US005129108A

United States Patent [19]

Copeland et al.

[11] Patent Number: 5,129,108

[45] Date of Patent: Jul. 14, 1992

[54] **PROTECTIVE HEADGEAR AND DETACHABLE FACE PROTECTOR**

[75] Inventors: **Steve Copeland**, Pickering; **Roger Ball**, Toronto, both of Canada

[73] Assignee: **Itech Sport Products Inc.**, Ville St-Laurent, Canada

[21] Appl. No.: **815,037**

[22] Filed: **Dec. 31, 1991**

Related U.S. Application Data

[62] Division of Ser. No. 616,068, Nov. 20, 1990, Pat. No. 5,093,936.

[51] **Int. Cl.**[5] **A42B 3/20**

[52] **U.S. Cl.** **2/424**; 2/9

[58] **Field of Search** 2/9, 10, 15, 181, 182.1, 2/182.3, 182.8, 183, 410, 411, 412, 416, 417, 418, 419, 420, 423, 424, 425

[56] **References Cited**

U.S. PATENT DOCUMENTS

631,880	8/1899	Ross	2/418
2,850,740	9/1958	Adams	2/9
2,946,063	7/1960	Boyer	2/418
3,221,340	12/1965	Joffe	2/417
3,239,842	3/1966	Marchello	2/423
3,329,968	7/1967	Gordon	2/418
3,471,865	10/1969	Molitoris	2/423
3,471,866	10/1969	Raney	2/418
3,513,481	5/1970	Nickerson	2/418
3,783,450	1/1974	O'Connor	2/425
3,787,894	1/1974	Goodman, Jr.	2/418
3,925,821	12/1975	Lewicki	2/425
4,021,858	5/1977	Neeld et al.	2/9
4,024,587	5/1977	Barford	2/424
4,028,743	6/1977	Christensen	2/9
4,031,564	6/1977	Wood	2/9
4,689,836	9/1987	Vitaloni	2/9

FOREIGN PATENT DOCUMENTS

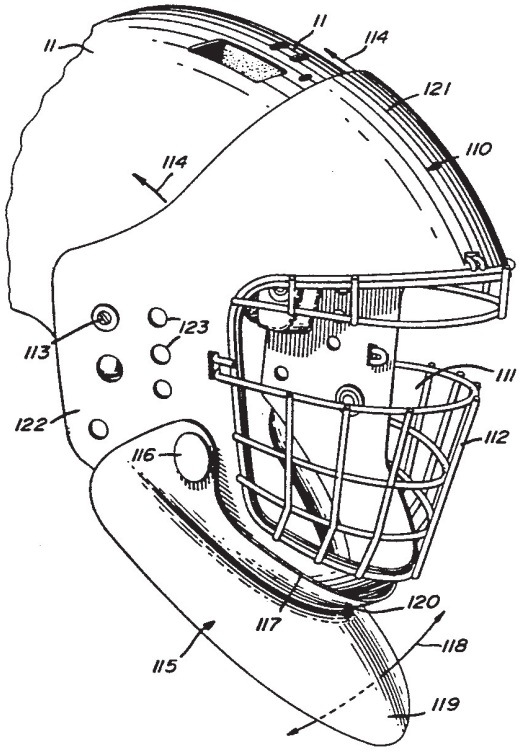
33057	8/1981	European Pat. Off.	2/425
2846636	4/1980	Fed. Rep. of Germany	2/424
2462880	3/1981	France	2/424
339469	10/1942	Italy	2/416
512106	8/1939	United Kingdom	2/9
8200243	2/1982	World Int. Prop. O.	2/424

Primary Examiner—Werner H. Schroeder
Assistant Examiner—Diana L. Biefeld
Attorney, Agent, or Firm—Oblon, Spivak, McClelland, Maier & Neustadt

[57] **ABSTRACT**

A hockey goalie protective headgear comprised of a helmet member for protecting a wearer's head. A plastic frame member having a forehead section, opposed side sections and a lower chin band section is also provided. A face opening is defined between the sections. A face guard is secured in the face opening. A pivoting throat guard is formed as a solid molded piece, and is secured to the opposed side sections by pivot connectors and is pivotal from the lower chin band section of the frame.

11 Claims, 8 Drawing Sheets



REVELYST 1044

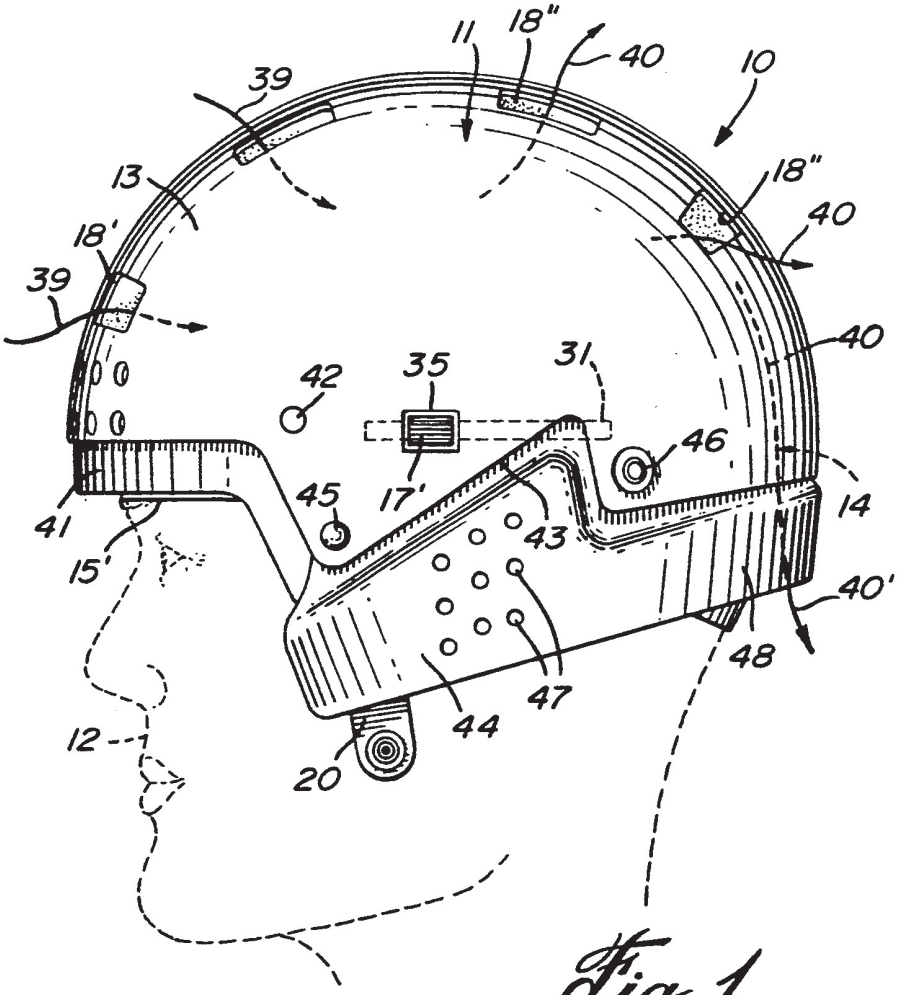

11
18"
40
10
39
13
18"
40
18'
39
40
42
35
31
46
45
17'
43
14
41
15'
40'
48
47
44
12
20

