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(54) **Capping strip for use with panels or sheets**

Abschlussprofilleisten für Hohlplatten

Baguettes de bord profilées pour panneaux creux

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Description

Field of the invention

[0001] This invention relates to a sealing or capping strip for covering the edges of a glazing panel or sheet of the type which might be used for the construction of green houses, conservatories, sun lounges, porches, roofs etc...

Background of the Invention

[0002] The windows and roofs of conservatories, green houses, etc... are typically formed from double glazed panels, or from transparent or opaque cellular sheets of a thermoplastics material typically polycarbonate sheeting. The thermoplastics sheet material typically comprises twin walls with the two walls being spaced apart by ribs which extend between the walls. The ribs may be for example parallel ribs normal to the two walls, parallel ribs parallel to the two walls and/or or intersecting ribs which form a series of parallel corrugations or ribbings extending through the sheet. The wall and rib assembly therefore typically has the appearance of a multi-wall sheet formed with a series of parallel elongate cavities extending through the sheet and forming a light, cellular, relatively rigid sheet with good insulating properties.

[0003] When formed from a transparent plastics material, such sheeting is particularly suitable for use as roofing panels or window panels in the construction of green houses, atriums, conservatories etc... The multi-wall sheets are typically supported within a metallic frame, usually an aluminium framework, and when used for roofing the elongate cavities within the sheet material may become filled with water, steam or other foreign material. To prevent the ingress of foreign bodies, it is common for the open edges of the sheet, which are usually arranged as the upper and lower edges on an inclined roof, to be covered in a U shaped cross-sectional capping or cover strip. The other closed edges may also be covered by extruded U shaped caps or alternatively adjacent sheets may be joined by means of extruded "H" section joining strips. Such an arrangement is disclosed in EP-A1-0 052 188.

[0004] The present invention provides an improved edge capping strip which is particularly useful with multi-walled cellular plastics sheeting.

Statement of Invention

[0005] A sealing or capping strip for use with planar panels and which comprises an elongate body comprising a pair of arms linked together at their base to form an open channel and which in use fit over the edge margin of a planar panel inserted into the channel, characterised in that a deformable membrane extends between the two arms forming a compartment adjacent the base of the

channel and in use the membrane deforms to accommodate the edge of a panel inserted between the arms.

[0006] The capping strip preferably has a substantially "U" shaped cross-section.

5 [0007] The membrane should be spaced from the base of the channel by a minimum gap of 1 mm and, preferably, by a minimum gap of 2.5 mm. The membrane is preferably convex towards the mouth of the channel and the compartment adjacent the base preferably has a height from said base which is by about 25% -40% of the distance between the two arms. The membrane may be formed from a resilient elastomeric material such as a polyurethane material and more preferably a thermoplastic polyurethane (TPU) or any other compatible thermoplastic materials.

10 [0008] The capping strip is formed from a resilient plastics material, preferably a polycarbonate or a polyester, and the two arms are inclined inwardly towards each other at an angle, preferably of between 5-20° and, more preferably of between 5-8°, from a normal to the base. Preferably the membrane has side portions that are co-extensive with and are secured to the distal end portions of the two arms. Preferably, the membrane is welded or co-extruded to the distal end portions of the arms by a distance of between 4 and 5 mm.

15 [0009] According to a second aspect of the invention there is provided a method of sealing the edges of a panel, in particular a multi-walled thermoplastic glazing panel, in which at least one edge of the sheet is covered by a capping strip which comprises an elongate body comprising a pair of arms linked together at their base to form an open channel and which in use fit over the edge margin of the panel, and a deformable membrane extends between the two arms forming a compartment adjacent the base of the channel, and when the capping strip is pushed over said edge the membrane deforms to accommodate the edge of a panel inserted between the arms.

20 [0010] The membrane comprises a resilient elastomer and the capping strip also seals against the side margins of the panel.

