STABILIZING MOUTHPIECE WITH GRIPS

Inventor: Sheila L. Gottsch, Lakewood, CO (US)

Assignee: Safe-T-Gard Corporation, Lakewood, CO (US)

Appl. No.: 13/961,750
Filed: Aug. 7, 2013

Publication Classification

Int. Cl. A63B 71/08 (2006.01)

U.S. Cl. A63B 71/085 (2013.01)

ABSTRACT

A stabilizing mouthpiece includes features that reduce or prevent displacement of the mouthpiece either laterally or forward and backward when the mouthpiece is in use. In one implementation, the stabilizing mouthpiece may include one or more lateral shift guards that rest adjacent to inner or outer surfaces of a user’s molars, incisors, or cusps. In another implementation, the stabilizing mouthpiece may include elongated ridges or biased grips that resist forward and backward movement of the mouthpiece.
STABILIZING MOUTHPIECE WITH GRIPS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is related to U.S. patent application Ser. No. ______, entitled “Stabilizing Mouthpiece with Lower Stabilizing Ridge” and also related to U.S. patent application Ser. No. ______, entitled “Stabilizing Mouthpiece with Lateral Shift Guards.” Both of these applications are filed concurrently with the present application, and are specifically incorporated by reference for all that they disclose and teach.

BACKGROUND

[0002] To reduce or prevent injury to the teeth, lips, and gums, athletes often wear mouth guards during contact sports. Other individuals wear mouth guards at night to prevent nocturnal jaw clenching or grinding of teeth. However, mouth guards protect most effectively when firmly secured between the upper and lower teeth. Conventional mouth guards have the tendency to slide either laterally or forward and backward if the user relaxes his or her bite, particularly if physical contact occurs (e.g., during a sporting event) while the user’s bite is relaxed.

SUMMARY

[0003] A stabilizing mouthpiece includes features that reduce or prevent displacement of the mouthpiece from a secured position within a user’s mouth. According to one implementation, the stabilizing mouthpiece includes a U-shaped baseplate having a surface with a substantially flat central portion and at least one set of grips positioned on the surface, each set of grips proximal to an end of the U-shaped baseplate.

[0004] According to another implementation, the stabilizing mouthpiece includes a U-shaped baseplate and at least one lateral shift guard protruding from an edge of the U-shaped baseplate. The lateral shift guard is proximal to an end of the U-shaped baseplate and has a total longitudinal length that is less that a distance between a most anterior point and a most posterior point on the baseplate.

[0005] According to yet another implementation, the stabilizing mouthpiece includes a U-shaped baseplate and a ridge substantially orthogonal to the baseplate that protrudes from an inner edge of the baseplate. The ridge curves around a center of the U-shaped baseplate and has a total length less than a length of the U-shaped baseplate.

[0006] This Summary is provided to introduce an election of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter. Other features, details, utilities, and advantages of the claimed subject matter will be apparent from the following more particular written Detailed Description of various implementations and implementations as further illustrated in the accompanying drawings and defined in the appended claims.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0007] FIG. 1 illustrates a top plan view of an example stabilizing mouthpiece.

[0008] FIG. 2 illustrates a top plan view of another example stabilizing mouthpiece.

[0009] FIG. 3 illustrates a bottom plan view of another example stabilizing mouthpiece.

[0010] FIG. 4 illustrates a side perspective view of another example stabilizing mouthpiece.

[0011] FIG. 5 illustrates a front plan view of another example stabilizing mouthpiece.

[0012] FIG. 6 illustrates a rear perspective view of another example stabilizing mouthpiece.

[0013] FIG. 7 illustrates a side perspective view of another example stabilizing mouthpiece.

[0014] FIG. 8 illustrates another side perspective view of another example stabilizing mouthpiece.

DETAILED DESCRIPTION

[0015] The terms anterior and posterior are used herein to refer to different areas on a mouthpiece and corresponding areas of a user’s mouth. Unless stated otherwise, the term anterior refers to a front area of a user’s mouth and the term posterior refers to a back area of a user’s mouth.

