United States Patent [19]

Trotman

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[45] **Mar. 27, 1973**

[54] **UNDERBODY VENTILATING STRUCTURE**

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[21] Appl. No.: **32,642**

[52] **U.S. Cl.**.....**297/453,** 5/347

[51] **Int. Cl.**.....**A47c 23/00**

[58] **Field of Search**.....297/453, DIG. 2; 5/347; 161/109, 127; 267/142, 145; 139/419

[56] **References Cited**

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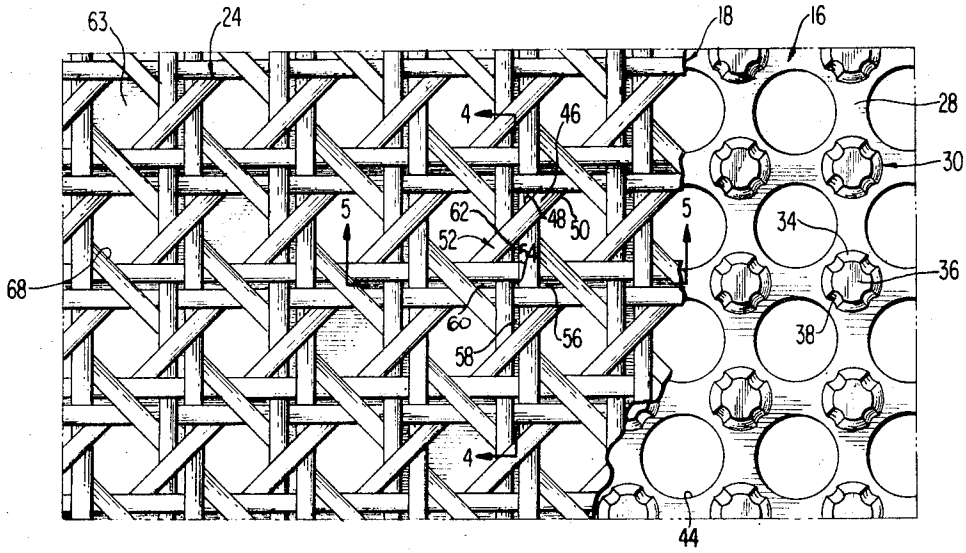
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[57] **ABSTRACT**

Underbody ventilating structure includes a ventilation grid sheet having a resilient base portion and a plurality of molded-in body-support projections. A cover sheet is coextensive with the grid sheet and has molded-in recessed portions defining a decorative pattern in the cover sheet such as a woven cane-simulating pattern. The body support projections maintain the cover sheet spaced from the base portion of the grid sheet, to form a ventilation space between the grid and cover sheets. The body-support projections are bonded to decorative recessed portions of the cover sheet, to eliminate scrubbing of the cover sheet across the grid sheet. The body-support projections can be rigid, or can be partially collapsible to yield with springlike action for increased comfort.

