

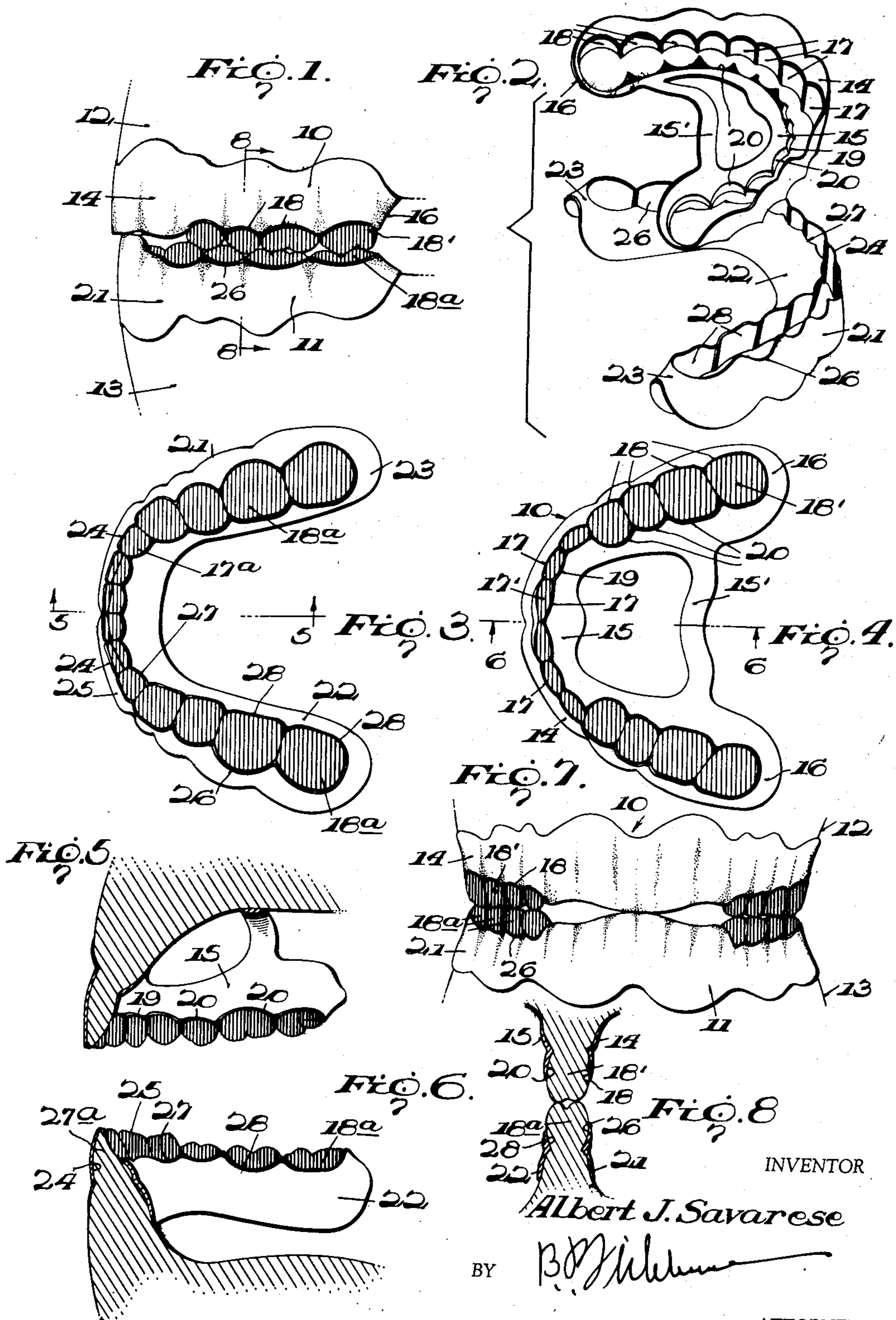
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MOUTHPIECE TO BE WORN BY ATHLETES

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MOUTHPIECE TO BE WORN BY ATHLETES

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2 Claims. (Cl. 128—136)

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My invention relates to a mouthpiece to be worn by football players, boxers, athletes or the like.

As is well known, dental injuries rank high in college football and other football. Attempts have been made to provide a mouthpiece to lessen such injuries. The prior mouthpiece is formed of rubber and is held in place by suction. A mouthpiece of this character is not satisfactory as it is so bulky that it is inconvenient to wear, interferes with normal breathing, chewing or the like, and renders talking difficult. In order that the mouthpiece be held in place, the mouth must be held closed. The holding action, due to suction, is not sufficiently strong to hold against severe blows.

