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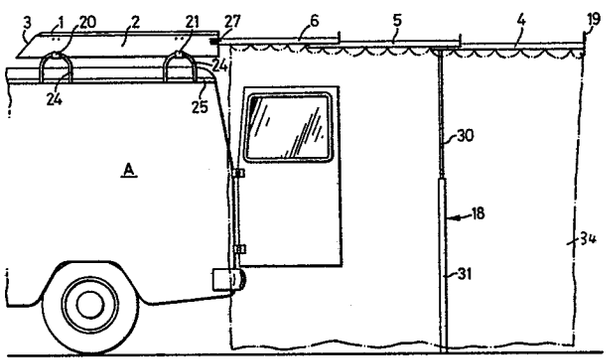
(54) Transportable shelter structure.

(57) A transportable shelter assembly comprises a housing 1 for securement to the roof of a service van A, an extensible roof structure having a plurality of roof panels 4, 5 and 6 which when retracted into the housing 1 lie in vertically spaced planes to form a stack and said roof panels 4, 5 and 6 are in sliding telescopic engagement so as they may be telescopically extended from the housing to the covering position.



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DESCRIPTION

The present invention relates to a transportable shelter to be carried on the roof of a service vehicle, typically a van, which is equipped to deal with road side break-downs of motor vehicles.

In accordance with the present invention there is provided a transportable shelter assembly comprising a housing for securement to the roof of a service van, an extensible roof structure retracted into the said housing and extensible to a position wherein the roof structure covers sufficient area to accommodate at least the relevant part of a vehicle to be serviced. Preferably the roof structure has a plurality of roof panels which, when retracted into said housing, lie in vertically spaced planes to form a stack.

In an embodiment, each of the roof panels has a rigid peripheral frame, each of said frames being in sliding telescopic engagement with the frame of the adjacent roof panel or panels in the stack. The uppermost or lowermost panel and frame assembly in the stack being in slidable engagement with the housing.

Extensible support legs are preferably carried by the structure to engage the ground when the roof structure is in the extended working position; optionally other support means such as guy ropes can be provided for holding the roof structure in the extended position.

The invention will now be described by way of example and with reference to the accompanying drawings wherein:

Figure 1 is a side view of the rear part of a service vehicle carrying a shelter assembly in accordance with the invention with the roof structure in the extended position;

Figure 2 is a rear end view of a shelter assembly in accordance with the invention with the roof structure in the retracted position;

Figure 3 is a section on line A-A' in Figure 2;

Figure 4 is a section on line B-B' in Figure 3; and

Figure 5 is a plan view of a panel which forms part of the shelter assembly.

Referring initially to Figure 1 of the drawings, a service van A has on the roof thereof a streamlined housing 1 formed from metal or plastics

reinforced with glass fibres with upstanding side walls 2 and a sloping front wall 3. A stack of three aluminium panels 4, 5 and 6 are shown extended from the housing in Figure 1. The panels are progressively larger from the top to the bottom and are interconnected in telescopic relationship so that the top panel 6 can be slid rearwardly relatively to the intermediate panel 5 and the intermediate panel 5 rearwardly relatively to the bottom panel 4 to provide the extended telescopic array illustrated in Figure 1.

Referring now to Figures 3, 4 and 5. Figure 5 shows a plan view of a typical panel, the intermediate panel 5. The panel 5 is rectangular in plan and has a front channel section member 7 and two parallel side channel section members 8 and 9 which extend rearwardly from the end parts of the front channel section member 7. A rectangular aluminium sheet 10 extends between the side members 8 and 9 from their rear end parts towards the front channel section member 7. The front edge 11 of the rectangular sheet 10 is spaced rearwardly from the front member 7. An upstanding web 12 extends from the rear end part of the rectangular sheet 10 and together with the channel section members 7, 8 and 9

forms a rigid frame for the panel 5. An angle section guide member 13 extends rearwardly from the centre of the front member 7, extending below the rectangular sheet 10 to the rear edge of the panel 5. The channel section members 7, 8 and 9 all have upper and lower flanges 14 and 15, extending inwardly towards the centre of the panel 5 from upstanding webs 16 (See Figure 4).