18 Claims, 11 Drawing Figures



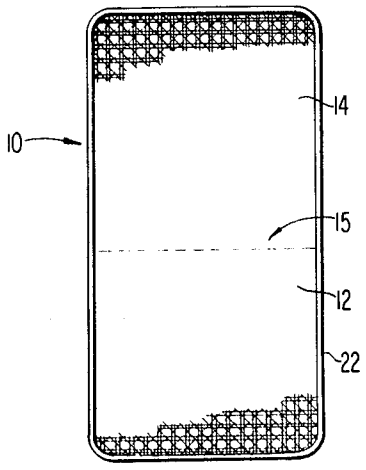


FIG. 1

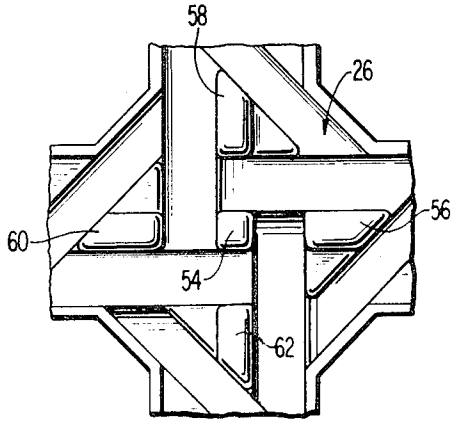


FIG. 3

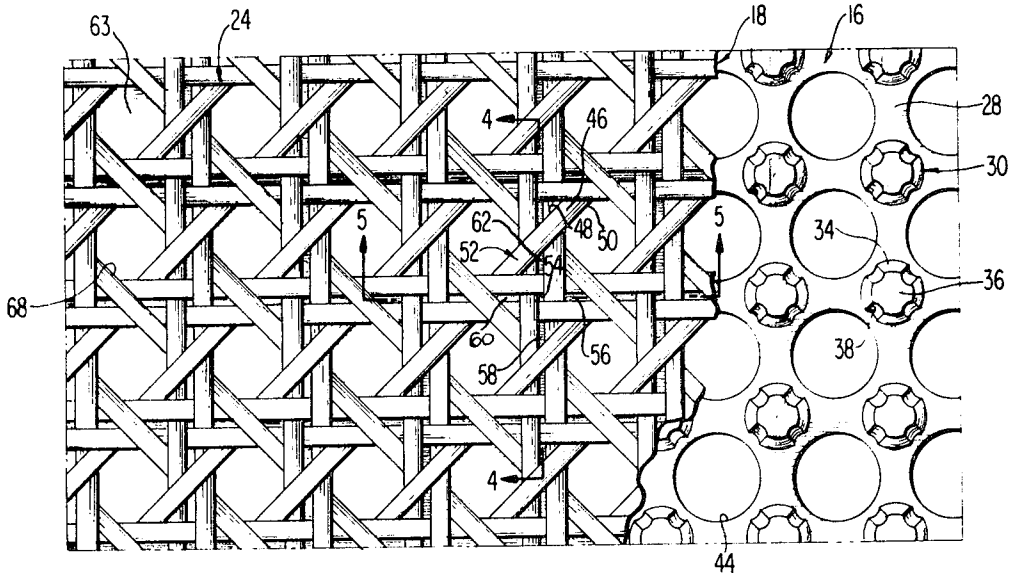


FIG. 2

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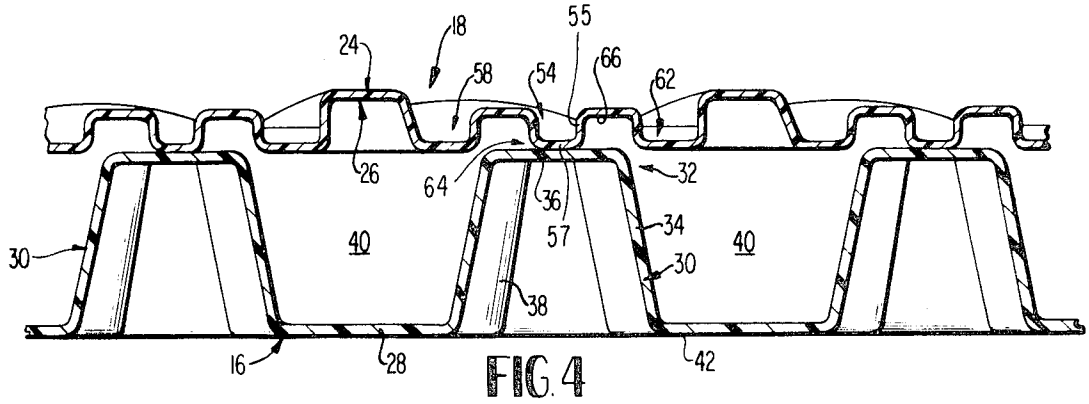


