

WHAT IS CLAIMED IS:

1. A rear portion of a respiratory mask headgear, comprising:
a unitary body portion comprising a plastic material, the body portion comprising:
an upper strap having a first end, a second end, a length between the first end and the second end, and a width;
a lower strap having a first end, a second end, a length between the first end and the second end, and a width; and
a junction between the first end of the upper strap and the first end of the lower strap, the junction comprising a base portion and a transition region between the base portion and one of the upper strap and the lower strap, the base portion defining a width;
wherein a width of the transition region is less than the width of the base portion of the junction and the width of the respective upper strap or lower strap to which the transition region is joined.
2. The rear portion of a respiratory mask headgear of claim 1, wherein the width of the transition region is less than about one-half of the width of the respective upper strap or lower strap to which the transition region is joined.
3. The rear portion of a respiratory mask headgear of claim 1, wherein the width of the transition region is less than about one-third of the width of the respective upper strap or lower strap to which the transition region is joined.
4. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the transition region defines a length that is less than the width of the base portion of the junction and/or the width of the respective upper strap or lower strap to which the transition region is joined.
5. The rear portion of a respiratory mask headgear of claim 4, wherein the length of the transition region is less than about two-thirds or one-half of the width of the respective upper strap or lower strap to which the transition region is joined.
6. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the transition region is defined by a slot having a maximum width that is less than the width of the base portion of the junction and/or the width of the respective upper strap or lower strap adjacent the slot.

7. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the junction is symmetrical about an axis passing through the junction and between the upper strap and the lower strap.

8. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein each of the upper strap and the lower strap comprise a main strap portion having a first thickness and at least one flange portion having a second thickness that is smaller than the first thickness, wherein the main strap portion extends along an entirety of the length of the strap, and wherein the at least one flange portion extends along a substantial portion of the length of the strap.

9. The rear portion of a respiratory mask headgear of claim 8, wherein the at least one flange portion extends along only a portion of the length of the strap.

10. The rear portion of a respiratory mask headgear of either one of claims 8 or 9, wherein the main strap portion or the main strap portion and the flange define an entirety of the width of the strap at any location along the length of the strap.

11. The rear portion of a respiratory mask headgear of any one of claims 8-10, wherein the main strap portion defines an entirety of one of the upper edge and the lower edge of the strap.

12. The rear portion of a respiratory mask headgear of any one of claims 8-11, wherein the main strap portion defines an entire width of a central portion of the strap.

13. The rear portion of a respiratory mask headgear of any one of claims 8-12, wherein the at least one flange portion comprises a first flange portion and a second flange portion located on opposing sides of the central portion of the strap.

14. The rear portion of a respiratory mask headgear of claim 13, wherein each of the first flange portion and the second flange portion extend along a substantial entirety of a respective side of the user's head in use.

15. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the length of the upper strap is a first length and the length of the lower strap is a second length, wherein the second length is greater than the first length.

16. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the width of the lower strap is greater than the width of the upper strap.

17. The rear portion of a respiratory mask headgear of any one claims 12-16, wherein the central portion of the upper strap defines a length that is less than a length of the central portion of the lower strap.

18. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the transition region is a first transition region and the junction further comprises a second transition region, the first transition region located between the base portion and the upper strap and the second transition region located between the base portion and the lower strap.

19. The rear portion of a respiratory mask headgear of claim 18, wherein a width of the second transition region is greater than a width of the first transition region.

20. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the body portion comprises a fabric inner layer, a fabric outer layer and an interior plastic layer permanently joined as an integral structure as a result of the interior plastic layer being introduced into a space between the fabric inner layer and the fabric outer layer in a molten state and allowed to harden.

21. The rear portion of a respiratory mask headgear of claim 20, wherein the fabric inner layer and the fabric outer layer are knitted.

22. The rear portion of a respiratory mask headgear of either one of claims 20 or 21, wherein the fabric inner layer and the fabric outer layer are joined to form an edge fabric layer along the upper edge and the lower edge of the upper strap and the lower strap.

