A dental guard has a first portion which is molded or shaped to conform to the teeth of either one of the upper or lower jaw, a second portion which is a resilient material having passages therethrough to permit passage of air, and a third portion adapted for contact with the other one of the upper or lower jaw. The dental guard provides enhanced TMJ stability, protects teeth, allows air flow for breathing, protects the airway from foreign objects, and allows compression in case of impact or necessity of swallowing.
AWE JAW MOUTH GUARD

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

FIELD OF THE INVENTION

[0003] The present invention relates to a jaw mouth guard (also referred to as a mouth piece), particularly for use as a mouth guard with an enlarged protective material permitting flow through of air for facilitating breathing.

BACKGROUND OF THE INVENTION

[0004] Mouth guards are known for protecting the jaw and teeth during athletic activities. Such mouth guards employ a resilient material for separating the upper and lower jaws so that an impact reduces potential damage to the teeth and the jaws.

[0005] Dental night guards are also known in the art. These types of mouth guards are intended to prevent wear and breakage of teeth from grinding. In use, a member is molded or otherwise fitted to either the upper set of teeth or the lower set of teeth.

[0006] However, for use in athletic activities, it is desirable to provide a substantial amount of cushioning material between the upper and lower jaws, yet too much such material would interfere with breathing and thereby may reduce the athletic effectiveness of the athlete. It is therefore a problem in the art to provide a mouth guard which provides a substantial amount of cushioning material between the jaws so as to protect the teeth and jaws without obstructing breathing of the wearer.

SUMMARY OF THE INVENTION

[0007] From the foregoing, it is seen that it is a problem in the art to provide a device meeting the above requirements. According to the present invention, a device is provided which meets the aforementioned requirements and needs in the prior art.

[0008] Specifically, the device according to the present invention provides a mouth guard having a substantial amount of cushioning material between the upper and lower jaws to protect a wearer such as an athlete, yet permitting airflow so as to protect the jaws without obstructing breathing of the wearer.

[0009] The device of the present invention provides a unique invention which has a first portion which is a molded or shaped portion which conforms to the teeth of either one of the upper or lower jaw, a second portion which is a resilient material having passages therethrough to permit passage of air, and a third portion adapted for contact with the other one of the upper or lower jaw.

[0010] The device of the present invention also provides enhanced temporomandibular joint (hereafter referred to as “TMJ”) stability, protects teeth, allows airflow for breathing, protects the airway from foreign objects, and also allows compression in case of impact or necessity of swallowing. The device of the present invention is moldable to conform to teeth in individuals, can come in different sizes, and can optionally be reinforced by use of titanium wire, and can optionally be internally tensioned by use of interior structural components.

[0011] The device of the present invention has additional features and advantages. By providing TMJ stability, it deactivates nerves and muscles aiding in more cognitive functions. The airway of the user remains unobstructed and airflow is significantly improved. The device of the present invention also permits increases oxygen and carbon dioxide exchange, and also aids in opening posterior soft tissues of the soft palate. The device of the present invention therefore finds use in football and all similar sports with all age groups, military, racing both motor and personal powered, dental market with TMJ and sleep apnea or snoring, among others.

[0012] Other objects and advantages of the present invention will be more readily apparent from the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a front perspective view of a mouth guard according to the present invention.

[0014] FIG. 2 is a rear perspective view of the mouth guard of FIG. 1, according to the present invention.

[0015] FIG. 3 is a front elevational view of the mouth guard of FIG. 1, according to the present invention.

[0016] FIG. 4 is a rear elevational view of the mouth guard of FIG. 1, according to the present invention.

[0017] FIG. 5 is a side elevational view of the mouth guard, as seen from the left of FIG. 3, according to the present invention.

[0018] FIG. 6 is a side elevational view of the mouthguard as seen from the right of FIG. 3, according to the present invention.

[0019] FIG. 7 is a top elevational view of the mouth guard of FIG. 1, according to the present invention.

[0020] FIG. 8 is a bottom elevational view of the mouth guard of FIG. 1, according to the present invention.