Fig. 1

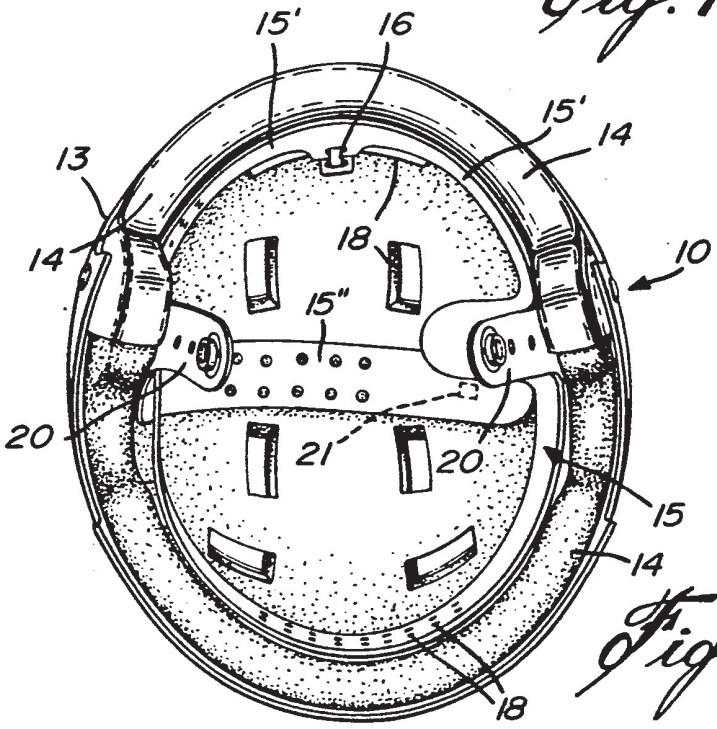

15'
16
15'
14
13
18
10
14
15"
20
21
20
15
14
18

Fig. 2

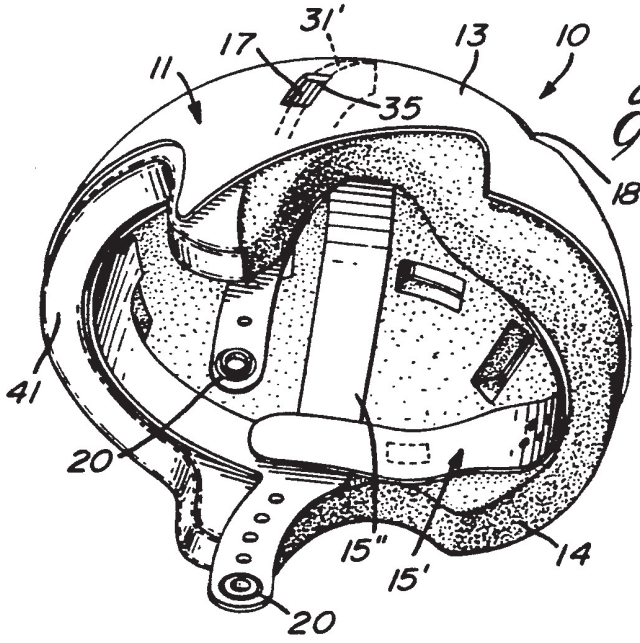


Fig. 3

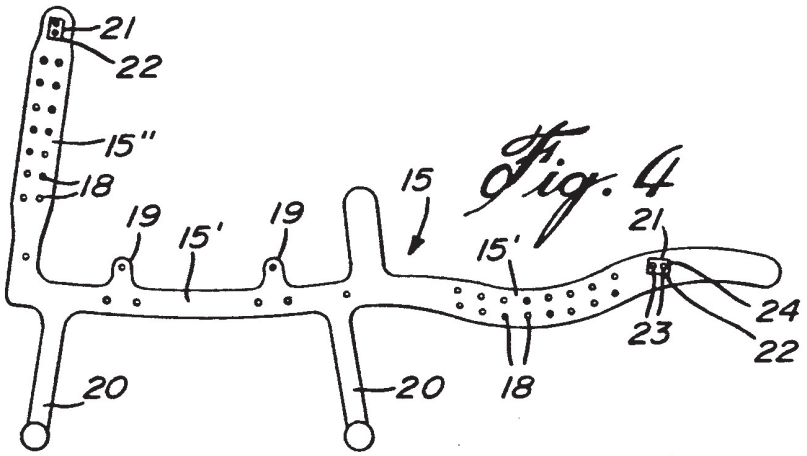
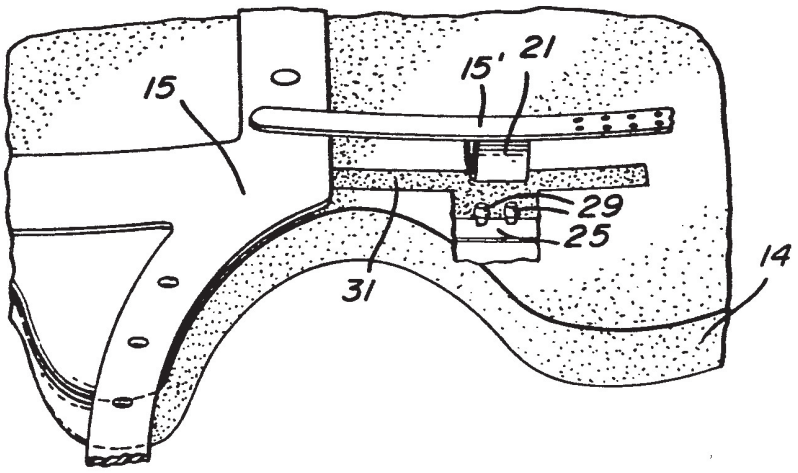


