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(54) **CHILD SEAT PROTECTOR PAD**

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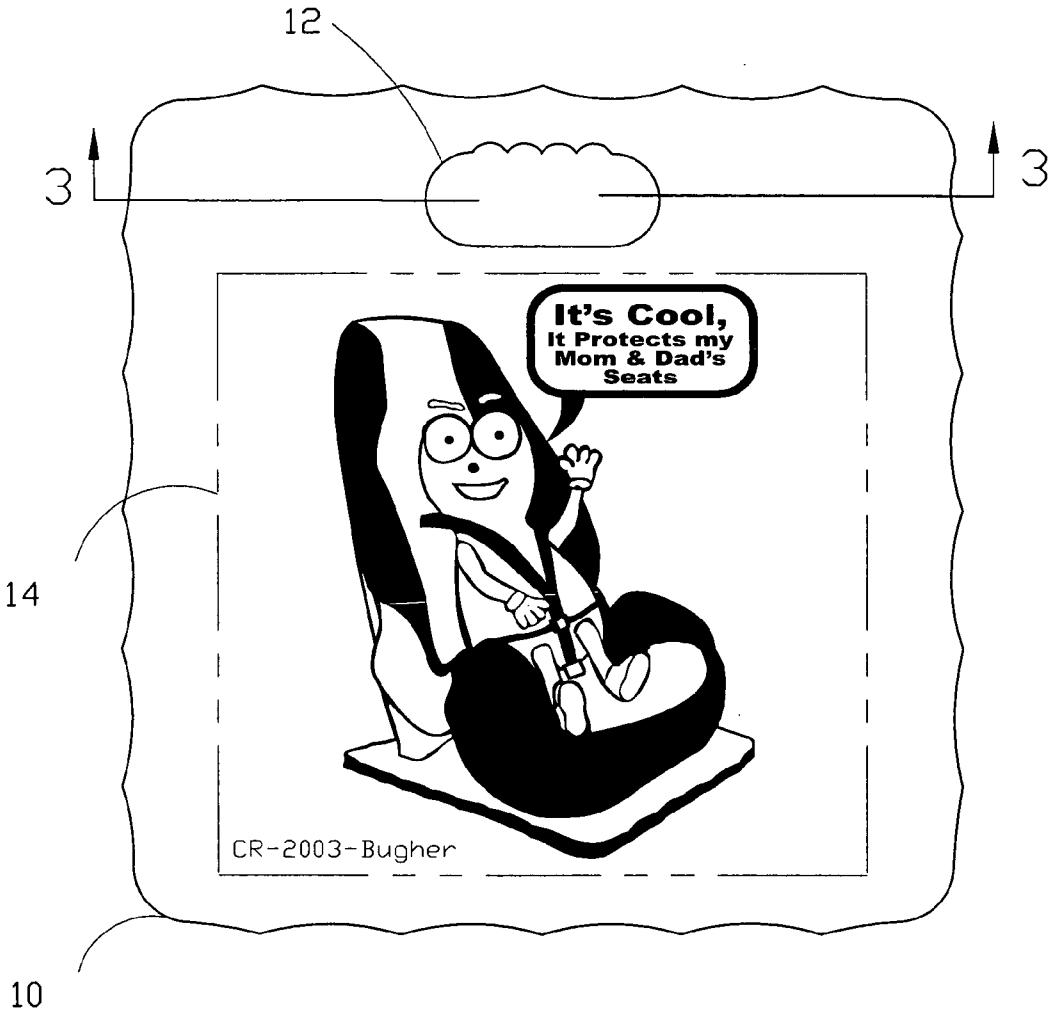
(57) **ABSTRACT**

In accordance with the present invention, a child seat protector pad is disclosed which is comprised of a rectangular pad of a closed cell foam material. It has a footprint somewhat larger than the footprint of a majority of infant and child seats for automobiles and a thickness and density sufficient to distribute the seat load forces internally while not marking the vehicle seat surface or presenting an unstable mounting surface. It also discloses an interior grip handle; and a space on the top surface for decorative artwork or commercial advertising. The child seat protector pad protects the vehicle seat surface from indentations caused by the weight of a child seat and/or abrasions to the vehicle's seat surface from relative motion between a loosely strapped child seat and a vehicle seat surface when sandwiched between a child or infant seat and a vehicle seat surface.



