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(54) **Recreational vehicle**

Freizeitfahrzeug

Véhicule de loisir

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(73) Proprietor: **Chateau Caravans**
3930 Hamont-Achel (BE)

(72) Inventor: **Broers, Jacob**
3910, Sint-Huibrechts-Lille (BE)

(74) Representative: **Leherte, Georges M.L.M. et al**
Gevers & Vander Haeghen
Holidaystraat 5
1831 Diegem (BE)

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Description

[0001] The following description relates to a caravan, a mobile home or a motor caravan, provided with at least 2 side walls, a front, a rear and a roof and an interior, in which a sitting area and a kitchen may for instance be fitted. The side walls show a contour which is straight or of which one or more portions are arcuate. This description relates to running strips of these contours hereinafter referred to as "clamping profiles", of which various models, with various functions are used. These clamping profiles are usually made of aluminium, being mounted as one piece at the left and right over the length of the contours of the recreational vehicles by means of a screwed connection, of which the screw is fitted in a screw groove with a decorative border. The above-described clamping profiles function as the finishing of the contours at the left and right, where the front, the roof and the rear are fixed to the side walls. They may also have the function of an insertion rail for a tent or an awning and lastly, they also have the function of providing water tightness, having a sealant underneath them.

[0002] These clamping profiles have been used almost unchanged for years and are fitted respectively at the left and right on the circumference of caravans and mobile homes of nearly all makes of recreational vehicles.

[0003] These clamping profiles have never had unfavorable effects, until, about 15 to 20 years ago, plastics, including ABS and polyester, were increasingly used for caravans and mobile homes. All manufacturers used more and more plastics over time, wanting to join in the face lifting of their recreational vehicles.

[0004] Due to the oil crisis of the late seventies, the issue of aerodynamics became a strong point of attention in this field, with as little air resistance as possible being allowed for recreational vehicles, in order to save on fuel, especially for caravans. The caravans and mobile homes had to become more rounded and sloping. This design trend persisted and could be realized most easily, and possibly only by the increasing use of plastics, where before aluminium outside panels were used. This is exactly where the catch is.

[0005] Relatively soon after plastics and polyester had begun to be used, it was found that the screws of the clamping profiles caused these materials to tear.

[0006] Also, these materials, especially those of the ABS-group, are highly sensitive to temperature changes. Tests that I carried out, show that the tolerance between the max. expansion (at +30°C) and the max. shrinkage (at -30°C) in the worst case amounts to 0,6 to 0,7%, depending on the thickness of the material. A thinner material is far more sensitive than a thick material. One has to realize that for a length of 1 meter plastics material this can be 6 to 7 mm. Note that temperatures below zero cause a greater movement than those above zero, the reason for this being that most fronts, roofs and rears are white and repel sunlight, making it difficult (fortunately) for heat absorption to take place.

[0007] Because a plastic front or rear of a caravan, or a cabin cover of a mobile home, or a lighting bumper of both, or an entirely polyester roof, due to their substantial size are subject to a fairly large amount of expansion and shrinkage, it is normal that these parts tear where they have been penetrated by screws.

[0008] Up till now, usually under warranty, manufacturers have replaced the tom parts for their clients, and by repeatedly pointing out to their suppliers the quality of their materials, they have thought to eliminate this problem. Eventually they did not want to give up the plastic materials anymore, because thanks to their use, they were able to create more beautiful, rounder and more modem lines in their designs. That is also the reason that despite the many problems, plastic materials are still used to great extent. But because these problems have lasted so many years, the consequences have become so great for certain manufacturers (they are confronted with damage claims for tom plastic parts daily) that they have started to search for solutions themselves.

[0009] This was reason enough to search for a good solution and this is as follows: the screw groove with decorative stripe in the existing profile of which the screws up to now have penetrated the plastic materials, is moved to the outside corner, so that the screws securing the profile no longer perforate the plastic materials, but pass alongside the plastic materials before penetrating the wood.

The invention thus provides a recreational vehicle, such as a caravan, mobile home or motor caravan, in accordance with the introduction part of claim 1, having a clamping profile in accordance with the characterizing part of claim 1.