Description of the Drawings

25 [0011] The invention will be described by way of Example and with reference to the accompanying drawings in which:

Fig. 1a is a transverse cross-section through a capping strip according to a first embodiment of the present invention,

Fig. 1b is a transverse cross-section through a capping strip according to a second embodiment of the present invention,

Fig. 1c shows transverse cross-sections through capping strips according to various embodiments of the present invention,

Fig. 2 is a plan view of an edge portion of a panel with the capping strip in situ, and

Fig. 3 is a section through the capping strip shown in situ mounted over the edge of a panel.

Detailed Description of the Invention

[0012] With reference to Figs. 1 to 3 of the drawings there is shown a capping strip 10 which in use is used for covering the edge of a multi-walled panel or sheet 11.

[0013] Multi-walled plastics glazing panels or sheets are well known and generally comprise two external walls 21,22 spaced apart by ribs 23 which also extend longitudinally through the panel or sheet to form side by side elongate cells 24 substantially parallel to each other. This construction gives the panel 11 a light rigid cellular structure having good thermal insulation properties. When formed from a transparent material such as polycarbonate these types of panels or sheets are commonly used for roofs and walls of green houses, conservatories, sun lounges, porches, or other constructions and buildings.

[0014] The capping strip 10 is a substantially "U"-cross-sectional elongate strip which may be extruded from polycarbonate or other suitable resilient plastics material. The strip 10 has two arms 12,13 joined together at their base 14 to form an open mouthed channel. The base 14 is substantially flat and the two arms 12,13 are inclined inwardly at an angle α from a normal to the base. The angle α may be between 5-20° and, preferably, between 5-8° of arc depending upon the resilience of the capping strip 10. One arm 12 may be longer than the other arm 13.

[0015] A membrane 15 formed from a resilient elastomeric material extends between the two arms 12 & 13. The membrane 15 may take up a curved shape (or "U"-shape) which presents a convex form towards the mouth of the channel (Fig 1a) or a substantially flat shape (Fig 1b) or any other suitable shape (Fig. 1c). The membrane 15 is preferably a transparent elastomer, for example a polyurethane rubber such as a thermoplastics polyurethane (TPU) and has side portions 16, 17 which overlap and are adhered to the distal end portions 18, 19 of the two arms.

[0016] Preferably, the membrane 15 is spaced from the base 14 of the strip by at least 1 mm (more preferably by at least 2.5 mm). More preferably, the membrane 15 is spaced from the base 14 of the strip by a distance D which is between 25-40% of the width W of the base, and the channel within the capping strip 10 is divided into two chambers by the membrane 15.

[0017] The dimensions of the strip 10 will be varied according to the thickness of the panel 11 to be capped. By way of example only 16 mm multi-walled polycarbonate sheet may utilise a capping strip of a nominal 17 mm width base with arm 12 being about 20 mm in length and arm 13 about 14 mm in length.

[0018] Figs. 2 & 3 show an edge margin of a panel or sheet 11 covered with a length of capping strip 10. In use, the strip 10 will typically cover the open edge of a

panel 11, that is the edge open to the elongate cells 24. The edge margin of a panel 11 is pushed into the channel formed between the two resiliently biased arms 12 & 13 with the longer arm 12 shown on the upper side of the panel. The edge 25 of the strip is pushed against the deformable membrane 15 which distorts to accommodate the panel 11, limits the insertion of the panel 11 into the capping strip 10, and seats against the edge of the strip.

[0019] The resilient arms 12 & 13 press the side portions 16 & 17 of the membrane against the sidewalls 21, 22 of the panel thereby sealing the arms against the panel. The chamber 26 formed between the base 14 of the strip and the membrane 15 may serve to conduct water away from the panel or sheet 11. The membrane 15 may also serve to protect the open edges of the panel or sheet 11 from dust or moisture.