Fig. 4

Fig. 5



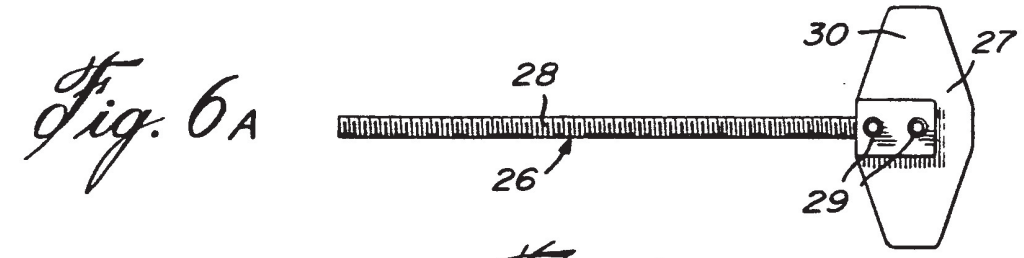


Fig. 6A

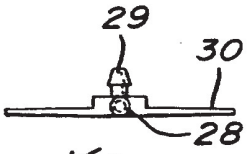


Fig. 6C

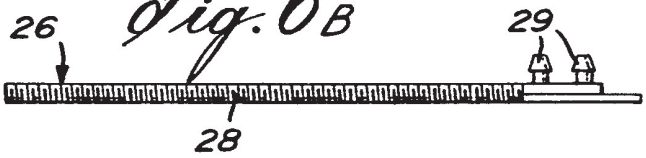


Fig. 6B

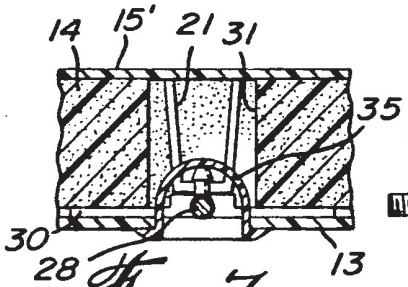


Fig. 7C

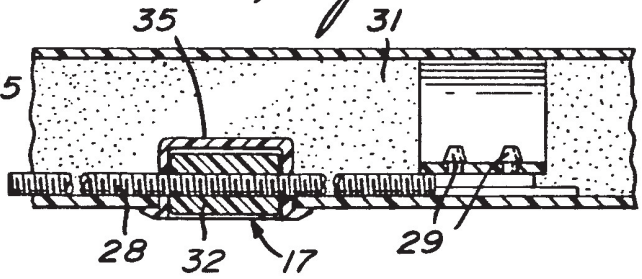


Fig. 7B

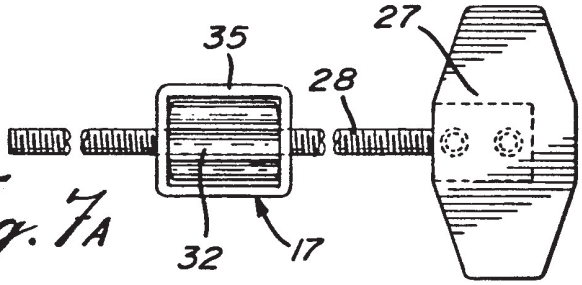


Fig. 7A



Fig. 8B

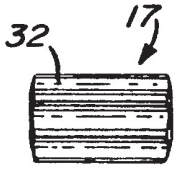


Fig. 8A

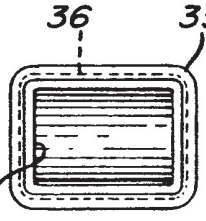


Fig. 9B

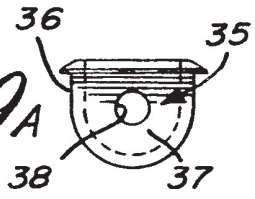


Fig. 9A

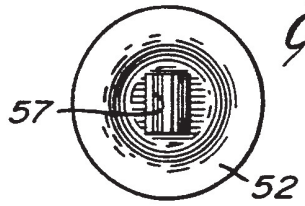


Fig. 10B

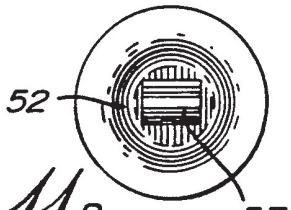


Fig. 11B

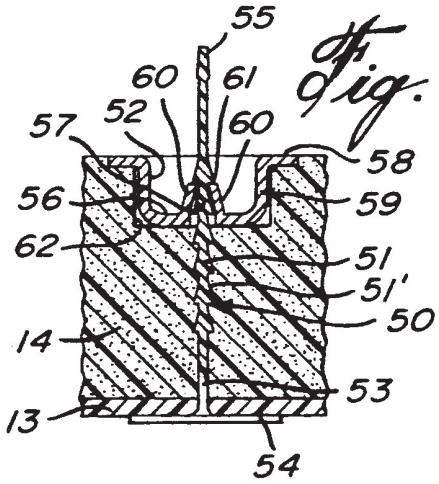


Fig. 10A

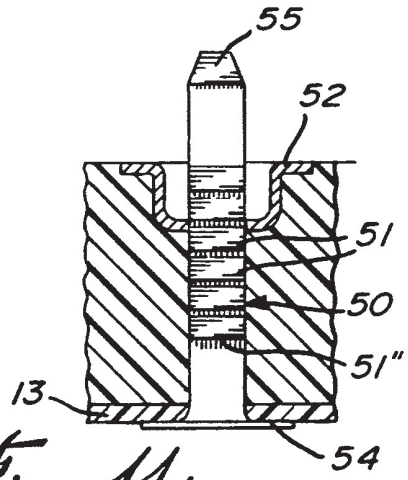


Fig. 11A

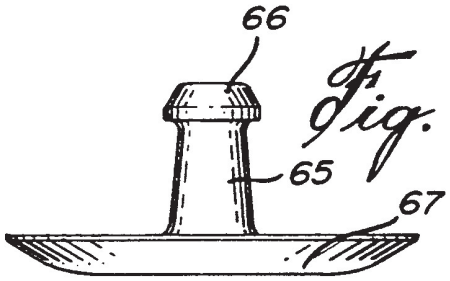


Fig. 13

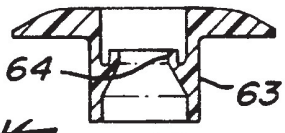


Fig. 12

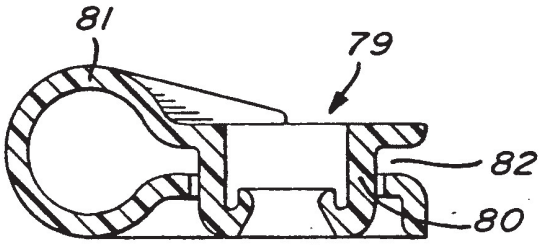


Fig. 14B

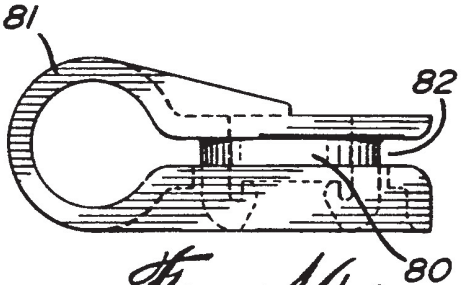


Fig. 14A

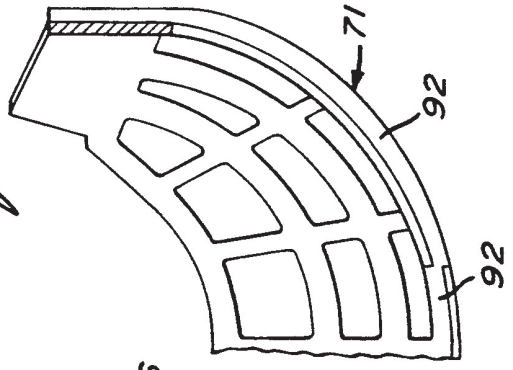


Fig. 17

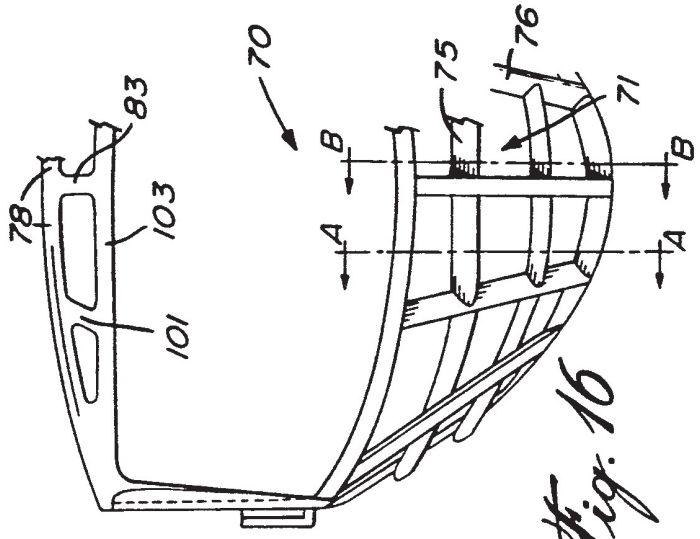


Fig. 16

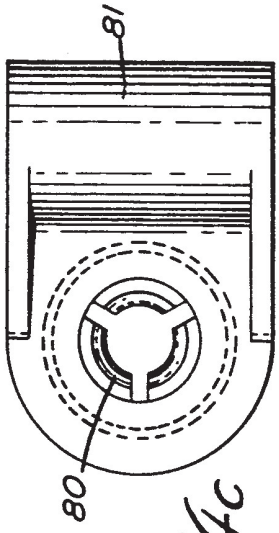


Fig. 14c

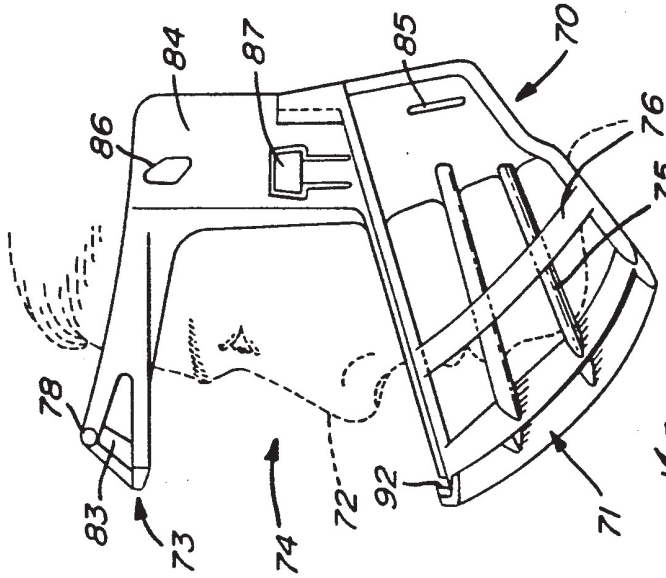


Fig. 15

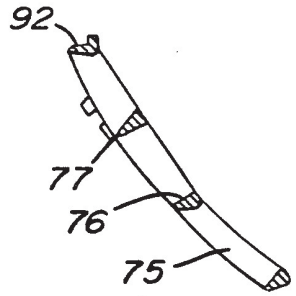


Fig. 18A

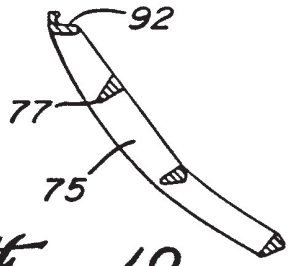


Fig. 18B

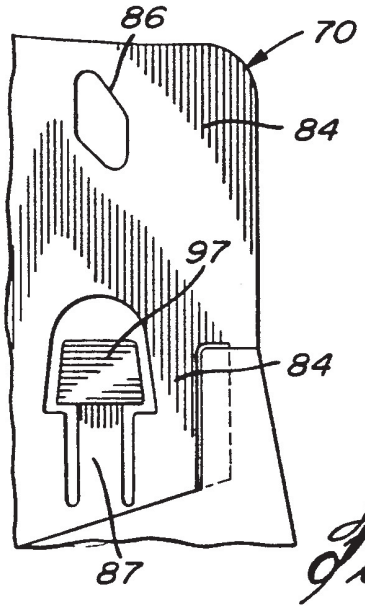


Fig. 19A

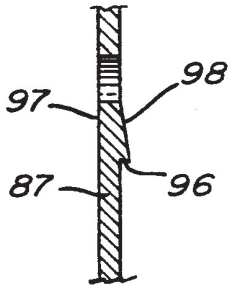


Fig. 19B

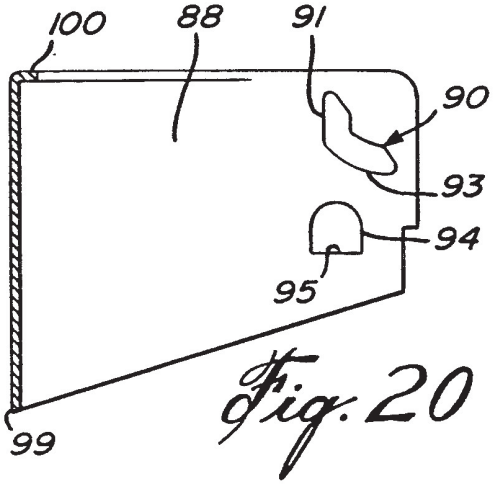


Fig. 20

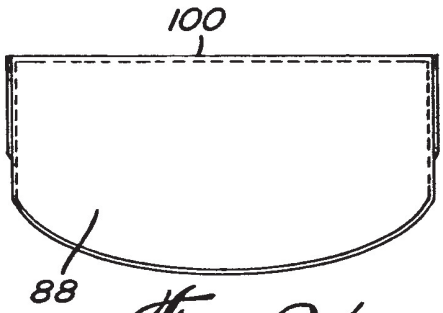


Fig. 21

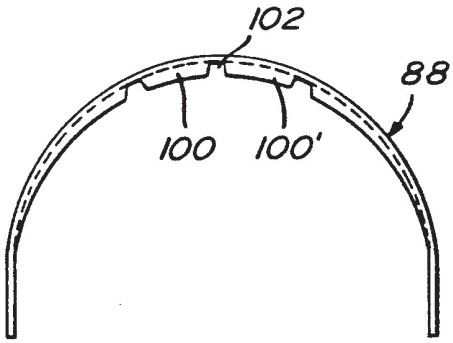


Fig. 22

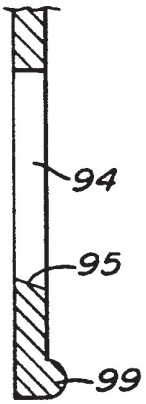


Fig. 23

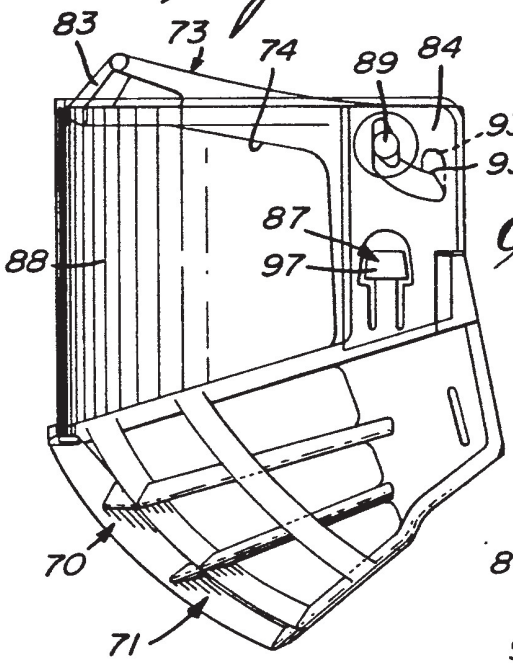


Fig. 24

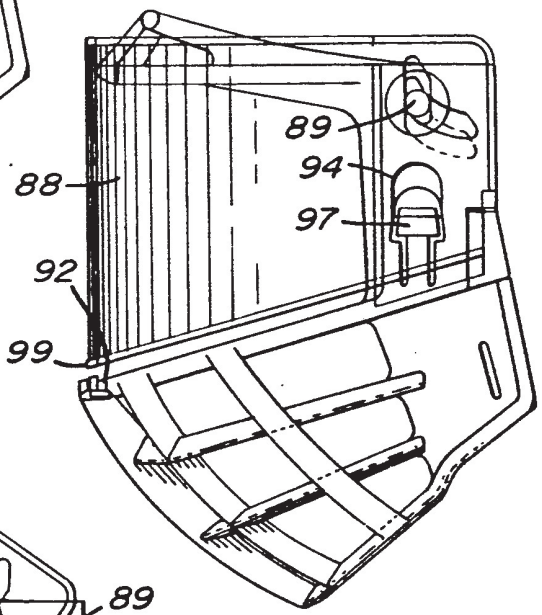


Fig. 25

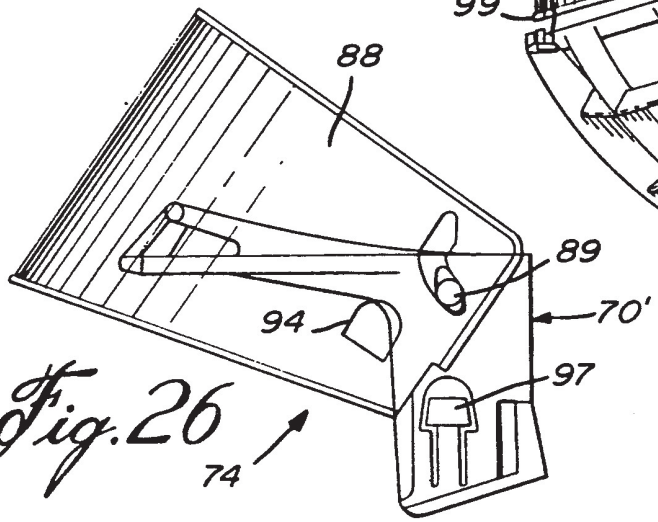


Fig. 26

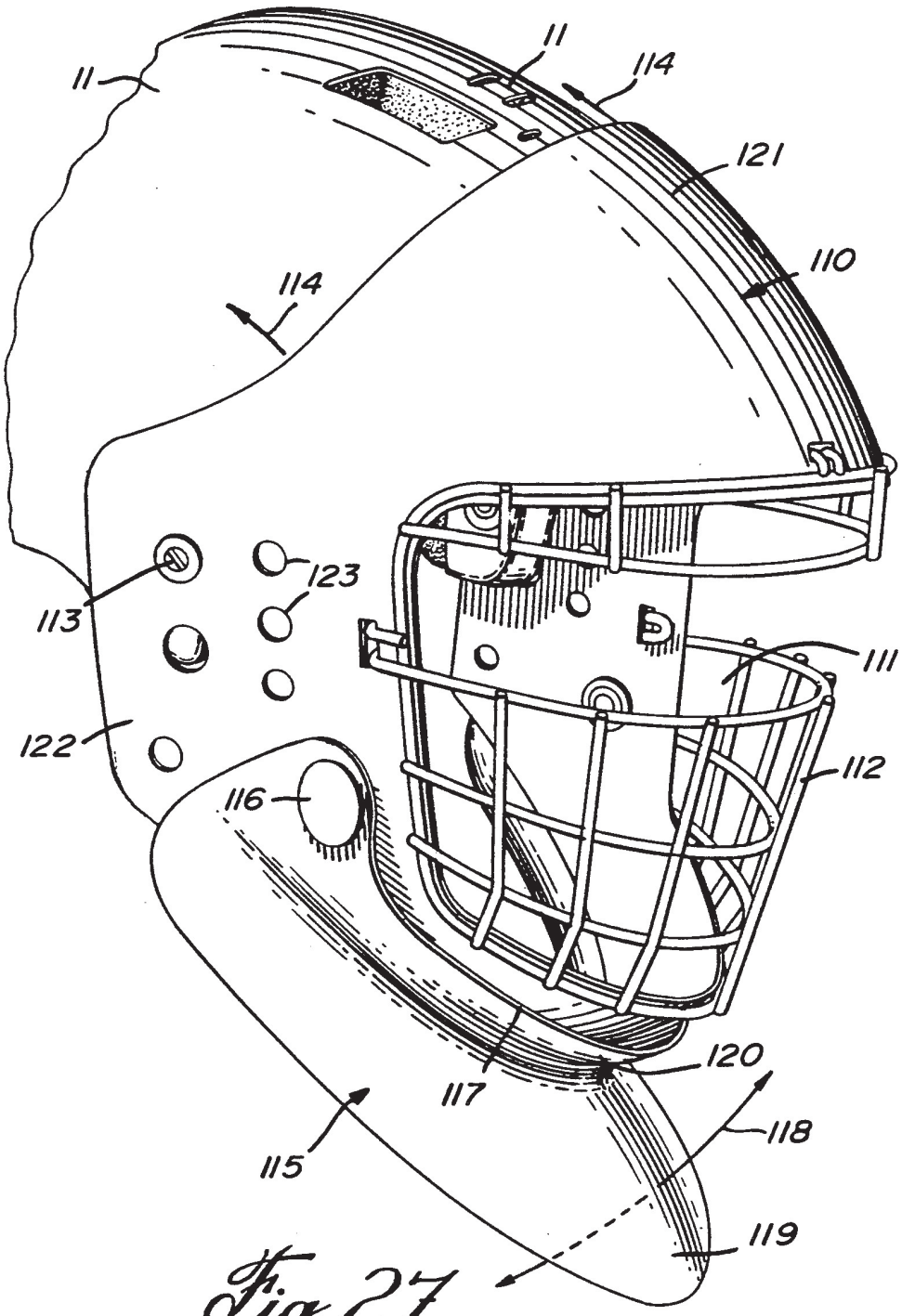


Fig. 27

PROTECTIVE HEADGEAR AND DETACHABLE FACE PROTECTOR

This is a division of application Ser. No. 07/616,068, filed on Nov. 20, 1990, now U.S. Pat. No. 5,093,936.

BACKGROUND OF INVENTION

1. Field of the Invention

The present invention relates to a protective sports headgear which comprises a helmet member having a sizing harness secured in the helmet and adjustable to fit the wearer's head by means of finger adjusting members secured to the helmet and accessible from the outer face of the helmet.

2. Description of Prior Art

