

WHAT IS CLAIMED IS:

1. A headgear assembly (4100,5500,5600) for a respiratory interface, comprising:
a first strap (4140,5506,5606); and
a second strap (4150,5508,5608);
at least one of the first strap and second strap comprising a composite material, the composite material comprising:
a plastic core (4220,5512,5612); and
a textile casing (4200,4210,5514,5614) comprising a knitted, woven, or braided tube, wherein the plastic core and the textile casing are formed as an integral structure by the application of a molten plastic material into the textile casing, and
wherein the textile casing surrounds an entirety of a periphery of the plastic core.
2. The headgear assembly (4100,5500,5600) of Claim 1, wherein the textile casing (4200,4210,5514,5614) comprises a first portion that covers an inwardly-facing surface of the headgear.
3. The headgear assembly (4100,5500,5600) of Claim 2, wherein the textile casing (4200,4210,5514,5614) comprises a second portion that covers an outwardly-facing surface of the headgear.
4. The headgear assembly (4100,5500,5600) of Claim 3, further comprising at least one flexible joint (5310) that permits the headgear to bend and/or fold, wherein the at least one flexible joint (5310) comprises a gap between portions of the plastic core (4220,5512,5612) and wherein the textile casing (4200,4210,5514,5614) extends within the gap to connect the portions of the plastic core (4220,5512,5612).
5. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 4, further comprising:
a substantially inelastic rear portion comprising the second strap (4150,5508,5608), or the first strap (4140,5506,5606), or both the second strap (4150,5508,5608) and the first strap (4140,5506,5606);
a substantially inelastic front portion;
a first elastic side portion (630) on a first side of the headgear assembly (4100,5500,5600);

a second elastic side portion (630) on a second side of the headgear assembly (4100,5500,5600);

at least one filament (660) that extends through or along the first and second elastic side portions (630), the at least one filament (660) coupled to one of the inelastic rear portion and the inelastic front portion;

at least one restriction arrangement (650);

wherein the at least one filament (660) passes through the at least one restriction arrangement (650), and wherein the at least one restriction arrangement (650) is configured to selectively engage the at least one filament (660) to resist movement of the at least one filament (660) relative to the at least one restriction arrangement (650).

6. The headgear assembly (4100,5500,5600) of Claim 5, wherein the at least one restriction arrangement (650) is configured to provide a first resistance force to movement or attempted movement of the at least one filament (660) in a direction that allows the inelastic rear portion and the inelastic front portion to move away from one another, and a second resistance force to movement or attempted movement of the at least one filament (660) in a direction that allows the inelastic rear portion and the inelastic front portion to move toward one another, wherein the second resistance force is less than the first resistance force.

7. The headgear assembly (4100,5500,5600) of any one of Claims 5 to 6, wherein the inelastic front portion is rigid and defines at least one collection passage (1542) that accommodates a portion of the at least one filament (660,1570).

8. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 7, wherein the lateral cross-section of the core (4220,5512,5612) of the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprises two thickened portions or flanges separated by a thin portion or web.

9. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 7, wherein the core (4220,5512,5612) of the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprises a pattern of apertures (5644) that extend through the thickness of the core (4220,5512,5612).

10. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 9, wherein the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprise voids, air gaps, or air pockets (5632) on each lateral edge.

11. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 9, wherein the core (4220,5512,5612) of the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprises long sides and short sides, and the textile casing (4200,4210,5514,5614) is secured to the long sides of the core (4220, 5512, 5612) and spaced from the short sides of the core (4220,5512,5612) to create voids or air gaps (7032) on each lateral edge of the strap.

12. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 7, wherein the lateral cross-section of the core (4220,5512,5612) of the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprises two spaced portions (5618).

13. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 12, wherein one more of a width, thickness, edge radii, and surface curvature vary along the length of the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608).

14. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 13, wherein the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprise one or more embossed or overmoulded features (7652,7752).

15. The headgear assembly (4100,5500,5600) of Claim 14, wherein the first strap (4140,5506,5606), the second strap (4150,5508,5608), or both the first strap (4140,5506,5606) and the second strap (4150,5508,5608) comprise an inner surface and an outer surface and the one or more embossed or overmoulded features (7652,7752) comprise textures or other indicia that permit tactile or visual differentiation of the inner surface and the outer surface.

16. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 15, wherein the headgear assembly (4100,5500,5600) has no structure passing below the ear of the user.