Claims

1. A capping strip (10) for use with planar panels (11) and which comprises an elongate body comprising a pair of arms (12,13) linked together at their base (14) to form an open channel and which in use fit over the edge margin of a planar panel (11) inserted into the channel, **characterised in that** a deformable membrane (15) extends between the two arms (12,13) forming a compartment (26) adjacent the base (14) of the channel and in use the membrane sits against the edge of a panel inserted between the arms.
2. A capping strip as claimed in Claim 1 having a substantially "U" shaped cross-section with a flat base (14) extending between the two arms (12,13).
3. A capping strip as claimed in Claim 1 or Claim 2, wherein the membrane (15) forms a convexity towards the mouth of the channel.
4. A capping strip as claimed in any one of Claims 1 to 3, wherein the membrane (15) should be spaced from the base (14) of the channel by a minimum gap of 1 mm, preferably by a minimum gap of 2.5 mm.
5. A capping strip as claimed in any one of Claims 1 to 4, wherein the compartment (26) adjacent the base (14) of the channel has a height from said base to the membrane which is by between 25% -40% of the distance between the two arms (12,13).
6. A capping strip as claimed in any one of Claims 1 to 5 wherein the membrane (15) is formed from a resilient elastomer, such as a polyurethane elastomer.
7. A capping strip as claimed in any one of Claims 1 to 6 wherein the capping strip is formed from a resilient

plastics material and the two arms (12,13) are inclined inwardly towards each other at an angle of between 5-20°, preferably of between 5-8° from a normal to the base (14).

8. A capping strip as claimed in any one of Claims 1 to 7 **characterised in that** the membrane (15) has end portions that overlap with and are secured to the distal end portions (18,19) of the two arms (12,13), the two end portions in use forming seals with sides of any panels inserted into the channel.
9. A method of sealing the edges of a panel (11) in which at least one edge of the panel is covered by a capping strip (10) which comprises an elongate body comprising a pair of arms (12,13) linked together at their base (14) to form an open channel and which in use fit over the edge margin of the panel (11), and a resiliently deformable membrane (15) extends between the two arms (12,13) forming a compartment (26) adjacent the base (14) of the channel, and when the capping strip (10) is pushed over said edge the membrane (15) deforms to seal against the edge of a panel (11) inserted between the arms (12,13).
10. A method as claimed in Claim 9 wherein the membrane (15) also seals against side margins of the panel (11).

Patentansprüche

1. Abschlussprofilleiste (10) zur Verwendung mit ebenen Platten (11) und die einen länglichen Körper aufweist, der ein Paar Arme (12, 13) aufweist, die miteinander an ihrer Basis (14) verbunden sind, um einen offenen Kanal zu bilden, und die bei Benutzung über den Kantenrand einer in den Kanal eingesetzten ebenen Platte (11) passen, **dadurch gekennzeichnet, dass** sich eine verformbare Membran (15) zwischen den zwei Armen (12, 13) erstreckt, die eine Kammer (26) benachbart der Basis (14) des Kanals bilden, und dass die Membran bei Benutzung an der Kante einer zwischen den Armen eingesetzten Platte aufliegt.
2. Abschlussprofilleiste nach Anspruch 1, die einen im Wesentlichen "U"-förmigen Querschnitt aufweist, wobei sich eine flache Basis (14) zwischen den zwei Armen (12, 13) erstreckt.
3. Abschlussprofilleiste nach Anspruch 1 oder Anspruch 2, bei der die Membran (15) eine Konvexität in Richtung der Öffnung des Kanals bildet.
4. Abschlussprofilleiste nach einem der Ansprüche 1 bis 3, bei der die Membran (15) von der Basis (14)

des Kanals um einen minimalen Spalt von 1 mm, vorzugsweise um einen minimalen Spalt von 2,5 mm, beabstandet sein sollte.

