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Gregory

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[54] SHOULDER HARNESS FOR BACKPACK

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[57] ABSTRACT

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A shoulder harness for a backpack having a back panel, a carry bag attached to the back panel, and a pair of S-shaped elongated shoulder pads formed of a polyfoam pad molded to a cover of stretch material and backed with a fabric cover of Velcro loop material. A load control panel is sewed to one end of each shoulder pad and includes one surface of Velcro hook material which engages the loop material on the shoulder pads. A pair of load stabilizing straps are secured at several places to the load control panels and attached to stress members at the lower end of said back panel and to buckles at the top end of the back panel. A sternum strap is fastened to each of the stabilizing straps and may be adjusted to one of several levels as chosen by the wearer.

[51] Int. Cl.⁵ **A45F 3/04**

[52] U.S. Cl. **224/209; 224/211; 224/264; 224/901**

[58] Field of Search **224/209, 215, 210, 211, 224/259, 261, 262, 264, 153, 901**

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17 Claims, 3 Drawing Sheets

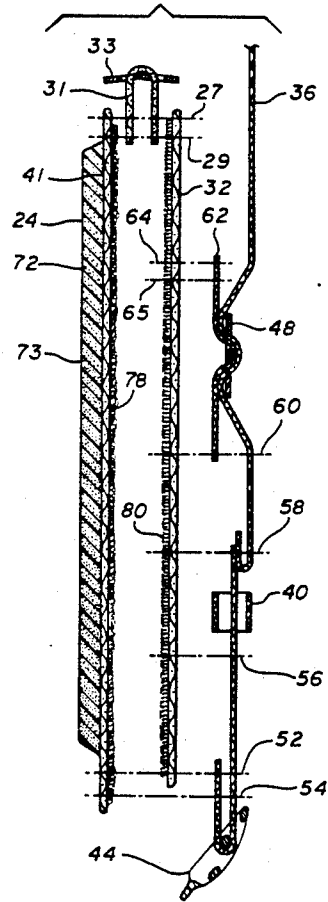
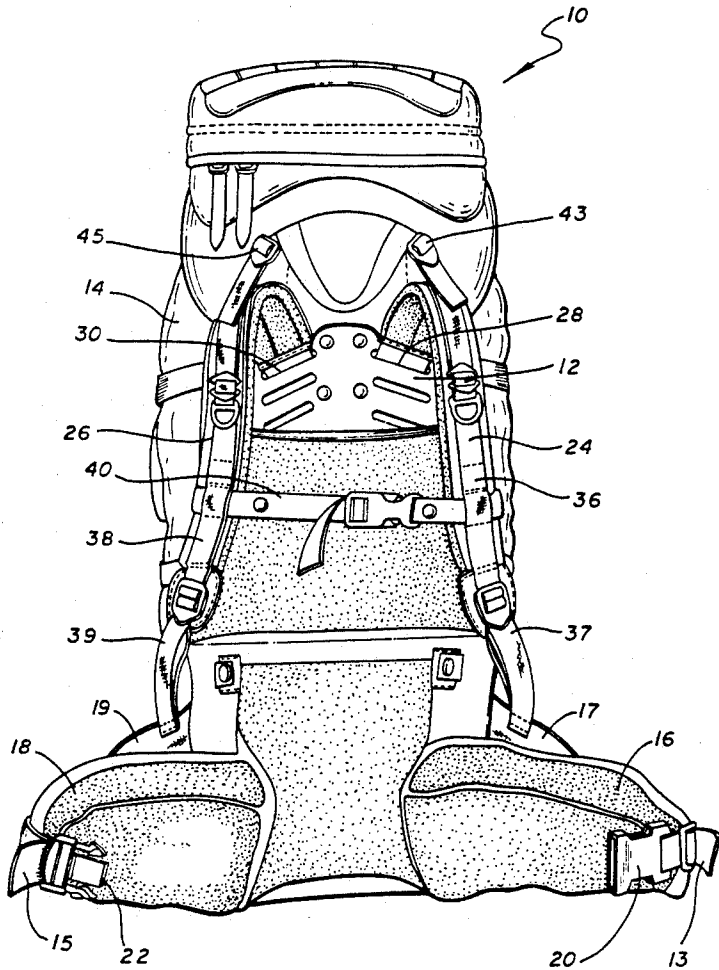