Wheels 17 are rotatably mounted on stub axles which extend outwardly from the vertical webs 16 of the side members 8 and 9. A pair of said wheels 17 are mounted on the front part of each of the side members 8 and 9, and are dimensioned to fit inside said channel section members 8 and 9.

The panel 6 differs from the panel 5 shown in Figure 5 in that the parallel channel section side members 8 and 9 of panel 6 are spaced further apart and consequential alterations to the size of the other components of panel 6, have been made. Panel 4 differs from panel 5 in that it carries telescopically extensible legs 18, which are hingedly connected to the inside of the channel section side members 8 and 9. Additionally, the panel 4 carries a vertical plate 19 in place of the upstanding web 12 of panel 5, said plate 19 being

dimensioned to fit in the open rear end of the housing 1, when the panels are in the retracted position (See Figure 2). With particular reference to Figures 3 and 4; two square sectioned tubular members 20 and 21 both extends across the housing 1 through the lower parts of both side walls 2. A channel sectioned rail 22 extends along the upper part of the inside of each of the side walls 2. A reinforcing plate 23 extends between each end part of each square sectioned tubular member 20 and 21 and the channel sectioned rails 22. Each of said reinforcing plates 23 is contiguous to the inner face of a side wall 2 and is rigidly located to a channel sectioned rail 22, a square sectioned tubular member 20 or 21 and the housing 2. Thus, the shelter assembly may be supported above a vehicle as shown in Figure 1 by four substantially horeshoe-shaped brackets 24. One of the brackets 24 is firmly attached to each end of the square sectioned tubular members 20 and 21 where they protrude from the side walls 2 of the housing 1. The legs of each bracket 24 are firmly anchored to the gutter 25 of the vehicle A.

As can be seen in Figures 3 and 4, the panels 4, 5 and 6 are interconnected in telescopic relationship with the wheels 17 of panel 6 rotatably located within the channel sectioned rails 22, the wheels 17 of panel 5 rotatably located within the channel sectioned side members 8 and 9 of panel 6 and the wheels 17 of panel 4 rotatably located within the channel sectioned side members 8 and 9 of panel 5. Blocks 26 are located in the rear ends of the channel sectioned rails 22 and the channel sectioned side members 8 and 9 of the panels 5 and 6. Said blocks 26 are fixed to the webs 16 between the upper and lower flanges 14 and 15 of the channel sectioned rails 22 and side members 8 and 9.

Referring to Figures 1 and 2, short threaded rod members 27 are hingedly attached to the rear end parts of the sides 2 of the housing 1 in such a way that the rod members may be positioned so as to extend rearwardly from the housing 1. Slotted rectangular plates 28 are attached to the outer face of the plate 19 parallel to said plate 19 so that the slotted parts of the plates 28 extend outwardly from either side of the plate 19. When the plate 19 is located within the housing 1, as shown in Figures 2 and 3, the threaded rod members 27 may be swung around so that the rod members extend through the slots in plates 28. Nuts 29 may be engaged on the rod members 27 and tightened down onto the plates 28 so that the assembly of the nuts 29, rod members 27 and plates 28 act to hold the plate 19 and hence all the panels 4, 5 and 6, retracted into the housing 1.

The legs 18 each comprise two telescopically engaged tubular members 30 and 31. The smaller diameter tubular member 30 of leg 18 is attached by a fulcrum pin 32 to the inside of the front end part of the channel sectioned side member 8 of

of the panel 4. The leg 18 may be rotated about the fulcrum pin 32 between the position where the leg is parallel to the side member 8 and the position where the leg depends vertically from the panel 4. A catch 33 is provided on the side member 8 so that the leg 18 may be locked in place along the inside of the side member 8. The second leg 18 is similarly located by a fulcrum pin 32 to the side member 9 of the panel 4, which carries a catch 33 so that the second leg may be locked in place along the inside of the side member 9.