FIG. 4

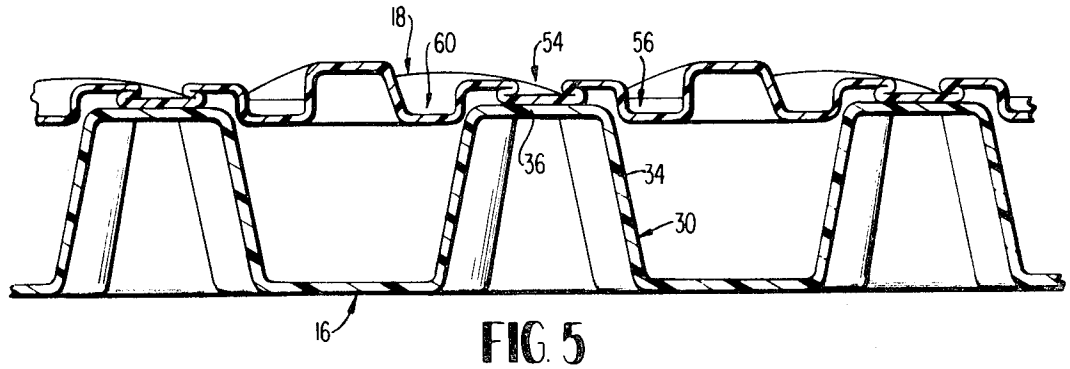


FIG. 5

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FIG. 6

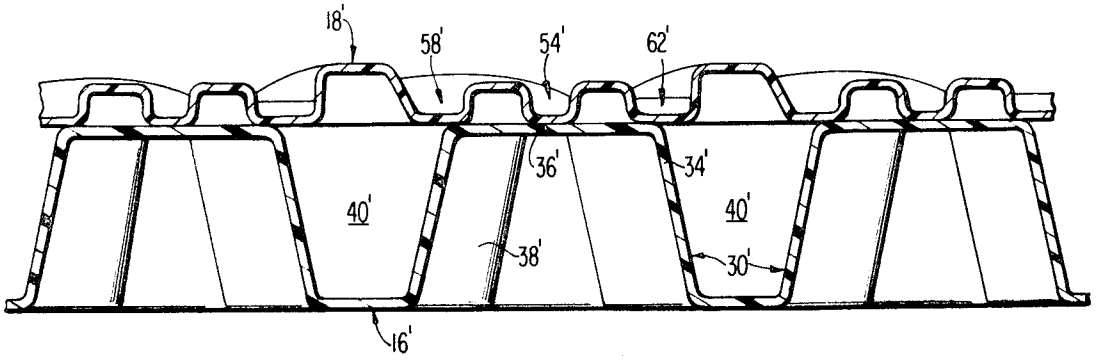


FIG. 7

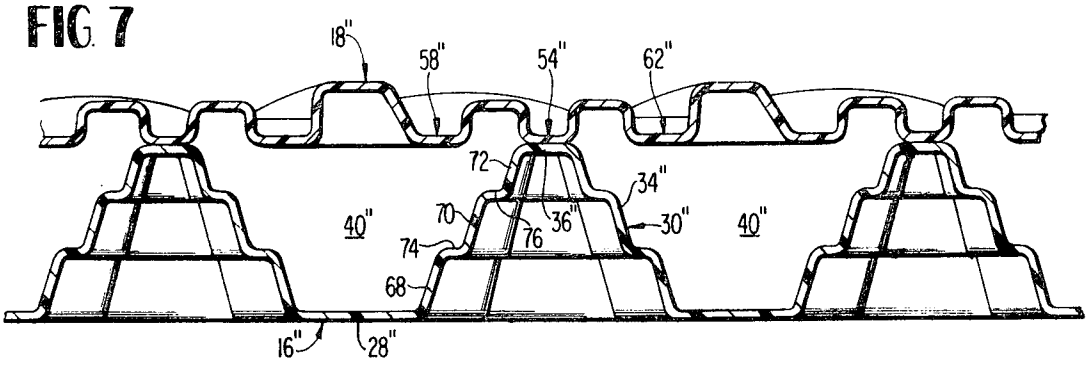


FIG. 8

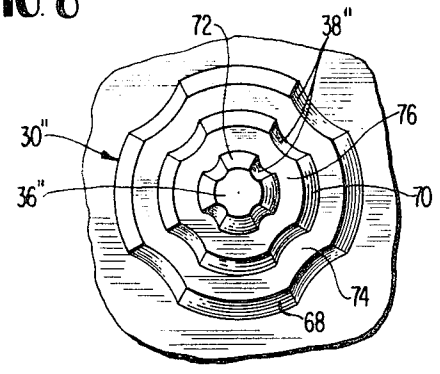
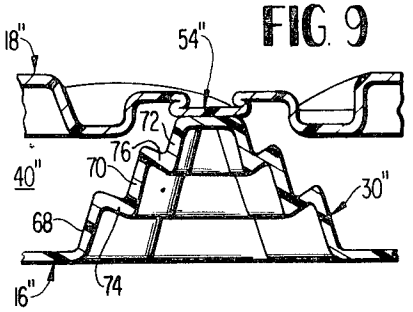


FIG. 9



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FIG. 10

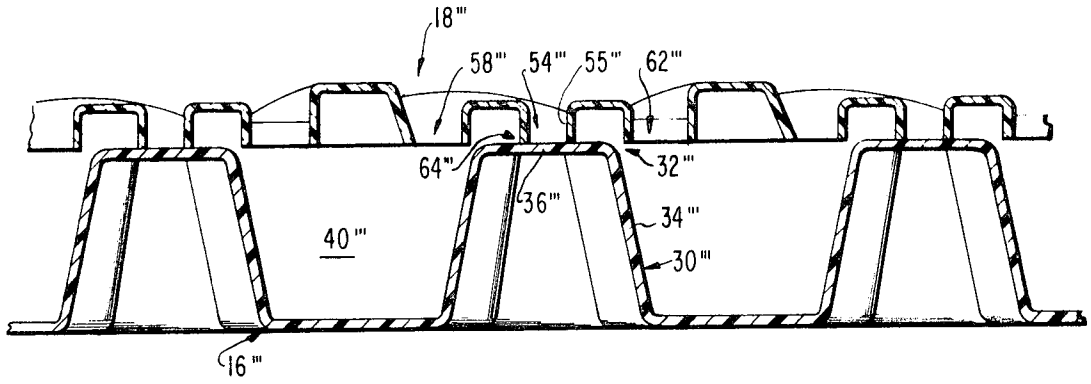
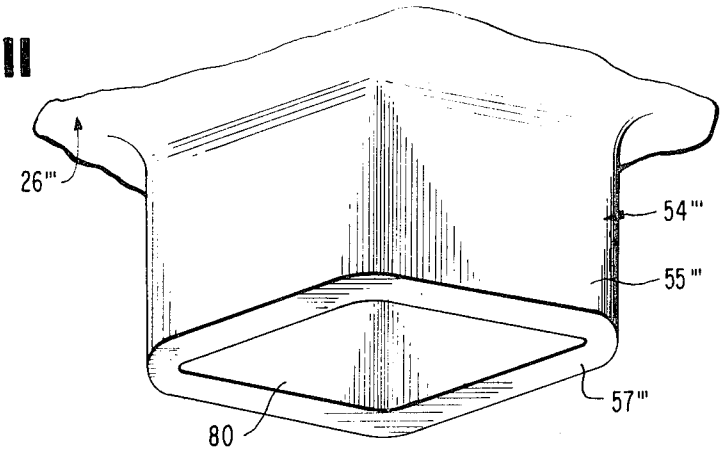