[0010] Clamping profiles having an L-shape with on top a screw groove with finishing stripe, and having their screw groove with finishing stripe placed at a slanting angle with respect to the L-shape, are known per se, for instance from the patent publication FR 2 602 554.

[0011] The clamping method disclosed in this document does however not avoid the drawbacks referred to above in that said document does not disclose to extend the screws in a slanting angle alongside plastic materials.

[0012] In one embodiment of the invention the clamping profile that follows the contour of the side wall with at least an curved portion can, more in particular, have no greater height dimension, than that which can still be bent together with the contour manually, and which height dimension is smaller than 25 mm and preferably 15 mm.

[0013] In another embodiment of the invention the clamping profile can have greater height dimensions than those when it can be bent together with the curved portion of the contour of the side wall manually, and the clamping profile has to be bent by machine.

[0014] According to preferred feature of the invention the clamping profile, in particular has a L-shape angle which is smaller than ninety degrees so that, because of this smaller than ninety degree angle, the tension during the clamping is increased in such way that an optimal

sealing is secured with the resilient seal and sealing kit, the side walls, the front, the roof and/or the rear.

[0015] The invention thus specifically relates to a recreational vehicle comprising a clamping profile, made in various shapes, out of various materials and with various technical properties, but always serving the purpose that a screw can be inserted in such an inclined position that in order to achieve the clamping the screw can be inserted through a screw groove with a finishing strip, and reaches the wall without touching the clamped plastic plates, but passes alongside those, thus avoiding perforations that cause tearing.

According to other particular features of the invention, the plastic plate referred to, may preferably be made of ABS or polyester, and the resilient profile referred to may preferably be made of rubber.

[0016] The numerals used in the following description relate to the appended figures illustrating and clarifying the invention by way of non limiting example.

Figure 1 is a schematic perspective view of a caravan;

Figure 2 is a cross-section of a mounted traditional clamping profile;

Figure 3 is a cross-sectional view of a mounted new clamping profile according to the present invention;

Figure 4 and 5 show cross sections of technical possibilities and variants of the clamping profile.

[0017] The present invention relates to recreational vehicles like a caravan, a mobile home or a motor caravan, provided with a sitting area and a kitchen.

[0018] The caravan shown in figure 1 comprises a chassis with wheels 1, having a floor mounted thereupon, two side walls 2, a front 3, roof 4 and rear 5. The front 3, roof 4 and rear 5 are made of plastic plates 6 of which the sides have been secured to the side walls 2. As can be seen, the front 3 consists of a pre-formed plastic plate 6, having an aesthetic and aerodynamic form, and in which a booth 7 for a gas bottle or other accessory is integrated. The front 3 and the rear 5 are usually made of an ABS plastic but may also be made of aluminium or other synthetic materials like polyester. The roof 4 may consist of a flat aluminium plate or a flat plastic plate 6, but also the rear 5 can be made of these flat materials. Between the front and the roof there is provided a strip which provides a watertight connection. As can be seen in figure 1, the side walls 2 display an curved contour of a caravan where the front 3, the roof 4 and the rear 5 are fixed to the side walls 2. The front 3, the roof 4 and the rear 5 are fixed to the side walls 2, and finished by means of a clamping profile 8 which runs along the contour in one piece. The contour of the side walls 2 has bent portions usually having a radius. Consequently, the aluminium clamping profile 8 can easily be bent over them.

[0019] Figure 2 shows us a cross section of a traditionally mounted clamping profile 8 (prior art) with a right angle of 90 degrees in which it is clear that the self-tapping screw 9 with which the clamping profile 8 is fixed, penetrates the plastic plate 6, thus creating a stressed zone in the plastic plate 6 that may cause tearing. Figure 2 also shows that between the clamping profile 8 and the plastic plate 6 a watertight resilient profile 10 filled with sealing kit is fitted to ensure water tightness. In figure 2 can also be seen how a finishing stripe 11 seals the screw groove 12. Figure 2 also shows that the screw 9, after penetrating the profile 8, the watertight resilient profile 10 providing water tightness and the plastic plate 6, ends up in the side wall 2, by which the clamping profile 8 may be subjected to a certain clamping force. It is a pity that above explanation of the screw system of figure 2 caused a great deal of frustration and discomfort both to consumers and manufacturers of recreational vehicles.

