance to damage of the windscreen.

[0007] A further aim is to allow only one type of packaging to be used to provide sufficient protection and therefore avoid the need for different packaging types to be used.

[0008] A further aim is to be able to replace both conventional packaging types and therefore remove at least one fitting process and packaging type from the operation of providing protection for a windscreen.

[0009] In a first aspect of the invention, there is provided protective packaging for use to protect the edge of a panel wherein the packaging is provided as one or a series of elongate members which include, along a first surface of the same, a channel for the reception of the edge of the glass panel therein and on a second surface, opposing the first surface there is provided a first part which is angularly offset to a second part of said second surface.

[0010] In one embodiment the panel is a glass windscreen.

[0011] In one embodiment, the location of the channel from the surface is offset from the centre of the width of said surface defined by side walls.

[0012] Typically, the channel in the first surface and the change in angle of the respective parts of the second surface, extend along the length of the said elongate member.

[0013] In one embodiment, a series of cuts or notches are provided at spaced intervals along the length of the said packaging so as to allow greater flexibility of bend of the said packaging.

[0014] In one embodiment, the cuts or notches are provided in the form of substantially v-shaped cut which depend inwardly from a surface of the elongate member.

[0015] In one embodiment, the cuts or notches are provided on the surface in which the channel is formed.

[0016] In another embodiment, in addition, or alternatively, to the cuts or notches on the first surface, a series of partially separated portions of the elongate member are formed at regular intervals along a surface of the elongate member so as to further allow the bending of the packaging.

[0017] In one embodiment, the bend of the packaging is sufficient so as to allow the same to be engaged with and follow the shape of the windscreen edge, including the corners thereof.

[0018] Typically, the movement of the cuts or incisions and the portions is required to allow the packaging to follow the corners of the windscreen and still provide the necessary protection therefore.

[0019] In one embodiment, the part of the elongate member to one side of the channel which is thicker is located with respect to the windscreen so as to be the side of the elongate member which is under greater pressure from the weight of the glass.

[0020] In one embodiment, the channel has substantially straight sidewalls or alternatively, at least one of the sidewalls includes an indented portion, typically located at or adjacent to the base of the channel, so as to allow the same to grip the edge of the windscreen.

[0021] In one embodiment, the profile of the elongate member is formed such that the sides of the profile on either side of the channel extend inwardly of the windscreen from the edge thereof and the edge of the windscreen is located towards the base of the channel.

[0022] In a further aspect of the invention, there is provided protective packaging for use to protect the edge of a glass panel wherein the packaging is provided as one, or a series, of elongate members which include, along a first surface of the same, a channel for the reception of the edge of the glass panel therealong therein and at spaced intervals along at least a portion of the said member there are provided at least one set of a plurality of cuts or notches.

[0023] In one embodiment the glass panel is a windscreen.

[0024] In one embodiment the said cuts or notches are formed inwardly from a surface of the elongate member.

[0025] In one embodiment the said cuts or notches depend inwardly from the first surface into which the channel is formed.

[0026] In one embodiment the cuts or notches extend across the width of the member.

[0027] In one embodiment there are provided a first set of cuts or notches which extend inwardly from a first surface of the said member and a second set of cuts or notches which extend inwardly from a second surface of the said member. Typically the said first and second surfaces are opposing surfaces.

[0028] In one embodiment the said first set are v-shaped notches extending inwardly from the surface in which the channel is formed.

[0029] In one embodiment the second set of cuts or notches are L shaped and each of which defines a partially separated portion. In one embodiment a series of portions are located across the width of the said second surface and the cut or notch which defines the same across the width are offset with respect to the longitudinal axis of the elongate member.

[0030] Typically the elongate members are formed of a material which has inherent flexibility but also sufficient rigidity so as to provide a protective effect and has sufficient resilience so as to allow the same to be maintained in position with respect to the edge of the panel.

[0031] In one embodiment the elongate members are formed of foam polyethylene.

