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3:02-CV-01863 OAKLEY INC V. CREWS INC

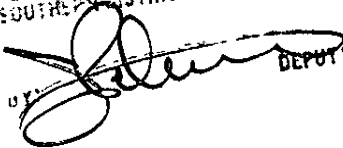
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 CLERK, U.S. DISTRICT COURT  
 SOUTHERN DISTRICT OF CALIFORNIA  

 DEPUTY

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 9 IN THE UNITED STATES DISTRICT COURT  
 10 FOR THE SOUTHERN DISTRICT OF CALIFORNIA

11 **OAKLEY, INC.**, a Washington )  
 12 corporation, )

13 Plaintiff, )

14 vs. )

15 **CREWS, INC.**, a Tennessee )  
 16 corporation, and **APPLIED** )  
 16 **INDUSTRIAL TECHNOLOGIES**, a )  
 17 California corporation, )

18 Defendants. )

CIVIL ACTION NO.

02CV 1863 IEG(JFS)

COMPLAINT FOR PATENT  
INFRINGEMENT

DEMAND FOR JURY TRIAL

19 Plaintiff, Oakley, Inc. (hereinafter referred to as  
 20 "Oakley") complains of Defendants Crews, Inc. (hereinafter  
 21 referred to as "Crews") and Applied Industrial Technologies  
 22 (hereinafter referred to as "Applied Industrial"), and  
 23 collectively referred to as "the Defendants," and alleges as  
 24 follows:

25 JURISDICTION AND VENUE

26 1. Jurisdiction over this action is founded upon 28  
 27 U.S.C. §§ 1331 and 1338. Venue is proper under 28 U.S.C. §§  
 28 1391(b) and (c) and 28 U.S.C. § 1400(b). Defendants have sold

Complaint for Patent Infringement,  
 Unfair Competition, & Interference  
 w/ Contractual Relations

1 infringing products in this district, directed sales and  
2 marketing efforts toward this district, and routinely conduct  
3 business within this district.

4 **THE PARTIES**

5 2. Plaintiff Oakley, Inc. is a corporation organized and  
6 existing under the laws of the state of Washington having its  
7 principal place of business located at One Icon, Foothill Ranch,  
8 California 92610.

9 3. Oakley is informed and believes, and thereupon  
10 alleges, that Defendant Crews was and is a corporation duly  
11 organized and existing under the laws of the state of Tennessee,  
12 with its principal place of business located at 6409 Holmes  
13 Road, Memphis, Tennessee 38141. Oakley asserts by way of this  
14 complaint, as set forth in detail below, that Defendant Crews is  
15 importing and selling sunglasses to distributors throughout the  
16 United States and in California, including to Defendant Applied  
17 Industrial, which sunglasses infringe certain patents of  
18 Oakley's, as well as violating other contractual rights of  
19 Oakley. Oakley is informed and believes, and thereupon alleges,  
20 that Defendant Crews has another at least another 6 distributors  
21 doing business within this district.

22 4. Oakley is informed and believes, and thereupon  
23 alleges, that Defendant Applied Industrial Technologies is a  
24 corporation duly organized and existing under the laws of the  
25 state of California, with its principal place of business  
26 located at 630 Bay Blvd., Suite 106, Chula Vista, CA 92910-5201.  
27 Oakley asserts by way of this complaint, as set forth in detail  
28 ... ..

1 below, that Defendant Applied Industrial is selling sunglasses  
2 that infringe certain patents owned by Oakley.

3 **FACTUAL BACKGROUND**

4 **PATENT INFRINGEMENT**

5 5. Since the mid-1970's, Oakley has been and continues to  
6 be actively engaged in the manufacture and sale of high quality  
7 sunglasses, eyewear, goggles, and other eye protection  
8 equipment. Two of Oakley's most popular sunglass lines is its  
9 "M Frame" and "Pro M Frame" sunglass. These products have  
10 enjoyed enormous commercial success in the United States, and  
11 world-wide, which success is expected to continue.

12 6. Oakley is the owner by assignment of U.S. Patent No.  
13 D331,587 (hereinafter referred to as the "'587 Patent") duly and  
14 lawfully issued on December 8, 1992, describing and claiming the  
15 invention entitled "EYEGLASS FRAME," and embodies the top frame  
16 of Oakley's "M Frame" sunglass. A true and correct copy of U.S.  
17 Patent No. D331,587 is attached hereto as Exhibit 1.

18 7. Oakley is informed and believes, and thereupon alleges  
19 that the Defendants are selling eyeglasses that copy the  
20 D331,587 design patent of Oakley. Oakley is informed and  
21 believes, and thereupon alleges, that eyeglasses sold by the  
22 Defendants, and identified by them as "Storm", embody the  
23 subject matter claimed in Oakley's '587 Patent without any  
24 license thereunder and is thereby infringing said patent.  
25 Oakley is informed and believes and thereon alleges that  
26 Defendants supplied these eyeglasses to various distributors,  
27 retailers, and retail customers.

28 ... ..

1           8. Oakley is the owner by assignment of U.S. Patent No.  
2 5,137,342 (hereinafter referred to as the "'342 Patent") duly  
3 and lawfully issued on August 11, 1992, describing and claiming  
4 the invention entitled "EYEWEAR TRACTION DEVICE." A true and  
5 correct copy of U.S. Patent No. 5,137,342 is attached hereto as  
6 Exhibit 2.

7           9. Oakley is informed and believes, and thereupon alleges  
8 that the Defendants are selling eyeglasses that incorporate the  
9 technology described and claimed by the '342 Patent owned by  
10 Oakley. Oakley is informed and believes, and thereupon alleges,  
11 that eyeglasses sold by the Defendants, and identified by them  
12 as "Storm" and "Deuce", embody the subject matter claimed in  
13 Oakley's '342 Patent without any license thereunder and is  
14 thereby infringing said patent. Oakley is informed and believes  
15 and thereon alleges that Defendants supplied these eyeglasses to  
16 various distributors, retailers, and retail customers.

17          10. Oakley is the owner by assignment of U.S. Patent No.  
18 D384,364 (hereinafter referred to as the "'364 Patent") duly and  
19 lawfully issued on September 30, 1994, describing and claiming  
20 the invention entitled "EYEGLASS FRAME FRONT," and embodies the  
21 top frame of Oakley's "Pro M Frame" sunglass. A true and  
22 correct copy of U.S. Patent No. D384,364 is attached hereto as  
23 Exhibit 3.

24          11. Oakley is informed and believes, and thereupon alleges  
25 that the Defendants are selling eyeglasses that incorporate the  
26 technology described and claimed by the '364 Patent owned by  
27 Oakley. Oakley is informed and believes, and thereupon alleges,  
28 that eyeglasses sold by the Defendants, and identified by them

1 as "Tremor", embody the subject matter claimed in Oakley's '364  
2 Patent without any license thereunder and is thereby infringing  
3 said patent. Oakley is informed and believes and thereon  
4 alleges that Defendants supplied these eyeglasses to various  
5 distributors, retailers, and retail customers.

6 12. Oakley is the owner by assignment of U.S. Patent No.  
7 5,760,868 (hereinafter referred to as the "'868 Patent") duly  
8 and lawfully issued on June 2, 1998, describing and claiming the  
9 invention entitled "UNITARY HINGELESS EYEGLASS FRAME." A true  
10 and correct copy of U.S. Patent No. 5,760,868 is attached hereto  
11 as Exhibit 4.

12 13. Oakley is informed and believes, and thereupon alleges  
13 that the Defendants are selling eyeglasses that incorporate the  
14 technology described and claimed by the '868 Patent owned by  
15 Oakley. Oakley is informed and believes, and thereupon alleges,  
16 that eyeglasses sold by the Defendants, and identified by them  
17 as "Tremor", embody the subject matter claimed in Oakley's '868  
18 Patent without any license thereunder and is thereby infringing  
19 said patent. Oakley is informed and believes and thereon  
20 alleges that Defendants supplied these eyeglasses to various  
21 distributors, retailers, and retail customers.

22 14. Oakley is the owner by assignment of U.S. Patent No.  
23 5,208,614 (hereinafter referred to as the "'614 Patent") duly  
24 and lawfully issued on May 4, 1993, describing and claiming the  
25 invention entitled "CONCAVELY INDENTED LENSES FOR EYEWEAR." A  
26 true and correct copy of U.S. Patent No. 5,208,614 is attached  
27 hereto as Exhibit 5.

28 ... ..

1        15. Oakley is informed and believes, and thereupon alleges  
2 that the Defendants are selling eyeglasses that incorporate the  
3 technology described and claimed by the '614 Patent owned by  
4 Oakley. Oakley is informed and believes, and thereupon alleges,  
5 that eyeglasses sold by the Defendants, and identified by them  
6 as "Tremor", embody the subject matter claimed in Oakley's '614  
7 Patent without any license thereunder and is thereby infringing  
8 said patent. Oakley is informed and believes and thereon  
9 alleges that Defendants supplied these eyeglasses to various  
10 distributors, retailers, and retail customers.

11        16. Oakley is informed and believes, and thereupon  
12 alleges, that Defendants have received written notice of  
13 Oakley's proprietary rights in its patents by way of actual  
14 written notice. Further, Defendants received constructive  
15 notice of Oakley's patents as Oakley has caused said patent  
16 numbers to be placed plainly on the product and/or packaging.  
17 Despite actual and constructive knowledge, Defendants have  
18 continued to infringe Oakley's rights. On information and  
19 belief, Defendants have willfully and wantonly infringed  
20 Oakley's Patents, as described above.

21        17. Oakley is informed and believes and thereupon alleges  
22 that the sale of Defendants infringing sunglasses has resulted  
23 in lost sales, has reduced the business and profit of Oakley,  
24 and has greatly injured the goodwill and reputation associated  
25 with Oakley, all to Oakley's damage in an amount not yet fully  
26 determined.

27        18. Moreover, the Defendants wrongfully profited from  
28 Oakley's invention by selling sunglasses that infringe Oakley's

1 '587, '342, '364, '868, and '614 Patents. The exact amount of  
2 profits realized by Defendants as a result of their infringing  
3 activities are presently unknown to Oakley, as are the exact  
4 amount of damages suffered by Oakley as a result of these  
5 activities. These profits and damages cannot be accurately  
6 ascertained without an accounting.

7 **UNFAIR COMPETITION AND INTERFERENCE**

8 **WITH CONTRACTUAL RELATIONS**

9 19. Oakley has long been involved in NASCAR and other auto  
10 racing circuits. Oakley has provided product to many drivers in  
11 NASCAR over the years, and especially the "M Frame" and "Pro M  
12 Frame" models. These models have also been highly successful  
13 sales at and around NASCAR and other auto racing events, and  
14 have come to be associated with Oakley.

15 20. Oakley has Eyewear Endorsement Agreements with two of  
16 the best NASCAR drivers - Bobby Labonte and Rusty Wallace. Each  
17 of these drivers have entered into a written agreement with  
18 Oakley, which provides among other things that each of them will  
19 use their best efforts to promote Oakley eyewear and to refrain  
20 from the promotion of any other eyewear, or being involved with  
21 competitors of Oakley. Further, in regard to at least Rusty  
22 Wallace, Oakley also has the right to sell signature series  
23 models with Rusty Wallace's signature on them. Consequently,  
24 both Bobby Labonte's and Rusty Wallace's name on sunglasses have  
25 come to be recognized as an abiding affiliation with Oakley.

26 21. Oakley is informed and believes, and thereupon  
27 alleges, that Defendants are selling what they refer to as a  
28 "Motorsports Collection" of its "Storm" sunglass. This



1 "Motorsports Collection" comprises their "Storm" sunglass in a  
2 color combination associated with the car of several NASCAR  
3 drivers, as well as the respective driver's signature and car  
4 number. Defendants include models correlating to Bobby Labonte  
5 and Rusty Wallace.

6 22. Oakley is informed and believes that Rusty Wallace  
7 called and asked Defendant Crews to stop making sunglasses  
8 bearing a representation of his signature and number, as it is  
9 a violation of his contract with Oakley. Nonetheless, Defendant  
10 Crews is still selling sunglasses with his signature, car  
11 number, and color combination.

12 23. Oakley is informed and believes and thereupon alleges  
13 that Crews' "Motorsports Collection" of "Storm" sunglasses is  
14 designed, manufactured, packaged, advertised, displayed and sold  
15 expressly to deceive customers desirous of purchasing products  
16 authorized by Oakley or to profit from the demand created by  
17 Oakley for the ornamental and inherently distinctive features of  
18 the Oakley eyeglasses and their affiliation with Bobby Labonte  
19 and Rusty Wallace.

20 24. Oakley is further informed and believes and thereupon  
21 alleges that the presence of Crews' eyeglass copies in the  
22 marketplace damages the value of Oakley's exclusive rights. The  
23 presence of the copies in the marketplace are likely to diminish  
24 the apparent exclusivity of the genuine Oakley products thereby  
25 dissuading potential customers who otherwise would have sought  
26 the distinctive Oakley eyeglass designs. Upon information and  
27 belief, such deception has misled and continues to mislead and  
28 confuse many of said purchasers to buy the products sold by

1 Crews and/or has misled non-purchasers to believe the eyeglass  
2 copies emanate from or are authorized by Oakley.

3 25. Oakley is informed and believes and thereupon alleges  
4 that the sale of the copy eyeglasses has resulted in lost sales,  
5 has reduced the business and profit of Oakley, and has greatly  
6 injured the general reputation of Oakley due to the inferior  
7 quality of the copies, all to Oakley's damage in an amount not  
8 yet fully determined.

9 26. The exact amount of profits realized by the Crews as  
10 a result of its unfair business practices and interference with  
11 Oakley's contractual relations with Bobby Labonte and Rusty  
12 Wallace, are presently unknown to Oakley, as are the exact  
13 amount of damages suffered by Oakley as a result of said  
14 activities. These profits and damages cannot be accurately  
15 ascertained without an accounting. Further, Defendant's actions  
16 are irreparably injuring Oakley and will continue unless and  
17 until enjoined by this court.

18 **FIRST CLAIM FOR RELIEF**

19 **(PATENT INFRINGEMENT)**

20 27. The allegations of paragraphs 1 through 26 of the  
21 complaint are repled and realleged as though fully set forth at  
22 this point.

23 28. This is a claim for patent infringement against both  
24 Defendants, and arises under 35 U.S.C. Sections 271 and 281.

25 29. Jurisdiction is founded upon 28 U.S.C. §§ 1331 and  
26 1338.

27 30. Oakley is the owner of U.S. Patent No. D331,587, which  
28 protects the design and ornamentation of eyeglasses embodied by

1 Oakley's "M Frame" line of sunglasses. A true and correct copy  
2 of U.S. Patent No. D331,587 is attached hereto as Exhibit 1. By  
3 statute, the patent is presumed valid and enforceable under 35  
4 U.S.C. § 282.

5 31. Defendants, through their agents, employees and  
6 servants, manufactured, imported, and sold, without any rights  
7 or license, sunglasses that fall within the scope and claims  
8 contained in U.S. Patent No. D331,587.