FIG. 11



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UNDERBODY VENTILATING STRUCTURE

BACKGROUND OF THE INVENTION

This invention relates to underbody ventilating structures, and more particularly, to ventilated seat pads for occupants of motor vehicles.

Ventilated pads for seats of automobiles, trucks, and other motor vehicles, conventionally include a fabric cover having an exposed seating surface, and a ventilating support structure which maintains the cover spaced above the motor vehicle seat to form a ventilation space under the body of the seat occupant. The cover fabric is generally foraminous, to allow free passage of air into and out of the ventilation space. The cover must have a decorative appearance because it is exposed to view and must complement the pleasant appearance of most vehicle interior trim. Also, a decorative appearance is most important from the standpoint of saleability.

Ventilated seat pads of the prior art suffer from several disadvantages. Among such disadvantages is the susceptibility of the cover fabric to lateral scrubbing movement across the ventilating support structure when an occupant slides onto the seat or otherwise across the pad. This scrubbing action results in the breakage of the cover fabric, and also in the unsightly spreading of the apertures in the foraminous fabric. Further, prior art ventilated seat pads often are not comfortable, especially for occupancy over extended periods of time.

Accordingly, a main object of the invention is the provision of improved underbody ventilation structures which overcome the disadvantages of the prior art, which eliminate scrubbing of the cover across the ventilating support structure and resultant damage to the cover, which have and retain a pleasing decorative appearance, and which are comfortable for occupancy over extended time periods.

Other objects of the invention will appear from the following detailed description which, in connection with the accompanying drawings, discloses several embodiments of the invention for purposes of illustration only and not for determination of the limits of the invention. For defining the scope of the invention, reference will be made to the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts an underbody ventilating pad embodying principles of the invention.

FIG. 2 is an enlarged view of details of the pad of FIG. 1.

FIG. 3 is an enlarged bottom view of details of the cover sheet of the pad of FIG. 1.

FIG. 4 is an enlarged cross-sectional view on line 4—4 of FIG. 2.

FIG. 5 is an enlarged view on cross-section line 5—5 of FIG. 2, showing the structure as deformed by the weight of a seat occupant.

FIG. 6 is a side cross-sectional view, similar to FIG. 4, showing details of another underbody ventilating pad embodying principles of the invention.

FIG. 7 is a side cross-sectional view, similar to FIG. 4, showing details of still another underbody ventilating pad embodying principles of the invention.

FIG. 8 is a plan view of the body-support projections of the structure of FIG. 7.

FIG. 9 is a cross-sectional view showing the action under load of the body-support projections of the structure of FIG. 7.

FIG. 10 is a side cross-sectional view, similar to FIG. 4, showing details of still another underbody ventilating pad embodying principles of the invention.

FIG. 11 is an enlarged, isometric bottom view of details of the structure of FIG. 10.

Primed, double-primed and triple-primed reference characters denote elements similar to elements designated with the respective unprimed characters.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

IN FIG. 1, an underbody ventilating pad **10** has a seat portion **12** and a back rest portion **14**. Pad **10** bends along a line of hinging action, as at **15**, so that the pad can be folded into a configuration in which seat portion **12** extends transversely to back rest portion **14**. In this configuration, pad **10** can be disposed on a motor vehicle seat assembly with the seat portion of the pad resting on the seat portion of the vehicle seat assembly and the back rest portion of the pad resting on the back rest portion of the seat assembly.

Pad **10** includes a first sheet member or ventilating grid sheet **16** (FIG. 2) and an opposed, second sheet member or cover sheet **18**, and the two sheets make up the seat and back rest portions of the pad. Grid sheet **16** and cover sheet **18** are unitary sheets of synthetic resinous material (hereafter termed "plastic"). Each sheet has a uniform thickness, and the cover sheet may be molded into a simulated cane configuration to be described in detail. Grid sheet **16** and cover sheet **18** are coextensive, and the sheets are joined together around their peripheries to form pad **10**. The joining can conveniently be effected by sewing the sheets together. If desired, a conventional, narrow edge binding **22** (FIG. 1) can be folded around the edges of and sewn to the sheets, to conceal the raw edges of the plastic or, if desired, the coinciding edges of the sheets can be tear heat sealed together.