In accordance with my invention, I provide a mouthpiece or oral appliance which is made to accurately fit a set of teeth and the gum upon which it is applied. The appliance is rigid and strong and securely anchored to the teeth and will thereby distribute a blow delivered at any one point over the entire group of teeth, thereby absorbing the shock and preventing injury. The device is thin and will not inconvenience the user nor prevent proper breathing, talking or the like. The device is of simple construction and may be made cheaply and may be conveniently and quickly applied like the average dental bridge.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout same,

Figure 1 is a side elevation of upper and lower oral appliances, applied to models,

Figure 2 is a perspective view of the upper and lower appliances, removed,

Figure 3 is a plan view of the lower oral appliance, applied to the model,

Figure 4 is a bottom plan view of the upper oral appliance, applied to the model,

Figure 5 is a vertical longitudinal section taken on line 5—5 of Figure 3,

Figure 6 is a similar view taken on line 6—6 of Figure 4,

Figure 7 is a front end elevation of the upper and lower appliances, applied to the models, and in the closed position, and,

Figure 8 is a transverse section taken on line 8—8 of Figure 1.

My invention embodies upper and lower oral appliances 10 and 11, shown applied to the teeth of upper and lower models 12 and 13. The models are formed from the stone or plaster of Paris, molded in the cavities of the impression elements, which cavities are made directly from the teeth and gums of the wearer, as is the practice in dentistry, in making bridges, plates or the like. The oral appliances are formed of a metal alloy which is capable of withstanding 1800 pounds pressure per square inch, and this enables

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portions of the appliances to be made of the metal alloy of 24 gage thickness. Each appliance is cast in one piece from a light-weight chrome cobalt alloy. This provides an appliance which is thin and shapely, avoiding undue bulk in the mouth.

The oral appliance 10 comprises a buccal U-shaped member 14 and a lingual U-shaped member 15, which are integrally connected at their rear ends by webs or loops 16. The lingual member 15 embodies a strip 15'. The buccal U-shaped member 14 is provided upon its lingual side with recesses or depressions 17, which receive the anterior teeth 17', and upon the same side with recesses 18 which receive the posterior teeth 18'. The anterior portion of the buccal member 14 extends down to the incisal ledge or bite of the anterior teeth 17', while the sides of the buccal member 14 terminate short of the occlusal ledge or bite of the posterior teeth 18'. The lingual U-shaped member 15 is provided upon its buccal side with recesses 19 to receive the anterior teeth 17' and upon the same side with recesses 20, to receive the posterior teeth 18'. The recesses 17, 18, 19 and 20 are curved or shaped in horizontal cross section to correspond to the shape or curvature of the teeth, forming sockets which accurately fit upon the teeth and have powerful mechanical holding engagement therewith. These recesses are also vertically inclined to correspond to the shape of the teeth, and the members 14 and 15 are also shaped to fit the gum. The accurate fit of the appliance upon the teeth securely locks such appliance to the teeth. The anterior portion of the lingual member 15 terminates short of the bite of the anterior teeth 17', and the sides of the lingual member 15 terminate short of the bite of the posterior teeth, but may be nearer such bites than the anterior portion.

The lower oral appliance 11 includes a buccal U-shaped member 21, and a lingual U-shaped member 22, integrally connected by bands or loops 23. The buccal member 21 is provided upon its lingual side with recesses 24 for receiving the lower anterior teeth 17a and upon the same side with recesses 26 for receiving the lower posterior teeth 18a. The buccal member 21 and lingual member 22 are inclined or curved in vertical section to fit the surface of the teeth and gum, as is obvious. The anterior recesses 24 extend up to the bite of the anterior teeth 17a and the recesses 26 terminate short of the bite of the posterior teeth 18a. The anterior recesses 27 terminate short of the bite of the anterior teeth and the recesses 28 terminate short of the bite of the posterior teeth. The lower appliance is similar to the upper appliance, and is made to accurately fit the teeth and gum and will have secure locking engagement with the

teeth. The anterior ends of the members 14 and 21 completely cover the anterior teeth.