[0016] The directional terms “upward-facing”, “downward-facing”, “posterior-facing”, and “anterior-facing” are also used herein to describe the direction that various surfaces of the mouthpiece face when the mouthpiece is oriented within a user’s mouth. In this context, the term “posterior-facing” refers to a surface facing the back of the user’s mouth; “anterior-facing” refers to a surface facing the front of a user’s mouth; “upward-facing” refers to a surface that may face the top (e.g., upper teeth) of a user’s mouth; and “downward-facing” refers to a surface that may face the bottom (e.g., tongue and lower teeth) of a user’s mouth.

[0017] Although features of the implementations illustrated disclosed herein are primarily discussed with respect to a mouthpiece fitted for a user’s upper teeth, various features disclosed may also be useful for implementation in a stabilizing mouthpiece for a user’s lower teeth.

[0018] FIG. 1 illustrates a top perspective view of an example stabilizing mouthpiece 100. The stabilizing mouthpiece 100 includes a posterior portion 126 and an anterior portion 124. The posterior portion 126 underlies or substantially underlies a user’s molars (e.g., first molars, second molars, third molars) and one or more cuspid (e.g., cuspids, first bicuspids, second bicuspids) when the mouthpiece is in use. The anterior portion 124 is forward of the posterior portion 126 and underlies or substantially underlies the users incisors (e.g., central incisor, lateral incisors) and one or more cuspid when the mouthpiece 100 is in use.

[0019] The stabilizing mouthpiece 100 includes a central channel 102 formed by a base 114, an inner sidewall 104, and an outer sidweall 106. The central channel 102 is sized and shaped to receive and cradle the user’s upper teeth. The central channel 102 has a width (i.e., separation between the inner sidewall 104 and outer sidweall 106) such that the inner sidewall 104 and outer sidweall 106 may rest adjacent to or in contact with the sides of the user’s central teeth when the stabilizing mouthpiece 100 is in use.

[0020] When the user’s jaw relaxes, a grip between the upper and lower teeth “loosens” and conventional mouthpieces may become vulnerable to movement. However, the central channel 102 includes sets of upward-facing biased grips 120 and 122 that reduce or prevent either posterior or anterior sliding of the mouthpiece when the user’s grip is loosened. As used herein, the term grip refers to one or more
protrusions or indentations on the baseplate. The protrusions or indentations may be a variety of sizes and shapes. In FIG. 1, each set of the biased grips 120 and 122 includes three inclined “steps” that slant upward away from the base 114 with distance in the anterior direction. Consequently, the mouthpiece 100 may slide in the posterior direction more easily than the anterior direction when the mouthpiece is gripped between the upper and lower teeth. In another implementation, the biased grips 120 and 122 each include one or more inclined steps that slant upward away from the base 114 with distance in the posterior direction. In other implementations, a set of grips may include any number of such steps (e.g., ridges), which may be biased or unbiased.

[0021] The biased grips 120 and 122 are positioned within the posterior portion 126 within opposite ends of the u-shaped channel 102. Between the grips 120 and 122, the base 114 has a central portion that is substantially flat along a surface 116 within the u-shaped channel 102. When the stabilizing mouthpiece 100 is in use, each of the stabilizing grips 120 and 122 underlies or substantially underlies one or more of the user’s top molars. In one implementation, the biased grips 120 and 122 underlie the rear-most top molars (e.g., the second or third top molars). In another implementation, the biased grips underlie one or more cuspsids or incisors.

[0022] The outer sidewall 106 may have a constant or variable height. To provide for comfort, stability, and/or ease of insertion, the height of the outer sidewall 106 may be greater than a height of the inner sidewall 104. In an implementation where the height of the outer sidewall 106 is variable, the height of the outer sidewall 106 is, at any point, greater than or equal to a corresponding height on the inner sidewall 104. In the same or another implementation, the height of the outer sidewall 106 increases with distance in the anterior direction along substantially the length of the stabilizing mouthpiece 100. In one implementation, the outer sidewall 106 has a maximum height in a region adjacent to a user’s central incisors and a minimum height in a region adjacent to the second or third molars. The outer sidewall 106 gradually decreases in height with distance between the region of maximum height and the region of minimum height.