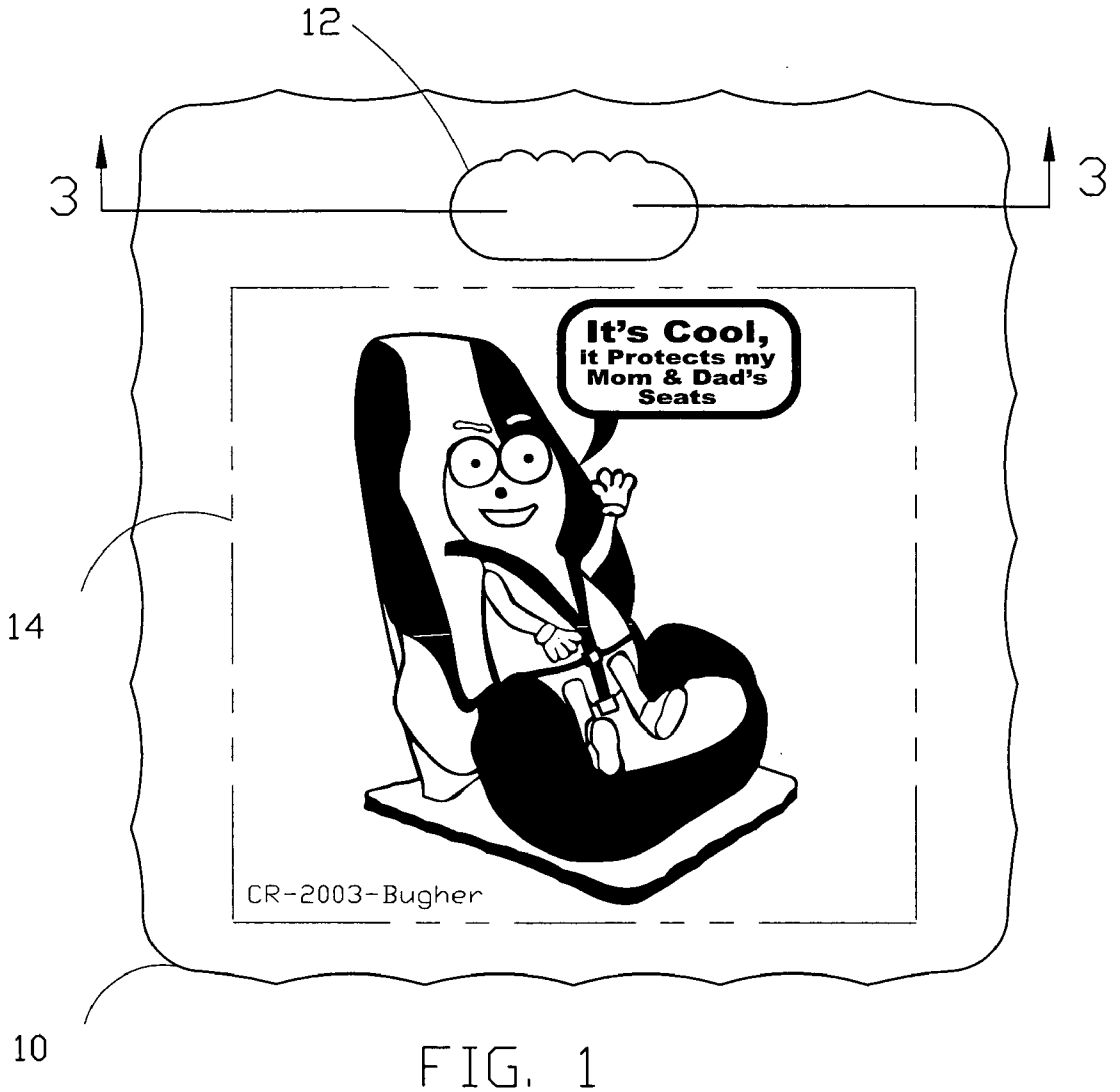


FIG. 1

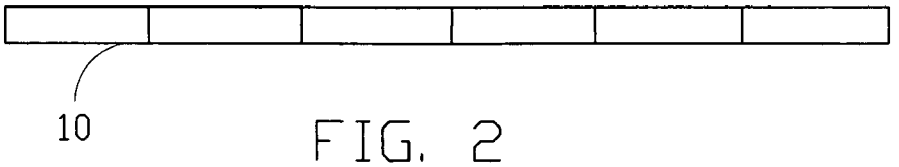


FIG. 2

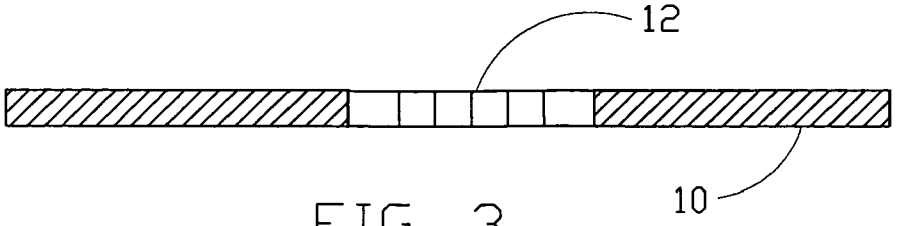


FIG. 3

CHILD SEAT PROTECTOR PAD

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation-in-part from parent application Ser. No. 10/457,208 which is hereby abandoned.

FEDERALLY SPONSORED RESEARCH

[0002] Not Applicable

SEQUENCE LISTING OR PROGRAM

[0003] Not Applicable

BACKGROUND-FIELD OF INVENTION

[0004] This invention generally relates to a protective pad for installation between leather, cloth, and vinyl automobile seats and child seats strapped to the automobile seats with seat belts and shoulder harnesses. More specifically this invention relates to a closed cell foam pad that acts as a no-skid mounting surface that evenly distributes the pressure from the bottom edges of child seats across the full area of the pad eliminating compression or abrasion marks on the permanent automobile seats.

PRIOR ART

[0005] The prior art discloses several different forms of seat cushions for providing an elevated sitting position for a child as in U.S. Pat. No. 4,231,613 to Jonasson, and U.S. Pat. No. 4,275,923 and U.S. Pat. No. 4,463,984 to Molinar or pads with extensions for footrests as in U.S. Pat. No. D 342,405 to Hazel. U.S. Pat. No. 5,005,903 to Minardi discloses a protective cover for a child seat. Its function is protecting adjacent passengers from the rough or hard surfaces of a child seat, not the underlying vehicle seat.

