



- (51) International Patent Classification:
B60R 13/02 (2006.01)
- (71) International Application Number:
PCT/US2017/022569
- (22) International Filing Date:
15 March 2017 (15.03.2017)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
62/311,363 21 March 2016 (21.03.2016) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: COMPONENT FOR A VEHICLE INTERIOR

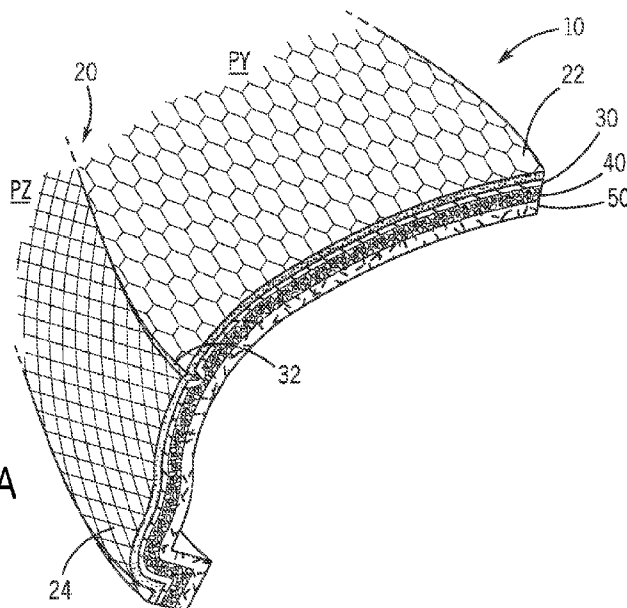


FIG. 2A

(57) Abstract: A component for a vehicle interior is disclosed. The component may comprise a base and a cover provided on the base. The component may include a foam material provided between the base and the cover. The cover may comprise a support layer, a first cover material and a second cover material. The first and second cover materials may be secured to the support layer by an adhesive. The first cover material may comprise a different material type than the second cover material. The support layer may include a groove provided along a length of the support layer. The first and second cover materials may include edges that are inserted into the groove. The edges of the first and second cover materials may be joined together to form a seam and the seam may be applied to the groove of the support layer.

PATENT APPLICATION**COMPONENT FOR A VEHICLE INTERIOR****FIELD**

[0001] The present invention relates to a component for a vehicle interior. The present invention also relates to a component for a vehicle interior having two or more different cover materials.

CROSS REFERENCE TO RELATED APPLICATIONS

[0002] The present application claims priority from and the benefit of and incorporates by reference in entirety of the following application: U.S. Provisional Patent Application No. 62/311,363 titled "COMPONENT FOR A VEHICLE INTERIOR" filed March, 21, 2016.

BACKGROUND

[0003] It is well-known to provide components or panels for a vehicle interior. The interior components are commonly provided as headliners, door panels, instrument panels, center consoles, and other interior components. It is well-known to provide interior components for a vehicle that include a cover material provided on a backing layer. It would be advantageous to provide an improved interior component for a vehicle that includes different cover materials provided on the component.

SUMMARY

[0004] The present invention relates to a component for a vehicle interior. The component may comprise a base and a cover secured to the base comprising a support layer, a first cover material and a second cover material. The first cover material may be secured to the support layer and the second cover material may be secured to the support layer. The support layer may comprise a groove; an edge of the first cover material and an edge of the second cover material may terminate in the groove. The first cover material may be joined to the second cover material at the groove. The component may comprise an adhesive in the groove configured to bond the edge of the first cover material and the edge of the second cover material to the support layer in the groove. The component may comprise a thread configured to join the first cover material to the support layer and the second cover material to the support layer. A foam may be configured to couple the cover to the base. The cover may comprise an adhesive configured to bond the first cover material to the support layer and to bond the second cover material to the support layer; the adhesive may be activated as the foam is formed between the cover and the base. The support layer may comprise at least one of (a) a film, (b) a foil, (c) a sheet; the base may comprise at least one of (a) an injected molded part, (b) a substrate, (c) a backing, (d) a reinforcement, (e) a panel, (f) a fiber panel, (g) a rigid panel, (h) a structure.

[0005] The present invention also relates to a method for producing a component for a vehicle interior. The component comprises a cover provided in a shape and backed with a foam material in an apparatus comprising a first tool. The method may comprise the steps of (a) providing a support layer in a shape; (b) applying a first adhesive to the support layer; (c) placing a first cover material and a second cover material onto the support layer with the first adhesive to form a cover that is provided substantially in the shape of the support layer; (d) providing a base; (e)

introducing foam material into the first tool to form a formed component comprising the base, the cover, the first adhesive and the foam material; and (f) removing the formed component from the first tool. The method may further comprise the steps of forming a groove into the support layer; and applying an edge of the first cover material and an edge of the second cover material to the support layer in the groove of the support layer. The applying step may include using at least one of (a) a second tool, (b) a wedge to apply the edge of the first cover material and the edge of the second cover material to the groove of the support layer. The method may further comprise the steps of (a) applying a second adhesive to the groove of the support layer; and (b) applying the edge of the first cover material and the edge of the second cover material to the second adhesive at the groove of the support layer. The first tool may comprise a feature; the groove of the support layer may be aligned with the feature of the first tool as the cover is placed onto the first tool. The method may further comprise the steps of (a) sewing the first cover material to the support layer; and (b) sewing the second cover material to the support layer. The method may further comprise the step of sewing the first cover material to the second cover material. The apparatus may comprise an injection mold and a heating system; the first cover material and the second cover material may be secured to the support layer by at least one of (a) heat, (b) heat from the heating system, (c) pressure, (d) an exothermic reaction forming the foam material and generating heat in the first tool. The first cover material and the second cover material may be secured to the support layer by an adhesive that is activated when the formed component is formed. The support layer may comprise at least one of (a) a foil, (b) a film, (c) a sheet; the foam material may comprise at least one mixture of polyurethane, combination of a reaction mixture, foam material, polyurethane foam, urethane foam, injection-molded material, injected foam material, plastic, resin.

[0006] The present invention further relates to a component for a vehicle interior. The component may comprise a base layer; and a cover layer secured to the base layer; the cover layer may comprise a support layer, a first cover material and a second cover material; the first cover material may be secured to the support layer and the second cover material may be secured to the support layer; the first cover material may include at least one material characteristic that is different from at least one material characteristic of the second cover material. The support layer may include a groove provided along a length of the support layer; an edge of the first cover material may be located within the groove and an edge of the second cover material may be located within the groove. The edges of the first cover material and the second cover material may be joined together in the groove to form a seam. The component may further comprise a foam layer provided between the base layer and the cover layer; the foam layer may join the base layer to the support layer of the cover layer.

FIGURES

[0007] FIGURE 1A is a schematic perspective view of a vehicle according to an exemplary embodiment.

[0008] FIGURE 1B is a schematic perspective cut-away view of a vehicle showing the vehicle interior according to an exemplary embodiment.

[0009] FIGURE 1C is a schematic perspective view of a vehicle interior according to an exemplary embodiment.

[0010] FIGURE 2A is a schematic perspective view of a vehicle interior component according to an exemplary embodiment.

[0011] FIGURE 2B is a schematic cross-section side view of a vehicle interior component according to an exemplary embodiment.

