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(54) **HELMET FACEGUARD COVERING**

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(57)

ABSTRACT

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The present technology provides a mask that is affixable to a helmet. The mask is affixable over the lower face covering of a conventional helmet, such as a football helmet. The mask has straps, hooks, orifices, or other attachment components to allow the mask to be secured via one or more existing clips, snaps, or other connection points on the helmet. Alternatively, the mask is affixable via a connection technology such as a hook-and-loop fastener, an adhesive, a clip, or other fastening technology. The mask prevents a substantial portion of the biological material being expelled or inhaled from the person wearing the helmet or other competitors from passing through the mask and contacting another participant.

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Related U.S. Application Data

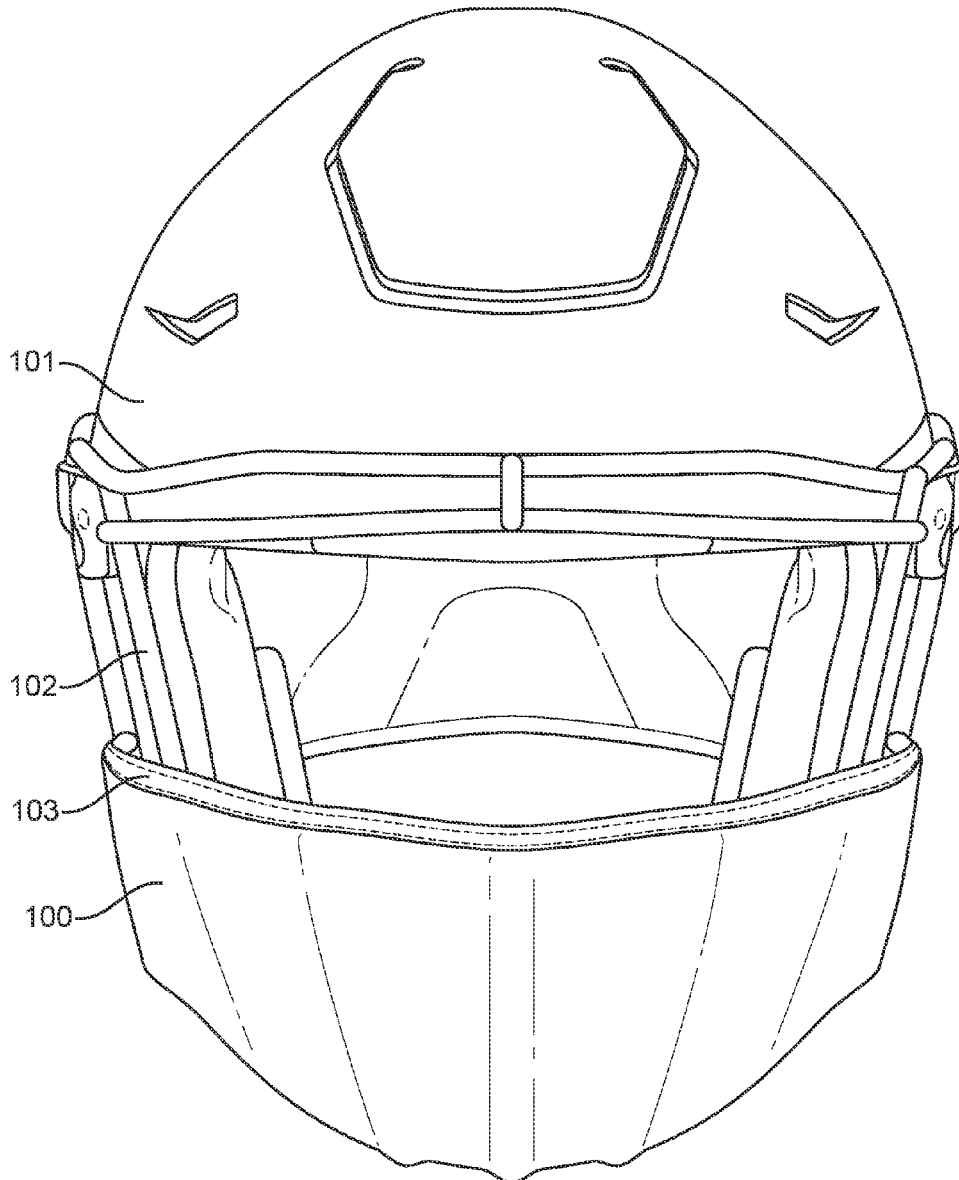
(60) Provisional application No. 63/051,085, filed on Jul. 13, 2020.