5. Abschlussprofilleiste nach einem der Ansprüche 1 bis 4, bei der die Kammer (26) benachbart der Basis (14) des Kanals eine Höhe von der Basis bis zur Membran aufweist, die bei zwischen 25 % bis 40 % des Abstandes zwischen den zwei Armen (12, 13) liegt.
6. Abschlussprofilleiste nach einem der Ansprüche 1 bis 5, bei der die Membran (15) aus einem elastischen Elastomer gebildet wird, wie beispielsweise einem Polyurethanelastomer.
7. Abschlussprofilleiste nach einem der Ansprüche 1 bis 6, bei der die Abschlussprofilleiste aus einem elastischen Kunststoffmaterial gebildet wird und die zwei Arme (12, 13) nach innen in Richtung zueinander unter einem Winkel zwischen 5 und 20°, vorzugsweise zwischen 5 und 8°, von einer Normalen zur Basis (14) geneigt sind.
8. Abschlussprofilleiste nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** die Membran (15) Endabschnitte aufweist, die sich mit den distalen Endabschnitten (18, 19) der zwei Arme (12, 13) überdecken und daran gesichert sind, wobei die zwei Endabschnitte bei Benutzung Abdichtungen mit den Seiten jeglicher in den Kanal eingesetzter Platten bilden.

9. Verfahren zur Abdichtung der Kanten einer Platte (11), bei dem mindestens eine Kante der Platte durch eine Abschlussprofilleiste (10) abgedeckt wird, die einen länglichen Körper aufweist, der ein Paar Arme (12, 13) aufweist, die miteinander an ihrer Basis (14) verbunden sind, um einen offenen Kanal zu bilden, und die bei Benutzung über den Kantenrand der Platte (11) passen, und wobei sich eine elastisch verformbare Membran (15) zwischen den zwei Armen (12, 13) erstreckt, die eine Kammer (26) benachbart der Basis (14) des Kanals bilden, und wobei sich, wenn die Abschlussprofilleiste (10) über die Kante gedrückt wird, die Membran (15) verformt, um gegen die Kante einer zwischen den Armen (12, 13) eingesetzten Platte (11) abzudichten.
10. Verfahren nach Anspruch 9, bei der die Membran (15) ebenfalls gegen die Seitenränder der Platte (11) abdichtet.

Revendications

1. Bandeau de recouvrement (10) destiné à être utilisé avec des panneaux plans (11) et comprenant un

corps allongé comprenant une paire de bras (12, 13) reliés au niveau de leur base (14) pour former un canal ouvert, et ajustés en service au-dessus de la marge de bordure d'un panneau plan (11) inséré dans le canal, **caractérisé en ce qu'**une membrane déformable (15) s'étend entre les deux bras (12, 13) formant un compartiment (26) près de la base (14) du canal, la membrane reposant en service contre le bord d'un panneau inséré entre les bras.

2. Bandeau de recouvrement selon la revendication 1, ayant une section transversale pratiquement en U, une base plate (14) s'étendant entre les deux bras (12, 13).

3. Bandeau de recouvrement selon les revendications 1 ou 2, dans lequel la membrane (15) forme une convexité en direction de l'embouchure du canal.

4. Bandeau de recouvrement selon l'une quelconque des revendications 1 à 3, dans lequel la membrane (15) devrait être espacée de la base (14) du canal d'un espace minimal de 1 mm, de préférence d'un espace minimal de 2,5 mm.

5. Bandeau de recouvrement selon l'une quelconque des revendications 1 à 4, dans lequel le compartiment (26) adjacent à la base (14) du canal a une hauteur entre ladite base et la membrane représentant 25% à 40% de la distance entre les deux bras (12, 13).

6. Bandeau de recouvrement selon l'une quelconque des revendications 1 à 5, dans lequel la membrane (15) est composée d'un élastomère élastique, par exemple d'un élastomère de polyuréthane.

