Sept. 22, 1959 M. H. CHANDLER 2,904,791

COMBINED NOSE GUARD AND TEETH PROTECTOR

Filed Aug. 20, 1956

FIG. 1.

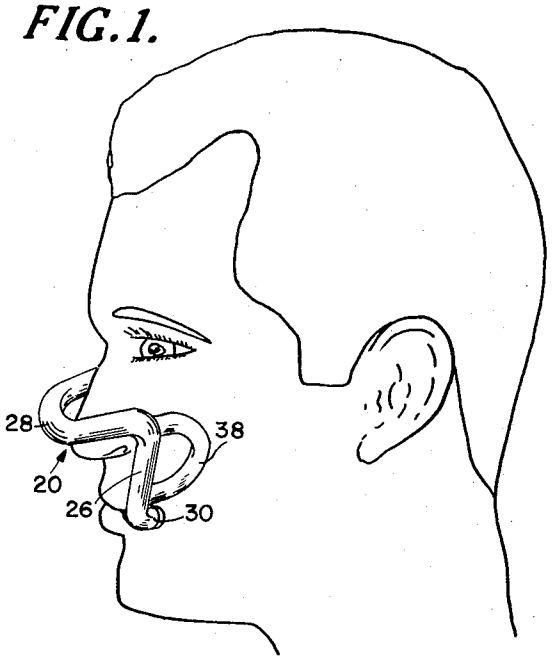


FIG. 2.

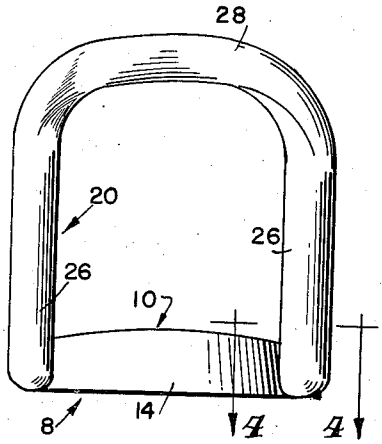


FIG. 5.

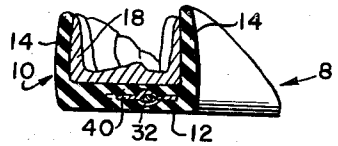


FIG. 4.

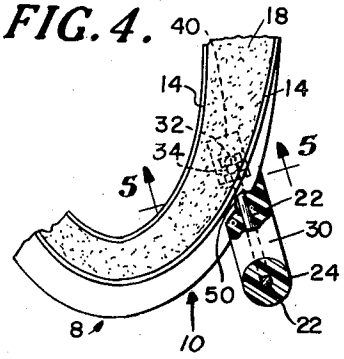


FIG. 3.

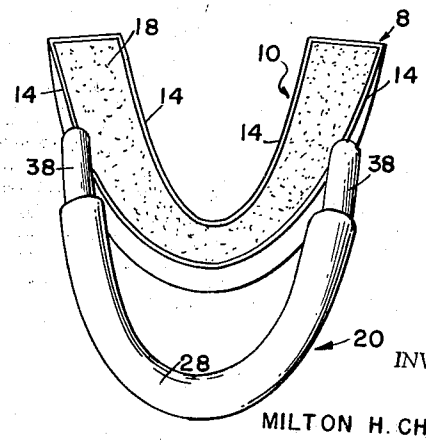
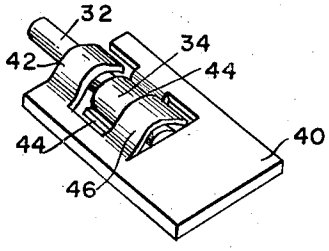


FIG. 6.



INVENTOR

MILTON H. CHANDLER

BY Cushman, Darby & Cushman

ATTORNEYS

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COMBINED NOSE GUARD AND TEETH PROTECTOR

Milton Haddock Chandler, Weslaco, Tex.

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7 Claims. (Cl. 2—9)

The present invention relates to protective devices and more particularly to protective devices adapted to be worn by athletes engaged in such contact sports as football, hockey, lacrosse and the like, for preventing injury to the nose and teeth.