In use, in order to extend the roof structure from the retracted position as shown in Figures 2, 3 and 4 to the extended position as shown in Figure 1, the nuts 29 must be slackened off and the rod members 27 swung out of the slots in the plates 28, the plate 19 should then be pulled from the housing 1 until all the panels 4, 5 and 6 have slid out of the housing 1. The catches 33 may then be released and the legs 18 extended and swung down so that the free ends of the tubular leg members 31 engage the ground as shown in Figure 1. As the panels 4, 5 and 6 slide out of the housing 1, the

wheels 17 roll along the channel sectioned rails 20 and side members 8 and 9 of the panels 5 and 6 until the rearmost wheels 17 abut the blocks 26. Additionally the rear part of each of the panels 4, 5 and 6 tends to droop towards the ground under its own weight and the front wheel 17 of each pair of wheels 17 runs on the upper flange 14, and the rear wheel 17 of each pair of wheels 17 runs on the lower flange 15 of the channel sectioned rails 22 and side members 8 and 9. This drooping also causes the front parts of the guide members 13 on panels 4 and 5 to engage in the underside of the guide members 13 on panels 5 and 6 respectively thus reducing the risk of the panels 4, 5 and 6 twisting as they are moved and increasing the stability of the extended structure.

In order to retract the panels 4, 5 and 6 back into the housing 1 the above detailed sequence must be carried out in reverse.

When the roof structure is extended a curtain 34 (outlined in Figure 1) may be hung from hooks (not shown) located on the side members 8 and 9 of

the panels 4, 5 and 6 and the plate 19. The curtain may be opaque or translucent or comprise an opaque material having windows formed from a translucent material.

The number of roof panels may be varied in alternative embodiments, and in some embodiments, particularly those with fewer than three roof panels, the legs 18 may be omitted. Additionally, the roof panels may be partially or wholly glazed.

CLAIMS

1. A transportable shelter assembly characterised by comprising a housing for securement to the roof of a service van, an extensible roof structure retracted into said housing and extensible to a position wherein the roof structure covers sufficient area to accomodate at least the relevant part of a vehicle to be serviced.

2. A transportable shelter assembly as claimed in Claim 1 characterised by the roof structure having a plurality of roof panels which, when retracted into the housing lie in vertically spaced planes to form a stack, and are telescopically extendible to the covering position.

3. A transportable shelter assembly as claimed in Claim 2 characterised by each of the roof panels having a rigid frame and each of said frames being in sliding telescopic engagement with the frame of the adjacent roof panel or panels in the stack, the uppermost or lowermost panel and frame assembly in the stack being in slideable engagement with the housing.

4. A transportable shelter assembly as claimed in Claim 3 characterised by each panel and frame assembly having a plurality of wheels rotatably mounted on the frame, said wheels being engaged with at least one channel sectioned member, and said channel sectioned member forming either part of the frame of an adjacent panel and frame assembly or the housing.

