

PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) PNEUMATIC SUPPORT FOR AUTOMOBILE REAR SEATS

(71) I, JAMES IVEN MCCARTNEY, a Canadian citizen, of 302 — 1117 Nymark Avenue, Willowdale, Ontario, Canada, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to new and useful improvements in pneumatic supports and the like particularly suited for use with automobile rear seats.

When relatively small children are travelling in the rear seat of automobiles, they are often provided with mattresses and the like supported at the rear end upon the rear seat and by the front end upon suitcases or the like. This is in order to provide a relatively flat surface upon which the children may play or rest during relatively long trips.

Such mattresses are inconvenient not only because it is difficult to maintain them in an exact level position but also because it is rare to find a mattress of the exact dimensions required to order to eliminate any spaces through which the child may fall and injure himself.

Another disadvantage of such mattresses and the like is the fact that it is difficult to fold them up into a relatively small space when not in use.

The provision of a pneumatic cell overcomes these disadvantages inasmuch as it can easily be designed to cover the entire seat and floor area but also can be deflated and folded into a relatively small space when not in use.

However, such inflatable cells require relatively high pressure in order to provide a stable upper surface upon which small children may walk or play and there is an inherent danger in such high pressure cells in that they may be ruptured inadvertently with what might be termed explosive force.

Furthermore, in order to build such cells to stand relatively high pressure, the seams have to be not only adhesively secured together

but also sewed and taped and it is desirable that the material be of reinforced fabric in order to withstand such pressures.

The device hereinafter to be described overcomes this disadvantage also inasmuch as an inflatable relatively low pressure cell can be utilized, the upper surface supplied with a rigid panel covered with a padded portion so that the load thereupon is spread over a relatively large surface. This means that low pressure can be used thus eliminating any danger and permitting the device to be made from relatively light weight material. Furthermore, I include means whereby this upper panel can be folded when the device is deflated thus enabling it to be stored in a relatively small space.

Due to the provision of the padded upper panel, there is no danger of children being bounced from their feet by the resiliency of the inflated cell.

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

Figure 1 is an isometric view of the device shown in the inflated position.

Figure 2 is an enlarged fragmentary section along the line 2—2 of Figure 1.

Figure 3 is a partially schematic side elevation showing the front and rear seats of an automobile with the device in position, reduced in scale with reference to Figure 1.

Figure 4 is a view similar to Figure 3 but showing an alternative embodiment of the device.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding therefore to describe the embodiment shown in Figures 1 and 3, reference should first be made to Figure 1 in which 10 illustrates generally a low pressure inflatable cell manufactured from plastics film or some similar relatively light weight material. The seams, which are not illustrated, can be adhe-

sively secured together or, alternatively, can be heat sealed as desired.

The cell 10 includes a floor engaging portion 12 manufactured as one unit and a lateral extension which forms a seat-engaging portion 11. The floor engaging portion includes a generally rectangular front side 13, a rear side 14, end panels 15 and a base or underside 16. The upper surface 17, which completes the floor engaging portion, extends to form the upper surface 17¹ of the seat engaging portion 11. In a similar manner the side walls 15¹ of the seat engaging portion 11 may be formed as extensions of the side walls 15. The under surface 18 of the seat engaging portion is curved in a concave manner to match the convex curvature of the conventional rear seat 19 shown in side elevation in Figure 3.

An inflation and deflation valve 20 is provided at any convenient location within one of the walls of the cell 10.

A substantially semi-cylindrical recess 21 extends from the front to rear of the floor engaging portion and upon the under side 16 thereof to engage over the conventional semi-cylindrical floor tunnel 22 normally extending upwardly from the floor of a conventional front engine rear-wheel drive automobile.

A load supporting platform component collectively designated 23 is secured to the common upper surface 17 and 17¹ of the two portions of the cell. This load supporting platform component preferably includes a plurality of substantially rectangular boards 24 manufactured from plywood or fibreboard or the like, and these are adhesively secured to the film material forming the upper surface 17 and 17¹.