[0012] FIGURES 3A to 3F are schematic perspective views of a vehicle interior component illustrating the formation of the vehicle interior component according to an exemplary embodiment.

[0013] FIGURES 4A to 4H are schematic perspective views of a vehicle interior component illustrating the formation of the vehicle interior component according to an exemplary embodiment.

[0014] FIGURES 5A to 5F are schematic cross-section side views of a vehicle interior component illustrating the formation of the vehicle interior component using a tool according to an exemplary embodiment.

DESCRIPTION

[0015] Referring to FIGURES 1A-1C, a vehicle V is shown schematically including a vehicle interior I. As shown schematically in FIGURES 1B and 1C, the vehicle interior I may include one or more interior components, including an instrument panel IP, a floor console FC, doors D and seats ST. The interior components of the vehicle may include component panels, such as trim panels, providing the exterior visible surfaces for the interior components.

[0016] Referring to FIGURES 2A and 2B, a vehicle component 10, such as a trim component, for a vehicle interior is shown schematically according to an exemplary embodiment. The component 10 may comprise a base layer 50 and a cover layer 20 secured to the base layer 50. According to an exemplary embodiment, the base layer 50 may comprise a rigid or semi-rigid substrate or backing structure that may provide structural rigidity or support for the trim component 10. According to an exemplary embodiment, the base layer 50 may comprise an injected molded part, a substrate, a backing, a reinforcement, a panel, a fiber panel, a rigid panel, or other structure. The base layer 50 may be constructed from any suitable material or materials, including but not limited to thermoplastics, plastics, and other polymer materials. According to an exemplary embodiment, the cover layer 20 may provide a visible exterior surface for the component 10 and may include regions with different material characteristics (e.g., material type, visual appearance, color, pattern, texture, surface finish, etc.).

[0017] As shown schematically in FIGURES 2A and 2B, according to an exemplary embodiment, the cover layer 20 may comprise a support layer 30, a first cover material 22 and a second cover material 24. The support layer 30 may comprise a film, a foil or a sheet constructed from any suitable material, including but not limited to plastic or polymer materials, synthetic materials, or natural materials. The first cover material 22 and the second cover material 24 may

be secured to the support layer 30. According to an exemplary embodiment, the first cover material 22 may comprise a first surface type PY and the second cover material 24 may comprise a second material or surface type PZ. As shown schematically in FIGURE 2A, the first material surface type PY may be different than the second surface type PZ. The first surface type PY may differ from the second surface type PZ in terms of material type, color, pattern, texture, surface finish, visual appearance, form or other differentiating characteristic. The first and the second cover materials 22 and 24 may comprise any suitable type of material or combination of materials, such as but not limited to fabrics, textiles, leathers, plastics, polymers, vinyl, synthetic materials, or natural materials. As shown schematically in FIGURE 2A, the first cover material 22 and the second cover material 24 may collectively provide a multi-section cover layer 20 for the vehicle component 10.

[0018] According to an exemplary embodiment shown schematically in FIGURES 2A and 2B, the cover layer 20 may be secured to the base layer 50. According to an exemplary embodiment, a foam layer 40 may be provided between the cover layer 20 and the base layer 50. As shown schematically in FIGURES 2A and 2B, the foam layer 40 may be secured to support layer 30 on one side of the foam layer 40 and secured to the base layer 50 on the opposing side of the foam layer 40. According to an exemplary embodiment, the foam layer 40 may provide padding or cushioning for the component 10 and may comprise any suitable material. According to an exemplary embodiment, the foam layer 40 may function to secure the cover layer 20 to the base layer 50.

[0019] As shown schematically in FIGURES 2A and 2B and FIGURES 3A-3F, according to an exemplary embodiment, the support layer 30 may include a groove 32 provided along a length of the support layer 30. As shown schematically in FIGURE 3A, the groove 32 may be positioned

at an intermediate location between the ends 30a and 30b of the support layer 30. The groove 32 may be provided as any suitable type of groove, indentation, debossment, channel or similar structure formed into the support layer 30.

[0020] As shown schematically in FIGURES 2A and 2B and FIGURES 3D-3F, the first cover material 22 may be provided on one side of the groove 32 and the second cover material 24 may be provided on the opposing side of the groove 32. As shown schematically in FIGURES 2B and 3F, according to an exemplary embodiment, an edge 22a of the first cover material 22 may terminate in the groove 32 and an edge 24a of the second cover material 24 may terminate in the groove 32. As shown schematically in FIGURE 3F, the edges 22a and 24a may each be pressed down or inserted into the groove 32 to position the edges 22a and 24a next to one another within the groove 32 to join the first cover material 22 and the second cover material 24 together along the length of the groove 32 of the support layer 30.

[0021] As shown schematically in FIGURE 3A, the support layer 30 may be formed into any desired shape prior to securing the first cover material 22 and the second cover material 24 to the support layer 30 to form the cover layer 20. As shown schematically in FIGURE 3B, a securing material 60 may be applied to the support layer 30. According to an exemplary embodiment, the securing material 60 may comprise an adhesive that is applied to the surface of the support layer 30, including the surface located within the groove 32. According to an exemplary embodiment shown in FIGURE 3B, the adhesive 60 may be applied to the support layer 20 by a spray gun SG. The adhesive 60 may comprise a pressure-activated adhesive, heat-activated adhesive or other type of adhesive suitable for securing the first cover material 22 and the second cover material 24 to the support layer 30. According to an exemplary embodiment shown schematically in FIGURE 3C, an application tool, such as a glue gun GG, may be used to apply

adhesive 60 to the surface of the support layer 30 located within the groove 32. According to an alternative exemplary embodiment, the first and second cover materials 22 and 24 may be secured to the support layer 30 using an alternative securement means, such as one or more fasteners.

[0022] As shown schematically in FIGURES 3D-3F, the first cover material 22 and the second cover material 24 may be placed over the support layer 30 and pressed onto the support layer 30 to secure the first cover material 22 and the second cover material 24 to the support layer 30 to form the cover layer 20. According to an exemplary embodiment as shown schematically in FIGURE 3D, a tool W, such as a wedge tool, may be used to press or position the edges 22a and 24a of the first and second cover materials 22 and 24 into the groove 32 so that the edges 22a and 24a are fitted within the groove 32. According to an exemplary embodiment shown schematically in FIGURES 3D and 3D, the first cover material 22 being secured to the support layer 30 may have a first material type PY and the second cover material 24 being secured to the support layer 30 may have a different second material type PZ. As shown schematically in FIGURE 3F, the layer of adhesive (or other securing material) 60 applied to the surface of the support layer 30 may allow the first cover material 22 and the second cover material 24 to remain secured to the support layer 30 to form the cover layer 20.

[0023] As shown schematically in FIGURES 4A and 4B, according to an exemplary embodiment, a cover layer 20 may comprise a first cover material 220 having a first material type PY and a second cover material 240 having a second material type PZ. As shown schematically in FIGURE 4A, the first cover material 220 may include an edge 220a and the second cover material 240 may include an edge 240a. As shown schematically in FIGURE 4B, according to an exemplary embodiment, the first cover material 220 and the second cover

material 240 may be secured together at edges 220a and 240a. According to an exemplary embodiment, edges 220 and 240a are stitched together with thread T using a needle N in order to form a seam S connecting first cover material 220 and second cover material 240 together.