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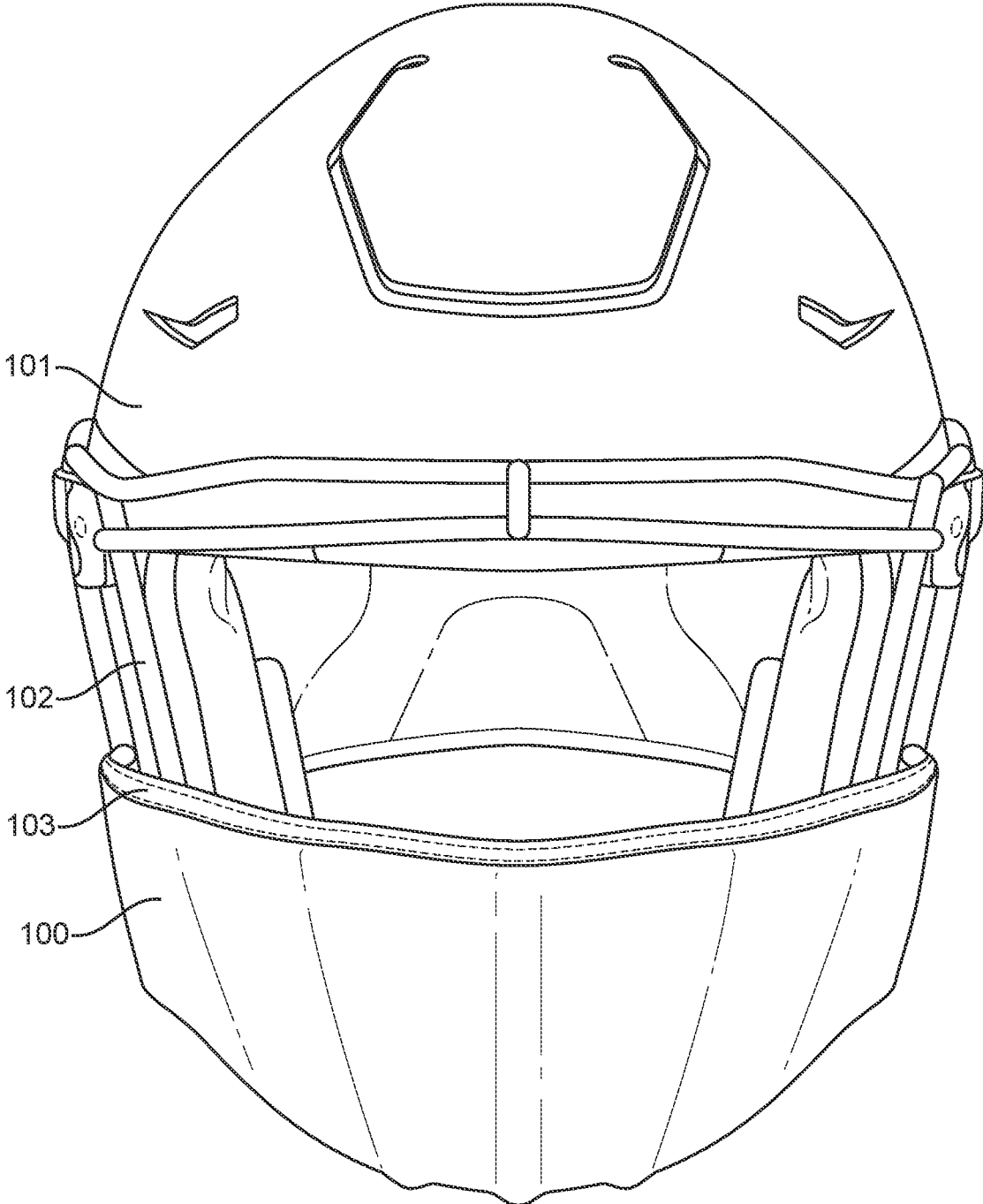