9 32. Oakley is informed and believes, and thereupon  
10 alleges, that Defendants willfully infringed upon Oakley's  
11 exclusive rights under the '587 Patent with full notice and  
12 knowledge thereof.

13 33. Oakley is informed and believes, and thereupon  
14 alleges, that Defendants have derived, received, and will  
15 continue to derive and receive from these acts of infringement,  
16 gains, profits, and advantages in an amount not presently known  
17 to Oakley. By reason of the these acts of infringement, Oakley  
18 has been, and will continue to be, greatly damaged. Oakley is  
19 suffering immediate and irreparable harm by Defendants' acts of  
20 infringement.

21 34. Defendants may continue to infringe U.S. Patent No.  
22 D331,587 to the great and irreparable injury of Oakley, for  
23 which Oakley has no adequate remedy at law unless Defendant is  
24 enjoined by this court.

25 ... ..

26 ... ..

27 ... ..

28 ... ..

**SECOND CLAIM FOR RELIEF**

**(PATENT INFRINGEMENT)**

35. The allegations of paragraphs 1 through 26 of the complaint are repled and realleged as though fully set forth at this point.

36. This is a claim for patent infringement against both Defendants, and arises under 35 U.S.C. Sections 271 and 281.

37. Jurisdiction is founded upon 28 U.S.C. §§ 1331 and 1338.

38. Oakley is the owner of U.S. Patent No. 5,137,342 which protects technology claimed and described as an eyewear traction device. A true and correct copy of U.S. Patent No. 5,137,342 is attached hereto as Exhibit 2. By statute, the patent is presumed valid and enforceable under 35 U.S.C. § 282.

39. Defendants, through their agents, employees and servants, manufactured, imported, and sold, without any rights or license, eyeglasses that fall within the scope and claims contained in U.S. Patent No. 5,137,342.

40. Oakley is informed and believes, and thereupon alleges, that Defendants willfully infringed upon Oakley's exclusive rights under the '342 Patent with full notice and knowledge thereof.

41. Oakley is informed and believes, and thereupon alleges, that Defendants have derived, received, and will continue to derive and receive from these acts of infringement, gains, profits, and advantages in an amount not presently known to Oakley. By reason of the these acts of infringement, Oakley has been, and will continue to be, greatly damaged. Oakley is

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Complaint for Patent Infringement,  
Unfair Competition, & Interference  
w/ Contractual Relations

1 suffering immediate and irreparable harm by Defendants' acts of  
2 infringement.

3 42. Defendants may continue to infringe U.S. Patent No.  
4 5,137,342 to the great and irreparable injury of Oakley, for  
5 which Oakley has no adequate remedy at law unless Defendant is  
6 enjoined by this court.

7 **THIRD CLAIM FOR RELIEF**

8 **(PATENT INFRINGEMENT)**

9 43. The allegations of paragraphs 1 through 26 of the  
10 complaint are repled and realleged as though fully set forth at  
11 this point.

12 44. This is a claim for patent infringement against both  
13 Defendants, and arises under 35 U.S.C. Sections 271 and 281.

14 45. Jurisdiction is founded upon 28 U.S.C. §§ 1331 and  
15 1338.

16 46. Oakley is the owner of U.S. Patent No. D384,364 which  
17 protects technology claimed and described as an eyewear traction  
18 device. A true and correct copy of U.S. Patent No. D384,364 is  
19 attached hereto as Exhibit 3. By statute, the patent is  
20 presumed valid and enforceable under 35 U.S.C. § 282.

21 47. Defendants, through their agents, employees and  
22 servants, manufactured, imported, and sold, without any rights  
23 or license, eyeglasses that fall within the scope and claims  
24 contained in U.S. Patent No. D384,364.

25 48. Oakley is informed and believes, and thereupon  
26 alleges, that Defendants willfully infringed upon Oakley's  
27 exclusive rights under the '364 Patent with full notice and  
28 knowledge thereof.

1        49. Oakley is informed and believes, and thereupon  
2 alleges, that Defendants have derived, received, and will  
3 continue to derive and receive from these acts of infringement,  
4 gains, profits, and advantages in an amount not presently known  
5 to Oakley. By reason of the these acts of infringement, Oakley  
6 has been, and will continue to be, greatly damaged. Oakley is  
7 suffering immediate and irreparable harm by Defendants' acts of  
8 infringement.

9        50. Defendants may continue to infringe U.S. Patent No.  
10 D384,364 to the great and irreparable injury of Oakley, for  
11 which Oakley has no adequate remedy at law unless Defendant is  
12 enjoined by this court.

13                    **FOURTH CLAIM FOR RELIEF**

14                    **(PATENT INFRINGEMENT)**

15        51. The allegations of paragraphs 1 through 26 of the  
16 complaint are repled and realleged as though fully set forth at  
17 this point.

18        52. This is a claim for patent infringement against both  
19 Defendants, and arises under 35 U.S.C. Sections 271 and 281.

20        53. Jurisdiction is founded upon 28 U.S.C. §§ 1331 and  
21 1338.

22        54. Oakley is the owner of U.S. Patent No. 5,760,868 which  
23 protects technology claimed and described as an unitary  
24 hingeless eyeglass frame. A true and correct copy of U.S.  
25 Patent No. 5,760,868 is attached hereto as Exhibit 4. By  
26 statute, the patent is presumed valid and enforceable under 35  
27 U.S.C. § 282.

28        ... ..

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Complaint for Patent Infringement,  
Unfair Competition, & Interference  
w/ Contractual Relations

1        55. Defendants, through their agents, employees and  
 2 servants, manufactured, imported, and sold, without any rights  
 3 or license, eyeglasses that fall within the scope and claims  
 4 contained in U.S. Patent No. 5,760,868.

5        56. Oakley is informed and believes, and thereupon  
 6 alleges, that Defendants willfully infringed upon Oakley's  
 7 exclusive rights under the '868 Patent with full notice and  
 8 knowledge thereof.

9        57. Oakley is informed and believes, and thereupon  
 10 alleges, that Defendants have derived, received, and will  
 11 continue to derive and receive from these acts of infringement,  
 12 gains, profits, and advantages in an amount not presently known  
 13 to Oakley. By reason of the these acts of infringement, Oakley  
 14 has been, and will continue to be, greatly damaged. Oakley is  
 15 suffering immediate and irreparable harm by Defendants' acts of  
 16 infringement.

17        58. Defendants may continue to infringe U.S. Patent No.  
 18 5,760,868 to the great and irreparable injury of Oakley, for  
 19 which Oakley has no adequate remedy at law unless Defendant is  
 20 enjoined by this court.

21                    **FIFTH CLAIM FOR RELIEF**

22                    **(PATENT INFRINGEMENT)**

23        59. The allegations of paragraphs 1 through 26 of the  
 24 complaint are repled and realleged as though fully set forth at  
 25 this point.

26        60. This is a claim for patent infringement against both  
 27 Defendants, and arises under 35 U.S.C. Sections 271 and 281.

28        ... ..

1        61. Jurisdiction is founded upon 28 U.S.C. §§ 1331 and  
2 1338.

3        62. Oakley is the owner of U.S. Patent No. 5,208,614 which  
4 protects technology claimed and described as an eyewear traction  
5 device. A true and correct copy of U.S. Patent No. 5,208,614 is  
6 attached hereto as Exhibit 5. By statute, the patent is  
7 presumed valid and enforceable under 35 U.S.C. § 282.

8        63. Defendants, through their agents, employees and  
9 servants, manufactured, imported, and sold, without any rights  
10 or license, eyeglasses that fall within the scope and claims  
11 contained in U.S. Patent No. 5,208,614.

12        64. Oakley is informed and believes, and thereupon  
13 alleges, that Defendants willfully infringed upon Oakley's  
14 exclusive rights under the '614 Patent with full notice and  
15 knowledge thereof.

16        65. Oakley is informed and believes, and thereupon  
17 alleges, that Defendants have derived, received, and will  
18 continue to derive and receive from these acts of infringement,  
19 gains, profits, and advantages in an amount not presently known  
20 to Oakley. By reason of the these acts of infringement, Oakley  
21 has been, and will continue to be, greatly damaged. Oakley is  
22 suffering immediate and irreparable harm by Defendants' acts of  
23 infringement.

24        66. Defendants may continue to infringe U.S. Patent No.  
25 5,208,614 to the great and irreparable injury of Oakley, for  
26 which Oakley has no adequate remedy at law unless Defendant is  
27 enjoined by this court.

28    ... ..



**SIXTH CAUSE OF ACTION**

**(Negligent Interference With Contractual Relations)**

67. The allegations of paragraphs 1 through 26 of the complaint are repled and realleged as though fully set forth at this point.

68. This is a claim for negligent interference with contractual relations against Defendant Crews only.

69. Jurisdiction is founded upon 28 U.S.C. §§ 1332 and 1367.

70. As set forth above, Defendant Crews knew or should have known that Oakley had contractual agreements with both Rusty Wallace and Bobby Labonte. Oakley produces a signature series sunglass with Rusty Wallace's signature and color scheme. Both Rusty Wallace and Bobby Labonte, and their teams, wear Oakley sunglasses and endorse the products at NASCAR events. Moreover, Rusty Wallace specifically called Crews, informed them of his contract with Oakley, and asked them to stop selling their "Motorsports Collection" with his name. Thus, Defendant Crews owed Oakley a duty of care to not engage in conduct that would undermine the functioning of that agreement.

71. By producing and selling the "Motorsports Collection" of "Storm" sunglasses bearing signatures, car numbers, and color schemes for Rusty Wallace and Bobby Labonte, Defendant Crews undermined Oakley's exclusive endorsement agreements with Rusty Wallace and Bobby Labonte, while trying to capitalize on their popularity and association with Oakley to gain sunglass sales.

72. It was foreseeable that Defendant Crews' actions would interfere with the functioning and benefit of Oakley's eyewear

1 endorsement agreements with Rusty Wallace and Bobby Labonte, as  
2 it interferes with their obligation to use their best efforts to  
3 promote Oakley eyewear.

4 73. Defendants' false, misleading, and illicit actions  
5 were designed specifically for the purpose of interfering with,  
6 disrupting, and undermining a contracts between Oakley and Rusty  
7 Wallace and Bobby Labonte, and Oakley's damages would be a  
8 direct and proximate result of the Defendants' conduct.

9 74. Unless or until enjoined by this Court, Oakley is  
10 informed and believes that Goodtones will continue to engage in  
11 illicit, unscrupulous, and fraudulent business activities  
12 designed to disrupt and undermine Oakley's contracts, all to  
13 Oakley's irreparable damage.

14 75. If Goodtones is not enjoined by this Court, Plaintiff  
15 will suffer substantial damage to its goodwill, reputation, and  
16 image in the industry, all to its general damages in an amount  
17 not yet ascertainable.

18 **SEVENTH CAUSE OF ACTION**

19 **(UNFAIR COMPETITION UNDER**

20 **CAL. BUS. & PROF. CODE § 17200 ET SEQ.)**

21 76. Oakley realleges paragraphs 1 through 75 above as  
22 though set forth fully at this point.

23 77. This is a claim for unfair competition under  
24 California Business and Professions Code, § 17200 et seq.  
25 against Defendant Crews only.

26 78. Jurisdiction is founded upon 28 U.S.C. §§ 1332 and  
27 1367.

28 ... ..

1        79. The foregoing conduct and action of Defendant Crews  
2 constitutes unfair competition under California Business and  
3 Professions Code, section 17200 *et seq.* In particular, Crews'  
4 advertising of Rusty Wallace and Bobby Labonte sunglasses has  
5 injured Oakley's reputation with its distributors and retailers,  
6 not to mention the confusion it causes with regard to consumers.  
7 Oakley has spent significant time, money, and energy in  
8 marketing its "M Frame" and "Pro M Frame" products to the NASCAR  
9 and other motorsports fans. There is a distinct relationship  
10 between drivers, including Rusty Wallace and Bobby Labonte, and  
11 Oakley for their endorsement of Oakley products. Defendant  
12 Crews' sale of its "Motorsports Collection", including Rusty  
13 Wallace and Bobby Labonte models, unfairly tries to capitalize  
14 on Oakley's market presence and familiarity.

15        80. Oakley has no adequate remedy at law because  
16 Goodtones' is injuring Oakley's reputation and goodwill with its  
17 consumers. Damages alone cannot fully compensate Oakley for the  
18 unlawful acts.

19        81. Unless enjoined by this court, Goodtones will continue  
20 to engage in statutory unfair competition to Oakley's  
21 irreparable injury. Injunctive relief is required to prevent  
22 Goodtones' continued misconduct and to ameliorate and mitigate  
23 Oakley's injury.

24  
25        WHEREFORE, Plaintiff Oakley, Inc. prays as follows:

26        1. That a judgment be entered that Oakley's U.S. Patent  
27 No. D331,587 is valid, in full force and effect, and owned by  
28 Oakley;

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Complaint for Patent Infringement,  
Unfair Competition, & Interference  
w/ Contractual Relations

1           2.    That a judgment be entered that Oakley's U.S. Patent  
2 No. 5,137,342 is valid, in full force and effect, and owned by  
3 Oakley;

4           3.    That a judgment be entered that Oakley's U.S. Patent  
5 No. D384,364 is valid, in full force and effect, and owned by  
6 Oakley;

7           4.    That a judgment be entered that Oakley's U.S. Patent  
8 No. 5,760,868 is valid, in full force and effect, and owned by  
9 Oakley;

10          5.    That a judgment be entered that Oakley's U.S. Patent  
11 No. 5,208,614 is valid, in full force and effect, and owned by  
12 Oakley;

13          6.    That Defendants be adjudicated to have infringed  
14 Oakley's U.S. Patent No. D331,587;

15          7.    That Defendants be adjudicated to have infringed  
16 Oakley's U.S. Patent No. 5,137,342;

17          8.    That Defendants be adjudicated to have infringed  
18 Oakley's U.S. Patent No. D384,364;

19          9.    That Defendants be adjudicated to have infringed  
20 Oakley's U.S. Patent No. 5,760,868;

21          10.   That Defendants be adjudicated to have infringed  
22 Oakley's U.S. Patent No. 5,208,614;

23          11.   That Plaintiff Oakley, Inc. be awarded an assessment  
24 of damages for Defendants' infringement of U.S. Patent Nos.  
25 D331,587, D384,364, 5,137,342, 5,760,868, and 5,208,614, together  
26 with an award of such damages, in accordance with 35 U.S.C. §§  
27 284 and 289;

28   ... ..