[0020] Figure 3 shows us the invention with the solution for the difficulties set forth in figure 2. As can be seen in figure 3 the screw groove 12 with finishing stripe 11 has been moved to the corner of the clamping profile 8 and placed in such an ideal inclined position which can always be changed in the clamping profile 8 if necessary. Also in figure 3 its positive effect can be seen: when the self-tapping screw 9 reaches the side wall 2 through the clamping profile 8 via the watertight resilient profile 10 filled with sealing kit, this screw no longer penetrates the plastic plate 6, but passes by it, as a result of which no longer a stressed area is created in the plastic plate 6, by which this plastic plate may tear. Figure 3 also shows the logical positive result that the clamping profile 8 is pressed against the side wall 2 with the watertight resilient profile 10 better because thanks to the inclined screw groove 12 with finishing stripe 11, the screwing forces exerted on the clamping profile 8 are distributed well both horizontally and vertically. This provides a better guarantee of a watertight sealing and an improved cosmetic finish. In order to have this distribution of forces in the clamping profile 8 take place in an optimal manner, the normal L-angle of ninety degrees in the clamping profile 8 has been reduced with a few degrees, as is clear from figure 3.

[0021] Figure 4 and 5 show the possibilities to apply various models and potential technical modifications to the clamping profile 8, but in which the screw groove 12 is placed in such a way, that the aim to have the self-tapping screw 9 pass by the plastic plate 6 and reach the side wall 2 is always reached. Figures 4 and 5 also show how in the clamping profile 8 two lips 13 serve the purpose of providing the clamping profile 8 with a better distribution and an always correct amount of pressure to the corner of the side wall 2. Logically, however, in these cases the form of the watertight resilient profile 10 must be changed.

Claims

1. A recreational vehicle, such as a caravan, mobile home or motor caravan, having two side walls (2)

and a front (3), a rear (5) and a roof (4) mounted to the side walls (2) whereas the front (3), the rear (5) and/or the roof (4) comprise at least one plastic plate (6) as outer covering, which extends between the side walls (2) and which has two side edges, at least one of which is secured to one of said side walls (2) by being clamped underneath a clamping profile (8) secured to said side, wall (2) along at least a portion of the contour thereof, the clamping profile (8) being bent among said contour and a watertight resilient profile (10) being provided between the clamping profile (8) and the side edge of the plastic plate (6), said clamping profile (8) having an L-shape with on top a screw groove (12) with finishing stripe (11) and said screw groove (12) with finishing stripe (11) being placed at a slanting angle with respect to the L-shape **characterized by** said clamping profile (8) having a screw (9), whereas said screw groove (12) with finishing stripe (11) and the screw (9) are in such a slanting angle with respect to the L-shape, that the screw (9) extending through the clamping profile (8), through the watertight resilient profile (10) and into the side wall (2), does not penetrate said plastic plate (6), but passes alongside it.

2. A recreational vehicle according to claim 1, **characterized by** a clamping profile (8), having a L-shape angle which is smaller than ninety degrees so that, because of this smaller than ninety degree angle, the tension during the clamping is increased in such way that an optimal sealing is secured with the watertight resilient profile (10), the side walls (2), the front (3), the roof (4) and/or the rear (5).

3. A recreational vehicle according to any one of claims 1 and 2, **characterized in that** the clamping profile (8) that follows the contour of the side wall (2) with at least a curved portion, has a height dimension smaller than 25 mm and preferably 15 mm.

4. A recreational vehicle according any one of the preceding claims, **characterized in that** said plastic plate (6) is made of ABS or polyester.

5. A recreational vehicle according to any one of the preceding claims **characterized, in that** said watertight resilient profile (10) is made of rubber.