Protective headgears are worn in various types of sports such as hockey, football, cycling, just to name a few, and these have various shapes and forms and are provided with or without face protecting devices. Such known helmets have various disadvantages which have heretofore not been remedied. One of the disadvantages is that certain of these helmets do not provide adequate protection to the head of the wearer and one cause of this is usually because the helmet is not properly fitted to the head of the wearer. Another disadvantage of known helmets is that when they are snugly fit on the head of a wearer, they do not provide head ventilation and, accordingly, the wearer will sweat profoundly from the head often impairing his vision as well as making the wearer feel very uncomfortable. This is particularly so when the helmet is fit with a protection visor. The sweat will fog the visor and thereby impair the wearer's vision which could again be a cause of injury due to poor visibility. Another disadvantage of known helmets is that in certain sports, they are provided with faceguards which are attached by metal rivets or other type fasteners and such fasteners can cause injury to the wearer, particularly when they protrude inside the helmet.

Referring now more specifically to helmets utilized in the sport of hockey, it has become common practice to provide visors and faceguard frames secured to the helmet whereby to protect the eyes and nose of the wearer or the entire face of the wearer including the ears. The majority of known visors often need to be cleaned when they fog up due to sweat generated by the wearer, it is often necessary to remove the entire helmet and to hinge the faceguard in order to have access to the inside surface of the visor. This is time-consuming and often the hockey player will continue playing the game with impaired vision thereby diminishing his abilities as well as making him more susceptible to injury.

SUMMARY OF INVENTION

It is a feature of the present invention to provide a protective sports headgear which substantially overcomes all of the above-mentioned disadvantages of the prior art.

Another feature of the present invention is to provide a protective sports headgear having a helmet member with a sizing harness secured inwardly thereof with adjustable bands which can be adjusted with the helmet positioned on the wearer's head by adjustable members provided on the outer surface of the helmet.

Another feature of the present invention is to provide a protective sports headgear which comprises a helmet having a sizing harness secured inwardly thereof to space the wearer's head from an inner protective lining in at least some inner areas of the helmet member and wherein vent holes are provided in the helmet to ventilate the wearer's head to reduce sweating and to make the helmet more comfortable. The sizing harness will accommodate any head size due to its flexibility in adjustment.