[0023] Similarly, the inner sidewall 104 may have a substantially constant height or a variable height. In one implementation, the height of the inner sidewall 104 is variable and decreases with distance in the anterior direction along substantially the length of the stabilizing mouthpiece 100 from a most posterior portion to a most anterior portion of the inner sidewall 104.

[0024] The mouthpiece 100 also includes a cleft groove 130 within the outer sidewall 106 that may substantially align with the user’s medial cleft (i.e., the vertical groove in the middle of the upper lip) when the mouthpiece 100 is in use.

[0025] According to one or more implementations, features of the stabilizing mouthpiece 100 can be molded to a user’s mouth for a customized fit. For example, the user may heat the stabilizing mouthpiece 100 and then bite down on opposing surfaces of the base 114 to further shape the base 114 and the grips 120 and 122 that rest against the user’s teeth.

[0026] A variety of materials may be used to construct the stabilizing mouthpiece 100 including, without limitation, foams, rubbers, plastics, etc. In one implementation, the stabilizing mouthpiece 100 is a dual-material structure with a harder outer shell (e.g., adjacent to or contacting the inside of the user’s cheeks and upper lip) and a more pliable inner shell (e.g., adjacent to or contacting the user’s upper teeth). In one such implementation, the central channel 102 is part of the “inner shell” and constructed of a different material than one or more other features belonging to an outer shell.

[0027] FIG. 2 illustrates a top perspective view of another example stabilizing mouthpiece 200. The stabilizing mouthpiece 200 includes a u-shaped baseplate 202 (rather than a u-shaped channel, as illustrated in FIG. 1). The u-shaped baseplate 202 has an inner edge 204 and an outer edge 206 that are each substantially planar to a substantially flat surface 214. The u-shaped baseplate 202 may rest between a user’s upper and lower teeth, preventing contact between the upper and lower teeth (e.g., preventing grinding when the user is sleeping). The u-shaped baseplate includes upward-facing biased grips 220 and 222 positioned within a posterior portion of the stabilizing mouthpiece 200 and on opposite ends of the u-shaped baseplate. Between the grips 220 and 222, the u-shaped base 202 is substantially flat along the surface 214. When the stabilizing mouthpiece 200 is in use, each of the stabilizing grips 220 and 222 underlies or substantially underlies one or more of the user’s top molars. In one implementation, the biased grips 220 and 222 underlie the rear-most top molars (e.g., the second or third top molars). In another implementation, the biased grips underlie one or more cuspsids or incisors. Other features of the stabilizing mouthpiece 200 with the u-shaped baseplate 202 may be the same or similar to FIG. 1 or to other implementations disclosed herein.

[0028] FIG. 3 illustrates a bottom perspective view of another example stabilizing mouthpiece 300. A downward-facing u-shaped baseplate 316 rests adjacent to or in contact with a user’s lower teeth when the stabilizing mouthpiece 300 is in use. An opposite surface of the mouthpiece (not shown) cradles and/or rests adjacent to the user’s upper teeth.

[0029] The downward-facing u-shaped baseplate 316 includes biased grips 320 and 322, which function to reduce forward and backward (i.e., anterior and posterior) sliding of the stabilizing mouthpiece 300 while the mouthpiece 300 positioned is within the user’s mouth. In particular, the grips 320 and 322 illustrated in FIG. 3 extend away from the downward-facing u-shaped baseplate 316 and slant toward the front of a user’s mouth to reduce posterior-to-anterior sliding of the stabilizing mouthpiece 300. In another implementation, the grips 320 and 322 slant in another direction (e.g., toward the back of the user’s mouth). In yet another implementation, the grips 320 and 322 are textured areas that do not “slant” but still provide a grippable surface to reduce movement of the mouthpiece in the anterior and/or posterior directions.