[0032] Specific embodiments of the invention are now described with reference to the accompanying drawings; wherein

Figure 1 illustrates a conventional form of packaging for use with a glass panel, in this embodiment in the form of a windscreen, in cross-section;

Figure 2 illustrates in cross-section, packaging for use with a glass panel, in this embodiment in the form of a windscreen, in cross section in accordance with one embodiment of the invention;

Figures 3a - b illustrate a part of the packaging in accordance with Figure 2, fitted onto the lower edge of a windscreen panel;

Figures 4a-b illustrates a portion of the packaging in accordance with the invention fitted around a corner of the windscreen panel;

Figure 5 illustrates the manner in which the packaging can be bent in accordance with the invention; and

Figure 6 illustrates a windscreen with packaging in accordance with the invention located therewith

[0033] Referring firstly to Figure 1, there is illustrated a prior art packaging type A in cross-section and which includes a channel B which passes into the packaging from a surface C. This therefore allows the edge D of the glass panel E to be located at the base F of the channel and the packaging contacts with the support surface G via a corner H of the profile which means that a lot of the weight of the galls and pressure is applied to the corner H which can cause the same to be unstable.

[0034] It will also be seen that the thickness I of the packaging is not substantially greater than the thickness of the glass E.

[0035] In accordance with Figure 2, there is shown an embodiment of packaging 2 in accordance with the invention, again in cross section, and in this embodiment, the packaging (2) is formed with a channel (4) which has a base (6) and an indent portion 28 and the channel depends inwardly from a first surface (8) of the packaging. The channel is offset to one side 10 of the packaging by a distance X which is greater than a distance (Y) between the channel 4 and a second side 12 of the packaging. This allows a greater portion of the packaging material, which is typically a foamed polyethylene material, to be located to one side of the channel 4 and to be provided at that part of the packaging which is under greater pressure from the glass panel when the edge of the same is located in the channel 4 and the packaging 2 is contact with the support surface 16.

[0036] Furthermore, in this embodiment, the second surface 18 of the packaging is provided with first and second parts, a first part 20 which is at a first angle so as to provide contact over a greater surface area with the contact surface than the "point" contact of the conventional packaging and a second part 22 which is angularly offset to the first part 20.

[0037] Part of the packaging 2 is shown in contact with an edge of the windscreen panel 24 in Figures 3a - b and it will be seen that effective protection is provided for the edge 26 of the windscreen when it is located at the base

6 of the channel 4. It is also shown that the packaging 2 is provided in the form of an elongate member and in one embodiment a single elongate member can be provided to be located as one piece around the periphery of the entire windscreen or alternatively a number of portions may be used of the same packaging material located end to end.

[0038] In Figures 4a and 5, it is shown that the packaging has a first set of cuts and notches 30 which are provided in this embodiment as v shaped notches which depend into the packaging material from the first surface 8. These are provided at spaced intervals along the first surface 8 and it will be seen that when the packaging is bent the walls of the notches move towards each other to allow the bend to be achieved whilst maintaining the integrity of the channel 4 and hence allowing the same to locate with the edge of the windscreen around the bend such as a corner 32 of the windscreen 24 as shown in Figure 4a. This ability to adapt to the shape of the windscreen is further enhanced by the provision of a second set of cuts and notches on the depending inwardly from the surface 18 to define a series of partially separated portions 34 and which when the packaging elongate member is in a straight form, lie substantially in line, but which when the packaging is bent, separate as illustrated at the corner 32 of the windscreen 24 as shown in Figure 4a and Figure 5, to allow the elongate member to have greater flexibility so that it can be bent to meet the requirements. In addition to the L shaped cuts 36 the portions are define by elongate cuts 38 along the length of the surface 18 to form a series of the portions across the width of the surface as shown in Figure 4b so as to allow the degree of flexibility to be provided but at the same time maintain the integrity and strength of the packaging 2 to provide the required protection.

[0039] Figure 6 illustrates the manner in which a windscreen 24 can therefore be effectively packaged using the packaging 2 in accordance with the invention by placing one or more of the elongate members along the edge of the windscreen and thereby allow the edge of the windscreen to be placed into and along the channel so that the edge and the part of the panel depending inwardly therefrom is protected by the packaging, particularly during transit and in storage.