It is an important object of the present invention to provide a novel combination of a nose guard and teeth protector, wherein the nose guard will be rigidly and sturdily supported in protective position by reason of its attachment to the teeth protector. The teeth protector preferably intended to be used in this combination is of the general type described in my prior patent, No. 2,705,492, granted April 5, 1955. Although the principles of this invention will be shown and described as applied to this type of teeth protector, it will be obvious to those skilled in the art that other types of teeth protectors may also be used in this combination.

Another object of this invention is to provide a new and improved nose guard that may be detachably secured, readily and quickly, to a teeth protector by a rigid connection.

A further object of the present invention is to provide a combined nose guard and teeth protector that will be compact in size and may be comfortably worn in protecting position.

A still further object is to provide a combined nose guard and teeth protector that will neither interfere with the oral or nasal respiration nor with the vision of the wearer, yet will effectively and satisfactorily protect both the nose and teeth.

Another object is to provide a novel nose guard equipped with shock absorbing means adapted to bear against the face of the wearer, whereby the shock absorbing means will resist inward movement of the nose guard against the nose when inward forces are exerted against the guard, thereby preventing painful or injurious contact.

An additional object is to provide a combined nose guard and teeth protector which will carry out the objects enumerated above while being simple in construction and inexpensive to manufacture. Further objects will be in part obvious and in part pointed out hereinafter.

The invention and the novel features thereof may best be made clear from the following description, and the accompanying drawings, in which:

Figure 1 is a side view of the head of a man wearing a combined nose guard and teeth protector constituting a preferred embodiment of my invention, showing the manner in which the nose guard is arranged when in its normal protecting position;

Figure 2 is a front elevational view of the protecting device;

Figure 3 is a plan view of the protecting device of Figure 2;

Figure 4 is a fragmentary sectional view taken generally along the line 4—4 of Figure 2, and showing an exemplary construction for removably attaching the nose guard to the teeth protector;

Figure 5 is a vertical sectional view taken along the line 5—5 of Figure 4; and

Figure 6 is a perspective view of the attachment construction of Figures 4 and 5 removed from the teeth protector and showing the structure of the nose guard adapted to be associated therewith.

Referring to the drawing in detail, the present invention contemplates the combination of a teeth protector, generally indicated at **8**, and a nose guard **20** adapted to be removably attached thereto. As already stated, the teeth protector **8** preferably is of the type disclosed in U.S. Letters Patent No. 2,705,492. The teeth protector **8**, best seen in Figures 3 and 5, includes a resilient generally U-shaped base member **10** channel shaped in cross section and having a base portion or bottom wall **12** and upwardly extending side walls **14** integral therewith. Arranged within the base member **10** is a filler **18** of thermo-setting plastic or the like for the purpose of receiving and retaining a dental impression as explained in the aforesaid patent. While the teeth protector **8**, for purposes of illustration, is shown and described herein for the upper dentures, it will be understood that the principles of this invention are readily applicable to a teeth protector for the lower dentures.

Referring now to Figures 1–4, the nose guard **20** preferably is constructed with an integral deformable and flexible core **22** made of a rod or bar of steel, plastic or the like, and covered with a tubular sheath **24** of a soft, resilent material such as rubber. The core **22** may be of any desired cross-sectional configuration, such as circular as shown, and the guard is formed to define a pair of laterally spaced, generally upright and parallel portions **26** joined at their upper ends by a forwardly and slightly upwardly extending curved or convex section **28**. The upright portions **26** are turned at their lower ends into rearwardly extending, substantially horizontal base portions **30** (see Figures 1 and 4). The base portions **30** terminate in free core ends **32** while the sheath **24** terminates slightly in advance of each of these ends. An annular bulge **34** may be formed on each core end **32**, adjacent the outer end thereof, for a purpose hereinafter to be described.

In forming the nose guard **20**, the core **22** may be deformed into the configuration described above before the sheath **24** is arranged thereon, or the sheath may be fitted over the core **22** before the latter is deformed. In either case, the diameter of the opening in the sheath preferably is larger than the largest transverse dimension of the core **22** to facilitate the insertion of the latter into the former. The ends of sheath **24** may be glued to the core **22** or an abutment means (not shown) may be arranged on core **22** adjacent each end of the sheath **24** to retain the sheath in proper position on the core.