Another feature of the present invention is to provide a protective sports headgear having a faceguard frame and a visor hingedly secured to the frame whereby the visor can be easily hinged away from a sighting opening so as to clean the visor or to simply place it in a position of non-use when the wearer does not require same.

Another feature of the present invention is to provide an improved protective sports headgear having plastic-type fasteners secured thereto to retain various parts of the helmet construction and wherein the fasteners provide added protection to the wearer and wherein the construction and design of the helmet is an improvement over known helmets of the prior art.

According to the above features, from a broad aspect, the present invention provides a hockey goalie protective headgear comprising a helmet member shaped to protect the top, rear, front and sides of a wearer's head; the helmet member having a rigid outer shell with an inner protective lining of shock absorbing material, a sizing harness secured to the helmet and disposed inwardly thereof, the harness having a height adjusting band and a horizontal contour adjusting band, and adjustable sizing means secured to the helmet and the adjusting bands to fit the bands on the head of a wearer and thereby spacing the head from the protective lining in at least some inner areas of the helmet member, and means to secure the helmet to a wearer's head, a thermoformed plastic frame is secured to the helmet member to protect a goaltender's face, the thermoformed plastic frame having a face opening across which is secured a protective member, and a pivoting throat guard formed as a solid molded piece and secured to the frame by opposed pivot connectors and pivotal from a lower chin band section of the frame.

According to a further broad aspect of the present invention there is provided a hockey goalie protective headgear comprising a helmet member for protecting a wearer's head, a plastic frame member having a forehead section, opposed side sections and a lower chin band section, a face opening defined between the sections, a faceguard secured in the face opening, a pivoting throat guard formed as a solid molded piece and secured to the opposed side sections by pivot connectors and being pivotal from the lower chin band section of the frame.