[0030] The biased grips 320 and 322 are positioned on opposite ends the downward-facing u-shaped baseplate 316 so as to each substantially overlie one or more of a user’s bottom molars. In one implementation, the biased grips 320 and 322 substantially overlie the rear-most bottom molars (e.g., the second or third bottom molars).

[0031] In this or another implementation, the stabilizing mouthpiece 300 has opposing biased grips (not shown) on an upward-facing surface of the u-shaped baseplate 316. The opposing biased grips are axially aligned with the biased grips 320 and 322. Specifically, the opposing grips may be adjacent to or in contact with the user’s top molars while the grips 320 and 322 are adjacent to or in contact with the user’s bottom molars. The opposing biased grips may be biased in the same or substantially the same direction as the biased grips 320 and 322. In one implementation, one or more of the opposing grips and/or biased grips 320 and 322 can be
molded to uniquely fit a user’s bite. For example, the user may heat the stabilizing mouthpiece 300, position the stabilizing mouthpiece 300 within his or her mouth, and bite down on the stabilizing mouthpiece 300 to further mold opposing surfaces of the downward-facing u-shaped baseplate 316, the opposing grips, and the biased grips 320 and 322.

[0032] In addition to the biased grips 320 and 322, the stabilizing mouthpiece 300 further includes two pairs of lateral shift guards, each pair including an inner lateral shift guard (e.g., inner lateral shift guards 336 and 338) and an outer lateral shift guard (e.g., outer lateral shift guards 334 and 340). Each of the inner lateral shift guards 336 and 338 is positioned along an inner edge of the downward-facing u-shaped baseplate 316. Each of the outer lateral shift guards 334 and 340 is positioned along an outer edge of the downward-facing u-shaped baseplate 316, opposite a corresponding inner lateral shift guard. When the mouthpiece 300 is in use, one or more of the user’s lower molars may rest between each pair of lateral shift guards (e.g., a pair of lateral shift guards 334 and 336), substantially reducing or preventing lateral movement of the mouthpiece 300 within the user’s mouth.

[0033] The stabilizing mouthpiece 300 further includes a bottom ridge 342 (i.e., a lower stabilizing ridge) substantially orthogonal to the downward-facing u-shaped baseplate 316, which protrudes toward the user’s bottom teeth when the stabilizing mouthpiece 300 is in use. The bottom ridge 342 spans a distance along the center of an inner edge of the u-shaped baseplate 316, proximal to the user’s upper front teeth. In operation, an anterior facing surface 318 of the bottom ridge 342 may rest adjacent to or in contact with the inside of the user’s lower front teeth (e.g., central and lateral incisors) to further reduce or prevent posterior-to-anterior movement of the stabilizing mouthpiece 300.

[0034] The stabilizing mouthpiece 300 is a dual-shell structure having an outer shell 330 and an inner shell visible through a number of openings (e.g., an opening 332) in the outer shell 330. In one implementation the outer shell 330 is made from a first, rigid material, while the inner shell (e.g., the inner shell visible through the opening 332) is made from a second, more pliable material. Although the openings in the outer shell 330 are shown to be substantially square or rectangular, a variety of shapes are contemplated.

[0035] FIG. 4 illustrates a side perspective view of another example stabilizing mouthpiece 400. The stabilizing mouthpiece 400 includes a posterior portion 426 and an anterior portion 424. The posterior portion 426 underlies or substantially underlies one or more of a user’s top molars and top cuspsids (e.g., cuspids, first bicuspids, second bicuspids), and the anterior portion 424 underlies or substantially underlies the user’s top incisors (e.g., central incisor, lateral incisors) and one or more top cuspsids. The stabilizing mouthpiece 400 includes a base (not shown) that connects an inner sidewall 404 to an outer sidewall 406, forming a u-shaped channel (not shown). The u-shaped channel is sized to substantially align with a user’s jawline and shaped to receive and cradle a user’s upper teeth.