[0021] FIG. 9 is a sectional view taken along line 9-9 of FIG. 3, showing clearly the air passages.

DETAILED DESCRIPTION OF THE INVENTION

[0022] FIG. 1 is a front perspective view of a mouth guard 100. As seen in FIG. 1, the mouth guard 100 has a top portion 30, a central portion 20, and a bottom portion 40. The material used for the mouth guard 100 can be any material typically used for mouth guards in the sports equipment arts or in the dental arts.

[0023] It will be understood that the top portion 30 and the bottom portion 40 can be molded in known manner to conform to the shape of the teeth of the user. It is also contemplated that inserts (not shown) could similarly be shaped to conform to the shape of teeth of the user, and then those inserts could be attached to the respective ones of the top portion 30 and the bottom portion 40.

[0024] The mouth guard 100 in the preferred embodiment is composed of a relatively resilient material capable of absorbing shocks to the mouth of a user to prevent damage to the teeth and jaw of the user. The materials used in the mouth guard 100 are selected from those meeting the above needs, and known to be compatible with the human mouth. The materials of the mouth guard 100 can be uniform and molded as a unitary piece, or the mouth guard 100 can be assembled
from different pieces made of the same or different materials, that are attached together; and all such variations are contemplated as being within the scope of the present invention.

[0025] The central portion 20 of the mouthguard 100 has a body 22 with an array of openings 24 therethrough. The front surface of the body 22 is generally straight in a vertical direction, and is generally curved in an arc shape to conform to the pattern of teeth in a human mouth.

[0026] The openings 24 are generally hexagonal in cross section, and in a general honeycomb pattern. The openings 24 pass completely through the body 22 in a direction from front to back, to permit communication of air from the front side of the body 22 to a back side of the body 22.

[0027] Because of the curvature of the body 22, the openings 24 radiate inwardly in a direction generally normal to the front surface of the body 22. Further because of the curvature of the front surface of the body 22, the openings 24 are not uniformly shaped, inasmuch as they must radiate inwardly along a direction from front to back. For example, the openings 24 disposed slightly to the left or right of the center of the body 22 would diminish in size from front to back.

[0028] As shown in FIG. 1, the top portion 30 includes a front ridge 36, a rear ridge 32, a central recess 34, and a front surface 38. The top portion is generally curved in an arc shape to conform to the pattern of teeth in a human mouth. The recess 34 is adapted to receive the upper teeth of a person using the mouth guard 100, when the mouth guard 100 is inserted into the mouth of a user. The openings 24 serve as air passageways to facilitate breathing during use.

[0029] FIG. 2 is a rear perspective view of the mouth guard 100 of FIG. 1, according to the present invention. As seen in this view, the top and bottom portions are substantially similar, and the openings are visible in a rear surface 26 of the central portion 20 of the mouth guard 100.

[0030] FIG. 3 is a front elevational view of the mouth guard 100 of FIG. 1, according to the present invention, showing the top portion 30, the central portion 20, and the bottom portion 40. The general shape of the central portion 20 is clearly shown in this view. Here, the central portion 20 has a relatively narrow portion bounded by top and bottom edges 71, 72; a transitional region bounded between top and bottom transitional edges 73, 74; and maximum portion bounded between maximum portion edges 75, 76; an upper central transitional region bounded between upper central transitional edge portions 77, 79; and an upper central region bounded by an upper central region edge 78.

[0031] The right side of the mouth guard 100 has a similar shape to that of the above-described left side (as viewed in FIG. 3), and includes a maximum portion bounded between edges 80 and 76; a transitional region bounded between edges 81 and 84; and a narrow portion bounded between edges 82, 83.

[0032] FIG. 4 is a rear elevational view of the mouth guard 100 of FIG. 1, according to the present invention. A rear recess 10 having upper and lower walls 12 is shown disposed between the top portion 30 and the bottom portion 40. The top portion 30 is seen as having a central rear surface 33 and a top edge 31. The top portion 30 is seen as sloping from front to rear in this view. The bottom portion 40 has a rear surface 43 adjacent the central portion 20, and the bottom portion 40 has a rear lowermost surface 41. The rear view of the central portion 20 appears as a generally elongated ovoid shape having substantially identically shaped upper and lower edges.