23. The rear portion of a respiratory mask headgear of claim 22, wherein a thickness of the edge fabric layer along the upper edge and the lower edge of the upper strap and the lower strap is greater than a thickness of the fabric inner layer and the fabric outer layer.

24. The rear portion of a respiratory mask headgear of claim 1, further comprising at least one fabric layer configured to enclose an interior plastic layer, the at least one fabric layer comprising at least one width, wherein the at least one width comprises a transition region width positioned adjacent the transition region.

25. The rear portion of a respiratory mask headgear of claim 24, wherein the at least one fabric layer comprises at least one upper strap fabric layer and at least one lower strap fabric layer.

26. The rear portion of a respiratory mask headgear of claim 25, wherein the at least one width comprises an upper strap width of the at least one upper strap fabric layer and a lower strap width of the at least one lower strap fabric layer.

27. The rear portion of a respiratory mask headgear of claim 26, wherein the at least one fabric layer comprises the upper strap width along the upper strap and the lower strap width along the lower strap.

28. The rear portion of a respiratory mask headgear of claim 27, wherein the transition region width is the same as or similar to the upper strap width.

29. The rear portion of a respiratory mask headgear of claim 27, wherein the transition region width is the same as or similar to the lower strap width.

30. The rear portion of a respiratory mask headgear of claim 27, wherein the lower strap width is greater than the upper strap width.

31. The rear portion of a respiratory mask headgear of claim 24, wherein the transition region width of the at least one fabric layer is greater than the width of the transition region of the junction.

32. The rear portion of a respiratory mask headgear of claim 31, wherein the at least one fabric layer comprises at least one fabric flap adjacent the transition region, wherein a width of the at least one fabric flap is greatest where the width of the transition region is the smallest.

33. The rear portion of a respiratory mask headgear of any one of the preceding claims, wherein the junction between the first end of the upper strap and the first end of the lower strap is a first junction, further comprising a second junction between the second end of the upper strap and the second end of the lower strap, the second junction comprising a transition region between the base portion and one or both of the upper strap and the lower strap.

34. A rear portion of a respiratory mask headgear, comprising:

a unitary body portion comprising a plastic material, the body portion comprising:

an upper strap having a first end, a second end, a length between the first end and the second end, and a width;

a lower strap having a first end, a second end, a length between the first end and the second end, and a width; and

a junction between the first end of the upper strap and the first end of the lower strap, the junction comprising a base portion and a living hinge between the base portion and one of the upper strap and the lower strap.

35. The rear portion of a respiratory mask headgear of claim 34, wherein the living hinge defines a length that is less than a width of the base portion of the junction and/or the width of the respective upper strap or lower strap to which the living hinge is joined.

36. The rear portion of a respiratory mask headgear of claim 35, wherein the length of the living hinge is less than about two-thirds or one-half of the width of the respective upper strap or lower strap to which the living hinge is joined.

37. The rear portion of a respiratory mask headgear of any one of claims 34-36, wherein the living hinge is defined by a slot.

38. The rear portion of a respiratory mask headgear of any one of claims 34-37, wherein the junction is symmetrical about an axis passing through the junction and between the upper strap and the lower strap.

39. The rear portion of a respiratory mask headgear of any one of claims 34-38, wherein each of the upper strap and the lower strap comprise a main strap portion having a first thickness and at least one flange portion having a second thickness that is smaller than the first thickness, wherein the main strap portion extends along an entirety of the length of the strap from the first junction to the second junction, and wherein the at least one flange portion extends along a substantial portion of the length of the strap.

40. The rear portion of a respiratory mask headgear of claim 39, wherein the at least one flange portion extends along only a portion of the length of the strap.

41. The rear portion of a respiratory mask headgear of either one of claims 39 or 40, wherein the main strap portion or the main strap portion and the flange define an entirety of the width of the strap at any location along the length of the strap.

