

WHAT IS CLAIMED IS:

1. A headgear for supporting a respiratory interface on the head of a user, the headgear comprising:

a knitted body portion, comprising:

a first strap having a first end and a second end, and an inner edge and an outer edge;

a second strap having a first end and a second end, and an inner edge and an outer edge, wherein the inner edge of the first strap faces the inner edge of the second strap;

a first gusset that extends between and connects the first end of the first strap and the first end of the second strap, the first gusset having an inner edge;

a second gusset that extends between and connects the second end of the first strap and the second end of the second strap, the second gusset having an inner edge;

wherein each of the first gusset and the second gusset is configured to space apart the first strap and the second strap in a resting position such that the respective inner edges of the first gusset and the second gusset extend between the respective inner edges of the first strap and the second strap.

2. The headgear of claim 1, wherein the first strap has a first strap width and the second strap has a second strap width.

3. The headgear of claim 2, wherein the first strap width is equal or approximately equal to the second strap width.

4. The headgear of either one of claims 2 or 3, wherein each of the first strap width and the second strap width is between about 5-15mm.

5. The headgear of either one of claims 2 or 3, wherein each of the first strap width and the second strap width is 10mm or about 10mm.

6. The headgear of any one of claims 2-5, wherein the inner edge of the first gusset defines a first gusset width and the inner edge of the second gusset defines a second gusset width.

7. The headgear of claim 6, wherein each of the first gusset width and the second gusset width is greater than the first strap width and/or the second strap width.

8. The headgear of claim 6, wherein each of the first gusset width and the second gusset width is at least twice, at least three times, or at least five times as large as the first strap width and/or the second strap width.

9. A headgear for supporting a respiratory interface on the head of a user, the headgear comprising:

a first strap having an end;

a second strap having an end;

a junction between the end of the first strap and the end of the second strap;

and

wherein each of the first strap and the second strap is constructed as a tubular knitted structure having a front side configured to be positioned toward the user and a rear side configured to be positioned away from the user;

wherein at least a portion of the junction is constructed as a knitted structure having a front side configured to be positioned toward the user and a rear side configured to be positioned away from the user, wherein the front side and the rear side are joined to one another.

10. The headgear of claim 9, wherein the front side and the rear side are joined to one another in only a portion of the junction.

11. The headgear of either one of claims 9 or 10, wherein the front side and the rear side are joined to one another in an outer portion of the junction.

12. The headgear of claim 9, wherein the front side and the rear side are joined to one another in an entirety of the junction.

13. The headgear of any one of claims 9-12, wherein the junction comprises a first outer portion, a second outer portion and a gusset portion, wherein the first outer portion is located adjacent the end of the first strap, the second outer portion is located adjacent the end of the second strap, wherein the gusset portion extends between and separates the respective ends of the first and second straps.

14. The headgear of claim 13, wherein the front side and the rear side are joined to one another within an entirety of the gusset.

15. The headgear of any one of claims 9-14, wherein one or both of the first strap and the second strap comprise one or more relatively inelastic yarns and one or more relatively elastic yarns.

16. The headgear of any one of claims 9-15, wherein the front side of one or both of the first and the second straps has smaller loop length than the rear side to create curvature along a length of the strap.

17. The headgear of any one of claims 9-16, wherein the junction comprises one or more relatively inelastic yarns and one or more relatively elastic yarns.

18. The headgear of any one of claims 9-17, wherein the front side of the junction has smaller loop length than the rear side to create curvature along a length of the junction.

19. The headgear of any one of claims 9-18, wherein the first and second straps and the junction form a rear portion of the headgear, wherein the first strap is an upper strap and the second strap is a lower strap.

20. The headgear of claim 19, wherein the junction is configured for connection to a front strap of the headgear.

21. The headgear of either one of claims 19 or 20, further comprising an overmolded connector attached to the junction, the connector comprising an attachment location for the front strap.

22. The headgear of claim 21, wherein an area of the joining between the front side and the rear side is greater than an area of the junction covered by the connector.

