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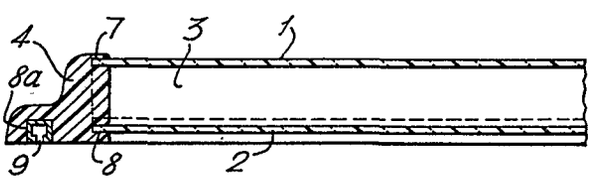
(54) Improvements in windows or canopies.

(57) A bubble window for a caravan comprises a first part 1 of channel shape section having lateral flanges 1c to which a flat sheet 2 is bonded thereby forming a hollow tubular structure defining a cavity 3 with open ends. The open ends are closed by means of end members 4 having slots 7 and 8 to receive the ends of the tubular member which are bonded thereto. The end members include channels 8a to receive stay means 9. The arrangement avoids the need for forming each window shape by pressing. The channel section may bet hot rolled or extruded and cut to lenght then bonded to the flat sheet and the end members connected to the structure to form the complete window.



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Improvements in windows or canopies.

This invention relates to windows or canopies of double-skinned construction and produced from plastics materials. The invention is mainly concerned with the construction of double glazed windows for caravans wherein such windows have a construction formed by an outer "bubble" of plastics material and an inner sheet bonded thereto thus forming a cavity.

In known constructions of windows the outer bubble is produced by hot pressing and a mould press is required for every different dimension of window to be produced. The inner sheet is normally flat and adhesively bonded to the peripheral edges of the bubble. Because of non-standardisation of windows costs are high in view of the fact that each window size has to be manufactured individually to size. It is also necessary to provide special moulded or pressed portions in the bubble to secure stays and catches required where the window is to be opening. Such fixtures have to be connected to both the bubble and inner sheet which normally are brought into juxtaposition at the point of securement.

It is an object of this invention to provided a window which is simpler to produce in a wide range of sizes from basic component parts and which is readily connected to stays and the like fittings without special fastening techniques being required. A further object of this invention is to provide a window of better appearance.

According to this invention there is provided a window

comprising an elongate channel-shape portion and a sheet member integral therewith to define an elongate tubular member forming a cavity, the open ends of the cavity being closed-off by end members bonded to the edges of the channel and sheet.

The tubular member may comprise a hollow preformed extrusion or casting which has been pressed to a flat shape to form the window.

Alternatively the member may be extruded or cast to the tubular shape required for the window.

According to this invention there is also provided a window comprising an elongate channel-shape portion and a sheet member bonded thereto along the side edges so as to close the open face of the channel to form a cavity, the open ends of the cavity being closed-off by end members bonded to the edges of the channel and sheet.

In this latter embodiment the bonding may be effected by means of gluing, ultrasonic bonding or laser welding.

With such a construction the bubble is formed by the channel portion and this may be produced in any length by moulding or hot-pressing or rolling. This portion may then be cut to an appropriate length for a window and the sheet bonded thereto. The end members preferably comprise moulded parts and these may be formed from an intermediate extrusion of required profile finished by moulded end blocks this then enabling the ends to be simply adapted to any width of channel. For a window to be made-up only a standard range of channel widths is required the length being cut as

necessary.

The channel will preferably include a flange portion extending laterally from each side forming a lip to which the sheet may be bonded and the lip may have a rebate to accomodate the thickness of the sheet. In a preferred embodiment the end members include channels adapted to received an end of a stay, the channels forming tracks.

The end members preferably have slots to receive the edges of the channel and sheet. A third channel of lesser depth may be provided to form a triple glazed window positioned between the channel and sheet or another moulded channel can be bonded to the rear of the sheet with the cavities formed again being closed by the end members.

The end members may have vent means therein which afford air access to the cavity formed or to one of the cavities formed in the case of a triple or more glazed unit.

The end members can be provided with vents formed as an integral part of the construction.

An embodiment according to the invention is shown by way of example in the accompanying drawings and wherein:-

Figure 1, shows a plan view of part of a window,

Figure 2, shows a section on B-B of Figure 1,

Figure 3, shows a section on C-C of Figure 1,

Figure 4, is a detail of an end member, and

Figure 5, is a section on A-A of Figure 4.