Claims

1. Protective packaging for use to protect the edge of a panel wherein the packaging is provided as one or a series of elongate members which include, along a first surface of the same, a channel for the reception of the edge of the glass panel therein and on a second surface, opposing the first surface there is provided a first part which is angularly offset to a second part of said second surface.

2. Packaging according to claim 1 wherein the panel is a glass windscreen.

3. Packaging according to claim 1 wherein the location of the said channel is offset from the centre of the width of said first surface defined by side walls of the elongate member.

4. Packaging according to any of the preceding claims wherein the said channel in the first surface and the change in angle of the respective parts of the second surface, extend along the length of the said elongate member.

5. Packaging according to any of the preceding claims wherein a plurality of cuts or notches are provided at spaced intervals along at least a portion of the length of the said elongate member.

6. Packaging according to claim 5 wherein a first set of cuts or notches are substantially V-shaped and depend inwardly from the said first surface of the elongate member.

7. Packaging according to any of the preceding claims wherein a plurality of partially separated portions of the elongate member are formed along at least a portion of a surface of the elongate member.

8. Packaging apparatus according to claim 7 when dependent on claim 6 wherein said partially separated portions are provided on the said second surface.

9. Packaging according to claims 7 or 8 wherein the cuts or notches which form the said partially separated portions are L shaped and a series of said portions are located across the width of the said elongate member and the cuts or notches which define the portions across the width are offset with respect to the longitudinal axis of the elongate member.

10. Packaging according to claim 3 wherein the portion of the first surface on one side of the channel with a width which is greater than the width of the portion on the other side of the channel is located with respect to the glass panel when engaged in the channel so as to be positioned at the side of the elongate member which is under greater pressure from the weight of the glass panel.

11. Packaging according to claim 1 wherein the channel has substantially parallel opposing sidewalls.

12. Packaging according to claim 1 wherein at least one of the sidewalls of the channel includes an indented portion located at or adjacent to the base of the channel.

13. Packaging according to claim 11 or 12 wherein the

profile of the elongate member includes portions which form the side walls of the channel and the free ends of which are positioned inwardly of the edge of the glass panel which is located towards a base of the channel.

14. Protective packaging for use to protect the edge of a glass panel wherein the packaging is provided as one, or a series, of elongate members which include, along a first surface of the same, a channel for the reception of the edge of the glass panel therealong therein and at spaced intervals along at least a portion of the said member there are provided at least one set of a plurality of cuts or notches.

15. Packaging according to claim 14 wherein the said cuts or notches are V -shaped and formed inwardly from a first surface of the elongate member in which the channel is formed.

16. Packaging according to claim 14 wherein there is provided a second set of cuts or notches which extend inwardly from a second surface of the said elongate member which opposes the said first surface and the cuts or notches of the second set are L shaped and define a partially separated portion of the elongate member and a series of said portions are located across the width of the said second surface and the cuts or notches which define the same across the width are offset with respect to the longitudinal axis of the elongate member..