23. The headgear of claim 21, wherein an area of the joining between the front side and the rear side is less than an area of the junction covered by the connector.

24. The headgear of claim 21, wherein an area of the joining between the front side and the rear side is equal to or substantially equal to an area of the junction covered by the connector.

25. The headgear of either one of claims 19 or 20, wherein the junction comprises an open-work structure that defines an attachment opening for the front strap.

26. The headgear of any one of claims 19-25, further comprising the front strap, wherein the front strap is less elastic than at least the upper strap and the lower strap of the rear portion.

27. The headgear of any one of claims 9-26, wherein a length of the first strap is greater than a length of the second strap.

28. The headgear of any one of claims 9-26, wherein a length of the second strap is greater than a length of the first strap.

29. The headgear of any one of claims 9-26, wherein a length of the first strap is equal to or substantially equal to a length of the second strap.

30. The headgear of any one of claims 9-29, wherein the joining of the front side and the rear side within the junction comprises interlocking of the front side and the rear side.

31. A bracket for connecting headgear straps, the bracket comprising:  
a first bracket portion comprising a first inner surface;  
a second bracket portion comprising a second inner surface; and  
at least one hinge connects the first bracket portion to the second bracket portion, wherein the hinge is configured to allow the first bracket portion and the second bracket portion to be moved from a first open position to a second closed position,  
wherein, in the second closed position, the first inner surface and the second inner surface face each other, and  
the bracket further comprising an elongate slot adjacent the hinge.

32. The bracket according to claim 31, further comprising an upper connector configured to connect to a top strap and a lower connector configured to connect to a rear strap.

33. The bracket according to claim 32, wherein at least the upper connector is formed by the first bracket portion and the second bracket portion.

34. The bracket according to claim 32 or 33, wherein at least the lower connector is formed by the first bracket portion and the second bracket portion.

35. The bracket according to any one of Claims 31 to 34 wherein the elongate slot comprises portions formed in the first bracket portion and the second bracket portion.

36. The bracket according to any one of Claims 31 to 35 wherein the elongate slot is configured to receive a front strap.

37. The bracket according to any one of Claims 31 to 36 wherein the hinge is positioned adjacent a periphery of the first bracket portion and the second bracket portion.

38. The bracket according to any one of Claims 31 to 37 wherein the hinge comprises a hinge axis that is parallel to an axis of the elongate slot.

39. The bracket according to any one of Claims 31 to 38, further comprising recesses provided on the first inner surface.

40. The bracket according to any one of Claims 31 to 39, further comprising energy directors provided on the second inner surface, wherein the first bracket portion and the second bracket portions are welded together via the energy directors.

41. The bracket according to any one of Claims 32 to 40, wherein, in the second closed position, the recess forms at least one pocket in one of the upper connector and the lower connector.

42. A headgear comprising the bracket according to any one of claims 31-41, further comprising at least one strap sandwiched between the first inner surface and the second inner surface.

43. A headgear comprising the bracket according to claim 41, the headgear comprising at least one strap secured within the at least one pocket.

44. The headgear according to Claim 42 or 43, wherein the ends of the first strap and second strap are secured to the first and second inner surfaces by adhesive.

45. The bracket according to Claim 31 wherein the first bracket portion and the second bracket portion are secured in the closed position by a snap fit.

46. The bracket according to any one of Claims 31 to 45, wherein the bracket is symmetrical about a minor axis of the elongate slot.

47. The bracket according to any one of Claims 31 to 46, wherein the first bracket portion is a mirror of the second bracket portion.

48. The bracket according to any one of Claims 31 to 47, wherein the first bracket portion, the second bracket portion, and the hinge are integrally formed.

49. The bracket according to any one of Claims 31 and 47, wherein the first bracket portion, the second bracket portion, and the hinge are integrally moulded.

50. The bracket according to Claims 31 and/or 32, wherein one of the first bracket portion or the second bracket portion is a flap, the flap comprising the inner surface.

51. The bracket according to Claim 31 wherein the hinge comprises a hinge axis that is angled with respect to an axis of the elongate slot.