[0036] In another implementation, the stabilizing mouthpiece 400 does not include the u-shaped channel. Rather, the stabilizing mouthpiece 400 includes a u-shaped baseplate without inner and outer sidewalls. While such an implementation may not protect the front of a user’s teeth from contact (e.g., a hit during a contact sporting event), such implementation may be worn, for example, while the user sleeps to prevent grinding of the upper and lower teeth.

[0037] In FIG. 4, the outer sidewall 406 gradually increases in height with distance in the anterior direction between a most posterior point on the outer sidewall 406 and a most anterior point on the outer sidewall 406. Thus, the height of the outer sidewall 406 is at a minimum in a region proximal to the rear-most molar and at a maximum in a region proximal to the user’s central incisors (i.e., two front teeth). The height of the outer sidewall 406 may vary according to design criteria (e.g., according to the size of a user’s mouth). However, in one implementation the outer sidewall 406 has a variable height that gradually increases from about 2 to about 5 millimeters between the most posterior point of the outer sidewall 406 and the most anterior point of the outer sidewall 406. The inner sidewall 404 may have a height that is substantially consistent or variable. In one implementation, the inner sidewall 404 increases in height with distance in the anterior direction between a most posterior point and a most anterior point of the inner sidewall 404. In one such implementation, the height of the inner sidewall 404 ranges between about 1 and about 3 millimeters.

[0038] The mouthpiece 400 is a dual-shell structure with an outer shell 430 made from a first, rigid material and an inner shell 442 made from a second, more pliable material. The outer shell 430 has a number of openings (e.g., an openings 432) through which the inner shell 442 is visible. The inner shell 442 nests snugly within the outer shell 430 and may be attached to the outer shell 440 in a variety of ways (e.g., adhesives, injection molding, etc.).

[0039] Additionally, the stabilizing mouthpiece 400 includes at least two lateral shift guards (e.g., a lateral shift guard 440) that extend away from a downward-facing u-shaped baseplate 416 of the mouthpiece and toward the user’s lower teeth. The lateral shift guards may be positioned along the outer edge of the downward-facing u-shaped baseplate 416 (e.g., axially aligned with the outer sidewall 406), such as the lateral shift guard 440, or positioned along an inner edge (not shown) of the downward-facing u-shaped baseplate 416 (e.g., axially aligned with the inner sidewall 404).

[0040] FIG. 5 illustrates a front perspective view of another example stabilizing mouthpiece 500. The stabilizing mouthpiece 500 includes a cleft groove 530, which may substantially align with a user’s medial cleft when the stabilizing mouthpiece 500 is in use. Additionally, the stabilizing mouthpiece 500 includes two pairs of lateral shift guards (e.g., a first pair 534 and 536 and a second pair 538 and 540), which reduce or prevent lateral movement of the stabilizing mouthpiece 500. Inner lateral shift guards 536 and 538 are each positioned along an inner edge of a downward-facing u-shaped baseplate 516 (e.g., axially aligned with a inner sidewall (not shown)) so as to rest adjacent to or in contact with an inside surface of one or more of the user’s lower molars. Similarly, each of the outer lateral shift guards 534 and 540 are positioned opposite a corresponding inner lateral shift guard and along an outer edge of the downward-facing u-shaped surface 516 (e.g., axially aligned with an outer sidewall 506) so as to rest adjacent to or in contact with an outside surface of one or more of a user’s lower molars.

[0041] In some implementations, one or more lateral shift guards or pairs of lateral shift guards are positioned adjacent to teeth that are not molars (e.g., cuspids or incisors). The mouthpiece 500 may include one or more outer lateral guards
without a corresponding inner lateral guard or one or more inner lateral guards without a corresponding outer lateral guard.