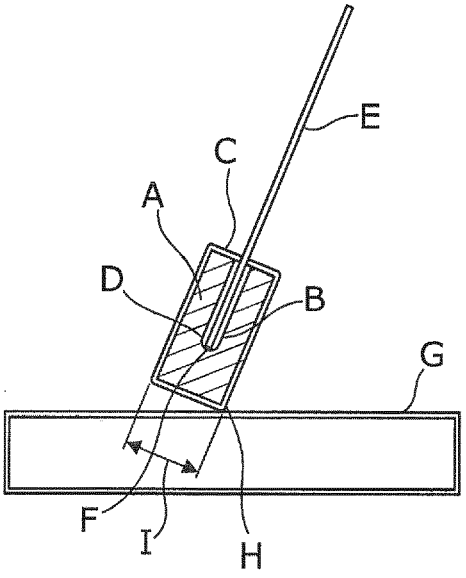

Figure 1

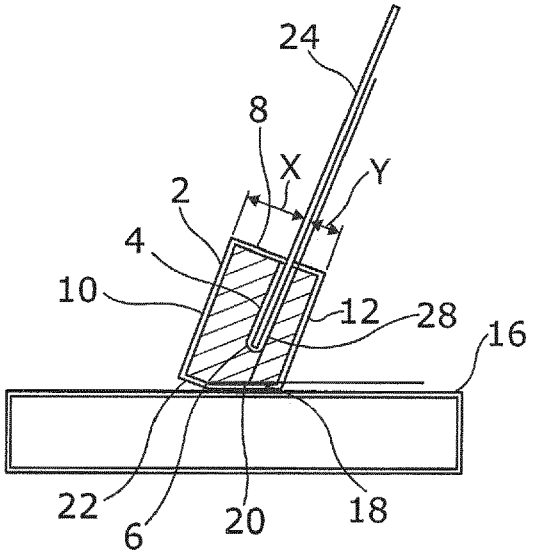

Figure 2

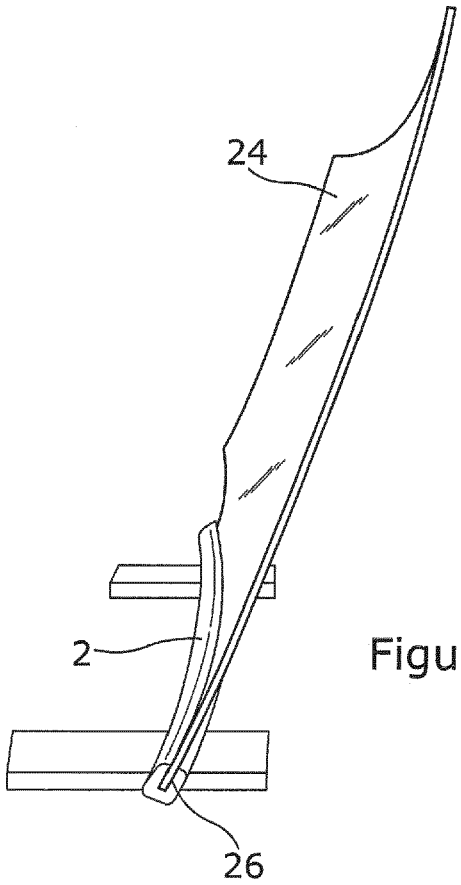

Figure 3a

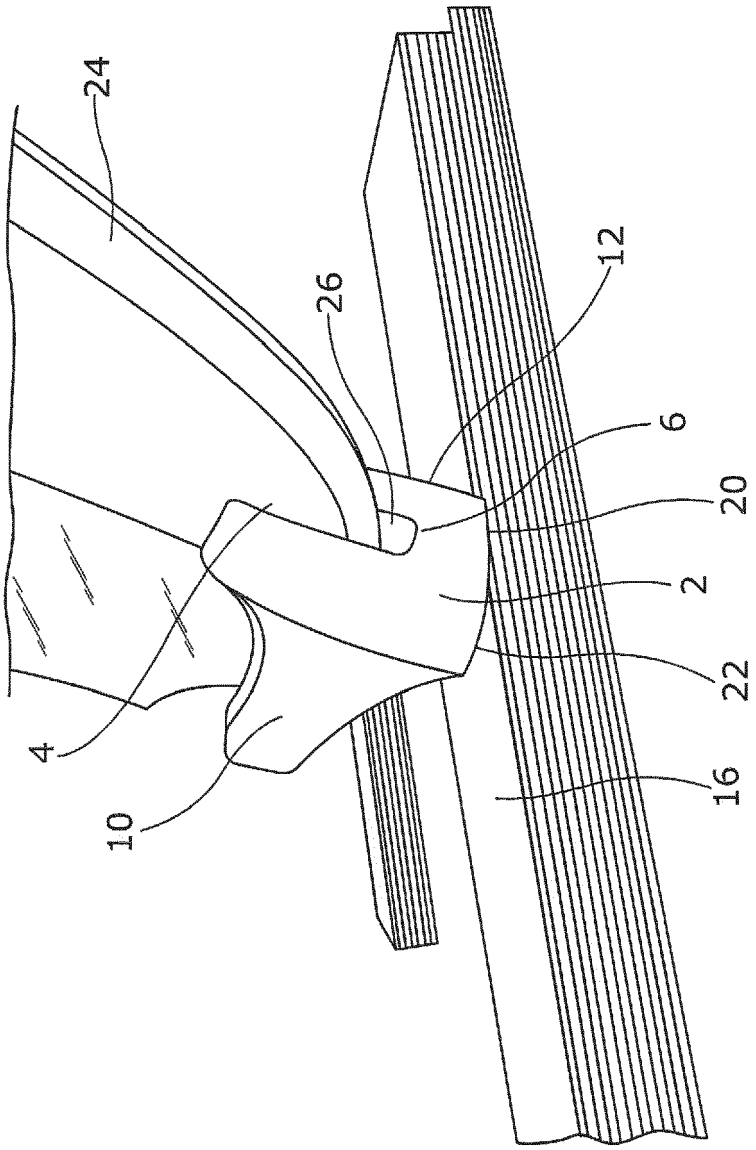

Figure 3b

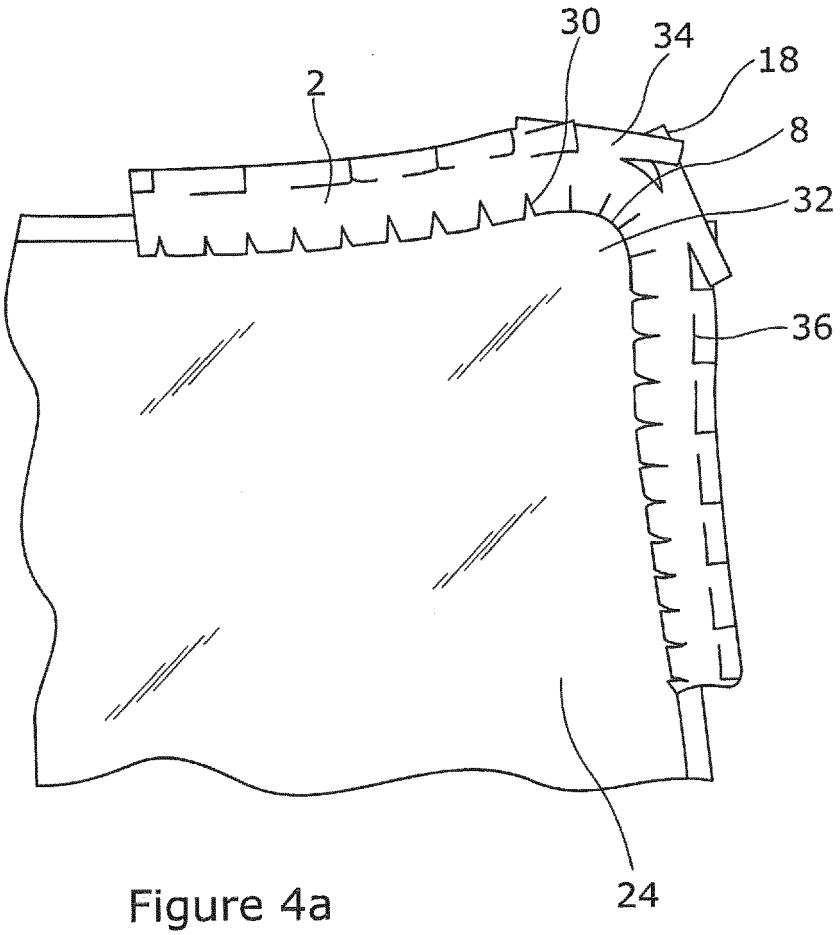

Figure 4a

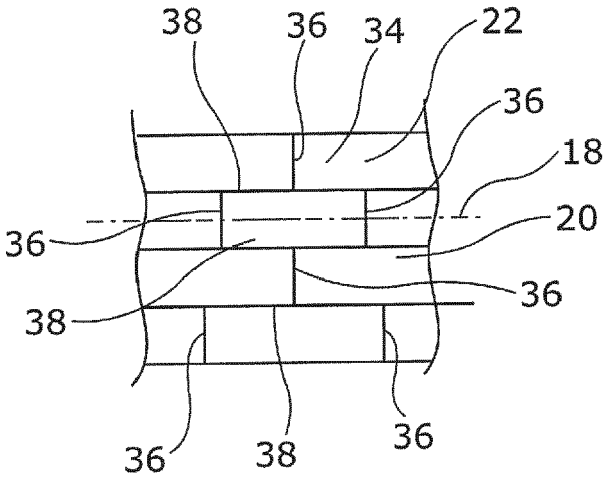

Figure 4b