Cover sheet **18** has an outer or exposed surface **24** (FIGS. 2, 4) upon which an occupant is seated. Cover sheet **18** also has an inner or concealed surface **26** (FIG. 4) which faces grid sheet **16**. A portion of cover sheet **18** is removed in FIG. 2, for clarity in illustration. It will be appreciated that the structural details shown in FIG. 2 are representative of both the seat portion and the back rest portion of pad **10**.

Grid sheet **16** includes a resilient base or web portion **28** (FIGS. 2, 4) and a plurality of body-support projections or portions **30**. Body-support projections **30** are molded in the grid sheet and protrude from base portion **28**. Base portion **28** interconnects the body-support projections. Body-support projections **30** are hollow, grid sheet **16** being uniform in thickness throughout the body-support projections and base portion **28**. Each body-support projection **30** has a generally frustoconical configuration, and has a free inner end portion **32** which is spaced from base portion **28** of grid sheet **16**. Each projection **30** includes continuous side walls **34** which merge with a flat end wall **36**. The configuration of projection **30** imparts rigidity to side walls **34** from the base portion of grid sheet **16** to end portion **32** of the projection, to prevent collapse

of the projection under the weight of a seat occupant. Side walls **34** of each projection have four corrugations, as at **38**, which serve to further stiffen side walls **34** against collapse. Body-support projections **30** maintain cover sheet **18** spaced from base portion **28** of grid sheet **16** to form a ventilation space **40** for circulation of air between the cover sheet and the grid sheet.

Body-support projections **30**, having generally columnar configurations, are spaced-apart in all directions for free flow of air longitudinally and transversely within ventilation space **40**. Base portion **28** of grid sheet **16** has an outer surface **42** facing away from cover sheet **18**, for disposition on a motor vehicle seat assembly or other pad-supporting surface. Apertures **44** may be formed in base portion **28** of grid sheet **16**, to minimize crinkling noises produced by deformation of base portion **28** from the weight of a seat occupant. Where present, apertures **44** also promote free flow of ventilating air into and through ventilation space **40**. Grid sheet **16** has a flat portion, i.e., a portion free of body-support projections, along line **15** of hinge action (FIG. **1**), to facilitate the bending of the pad. The grid sheet also has a flat marginal portional extending around its periphery, to facilitate the joining of the edges of the grid sheet to the edges of the cover sheet.

The cover sheet is also a single sheet of plastic which bends along the line of hinge action. The cover sheet (FIG. **2**) includes a plurality of molded-in recessed portions which define a decorative, woven-cane pattern in the exposed surface of the cover sheet. To define the pattern, the molded recessed portions are shaped and positioned to define a plurality of cane-simulating members and to define intersections of the cane-simulating members and simulated or actual openings in the pattern. At the intersections, the cane-simulating members appear to be in interwoven relation to one another. To illustrate, cover sheet **18** is molded with portions recessed to define a plurality of straight, cane-simulating stringers, as at **46**. This is effected by displacing material of a flat sheet downwardly along spaced-apart parallel lines, as at **48**, **50**, leaving a central portion elevated to define the body of stringer **46**. By recessing portions of cover sheet **18** to varying depths, the cane-simulating members are made to appear to extend over and under one another in interwoven relationship, intersecting at locations dispersed across cover sheet **18**. A typical intersection of eight cane-simulating stringers is indicated at **52**. At the intersection, a cluster of additional deeper recessed portions are formed, simulating void spaces occuring between stringers in natural woven cane. The cluster of deep recesses includes a central recessed portion **54** and four peripheral recessed portions **56**, **58**, **60**, **62**, which are dispersed peripherally around central recessed portion **54**. Four of these clusters surround an octagonal recessed portion **63** which simulates an opening in the pattern or the lower end portions of which actually terminate in an opening **68** (FIG. **2**). Cover sheet **18** is of uniform thickness throughout the recessed and other portions of the sheet, each recessed portion being molded in the sheet to a depth to have an inner end portion which is spaced from the portions of inner surface **26** (FIG. **4**) of cover sheet **18** which are contiguous to the recessed portion. For example, recessed portion **54** includes an end portion **64** which is spaced inwardly from inner surface portion **66** which is contiguous to recessed portion **54**. Stated differently, each recessed portion appears from the underside of the cover sheet as a protrusion (FIG. **3**). Each recessed portion includes continuous side walls and includes an end wall which merges with the side walls at the end portion of the recessed portion. For example, recessed portion **54** (FIG. **4**) includes continuous side walls **55** and an end wall **57** which closes the inner end portion **64** of the recessed portion.

The intersections of the cane-simulating members are registered with the end walls of the body-support projections. The central recessed portion **54** of the recessed portions clustered at each intersection is joined to the central portion of end wall **36** of the contiguous body-support projection **30**. The joining is preferably effected by a bond between the projection end wall **36** and end portion **64** of recessed portion **54**, and the bond is advantageously formed by conventional, thermal-fusion techniques which weld recessed portion **54** to end wall **36**. It will be appreciated that other conventional plastic-bonding techniques, e.g., adhesive bonding, can be employed to secure recessed portion **54** to end wall **36**.