FIG. 1

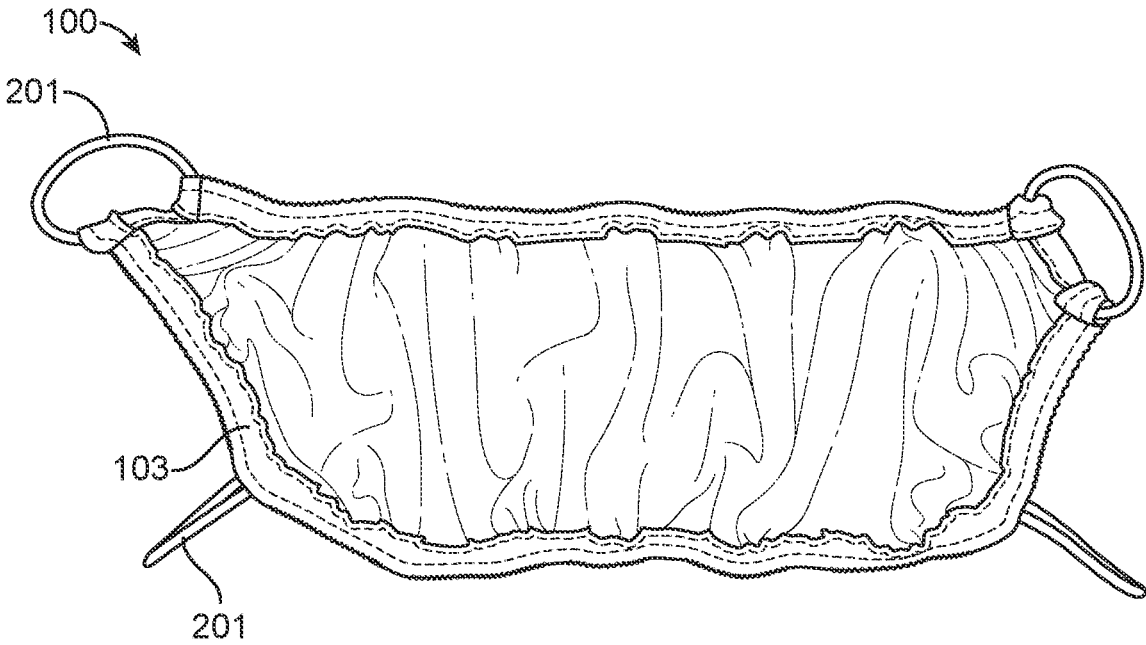


FIG. 2

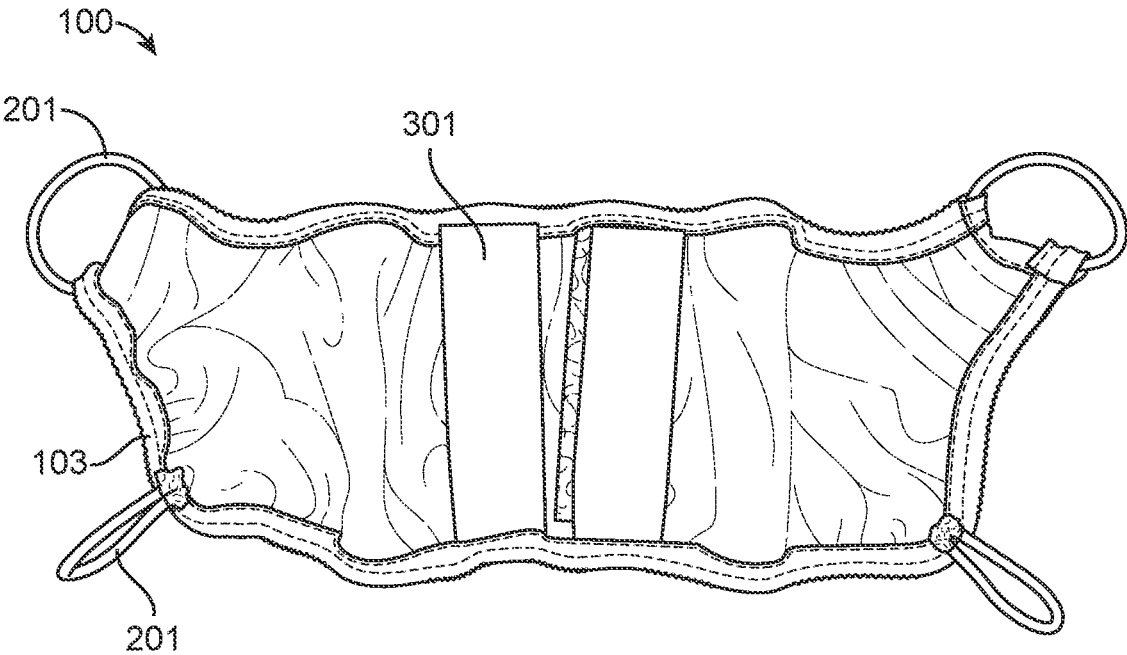


FIG. 3

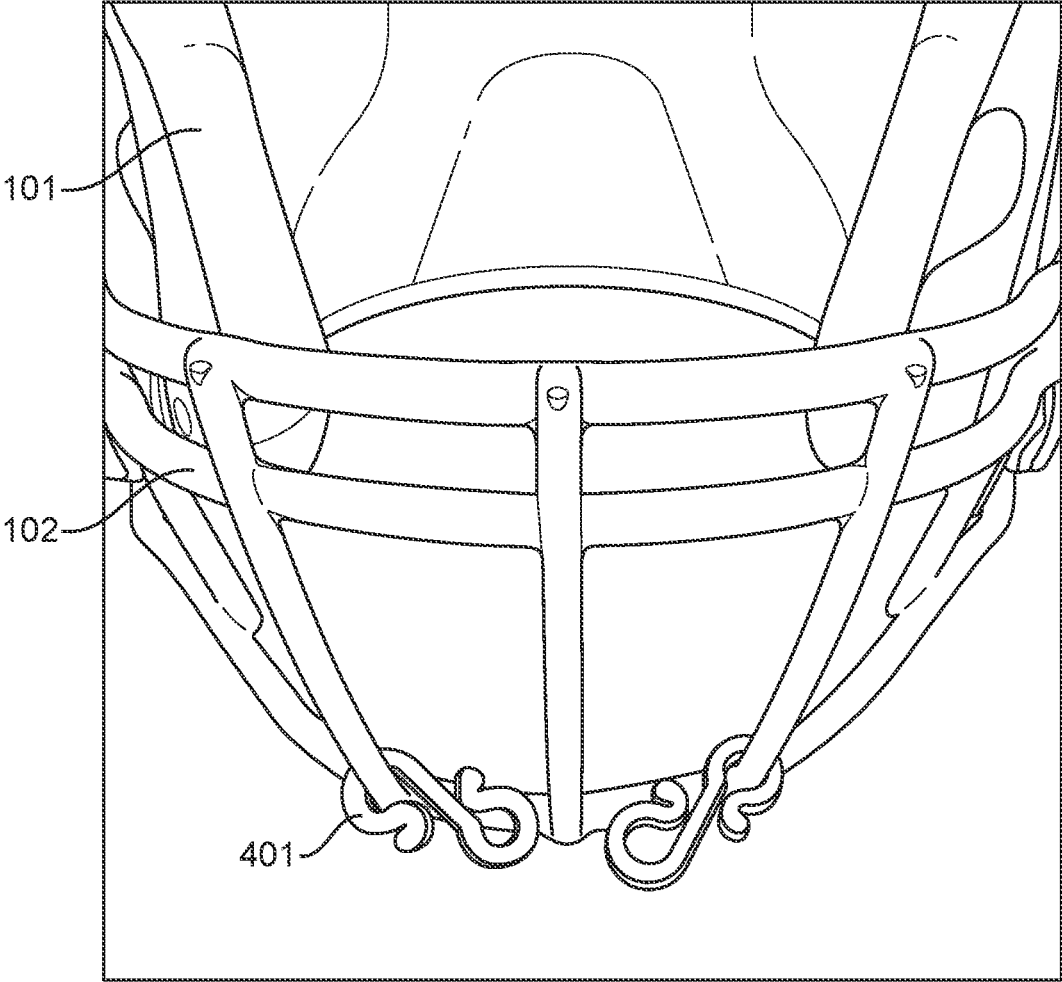


FIG. 4