Referring to the drawings these show a double glazed bubble-type

window for a caravan, as an example only, and comprising an outer window portion 1 of channel-shape and formed from an acrylic plastics material by hot-rolling from a sheet. Other methods of manufacture are possible and this portion can be of any length. The portion 1 has a flat outer surface 1a, sides 1b and lateral flanges 1c to which a flat inner window sheet 2 is bonded thereby defining a cavity 3 having open ends. The ends are closed-off by members which may comprise a single moulded part 4 as shown in Figure 1 or a moulded extrusion 5 as shown in Figure 4 with end blocks 6.

In either case the end member has slots 7 and 8 which receive, respectively, the edges of the channel 1 and sheet 2 which are then bonded thereto. The advantage of the arrangement of Figure 4 is that the member part 5 can be extruded and cut to length with the end blocks bonded after assembly of the window.

The members 4 or 5 also may include a channel 8a which receives the end of a stay fitting which may slide in a track 9 as shown in Figure 2.

The flanges 1c may be rebated at 10 as shown in Figure 3 to accomodate the sheet 2. As may be seen a window can be made up to requirements by cutting a suitable channel section 1 to length, cutting the sheet 2 to size and bonding same to the sides of the channel and thereafter fitting the appropriate end members 4 which are moulded according to the channel size or else cutting the moulding 5 and then fitting the end blocks 6. The end members form a strong point for attachment of stays and may also be suitably

apertured to form ventilation means.

As an alternative to the above decribed embodiment the elongate structure forming the window may be extruded as a hollow body in one piece rather than being joined. In another arrangement the structure may be pressed from an extrusion of standard shape such as a cylinder.

This invention also provides the method of manufacturing a window generally as hereinbefore described.

A particular advantage in this arrangement is that the end members 4 or 5 form good supports for the window stay which can be accomodated in the channels therein.

CLAIMS:

1. A window comprising an elongate channel-shape portion and a sheet member integral therewith to define an elongate tubular member forming a cavity, the open ends of the cavity being closed-off by end members bonded to the edges of the channel and sheet.

2. A window in accordance with Claim 1, wherein the tubular member comprises a hollow preformed extrusion or casting which has been pressed to a flat shape to form the window.

3. A window in accordance with claim 1, wherein the tubular member is be extruded or cast to the tubular shape required for the window.

4. A window comprising an elongate channel-shape portion and a sheet member bonded thereto along the side edges so as to close the open face of the channel to form a cavity, the open ends of the cavity being closed-off by end members bonded to the edges of the channel and sheet.

5. A window in accordance with claim 4, wherein the bonding may be effected by means of gluing, ultrasonic bonding or laser welding.

6. A window in accordance with any preceding claim, wherein the end members comprise moulded parts formed from an extrusion of required profile and finished by moulded end blocks.

7. A window in accordance with any preceding claim 1 to 5, wherein the end members comprise one piece mouldings.

8. A window in accordance with any preceding claim 4 to 6, wherein the channel includes flange portions extending laterally

from each side and forming a lip to which the sheet is bonded.

9. A window in accordance with claim 8, wherein the lip has a rebate to accomodate the thickness of the sheet.

10. A window in accordance with any preceding claim, wherein the end members have slots to receive the edges of the channel and the sheet.

11. A window in accordance with any preceding claim, wherein the end members have slots or recesses to receive a stay.

12. A window in accordance with any preceding claim, including a further one or more sheets disposed intermediately to form a triple or more glazed unit.

13. A window in accordance with any preceding claim 1 to 11, wherein a further channel is bonded to the rear of the sheet to form a triple glazed unit.

14. A method for manufacturing a window especially for a caravan comprising the steps:

a) bonding to a channel member of clear acrylic or like plastics material a sheet of similar material to close the open face thereof to form an integral hollow tubular structure,

b) closing the ends of the tubular structure with end members to seal off the cavity, and

c) connecting stay means to the end members.

~~15. A window substantially as herein described with reference to the drawings.~~

~~16. A method for manufacturing a window substantially as herein~~

FIG.1.