1        12. That Plaintiff Oakley, Inc. be awarded an assessment  
2 of treble damages for Defendants' willful infringement of U.S.  
3 Patent No. D331,587, D384,364, 5,137,342, 5760,868, and  
4 5,208,614, together with an award of such damages, in accordance  
5 with 35 U.S.C. § 284;

6        13. For general and consequential damages arising from  
7 Defendant Crews' negligent interference with Oakley's  
8 contractual relations;

9        14. That Defendants, and their owners, directors,  
10 officers, agents, servants, employees and attorneys, and all  
11 those persons in active concert or participation with them, be  
12 forthwith preliminarily and thereafter permanently enjoined from  
13 infringing United States Patent Nos. D331,587, D384,364,  
14 5,137,342, 5760,868, and 5,208,614;

15        15. That Defendants, and their respective agents,  
16 servants, employees, attorneys and all those in active concert  
17 or participation with them, be enjoined and restrained during  
18 the pendency of this action, and permanently thereafter, from  
19 interfering with Oakley's contractual relations with its  
20 athletes, including Rusty Wallace and Bobby Labonte, and  
21 particularly from manufacturing any eyewear incorporating any  
22 Oakley athletes name;

23        16. That Defendants be directed to file with this court  
24 and serve upon Oakley within 30 days after the issuance of the  
25 injunction, a report in writing under oath, setting forth in  
26 detail the manner and form in which Defendants have complied  
27 with the injunction;

28        ... ..

1 17. That Plaintiff Oakley, Inc. be awarded an assessment  
2 of prejudgment and post-judgment interest and costs against  
3 Defendants, together with an award of such interest and costs,  
4 all in accordance with 35 U.S.C. § 284;

5 18. For an order requiring Defendants to deliver up and  
6 destroy all sunglass models that infringing Oakley's patents, as  
7 set forth in this complaint;

8 19. That an award of reasonable costs, expenses, and  
9 attorney's fees be awarded against Defendants, pursuant to 35  
10 U.S.C. §285; and

11 20. That Oakley have such other and further relief as the  
12 circumstances of this case may require and as this court may  
13 deem just and proper.

14 DATED: 9/17/02

WEEKS, KAUFMAN & JOHNSON

15 

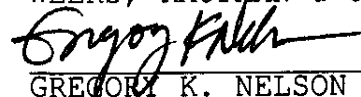
16 GREGORY K. NELSON  
17 Attorney for Plaintiff Oakley, Inc.

18 JURY DEMAND

19 Plaintiff Oakley, Inc. hereby requests a trial by jury in  
20 this matter.

21 DATED: 9/17/02

WEEKS, KAUFMAN & JOHNSON

22   
23 GREGORY K. NELSON  
24  
25  
26  
27  
28

## United States Patent [19]

[11] Patent Number: Des. 331,587

Jannard et al.

[45] Date of Patent: \*\* Dec. 8, 1992

## [54] EYEGLASS FRAME

[75] Inventors: James H. Jannard, San Juan  
Capistrano; Gregory F. Arnette,  
South Laguna Beach, both of Calif.

[73] Assignee: Oakley, Inc., Irvine, Calif.

[\*\*] Term: 14 Years

[21] Appl. No.: 743,568

[22] Filed: Aug. 9, 1991

## Related U.S. Application Data

[62] Division of Ser. No. 502,496, Mar. 30, 1990, Pat. No.  
D. 324,394, which is a division of Ser. No. 397,091,  
Aug. 22, 1989, Pat. No. D. 323,333.

[52] U.S. Cl. .... D16/123

[58] Field of Search .... D16/102, 103, 105-107,  
D16/110-112, 114, 116, 117, 121-123, 127;  
D2/246; 351/44, 45, 47, 57, 59, 83, 87, 111, 118;  
2/13, 199, 439, 448, 449

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Primary Examiner—Bernard Ansher

Assistant Examiner—R. Barkai

Attorney, Agent, or Firm—Knobbe, Martens, Olson &  
Bear

## [57] CLAIM

The ornamental design for an eyeglass frame, as shown  
and described.

## DESCRIPTION

FIG. 1 is a frontal perspective view of the eyeglass  
frame embodying the design of the present invention;  
FIG. 2 is a rear perspective view of the eyeglass frame;  
FIG. 3 is a front elevational view of the eyeglass frame;  
FIG. 4 is a side elevational view of the eyeglass frame;  
and.

FIG. 5 is a top plan view of the eyeglass frame.

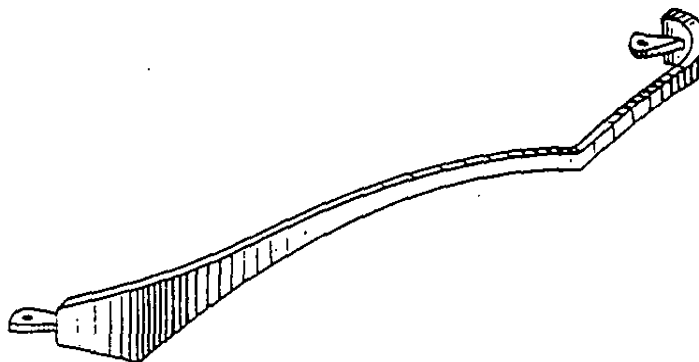


FIG. 1

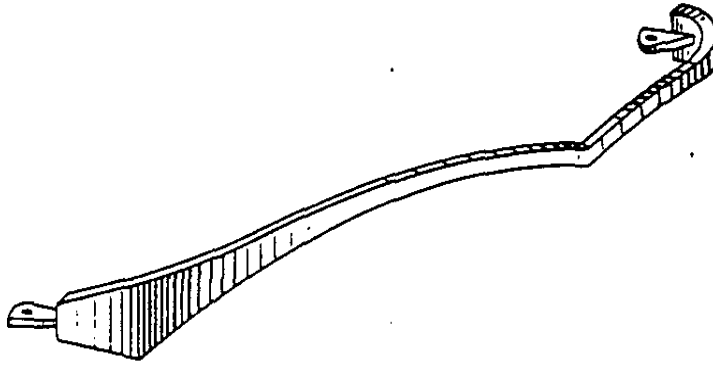


FIG. 2

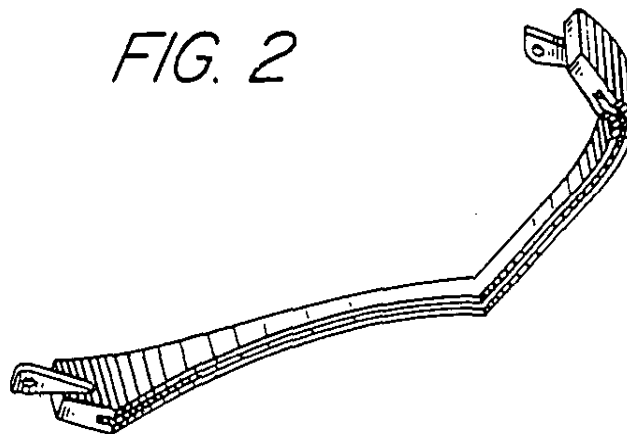




FIG. 3

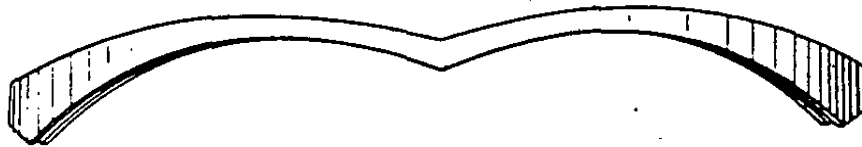
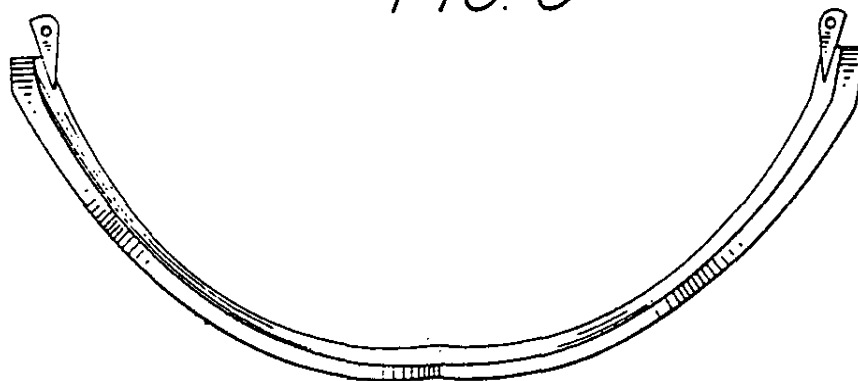


FIG. 4



FIG. 5



US005137342A

## United States Patent [19]

[11] Patent Number: 5,137,342

Jannard et al.

[45] Date of Patent: \* Aug. 11, 1992

## [54] EYEWEAR TRACTION DEVICE

[75] Inventors: James H. Jannard, San Juan Capistrano; Gregory F. Arnette, South Laguna Beach, both of Calif.

[73] Assignee: Oakley, Inc., Irvine, Calif.

[\*] Notice: The portion of the term of this patent subsequent to Oct. 8, 2008 has been disclaimed.

[21] Appl. No.: 695,683

[22] Filed: May 3, 1991

## Related U.S. Application Data

[63] Continuation of Ser. No. 436,474, Nov. 20, 1989, Pat. No. 5,054,903.

[51] Int. Cl.<sup>3</sup> ..... G02S 5/14

[52] U.S. Cl. .... 351/123; 351/122; 351/111

[58] Field of Search ..... 351/122, 123, 111, 119, 351/121

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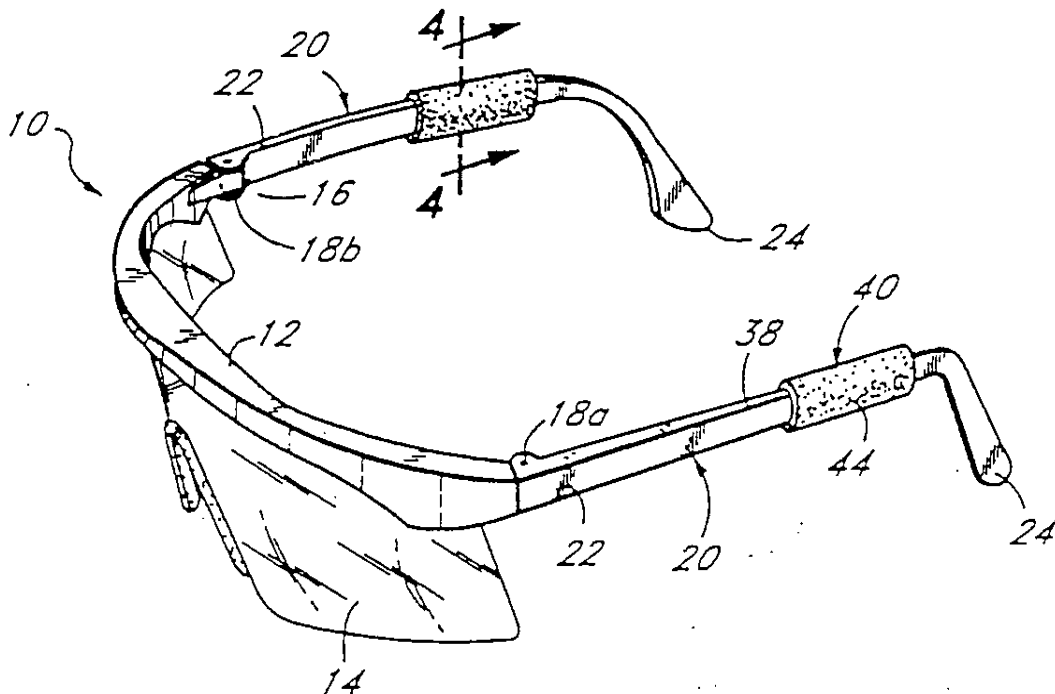
62-12123 1/1987 Japan .

Primary Examiner—Paul M. Dzierzynski  
Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear

## [57] ABSTRACT

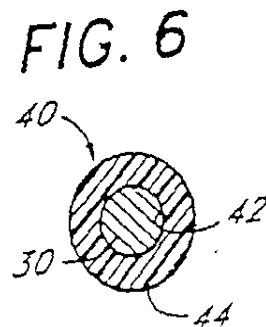
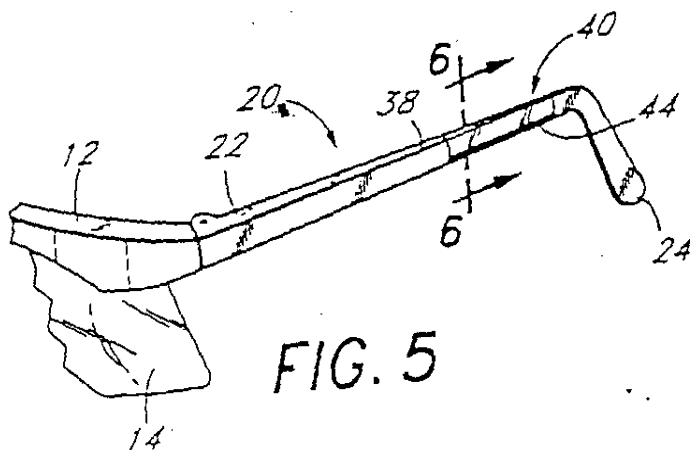
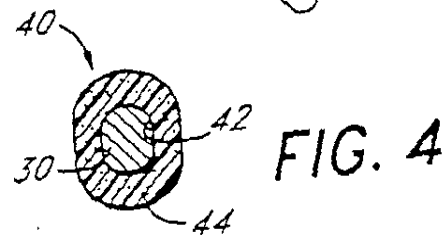
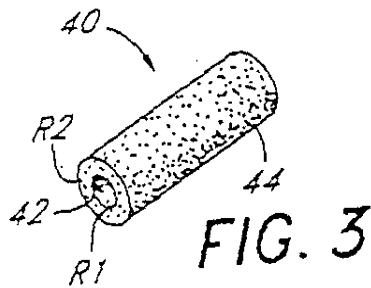
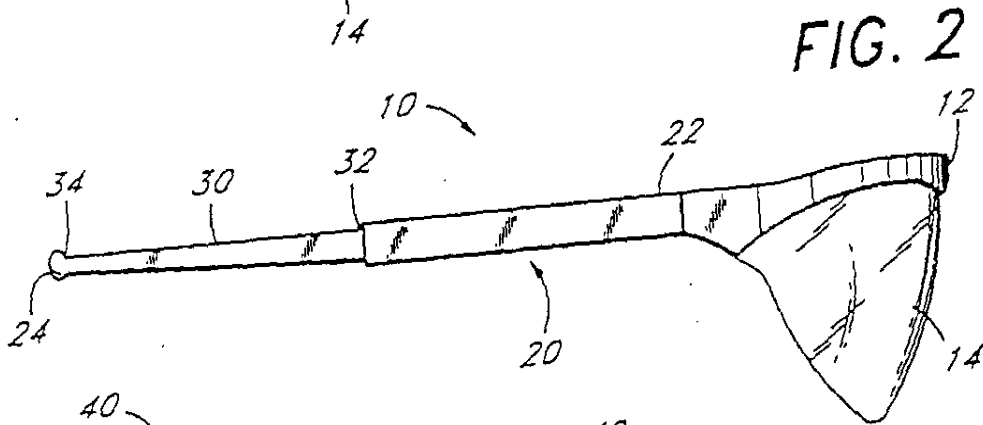
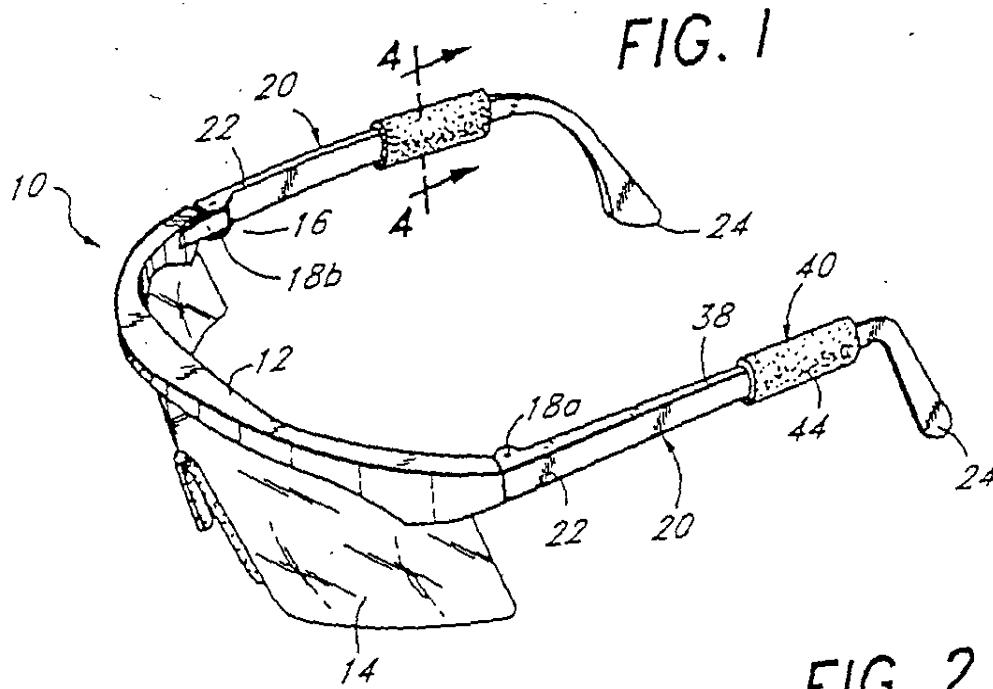
In eyewear employing temples, a substantially cylindrical elastomeric traction member is disposed in a recessed seat which extends along a length of each temple to provide a contact area between the temple and the head. The traction member and seat may be sized so that the traction member is substantially flush with the adjacent temple or alternatively, the traction member may extend beyond the periphery of the temple. In either configuration, the traction device extends substantially parallel to the length of the temple.