The joining of each body-support projection **30** to a recessed portion of the cover sheet prevents lateral translational movement of the cover sheet relative to the grid sheet, thereby preventing the cover sheet from scrubbing across and being damaged by the grid sheet during the use of the pad notwithstanding the application of friction and other laterally directed forces to the cover sheet by an occupant sliding onto the seat or otherwise across the pad.

Peripheral recessed portions **56**, **58**, **60**, **62** are displaced outwardly from central recessed portion **54** a distance approximating the distance of side walls **34** of body-support projection **30** from central recessed portion **54**, so that the peripheral recessed portions are offset from projection end wall **36**. With this arrangement, portions of the side walls of the peripheral recessed portions facially oppose side walls **34** of the body-support projection when cover sheet **18** is deformed by the weight of a seat occupant resting upon exposed surface **24**. As shown in FIG. **5**, under the weight of an occupant, flexible cover sheet **18** is forced downwardly toward grid sheet **16**, collapsing the side walls of central recessed portion **54**. The peripheral recessed portions are lowered into closely spaced, opposed relation to side walls **34** of body-support projection **30**, as indicated by the positions of peripheral recessed portions **56**, **60** in FIG. **5**. It will be appreciated that peripheral recessed portions **58**, **62** occupy similar positions.

The opposed relation of the peripheral recessed portions to the projection side walls results in a further resistance to scrubbing of the cover sheet across the grid sheet because lateral forces applied to the flexible cover sheet bring the side walls of the peripheral recessed portions into engagement with the projection side walls, which retard further lateral movement of the cover sheet.

Cover sheet **18** may include the plurality of octagonal ventilation apertures **68** which are formed in the otherwise continuous, air-impermeable plastic cover sheet at the lower end portion of recessed portions **63**. The ventilation apertures may be dispersed

over the entire cover sheet, at the bottom of each of recessed portions **63** or they may be scattered over the cover sheet, i.e., at the bottom of some of recessed portions **63** (FIG. **2**). Ventilation apertures **68** communicate with the ventilating space between the grid and cover sheets, for free passage of air through cover sheet **18** and into refreshing contact with the body of the seat occupant. Ventilation apertures **68** may be slightly smaller than, and registered with, underlying apertures **44** in base portion **28** of grid sheet **16**, for decorative purposes. The slightly smaller size of ventilation aperture **68** in cover sheet **18** also increases the body-support area of the exposed surface of cover sheet **18**, for increased seating comfort.

The structure of the embodiment of FIG. **6** is similar to that of FIGS. **1–5**, except that the size of each body-support projection **30'**, including end wall **36'**, is increased relative to the spacing between the peripheral recessed portions of cover sheet **18'**, so that the peripheral recessed portions, as **58'**, **62'**, overlie at least part of the end wall. It will be appreciated that only two of the four peripheral recessed portions are shown in FIG. **6**. In this construction, the projection end wall is bonded to each of the four peripheral recessed portions, as well as to central recessed portion **54'**, to resist scrubbing of the cover sheet across grid sheet **16'**.

In the embodiment of FIGS. **7–9**, columnar body-support projections **30''** are constructed for controlled, force-absorbing collapse. This increases the comfort of the seat occupant while maintaining cover sheet **18''** spaced from base portion **28''** of grid sheet **16''** to avoid blocking ventilating space **40''**. Each body-support projection **30''** includes a plurality of serially disposed, rigid, support portions **68, 70, 72** extending in a direction away from base portion **28''** of grid sheet **16''**. Each support portion has four stiffening corrugations, as at **38''** (FIG. **8**). The support portions are radially offset one from another so that body-support projection **30''** has a stepped configuration. Each support portion is frustoconical in shape. Serially contiguous support portions are joined by annular, flat, collapsible portions which extend in a direction along base portion **28''** of grid sheet **16''**. For example, collapsible portion **74** (FIGS. **7, 8**) is located between serially contiguous support portions **68, 70**, and collapsible portion **76** is disposed between serially contiguous support portions **70, 72**. Central recessed portion **54''** is bonded to end wall **36''** of body-support projection **30''**, for prevention of scrubbing action as described above.

When the weight of an occupant is applied to the seat pad, each body-support projection **30''** yields (FIG. **9**) with the weight and configuration of the occupant's body. Collapsible portions **74, 76** are pressed downwardly out of their original planes of orientation, absorbing the force of the load. However, support portions **68, 70, 72** of the sidewalls of body-support projection **30''** prevent complete collapse of the projection, to prevent blocking of ventilating space **40''**. The yielding, springlike action of of body-support projections **30''** greatly enhances the comfort properties of the seat pad.