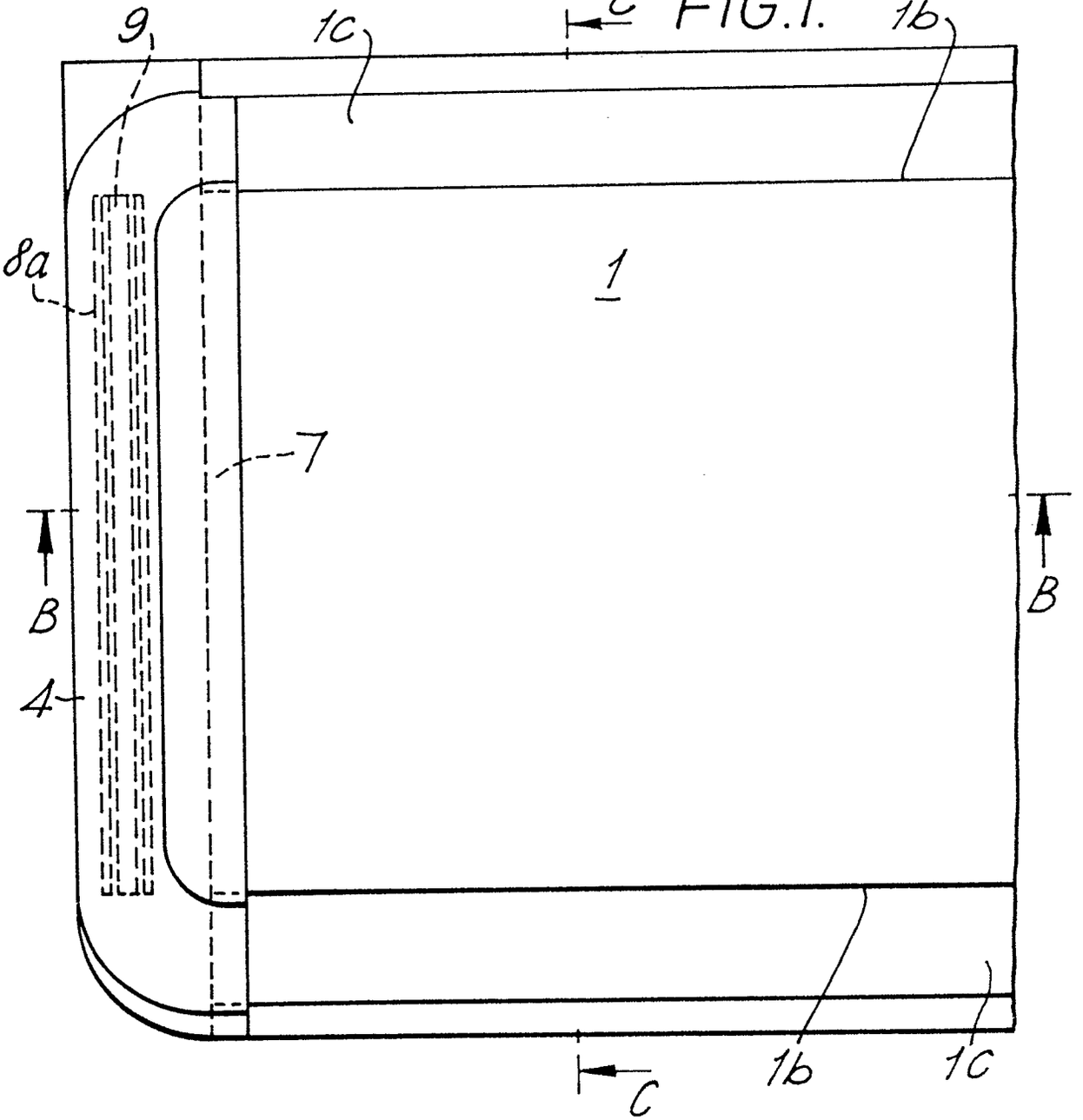
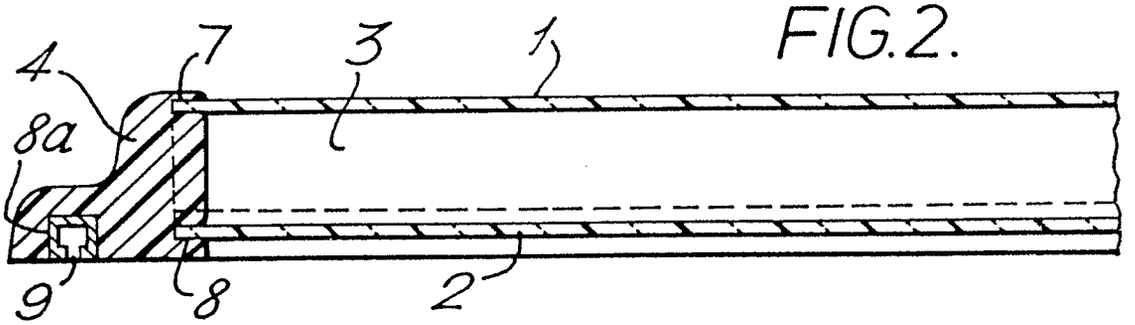