32 Claims, 1 Drawing Sheet



Aug. 11, 1992

U.S. Patent



## EYEWEAR TRACTION DEVICE

This application is a continuation of application Ser. No. 436,474 filed Nov. 20, 1989, now U.S. Pat. No. 5,054,90.

## BACKGROUND OF THE INVENTION

The present invention relates to eyewear and, more particularly, to a selectively attachable traction device for improving the retention of the eyewear about the head and a method for using the same.

While corrective lenses are specifically crafted to accommodate the unique vision defects of an individual, the frames used to retain the lenses are typically a standard size and not crafted to conform to the particular contours of an individual's head. Lenses which are employed in filtering eyewear such as sunglasses are also typically retained in stock frames. However, it is virtually impossible to mass produce stock frames which fit every individual's head; therefore, stock frames are constructed to conform to an idealized "standard" adult head.

As a result, such frames often result in a fit which is either too tight or too loose about the head of an individual. A tight fitting frame may cause localized pain and headaches, while a loose fitting frame may allow the eyewear to fall from the head and damage the frame or the lens. This is particularly disadvantageous for protective eyewear such as sunglasses which are to be used in active sports, such as bicycle racing or skiing. Additionally, in the event that corrective lenses vary in weight between the lenses, the uneven weight distribution may cause frames to locally abrade the skin.

A variety of means have been employed to improve the securing of eyewear to the head. These devices have included the use of loose strings which connect the temples of the eyewear around the back of the wearer's head, thereby preventing the glasses from becoming completely displaced from the body. Alternatively, an elastic strap connecting the temples has been employed to engage the wearer's head and secure the eyewear in the desired position.

Perhaps most frequently used, temples have been provided with a hook at the posterior end for engaging the wearer behind the ears. However, due to the significant variation among individuals in the distance from the appropriate position of an eyeglass lens and the back of the ear, the traditional ear hook is frequently either too far back or too far forward of the appropriate position on the wearer's ear. This causes either a painful or irritating friction if the hook is too far forward, or a loose fit if too far back.

The prior attempts to improve the retention of eyewear about the wearer's head have also included the use of rubber or rubber-like plastic boots applied to the free ends of the temples for increasing the friction between the eyeglasses and the head, such as shown in Bates U.S. Pat. No. 3,684,356. The Bates device, however, appears somewhat clumsy and awkward and, therefore, detracts from the appearance of the eyewear. In addition, the Bates device is limited in that it may not be adjusted relative to the eyewear; that is, the closed end of the boot prevents forward adjustment to a more anterior point of contact between the temples and the head, while an unsupported length of boot extending beyond the earpiece is undesirable.

Another prior attempt to improve eyewear retention is disclosed in the Nelson patent (U.S. Pat. No. 2,561,402), which discloses use of relatively complicated fluid chambers at the interface of the free end of the temples and the head. Nelson uses the fluid chambers in an effort to evenly distribute pressure between the temple and the head. As the fluid chambers of Nelson are permanently affixed to the temple in a predetermined orientation, modification for specific individuals is unavailable. In addition, the fluid retained within the chambers adds an undesired weight to the eyewear. Further, even if the fluid chambers were removable, such removal would substantially alter the fit of the eyewear, rendering the eyewear substantially unwearable.

Notwithstanding the foregoing, there remains a need for providing a means of improving the compatibility of eyewear and the wearer so as to improve retention of the eyewear. Preferably, the eyewear retention means will enable one size to comfortably and securely fit a much larger population than can one size eyewear having the traditional ear hook.

A need also exists for a device which improves retention of eyewear without permanently altering the configuration of the eyewear. A further need exists for a retaining device which may be easily disengaged or recombined with the eyewear without drastically changing the functioning or the appearance of the eyewear. In addition to the functional requirements of the traction device, an aesthetic requirement exists so that the device may be employed as a portion of eye wear in either an unobtrusive or distinctive, but attractive, mode.

## SUMMARY OF THE INVENTION

There is provided in accordance with one aspect of the present invention an improved eyewear temple of the type for retaining a pair of eyeglasses on the head of the wearer, by extending from the eyeglass frame in a posterior, i.e., distal, direction over the top of the ears of the wearer. The improved eyeglass temple of the present invention permits the elimination of the traditional hook on the posterior end of traditional temples, and allows a single size set of eyewear temples to comfortably and securely fit on a broader cross section of anatomical variations.

The eyeglass temple comprises an elongate eyeglass temple body, having a first proximal end for attaching the temple to the frame of the eyeglasses, and a second end, distal from the first end, for engaging the head of the wearer. Optionally, the first end of the temple is adapted for securing directly to the lens, such as in a single lens eyeglass system. Preferably, the first end on the temple is provided with a means for releasably pivotably engaging the eyeglass lens or eyeglass frame.

A recessed seat is disposed on the elongate temple body, in between the first and second ends, the recessed seat having a smaller cross-sectional area than the cross-sectional area of the temple body adjacent to the seat. Preferably, the recessed seat comprises an annular recess having first and second shoulders at the first and second axial ends thereof. Preferably, the axial length of the annular recess is less than about one-half of the axial length of the temple, and most preferably, less than about one-third the axial length of the temple.

The eyeglass temple is preferably additionally provided with at least one tubular traction member disposed within the recessed seat. The traction member

preferably comprises an elastomeric material which enables radial expansion to fit over the distal end of the temple body, and relaxation back to provide a snug fit within the recess on the temple. The traction member is preferably made from an elastomeric material which exhibits improved retention properties when the material is wet, and, most preferably, the exterior surface of the traction member is provided with friction enhancing structures, such as annular ridges or other patterned textures.

There is provided in accordance with another aspect of the present invention, an improved eyeglass having at least one lens, and a frame for supporting the lens in front of the eyes of the wearer. The eyeglass is further provided with a first and a second temple produced in accordance with the present invention. Preferably, the distal end of the temple is substantially straight, so that the temple does not wrap around behind the ear of the wearer.

Further features and advantages of the present invention will become apparent from the detailed description of preferred embodiments which follow, when taken together with the appended figures and claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of eyewear in accordance with one embodiment of the present invention.

FIG. 2 is a side elevational view of a second embodiment of eyewear in accordance with the present invention, with the traction member removed.

FIG. 3 is a perspective view of a traction member in accordance with the present invention.

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 1.

FIG. 5 is a perspective view showing an alternative embodiment of the traction member.

FIG. 6 is a cross-sectional view taken along line 6—6 of FIG. 5.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As used in the present application, "eyewear" is a general term intended to embrace optical devices containing corrective lenses for defects in vision or lenses for such special purposes as filters for absorbing or blocking portions of the electromagnetic spectrum, providing physical shields for the eyes or making available other physical or optical functions for protective or visual assisting purposes.

As shown in FIG. 1, eyewear 10 adapted to position a lens in a predetermined orientation relative to the eyes includes a frame 12, lens 14 and temples 20. Preferably, the lens 14 is joined to the frame 12 so as to position the lens 14 before the eyes. As shown in FIGS. 1, 2 and 6, the temples 20 may be pivotally affixed or joined to the frame 12. Although the temples 20 are shown in FIG. 1 as pivotally affixed to the frame 12, the temples 20 may be permanently attached in a predetermined orientation or selectively engageable with the frame 12 without circumventing the scope of the present invention. Alternatively, the frame 12 may be eliminated entirely by securing the temples 20 with or without temple hinges directly to the lens 14 by thermoplastic bonding, adhesives screws or other known fastening means which are suitable for the material of the lens and temples.

As is well known in the art, the frame 12 and temples 20 may be conveniently made of molded plastic or a variety of other materials. The lens 14 may take any of

a number of configurations and may be formed of sheet plastic, molded plastic or glass as determined by the application of the lens.

Each temple 20 is defined by a proximal end 22 and a distal end 24 wherein the proximal end 22 is affixed either permanently or detachably to the frame 12. The permanent attachment of the temples to the frame 12 may be accomplished through molding or thermoplastic bonding. The detachable engagement of the temples 20 and the frame 12 is provided by the use of a snap fit or fasteners including screws or pins, as are known in the art.

Although the earstems shown in FIG. 1 are affixed to the frame 12, the earstem 20 may be attached directly to the lens 14. Preferably, the earstems 20 are hingeably attached to the frame 12 or lens 14 and most preferably, hingeably and removably attached, as well known in the art.

As shown in FIG. 1, in a typical hingeable connection, the frame 12 or lens 14 includes a hinge aperture (not illustrated) extending through a protruding flange 16. The earstem 20 includes a pair of parallel apertured flanges 18a, 18b spaced so as to receive the flange 16 of the frame 12 or lens 14 therebetween. The apertures in the earstem 20 are aligned with the apertures of the frame 12 or lens 14 and a pin is inserted so as to permit rotation of the frame 12 or lens 14 relative to the earstem 20, thereby providing a hingeable connection. In a typically readily detachable hinge, the aperture in the flange 16 of the frame 12 or lens 14 is replaced by an integral pin (not illustrated) which extends away from the flange 16 in opposite directions along the same axis as the aperture. The pinned flange 16 is inserted by deformation between the opposing flanges 18a, 18b and the integral pin snaps into the aperture on the flanges 18a, 18b, thereby providing a readily detachable hinge.

As shown in FIGS. 1 and 5, the distal end 24 may be curved so as to provide loops which are disposed behind the ears when the eyewear is worn. However, as the looped temples shown in FIGS. 1 and 5 may impinge upon the head in undesired locations when employed on heads of different sizes, the looped temples are not well suited to accommodate a wide variety of head sizes. Thus, the preferred embodiment shown in FIG. 2 includes a straight temple which, when used in conjunction with the present invention, provides more universally fitting eyewear and eliminates the traditional ear hook which can cause discomfort or distraction for many wearers.

As shown in FIG. 2, a recessed seat 30 is disposed intermediate of the proximal and distal ends 22, 24. As shown in FIG. 2, the seat 30 is preferably located adjacent the distal end 24 of the temple 20, so that the posterior shoulder 34 is substantially coincident with the distal end 24. However, as will be apparent, if it is desired to extend the temples in a posterior direction well beyond the ears, the distance between posterior shoulder 34 and distal end 24 can be proportionately increased to maintain seat 30 near the ear.

The recessed seat 30 is defined by posterior shoulder 34 and preferably an anterior shoulder 32, such that the anterior shoulder 32 is disposed between the posterior shoulder 34 and the proximal end 22. Preferably the cross-sectional dimension of the seat 30 between the anterior and posterior shoulders 32, 34 is smaller than the cross-sectional dimension of the adjacent temple 20.

Preferably, the posterior shoulder 34 is a sufficient distance from the anterior shoulder 32 so that at least



one traction member 40 may be retained therebetween. However, the seat 30 may be configured so as to extend substantially the entire length of the temple or alternatively, may extend only a portion of the overall length of the temple. Typically, the seat extends less than about one-half or one-third the length of the temple and is disposed on the posterior portion of the temple.

Although the seat is shown as defined by an anterior shoulder 32 and a posterior shoulder 34, the present invention may be practiced with a seat 30 defined only by a posterior shoulder 34 for preventing unintended axial displacement of the traction member in the posterior direction.

When the seat 30 is defined by only the posterior shoulder 34, the cross-sectional area of the seat may taper from being substantially coincident with an anterior cross-sectional area of the temple to the reduced cross-sectional area at the posterior shoulder 34. The posterior shoulder thereby prevents unintentional axial displacement of the traction member in the posterior direction. Axial displacement of the traction member in the anterior direction is inhibited by the expanding cross-sectional area of the seat in a tapered embodiment, as the seat extends in the anterior direction, or simply by a friction fit in the absence of a taper or an anterior shoulder.

Preferably, the seat 30 is located so that upon operable engagement of the traction member 40 within the seat 30, the traction member 40 provides an interface between the eyewear and the head. That is, the traction member 40 contacts the head.

Referring to FIG. 3, an elongate tubular traction member 40 is shown. In the preferred embodiment, the traction member 40 is formed substantially in the shape of a hollow cylinder having an inner surface 42 of radius R1 and outer surface 44 of radius R2, wherein radius R1 is less than radius R2. Preferably, radius R1 is expandable to permit passage of the distal end 24 of the temple 20 through the interior of the traction member 40 without exceeding the elastic limits of deformation of the traction member 40.