42. The rear portion of a respiratory mask headgear of any one of claims 39-41, wherein the main strap portion defines an entirety of one of the upper edge and the lower edge of the strap.

43. The rear portion of a respiratory mask headgear of any one of claims 39-42, wherein the main strap portion defines an entire width of a central portion of the strap.

44. The rear portion of a respiratory mask headgear of any one of claims 39-43, wherein the at least one flange portion comprises a first flange portion and a second flange portion located on opposing sides of the central portion of the strap.

45. The rear portion of a respiratory mask headgear of claim 44, wherein each of the first flange portion and the second flange portion extend along a substantial entirety of a respective side of the user's head in use.

46. The rear portion of a respiratory mask headgear of any one of claims 34-45, wherein the length of the upper strap is a first length and the length of the lower strap is a second length, wherein the second length is greater than the first length.

47. The rear portion of a respiratory mask headgear of any one of claims 34-46, wherein the width of the lower strap is greater than the width of the upper strap.

48. The rear portion of a respiratory mask headgear of any one claims 43-47, wherein the central portion of the upper strap defines a length that is less than a length of the central portion of the lower strap.

49. The rear portion of a respiratory mask headgear of any one of claims 34-48, wherein the living hinge is a first living hinge and the junction further comprises a second living hinge, the first living hinge located between the base portion and the upper strap and the second living hinge located between the base portion and the lower strap.

50. A rear portion of a respiratory mask headgear, comprising:

a unitary body portion comprising a plastic material, the body portion comprising:

an upper strap having a first end, a second end, a length between the first end and the second end, and a width;

a lower strap having a first end, a second end, a length between the first end and the second end, and a width;

a first junction between the first end of the upper strap and the first end of the lower strap; and

a second junction between the second end of the upper strap and the second end of the lower strap;

wherein each of the upper strap and the lower strap comprise a main strap portion having a first thickness and at least one flange portion having a second thickness that is smaller than the first thickness, wherein the main strap portion extends along an entirety of the length of the strap from the first junction to the second junction, and wherein the at least one flange portion extends along a substantial portion of the length of the strap.

51. The rear portion of the respiratory mask headgear of claim 50, wherein the at least one flange portion extends along only a portion of the length of the strap.

52. The rear portion of the respiratory mask headgear of either one of claims 50 or 51, wherein the main strap portion or the main strap portion and the flange define an entire width of the strap at any location along the length of the strap.

53. The rear portion of the respiratory mask headgear of any one of claims 50-52, wherein the main strap portion defines an entirety of one of an upper edge and a lower edge of the strap.

54. The rear portion of the respiratory mask headgear of any one of claims 50-53, wherein the main strap portion defines an entire width of a central portion of the strap.

55. The rear portion of the respiratory mask headgear of claim 54, wherein the at least one flange portion comprises a first flange portion and a second flange portion located on opposing sides of the central portion of the strap.

56. The rear portion of the respiratory mask headgear of claim 55, wherein each of the first flange portion and the second flange portion extend along a substantial entirety of a respective side of the user's head in use.

57. The rear portion of the respiratory mask headgear of any one of claims 50-56, wherein the length of the upper strap is a first length and the length of the lower strap is a second length, wherein the second length is greater than the first length.

58. The rear portion of the respiratory mask headgear of any one of claims 50-57, wherein each of the first junction and the second junction comprises a base portion and a flex region between the base portion and one or both of the upper strap and the lower strap, wherein the flex region is configured to permit the respective upper strap or lower strap to which the flex region is joined to pivot relative to the base portion to increase a separation distance between a lower edge of the upper strap and an upper edge of the lower strap.

59. The rear portion of the respiratory mask headgear of claim 58, wherein the base portion defines a width, the flex region comprises a transition region defining a width that is less than the width of the base portion of the junction and the width of the respective upper strap or lower strap to which the flex region is joined.

60. The rear portion of the respiratory mask headgear of either one of claims 58 or 59, wherein the flex region comprises a living hinge.