7. Bandeau de recouvrement selon l'une quelconque des revendications 1 à 6, dans lequel le bandeau de recouvrement est composé d'un matériau plastique élastique, les deux bras (12, 13) étant inclinés vers l'intérieur l'un vers l'autre à un angle compris entre 5 et 20°, de préférence entre 5 et 8° par rapport à une ligne perpendiculaire à la base (14).

8. Bandeau de recouvrement selon l'une quelconque des revendications 1 à 7, **caractérisé en ce que** la membrane (15) comporte des parties d'extrémité chevauchant les parties d'extrémité distales (18, 19) des deux bras (12, 13) et fixées à celles-ci, les deux parties d'extrémité formant des joints avec les côtés de quelconques panneaux insérés dans le canal.

9. Procédé d'établissement de l'étanchéité des bords d'un panneau (11), au moins un bord du panneau étant recouvert par un bandeau de recouvrement (10) comprenant un corps allongé comprenant une paire de bras (12, 13) reliés au niveau de leur base

(14) pour former un canal ouvert et ajustés en service au-dessus d'une marge de bordure du panneau (11), une membrane à déformation élastique (15) s'étendant entre les deux bras (12, 13), formant un compartiment (26) adjacent à la base (14) du canal, la membrane (15) étant déformée lorsque le bandeau de recouvrement (10) est poussé au-dessus dudit bord, pour établir l'étanchéité par rapport au bord d'un panneau (11) inséré entre les bras (12, 13).

10. Procédé selon la revendication 9, dans lequel la membrane (15) établit aussi l'étanchéité par rapport aux marges latérales du panneau (11).

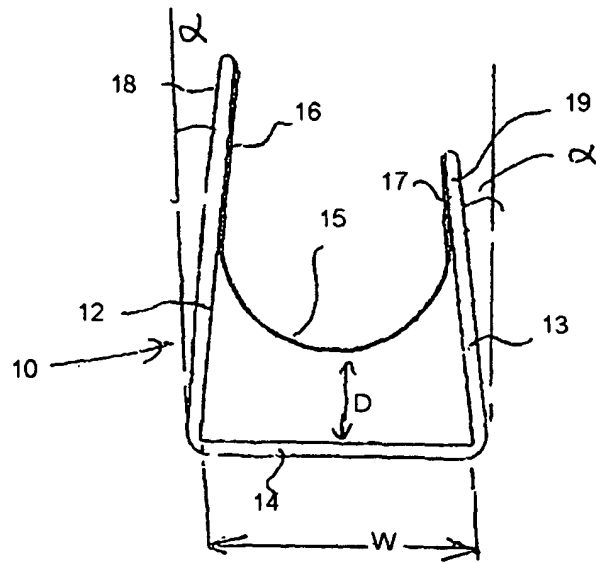


FIG. 1a

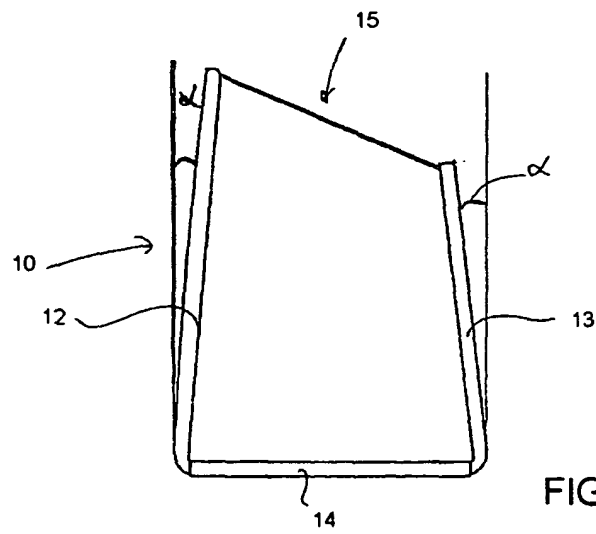


FIG. 1b



FIG. 1c