Another feature of the present invention is to provide a thermoformed plastic frame secured to a helmet member of a protective sports headgear to protect a goaltender's face. The thermoformed plastic frame has a face opening across which is secured a protective member. A pivoting throat guard is formed as a solid molded piece and secured to the frame by opposed pivot connectors and pivotal from a lower chin band section of the frame.

BRIEF DESCRIPTION OF DRAWINGS

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings in which:

FIG. 1 is a side view of the protective sports headgear of the present invention;

FIG. 2 is an inside view of the protective sports headgear of FIG. 1;

FIG. 3 is a perspective inside view illustrating the positioning of the head sizing harness;

FIG. 4 is a plan view illustrating the shape and construction of the sizing harness;

FIG. 5 is a fragmented perspective view showing the manner in which the sizing harness is secured to an adjustment member accessible from the outer surface of the helmet;

FIGS. 6A, 6B and 6C are plan, side and end views, respectively, of the sizing band connectors;

FIGS. 7A, 7B and 7C are plan, side and end views, respectively, showing how the sizing band connector is secured to the housing in which an adjustment knob is retained;

FIGS. 8A and 8B are side and end views, respectively, of the adjustment knob;

FIGS. 9A and 9B are side and top views, respectively, of the trough-like housing;

FIGS. 10A and 10B are side and top views, respectively, of rib fasteners and stem-engaging cup member as seen from the end edge thereof;

FIGS. 11A and 11B are similar views to FIGS. 10A and 10B but showing the rib fastener from the side thereof;

FIG. 12 is a section view of a female lug fastener constructed of plastics material;

FIG. 13 is a side view of a male snap fastener;

FIGS. 14A, 14B and 14C are side, section and plan views of a frame attachment hinge member constructed of plastics material;

FIG. 15 is a side view of a faceguard frame constructed in accordance with the present invention;

FIG. 16 is a fragmented front view of the faceguard frame of FIG. 1;

FIG. 17 is a top inside view of the rib cage section of the faceguard frame;

FIGS. 18A and 18B along section lines A—A and B of FIG. 16;

FIG. 19A is a side view showing the hinge connection and detachable lock means of the faceguard frame;

FIG. 19B is a section side view of the flexible retention finger of FIG. 19A;

FIG. 20 is a side view, partly sectioned, showing the construction of the visor and its attachment means to secure to the faceguard frame;

FIG. 21 is a front view of a visor;

FIG. 22 is a top view of the visor;

FIG. 23 is a fragmented section view of the retention bore which engages with the retention head of the flexible retention finger;

FIGS. 24 and 25 are side views showing the manner in which the visor is hinged to the faceguard frame;

FIG. 26 is a view similar to FIGS. 24 and 25 but showing the visor secured to a half faceguard; and

FIG. 27 is a perspective view of a thermoformed plastic goalie faceguard frame for securement to a helmet member.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawings, and more particularly to FIGS. 1 to 3, there is shown generally at 10, the protective sports headgear of the present invention and particularly, but not exclusively, a sports headgear. The headgear comprises a helmet member 11 which is shaped to protect the top, rear, front and sides of a wearer's head 12. The helmet member has a rigid outer shell 13 with an inner protective lining 14 formed of thick polyurethane foam or other rigid foam-like material being light weight and having shock absorbing properties. The shell has a uniform outer surface with no ridges to catch when the wearer's head hits objects. The uniform surface also deflects blows imparted to it.

A sizing harness 15 is secured to the helmet by fasteners 16, which will be described later, at various predetermined locations along the band, so as to secure same to the helmet member while still providing adjustability about the wearer's head. As shown in FIG. 4, the sizing harness 15 is made as a one-piece band of flexible material, herein a flexible plastics material, and defines a horizontal contouradjusting band section 15' and a height-adjusting band section 15".

Adjustable sizing means, herein in the form of adjustment knobs 17, are provided on each side of the helmet and accessible from the outer face of the rigid outer shell 13. The knob 17' as shown in FIG. 1 is utilized to adjust the horizontal contour band section 15' while the adjustment knob 17, as shown in FIG. 3, is utilized to adjust the height-adjusting band section 15". Accordingly, the bands can be fitted comfortably about the wearer's head and by such means can space the wearer's head in at least some section of the helmet member to provide a comfortable fit and also to permit ventilation through the helmet through the vent holes 18' and 18" extending through the outer shell 13 and the inner protective lining 14. Also, when an impact is absorbed by the helmet, it is easy to readjust the harness if it loosens during impact as the blow is absorbed.

Referring again to FIG. 4, it can be seen that certain parts of the band are provided with holes 18 which reduces the formation of sweat against the wearer's head. Lugs 19 are also formed integral with the band to provide securement of same to the helmet member. Chin strap connecting bands 20 are also formed integral with the harness. Also formed integral with the adjustment horizontal and height adjustment band sections 15' and 15" is a connector bridge 21 having an elevated top wall 24 as shown at 22. A pair of connecting holes 23 are provided in the top wall 24 of the connector bridge 21 whereby to connect to adjustment members 25 as shown in FIG. 5.

Referring now additionally to FIGS. 5 to 9B, there will be described the manner in which the harness is adjustable. As shown in FIGS. 6A to 6C, the adjustment members comprise a band connector 26 provided with an attachment element 27 securable to a respective one of the adjusting band sections 15' and 15". An elongated flexible threaded member 28 is integrally formed with the attachment element 27. One or more prongs 29 are formed in the attachment element 27 and protrude thereabove to engage within the connecting holes 23 provided in the connector block 21 of the harness. The securement of the attachment element 27 to the connector block could also be made by other fastening means, such as a separate connector pin.

A flat wing element 30 is formed integral with the attachment element 27 and is retained captive between an inner face of the outer shell 13 and the protective lining 14 and extends to each side of a guide channel 31, as shown in FIG. 5. The guide channels are formed within the inner protective lining 14 and extend therethrough. The location of the horizontal guide channel 31 is shown in phantom lines in FIG. 1 and the vertical guide channel 31' is shown in phantom lines in FIG. 3.

The size of this channel is selected so that the connector bridge **31** is closely guided therein so as to maintain the adjustable band sections in proper position inside the helmet.

FIGS. **8A** and **8B** illustrate the construction of the adjusting knobs **17** and as herein shown, they are comprised as a cylindrical wheel **32** having an inner threaded bore **33** and a plurality of finger engaging ribs **34** formed in an outer surface thereof and extending parallel to the through bore **33** for rotating the cylinder knob **32** about the elongated threaded member **28**, as shown in FIG. **7C**.

Referring additionally to FIGS. **9A** and **9B**, there is shown the construction of a trough-like housing **35** which is secured in locating holes provided in the outer shell **13** and inner protective lining **14**. The trough-like housing **35** has an arcuate side wall **36** and opposed U-shaped end walls **37**. Holes **38** are provided in the end walls to accommodate the passage of the elongated flexible threaded member **28** therethrough, as shown in FIGS. **7A** to **7C**. The adjusting cylinder knob **32** is located within the housing **35** and is in threaded engagement with the threaded member **28** extending therethrough, as shown in FIG. **7C**. Accordingly, by turning the knob **32**, the threaded member **28** is displaced axially through the housing and thereby displaces the adjusting band sections **15'** and **15"** which are connected to the attachment element **27**. FIG. **7C** shows the position of the adjustable band section **15'** riding on the top inner surface of the inner protective lining **14** with the wing element **30** being positioned in sliding fit between the outer shell **13** of the helmet and the protective lining **14** and extending beyond the edges of the guide channel **31**. Accordingly, by rotating the adjusting knobs **17** and **17'**, the band is fitted about the wearer's head and this can be done while the helmet is positioned on the wearer's head. The adjustment knobs **17** also provide for very finite adjustment of the band and thus adding to the comfort and proper sizing. It is also not necessary to remove the helmet to make the sizing adjustment. It is also pointed out that the cylinder knobs are disposed along different axes to indicate to which of the bands it is connected and as hereinshown, the adjustment knob of FIG. **1** is disposed horizontally to indicate it is attached to the horizontal band section **15'** whilst the adjustment knob **17** is disposed vertically to indicate that it is connected to the vertical or height adjustment band section **15"**.