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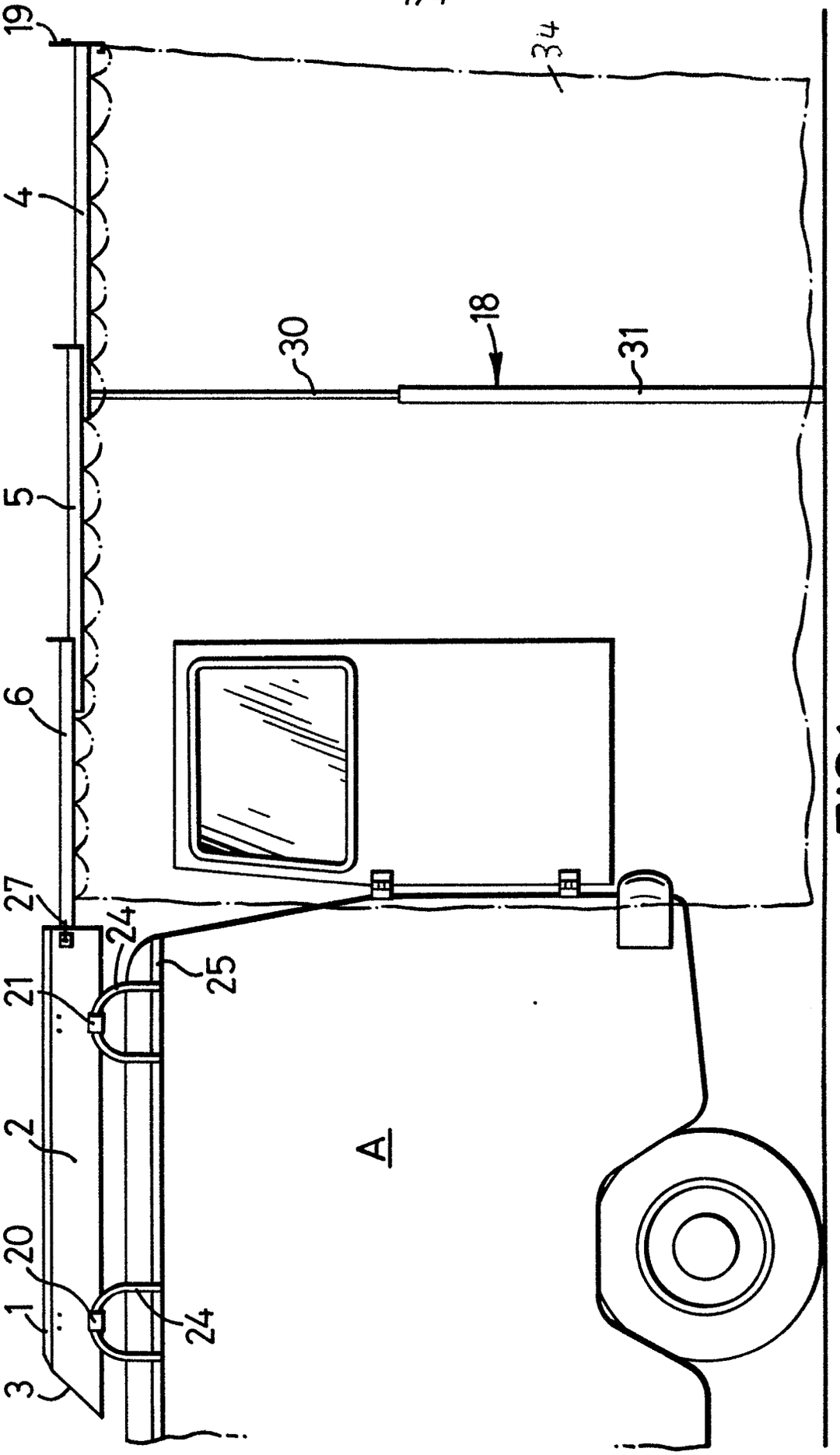