FIG. 1

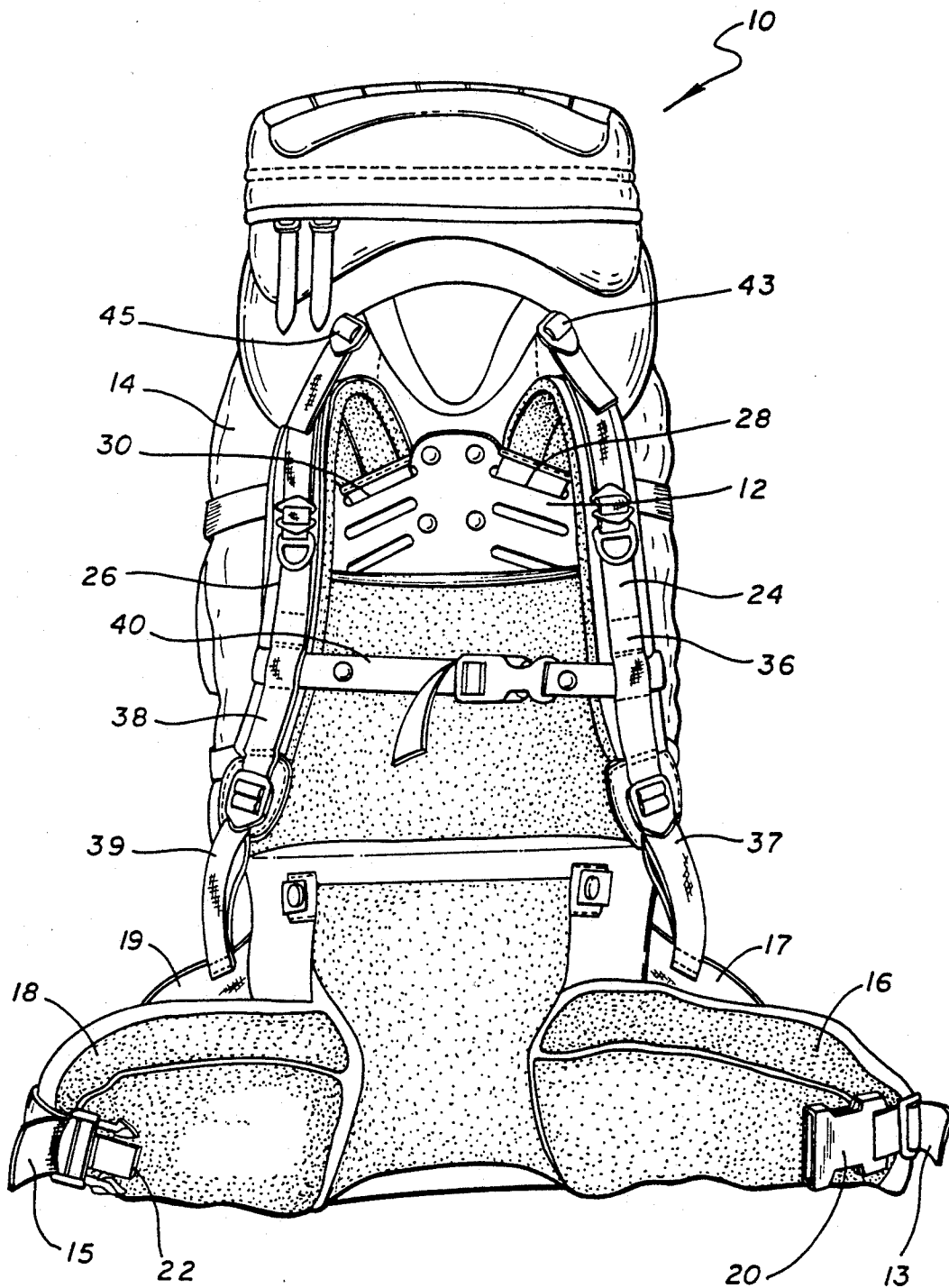


FIG. 2

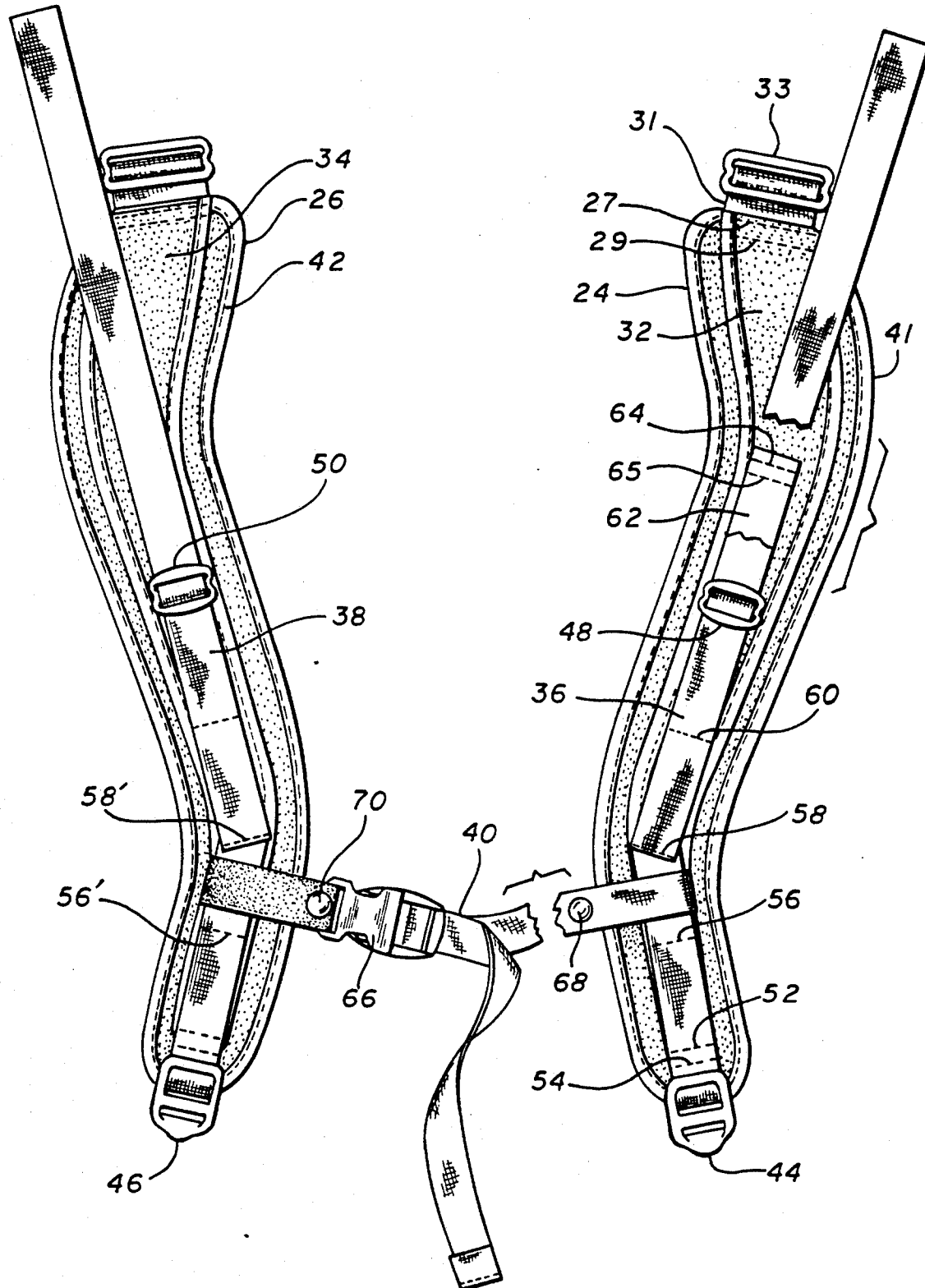


FIG. 3

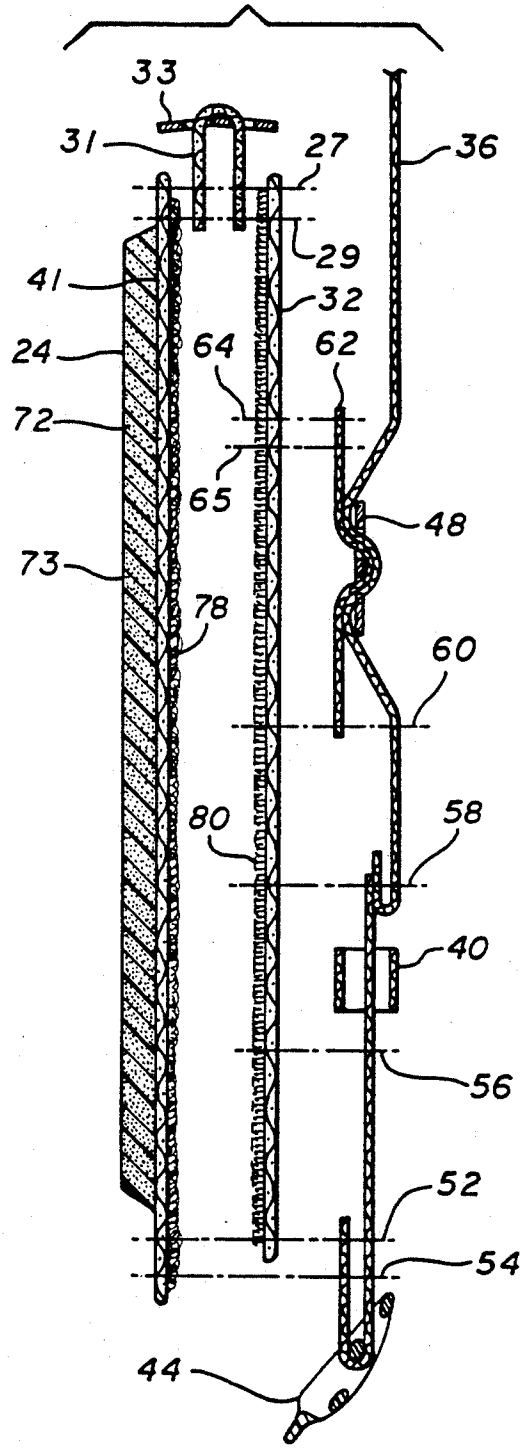
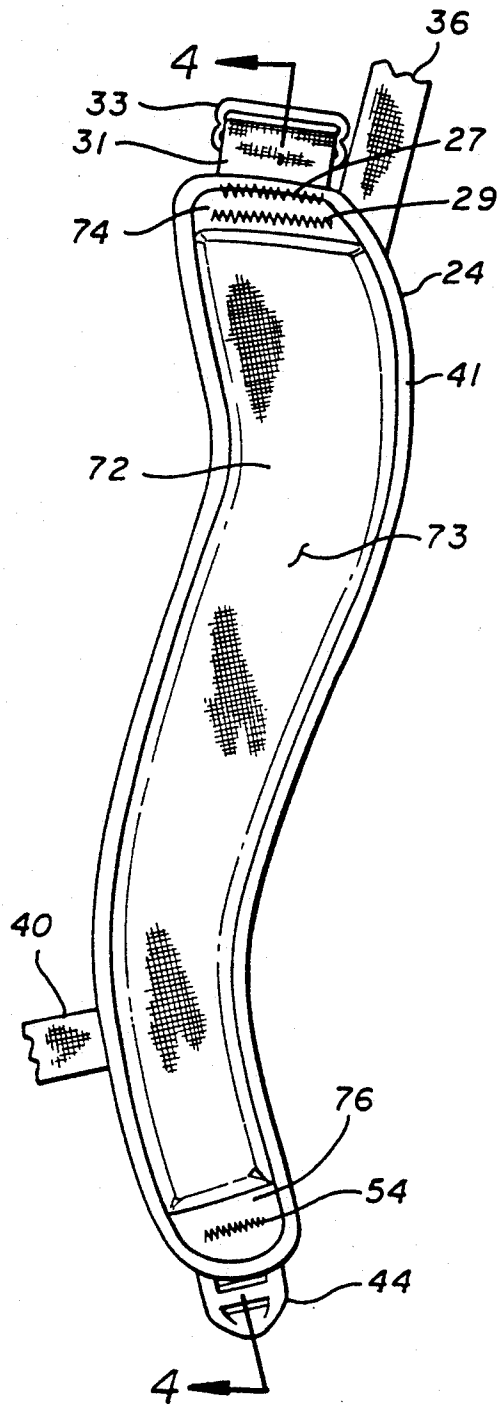


FIG. 4

SHOULDER HARNESS FOR BACKPACK

BACKGROUND OF THE INVENTION

Applicant has, for many years, been in the business of designing and manufacturing backpacks of many types including those designed for the heaviest loads. In connection with design and development of such large backpacks, there is a need to deal with means for carrying and distributing the load for maximum comfort of the wearer. While much of the weight is normally carried on the hips on padded waistband members, a certain amount is also carried on the shoulders. It has also been found desirable to provide means for shifting the proportion of weight from the hips to the shoulders and vice versa. In response to such requirements, applicant has designed backpacks incorporating a shoulder harness with padded shoulder pads and with stabilizing straps attached to the shoulder pads which are fastened to the waistband member and to the backpack above the attachment points for the shoulder straps.