As shown in FIG. 4, the traction member 40 is preferably comprised of a material having sufficient elasticity that the inner surface 42 of the traction member 40 snugly contacts the surface of a seat 30 having an oblong or rectangular cross-section with a cross-sectional area greater than that of R1 in the unexpanded state. Referring to FIG. 6, the inner surface 42 will also preferably conform snugly to the surface of a seat 30 having a substantially circular cross-section.

Other embodiments of the traction member 40 may be employed, such as one having an open rectangular or triangular cross-sectional configuration having a bias so that the open legs of the triangle or rectangle are biased towards one another to tend to form a tubular element. Thus, traction devices can take the form of an elongate body which is split axially along one wall so that it does not form a complete tube. The bias should be sufficient so that the opposing inner surfaces 42 of the traction member 40 cooperatively engage the periphery of the recessed seat 30.

The traction member 40 may be formed by molding or extruding processes, as well known in the art. Preferably, the outer surface 42 is configured to enhance the coefficient of static friction between the eyewear and the head. The outer surface 44 may be formed to exhibit a variety of static friction coefficient enhancing configurations, such as a grid, waffle, or ribbed pattern (not

shown). Typically, the outer surface 42 produced by extrusion will exhibit axially oriented patterns, while molded outer surfaces may exhibit axially and/or radially oriented patterns.

As discussed *infra*, the traction member 40 is preferably formed of an elastomeric material exhibiting sufficient flexibility or elasticity to allow the traction member 40 to expand while being slipped over the temple distal end 24 and to contract back within seat 30 after passing over the distal end.

In a particularly preferred embodiment, the traction member 40 is formed of a relatively soft elastomeric material having a coefficient of sliding friction that increases when the material is wetted. Such a material, sometimes referred to as hydrophilic, tends to enhance retention of the traction member 40 in position on the wearer's head as the wearer perspires or encounters moisture, as during skiing. One suitable material which can be readily molded by conventional techniques is marketed under the name KROTON G™, a product of the Shell Oil Company.

The traction member 40 may comprise a resilient sponge-like elastomeric material, having a relatively high porosity, as shown in FIGS. 3 and 4. Alternatively, as shown in FIG. 6, the traction member 40 may comprise a substantially solid, i.e., fine or no porosity, yet flexible material. In addition, the traction member 40 may be made of materials having different densities, thereby providing traction members 40 having different weights, which may be employed to counterbalance lenses of differing weights, so as to distribute the weight of the eyewear 10 more evenly about the head.

The length of the traction member 40 is preferably no greater than and most preferably substantially equal to the distance between the anterior and posterior shoulders 32, 34. Although the traction member 40 is illustrated as extending roughly one-third or one-half the overall length of the temple, the traction members 40 within the present invention can extend anywhere from substantially the entire length of the temple 20 to only a relatively small portion thereof, as depending upon the configuration of the seat 30. Alternatively, a plurality of traction members 40 may be axially aligned within the seat 30. The traction members 40 may be selected so that a combined length of the members 40 substantially equals the distance between the anterior and the posterior shoulders 32, 34 or alternatively, the combined axial length of the members 40 may be such that an axial space separates adjacent traction members 40 within the seat.

In assembling the present invention, the traction member 40 is engaged with a temple 20 by passing the distal end 24 of the temple 20 through the tubular passageway within traction member 40. Alternatively, the temple 20 may be detached from the frame 12 or lens 14 and the proximal end 22 may be passed through the tubular passageway of the traction member 40. Therefore, the preferred construction of the traction member 40 which elastically passes over the distal end may be obviated. The traction member 40 is then moved along the temple 20 until the inner surface 42 engages the seat 30. In an embodiment in which the seat 30 has a length substantially equal to the length of the traction member 40, as the traction member 40 is received within the seat 30, further unintended motion along the temple 20 is prevented by engagement of the anterior and posterior shoulders 32, 34 with the traction member 40.

Alternatively, the seat 30 may have a sufficient axial length so as to retain a plurality of traction members 40 between the anterior and posterior shoulders 32, 34. The use of multiple traction members 40 allows for accommodating fashion considerations as well as high retaining forces for active uses, such as volleyball or basketball. Upon engagement of the traction member 40 within the seat 30, the outer surface 44 of the traction member 40 may be disposed outside of the periphery of the temple 20, as shown in FIG. 1 or, alternatively, may be substantially flush with the periphery 38 of the adjacent temple 20, as shown in FIG. 5. Traction members are preferably provided having a variety of wall thicknesses, i.e., the difference between R1 and R2. Thus, the wearer can select a flush fitting traction member as illustrated in FIG. 5 or a radially enlarged traction member as illustrated in FIG. 1, depending upon that wearer's perception of the need for enhanced traction or sleek appearance.

As the majority of the length of the temple 20 in the preferred embodiment is dominated by the periphery of the temple 20 rather than the seat 30, if the traction members 40 are removed from the temples 20, the fitting of the eyewear 10 will not be substantially denigrated. However, the length of the traction member 40, when engaged in the seat 30, provides a sufficient contact area to increase the resistance to movement of the eyewear 10 relative to the head.

This present invention has been described in detail in connection with the preferred embodiments, but these are examples only and the present invention is not restricted thereto. It will be easily understood by those skilled in the art that other variations and modifications can be easily made within the scope of this invention, which is defined by the following claims.

It is claimed:

1. Improved eyewear, comprising:

at least one temple piece having a recessed seat along a length thereof such that the seat defines a periphery which is smaller than the periphery of the adjacent temple portion, said seat having an axial length of less than about one-half the axial length of the temple; and

at least one substantially tubular traction member disposed within the recessed seat having an inner surface, an outer surface, and a central passageway running axially therethrough, said inner surface removably engaging the periphery of the seat, and said outer surface adapted to provide a contact surface with the head of the wearer.

2. Improved eyewear, comprising:

a frame;

at least one temple having proximal and distal ends and being joined to the frame at the proximal end thereof, having a recessed seat interposed between said proximal and distal ends, said seat having a smaller cross-sectional area than the cross-sectional area of said temple portion adjacent said seat, and said seat having an axial length of less than about one-half of the axial length of the temple; and

a substantially tubular elastomeric traction member having an inner surface and an outer surface, such that the inner surface is adapted to circumferentially contact the temple, and the outer surface is adapted to engage the head of a wearer, wherein the traction member is disposed in the recessed seat region on the temple.

3. An improved eyewear temple for retaining eyeglasses on the head of the wearer and reducing abrasion caused by movement of said eyewear, comprising:

an elongate eyewear temple body;

a first end on the temple for attaching the temple to the frame of the eyeglasses;

a second end on the temple, distal said first end, for engaging the head of the wearer; and

a recessed seat interposed between said first and second ends having a smaller cross-sectional area than that of said temple portion adjacent said seat, said seat being separated from the remainder of said temple by first and second shoulders, such that the axial length of the recessed seat between the first and second shoulders is less than about one-half of the axial length of the temple, said recessed seat being situated toward the distal end of the temple such that at least one substantially tubular traction member removably disposed within the recessed seat can engage the head of the wearer.

4. An eyewear temple as in claim 3, wherein at least one substantially tubular traction member is disposed within the recessed seat between the first and second shoulders, said member having an inner surface, an outer surface, and a central passageway running axially therethrough, said inner surface removably engaging the periphery of the seat, and said outer surface adapted to provide a contact surface with the head of the wearer.

5. An eyewear temple as in claim 4, wherein the tubular traction member comprises a resilient elastomeric material.

6. An improved eyewear temple as in claim 5, wherein said elastomeric material exhibits a coefficient of sliding friction that increases when the material is wetted.

7. An eyewear temple as in claim 5, wherein the thickness of the traction member is such that the outer surface of the traction member is substantially flush with the periphery of the adjacent portion of the temple.

8. An eyewear temple as in claim 7, wherein the outer cross-sectional shape of the traction member approximates the outer cross-sectional shape of the adjacent portion of the temple.

9. An eyewear temple as in claim 5, wherein the traction member extends radially outward beyond the surface of the adjacent portion of the temple.

10. An eyewear temple as in claim 5, wherein at least one tubular traction member disposed within the recessed seat extends substantially the entire distance between said first and second shoulders of the temple.

11. An eyewear temple as in claim 5, wherein the traction member is removable and comprises a hollow, elastomeric member adapted to allow elastic radial expansion for sliding over the distal end of said temples and into engagement with said recessed seat.

12. An eyewear temple as in claim 3, wherein the shoulders extend substantially perpendicularly from the seat.

13. An eyewear temple as in claim 3, wherein the recessed seat consists of a tapering that extends axially and radially from the distal end of the recessed seat to the proximal end, wherein the cross-sectional area of the seat tapers from the smaller periphery at the distal end to being substantially coincident with the cross-sectional area of the temple at the proximal end of the recessed seat.

14. An eyewear temple as in claim 3, wherein the axial length of the recessed seat extends no more than about one-third the length of the temple.

15. An eyewear temple as in claim 3 further comprising an attachment means on the first end thereof for pivotably removably attaching the temple to an eyeglass frame.

16. An improved eyewear temple for retaining eyeglasses on the head of the wearer and reducing abrasion caused by movement of said eyewear, comprising:

- an elongate eyewear temple body, wherein the body is substantially linear through the axial length of the temple;
- a first end on the temple for attaching the temple to the frame of the eyeglasses;
- a second end on the temple, distal said first end, for engaging the head of the wearer;
- a recessed seat interposed between said first and second ends having a smaller cross-sectional area than that of said temple portion adjacent said seat, said seat being separated from the remainder of said temple by first and second shoulders; and
- at least one tubular traction member disposed within the recessed seat.

17. An eyewear temple as in claim 16, wherein at least one substantially tubular traction member is disposed within the recessed seat between the first and second shoulders, said member having in inner surface, an outer surface, and a central passageway running axially there-through, said inner surface removably engaging the periphery of the seat, and said outer surface adapted to provide a contact surface with the head of the wearer.

18. An eyewear temple as in claim 17, wherein the tubular traction member comprises a resilient elastomeric material.

19. An improved eyewear temple as in claim 18, wherein said elastomeric material exhibits a coefficient of sliding friction that increases when the material is wetted.

20. An eyewear temple as in claim 18, wherein the thickness of the traction member is such that the outer surface of the traction member is substantially flush with the periphery of the adjacent portion of the temple.

21. An eyewear temple as in claim 20, wherein the outer cross-sectional shape of the traction member approximates the outer cross-sectional shape of the adjacent portion of the temple.

22. An eyewear temple as in claim 18, wherein the traction member extends radially outward beyond the surface of the adjacent portion of the temple.

23. An eyewear temple as in claim 16, wherein the shoulders extend substantially perpendicularly from the seat.

24. An eyewear temple as in claim 16, wherein the recessed seat consists of a tapering that extends axially and radially from the distal end of the recessed seat to the proximal end, wherein the cross-sectional area of the seat tapers from the smaller periphery at the distal end to being substantially coincident with the cross-sectional area of the temple at the proximal end of the recessed seat.

25. An eyewear temple as in claim 16, wherein the axial length of the recessed seat extends no more than about one-third the length of the temple.

26. An eyewear temple as in claim 16, wherein the axial length of the recessed seat extends no more than about one-half the length of the temple.

27. An eyewear temple as in claim 16, wherein at least one tubular traction member disposed within the recessed seat extends substantially the entire distance between said first and second shoulders of the temple.

28. An eyewear temple as in claim 16, wherein the traction member is removable and comprises a hollow, elastomeric member adapted to allow elastic radial expansion for sliding over the distal end of said temples and into engagement with said recessed seat.

29. An eyewear temple as in claim 16, further comprising an attachment means on the first end thereof for pivotably removably attaching the temple to an eyeglass frame.

30. Improved eyewear, comprising:  
at least one temple piece being substantially linear throughout the axial length of the temple and having a recessed seat along a length thereof such that the seat defines a periphery which is smaller than the periphery of the adjacent temple portion; and  
at least one substantially tubular traction member disposed within the recessed seat having an inner surface, an outer surface, and a central passageway running axially therethrough said inner surface removably engaging the periphery of the seat, and said outer surface adapted to provide a contact surface with the head of the wearer.

31. Improved eyewear, comprising:  
a frame;  
at least one temple having proximal and distal ends and being joined to the frame at the proximal end thereof, said temple being substantially linear throughout the axial length of the temple, said temple having a recessed seat interposed between said proximal and distal ends, said seat having a smaller cross-sectional area than that of said temple portion adjacent said seat; and  
a substantially tubular elastomeric traction member having an inner surface and an outer surface, such that the inner surface is adapted to circumferentially contact the temple, and the outer surface is adapted to engage the head of a wearer, wherein the traction member is disposed in the recessed seat region on the temple.

32. Improved eyewear having a lens, a frame supporting said lens for positioning the lens before the eyes of a wearer, and first and second temples for securing said eyewear to the head of the wearer, said temples having a proximal end joined to said frame and a distal end spaced from said proximal end, the improvement comprising:

- said first and second temples being substantially linear throughout the axial length of the temple member, said temples having disposed between said proximal and distal ends a radially recessed seat having a smaller cross-sectional area than that of said temple portion adjacent said seat; and
- at least one traction member releasably secured on said first and second temples within the seat, whereby said traction member frictionally engages the wearer's head.



# United States Patent [19]

[11] Patent Number: Des. 384,364

Yee

[45] Date of Patent: \*\*Sep. 30, 1997

[54] EYEGLASS FRAME FRONT

[75] Inventor: Peter Yee, Irvine, Calif.

[73] Assignee: Oakley, Inc., Irvine, Calif.

[\*\*] Term: 14 Years

[21] Appl. No.: 55,504

[22] Filed: Jun. 6, 1996

[51] LOC (6) CL ..... 16-06

[52] U.S. CL. .... D16/330; D16/314

[58] Field of Search ..... D16/300, 304,  
D16/306, 309, 311-317, 319, 325-330,  
335; 351/41, 44, 51-52, 103, 105, 106,  
109, 111, 118, 119, 124; 2/447, 448

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## [57] CLAIM

The ornamental design for eyeglass frame front, as shown and described.