FIG.1

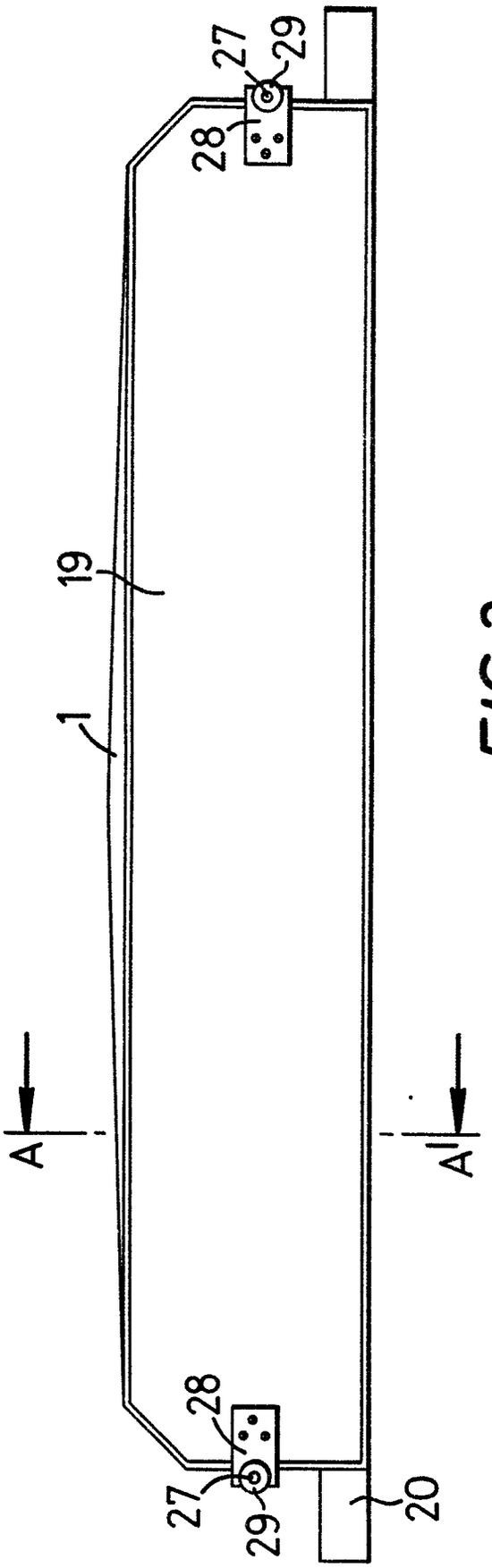

FIG.2

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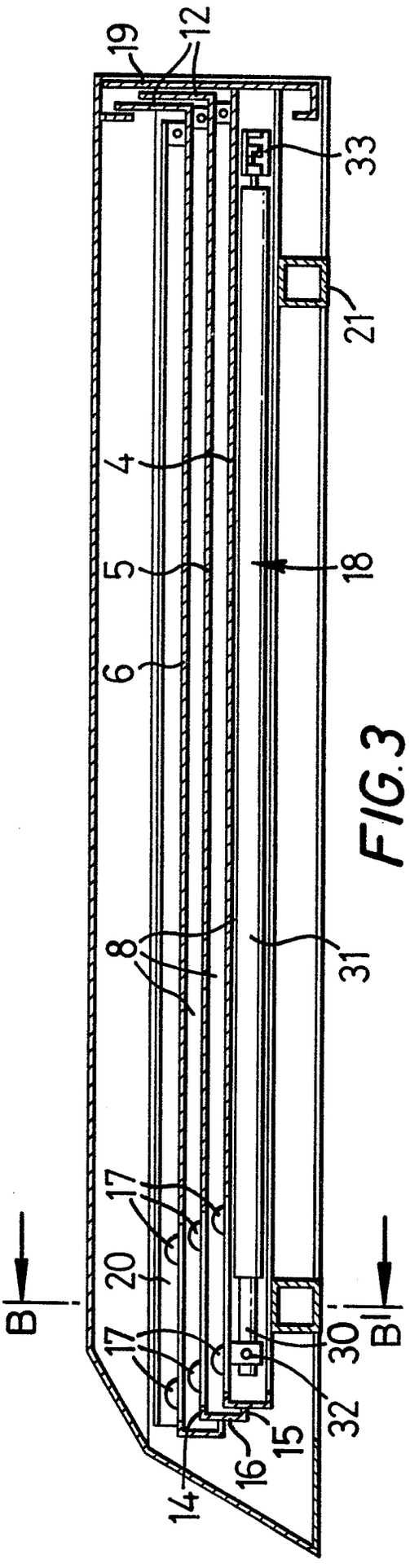