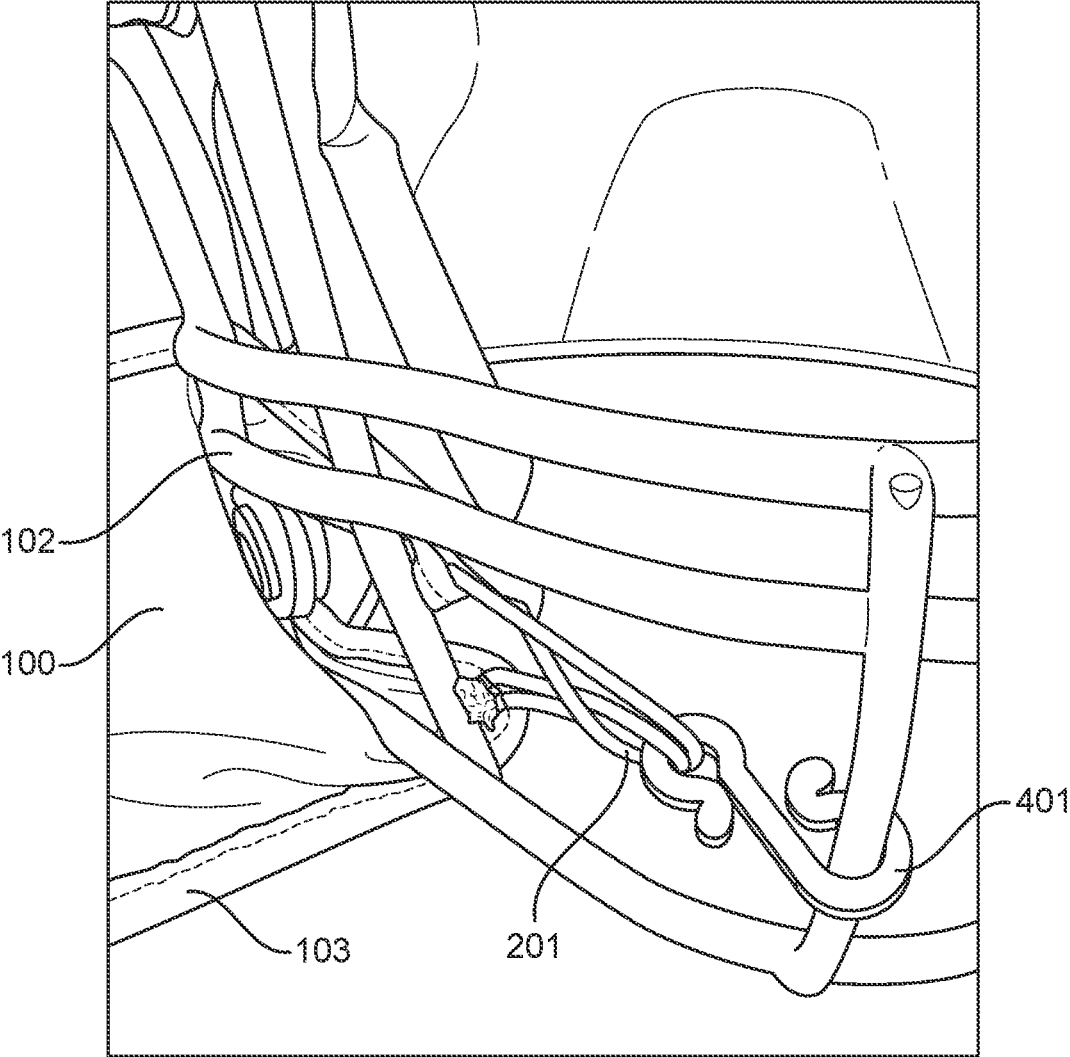


FIG. 5

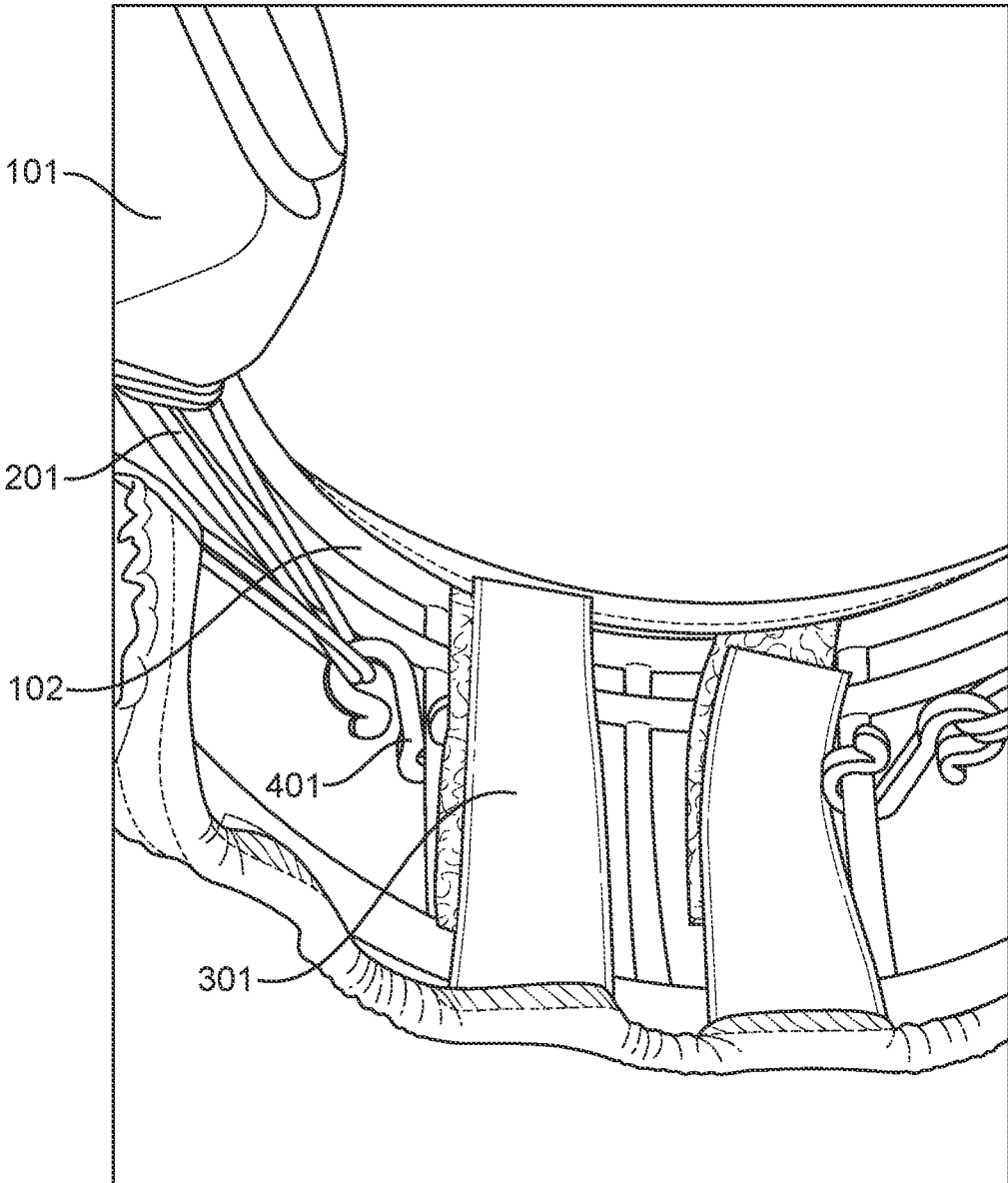


FIG. 6

HELMET FACEGUARD COVERING

RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 63/051,085 filed Jul. 13, 2020, entitled "HELMET FACE MASK COVERING." The entire contents of the above-identified application are incorporated herein by reference.