## DESCRIPTION

FIG. 1 is a front perspective view of the eyeglass frame front of the present invention, the broken line showing of the earstems, nose piece and lens is for illustrative purposes only and forms no part of the claimed design;

FIG. 2 is a front elevational view thereof;

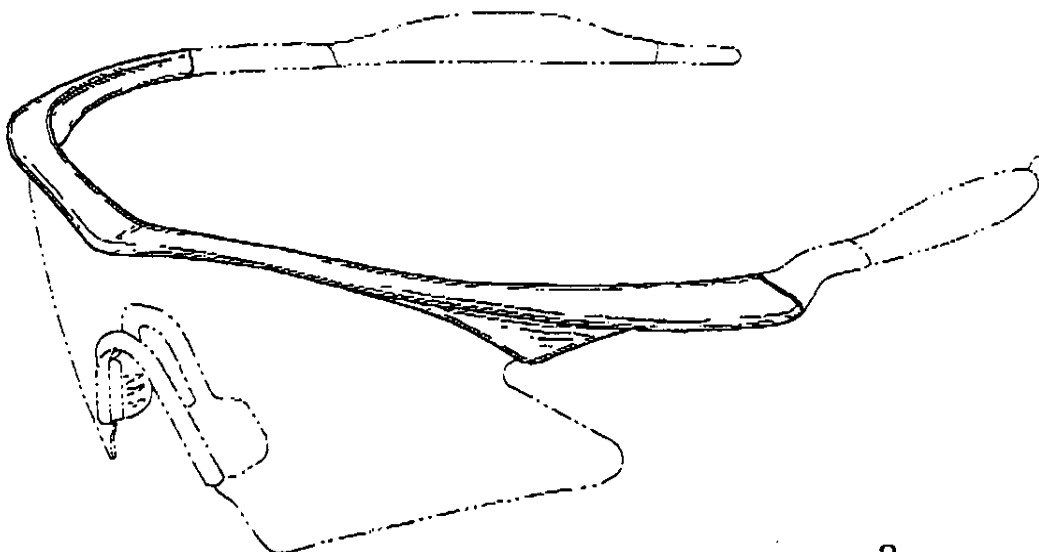
FIG. 3 is a rear elevational view thereof;

FIG. 4 is a right-side elevational view thereof, the left side elevational view being a mirror image thereof;

FIG. 5 is a top plan view thereof; and

FIG. 6 is a bottom plan view thereof.

1 Claim, 3 Drawing Sheets

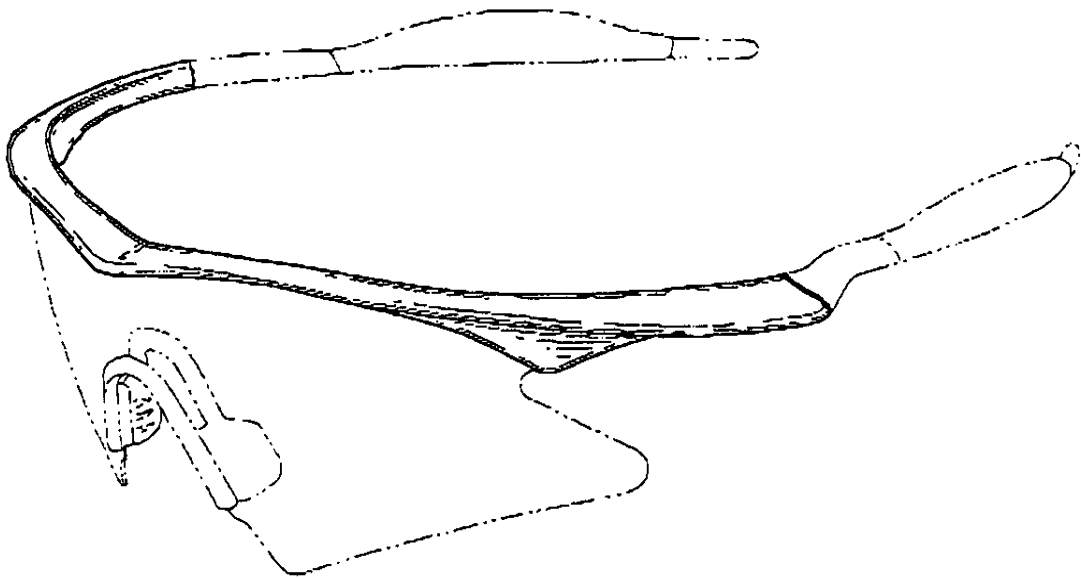


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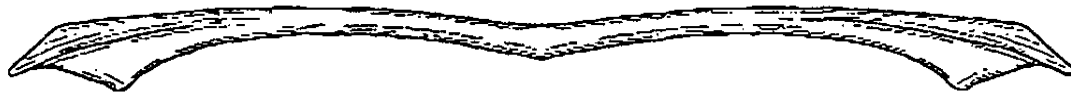
Sheet 1 of 3

**Des. 384,364**



*Fig. 1*

*Fig. 2*



*Fig. 3*



*Fig. 4*



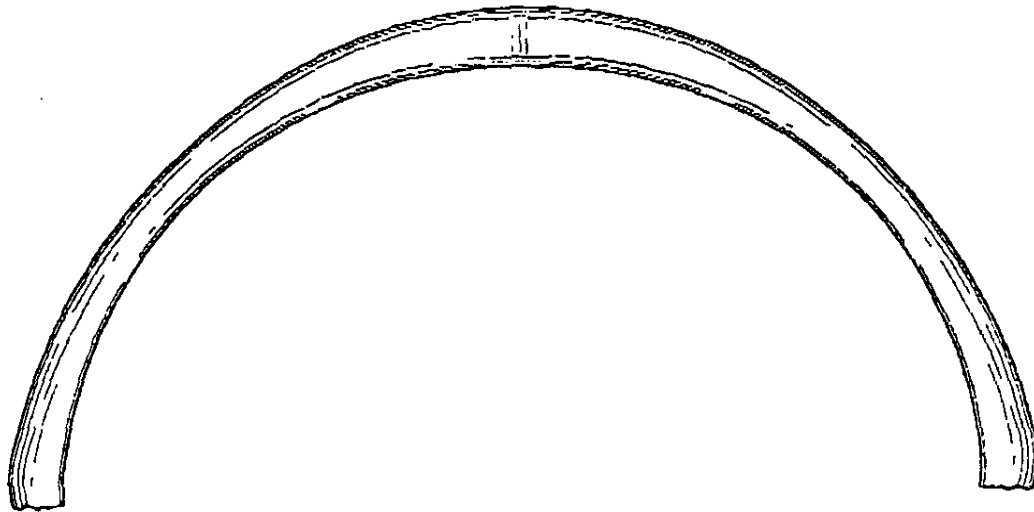
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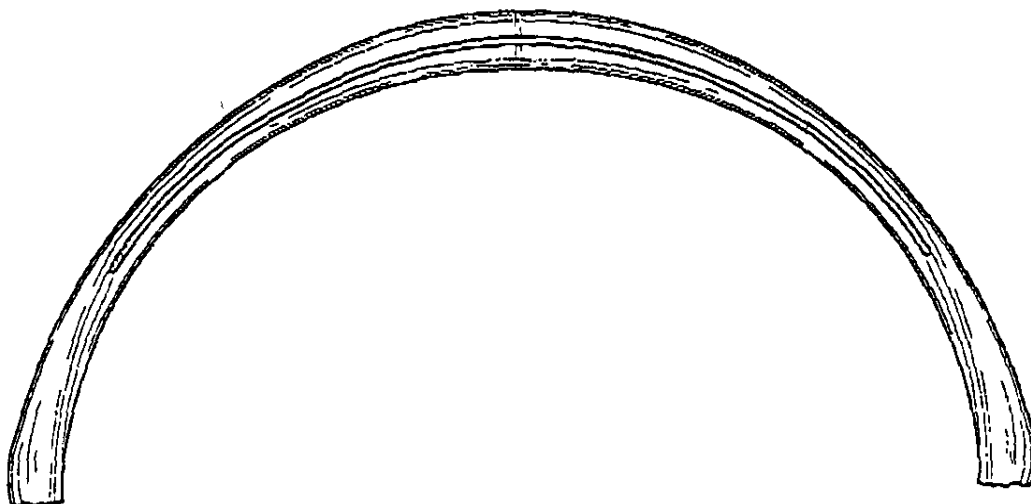
Sheet 3 of 3

Des. 384,364

*Fig. 5*



*Fig. 6*



# United States Patent [19]

Jannard et al.

[11] Patent Number: 5,760,868

[45] Date of Patent: Jun. 2, 1998

[54] UNITARY HINGELESS EYEGLASS FRAME

[75] Inventors: James H. Jannard, Eastsound, Wash.;  
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[73] Assignee: Oakley, Inc., Foothill Ranch, Calif.

[21] Appl. No.: 672,104

[22] Filed: Jun. 27, 1996

[51] Int. Cl.<sup>6</sup> ..... G02C 5/22

[52] U.S. Cl. .... 351/153; 351/41; 16/228

[58] Field of Search ..... 351/41, 44, 153;  
16/228

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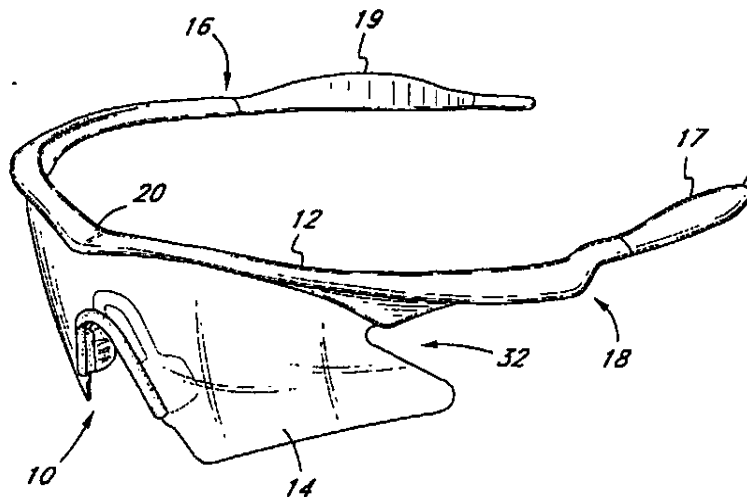
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Primary Examiner—Huy Mai  
Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear, LLP

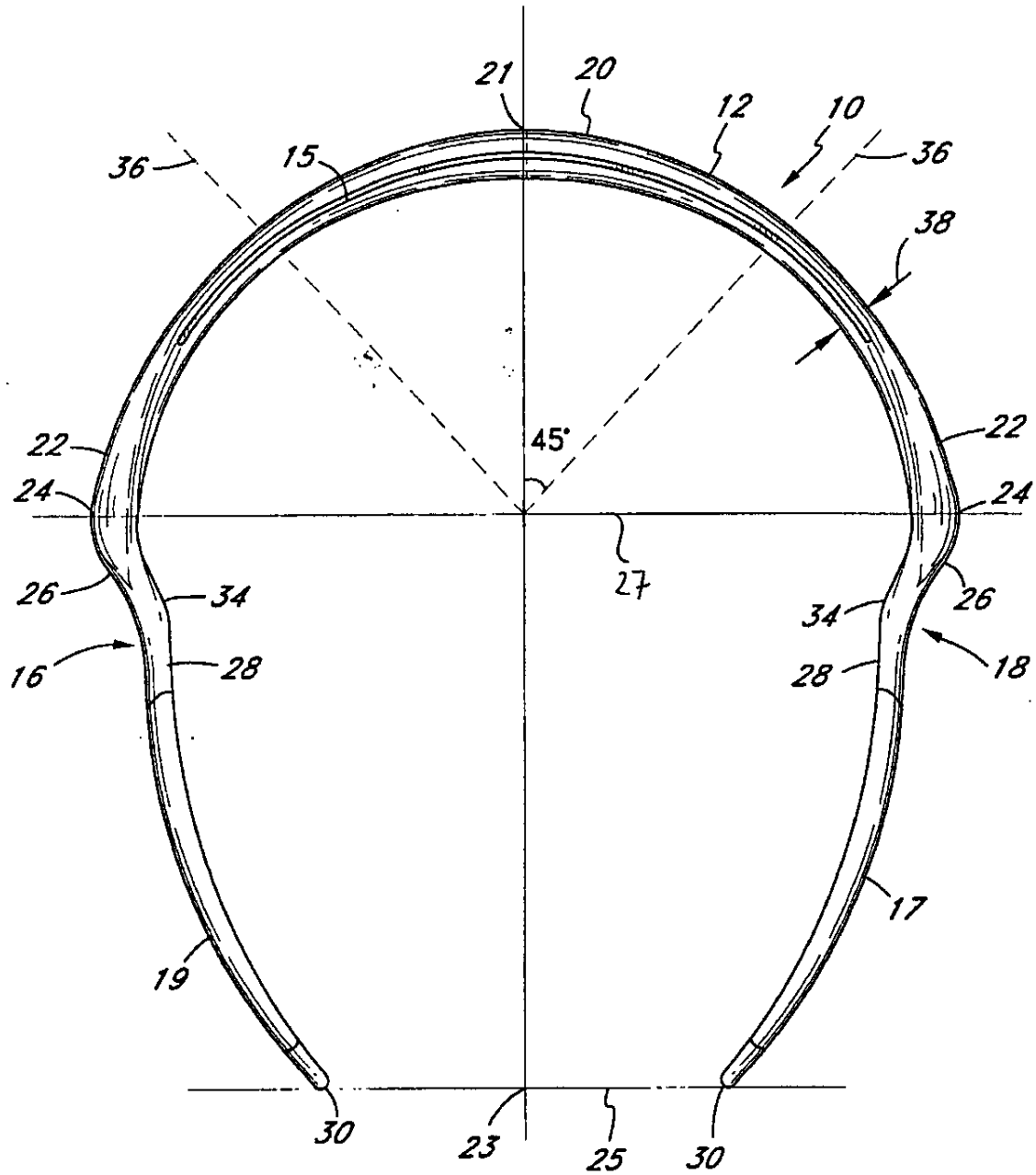
## [57] ABSTRACT

Disclosed is a hingeless eyeglass frame designed so the entire eyeglass frame provides a medially directed force at the posterior portion of the earstems to increase the retentive force between the eyewear and the head. In one vented embodiment, each lens of a dual-lens eyeglass is provided with a plurality of apertures extending therethrough, at the junction between the lens and the surrounding frame. The unitary frame or conventionally hinged frames may also have apertures to allow airflow for ventilation.

16 Claims, 3 Drawing Sheets



*Fig. 2*



5,760,868

1

**UNITARY HINGELESS EYEGLASS FRAME**

The present invention relates generally to eyewear, and more particularly to a hingeless eyeglass frame adapted to provide a medially and anteriorly directed force at the posterior portion of the earstems to retain the eyewear on the wearer's head.

**BACKGROUND OF THE INVENTION**

A wide variety of improvements have been made in recent years in the eyewear field, particularly with respect to eyewear intended for use in active sports or as fashion sunglasses. For example, certain improvements have been incorporated into eyewear having a unitary lens, such as the "Blades®" design (Oakley, Inc.) the "M Frame®" line (Oakley, Inc.), and the "Zero®" line also produced by Oakley, Inc. These eyewear designs accomplish a variety of functional advantages, such as maximizing interception of peripheral light, reducing optical distortion and increasing the wearer's comfort level, compared to previous active sport eyewear.

Lens geometry has also been the subject of a variety of innovations. The unitary lens of the "Blades®" eyewear incorporates the cylindrical geometry disclosed, for example, in U.S. Pat. No. 4,859,048, issued to Jannard. This geometry allows the lens to closely conform to the wearer's face and intercept light, wind, dust, etc. from directly in front of the wearer (anterior direction) and peripherally (lateral direction). See also U.S. Pat. No. 4,867,550 to Jannard (toroidal lens geometry).