61. A pair of side straps of a respiratory mask headgear, each of the side straps comprising:

an elongate plastic member comprising:

a first portion, the first portion comprising a first end, a second end, an interior surface, an exterior surface, and a first portion thickness measured between the interior and exterior surfaces of the first portion,

a second portion, wherein a width of the second portion is less than a width of the first portion,

a hub comprising a first end opposite a second end, a first side opposite a second side, an interior surface, an exterior surface continuous with the exterior surface of the first portion, and a hub thickness measured between the interior and exterior surfaces of the hub,

wherein the hub thickness is greater than the first portion thickness,

wherein the second end of the hub is adjacent the first end of the first portion and comprises an abutment surface that defines a retraction hard stop,

wherein the first and second sides of the hub extend between the first and second ends of the hub and are separated by a longitudinal axis of the first portion,

wherein a first length of the first side of the hub is greater than a second length of the second side of the hub, and

wherein a first width of the first side of the hub is greater than a second width of the second side of the hub.

62. The pair of side straps of a respiratory mask headgear of claim 61, wherein the first width of the first side of the hub is measured between the longitudinal axis of the first portion and a first outer edge of the first side of the hub, the first outer edge of the hub being substantially parallel to the longitudinal axis of the first portion.

63. The pair of side straps of a respiratory mask headgear of either one of claims 61 or 62, wherein the second width of the second side of the hub is measured between the longitudinal axis of the first portion and a second outer edge of the second side of the hub, the second outer edge of the hub being substantially parallel to the longitudinal axis of the first portion.

64. The pair of side straps of a respiratory mask headgear of any one of claims 61-63, wherein the first length of the first side of the hub is measured between the first and second ends of the hub.

65. The pair of side straps of a respiratory mask headgear of any one of claims 61-64, wherein the second length of the second side of the hub is measured between the first and second ends of the hub.

66. The pair of side straps of a respiratory mask headgear of any one of claims 61-65, wherein the first end of the first side of the hub is continuous with the first end of the second side of the hub.

67. The pair of side straps of a respiratory mask headgear of any one of claims 61-66, wherein the second end of the first side of the hub is offset from the second end of the second side of the hub.

68. The pair of side straps of a respiratory mask headgear of claim 67, wherein the offset between the second end of the first side of the hub and the second end of the second side of the hub defines an orientation notch.

69. The pair of side straps of a respiratory mask headgear of any one of claims 61-68, wherein the interior surface of the hub is offset from the interior surface of the first portion.

70. The pair of side straps of a respiratory mask headgear of claim 69, wherein the offset between the interior surface of the hub and the interior surface of the first portion defines the abutment surface of the hub, the abutment surface located on the second end of the hub.

71. The pair of side straps of a respiratory mask headgear of any one of claims 61-70, wherein the second end of the first portion comprises a mechanical stop extending radially outward from the exterior surface of the first portion, wherein the mechanical stop defines an extension hard stop.

72. The pair of side straps of a respiratory mask headgear of claim 71, wherein the mechanical stop comprises a tooth edge and a ramped surface.

73. The pair of side straps of a respiratory mask headgear of any one of claims 61-72, further comprising a support housing configured to restrain at least a portion of the elongate plastic member, wherein the support housing defines an interior channel configured to receive the elongate plastic member, wherein the support housing comprises a lateral collar, a medial collar, and a middle portion between the lateral collar and the medial collar.

74. The pair of side straps of a respiratory mask headgear of claim 73, wherein the support housing comprises an interior side and an exterior side, wherein the exterior side of the middle portion of the support housing comprises an elongate opening, wherein the interior side of the support housing comprises a continuous wall.

75. The pair of side straps of a respiratory mask headgear of either one of claims 73 or 74, wherein the lateral collar is configured to abut with the abutment surface of the hub.

76. The pair of side straps of a respiratory mask headgear of any one of claims 73-75 as dependent on any one of claims 71 or 72, wherein the lateral collar is configured to abut with the mechanical stop of the elongate plastic member.