[0006] U.S. Pat. No. 3,323,151 to Lerman discloses a pad that can be a single pad for sitting, a hinged pad with seat and back pads attached with a compressed plastic foam hinge or a four pad hinged arrangement which can be un-folded for lying on. Its construction involves heat sealing the edges of die cut foam sheets and forming a smooth outer skin on the top and bottom surfaces when contacting hot die surfaces. The living hinges between the pads are also formed by heat compression of the foam materials. For seating comfort, the preferred embodiment disclosed has a pad 1.25 to 1.50 inches thick with a foam density of 1.0 to 1.25 lbs. per cu. ft. It will be shown later in the description that this is both too thick and too soft for use under a child seat to protect the seats or to support securely a child protection seat.

[0007] U.S. Pat. No. 5,549, 353 to Gaudet discloses a plastic mat that fits under a child car seat and extends down the front of the auto seat with drains and traps to protect the car seats from water and dirt from children's boots or shoes. It is not a foam pad, but is comprised of a flexible plastic sheet with rigid flanges for guiding and trapping fluids and a plurality of upward and downward projecting friction fit members to keep the mat from sliding on the car seat and the child seat from sliding on the mat. These integral friction fit members molded from the plastic sheet material appear to prevent much lateral movement of the seat but will leave marks on the underlying seat coverings if the seat is strapped under load for any appreciable length of time.