Arranged on the rearward side of each upright portion **26** is an arcuate resilient member **38** (see Figures 1 and 3) which preferably is tubular and made of rubber or other resilient material. The members **38** are substantially coplanar with the upright portions **26** and base portions **30**, and are substantially coextensive with the upright portions, being suitably connected thereto adjacent the upper and lower ends thereof, for example by gluing.

Advertising now to the manner of removably attaching the nose guard **20** to the teeth protector **8**, an exemplary construction for effecting this attachment is illustrated in Figures 4–6. This construction comprises a rectangular plate **40** intended to be arranged in each leg of the teeth protector base member **10** for receiving and retaining the free core ends **32** of the nose guard base portions **30**. Plate **40** may be made of metal and is formed with juxtaposed arcuate flaps or tabs **42, 44, 46**

struck out from the plane of the plate in alternately opposite directions at longitudinally spaced points thereon, beginning at one end thereof, as best seen in Figure 6. These flaps are resilient and of substantially the same size, collectively defining a longitudinal blind hole or opening in the plate **40** extending partially between the ends thereof, for the reception of a core end **32** of the nose guard. This longitudinal opening is of a diameter slightly larger than that of core **22** but smaller than that of the bulge **34** for a purpose to become apparent as the description proceeds. One of the plates **40** may be horizontally arranged in the bottom wall **12** in each leg of the teeth protector base member **10**, with the longitudinal axis of the plate disposed at an acute angle to the teeth protector outer side wall **14** and the longitudinal opening formed by flaps **42, 44, 46** located adjacent said wall, as best seen in Figure 4.

A suitable slit or passageway is formed in the bottom wall **12**, which passageway is aligned with the longitudinal opening defined in the plate **40** and terminates at its outer end in an opening **50**. To effect the mounting of plate **40** within bottom wall **12**, the latter may be provided with an appropriate cavity or recess into which the plate **40** will be inserted and retained by any suitable means. Only one of the plates **40** is shown as arranged in a leg of the teeth protector, it being understood that another plate **40** is to be similarly arranged in the other leg of the teeth protector, whereby the nose guard may be removably attached thereto in a manner now to be described. The base portions **30** of the nose guard **20** are disposed in straddling relationship along the teeth protector outer side wall **14** with the portions **26** extending upwardly therefrom (as seen in Figures 2 and 3) and each free core end **32** of the guard is then inserted into the corresponding adjacent opening **50** in the said wall **14** and pushed into the longitudinal opening defined in the plate **40**. As the core end **32** is moved axially into the plate opening, the former will move freely until the forward end of the bulge strikes the first flap **42** or until it becomes wedged between the first and second flaps **42, 44** due to the smaller diameter of the opening defined by these flaps. At this point, a greater inward push or force is applied to the nose guard **20** to move the end **32** farther into the plate opening, whereby the flaps **42, 44** will be deflected outwardly by the bulge **34** to enlarge the diameter of the opening which they define.

The length of the plate opening and the size of the flaps are so constructed and arranged that when the outermost part of the core end **32** of the nose guard reaches the end of said opening and abuts the plate (as seen in Figure 6) the front flap **42** will spring back to its original position and the bulge **34** will be firmly locked or retained between the first and last flaps **42, 46** since the plate opening will once again be smaller than the diameter of the bulge **34**. The axial length of bulge **34** is approximately equal to the distance between flaps **42, 46** so as to have little or no axial movement relative to the plate when locked therein.

With both core ends **32** of the nose guard assembled with the plates **40**, as described above, the nose guard will be disposed in an upright position as appears in Figures 2 and 3 and the combined protecting device is now ready to be worn. The teeth protector **8** is placed in the mouth in the customary manner, with the upper dentures being received in the channel of the base member **10**. The teeth protector **8** is then held in the mouth by the teeth of the wearer and the nose guard **20** will accordingly be disposed in a nose protecting position, as seen in Figure 1, being firmly and rigidly maintained in such position by virtue of its connection with the teeth protector. In this position, the nose guard upright portions **26** are on either side of the nose to protect it from lateral blows or impacts and the curved section **28** extends around the bridge of the nose, protecting it from head-on blows or impacts, while nasal and oral respiration and vision are not impaired by the combined device. Under some circumstances, it might be preferable to attach the guard **20** to the teeth protector **8** after the latter is inserted in the mouth.