FIELD OF INVENTION

[0002] The present invention relates to semi-permeable masks that are affixable to helmets, such as sports helmets.

BACKGROUND

[0003] Facemasks, face shields, and other devices are used to prevent the spread of viruses, bacteria, and other biological material that may be expelled or inhaled with the breath of a person. Conventional facemasks are designed to fit snugly around a person's face. Conventional plastic face shields form a non-permeable barrier in front of a person's face. However, conventional barriers such as these are not suitable for use with helmets, such as football helmets.

SUMMARY OF THE INVENTION

[0004] An object of the invention is to provide a mask that is affixable to a helmet to prevent viruses, bacteria, and other biological material that may be expelled or inhaled with the breath of a person from passing to another person in close contact with the person. The mask is affixable over the lower face covering of a conventional helmet, such as a football helmet. The mask has straps, hooks, orifices, or other attachment components to allow the mask to be secured via one or more existing clips, snaps, or other connection points on the helmet. Alternatively, the mask is affixable via a connection technology such as a hook-and-loop fastener, an adhesive, a clip, or other fastening technology. The mask prevents a substantial portion of the biological material being expelled or inhaled from the person wearing the helmet or other competitors from passing through the mask and contacting another participant.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Referring to the drawings, which are appended hereto and which form a portion of this disclosure, it may be seen that:

[0006] FIG. 1 is a front view of a mask installed on a football helmet.

[0007] FIG. 2 is a front view of the mask.

[0008] FIG. 3 is a rear view of the mask.

[0009] FIG. 4 is a front view of a faceguard of a football helmet with two affixed clips.

[0010] FIG. 5 is a front view of a faceguard of a football helmet with two mask straps attached to an affixed clip.

[0011] FIG. 6 is a bottom view of a faceguard of a football helmet with four mask straps attached to two affixed clips and two hook and eye fasteners of the mask attached to the faceguard.

DETAILED DESCRIPTION

[0012] Referring to the Figures for a clearer understanding of the invention, one or more of the above objects of the invention can be achieved, at least in part, by providing a

mask to affix to a helmet. The mask prevents a substantial portion of the biological material being expelled or inhaled from the person wearing the helmet from passing through mask. In an example, the mask is affixed to a mask used for sports, such as a football helmet, a lacrosse helmet, or a hockey helmet. In another example, the mask is affixed to a safety helmet, such as a motorcycle helmet, a military helmet, or a construction helmet. The mask may be affixed to any suitable helmet.

[0013] The mask protects the wearer and others that come into contact with the wearer from any biological or other material that may be contained in the breath, saliva, sweat, or other secretions of the wearer or those in contact with the wearer. In an example, if the mask is worn on a football helmet, the mask will protect the wearer from inhaling a virus or bacteria being exhaled by a fellow competitor and protect the fellow competitor from inhaling a virus or bacteria being exhaled by the wearer. In some sports, such as football, competitors are often in close proximity such that the helmets are touching and the faces of the competitors are only inches apart. While in this position, the competitors are in danger of exchanging viruses or other contagions via the breath of fellow competitors. The mask acts as a barrier to prevent the biological material from passing from one competitor to the other.

[0014] The mask includes features such as straps, clips, fasteners, and other connection technologies to affix the mask to the existing structure of the helmet faceguard or other features of the helmet.

[0015] FIG. 1 is a front view of a mask 100 installed on a football helmet 100. In an example, the mask 100 is formed of a semi-permeable material that allows air to flow through the mask but prevents a substantial portion of the biological material being expelled or inhaled from the person wearing the helmet from passing through mask. The mask 100 may be created from any suitable natural or synthetic material, such as cotton, polyester, polypropylene, or any suitable tightly woven or non-woven fabric. Other materials, such as paper or cellulose may be used. In an example, anti-microbial materials may be embedded in the mask 100 to further reduce the transmission of biological agents.

[0016] The permeability of the mask 100 may be varied based on the type of fabric or material used in construction of the mask 100. The permeability desired may be based on the amount of air that is to pass through the mask 100 to balance the protection from biological agents versus the need to provide breathable air to the wearer. For example, a thicker, or less permeable, material will allow a lower amount of air to pass through, which may reduce the air flow to the user while capturing more biological agents. Conversely, a thinner, or more permeable, material will allow more air to pass through, which may increase the air flow to the user while capturing fewer biological agents.

[0017] When secured, the mask 100 covers a portion of the faceguard 102 that covers the mouth and nose areas of the wearer's face but does not cover the eyes. This configuration allows the wearer to have a broad range of vision over the top portion of the mask 100.

[0018] The mask 100 is illustrated as fitting over and around the lower portion of the helmet faceguard 102 of the helmet 101. The mask 100 is stretched at least taut over the helmet faceguard 102. When the mask 100 is taut, the mask 100 is less likely to be pulled off the helmet faceguard 102 when contacted by another helmet, opponent, the ground, or

any other surface. The mask **100** is secured to the helmet faceguard **102** as described herein. The taut mask **100** is also less likely to be pulled away from the faceguard **102** and cover the eyes of the wearer.