The shoulder pads presently in use basically constitute sleeves of strong synthetic fabric which are filled with foam padding material. Means for attachment to the backpack including buckles, etc. are stitched to the fabric sleeve. A strip of Velcro hook type fastening material is stitched to one side of the pad and is stitched through the foam pad to the opposite side. Also sewed to the ends of the sleeves are load control panels of strong fabric having Velcro loop material on one side. These panels which engage the Velcro hook material carry most of the tension load which would otherwise be carried by the shoulder pad itself which would tend to stretch the pads and unduly compress the foam padding.

Securely stitched to one end of each of the sleeves and to the load control panels are stabilizing straps of webbing material. These straps are fastened at intervals along the length of the load control panels by means of spaced lateral seams which define anchoring points for a sternum strap which prevents the shoulder straps from slipping to the outside.

In use it has been found that the shoulder pad structure described above tends to bunch up and wrinkle the sleeve material creating pressure points against the wearer's shoulders. Over time this becomes somewhat uncomfortable and the wearer tends to try to move the pad around to shift the concentrated pressure points resulting from the wrinkles, etc. to different locations.

SUMMARY OF THE INVENTION

In an effort to improve the comfort of the above described structure, applicant has designed a new shoulder harness incorporating an improved shoulder pad in which polyfoam pad material is thermally molded to a stretch fabric cover and the assembly stitched to a back having a surface of Velcro loop material. Both the molded parts and the backing are of an elongated S-shape which provides a desirable contour over the wearer's shoulder and avoids lateral pressure and/or abrasion against the wearer's neck. A new load control panel is also generally S-shaped and includes Velcro hook material extending for essentially its entire area which engages the Velcro loop material on the back of the shoulder pad. The load control panel is thereby securely anchored to the shoulder pad and carries the tension load without requiring any stitching through the foam pad. The foam pad itself can be bent over

severely without producing any wrinkling or bunching on its surface. Adjustable stabilizing straps of webbing material are sewed to the ends of the shoulder pads and to the ends of the load control panels. A plurality of spaced lateral seams extending along the load control panels for somewhat over half their length further attach the stabilizing straps to the load control panels and provide attachment means for a sternum strap. The stabilizing straps are attached to generally triangular members of strong fabric overlying the waistband at the lower end of the backpack and to fasteners on the upper part of the backpack.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view showing a backpack with the shoulder harness of the invention attached;

FIG. 2 is an enlarged front elevation of the shoulder harness;

FIG. 3 is a bottom view of a shoulder strap of FIG. 2; and

FIG. 4 is an exploded side view of a shoulder pad part of the harness with the parts shown separated.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, a typical large backpack of current design is shown at numeral 10 including a back section including a back panel 12, a carry bag 14 fastened to back panel 12 and waistband members 16 and 18 which may or may not be formed as part of the back panel but are normally attached thereto. Various pockets and auxiliary carrying bags may be attached at various places to the backpack, none of which are involved in the present invention.

The waistband members 16 and 18 are pulled around the Wearer by webbing belt members 13 and 15 and are fastened at the front of the wearer by means of mating quick release buckle members 20 and 22, respectively. The shoulder harness of the invention includes a pair of shoulder pad members 24 and 26 which are fastened in slots 28 and 30 in the back panel 12 and to which are fastened a pair of load control panels 32 and 34 (not shown in this view) and stabilizing straps 36 and 38 which are connected to straps 37 and 39 from generally triangular stress members 17 and 19 of strong fabric which are attached to the lower end at back panel 12 and to buckles 43 and 45 attached to the upper end of back panel 12. A sternum strap 40 is normally connected between straps 36 and 38.

FIG. 2 is a front elevational view of my backpack harness on an enlarged scale as compared to FIG. 1. In this view will be seen shoulder pads 24 and 26 having bindings 41 and 42, respectively, sewed around their edges. Sewed with a double row of stitches at the tops of shoulder pads 24 and 26 are load control panels 32 and 34 which are also secured to shoulder pads 24 and 26 over their entire area by means of Velcro fastening means described below. Secured at the top of shoulder pad 24 and load control panel 32 by means of stitching 27 and 29 is a loop of webbing 31 carrying a large figure-8 fastener 33 which passes through slot 28 in back panel 12 and thereby secures shoulder pad 24 and load control panel 32 to back panel 12. Unlike the shoulder pads which are capable of being stretched, the load control panels 32 and 34 do not stretch and therefore carry any tensile loads which might otherwise be trans-

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