According to an exemplary embodiment, seam S may provide a decorative effect and/or structural effect for the trim component 10. According to an alternative exemplary embodiment, the seam S may be formed by gluing, bonding, welding or other suitable method.

[0024] As shown schematically in FIGURE 4C, the support layer 30 may be formed into any desired shape and the groove 32 may be formed into the support layer 30. As shown schematically in FIGURES 4D-4E, an adhesive 60 may be applied to the surface of the support layer 30, including within the groove 32. According to an exemplary embodiment, the adhesive 60 may be applied to the support layer 30 using a spray gun SG and/or a glue gun GG. As shown schematically in FIGURES 4F-4H, the first and second cover materials 220 and 240 may be placed onto the support layer 30 and secured to the support layer 30 by the adhesive layer 60 provided on the surface of the support layer 30. According to an exemplary embodiment shown schematically in FIGURE 4F, the seam S joining the first and second cover materials 220 and 240 together may be positioned over the groove 32 and pressed or inserted into the groove 32. The seam S may be inserted into the groove 32 using a tool W, such as a wedge tool. According to an exemplary embodiment, the seam S of the joined first and second cover materials 220 and 240 may be inserted into the groove 32 so that the edges 220a and 240a are concealed from view. According to an exemplary embodiment, excess material from either or both of the first and the second cover materials 220 and 240 near the edges 220a and 240a may be placed into the groove 32.

[0025] As shown schematically in FIGURE 4G, the cover layer 23 may comprise the first cover material 220 having a first material type PY and the second cover material 240 have a second material type PZ that is different from the first material type PY. As shown schematically in FIGURES 4G and 4H, when the first and the second cover material layers 220 and 240 are secured to the support layer 30 by the adhesive layer 60, the first material type PY and the second material type PZ may provide the cover layer 23 with a multi-sectioned surface.

[0026] As shown schematically in FIGURES 5A-5F, a method for producing a component 10 for a vehicle interior is provided according to an exemplary embodiment. According to an exemplary embodiment, the component 10 may comprise a cover 20 provided in a shape and backed with a foam material 40. According to an exemplary embodiment, the method may use an apparatus having a first tool M to produce the component 10 by (i) providing a support layer 30 in the shape of the cover 20; (ii) applying a first adhesive 60 to the support layer 30; (iii) placing a first cover material 22 and a second cover material 24 onto the support layer 30 with the first adhesive 60 to form the cover 20 in the shape substantially similar to the shape for the support layer 30; (iv) providing a base layer 50; (v) introducing the foam material 40 into the first tool M; (vi) using the first tool M to form the component 10 comprising the base layer 50, the cover layer 20, the first adhesive 60, and the foam material 40.

[0027] According to an exemplary embodiment of the method, the method for producing the component 10 may further include forming a groove 32 into the support layer 50 and applying an edge 22a of the first cover material 22 and an edge 24a of the second cover material 24 into the groove 32. According to an exemplary embodiment, the edges 22a and 24a may be applied to the groove 32 using a second tool W, such as a wedge. See FIGURES 3A-3F.

[0028] According to an exemplary embodiment of the method, the method for producing the component 10 may further include applying a second adhesive 60 to the groove 32 of the support layer and applying the edges 22a and 24a of the first and the second cover materials 22 and 24 to the second adhesive 60 at the groove 32 of the support layer. See FIGURES 3A-3F.

[0029] According to an exemplary embodiment of the method, the first tool M may include a feature F and the groove 32 of the support layer 30 and the edges 22a and 24a of the first and second cover materials 22 and 24 may be aligned with the feature F when the cover panel 20 is placed onto the first tool M.

[0030] According to an exemplary embodiment of the method, the method for producing the component 10 may further include sewing the first cover material 22 to the support layer 30 and sewing the second cover material 24 to the support layer 30.

[0031] According to an exemplary embodiment of the method, the method for producing the component 10 may further include securing the first cover material 22 to the second cover material. According to an exemplary embodiment, the edge 22a of the first cover material 22 may be secured to the edge 24a of the second cover material.

[0032] According to an exemplary embodiment of the method, the apparatus may comprise an injection mold and a heating system where the first cover material 22 and the second cover material 24 are secured to the support layer 30 by at least one of heat, heat from the heating system, pressure, and an exothermic reaction forming the foam material and generating heat in the first tool M.

[0033] According to an exemplary embodiment of the method, the adhesive 60 provided between the first and second cover materials 22 and 24 and the support layer 30 may comprise an adhesive material that is activated when the component 10 is formed in the first tool M.

[0034] According to an exemplary embodiment of the method, the support layer 30 may comprise at least one of a foil, a film, and a sheet, and the foam 40 may comprise at least one mixture of polyurethane, combination of a reaction mixture, a foam material, a polyurethane foam, a urethane foam, an injection mold material, an injected foam material, a plastic, and a resin.

[0035] Referring to FIGURES 5A-5F, according to an exemplary embodiment, the trim component 10 may comprise a base layer 50 and a cover layer 20. The base layer 50 may provide the structural support for the trim component 10. The base layer 50 may be made from any suitable material, including but not limited to, natural fibers and polymers and other plastics and thermoplastics (e.g., polypropylene, polyethylene, copolymers, compressed fibers, TPO, filled plastics, polycarbonate, ABS blends, ABS, etc.), or any suitable combination of materials. The base layer 50 may be formed in any desired shape, size and configuration and may include additional features (e.g., apertures for door locks and handles, molded-in designs, etc.). The base layer 50 may be formed using any suitable method, including but not limited to injection molding, thermoforming.

[0036] The cover layer 20 may comprise a support layer 30 and a first cover material 22 and a second cover material 24 provided on the support layer with the edges of the first and second cover materials 22 and 24 positioned over a groove 32 defined into the support layer 30.

According to an exemplary embodiment, the cover layer 20 may include an adhesive layer 60 provided between the support layer 30 and the first and second cover materials 22 and 24.

According to an exemplary embodiment, the adhesive layer 60 may be a heat or pressure activated adhesive so that the first and second cover materials 22 and 24 are not fully secured to the support layer prior to forming the trim compartment 10.

[0037] As shown schematically in FIGURES 5A and 5B, according to an exemplary embodiment, a mold tool M can be provided for forming the trim component 10 from the base layer 50 and the cover layer 20. According to an exemplary embodiment, the mold M includes a top mold part MT and a bottom mold part MB. According to an exemplary embodiment shown schematically in FIGURES 5A and 5B, the top mold part MT may conform to the shape of the base layer 50 that is pre-formed prior to being inserted into the mold tool M. According to another exemplary embodiment, the base layer 50 may be applied to the top mold part MT and may be shaped based on the shape of the top mold part MT.

[0038] As shown schematically in FIGURES 5A and 5B, according to an exemplary embodiment, the bottom mold part MB can include a feature F to position the edges of the first cover material 22 and the second cover material 24 into the groove 32 of the support layer 30 comprising the cover panel 20. The feature F may be provided as a ridge, rib or other protrusion extending from the bottom mold part MB. According to an exemplary embodiment, the feature F may be positioned to engage the cover layer 20 along the groove 32 when the trim component 10 is formed in the mold tool M.