Patentansprüche

1. Fahrzeug für Freizeit und Erholung, wie zum Beispiel ein Campinganhänger, ein Wohnanhänger oder ein Wohnmobil, das zwei Seitenwände (2) und eine Vorderseite (3), eine Rückseite (5) und ein Dach (4), die an den Seitenwänden (2) montiert sind, aufweist, wobei die Vorderseite (3), die Rückseite (5) und/oder das Dach (4) mindestens eine Kunststoffplatte (6) als Außenabdekkung umfassen, die sich zwischen den Seitenwänden (2) erstreckt und die zwei Seitenränder aufweist, von denen mindestens einer an einer der Seitenwände (2) befestigt ist, indem er unter ein Klemmprofil (8) geklemmt ist, das an der Seitenwand (2) entlang mindestens eines Abschnitts ihrer Kontur befestigt ist, wobei das Klemmprofil (8) entlang der Kontur gebogen ist und ein wasserdichtes elastisches Profil (10) zwischen dem Klemmprofil (8) und dem Seitenrand der Kunststoffplatte (6) angeordnet ist, wobei das Klemmprofil (8) eine L-Form aufweist und auf seiner Oberseite mit einer Schraubennut (12) mit einem Verkleidungsstreifen (11) versehen ist und die Schraubennut (12) mit dem Verkleidungsstreifen (11) in einem schrägen Winkel relativ zu der L-Form angeordnet ist, **dadurch gekennzeichnet, dass** das Klemmprofil (8) eine Schraube (9) aufweist, wobei die Schraubennut (12) mit dem Verkleidungsstreifen (11) und die Schraube (9) in einem derartigen schrägen Winkel relativ zu der L-Form angeordnet sind, dass die Schraube (9), die sich durch das Klemmprofil (8), durch das wasserdichte elastische Profil (10) und in die Seitenwand (2) hinein erstreckt, nicht in die Kunststoffplatte (6) eindringt, sondern längsseits an ihr vorbei führt.

2. Fahrzeug für Freizeit und Erholung nach Anspruch 1, **gekennzeichnet durch** ein Klemmprofil (8), das einen L-Form-Winkel aufweist, der kleiner als neunzig Grad ist, so dass aufgrund dieses Winkels von weniger als neunzig Grad die Spannung während des Klemmvorgangs in einer solchen Weise erhöht wird, dass eine optimale Abdichtung mit dem wasserdichten elastischen Profil (10), den Seitenwänden (2), der Vorderseite (3), dem Dach (4) und/oder der Rückseite (5) sichergestellt ist.

3. Fahrzeug für Freizeit und Erholung nach einem der Ansprüche 1 und 2, **dadurch gekennzeichnet, dass** das Klemmprofil (8), das der Kontur der Seitenwand (2) mit mindestens einem gekrümmten Abschnitt folgt, eine Höhenabmessung von weniger als 25 mm und bevorzugt von 15 mm aufweist.

4. Fahrzeug für Freizeit und Erholung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Kunststoffplatte (6) aus ABS oder Polyester besteht.

5. Fahrzeug für Freizeit und Erholung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das wasserdichte elastisches Profil (10) aus Gummi besteht.

Revendications

1. Véhicule de loisir, tel qu'une caravane, un mobile

home ou une autocaravane, ayant deux parois latérales (2) et un avant (3) et un arrière (5) et un toit (4) montés sur les parois latérales (2), l'avant (3), l'arrière (5) et / ou le toit (4) comprenant au moins une plaque de plastique (6) comme couverture extérieure, laquelle s'étend entre les parois latérales (2) et laquelle a deux bords latéraux dont au moins un est fixé à une desdites parois latérales (2) par serrage en dessous d'un profil de serrage (8) fixé à ladite paroi latérale (2) le long d'au moins une partie du contour de celle-ci, le profilé de serrage (8) étant plié le long dudit contour et un profilé élastique étanche à l'eau (10) étant prévu entre le profilé de serrage (8) et le bord latéral de la plaque de plastique (6), ledit profilé de serrage (8) ayant une forme en L avec, sur le dessus, une gorge pour vis (12) avec bande de finition (11) et ladite gorge pour vis (12) avec bande de finition (11) étant placée à un angle d'inclinaison par rapport à la forme en L, **caractérisé en ce que** ledit profilé de serrage (8) a une vis (9), ladite gorge pour vis (12) avec bande de finition (11) et la vis étant à un tel angle d'inclinaison par rapport à la forme en L que la vis (9) qui s'étend à travers le profilé de serrage (8), à travers le profilé élastique étanche à l'eau (10) et dans la paroi latérale (2) ne pénètre pas dans ladite plaque de plastique (6) mais passe le long de celle-ci.