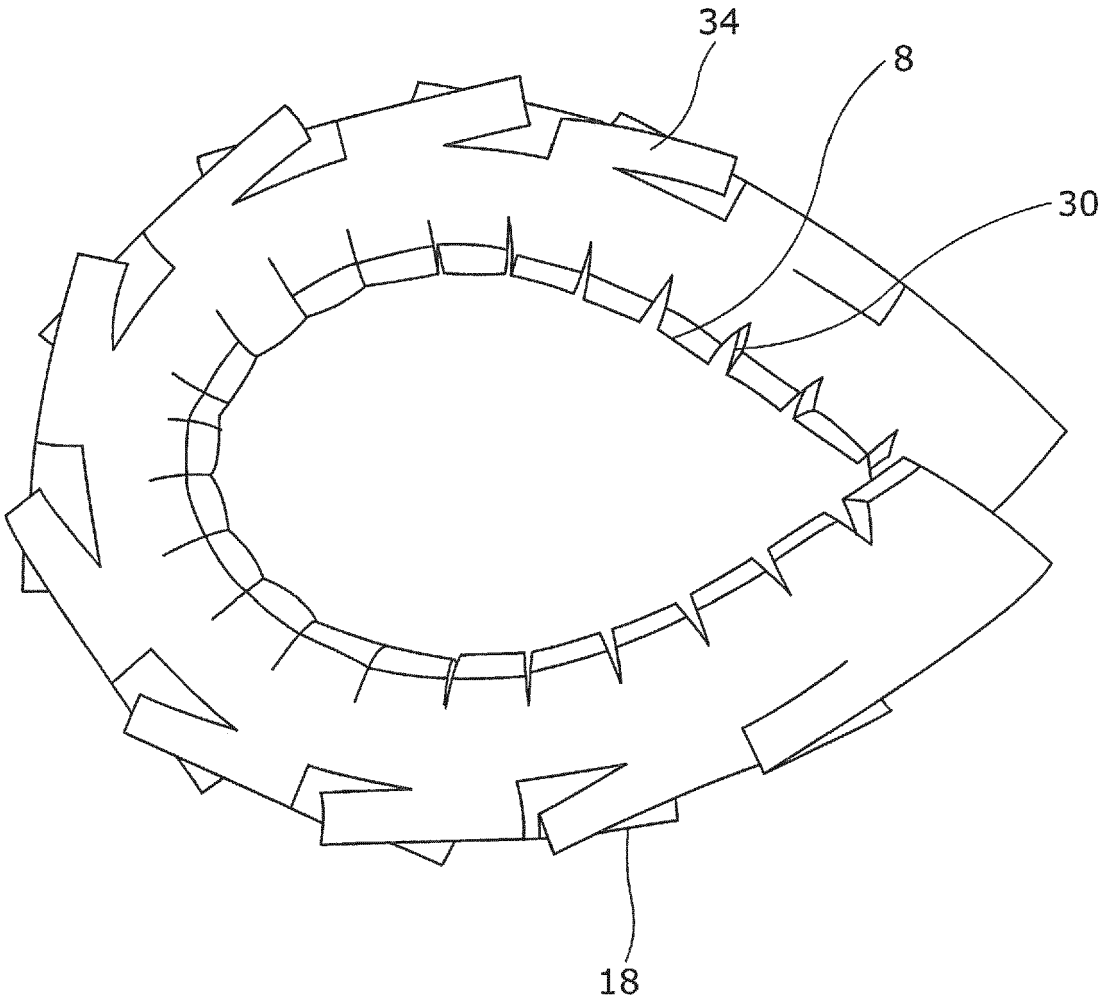

Figure 5

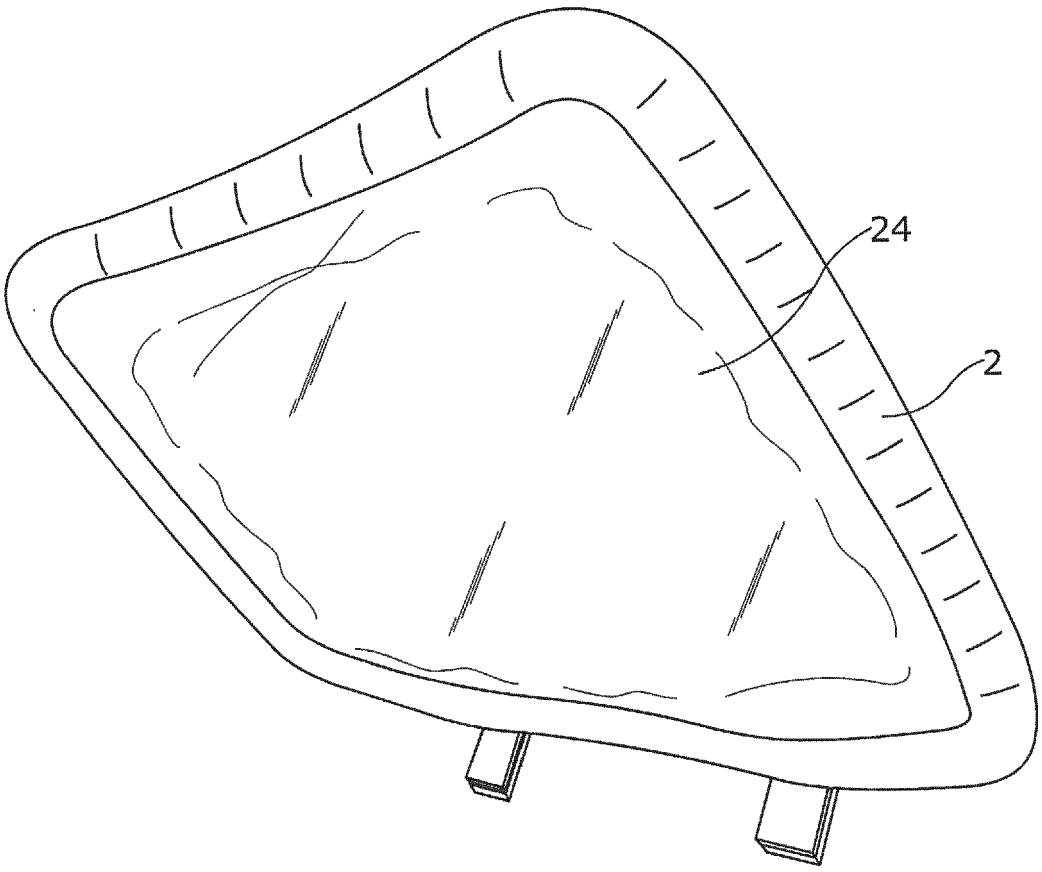

Figure 6

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EUROPEAN SEARCH REPORT

Application Number
EP 19 27 5067

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* page 4, line 6 - page 6, line 4 * * figures 1-4b *	8,9,16	
X	US 2 841 277 A (PAIGE RICHARD E) 1 July 1958 (1958-07-01) * column 2, line 44 - column 5, line 42 * * figures 1-14 *	1-5,7, 10,11, 13,14	
X	DE 19 53 181 U (GRUENZWEIG & HARTMANN [DE]) 5 January 1967 (1967-01-05) * page 3, line 15 - page 6, line 22 * * figures 1-8 *	1,2,4, 11-13	
X	US 2011/220542 A1 (KUO SHENG-HSI [TW]) 15 September 2011 (2011-09-15) * paragraph [0217] - paragraph [0277] * * figures 80-82 *	1-4, 10-13	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	27 August 2019	Rodriguez Gombau, F

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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27-08-2019

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