[0042] The height of the inner and outer lateral guards may be variable or constant. In one implementation, the height of the lateral shift guards is variable and ranges from a minimum height of about 2 millimeters to a maximum height of about 5 millimeters. In the same or another implementation, the height of the lateral shift guards increases with distance in the posterior-to-anterior direction. In one implementation, the outer lateral guards 534 and 540 have a maximum height that is the same or different from a maximum height of the inner lateral guards 536 and 538.

[0043] The length of the lateral shift guards may vary depending on design criteria. However, in one implementation the lateral shift guards are between 1.5 and 2 cm long. The u-shaped baseplate is may be about 9-10 cm long when measured along an inner edge and about 13-14 cm long when measured along an outer edge.

[0044] FIG. 6 illustrates a rear perspective view of another example stabilizing mouthpiece 600. The stabilizing mouthpiece 600 includes a u-shaped baseplate 614 that connects an inner sidewall 604 to an outer sidewall 606, forming a u-shaped channel 602. The u-shaped channel 602 is sized to substantially align with a user’s jawline and shaped to receive and cradle a user’s upper teeth.

[0045] The stabilizing mouthpiece 600 includes an inner shell 642 and an outer shell 630. In one implementation, the inner shell 642 is made of a first, pliable material and the outer shell 630 is made of a second, more ridged material. In another implementation, the inner shell 642 and outer shell 630 are made of an identical material. In yet another implementation, the inner shell 642 and the outer shell 630 are made of different materials that have substantially similar hardness values. The outer shell 630 may wrap around some or all of an anterior-facing surface (not shown) of the outer sidewall 606. When the stabilizing mouthpiece 600 is in use, a user’s upper teeth may rest within the stabilizing mouthpiece 600 and adjacent to or in contact with the inner shell 642. The outer shell 630 may rest adjacent to or in contact with a user’s lower teeth.

[0046] The stabilizing mouthpiece 600 further includes a bottom ridge 642 that extends along an inner edge of downward-facing u-shaped baseplate 616 of the stabilizing mouthpiece 600 and toward a user’s bottom teeth. A posterior-facing surface of the bottom ridge 642 is flush (e.g., substantially smooth, aligned with) the inner sidewall 604. An anterior-facing surface (not shown) of the bottom ridge 642 may rest adjacent to or in contact with an inside (posterior-facing) surface of the user’s lower front teeth to inhibit or prevent forward movement of the stabilizing mouthpiece 600 out of the user’s mouth. The dimensions of the lower ridge 642 may vary; however, in one implementation, the lower ridge 642 has a height (e.g., distance in a direction orthogonal to the base 614) of approximately 1 to 2 mm and a longitudinal length of approximately 2.5 to 3.5 cm). The inner wall 604 has a total length of between about 9 and 10 cm. In one implementation, the center of the ridge is adjacent to a most anterior point of the inner wall. In another implementation, the center of the ridge is adjacent to a most anterior point on an inner edge of the u-shaped baseplate.

[0047] The stabilizing mouthpiece 600 includes two pairs of lateral shift guards which each include an inner lateral shift guard (e.g., inner lateral shift guards 636 and 638) and a corresponding outer lateral shift guard (e.g., outer lateral shift guards 634 and 640, respectively). The inner lateral shift guards 636 and 638 are each positioned along an inner edge of the surface 616 (e.g., axially aligned with the inner sidewall 604) so as to rest adjacent to or in contact with an inside surface of one or more of the user’s lower molar(s). Similarly, each of the outer lateral shift guards 634 and 640 are positioned opposite the corresponding inner lateral shift guard and along an outer edge of the surface 616 (e.g., axially aligned with the outer sidewall 606) so as to rest adjacent to or in contact with an outside surface of one or more of a user’s lower molar(s).

[0048] Biased grips 620 and 622 are included within either end of the central channel 602. The biased grips 620 and 622 are ridges that slant upward, away from the base 614 with distance in the posterior-to-anterior.