[0033] FIG. 5 is a side elevational view of the mouthguard 100, as seen from the left of FIG. 3, according to the present invention.

[0034] FIG. 6 is a side elevational view of the mouthguard 100 as seen from the right of FIG. 3, according to the present invention.

[0035] FIG. 7 is a top elevational view of the mouth guard 100 of FIG. 1, according to the present invention.

[0036] FIG. 8 is a bottom elevational view of the mouth guard 100 of FIG. 1, according to the present invention.

[0037] FIG. 9 is a sectional view taken along line 9-9 of FIG. 3, showing clearly the air passages 24 and the body 22. FIG. 9 also shows other features of the device 100.

[0038] The device of the present invention provides a unique device which has its upper and lower portions that can be molded or shaped to conform to the teeth of either or both of the upper and/or lower jaws. The device of the present invention also provides enhanced temporomandibular joint (hereafter referred to as “TMJ”) stability, protects teeth, allows air flow for breathing, protects the airway from foreign objects, and allows compression in case of impact or necessity of swallowing. The device of the present invention is moldable to conform to teeth in individuals, can come in different sizes, and can optionally be reinforced by use of titanium wire, and can optionally be internally tensioned by use of interior structural components.

[0039] The device of the present invention has additional features and advantages. By providing TMJ stability, it deters nerves and muscles aiding in more cognitive functions. The airway of the user remains unobstructed and airflow is significantly improved. The device of the present invention also permits increases oxygen and carbon dioxide exchange, and also aids in opening posterior soft tissue of the soft palate. The device of the present invention therefore finds use in football and all similar sports with all age groups, military, racing both motor and personal powered, dental market with TMJ and sleep apnea or snoring, among others. The device of the present invention can also serve as a dental nightguard to protect teeth against grinding during sleep. The device can further be modified by providing reinforcing elements such as titanium wire and/or other structural reinforcing materials known to any one having skill in the dental arts.

[0040] In the following, it will be understood that different types of materials can be used, and different types of fastening means and securing means can be used. All such variations would be within the ambit of skill of anyone having skill in the dental arts, and all such variations are contemplated as being within the scope of the present invention.

[0041] The invention being thus described, it will be evident that the same may be varied in many ways by a routine in the applicable arts. Such variations are not to be regarded as a departure from the spirit and scope of the invention and all such modifications are intended to be included within the scope of the claims.

What is claimed is:
1. A mouth guard device for use in protecting teeth and jaws of a user, comprising:
   a first portion which is adapted to receive teeth of an upper jaw of the user,
   a second portion which is a resilient material having passages therethrough to permit passage of air to facilitate breathing by the user during use, and
   a third portion adapted to receive teeth of a lower jaw of the user.
2. The device of claim 1, wherein said second portion is composed of closely packed hollow tubular members adapted to permit passage of air therethrough.

3. The device of claim 2, wherein said hollow tubular members have walls with a hexagonal shape.

4. The device of claim 1 wherein at least one of the first portion and the third portion is reinforced by use of titanium wire.

5. The device of claim 1 wherein at least one of the first portion and the third portion is reinforced by use of titanium wire, and at least one of the first portion and the third portion includes is internally tensioned.

6. The device of claim 1 wherein said second portion has a honeycomb structure with hexagonal walls bounding air passages to permit flow of air.

7. The device of claim 1, wherein said second portion comprises a thin curved member.

8. The device of claim 7, where in said thin curved member has a curved shape having a longitudinal extend and a transverse extent which represents a height, and wherein said thin curved member includes opposed end portions and a mid-portion, wherein the mid-portion has a greater height than that of the opposed end portions.

9. The device of claim 1, wherein said second portion comprises a wedge-shaped body formed of a plurality of tubular elements having hexagonal shaped wall portions respectively bounding central air passages to permit the passage of air.

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