The upper and lower oral appliances may be used together or separately. Each appliance not only protects the teeth but also protects the gums and jaws from fracture or injury. The appliance is not held in position by suction, but is held in place by mechanical retention, that is, engaging about and over the teeth and gums in the bone area beyond the gingival margin of the teeth. Due to the manner of application of my device, the appliance will remain in place upon the wearer when struck or jolted. The appliance is constructed to allow all posterior teeth to come through and beyond the appliance so as not to interfere with the natural occlusal ledge or bite. The anterior teeth have their buccal surface covered to the incisal ledge or bite, for protection, but their lingual surface is partly uncovered, not to interfere with the normal bite. The appliance is constructed to accurately fit the teeth and gums of the individual wearer and to engage over or about all of the teeth in the group, sitting down in position upon the gum at the periphery of the mouth. The appliance will not interfere with the normal use or bite of the teeth, and will allow the wearer to properly breathe, speak, eat, cough and expectorate, with ease, without removing the appliance. The wearer need not grip or hold the jaws together in order to hold either or both appliances in place. The mouth can be opened during violent exercise, such as running, and the appliance will not shift, loosen or fall out. The appliance adheres to the teeth and gum, blending to the tissue and gives the wearer a comfortable and stable feeling of protection. The appliance is so thin and adheres so closely to the gum that the tongue cannot well differentiate between the gum and appliance. The appliance is highly polished and will not tarnish and does not attract tartar and will not give the wearer a gagging sensation, which will cause expectoration. The appliance also serves as a splint for treating jaw fractures, to keep the jaw in position after being set. Due to the high degree of stiffness and strength of the appliance, any local blow or jolt to the teeth or jaw will be distributed over the entire area of the appliance and all teeth to which the appliance is attached, thereby greatly reducing the local effect of the blow at the point of impact which in turn drastically reduces or eliminates damage to the teeth or jaw.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A dental appliance to be worn upon the teeth of athletes or the like to protect the teeth from injuries due to blows applied to the face or the like, said appliance comprising rigid buccal and lingual substantially U-shaped members, each substantially U-shaped member being formed of a rigid thin sheet of metal material, the lingual substantially U-shaped member being arranged within the buccal substantially U-shaped member and spaced from the same for forming a passage for receiving the teeth, the open ends of the substantially U-shaped members being arranged in a posterior position, and the posterior ends of the buccal substantially U-

shaped member being rigidly secured to the posterior ends of the lingual substantially U-shaped member, the anterior portion of the buccal member being adapted to substantially completely cover the front of the anterior teeth and being adapted to extend from the gum to substantially the bite of the anterior teeth, the anterior portion of the lingual member being adapted to only partly cover the rear of the anterior teeth and being adapted to extend from the gum and to terminate short of the bite of the anterior teeth, the sides of the buccal and lingual members being adapted to extend over only a portion of the posterior teeth and adapted to extend from the gum and adapted to terminate short of the bite of the posterior teeth, the buccal and lingual members being provided with recesses for receiving the anterior and posterior teeth, said recesses being formed in opposed pairs and accurately shaped to fit the teeth so that the appliance is held in place by the engagement of said members about and over the teeth, the arrangement being such that the sides of the appliance are securely anchored to the posterior teeth against relative movement so that the anterior end of the appliance can offer powerful resistance to blows applied to the same.

2. A dental appliance to be worn upon the teeth of athletes or the like to protect the teeth from injuries due to blows applied to the face or the like, said appliance comprising rigid buccal and lingual substantially U-shaped members, each substantially U-shaped member being rigid and thin and formed of metal, the lingual substantially U-shaped member being arranged within the buccal substantially U-shaped member and spaced from the same for forming a passage for receiving the teeth, the open ends of the substantially U-shaped members being arranged in a posterior position, the posterior ends of the buccal substantially U-shaped member being rigidly secured to the posterior ends of the lingual substantially U-shaped member, the anterior portion of the buccal member being adapted to substantially completely cover the front of the anterior teeth and being adapted to extend from the gum to substantially the bite of the anterior teeth, the anterior portion of the lingual member being adapted to contact with the rear of the anterior teeth, the sides of the buccal and lingual members being adapted to contact with the posterior teeth, the buccal and lingual members being provided with recesses for receiving the anterior and posterior teeth, said recesses being arranged in pairs and the recesses of each pair being opposed, said recesses being accurately shaped to fit the teeth so that the appliance is held in place by the engagement of said members upon the teeth, the arrangement being such that the sides of the appliance are securely anchored to the posterior teeth against relative movement so that the anterior end of the appliance can offer powerful resistance to blows applied to the same.

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