[0049] In one implementation, the stabilizing mouthpiece 600 does not include the inner sidewall 604 and outer sidewall 606; therefore, there is no u-shaped channel 602. Rather, there is a u-shaped baseplate (not shown) in place of the u-shaped channel 602. In such an implementation, other features of FIG. 6 (e.g., the biased grips 620 and 622, the bottom ridge 642, the lateral shift guards 636, 634 638, and/or 640) may be included in any combination.

[0050] FIG. 7 illustrates a side perspective view of another example stabilizing mouthpiece 700. The stabilizing mouthpiece 700 includes a base 714 that connects an inner sidewall 704 to an outer sidewall 706, forming a u-shaped channel 702. The u-shaped channel 702 is sized to substantially align with a user’s jawline and shaped to receive and cradle a user’s upper teeth.

[0051] The stabilizing mouthpiece 700 also includes a bottom ridge 742 that extends along an inner edge of a downward-facing u-shaped baseplate 716 (e.g., a surface of the base 714 that is opposite the channel 702) and toward a user’s bottom teeth. An anterior-facing surface (not shown) of the bottom ridge 742 may rest adjacent to or in contact with the posterior-facing surface of the user’s lower front teeth.

[0052] The stabilizing mouthpiece 700 includes two pairs of lateral shift guards which each include an inner lateral shift guard (e.g., inner lateral shift guards 736 and 738) and a corresponding outer lateral shift guard (e.g., outer lateral shift guards 734 and 740, respectively). The inner lateral shift guards 736 and 738 are each positioned along an inner edge of the downward-facing u-shaped baseplate 716, axially aligned with the inner sidewall 704. The outer lateral shift guards 734 and 740 are positioned opposite a corresponding inner lateral shift guard and along an outer edge of the downward-facing surface 716, axially aligned with the outer sidewall 706. Consequently, the inner and outer lateral shift guards may rest adjacent to or in contact with inner and outer surfaces, respectfully, of one or more of a user’s lower molar(s).

[0053] Biased grips 720 and 722 are included proximal to opposite ends of the downward-facing u-shaped baseplate 716. The biased grips 720 and 722 each include a number of inclined “steps” that slant away from the base with distance in the anterior direction. The height of each of the inclined steps may vary in various implementations; however, in one implementation each of the inclined steps reaches a maximum distance of about 1 mm away from the surface 716.

[0054] FIG. 8 illustrates another side perspective view of another example stabilizing mouthpiece 800. The stabilizing mouthpiece 800 includes a u-shaped base 814 that connects an inner sidewall 804 to an outer sidewall 806, forming a
A bottom ridge 842 extends orthogonally from an inner edge of the u-shaped baseplate 814 and toward a user’s bottom teeth. An anterior-facing surface 816 of the bottom ridge 842 may rest adjacent to or in contact with the posterior-facing surface of the user’s lower front teeth so that the user’s lower teeth effectively prevent movement of the stabilizing mouthpiece 800 in the anterior direction (e.g., out of the user’s mouth).

The stabilizing mouthpiece 800 also includes two pairs of lateral shift guards (e.g., a first pair 834 and 836; and a second pair 838 and 840). The lateral shift guards 836 and 838 are each positioned along an inner edge of the surface 816 so as to rest adjacent to or in contact with an inside surface of one or more of the user’s lower molars. Similarly, each of the lateral shift guards 834 and 840 are positioned opposite the corresponding inner lateral shift guard and along an outer edge of the surface 816 so as to rest adjacent to or in contact with an outside surface of the user’s lower molars. Biased grips 820 and 822 are included along the surface 816, and each include a number of inclined “steps” that slant away from the base with distance in the anterior direction.