Pads of resilient foam material or the equivalent 25, are placed upon each of the boards or panels 24 and these may be placed within plastics or similar material 26 in the conventional manner thus giving a padded resilient surface which is planar when the cell is inflated as shown in Figure 1. However, the formation of the upper load supporting panel component in a plurality of panels, enables the panels to be folded in overlapping relationship with one another after the cell has been deflated and enclosing the material forming the cell therebetween so that the entire device takes up a relatively small amount of space and can therefore be stored away when not in use.

Shown in phantom in Figure 1 is a desirable modification which consists of flexible baffle panels 15A having the same configuration as the end panels 15 and being secured from front to back of the device thus dividing the cell into a plurality of chambers. Means are provided to allow slow transfer of air between the chambers, said means taking the form of small apertures 28 formed in the baffles 15A. Alternatively one of the seams of the baffle to the inner surface of the cell may be non-

continuous to provide the same slow transfer.

Figure 3 shows further embodiments in phantom. First the seat engaging portion 11 is separated from the main portion 12 by means of a transverse baffle 29 also having an air transfer aperture 30 therein.

Alternatively the two portions may be completely separated whereupon the seat engaging portion 11 would have to be provided with its own inflation valve 20A.

Figure 4 shows a still further embodiment in which the seat engaging portion 11A consists of resilient material such as foam of polyurethane or the like, it being understood that the main portion 12 is a low pressure inflatable cell as hereinbefore described. In this embodiment the upper panels 23A which, together with the seat-engaging portion 11A form the load-carrying platform extend over the front cell 12 and the portion 11A.

WHAT I CLAIM IS:—

1. An inflatable and deflatable support adapted for extending the load-carrying area of a vehicle seat, comprising an inflatable low-pressure cell having a portion adapted to rest on the vehicle floor adjacent the seat, a load-carrying platform on an upper surface of the cell and overlying the said portion and extending laterally therefrom, the extension having a curved surface adapted to overlie and be supported by the load-carrying area of the seat.
2. A support according to claim 1 wherein the said lateral extension of the load-carrying platform has an inflatable portion.
3. A support according to claim 1 wherein the said lateral extension has a resilient seat-engaging portion.
4. A support according to claim 2 wherein the said inflatable portion is a seat engaging portion and is contoured when inflated to conform to the contours of the associated seat.
5. A support according to any preceding claim wherein, when the cell or cells are inflated the load-carrying platform is substantially flat and horizontal.
6. A support according to any preceding claim which includes a substantially semi-cylindrical floor tunnel receiving recess formed in the lower surface of said floor engaging portion.
7. A support according to any of claims 1 to 6 in which said load-carrying platform includes a panel which is planar when the said device is inflated, and a pad of resilient material secured to the upper surface of said panel.
8. A support according to claim 7 in which said panel is formed of a plurality of substantially rectangular sections secured to the upper surface of the cell whereby said sections can be folded over one another when the support is deflated, to enable the support to be folded and stored in a relatively small volume of space.
9. A support according to any preceding claim wherein the cell includes at least one



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2

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sively secured together or, alternatively, can be heat sealed as desired.

The cell 10 includes a floor engaging portion 12 manufactured as one unit and a lateral extension which forms a seat-engaging portion 11. The floor engaging portion includes a generally rectangular front side 13, a rear side 14, end panels 15 and a base or underside 16. The upper surface 17, which completes the floor engaging portion, extends to form the upper surface 17¹ of the seat engaging portion 11. In a similar manner the side walls 15¹ of the seat engaging portion 11 may be formed as extensions of the side walls 15. The under surface 18 of the seat engaging portion is curved in a concave manner to match the convex curvature of the conventional rear seat 19 shown in side elevation in Figure 3.

An inflation and deflation valve 20 is provided at any convenient location within one of the walls of the cell 10.

A substantially semi-cylindrical recess 21 extends from the front to rear of the floor engaging portion and upon the under side 16 thereof to engage over the conventional semi-cylindrical floor tunnel 22 normally extending upwardly from the floor of a conventional front engine rear-wheel drive automobile.