[0039] As shown schematically in FIGURES 5A and 5B, the base layer 50 may be inserted into the mold tool M and against the top mold part MT and the cover layer 20 may be inserted into the mold tool M and against the bottom mold part MB when the mold tool M is in an open position. As shown schematically in FIGURE 5C, the mold tool M may be moved to a closed position where a cavity C is provided between the base layer 50 and the cover layer 20. As shown schematically in FIGURES 5D and 5E, a foam material 40, such as polyurethane foam or similar material, may be injected into the cavity C to form the foam layer 40 between the base

layer 50 and the cover layer 20. According to an exemplary embodiment, the foam layer 40 can also function to secure the base layer 50 to the cover layer 20.

[0040] According to an exemplary embodiment, the adhesive 60 provided between support layer 30 and first and second cover materials 22 and 24 can be activated (e.g., by applying heat and/or pressure to the trim component 10 formed in the mold tool M) to secure and bond the support layer 30 to the first and second cover materials 22 and 24 to form the trim component 10. As shown schematically in FIGURE 5F, the top mold part MT and the bottom mold part MB of the mold tool M can be separated and the formed trim component 10 may be removed from the mold tool M. As shown schematically in FIGURES 5A-5F, the trim component 10 may be formed using the mold tool M to provide a trim component 10 with two cover materials 22 and 24 where each cover material 22 and 24 comprise different material types.

[0041] The embodiments described above and illustrated in the figures are presented by way of example only and are not intended as a limitation upon the concepts and principles of the present invention. As such, it will be appreciated by one having ordinary skill in the art that various changes in the elements and their configuration and arrangement are possible without departing from the spirit and scope of the present invention as set forth in the appended claims.

[0042] It is important to note that the construction and arrangement of the elements of the inventive concepts and inventions as described in this application and as shown in the figures above is illustrative only. Although some embodiments of the present inventions have been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible without materially departing from the novel teachings and advantages of the subject matter recited. All such modifications are intended to be included within the scope of the present inventions. Other substitutions, modifications, changes and omissions may be made in the design, operating conditions and arrangement of the preferred and other exemplary embodiments without departing from the spirit of the present inventions.

[0043] It is important to note that the apparatus of the present inventions can comprise conventional technology (e.g. as implemented in present configuration) or any other applicable technology (present or future) that has the capability to perform the functions and processes/operations indicated in the FIGURES. All such technology is considered to be within the scope of the present inventions and application.

CLAIMS

1. A component for a vehicle interior comprising:
 - (a) a base; and
 - (b) a cover secured to the base comprising a support layer, a first cover material and a second cover material;
wherein the first cover material is secured to the support layer and the second cover material is secured to the support layer.
2. The component of Claim 1 wherein the support layer comprises a groove; and wherein an edge of the first cover material and an edge of the second cover material terminate in the groove.
3. The component of Claim 2 wherein the first cover material is joined to the second cover material at the groove.
4. The component of Claims 2 or 3 comprising an adhesive in the groove configured to bond the edge of the first cover material and the edge of the second cover material to the support layer in the groove.
5. The component of Claims 1 to 4 comprising a thread configured to join the first cover material to the support layer and the second cover material to the support layer.
6. The component of any of Claims 1 to 5 comprising a foam configured to couple the cover to the base.
7. The component of any of Claims 1 to 6 wherein the cover comprises an adhesive configured to bond the first cover material to the support layer and to bond the second cover material to the support layer.
8. The component of Claim 7 wherein the adhesive is activated as the foam is formed between the cover and the base.
9. The component of any of Claims 1 to 8 wherein the support layer comprises at least one of (a) a film, (b) a foil, (c) a sheet.

10. The component of any of Claims 1 to 9 wherein the base comprises at least one of (a) an injected molded part, (b) a substrate, (c) a backing, (d) a reinforcement, (e) a panel, (f) a fiber panel, (g) a rigid panel, (h) a structure.

11. A method for producing a component for a vehicle interior comprising a cover provided in a shape and backed with a foam material in an apparatus comprising a first tool, the method comprising the steps of:

- (a) providing a support layer in a shape;
- (b) applying a first adhesive to the support layer;
- (c) placing a first cover material and a second cover material onto the support layer with the first adhesive to form a cover that is provided substantially in the shape of the support layer;
- (d) providing a base;
- (e) introducing foam material into the first tool to form a formed component comprising the base, the cover, the first adhesive and the foam material; and
- (f) removing the formed component from the first tool.

12. The method of Claim 11 further comprising the steps of forming a groove into the support layer; and applying an edge of the first cover material and an edge of the second cover material to the support layer in the groove of the support layer.

13. The method of Claim 12 wherein the applying step includes using at least one of (a) a second tool, (b) a wedge to apply the edge of the first cover material and the edge of the second cover material to the groove of the support layer.

14. The method of Claims 12 or 13 further comprising the steps of: (a) applying a second adhesive to the groove of the support layer; and (b) applying the edge of the first cover material and the edge of the second cover material to the second adhesive at the groove of the support layer.

15. The method of Claims 12, 13 or 14 wherein the first tool comprises a feature; and wherein the groove of the support layer is aligned with the feature of the first tool as the cover is placed onto the first tool.

16. The method of any of Claims 11 to 15 further comprising the steps of: (a) sewing the first cover material to the support layer; and (b) sewing the second cover material to the support layer.

17. The method of any of Claims 11 to 16 further comprising the step of sewing the first cover material to the second cover material.

18. The method of any of Claims 11 to 17 wherein the apparatus comprises an injection mold and a heating system and wherein the first cover material and the second cover material are secured to the support layer by at least one of (a) heat, (b) heat from the heating system, (c) pressure, (d) an exothermic reaction forming the foam material and generating heat in the first tool.

19. The method of any of Claims 11 to 18 wherein the first cover material and the second cover material are secured to the support layer by an adhesive that is activated when the formed component is formed.

20. The method of any of Claims 11 to 19 wherein the support layer comprises at least one of (a) a foil, (b) a film, (c) a sheet; and wherein the foam material comprises at least one mixture of polyurethane, combination of a reaction mixture, foam material, polyurethane foam, urethane foam, injection-molded material, injected foam material, plastic, resin.

21. A component for a vehicle interior comprising:
- (a) a base layer; and
 - (b) a cover layer secured to the base layer, wherein the cover layer comprises a support layer, a first cover material and a second cover material; wherein the first cover material is secured to the support layer and the second cover material is secured to the support layer; and wherein the first cover material includes at least one material characteristic that is different from at least one material characteristic of the second cover material.
22. The component of Claim 21 wherein the support layer includes a groove provided along a length of the support layer; wherein an edge of the first cover material is located within the groove and an edge of the second cover material is located within the groove.
23. The component of Claim 22 wherein the edges of the first cover material and the second cover material are joined together in the groove to form a seam.
24. The component of any of Claims 21 to 23 further comprising a foam layer provided between the base layer and the cover layer; wherein the foam layer joins the base layer to the support layer of the cover layer.