52. The bracket according to Claim 50 or 51, further comprising an arm extending from a position adjacent the hinge.

53. A headgear comprising the bracket according to Claim 52, further comprising at least one strap connected to the arm.

54. The headgear according to claim 53, wherein, in the closed position, the inner surface is adjacent the arm, the at least one strap being sandwiched between the inner surface and the arm.

55. The headgear according to claim 54, the at least one strap comprises a hollow strap end, the arm being received within the hollow strap end.

56. The headgear according to claim 55, wherein the hinge axis is perpendicular to the at least one strap.

57. The headgear according to any one of Claims 50 to 56, wherein the bracket further comprises a second hinge and an adjacent flap positioned on the opposite side of the arm.

58. A mask frame, comprising:

a mask frame inlet and a mask frame outlet;

at least one lateral frame portion comprising a front surface and a rear surface;

a headgear connector extending from the front surface;

an opening defined through the at least one lateral frame portion, from the front surface to the rear surface, and positioned between the headgear connector and the mask frame inlet.

59. The mask frame according to Claim 58, wherein the at least one headgear connector comprises a post positioned adjacent to the opening.

60. The mask frame according Claims 59, further comprising a medial flange extending medially from the post.

61. The mask frame according to Claim 60, wherein a medial flange extends above the opening.

62. The mask frame according to Claim 60 or 61, further comprising a gap between the medial flange and the front surface of the at least one lateral frame portion.

63. The mask frame according to any one of Claims 58-62, further comprising a lateral flange extending laterally from the post.

64. The mask frame according to any one of Claims 59-62, wherein a width of the at least one lateral frame portion is greater than a width of the post.

65. The mask frame according to Claim 64, the width of the post is substantially the same as a width of the medial flange.

66. The mask frame according to Claim 64, the width of the post is substantially the same as a width of the lateral flange.

67. The mask frame according to Claim 63, wherein a length of the lateral flange is greater than a length of the medial flange.

68. The mask frame according to Claim 67, wherein the length of the lateral flange is approximately 4.2mm and the length of the medial flange is approximately 0.5mm.

69. The mask frame according to Claim 63, wherein a thickness of the lateral flange is greater than a thickness of the medial flange.

70. The mask frame according Claim 69, wherein the thickness of the lateral flange is approximately 1.5mm and the thickness of the medial flange is approximately 1mm.

71. The mask frame according to Claim 63, wherein the lateral flange extends beyond a lateral edge of the side arm.

72. The mask frame according to Claim 62, wherein a front surface of the post is continuous with a front surface of the medial flange and a front surface of the lateral flange.

73. The mask frame according to Claim 72, wherein the front surface of the lateral flange has a curvature following the curvature of the user's face.

74. The mask frame according to Claim 59, wherein the post has a rectangular shape or cross-section.

75. The mask frame according to Claim 59, wherein the post has a length of 6.5mm and a width of 3.9mm.

76. The mask frame according to any one of Claims 58 to 75, further comprising a recess positioned between the opening and the mask frame inlet.

77. The mask frame according to Claim 76, wherein the recess is positioned on the rear surface of the side arm.

78. A headgear strap configured to mate with the headgear connector according to any of claims 58-77, wherein the headgear strap has an opening configured to secure to the headgear connector.

79. The headgear strap according to Claim 78, wherein the opening is located on the free end of the headgear strap.

80. The headgear strap according to Claim 78, wherein the opening has a rectangular shape corresponding with the shape of the post.

81. The headgear strap according to Claim 78, wherein, when assembled, the thickness of the strap fits within the gap.

82. The headgear strap according to Claim 78, wherein, when assembled, the medial flange and lateral flange hang over the strap.

83. The headgear strap according to Claim 78, wherein the strap is formed of a flexible material.

84. The headgear strap according to Claim 78, wherein the opening is formed through removal of material such as die-cutting and RF crease-cutting.

85. The headgear strap according to Claim 78, wherein the free end of the strap comprises an overmoulded section formed with a resilient material.