A load supporting platform component collectively designated 23 is secured to the common upper surface 17 and 17¹ of the two portions of the cell. This load supporting platform component preferably includes a plurality of substantially rectangular boards 24 manufactured from plywood or fibreboard or the like, and these are adhesively secured to the film material forming the upper surface 17 and 17¹.

Pads of resilient foam material or the equivalent 25, are placed upon each of the boards or panels 24 and these may be placed within plastics or similar material 26 in the conventional manner thus giving a padded resilient surface which is planar when the cell is inflated as shown in Figure 1. However, the formation of the upper load supporting panel component in a plurality of panels, enables the panels to be folded in overlapping relationship with one another after the cell has been deflated and enclosing the material forming the cell therebetween so that the entire device takes up a relatively small amount of space and can therefore be stored away when not in use.

Shown in phantom in Figure 1 is a desirable modification which consists of flexible baffle panels 15A having the same configuration as the end panels 15 and being secured from front to back of the device thus dividing the cell into a plurality of chambers. Means are provided to allow slow transfer of air between the chambers, said means taking the form of small apertures 28 formed in the baffles 15A. Alternatively one of the seams of the baffle to the inner surface of the cell may be non-

continuous to provide the same slow transfer.

Figure 3 shows further embodiments in phantom. First the seat engaging portion 11 is separated from the main portion 12 by means of a transverse baffle 29 also having an air transfer aperture 30 therein.

Alternatively the two portions may be completely separated whereupon the seat engaging portion 11 would have to be provided with its own inflation valve 20A.

Figure 4 shows a still further embodiment in which the seat engaging portion 11A consists of resilient material such as foam of polyurethane or the like, it being understood that the main portion 12 is a low pressure inflatable cell as hereinbefore described. In this embodiment the upper panels 23A which, together with the seat-engaging portion 11A form the load-carrying platform extend over the front cell 12 and the portion 11A.

WHAT I CLAIM IS:—

1. An inflatable and deflatable support adapted for extending the load-carrying area of a vehicle seat, comprising an inflatable low-pressure cell having a portion adapted to rest on the vehicle floor adjacent the seat, a load-carrying platform on an upper surface of the cell and overlying the said portion and extending laterally therefrom, the extension having a curved surface adapted to overlie and be supported by the load-carrying area of the seat.

2. A support according to claim 1 wherein the said lateral extension of the load-carrying platform has an inflatable portion.

3. A support according to claim 1 wherein the said lateral extension has a resilient seat-engaging portion.

4. A support according to claim 2 wherein the said inflatable portion is a seat engaging portion and is contoured when inflated to conform to the contours of the associated seat.

5. A support according to any preceding claim wherein, when the cell or cells are inflated the load-carrying platform is substantially flat and horizontal.

6. A support according to any preceding claim which includes a substantially semi-cylindrical floor tunnel receiving recess formed in the lower surface of said floor engaging portion.

7. A support according to any of claims 1 to 6 in which said load-carrying platform includes a panel which is planar when the said device is inflated, and a pad of resilient material secured to the upper surface of said panel.

8. A support according to claim 7 in which said panel is formed of a plurality of substantially rectangular sections secured to the upper surface of the cell whereby said sections can be folded over one another when the support is deflated, to enable the support to be folded and stored in a relatively small volume of space.

9. A support according to any preceding claim wherein the cell includes at least one

internal bulkhead, and means to allow transfer of air through the bulkhead.

5 10. A support according to claim 3 which includes a bulkhead between the cell and the inflatable portion of the lateral extension, and air transfer means in the bulkhead to allow the transfer of air therebetween.

10 11. A support according to claim 3 which includes a bulkhead separating the cell and the inflatable portion of the lateral extension, and valve means in both the cell and the said inflatable portion.

12. A support according to claim 13 which includes a resilient seat engaging portion under said platform.

13. A support substantially as herein described, with reference to the accompanying drawings.

15

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