[0019] The mask **100** is illustrated with an elastic band **103** around the perimeter of the mask **100**. The elastic band **103** further secures the mask **100** to the helmet faceguard **102** and provides additional tautness to the mask **100** when installed. The elastic band **103** may be sewn or otherwise affixed to the edge of the fabric of the mask **100**. The elastic band **103** may be constructed of any type of material or fabric that expands when stretched by a force pulling away from center in opposing directions. When an elastic material is stretched or compressed via an elastic force, the material exerts a counter force in the opposite direction as the material resists the change in shape. When the elastic material is stretched, the elastic system has stored elastic potential energy such that when the stretching force, or elastic force, is removed, the elastic material compresses back to its original position. In an example, the elastic may be constructed of a fabric material with strands or rubber interwoven into the fabric. The elastic band **103** further secures the mask **100** to the faceguard **102** when stretched over bars of the faceguard **102**.

[0020] FIG. 2 is a front view of the mask **100**. The mask **100** is illustrated with a shape that will fit over the front lower portion of a helmet faceguard **102**. Other sizes and shape of mask **100** may be used based on the size and shape of the faceguard **102** of the type of helmet **100** used. For example, a lacrosse helmet may have a different shape that requires a slightly different shape mask **100** to cover the lower face of a user. In another example, a helmet **100** may require a faceguard **102**. The mask **100** is illustrated with an elastic band **103** around the perimeter of the mask **100**, as described herein.

[0021] The mask **100** is illustrated with four straps **201**. The straps **201** are disposed at the four corners of the mask **100**. Other locations for the straps **201** may be used based on the configuration of the helmet faceguard **102**, such as on the top or bottom of the mask **100**. The straps **201** are typically an elastic band or string that will stretch under force as described herein. Constructing the straps **201** of an elastic material causes the mask **100** to be pulled taut when installed on various sizes and shapes of faceguard **102**. In examples, a single size of mask **100** may be used for different applications because the elastic straps **201** may stretch and be affixed to clips at different distances. That is, a single mask size and shape may fit two differently sized faceguards **102** because the elastic straps **201** will stretch to different lengths. The straps **201** may be affixed to the mask **100** or the elastic band **103** via any suitable connection technology, such as by sewing the straps **201** to the elastic band **103**. In other examples, the straps **201** are not elastic but are of a fabric string, a plastic clip, or any other suitable material.

[0022] FIG. 3 is a rear view of the mask **100**. FIG. 3 illustrates the mask **100**, the straps **201**, and the elastic band **103**, as described herein with respect to FIG. 1 and FIG. 2. Further illustrated are the fastening strips **301**. The fastening strips **301** are illustrated as hook and eye fasteners. Other types of fastening strips **301** may be used, such as strips that fasten with a button, a clip, a snap, or other fastening technology. In the example, the two fastening strips **301** are affixed to the mask **100** at the center top and center bottom edges of the mask **301**. In alternate embodiments, a single

fastening strip **301** is used. The number and placement of the fastening strips **301** may be changed based on the configuration of the helmet faceguard **102**. The fastening strips **301** may be fastened to the mask **100** or the elastic band **103** via any suitable connection technology, such as by sewing the fastening strips **301** to the elastic band **103**. The fastening strips **301** may be in any configuration that allows the center of the mask **100** to be affixed to the faceguard **102** to create a snug, taut, secure fit.

[0023] In the example, the fastening strips **301** are unfastened and looped over at least one bar of the faceguard **102**. The fastening strips **301** are then fastened, such as by pressing the hook side of the fastening strips **301** to the loop side to create a bond.

[0024] FIG. 4 is a front view of a faceguard **102** of a football helmet **101** with two affixed clips **401**. The clips **401** are configured to securely loop around at least one bar of the faceguard **102**. An opposing loop of the clip **401** is disposed to swivel around the faceguard bar in any direction and accept one or more straps **201**. The opposing loop of the clips **401** may form a circle with a single entry to accept the strap **201**. Any other configuration of clips **401** may be used to create a connection between the faceguard **102** and the strap **201**. For example, the clips **401** may be hooks, snaps, buttons, or any other type of connection between the faceguard **102** and the strap **201**.

[0025] The clips **401** may be constructed of any suitable material, such as plastic, metal, wood, or any other suitable material. In the example, the clips **401** are affixed to the middle bars of each side of the faceguard **102**. In alternate examples, the clips **401** may both be affixed to the middle bar, or any other bar that causes a secure fit for the mask **100** over the faceguard **102**. In alternate examples, the clips **401** are permanently affixed to the straps **201** such that the straps **201** are stretched to the correct location and the affixed clips **401** are affixed to the faceguard **102**. In alternate examples, the clips **401** are permanently affixed to the faceguard **102** such that the straps **201** are stretched to the correct location and the affixed clips **401** are affixed to the straps **201**.