Additionally, the arcuate members **38** rest against the face, on either side of the nose in the vicinity of the cheekbones, and serve to provide additional support for the nose guard while functioning as a shock or impact absorber. This latter function will involve a deflection or distortion of members **38** against the wearer's face when forces are exerted on the nose guard causing the latter to be moved inwardly. Such deflection will offer resistance to continued inward movement of the nose guard and prevent such movement under most conditions. Due to the resiliency of members **38**, no harmful pressures will be transmitted to the face of the wearer if the nose guard moves slightly inwardly, since the deflection of these members against the face will serve to absorb the impacts.

It should be noted that the illustrated construction for attaching the nose guard **20** to the teeth protector will effectively retain the two in assembled relation when connected as described, and only outward pulls on guard **20**, sufficient to cause the core end **32** to deflect plate flaps **42, 44**, will cause the two devices to be separated. Inward, upward and downward blows on the guard **20** will not detach the latter from the teeth protector. Inasmuch as outward forces or pulls are infrequently experienced in the various contact sports, the possibility of inadvertent detachment of the nose guard during competitive action is extremely remote. The nose guard, however, may be readily detached, to permit use of the teeth protector separately.

If desired, the plates **40** may be arranged at the top of the teeth protector bottom wall **12**, underneath the filler **18**. In this case, a covering could be arranged over the plate opening to prevent the filler **18** from entering said opening when the filler is in a plastic state. As will be evident, other means for detachable engagement of the nose guard to the teeth protector, for example bayonet joint structures, may be utilized. If desired for special applications, the nose guard and teeth protector may be permanently connected.

The nose guard **20** also may take other forms than that shown; for example, the arcuate members **38** may be of a different configuration or omitted entirely, while additional upright portions **26** and convex sections **28** may be employed, or a perforated convex guard plate could be arranged between the upright portions **26**. However, it will be noted that the structure described in detail is simple and inexpensive in construction, in addition to being effective in use and easily handled.

It will thus be seen that there has been provided, by this invention, a combined protecting device in which the various objects hereinabove set forth, together with many practical advantages, are successfully achieved. As various possible embodiments may be made of the mechanical features of the present invention, such as those mentioned, all without departing from the scope thereof, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawing is to be interpreted as illustrative, and not in a limiting sense.

I claim:

1. A protective device of the character described comprising a teeth protector and a nose guard secured thereto, said nose guard including means adapted to extend along the sides of and across the nose of a wearer, and said teeth protector including a generally U-shaped base member having a bottom wall and inner and outer side walls extending upwardly therefrom, said walls defining a U-shaped cavity adapted to receive a row of dentures, and said nose guard means comprising a frame member having a substantially horizontally disposed upper curved section and a plurality of vertically extending spaced guard portions depending from said curved section and wherein

means are provided for detachably securing the nose guard to the teeth protector.

2. The structure defined in claim 1 wherein the detachable securing means comprises means arranged on the lower ends of the spaced guard portions and cooperating means in the bottom wall of the teeth protector.

3. The structure defined in claim 2 wherein shock absorbing means are provided on the rearward side of the spaced guard portions, said latter means abutting against the face of the wearer.

4. A protective device of the character described comprising a teeth protector and a nose guard secured thereto, said nose guard including an integral frame member made of a stiff but deformable rod and a resilient sheath enclosing said rod, said frame member having a pair of spaced upright guard portions adapted to extend along the sides of the nose of a wearer, said portions being joined at their upper ends by a forwardly extending convex guard section and terminating in lower, rearwardly extending free ends, said teeth protector including a generally U-shaped base member having a bottom wall and inner and outer side walls extending upwardly therefrom, said walls defining a U-shaped cavity adapted to receive a row of dentures.

5. The structure defined in claim 4 wherein the bottom wall of the teeth protector is provided with means cooperating with the free lower ends of the guard portions for detachably securing the nose guard to the teeth protector.

6. The structure defined in claim 4 wherein the spaced guard portions are substantially parallel and coextensive, and shock absorbing means being provided on the rearward side of said guard portions, said latter means abutting against the face of the wearer.

7. The structure defined in claim 6 wherein the shock absorbing means comprises a resilient arcuate member for each guard portion and substantially coextensive therewith.

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