The structure of the embodiment of FIGS. **10–11** is similar to that of FIGS. **1–5**, except that the deep recessed portions of cover sheet **18'''** which are clustered at the intersections have open inner end portions. Stated differently, an aperture or orifice is formed in the cover sheet at the inner end portion of each of the recessed portions. The aperture can be formed by shaving off or otherwise removing the tip of the recessed portion as originally molded in the cover sheet. In this embodiment, the end wall of each of the deep recessed portions is generally annular, and circumscribes the aperture formed in the recessed portion. For example, inner end portion **64'''** of recessed portion **54'''** includes a generally annular end wall **57'''** (FIG. **11**) which circumscribes aperture **80** which is formed in the inner end portion of the recessed portion. End wall **57'''** is bonded to end wall **36'''** of body-support projection **30'''** in the manner described hereinabove. Obviously, apertures **68** may be formed by shaving off some of recessed portions **63** to leave end walls bondable to body support projections.

The structure of FIGS. **10–11** is particularly advantageous because it more closely simulates woven cane by producing voids between stringers as exist in interwoven natural cane. Further, the apertures in the recessed portions communicate with ventilation space **40''** and thus provide additional area for flow of air through the cover sheet, except to the extent that the apertures are blocked by the body-support projections.

In making a ventilated seat pad in accordance with one exemplary application of inventive principles, the grid sheet is produced from a single plastic sheet which is molded into the desired configuration with body-support projections and a base portion interconnecting the projections. The plastic for the grid sheet can be selected from a wide variety of plastics suitable for the purpose. The selected plastic must have sufficient strength and stiffness for the body-support projections to have strength to support the seat occupant without blocking circulation of air through the ventilation space, yet be sufficiently flexible to undulate for seating comfort and have sufficient resiliency to return to its original shape after in-use undulation and distortion. The thickness of the plastic to some extent has an effect upon these factors, and the thickness and the type of plastic selected are correlated to produce a grid sheet having the desired properties. As a specific example, a grid sheet of high-density polyethylene about 15 mils in thickness is suitable. Other suitable materials include polypropylene and vinyl.

Any of a wide variety of plastics is also suitable for the cover sheet. The cover sheet must also be flexible to undulate and distort in use, and is preferably more soft and flexible than the grid sheet to stretch in use and for enhanced seating comfort. The cover sheet also must have sufficient resiliency to recover its original form after distortion. As a specific example, a cover sheet of low-density polyethylene about **20** mils in thickness is suitable. Other materials which can be employed include copolymers of polypropylene and butyl rubber, and vinyl.

The plastic sheets selected for the grid and cover sheets are passed through their respective forming operations in which the desired configurations are imparted to the sheets by conventional techniques. The cover sheet is then joined to the tips of the body-support projections of the grid sheet under pressure by conventional, thermal-fusion bonding procedures as

described hereinabove. The edges of the pad are joined as previously described.

In use, the seat pad is placed on a motor vehicle seat to be occupied in the usual manner. Irrespective of sliding of the occupant across the seat pad, there will be no scrubbing action of the cover sheet across the grid sheet because any sidewise thrust generated by friction or other forces applied to the cover sheet is effectively resisted by the bonds between the recessed portions of the cover sheet and the body-support projections of the grid sheet. Further, in ventilated seat pads according to the embodiment of FIGS. 1–5, scrubbing is also resisted by the peripheral projections of the intersection clusters abutting the side walls of the body-support projections.

It will be appreciated that the highly advantageous results of elimination of scrubbing action and resultant damage to the cover sheet have been achieved by coactively associating decorative recessed portions of the cover sheet with the body-support projections so that the recesses perform the dual functions of defining a decorative pattern in the cover sheet while joining the cover sheet to the grid. It will be further appreciated that these advantageous results have been obtained in combination with the further advantage of increased volume in the ventilation space. Such increased volume is made possible by the raising of the cover sheet which results from supporting the cover sheet by the recessed portions. Additional volume is also created under the elevated portions of the cane-simulating structure.

In ventilated seat pads according to the invention, the grid and cover sheets are integrated, and move together under in-use distortion without blocking air flow, and provide a pad which has long service life because scrubbing and resultant damage are eliminated. The pads are comfortable and decorative in appearance, and remain so through long periods of service.

Pads in accordance with the embodiment of FIGS. 7-9 combine the foregoing advantages with the further advantage of enhanced comfort resulting from the springlike action of the partially collapsible body-support projections which yield in accordance with the weight and configuration of the body of the seat occupant.

Openings **44** in grid sheet **16** may be omitted entirely if desired and in such case ventilation is achieved through openings **68** in cover sheet **18** or openings in either or both grid sheet **16** or cover sheet **18** at convenient locations, not shown.

The decorative pattern of the present invention can take many forms in which the cover is embossed or three dimensionally deformed so as to have portions projecting inwardly from the plane of the outwardly facing surface, an example being a simulated woven can pattern. A simulated cane surface is shown and described as a preferred embodiment in this patent application because it is representative of these patterns and incorporates an especially deep deformation of the cover which aids in illustrating the invention.