A variety of improvements in eyewear retention systems have also been made in recent years. See, for example, U.S. Pat. No. 5,137,342 to Jannard et al. and No. 5,249,001 to Jannard. Nonetheless, the need remains for further improvements in comfortable eyewear retention systems which are useful in highly active sports.

Another remaining practical problem confronting the wearer is how to store eyeglasses when the eyeglasses are not being worn. For example, a wearer may be continually putting sunglasses on and off as the wearer goes indoors and outdoors. Although eyeglasses are often supplied with a storage case, the case is one more item the wearer must carry. Prior art efforts include attaching a string to each end of a temple and hanging the string around the wearer's neck. This can be inconvenient or distracting as the eyeglasses tend to swing around at the end of the string as the wearer moves about.

In addition, ventilation has become an issue with a number of recent eyewear designs. Early dual-lens eyeglass systems generally comprised a right and left lens suspended by an eyeglass frame in the wearer's line of sight. Each of the right and left lenses was generally disposed on a plane which was perpendicular to the wearer's normal or "straight ahead" line of sight. Although the upper portion of the eyeglass frame often contacts the forehead, a significant ventilation gap was normally present between the lower and lateral edges of the eyeglass lens and the wearer's cheek bone.

Dual lens eyeglasses have more recently been developed in which the eyeglasses exhibit a significant rake and wrap compared to the prior art. Lens rake refers to the extent to which the lower edge of a lens curves in towards the wearer's face. Lens wrap refers to the extent to which the lateral edge of the lens curves rearwardly to conform more closely to the side of the wearer's head.

Increased lens rake and wrap have as a consequence a reduction in the gap between the lower edge of the lens and

2

the face as well as a reduction in the gap between the lateral edge of the lens and the face.

Although increased rake and wrap in dual-lens eyeglasses can produce a variety of benefits, one disadvantage is the entrapment of a relatively small volume of air between the lens and the wearer's face. When someone wears eyeglasses of high wrap and rake design during active sports, such as skiing, bicycling or the like, the lenses are susceptible to fogging on the inside surface due to an inadequate ability to circulate moisture-laden air.

Thus, there remains a need for improved eyewear with improved retention and convenient short term storage when the eyewear is momentarily removed. Preferably, the eyewear design permits either a unitary lens or a dual lens eyeglass system having a relatively high level of rake and wrap compared to the prior art, which minimizes the risk of fogging due to the entrapment of air between the lens and the face of the wearer.

**SUMMARY OF THE INVENTION**

There is provided in accordance with one aspect of the present invention a unitary eyeglass frame for securing an eyeglass lens to the head of the wearer, and for positioning the lens in the wearer's line of sight, the unitary frame in combination with the lens adapted to maintain a medially directed bias on the distal (posterior) end of the earstem over a wide range of lateral positions, thereby accommodating a wide range of head widths. When the glasses are not being worn to position the lens in the wearer's line of sight, the unitary eyeglass frame can be hung around the wearer's neck or on top of the wearer's head for storage.

One embodiment of the eyeglass frame comprises an arcuate lens support section for extending across the front of the wearer's face to support at least one lens in the wearer's line of sight. The support section has a central zone and first and second lateral zones.

First and second earstems extend from the first and second lateral zones such that when the frame is on the wearer's head and the lens is in the wearer's line of sight the first and second earstems extend rearwardly from the lens support section past the wearer's ears and toward each other part way around the back of the wearer's head. The eyeglass frame is a hingeless, unitary construction.

Preferably, the first and second earstems are provided with first and second ends spaced apart from the lens support section, and the first and second ends are separated from each other by no more than about 4 inches, preferably no more than about 3½ inches and more preferably no more than about 3 inches in the relaxed, unworn configuration. In an alternate embodiment, the first and second ends are separated by no more than about 2½ inches, and preferably no more than about 2 inches in the relaxed, unworn configuration.

The first and second ends are moveable in a lateral direction with respect to each other throughout a lateral range of motion to a sufficient separation distance to accommodate the head of a wearer, such as at least about 4 inches and preferably as much as 5 inches or more while maintaining a medially directed bias throughout the lateral range of motion.

In accordance with a further aspect of the present invention, there is provided a vented eyeglass frame. The vented eyeglass frame comprises a front, lens support section and first and second rearwardly extending earstems. At least a first and a second forward facing apertures are provided in the frame, the first aperture disposed between



5,760,868

5

Preferably, the retaining section 28 is configured to employ an elastomeric traction device 17 or 19, as described in the above-referenced patents. The traction device 17 is in the illustrated embodiment disposed proximal to the distal end 30 of the earstem 18, and distal to the converging section 26 of the earstem 18. Preferably, the retaining section 28 includes an area of reduced cross sectional area such as an annular seat having a posterior shoulder (not shown) near distal end 30. The posterior shoulder is sized to provide a stop for elastomeric traction device 17 so as to prevent distal axial displacement of the traction device 17 under normal wearing conditions. The traction device 17 provides an outer surface which enhances the retention of the eyewear relative to the head by providing an increased coefficient of static friction between the eyewear and the head. A preferred material for the traction is KROTON G, manufactured by Shell Oil Company. The device 17 is preferably extruded or molded into a tubular configuration adapted to slide concentrically over at least a portion of the retaining section 28.

The retaining sections 28 of opposing ear stems 17, 19 converge in the distal (posterior) direction in the horizontal plane, as illustrated in FIG. 2. The combination of the frame 12 and the earstems 16, 18 cooperate to bias each earstem toward the opposing earstem when the earstems are separated in the as worn orientation.

In general, the upper frame 12 in accordance with FIGS. 1-3 of the present invention is smoothly sculpted to minimize the risk of stress fractures, while at the same time optimizing the strength and flexibility of the frame in the relevant dimensions as well as other advantages which will be described. For example, referring to FIGS. 2 and 3, a central region 20 of the upper frame 12 is provided with a minimal cross-sectional thickness in the front elevational view (vertical plane thickness). Structural integrity is maintained by lengthening the anterior to posterior thickness (horizontal plane thickness) in central region 20. See FIGS. 1-3.

Preferably, the vertical thickness of the upper frame 12 in central region 20 is in within the range of from about 0.100" to about 0.350", and preferably less than about 0.500". The anterior to posterior thickness in the region 20 is within the range of from about 0.220" to about 0.400" and preferably greater than about 0.100". In the illustrated embodiment, the vertical dimension through region 20 is about 0.246", and the anterior to posterior thickness in the central region 20 is about 0.350".

The vertical thickness of the frame decreases gradually to about 0.165" in the illustrated embodiment within about 45° around the frame from midpoint 21. The vertical thickness then increases to about 0.420" at about point 38 near the lateral end of the lens slot 15.

Travelling circumferentially around the arc of the upper frame 12 clockwise or counter clockwise from the midpoint 21 of central region 20, a relative minimum 38 is reached in terms of the thickness of the upper frame 12 in the radial direction. At that point, the vertical thickness through the frame has increased to as much as about 0.4" or more, and the thickness of the frame 12 in the radial (horizontal plane) direction has decreased to no more than about 90% or 80% or less of the radial thickness at midpoint 21. This encourages any horizontal plane flexing of the frame 12 to occur at the edge of or laterally of the lens connection slot 15 of the frame, thereby enabling the frame and earstems to accomplish the medial biasing function described herein throughout a range of earstem separations, while at the same time minimizing any flexing in the primary optical zone of the lens 14.

6

The minimum radial thickness point 38 is generally within the range of from about 35° to about 75° from midpoint 21. Preferably, point 38 is between about 40° and about 65° from midpoint 21.

At roughly 90° around the frame 12 from the midpoint 21, the thickness of the frame in the radial direction reaches a relative maximum, where it is within the range of from about 0.375" to about 0.410" thick. In the illustrated embodiment, the thickness in the radial direction of the frame at transition section 24 is about 0.395".

The present inventors have determined that by sculpting the upper frame in the foregoing manner, the structural integrity of the frame can be preserved while at the same time optimizing the optical zone of the lens by providing a minimal frame in the vertical direction. In addition, optical distortion through the lens as a result of flexing the lens when in use is minimized by the sculpting described above. Furthermore, the eyeglass is relatively streamlined from an aerodynamic standpoint, so that a minimal vertical cross-section is encountered by oncoming wind, and weight can be minimized by eliminating structurally unnecessary material.

The eyeglass frame 12 is further provided with a lateral ridge 22, extending laterally from the upper frame 12 as seen in FIG. 3. Lateral ridge 22 increases the relative strength of the eyeglass frame 12 in the horizontal plane, and may provide aerodynamic advantage by minimizing the vertical cross-sectional area of the frame. In addition, the lateral ridge 22 ramps relatively downwardly in the posterior direction when the wearer is oriented in the normal straight ahead orientation. This ramped lateral ridge 22 may accelerate oncoming air past the notch 32 formed between the lens 14 and the frame 12, to increase venturi-driven ventilation behind the lens. This may be beneficial in certain lens designs to reduce the occurrence of fogging which may result by air entrapped between the lens and the wearer's face.

Retention of the eyewear 10 is also improved by elongated earstems 17 and 19, which extend relatively far in the posterior direction. For example, the linear anterior to posterior dimension from the front of the frame at midpoint 21 to point 23 which corresponds with the distal tip 30 of earstems 17 and 19 (see FIG. 2) is generally greater than about 6.0" and preferably within the range of from about 6.5" to about 7.5". In the illustrated embodiment, the dimension is about 6.83". The overall outside circumference of the eyewear from tip 30 on earstem 16 around the frame 12 to tip 30 on earstem 17 is normally greater than about 18" and preferably within the range of from about 18.25" to about 19.25" for adult eyewear. In the illustrated embodiment it is about 18.625".

When the eyeglasses are in an unstressed orientation, as illustrated, the linear separation along an axis 25 between distal points 30 on earstems 17 and 19 is generally within the range of from about 1.75" to about 3.00". Preferably, the separation between tips 30 in the unstressed configuration will be within the range of from about 2" to about 4" without the lens mounted in the frame.

The neck circumference for the normal adult wearer is generally within the range of from about 14" (usually female) to about 15" (usually male). Neck sizes as high as about 17.5" or higher may be found in some individuals, and neck sizes as low as about 13" may be found in the adult population. The preferred unstressed separation along axis 25 between the posterior ends of the opposing earstems is thus sufficient to allow the eyewear to be hung around the neck of the typical adult wearer. In addition, referring to



5,760,868

9

relative wind speed at the face of the wearer. Orientation of the side air inlets 80, 82 is thus preferably accomplished with reference to the orientation of the eyeglasses in the as-worn orientation.

For example, eyeglasses may be conceptualized to be bilaterally symmetrical about a medial longitudinal axis which extends in parallel to the wearer's normal line of sight through the lenses. The normal line of sight may be defined as the straightahead line of sight in which there is neither deviation in the vertical nor horizontal plane. Traditional dual-lens eyeglasses often contained lenses which lie on a plane extending at a perpendicular to the normal line of sight.

An air inlet 80 or 82 which lies on a plane perpendicular to the normal line of sight would thus possibly optimize air flow, but be unacceptable from a design standpoint in many eyeglass designs. The side air inlet 80, 82 may also be oriented on a plane which is parallel to the normal line of sight. However, that vent would experience primarily only passive air flow in response to forward movement of the wearer. Preferably, therefore, the side air inlets 80, 82 each lie on a plane which resides somewhere between parallel to and perpendicular to the normal line of sight. Preferably, each plane containing each air inlet 80 and 82 resides at an angle within the range of from about 5° or 10° to about 70° or 80° with respect to the normal line of sight. In a preferred embodiment, the side air inlets 80, 82 each lie on a plane which resides within the range of from about 35° to about 55° from the normal line of sight. Air may also be directed through frame vents by providing air deflection surfaces such as wind scoops which will deflect oncoming wind through the vents.

The amount of air drawn through each side air inlets 80, 82 is a function of the apparent cross sectional area of the aperture, when viewed from the front along a parallel to the normal line of sight. See, for example, elliptically shaped vent 80 in FIG. 4, which appears closer to circular in shape when viewed head-on as shown in FIG. 5. An apparent forward facing vent can be accomplished through a wide variety of shaped apertures, depending upon the thickness of the earstem and frame, and the contouring. In general, the plane referred to above on which the vent resides is the plane of the outer edge 81 of the vent 80 as seen in FIG. 4. However, in highly contoured embodiments, the plane referred to above could deviate from the outer edge 81 of the aperture 80 as will be apparent to those of skill in the art in view of the disclose herein. In addition, the use of air deflecting wind scoops renders the precise orientation of the vent less important as will be appreciated by those of skill in the art.

The side air inlets 80, 82 in a preferred embodiment of the invention cooperate with optional corresponding channels 90 in each of the earstems 74 and 76. Channel 90 extends in a posterior direction along the medial side of each earstem, and gradually reduces in channel volume in a rearward direction. See, for example, FIG. 4a and 4b. The provision of a channel 90 or other contouring on the medial side of the earstem can increase the apparent forward facing cross sectional area of the air inlets 80 and 82, while keeping a low lateral profile, thereby potentially optimizing air flow through the air inlets 80, 82. Optimizing air flow through side inlets 80, 82 can improve the venturi driven ventilation across the inside surface of the lenses, to minimize the occurrence of fogging.

The cross sectional configuration of the vent 80 can be varied as will be appreciated while still achieving the

10

functional objective disclosed herein. Elliptical vents as illustrated, circular vents or other shapes may be used.

The cross sectional area of the vent can also be varied depending upon a variety of factors, such as the extent to which the vent is forward facing, and the size and angle of any wind deflection surfaces. In general, the cross sectional area of the vent will be equivalent to the area of a circle having a diameter of at least about  $\frac{1}{8}$  inch and preferably at least about  $\frac{3}{16}$  inch or  $\frac{1}{4}$  inch. Areas as large as the area of a circle having a diameter of  $\frac{3}{4}$  inch or  $\frac{1}{2}$  inch or larger can also be used, depending upon the overall dimensions of the earstem and eyeglass orbitals.

When the eyeglass system 60 is worn, air is drawn into the side air inlets 80, 82 during forward motion. The force of the air as it is directed around the head of the wearer may create a venturi effect about the lenses 62 and 64. The venturi effect created by the side air inlets 80, 82 aids in drawing air through the apertures 86 as will be discussed and/or over the top and under the eyeglasses, thereby improving ventilation and fog resistance.

Fairings or projections 78 may also be provided on the medial side of each orbital 68 and 70. The fairings 78 function to deflect the air contacting the eyeglass system 60. For this purpose, each fairing 78 is provided with a wind deflecting surface 84 which is inclined laterally in the posterior direction to provide a ramp that deflects oncoming wind laterally across the lens 62, 64. The surface 84 can be contoured to deflect wind through one or more adjacent apertures 86 as will be discussed. By redirecting some portion of air flow, the fairings can increase the amount of available air flowing through both the apertures 86 and the side air inlet 80. Preferably, fairings 78 are integrally molded with the corresponding orbitals 68, 70.