FIG.2.



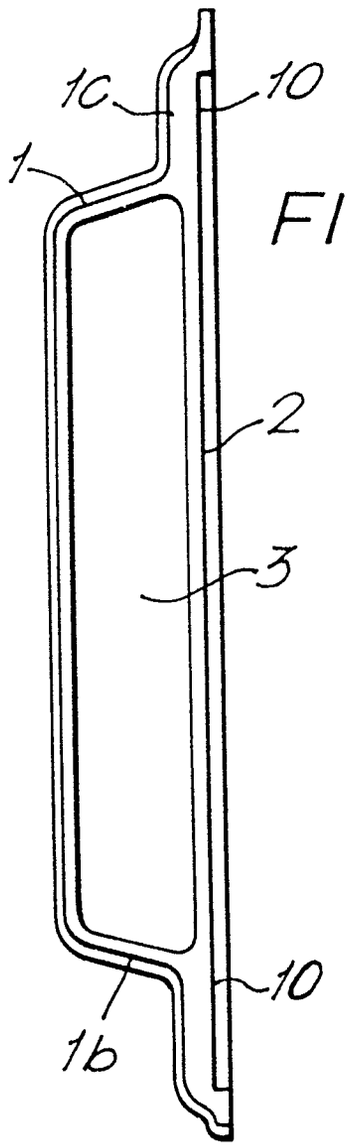


FIG.3.

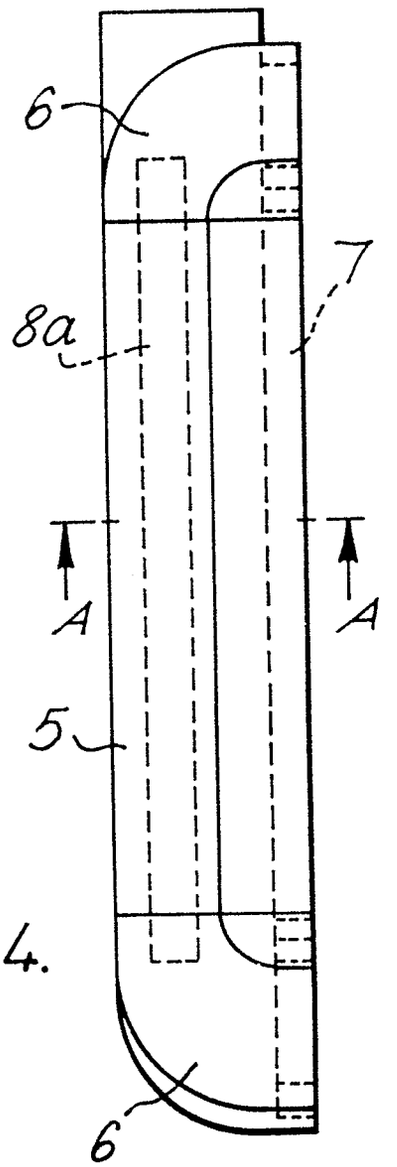


FIG.4.

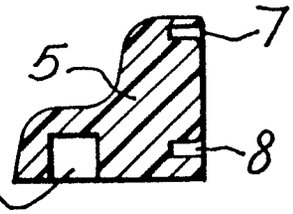


FIG.5.