[0008] Finally, U.S. Pat. No. 6,276,752 to Conte utilizes foam or plush carpet pads in bottom and backside recesses in a polymeric protective container that a child seat sits in. These pads function to protect the underlying seats from abrasion while the bucket shaped container protects the seat surfaces from spills. They have no exposed top surface for artwork or advertising slogans as is illustrated in the present invention and if they use the plush carpet embodiment for the pad, it is definitely not waterproof or easy to clean. There is also no internal handle for ease of handling in Conte.

[0009] Most car seats for children have narrow cross-sections where they interface to the vehicle seat surface. The mounting and loading forces of the child seat on the vehicle seat surface, whether it is cloth, vinyl or leather, typically leave ugly indentations on the vehicle seat surface. Abrasion of the vehicle seat surface occurs if the child seat is not securely fastened to the vehicle seat. This abnormal and irregular wear can cause the value of a used vehicle to deteriorate at a more rapid rate than cars without child seats in use. Some consumers have resorted to placing blankets on the vehicle seats before child seats are installed to protect the vehicle seats from abrasion from the rough edges of typical child seats but they do not protect against the compression damage.

OBJECTS AND ADVANTAGES

[0010] Accordingly, several objects and advantages of the present invention are:

[0011] (a) to provide a vehicle seat protector pad which will distribute the weight of the seat, the child and the strapping forces of the seat belt across the area of the seat pad eliminating indentations in the vehicle seat upholstery caused by the bottoms of the narrow sidewalls of typical child seats.

[0012] (b) to provide a vehicle seat protector pad that will act as an anti-skid device eliminating abrasion of the vehicle seat surface by relative motion between the child seat and the auto seat.

[0013] (c) to provide a vehicle seat protector pad that has an area on the top surface suitable for decorative artwork or commercial advertising.

[0014] (d) to provide a vehicle seat protector pad that is easy to carry, adjust and install with and inboard handle grip.

[0015] (e) to provide a vehicle seat protector pad that is one piece, flat and easy to store when not in use.

[0016] (f) to provide a vehicle seat protector pad that can be provided in different colors to coordinate with different vehicle interiors.

[0017] (g) to provide a vehicle seat protector pad that is impervious to moisture and is easy to clean.

[0018] (h) to provide a vehicle seat protector pad that is made from a material that can be easily and indelibly decorated.

[0019] Still further objects and advantages will become apparent from a consideration of the ensuing description and drawings.

SUMMARY

[0020] In accordance with the present invention, a child seat protector pad comprises a rectangular pad of a closed foam material that has a footprint somewhat larger than the footprint of a majority of infant and child seats for automobiles. It also has a density sufficient to distribute the seat load forces internally, greater than approximately 1.9 lbs. per cu. in. and less than approximately 3.8 lbs. per cu. in., preferably 2.0 lbs. per cu. in., while not marking the bottom surface. A thickness of greater than approximately ½ in. or less than or equal approximately to ⅝ in. is required to provide stability to the seat mounting at the preferred density. The invention also embodies an interior grip handle and a space on the top surface for decorative artwork or commercial advertising. The foregoing and other objects and advantages will appear from the description to follow. Reference is made in the description to the accompanying drawings which form a part hereof.

[0021] The accompanying drawings show, by way of illustration, a specific embodiment in which the invention is practiced whereby a copyrighted character is shown for illustrative purposes and is not claimed as a part of this invention.

[0022] This embodiment will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. The size and shape of the apparatus shown in the attached drawings is for illustrative purpose only and is not intended to limit the application as to scaling that will be obvious to one skilled in the art. In the accompanying drawings, like reference characters designate the same or similar parts throughout the several views.

DRAWINGS

[0023] Drawing Figures

[0024] **FIG. 1** shows a top view of the seat pad.

[0025] **FIG. 2** shows a front view of the seat pad

[0026] **FIG. 3** shows a cross-sectional view through the handle grip.