I claim:

1. Underbody ventilating structure, comprising

a first sheet member including a resilient base portion,

a resilient second sheet member opposing the first sheet member,

the second sheet member having an exposed surface defining a decorative pattern which faces away from the first sheet member,

the first sheet member including spaced-apart body-support means projecting from the base portion for maintaining the second sheet member spaced from the base portion of the first sheet member to form an underbody ventilation space between the first and second sheet members,

each body-support means having an end portion which is spaced from the base portion of the first sheet member,

the end portion of at least a plurality of the body-support means including an end wall joined to the second sheet member to prevent scrubbing of the second sheet member across the first sheet member, and

means defining ventilation apertures communicating with the ventilation space for flow of air into and out of the ventilation space.

2. The structure of claim **1** in which

recessed portions of the exposed surface of the second sheet member form projections on an inner surface facing the first sheet member,

each recessed portion including an end portion spaced from portions of the inner surface which are contiguous to the recessed portion,

the end portion of each of at least the plurality of the body-support means being joined to the end portion of at least one recessed portion of the second sheet member.

3. The structure of claim **2** in which

each body-support means has side walls and a generally columnar configuration,

the recessed portions of the second sheet member including a central recessed portion and a plurality of peripheral recessed portions dispersed peripherally around the central recessed portion,

the central recessed portion being joined to the end wall of a body-support means,

the peripheral recessed portions being offset from the end wall to oppose the side walls of the body-support means when the second sheet member is deformed by a body resting on the exposed surface of the second sheet member.

4. The structure of claim **2** in which

the recessed portions define a woven-cane pattern with the recessed portions defining intersections of interwoven cane-simulating members at locations registered with end walls of at least the plurality of the body-support means.

5. The structure of claim **3** in which

the plurality of recessed portions include a plurality of apertures with at least a portion of such apertures communicating with the ventilation space.

6. The structure of claim **4** in which

the recessed portions at each intersection include a central recessed portion and a plurality of peripheral recessed portions dispersed peripherally around the central recessed portion with

at least the central recessed portion being joined to the end wall of a body-support means.

7. The structure of claim **2** in which

the second sheet member includes at least a plurality of the ventilation apertures,

the ventilation apertures in the second sheet member being interspersed among the recessed portions of the second sheet member.

8. The structure of claim 7 in which

the base portion of the first sheet member includes apertures communicating with the ventilation space and registered with the ventilation apertures in the second sheet member.

9. The structure of claim 1 with

each body-support means being hollow and having side walls,

the side walls of each body-support means including

a plurality of serially disposed support portions extending in a direction away from the base portion of the first sheet member, and

a collapsible portion between serially contiguous support portions.

10. The structure of claim 9 in which

the support portions are rigid and radially offset from one another, and

the collapsible portions extend in a direction along the base portion of the first sheet member.

11. The structure of claim 10 with

each rigid support portion including at least one stiffening corrugation.

12. The structure of claim 1 in which

the first and second sheet members are made of plastic,

the end portion of each of at least the plurality of the body-support means being joined to the second sheet member by a bond between the end portion of the body-support means and the second sheet member.

13. The structure of claim 12 with

the end portion of each of at least the plurality of the body-support means being thermal fusion-bonded to the second sheet member.

14. The structure of claim 12 with

the end portion of each of at least the plurality of the body-support means being adhesive-bonded to the second sheet member.

15. The structure of claim 12 with

the second sheet member being more flexible than the first sheet member.

16. Underbody ventilating pad structure comprising

a first sheet member of generally uniform thickness material having a periphery and a resilient base portion, and

a resilient second sheet member generally coextensive with the first sheet member and having a periphery joined to the periphery of the first sheet member,

the second sheet member being of generally uniform thickness material having a surface which is exposed to view and which faces away from the first sheet member,

the second sheet member having an inner surface facing the first sheet member,

the first sheet member including spaced-apart hollow body-support means projecting from the base portion for maintaining the second sheet member spaced from the base portion of the first sheet member to form a ventilation space between the first and second sheet members,

the second sheet member including recessed portions defining a decorative pattern in the exposed surface,

each recessed portion including an end portion spaced from portions of the inner surface which are contiguous to the recessed portion,

each body-support means having an end portion which is spaced from the base portion of the first sheet member,

the end portion of at least a plurality of the body-support means being bonded to the end portion of at least one recessed portion of the second sheet member to prevent scrubbing of the second sheet member across the first sheet member,

the second sheet member including a plurality of ventilation apertures communicating with the ventilation space,

the base portion of the first sheet member having a surface facing away from the second sheet member for disposition on a pad-supporting surface.

17. The structure of claim 16 in which

the end portion of each of at least the plurality of the body-support means includes an end wall bonded to at least one recessed portion of the second sheet member with

the recessed portions defining intersections of interwoven cane-simulating members at locations registered with the end walls of at least the plurality of the body-support means.

18. The structure of claim 16,

each body-support means having side walls,

the side walls of each body-support means including

a plurality of serially disposed support portions extending in a direction away from the base portion of the first sheet member, and

a collapsible portion between serially contiguous support portions.

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