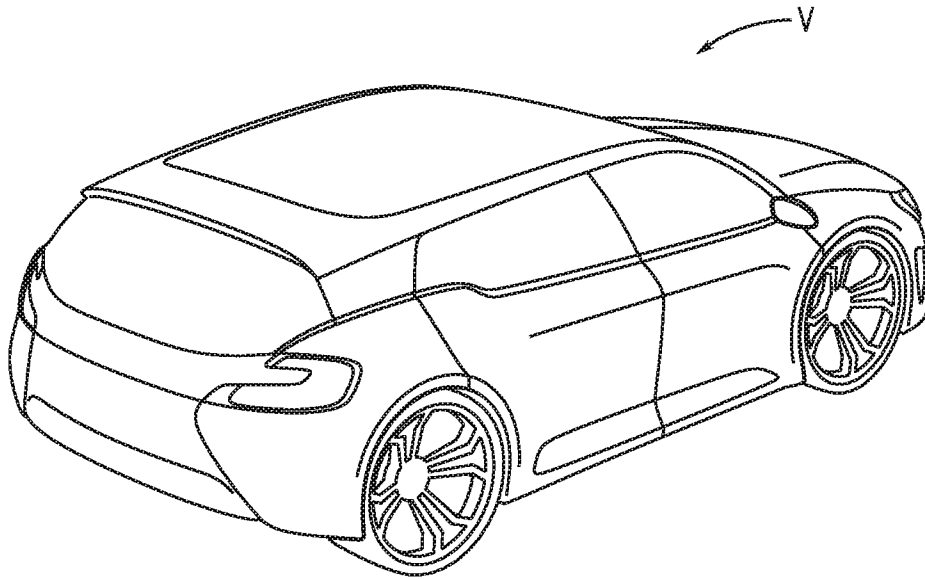


FIG. 1A

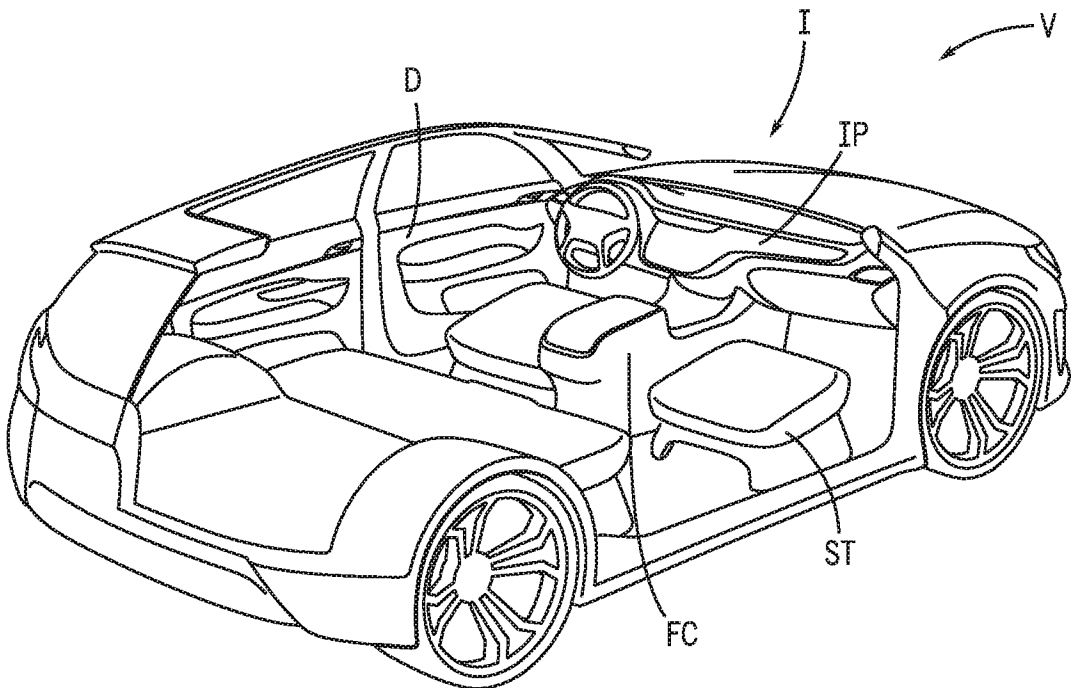


FIG. 1B

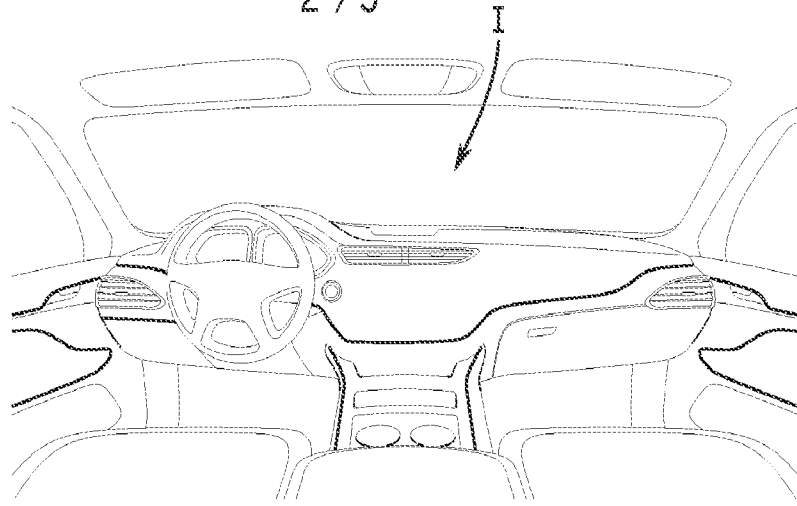


FIG. 1C

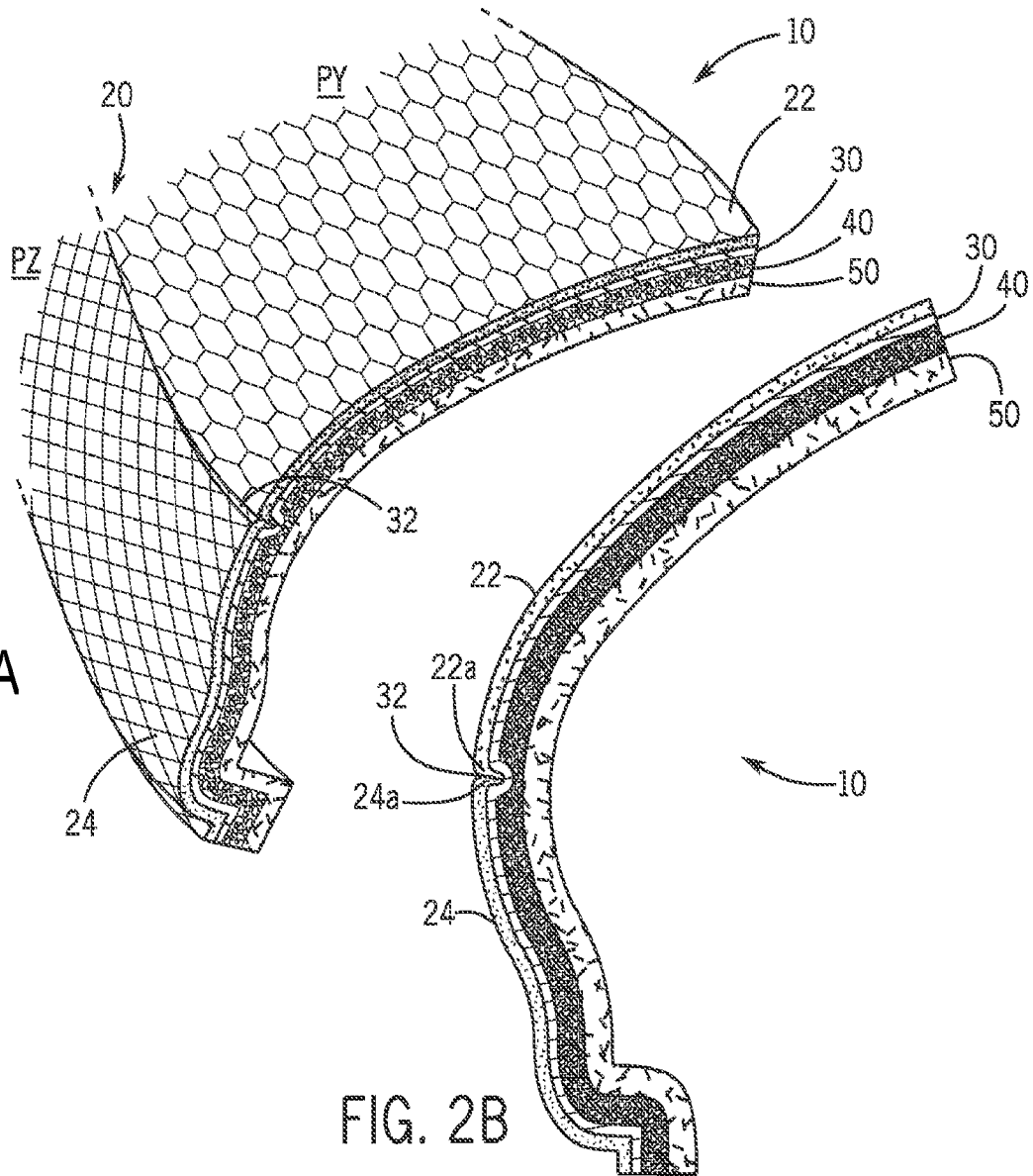


FIG. 2A

FIG. 2B

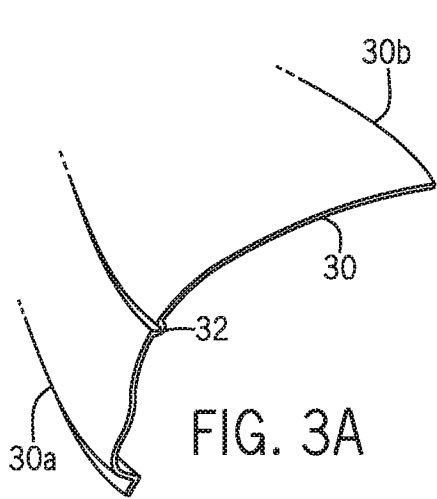


FIG. 3A

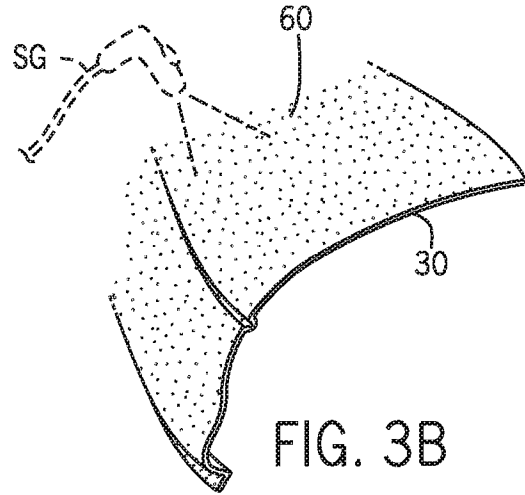


FIG. 3B

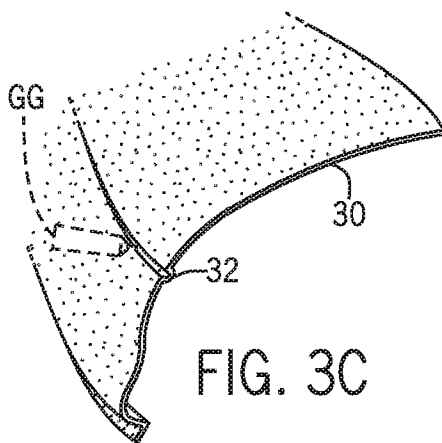


FIG. 3C

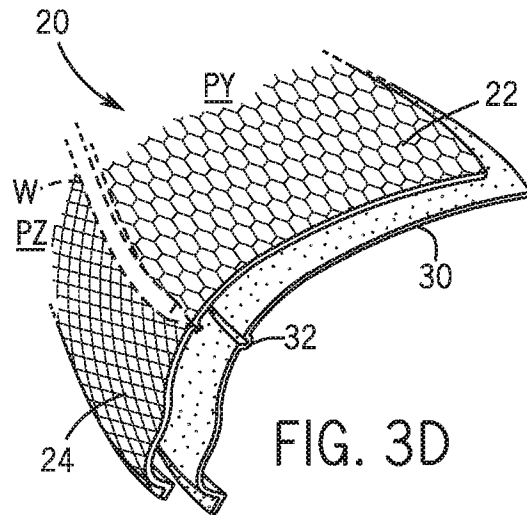


FIG. 3D

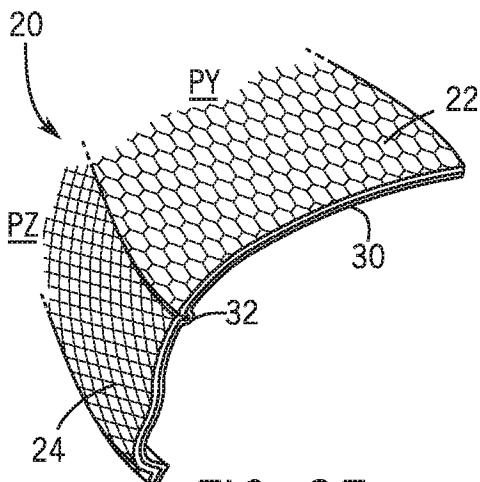


FIG. 3E

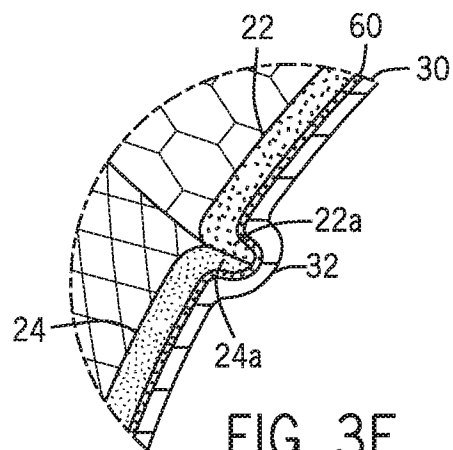


FIG. 3F

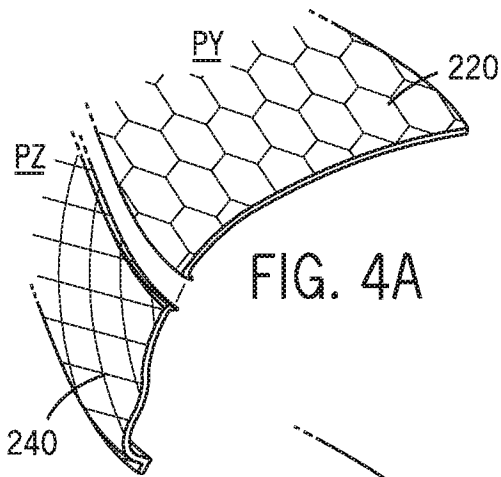


FIG. 4A

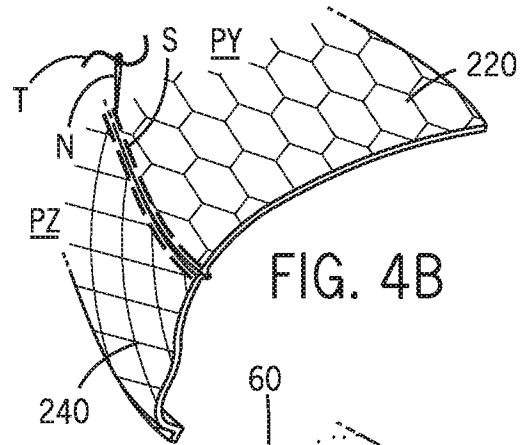


FIG. 4B

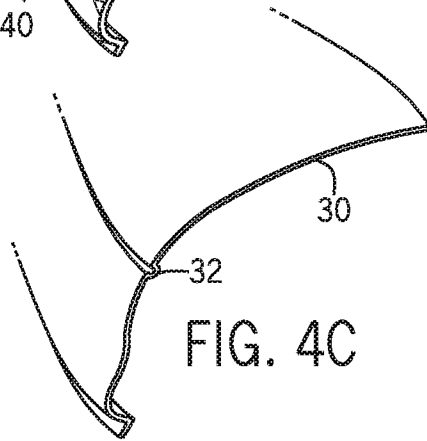


FIG. 4C

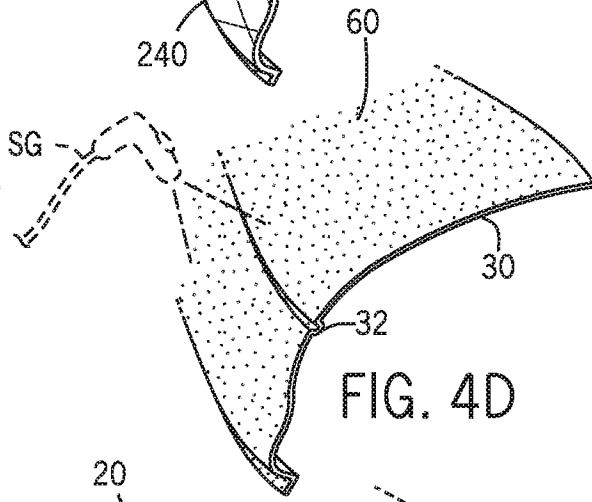


FIG. 4D

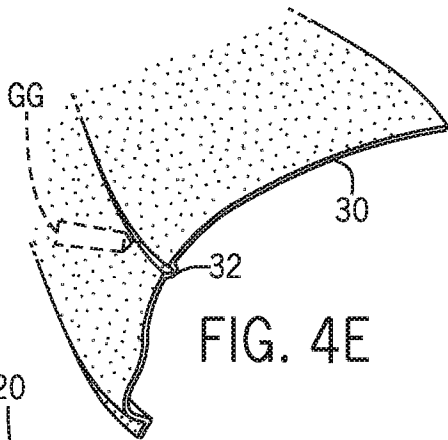


FIG. 4E

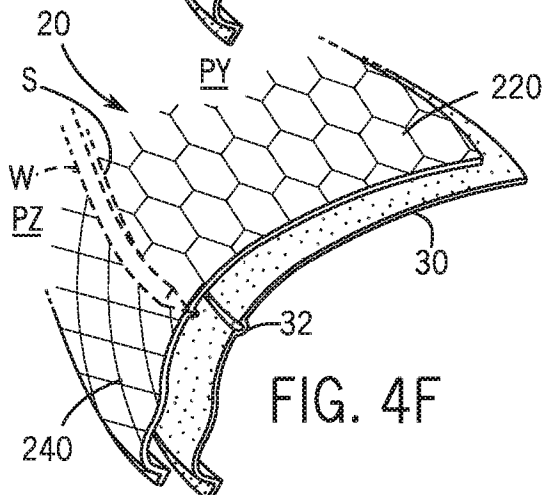


FIG. 4F

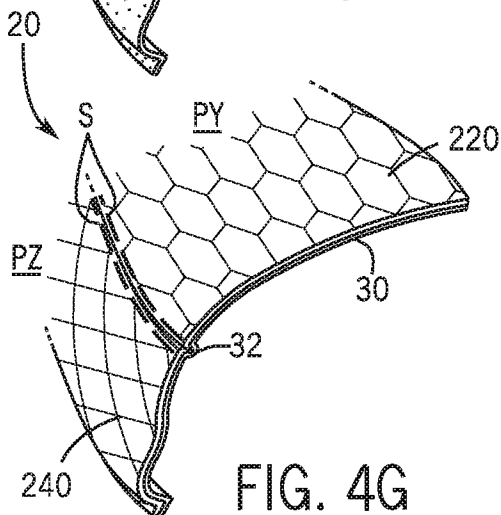


FIG. 4G

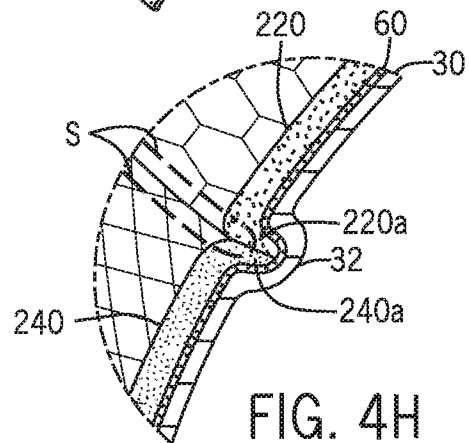


FIG. 4H

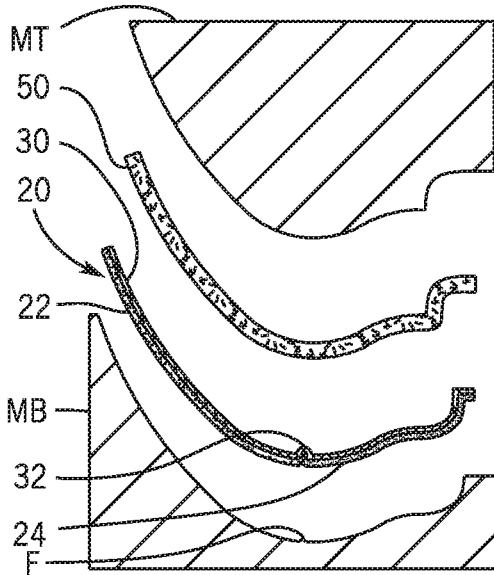


FIG. 5A

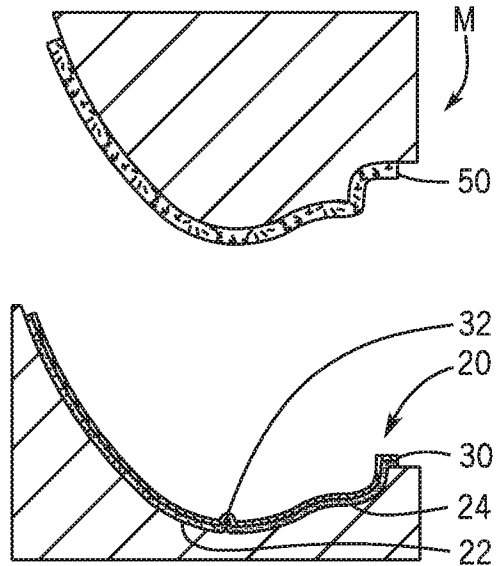


FIG. 5B

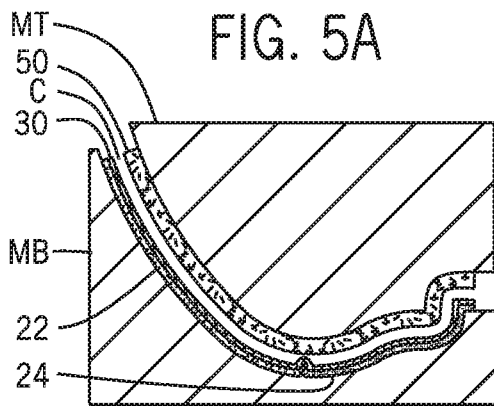


FIG. 5C

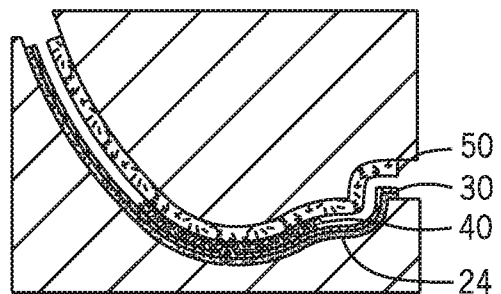


FIG. 5D

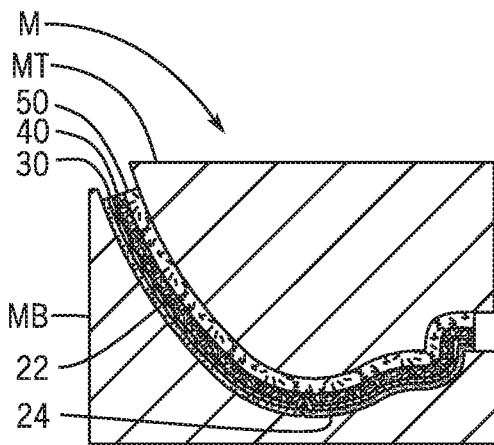


FIG. 5E

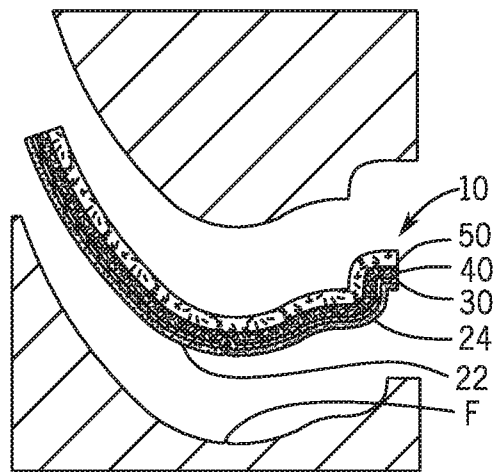


FIG. 5F

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 17/22569

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - B60R 13/02 (2017.01)