REFERENCE NUMERALS IN DRAWINGS

[0027] **10**—seat pad; **12**—handle grip; **14**—area for decorative art or commercial insignia

DETAILED DESCRIPTION

[0028] Turning to the drawings for a more thorough explanation of the apparatus, child seat protector pad **10** comprises a rectangular pad of closed fine cell foam casting material such as a crosslinked polyolefin from Cellect, LLC, 70 Airport Road, Hyannis, Mass. 02601 known as Micro-Cell®. Experiments were conducted to ascertain the best thickness and density combinations. As the density decreases, the thickness must be increase to keep the seat structure from marking the underlying seat covers. However, if the thickness is too large it makes an unstable mounting base for the child seat.

[0029] The following foam densities with associated thicknesses were tested over a seven-day period with a fifty lb. child load.

Density lbs./cu. ft.	Thickness	Manufacture	Comments
MC 1.9	¾"	Cellect	Too thick-caused seat movement
MC 1.9	1"	Cellect	Too thick-caused seat movement
MC 3.8	¾"	Cellect	Too thick-caused seat movement
SSP 2.0	¼"	Cellect	Too thin-imprint on vehicle seat
Evacel 3.8	½"	Cellect	Too dense-seat unstable
MC 1.9	¼"	Cellect	Too thin-imprint on vehicle seat
SSP 4.0	1"	Cellect	Too thick & too dense-unstable
MC 2.0	⅝"	Cellect	Very stable-no imprint

[0030] Material thicknesses less than ½" or greater than ⅝" will not provide proper support. Foam density less than 1.9 lbs/cu. ft. will not prevent damage to the underlying seat and foam density greater than 3.8 lbs/cu/ft. will not prevent the seat from moving making the mounting very unstable. The preferred combination to distribute the seat load forces internal to the pad, not marking underlying the upholstery surface, and providing a stable mounting base is approximately 1.6 centimeters (⅝ inch) thick with an approximate density of 2.0 lbs per cu. ft. as shown in **FIG. 2**.

[0031] **FIG. 1** shows a top view of pad **10** with a footprint somewhat larger than the footprint of a majority of infant and child seats, not shown, for automobiles, approximately 45.7×47 centimeters (18 by 18.5 inches).

[0032] An opening with finger indentations for handle grip **12** is located approximately 6.3 centimeters (2½ inches) from the front edge of pad **10**, to aid in the handling and placement of pad **10** as shown in **FIG. 1** and in cross-section in **FIG. 3**.

[0033] A copyrighted cartoon character is also shown in **FIG. 1**, for illustrative purposes only, within the phantom line rectangular area **14**. This area **14** can be utilized either for artwork or for advertising if the pads are to be given away as promotional items. The foam cell structure must be fine enough to allow for detailed printing of indelible inks for decorating and impervious to moisture for ease of cleaning.

What is claimed is:

1. An apparatus for protecting leather, vinyl and cloth automobile seats from compression marks occurring from the pressure of child seats being strapped down against said auto seat and abrasion marks caused by said child seats sliding around on said auto seat surface comprising:

a rectangular pad of a molded closed fine cell foam plastic that is sandwiched between said child seat and said auto seat and has a larger footprint than said child seat.

2. An apparatus for protecting leather vinyl and cloth automobile seats as in claim 1 wherein said rectangular pad is of sufficient density, greater than 1.9 lbs. per cu. in. and less than 3.8 lbs. per cu. in., to distribute the stresses from a child's weight and strapping forces of said child's seat across the said footprint of said rectangular pad where by compression damage is eliminated and a stable mounting surface is maintained.

3. An apparatus for protecting leather vinyl and cloth automobile seats as in claim 2 wherein said rectangular pad is of sufficient thickness, greater than ½ in. and less than ¾ in., to provide a stable base and prevent compression marking of said automobile seats.

4. An apparatus for protecting leather, vinyl and cloth automobile seats as in claim 1 wherein said rectangular pad has an internally molded handle for ease in installation and handling.

5. An apparatus for protecting leather vinyl and cloth automobile seats as in claim 1 wherein said rectangular pad surface is of fine enough grain structure to allow for detailed printing of indelible inks.

6. An apparatus for protecting leather, vinyl and cloth automobile seats as in claim 1 wherein said rectangular pad is impervious to moisture for ease for cleaning.

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