

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](#)
~~wherein the first portion and the second portion of the textile casing meet at first and second edges.~~
- ~~5. The headgear assembly of Claim 4, wherein the first portion and the second portion are not connected to one another at the first and second edges.~~
- ~~6. The headgear assembly of any one of Claims 1-5, wherein the textile casing comprises one or more retainer holes configured to engage a retaining pin of a moulding tool.~~
- ~~7. The headgear assembly of any one of Claims 1-6, further comprising at least one flexible joint that permits the headgear to bend and/or fold.~~
- ~~8. The headgear assembly of Claim 7, wherein the~~ 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 [\(4220,5512,5612\)](#).

~~9. The headgear assembly of Claim 8, further comprising at least one bridge portion extending within the flexible joint between the portions of the plastic core.~~

~~510.~~ The headgear assembly [\(4100,5500,5600\)](#) of [any one of Claims 1 to 49](#), further comprising:

~~wherein the at least one bridge portion is unitarily formed with the portions of the plastic core.~~

~~11. A headgear assembly for supporting a respiratory interface on a user, 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 [\(650\)](#).

~~612.~~ The headgear assembly [\(4100,5500,5600\)](#) of Claim ~~511~~, 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~~.

~~13.—The headgear assembly of Claim 12, wherein the at least one restriction arrangement is configured to provide~~ 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.

~~714.~~ The headgear assembly (4100,5500,5600) of any one of Claims ~~5 to 611-13~~, wherein the inelastic front portion is rigid: and

~~15.—The headgear assembly of Claim 14, wherein the inelastic front portion is configured to be connected to a respiratory interface.~~

~~16.—The headgear assembly of either one of Claims 14 or 15, wherein the inelastic front portion~~ defines at least one collection passage (1542) that accommodates a portion of the at least one filament (660,1570).

~~817.~~ The headgear assembly (4100,5500,5600) of any one of Claims ~~14 to 716~~, wherein ~~each of 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~~first and second elastic side portions comprises an end cap having an opening through which the at least one filament passes.~~

~~918.~~ The headgear assembly (4100,5500,5600) of any one of Claims ~~171 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)~~end cap is overmolded onto the respective one of the first and second elastic side portions.~~

~~109.~~ The headgear assembly (4100,5500,5600) of any one ~~either one~~ of Claims ~~17 to 918~~, 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~~end cap is coupled to the inelastic front portion.~~

~~1120.~~ The headgear assembly (4100,5500,5600) of any one of Claims ~~14 to 19~~,

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~~inelastic rear portion, the inelastic front portion, the first elastic side portion and the second elastic side portion define a closed loop perimeter.~~

~~21. A headgear assembly for supporting a respiratory interface on a user, comprising:~~

~~a rear headgear portion configured to contact the rearward and/or upper portions of a head of the user, the rear headgear portion comprising a plastic core and a textile casing, 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, each side of the rear headgear portion comprising a mounting portion configured to be located forwardly of an ear of the user in use;~~

~~an interface connection arrangement provided to the mounting portion on each side of the headgear assembly, each interface connection arrangement configured to be directly or indirectly coupled to the respiratory interface, each interface connection arrangement comprising:~~

~~at least one length adjusting arrangement, each length adjusting arrangement comprising an elastic element, a core member and a restriction arrangement, wherein the core member is associated with the elastic element and is fixed relative to one end of the elastic element, wherein the core member passes through the restriction arrangement, and wherein the restriction arrangement is configured to selectively engage the core member to resist movement of the core member relative to the restriction arrangement.~~

122. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 7-21,
 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)~~rear headgear~~

~~portion has no structure passing below the ear of the user that would inhibit removal of the rear headgear portion in an upward direction.~~

123. The headgear assembly (4100,5500,5600) of any one ~~either~~ of Claims 21 to 122, 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) ~~each of the interface connection arrangements comprises at least a first length adjusting arrangement and a second length adjusting arrangement.~~

124. The headgear assembly (4100,5500,5600) of any one of Claims 1 to 123, 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) ~~a location of at least one of the first length adjusting arrangement and the second length adjusting arrangement on the mounting portion is adjustable.~~

125. The headgear assembly (4100,5500,5600) of Claim 124, 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 ~~each of the mounting portions comprises a plurality of mounting locations for the first length adjusting arrangement and the second length adjusting arrangement, wherein the mounting locations are unitarily formed with the plastic core.~~

126. The headgear assembly (4100,5500,5600) of any one of Claims 21 to 125, wherein the headgear assembly (4100,5500,5600) has no structure passing below the ear of the user ~~further comprising at least one connector that is configured to connect the interface connection arrangements to the respiratory interface.~~

~~27.—The headgear assembly of Claim 26, wherein the at least one connector comprises at least one collection passage configured to receive a portion of the core members.~~

~~28.—The headgear assembly of any one of Claims 21-26, wherein the restriction arrangements are located on the rear headgear portion.~~

29.—~~The headgear assembly of Claim 28, wherein the rear headgear portion defines at least one collection passage configured to receive a portion of the core members.~~

30.—~~The headgear assembly of Claim 29, wherein the at least one collection passage is defined by the plastic core or between the plastic core and the textile casing.~~

31.—~~The headgear assembly of Claim 28, wherein the restriction arrangements are located remotely from an end of the elastic element.~~

32.—~~The headgear assembly of Claim 31, further comprising a guide for a portion of the core member between the end of the elastic element and the restriction arrangement.~~

33.—~~The headgear assembly of any one of Claims 21-32, wherein the elastic element comprises an inelastic portion that restricts the elastic element to a maximum length.~~