The features discussed with respect to each of the implementations disclosed herein are a matter of choice and may depend on the materials utilized and/or design criteria of a given system. The above specification, examples, and data provide a complete description of the structure and use of exemplary implementations of the invention. Since many implementations of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

What is claimed is:

1. A mouthpiece comprising:
   a u-shaped baseplate having a surface with substantially flat central portion; and
   at least one set of grips positioned on the surface, each set of grips proximal to an end of the u-shaped baseplate.
2. The mouthpiece of claim 1, further comprising:
   an inner wall and an outer wall adjacent to opposite sides of the u-shaped baseplate, forming a u-shaped channel.
3. The mouthpiece of claim 1, wherein the substantially flat central portion is in a same plane as inner and outer edges of the u-shaped baseplate.
4. The mouthpiece of claim 1, wherein the at least one set of grips further comprises:
   a first set of grips on the surface proximal to a first end of the u-shaped baseplate; and
   a second set of grips on the surface proximal to a second opposite end of the u-shaped baseplate.
5. The mouthpiece of claim 1, wherein the at least one set of grips further comprises:
   a first set of grips on the surface of the u-shaped baseplate; and
   a second set of grips on an opposite surface of the u-shaped baseplate.
6. The mouthpiece of claim 1, wherein the grips are biased grips protruding away from the u-shaped baseplate and in a posterior direction.
7. The mouthpiece of claim 1, wherein the grips are biased grips protruding away from the u-shaped baseplate and in an anterior direction.
8. The mouthpiece of claim 1, wherein the at least one set of grips further comprises:
   a first set of grips on the surface of the u-shaped baseplate and proximal to a first end of the u-shaped baseplate; and
   a second set of grips on an opposite surface of the u-shaped baseplate proximal to a first end of the u-shaped baseplate; and
   a third set of grips on an opposite surface of the u-shaped baseplate proximal to the first end of the u-shaped baseplate; and
   a fourth set of grips on the opposite surface of the u-shaped baseplate proximal to the second opposite end of the u-shaped baseplate.

9. The mouthpiece of claim 1, wherein one of the at least one set of grips contacts at least one upper molar when the mouthpiece is in use.
10. The mouthpiece of claim 1, wherein one of the at least one set of grips contacts at least one lower molar when the mouthpiece is in use.
11. The mouthpiece of claim 1, wherein the mouthpiece has at least one surface that is moldable.
12. A mouthpiece comprising:
   a u-shaped baseplate;
   a first set of biased upper grips on a first surface of the u-shaped baseplate;
   a first set of biased lower grips on a second opposite surface of the u-shaped baseplate, wherein the first set of biased upper grips is axially aligned with the first set of biased lower grips.
13. The mouthpiece of claim 12, further comprising:
   a second set of biased upper grips on the first surface of the u-shaped baseplate; and
   a second set of biased lower grips on the second surface of the u-shaped baseplate, wherein the second set of biased upper grips is axially aligned with the second set of biased lower grips.
14. The mouthpiece of claim 12, wherein the first set of biased upper grips is proximal to a first end of the u-shaped baseplate and the second set of biased upper grips is proximal to a second opposite end of the u-shaped baseplate.
15. The mouthpiece of claim 13, wherein each of the sets of biased upper grips and biased lower grips contact molars when the mouthpiece is in use.
16. The mouthpiece of claim 12, further comprising:
   an inner wall and an outer wall adjacent to opposite sides of the u-shaped baseplate, forming a u-shaped channel.
17. The mouthpiece of claim 12, wherein the first surface has a substantially flat central portion that is in a same plane as inner and outer edges of the u-shaped baseplate.
18. A method comprising:
   heating a mouthpiece with a u-shaped baseplate to soften a surface, the surface having a substantially flat central portion and at least one set of grips proximal to an end of the u-shaped baseplate; and
   aligning the u-shaped baseplate with upper teeth of a user; and
   biting down on the mouthpiece mold the at least one set of grips to the upper teeth.
19. The method of claim 18, wherein the at least one set of grips further comprises:
   a first set of grips on the surface of the u-shaped baseplate proximal to a first end of the u-shaped baseplate; and
   a second set of grips on the surface of the u-shaped baseplate proximal to an opposite end of the u-shaped baseplate.
20. The method of claim 18, wherein the at least one set of grips further comprises:
   a first set of grips on the surface of the u-shaped baseplate; and
   a second set of grips on an opposite surface of the u-shaped baseplate.