Referring to FIG. **1**, it can be seen that a plurality of vent holes **18** are provided within the outer shell and the inner protective lining with the front vent holes **18'** being disposed horizontally to admit more air inside the helmet member **11**. Accordingly, as the wearer displaces himself, air enters the helmet through the frontal air holes in the direction of arrows **39** and exit through the top holes **18"** as shown by arrows **40**. Some ventilation also takes place through the back of the neck as illustrated by arrow **40'** due to the spacing provided by the harness. This permits the wearer's head to be cooled thereby generating less sweat and maintaining the wearer more comfortable to perform his sports activity. The height adjusting band maintains a clearance between the inner surface of the inner protective lining **14** and the top of the wearer's head to achieve this feature. Of course, this clearance will vary depending on the size of the wearer's head and the size of the helmet being worn. The vent holes **18** are herein shown as disposed along a central band portion of the helmet from a frontal head area to a rear head area. Although these are shown as being of substantially rectangular configuration, they could also be shaped differently and disposed in spaced-apart pairs or again differently. Channels (not shown) could also be formed inside the lining and disposed in alignment with the vent holes.

Referring again to FIGS. **1** to **3**, it can be seen that the inner foam protective lining **14** extends beyond at least the forehead and neck portion of the rigid outer shell. A protective shield **41** formed of flexible plastics material extends over a portion of the rigid foam material **14** in the forehead portion of the headgear to protect the foam in this area. This shield is immovably secured in position by means of plastic fasteners **42**.

As can be seen from FIG. **1**, the helmet member defines an ear clearance area **43** on each side thereof. An ear shield **44** is secured to the helmet by suitable fasteners such as at **45** and **46** and extends over the ear clearance area and depends therefrom to cover a substantial portion of a wearer's ear. The ear shield **44** is molded from a flexible plastics material and protrudes outwardly of the plane of the rigid outer shell. Vent holes **47** are provided in the shield to vent this area and also not to shield the ear from sounds so that the wearer's audibility is not impaired. This ear shield is molded as a U-shaped member with an ear shield section **44** at opposed ends of the member and a connecting band section **48** being disposed intermediate of the ear shields and overlying a rear extension portion of the inner protective lining **14** in a rear portion of the helmet. This provides added protection for the inner protective lining in this area of the wearer's head. Accordingly, this construction provides added protection to the wearer's head in the ear and neck portion areas.

Referring now to FIGS. **10A**, **10B**, **11A** and **11B**, there is shown the construction of rib fasteners **50** which are constructed of plastics or nylon-type material. The rib fasteners are provided with a rib stem member **51** and a stem-engaging cup member **52**. The stem member **51** is an elongated straight flat stem member, as shown in FIG. **11A**, and is provided with opposed transverse, equidistantly spaced attachment ribs **52** on opposed flat side walls **53** of the stem. A flat transverse head **54** is provided at one end of the stem. A tapered locating free end **55** is provided at the opposed end of the stem. The cup member **52** has a recessed bottom wall **56** with a straight rectangular slot **57** provided centrally therein for receiving the free end and a portion of the ribbed stem member therethrough. A circumferential flange **58** extends about the side wall **59** of the cup member which is herein shown as a circular cup member. A pair of retention flexible shoulders **60** are disposed on opposed sides of a rectangular slot **57** and have an inward inclinatin to engage with the stem between the ribs, as shown in FIG. **10A**.

The ribs **52** are provided with outwardly sloping side walls **52'** and a transverse retention rear wall **52"**. The flexible shoulders **60** of the cup member are displaced outwardly by the sloping side wall **52'** when the stem is pushed through the rectangular slot **57**. Each of the flexible shoulders **60** have a flat engaging top edge **61**. This top edge **61** engages with the transverse retention rear wall **52"** of the ribs to prevent the stem from being pulled back from the rectangular slot of the stem engaging cup. It is also pointed out that the side walls **59** of the cup member are longer than the distance from the leading edge of a rib sloping side wall **52'** disposed on top of the pair of retention shoulders **60** so that the stem

can be severed at the rib leading edge so that the severed stem does not protrude beyond the circumferential flange 58 of the cup. This provides added security inside the lining of the headgear not to touch the wearer's head. The stem and cup members are molded from pliable plastic material. As shown in FIG. 10A, the cup member 52 is disposed in a circular bore 62 formed in the inner surface of the protective material 14. The head 54 of the stem rests on an outer surface of the rigid outer shell 13.

FIG. 12 shows the construction of a female-type lug fastener 63 which is utilized to secure various parts to the helmet member. The female lug fastener is constructed from a plastics material and provided with an inner flexible rim 64 which flexes inwardly to allow the passage of a male snap fastener 65 therein. The male snap fastener is provided with a retention head 66 and a flat outer head 67. These fasteners are all constructed of plastics material to provide added security to the wearer and are preferable over metal fasteners.

Referring now to FIGS. 14 to 18, there is shown the construction of a one-piece molded clear plastic faceguard frame 70 constructed in accordance with the present invention. The faceguard frame is of mesh-like construction and is comprised of a ribbed cage section 71 disposed below the eye and nose region 72 of a wearer's face whereby to protect the mouth, chin, neck and lower face of the wearer. A forehead section 73 is disposed in line with the forehead of a wearer and is provided for hinge attachment with the helmet member 11. A large sighting area 74 is defined between the forehead section 73 and the ribbed cage section 71.

The ribbed cage section 71 is constructed of a plurality of horizontal and transverse ribs 75 and 76 respectively, as can be seen from FIGS. 18A and 18B and which are spaced apart a predetermined distance to provide adequate protection. The ribs are also of substantially triangular cross-section, as shown in FIGS. 18A and 18B, with the apex 77 of these ribs being located exteriorly of the cage section and aligned with the cone of vision of the sighting opening not to impair the wearer's vision. The forehead section 73 is provided with a rear rib 78 rearwardly of a top edge thereof. This rib is received within an integrally formed frame attachment hinge member 79 as shown in FIGS. 14A to 14C.

As shown in FIGS. 14A to 14C, the frame attachment hinge member is an integrally formed member of flexible plastics material and defines a female connector section 80 for receiving a male snap member, such as the member 65 shown in FIG. 13, whereby to secure the frame attachment member 79 to the helmet member. Retention loop section 81 is formed integral with the female connector and is positioned about the rib member 78 on the forehead section of the faceguard frame 70. The retention loop 81 has a flexible throat opening 82 disposed rearwardly thereof and extends about the female connector 80 to lock the opening 82 when the male snap member 65 is engaged with the female connector 80. In this manner, the faceguard frame is hingedly retained by the frame attachment member to the front forehead portion of the helmet member. Preferably, two of such frame attachment hinge members are provided one on each side of the central rib 83 provided in the forehead rib section 73.

The faceguard frame 70 is also provided with integrally formed opposed rear wall sections 84 disposed behind the cone of vision of the headgear and a slot 85 is formed in a bottom corner thereof through which an attachment strap is secured to connect the faceguard frame 70 to opposed sides of the helmet member, in a manner well known in the art. A visor hinge connecting hole 86 is provided in an upper area of the rear wall sections 84 whereby to receive a visor hinge member, as will be described later. A lock retention finger 87 is also formed integral with the rear wall section 84 and its function will also be described later.