2. Véhicule de loisir selon la revendication 1, **caractérisé par** un profilé de serrage (8) ayant un angle en forme de L qui est inférieur à quatre-vingt-dix degrés de sorte que, à cause de cet angle inférieur à quatre-vingt-dix degrés, la tension pendant le serrage est accrue de telle manière qu'une étanchéité optimale soit obtenue avec le profilé élastique étanche à l'eau (10), les parois latérales (2), l'avant (3), le toit (4) et / ou l'arrière (5).

3. Véhicule de loisir selon l'une quelconque des revendications 1 ou 2, **caractérisé en ce que** le profilé de serrage (8) qui suit le contour de la paroi latérale (2) avec au moins une partie incurvée a une dimension en hauteur inférieure à 25 mm et de préférence à 15 mm.

4. Véhicule de loisir selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite plaque de plastique (6) est réalisée en ABS ou en polyester.

5. Véhicule de loisir selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit profilé élastique étanche à l'eau (10) est réalisé en caoutchouc.

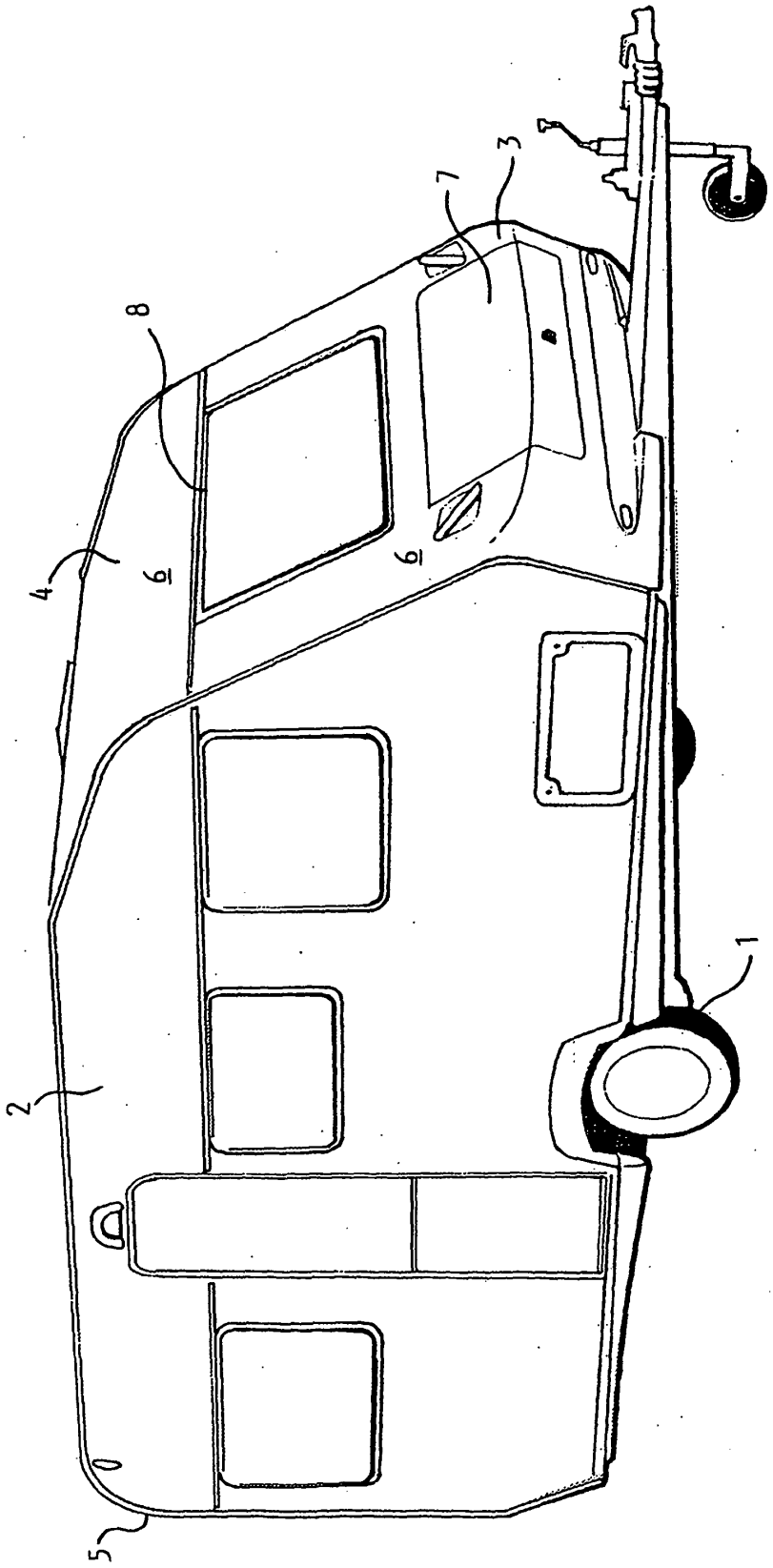

Fig. 1

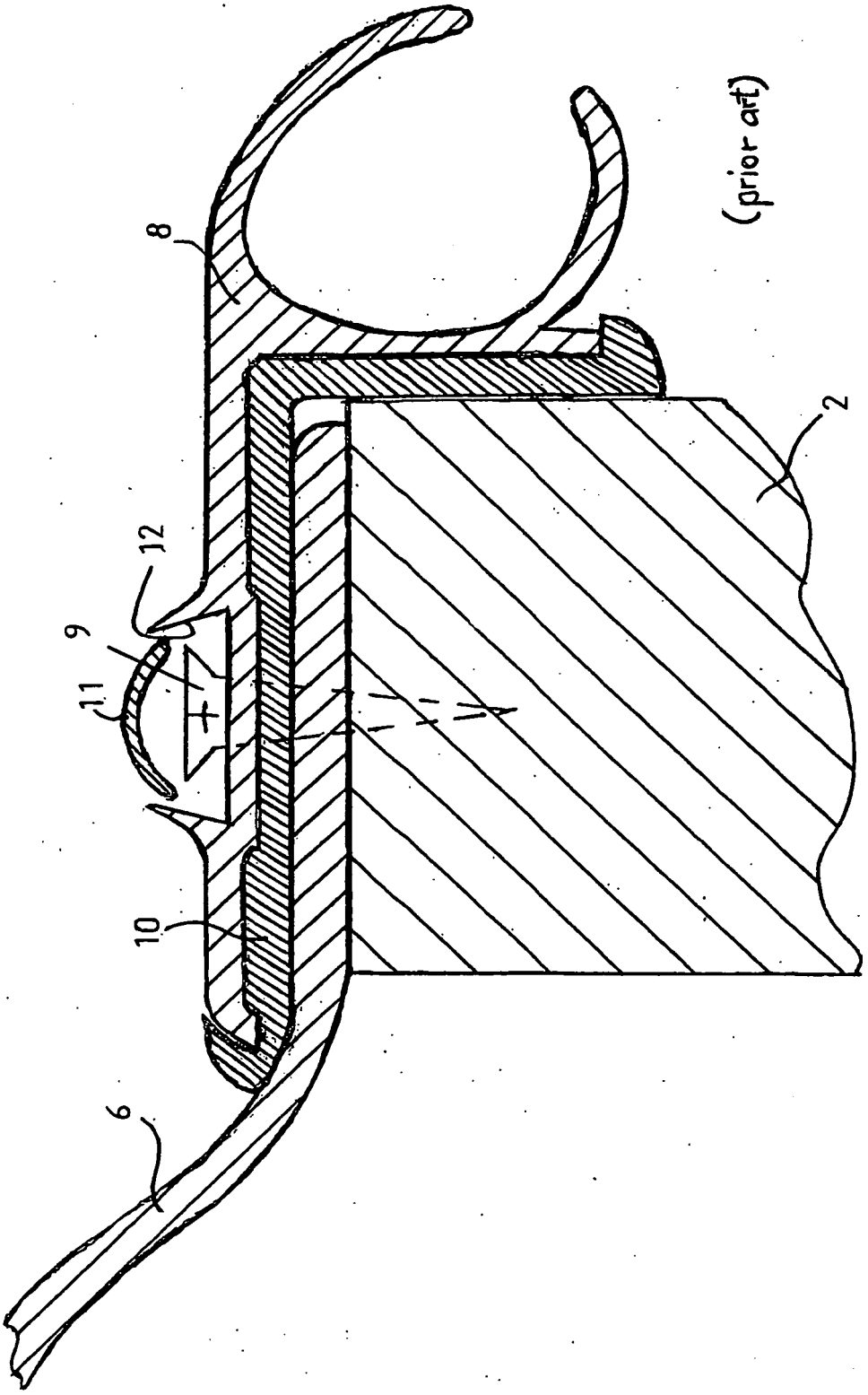

Fig. 2

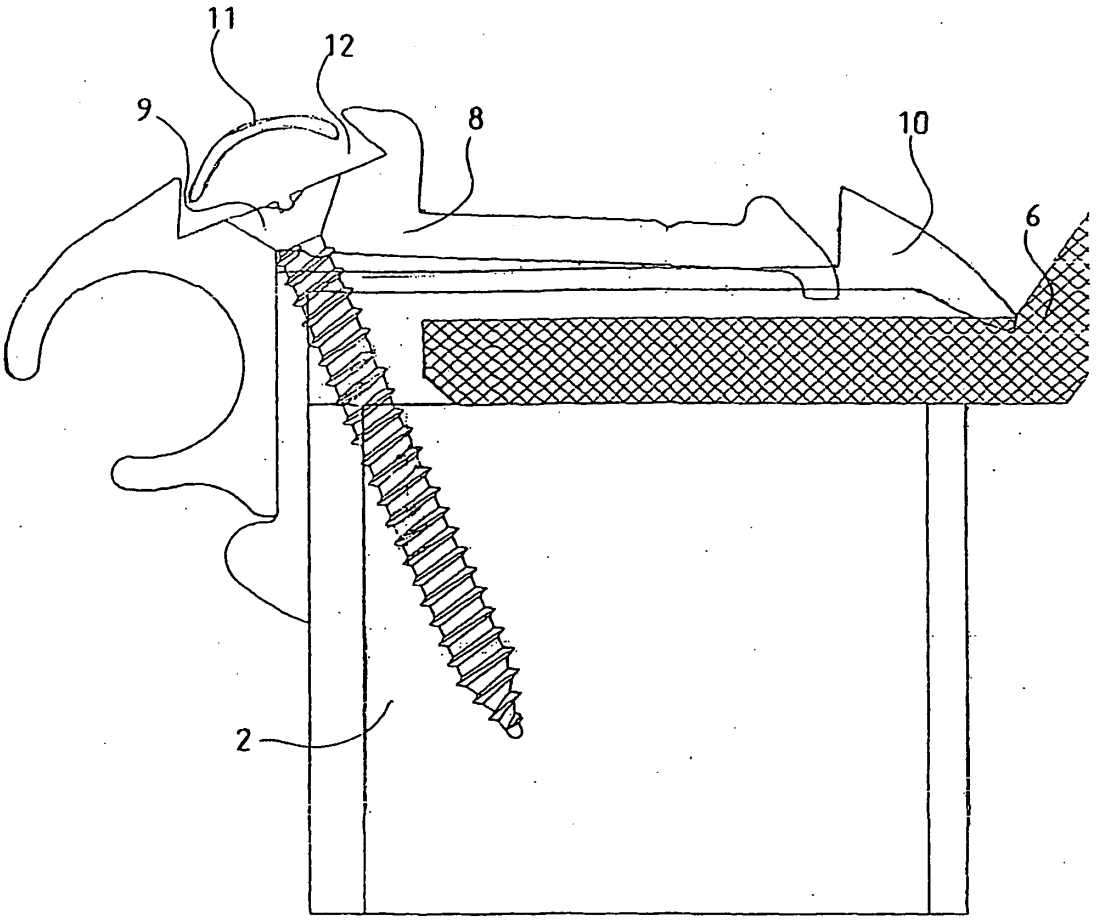

Fig. 3

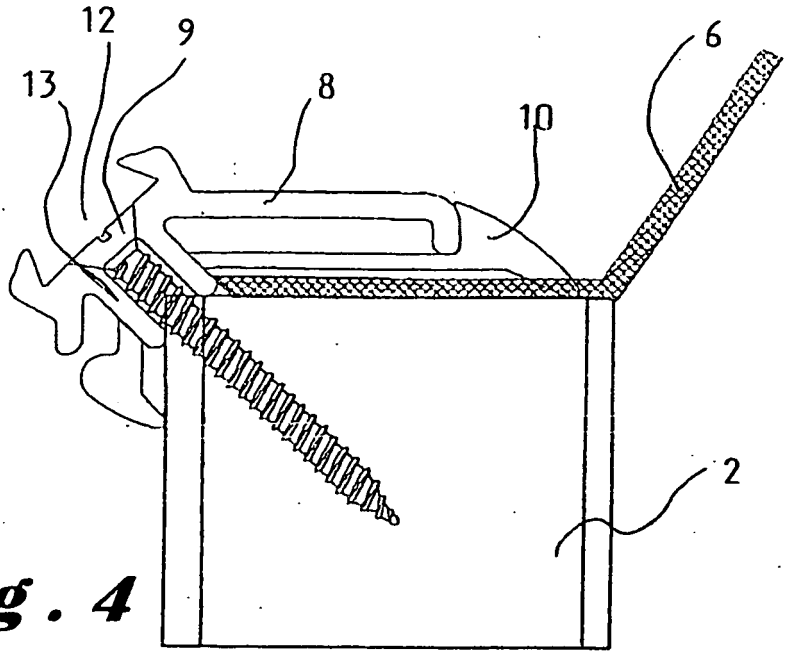

Fig. 4

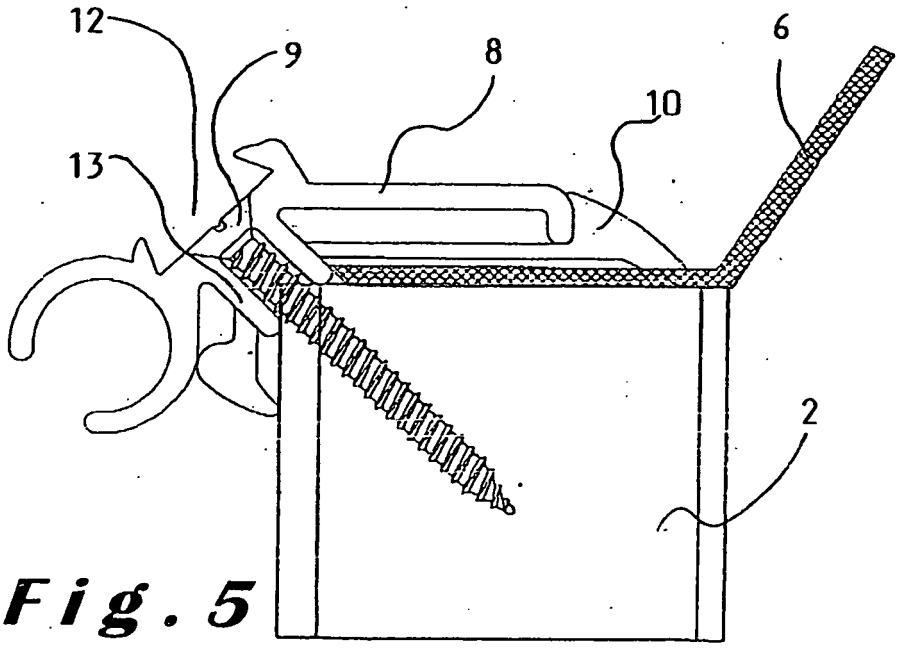

Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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