[0026] FIG. 5 is a front view of a faceguard of a football helmet with two mask straps **201** attached to an affixed clip **401**. As illustrated the straps **201** are both attached to the single clip **401**. Because the mask **100** is folded around the perimeter of the faceguard **102**, the multiple straps **201** may be affixed to the single clip **401** while remaining substantially flat on the faceguard **102** without bunching or binding. As illustrated, the straps **201** are affixed to the elastic band **103** via a stitched connection. Any other type of connection may be used. As illustrated, the edge of the mask **100** is inserted between the helmet **101** and the faceguard **102**. The clip **401** is affixed to the bar of the faceguard **102**. The clip **401** may be affixed to any other suitable bar of the faceguard **102** to allow the mask **100** to fit securely around the faceguard **102**.

[0027] FIG. 6 is a bottom view of a faceguard **102** of a football helmet **101** with four mask straps **201** attached to two affixed clips **401** and two hook and eye fasteners **301** of the mask **100** attached to the faceguard **102**. As illustrated, two of the straps **201** are attached to a single clip **401**, while two other straps **201** on the opposing side of the mask **100** are attached to a second clip **401**. The clips **401** are attached to a respective bar of the faceguard **102**. The hook and eye fasteners **301** are placed on the inside of the faceguard **102** and secured together. Together, the hook and eye fasteners

301 and the mask **100** encircle the faceguard **102** to secure the mask **100** to the faceguard **102**. Thus, the straps **201** force the mask **100** to be taut and stretched over the faceguard **102**, while the hook and eye fasteners **301** keep the mask **100** from sliding up or down vertically and keep the components secured against the faceguard **102** on the inside.

[0028] In an example, the fasteners **301** are fastened such that the elastic band **103** overlaps the upper and lower faceguard **102** bars. When the elastic band **103** is pulled and secured over the bars of the faceguard **102**, the material of the mask **100** on the opposite side of the faceguard **102** is pulled taut and secured against the faceguard **102**.

[0029] As discussed herein, other types of connections may be used for the hook and eye fasteners **301**, the clips **401**, the straps **201**, and the elastic band **103**.

What is claimed is:

1. A helmet mask apparatus, comprising:
 - a semi-permeable mask body;
 - at least one strap affixed to the mask body;
 - at least one clip attached to a helmet faceguard and the at least one strap;
 - at least one fastener configured to vertically encircle, with the mask body, the faceguard.
2. The helmet mask apparatus of claim 1, further comprising an elastic band encircling a perimeter of the mask body.
3. The helmet mask apparatus of claim 1, wherein the mask body covers a lower portion of a face of a wearer of the helmet faceguard.
4. The helmet mask apparatus of claim 1, wherein the at least one fastener is a hook and eye fastener.
5. The helmet mask apparatus of claim 1, wherein, when attached to the at least one clip, the at least one strap stretches the mask body over the faceguard such that the mask body is taut.
6. The helmet mask apparatus of claim 1, wherein the at least one fastener prevents the mask body from rotating vertically.
7. The helmet mask apparatus of claim 1, wherein the mask body is positioned outside of the faceguard and the at least one clip, the at least one fastener, and the at least one strap are positioned inside the faceguard.
8. The helmet mask apparatus of claim 1, wherein the at least one strap comprises four straps disposed at four corners of the mask body.

9. The helmet mask apparatus of claim 1, wherein the mask body is constructed of fabric.

10. The helmet mask apparatus of claim 1, wherein the mask body is treated with an antimicrobial agent.

11. The helmet mask apparatus of claim 1, wherein the at least one strap is constructed of an elastic band.

12. The helmet mask apparatus of claim 1, wherein the mask body is configured to prevent at least a portion of biological material expelled by a user from passing through the mask body.

13. A method to affix a mask to a helmet faceguard, comprising:

- placing a semi-permeable mask body along an outer surface of a faceguard;
- wrapping vertical edges of the mask body around opposing edges of the faceguard;
- affixing at least one strap on each opposing edge of the mask body to the faceguard; and
- affixing a fastener that wraps vertically around the faceguard.

14. The method of claim 13, wherein the mask body covers a lower portion of a face of a wearer of the helmet faceguard.

15. The method of claim 13, wherein the at least one fastener is a hook and eye fastener.

16. The method of claim 13, further comprising, affixing the at least one strap on each opposing edge of the mask body to the faceguard by:

- affixing the at least one strap on each opposing edge of the mask body to a clip; and
- affixing the clip to the faceguard.

17. The method of claim 16, wherein the mask body is positioned outside of the faceguard and the at least one clip, the at least one fastener, and the at least one strap are positioned inside the faceguard.

18. The method of claim 13, wherein the fastener prevents the mask body from rotating vertically.

19. The method of claim 13, wherein the mask body covers a lower portion of a face of a wearer of the helmet faceguard.

20. The method of claim 13, wherein the mask body is constructed of fabric.

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