FIG.3

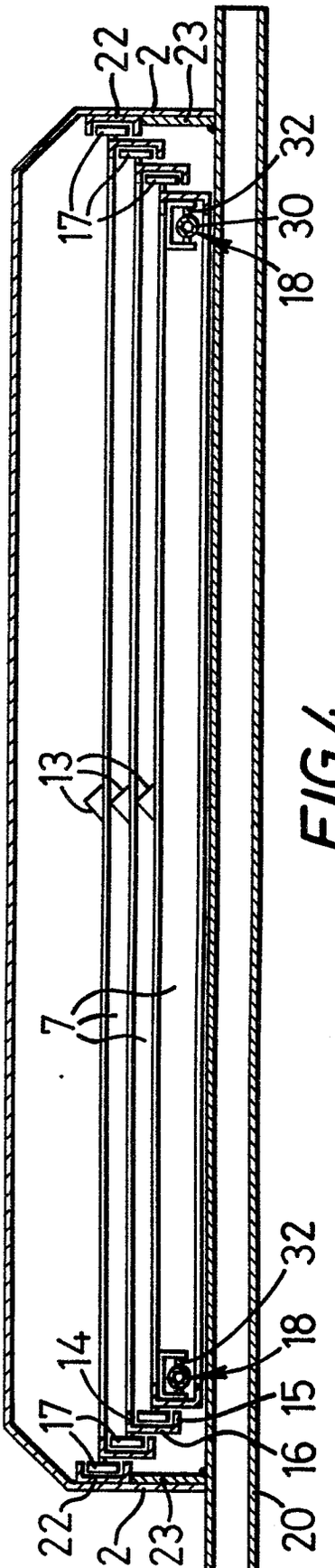

FIG.4

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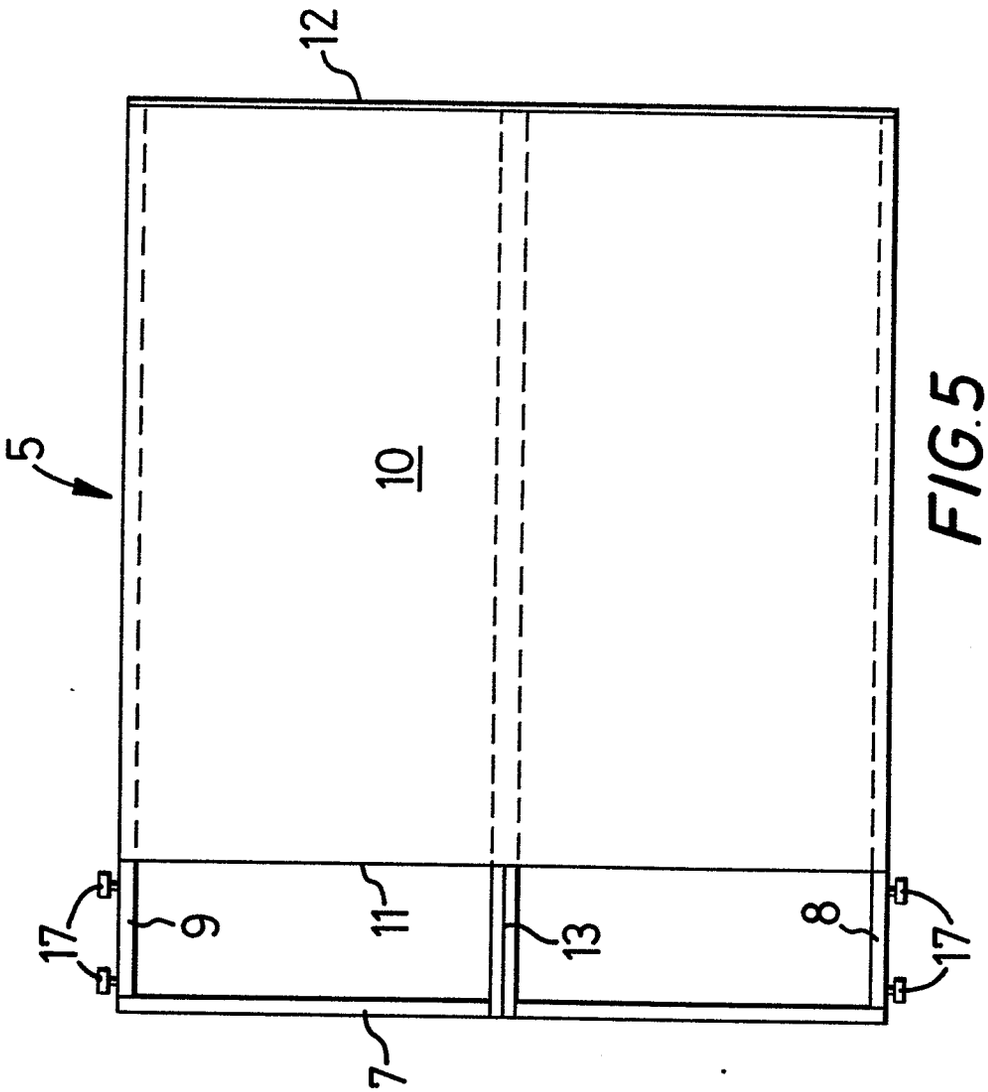

FIG.5