Referring now additionally to FIGS. 19A to 26, and more particularly to FIGS. 24 to 26, it can be seen that a clear plastics visor 88 is hingedly connected on the hinge pin fastener 89 to the faceguard frame 70 whereby to overlie the sighting opening 74 to protect the eye and nose region of the face of a wearer. As shown in FIGS. 20 to 23, the visor 88 is provided with an elongated slot 90 formed on opposed side end portions thereof for connection with the pivot connector 89. The slot 90 has a top vertical section 91 to permit the visor to be displaced vertically for nesting and removal from locating ledges 92 formed along the top edge of the ribbed cage section 71 below the sighting opening 74. The slot 90 further defines a rearwardly extending depending section 93 to permit the visor to hinge upwardly and outwards as shown in FIGS. 25 and 26, respectively. A retention bore 94 is disposed below the slot 90 and has a straight bottom sloping edge 95, as better seen in FIG. 23, for mating retention with an undercut edge 96 of the lock retention finger 87, as better shown in FIG. 19B. As shown in FIG. 19A, the lock retention finger is integrally molded with the faceguard frame which is constructed of a clear plastics material. The head section 97 of the retention finger 87 is provided with an outwardly protruding wall 98 so that the retention ledge 96 extends outwardly of the outer face of the rear wall section 84 of the faceguard frame 70. The hinge connection 89 maintains the retention bore 94 of the visor perfectly aligned with the head 97 of the lock retention finger 87 so that the head sloping wall 98 will cause the finger 87 to flex slightly inwardly of the faceguard frame when hinged thereover and as soon as the retention bore 94 is aligned with the head 97, it will snap or click into position locking the visor to the faceguard frame with the lower edge 99 of the visor resting on the support ledges 92. The clicking sound assures the wearer that the visor is locked in position.

The visor 88 is also provided with a locating flange 100 in a top edge thereof to guidingly position the visor relative to the vertical ribs 83 and 101 provided in the forehead section 73 of the faceguard frame 70. Slots 102 are defined between flange sections 100' to accommodate the ribs 83 and 101. Accordingly, the locating flange 100 also sits on the horizontal frontal rib 103 of the forehead section 73.

As can be seen in FIGS. 24 to 26, in order to hinge the visor 88 upwardly of the sighting opening 74, it is firstly necessary to depress the head 97 of the lock retention finger 87 to disengage the ledge 96 from the ledge 95. The visor can then be pushed upwardly off its nesting ledges, as shown in FIG. 25. The hinge pin 89 has thus moved to the bottom of the vertical section 91 of the visor connecting slot 93. The visor is then pushed outwardly and upwards, as shown in FIG. 26, and the hinge pin 89 is then located in the bottom portion of the rearwardly depending slot section 93. In this position, the wearer has clear vision and this permits the visor to clear itself by ventilation of the fogged up area. It also permits better ventilation of a wearer's face permitting the wearer to wipe his forehead or eyes. The hinge pin

89 may be formed from the connector described in FIGS. 12 and 13 or otherwise and provide a rigid frictional retention fit so as to maintain the visor in its retracted position as shown in FIG. 26. Alternatively, it is conceivable that the bottom portion of the slot section 93 be provided with an upper end section 93' (see FIG. 24) in which the hinge pin 89 would enter to maintain the visor supported as shown in FIG. 26.

As is shown in FIG. 26, the faceguard frame 70' is herein shown as a half-frame to support the visor 88 only. The fastener 89 in this application goes into the helmet as well as through the frame 70' and the visor 88. With this frame, the eyes and nose area of the face only is protected.

Referring now to FIG. 27, there is shown a thermoformed plastic frame 110 secured to the helmet member 11 whereby to protect a goaltender's face. The plastic frame 110 has a face opening 111 across which is secured a protective grille member 112, well known in the art, and which is usually formed from steel wires welded together. The plastic frame 110 of the present invention is pivotally secured to the helmet member 11 by the pivot fastener 113 whereby the frame 110 can be displaced rearwardly along the direction of arrows 114 to clear the face of the wearer. A pivoting throat guard 115 is pivotally secured by connector 116 to the thermoformed plastic frame 110 and pivots downwardly from the lower chin band section 117 of the frame 110 in the direction as shown by double arrowhead 118.

The throat guard 115 has an integrally formed bib section 119 which extends outwardly of an upwardly extending ledge section 120 which mates or which is closely spaced to the chin band 117 whereby the chin band will restrict the upward displacement of the throat guard 115 so that it does not pivot above the chin band.

The thermoformed plastic frame 110 is provided with an integrally formed rearwardly sloping forehead section 121 which overlies the frontal portion of the helmet member 114 and outwardly flared side wings 122 which protects and overlaps the ears of a wearer. A plurality of holes 123 are provided in the side wings for ventilation and not to impair the audibility of the wearer.

It is within the ambit of the present invention to cover any obvious modifications of the invention described herein provided such modifications fall within the scope of the appended claims.

We claim:

1. A hockey goalie protective headgear comprising a helmet member for protecting a wearer's head, a plastic frame member having a forehead section, opposed side sections and a lower chin band section, a face opening defined between said sections, a faceguard secured in said face opening, a pivoting throat guard formed as a solid molded piece and secured to said opposed side sections by pivot connectors and being pivotal from said lower chin band section of said frame.

2. A goalie protective headgear as claimed in claim 1 wherein said throat guard has an integrally formed bib section extending outwardly of an upwardly extending ledge section which mates with said chin band when displaced upwardly to restrict its upward movement.

3. A goalie protective headgear as claimed in claim 1 wherein said frame member is a thermoformed plastic frame having a rearwardly sloping forehead section overlapping said helmet member, and means to removably secure said frame to said helmet member.

4. A goalie protective headgear as claimed in claim 1 wherein said faceguard is a steel grid cage.

5. A goalie protective headgear as claimed in claim 1 wherein said pivot connectors permit said plastic frame member to be hinged over a head portion of said helmet with said lower chin band disposed above a wearer's face, and means to secure said frame member in a position of use.

6. A goalie protective headgear as claimed in claim 1 wherein a plurality of holes are provided in said side sections of said frame member to hingedly connect said frame member to helmets of different sizes and permit proper hinging thereof.

7. A hockey goalie protective headgear comprising a helmet member shaped to protect the top, rear, front and sides of a wearer's head; said helmet member having a rigid outer shell with an inner protective lining of shock absorbing material, a sizing harness secured to said helmet and disposed inwardly thereof, said harness having a height adjusting band and a horizontal contour adjusting band, and adjustable sizing means secured to said helmet and said adjusting bands to fit said bands on the head of a wearer and thereby spacing said head from said protective lining in at least some inner areas of said helmet member, and means to secure said helmet to a wearer's head, a thermoformed plastic frame is secured to said helmet member to protect a goaltender's face, said thermoformed plastic frame having a face opening across which is secured a protective member, and a pivoting throat guard formed as a solid molded piece and secured to said frame by opposed pivot connectors and pivotal from a lower chin band section of said frame.

8. A headgear as claimed in claim 7 wherein said throat guard has an integrally formed bib section extending outwardly of an upwardly extending ledge section which mates with said chin band when displaced upwardly to restrict its upward movement, and side attachment wings to secure said pivot connectors.

9. A headgear as claimed in claim 7 wherein said thermoformed plastic frame has a rearwardly sloping forehead section overlapping said helmet member, and outwardly flared side wings to protect the ears of a wearer, and means to removably secure said frame to said helmet member.

10. A headgear as claimed in claim 9 wherein a pivot connector is secured to each of said side wings to pivotally secure said thermoformed plastic frame to said helmet member.

11. A headgear as claimed in claim 7 wherein said protective member secured across said face opening is a steel grid member.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 5,129,108

DATED : July 14, 1992

INVENTOR(S) : Steve Copeland et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page,

the Assignee is incorrect, [73], should be, --636729 Ontario Ltd.

Paradox Design, Toronto, Ontario, Canada--.

Signed and Sealed this

Fifth Day of October, 1993

Bruce Lehman

Attest:

BRUCE LEHMAN

Attesting Officer

Commissioner of Patents and Trademarks