 CPC - B60R 13/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History Document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History Document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History Document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2008/0073807 A1 (COWELCHUK et al) 27 March 2008 (27.03.2008), entire document, especially title, Fig 5, para [0026] and [0027]	1-4 --- 21-24
Y	US 2014/0004289 A1 (PICCIN et al) 02 January 2014 (02.01.2014), entire document, especially Fig 2, para [0002]	21-24
Y	US 2008/0093830 A1 (TAKEZAWA et al) 24 April 2008 (24.04.2008), entire document, especially Title, Abstract, Figs 1-4, para [0005], [0026], and [0034]	24
A	US 7,851,039 B2 (BOINAIS et al) 14 December 2010 (14.12.2010), entire document	1-4 and 21-24
A	US 2007/0018472 A1 (MICHALSKI et al) 25 January 2007 (25.01.2007), entire document	1-4 and 21-24
A	US 2013/0147228 A1 (PHILIPP) 13 June 2013 (13.06.2013), entire document	1-4 and 21-24
A	US 5,418,032 A (MARTIN) 23 May 1995 (23.05.1995), entire document	1-4 and 21-24

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 June 2017 (20.06.2017)

Date of mailing of the international search report

19 JUL 2017

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
 P.O. Box 1450, Alexandria, Virginia 22313-1450
 Facsimile No. 571-273-8300

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 17/22569

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.: 5-10 and 15-20
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: Claims 1-4 and 21-24 drawn to a component for a vehicle interior including a base and a cover secured to the base that comprises a support layer, a first cover material and a second cover material, wherein the first cover material is secured to the support layer and the second cover material is secured to the support layer.

-*-Continued in Supplemental Box-*-

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-4 and 21-24

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

-*-Box III - Lack of Unity -*-

Group II: Claims 11-14 drawn to a method for producing a component for a vehicle interior having a cover provided in a shape and backed with a foam material in an apparatus comprising a first tool, and including the steps of: providing a support layer in a shape, applying a first adhesive to the support layer, placing a first cover material and a second cover material onto the support layer with the first adhesive to form a cover that is provided substantially in the shape of the support layer, providing a base, introducing foam material into the first tool to form a formed component comprising the base, the cover, the first adhesive and the foam material, and removing the formed component from the first tool.

The invention listed as groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I requires the special technical feature of a cover secured to the base, not required by group II.

Group II requires the special technical features of a first tool, applying adhesive to the support layer, introducing foam into the first tool, and removing the formed component from the first tool, not required by group I.

The only feature shared by groups I and II that would otherwise unify the groups, is a component for a vehicle interior including a base and a cover that comprises a support layer, a first cover material, and a second cover material, wherein the first cover material is secured to the support layer and the second cover material is secured to the support layer. However these technical features do not represent a contribution over prior art, because the shared technical features are anticipated by US 2008/0093830 A1 to Takezawa et al. (hereinafter 'Takezawa').

Takezawa teaches a component for a vehicle interior (Title, Abstract, Fig 4) including a base (base member 10, para [0026], Figs 1-3) and a cover that comprises a support layer (band-like plate 20, para [0026], Figs 1-3), a first cover material (cover material 31, para [0034], Figs 1-3) and a second cover material (cover material 32, para [0034], Figs 1-3), wherein the first cover material is secured to the support layer (stitch portion 34, para [0034], Fig 3) and the second cover material is secured to the support layer (stitch portion 35, para [0034], Fig 3).

As the common technical feature was known in the art at the time of the invention, this cannot be considered a common technical feature that would otherwise unify the groups.

Therefore, Groups I and II lack unity under PCT Rule 13.