Referring to FIG. 5, lens 62 is provided with a plurality of apertures 86, separated from each other by lens portions 88 for connecting the lens 62 to the orbital 68. In most embodiments of the present invention, the right and left lenses will be mirror images of each other. Accordingly, the apertures 86 will for simplicity be discussed only in connection with a single lens 62.

One of the advantages of the design of the present invention is the ability to provide ventilation apertures 86 in a relatively small lens, while at the same time minimizing interference with the optical zone of the lens. In the embodiment illustrated in FIGS. 4 and 5, this is accomplished by positioning the aperture 86 such that at least a first portion of the circumference of the aperture is formed by the lens and at least a second portion of the circumference of the aperture is formed by a portion of the frame. In an alternate embodiment of the invention, the entire circumference of the aperture may be surrounded by the frame.

Apertures can alternatively be positioned in the lens spaced apart from the frame, if the overall lens area is large enough to produce a sufficient uninterrupted optical zone for the desired application. Apertures may alternatively be formed by a plurality of enclosed circles punched into the peripheral zone of the lens, which circular holes are partially covered by the frame to produce the appearance of a plurality of semicircles.

As will be apparent to those of skill in the art, the cross-sectional shape of the aperture can take any of a variety of forms and still accomplish the objectives of the present invention.

The circular or semi-circular indent in the lens which forms aperture 86 in the illustrated embodiment can have a constant or substantially constant radius. Alternatively, the

40

5,760,868

13

14. The frame of claim 13, wherein the thickness of the frame in the vertical direction at about 90 degrees away from the wearer's line of sight along the arc of the frame is in the range from about 0.375 to 0.41 inches.

15. The frame of claim 1, further comprising a lateral ridge extending laterally from the top of the frame for increasing the relative strength of the frame in the horizontal plane.

14

16. The frame of claim 1, in which the maximum interior separation between the earstems is in the range of from about 5.2 to about 5.75 inches, so that frame can be comfortably advanced around the neck of the wearer and retained there without applying any material compressive pressure to the wearer's neck.

\* \* \* \* \*

**United States Patent** (19)[11] **Patent Number:** **5,208,614****Jannard**[45] **Date of Patent:** **May 4, 1993**[54] **CONCAVELY INDENTED LENSES FOR EYEWEAR**

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**FOREIGN PATENT DOCUMENTS**[75] **Inventor:** James H. Jannard, San Juan Capistrano, Calif.

1249275 11/1959 France .

[73] **Assignee:** Oakley, Inc., Irvine, Calif.**OTHER PUBLICATIONS**[21] **Appl. No.:** 620,648

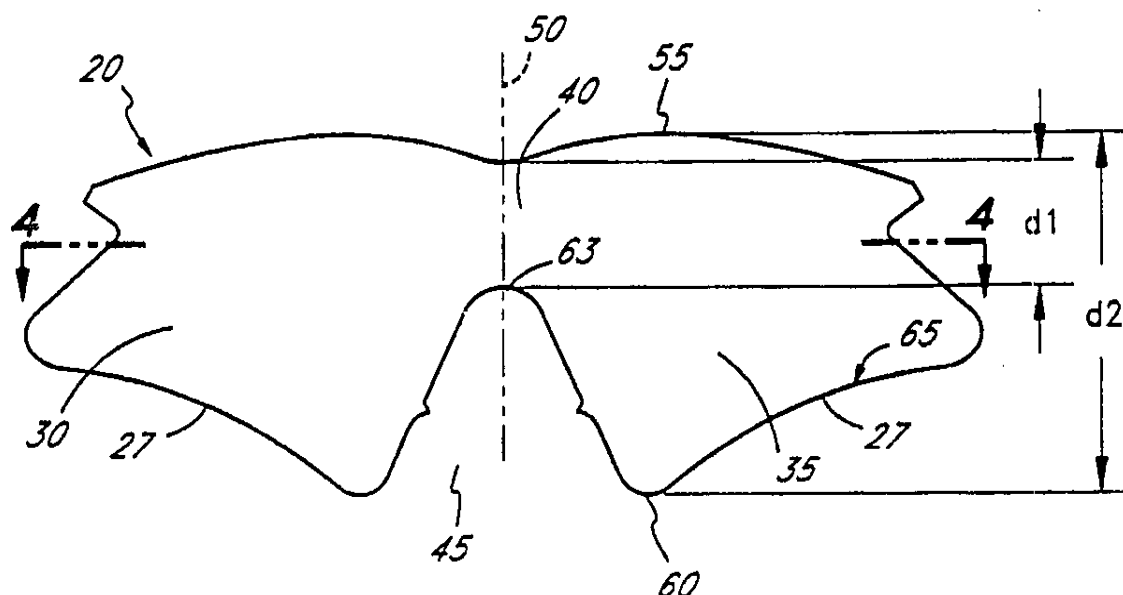
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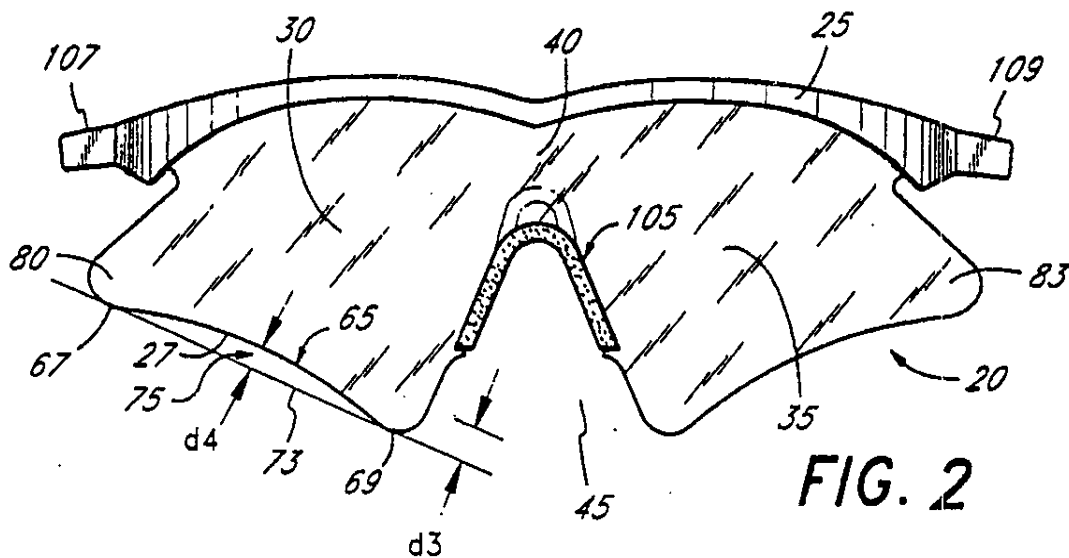
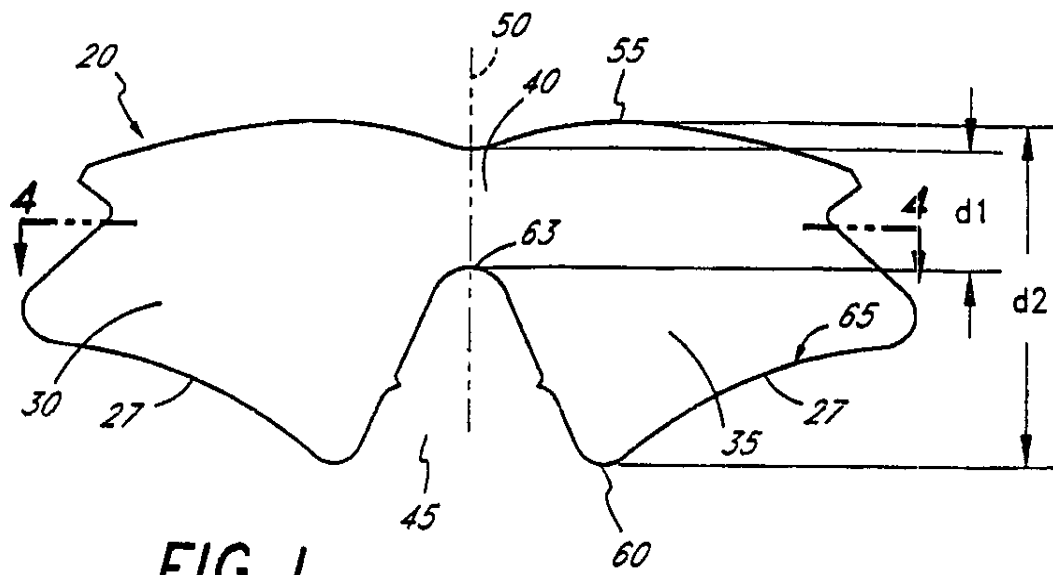
[22] **Filed:** Nov. 30, 1990*Primary Examiner*—Scott J. Sugarman[51] **Int. Cl.:** ..... G02C 7/02[57] **ABSTRACT**[52] **U.S. Cl.:** ..... 351/41; 351/158;

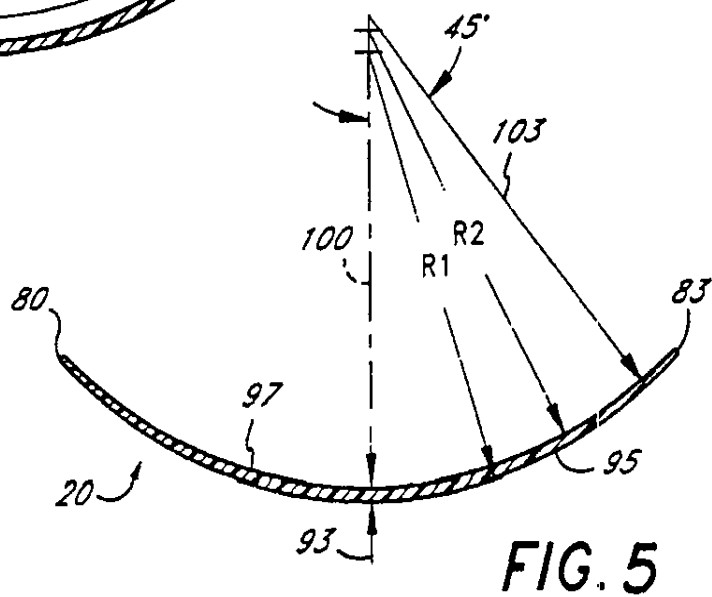
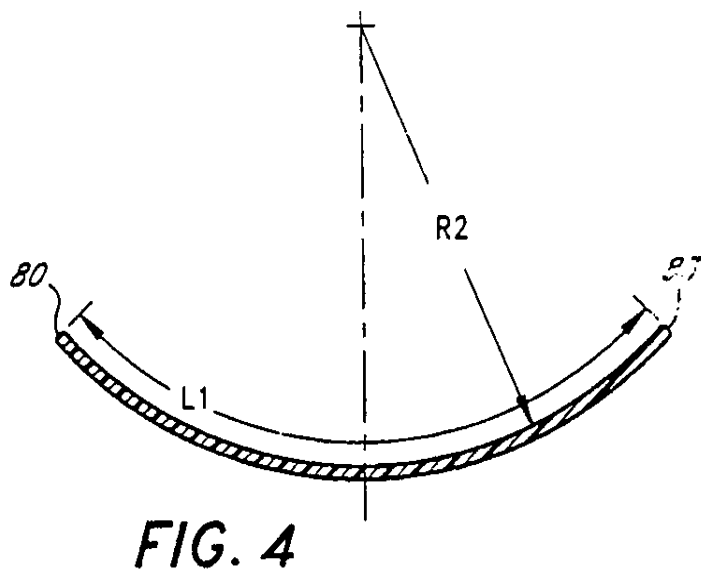
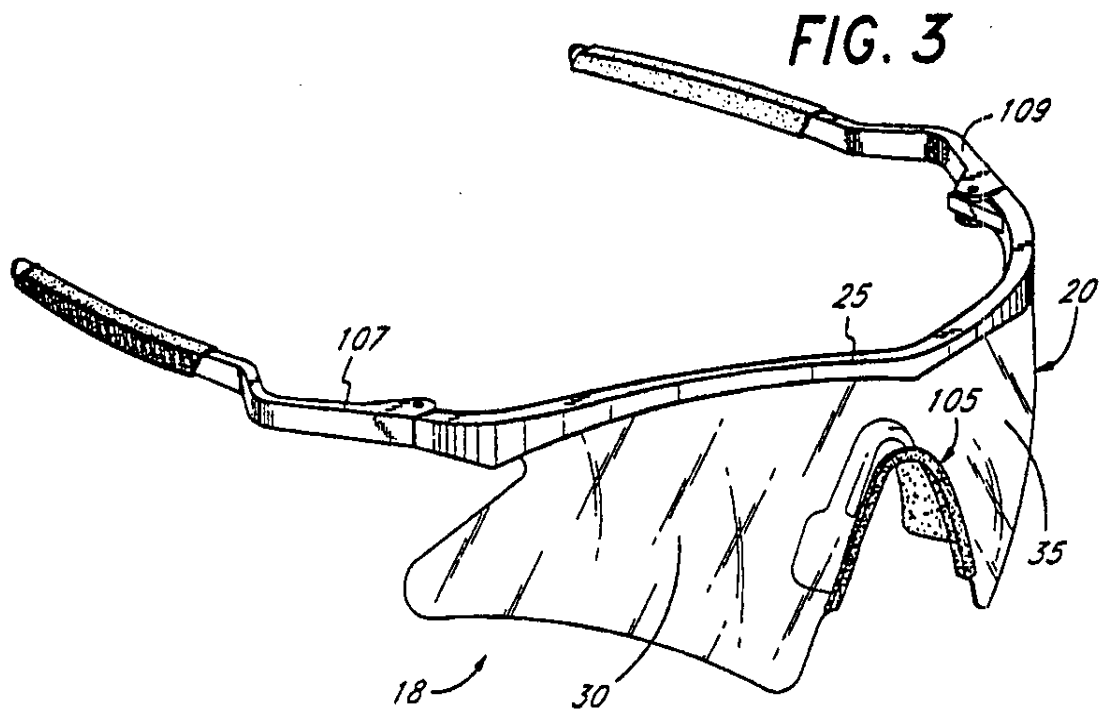
Disclosed is an arcuately molded lens for use in active eyewear, having along the bottom edge of each right and left lens regions at least one downwardly concave indented area. The indented area may extend across the entire bottom edge of each lens region or it may only extend along a portion of the lens region. Where there is only one concavity per lens region, it may be placed anywhere along the bottom edge of the lens, near the midpoint, center or periphery. The lens may also have multiple concave indentations along its bottom edge.

[58] **Field of Search** ..... 351/158, 159, 41, 43, 351/44[56] **References Cited****U.S. PATENT DOCUMENTS**

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**25 Claims, 4 Drawing Sheets**





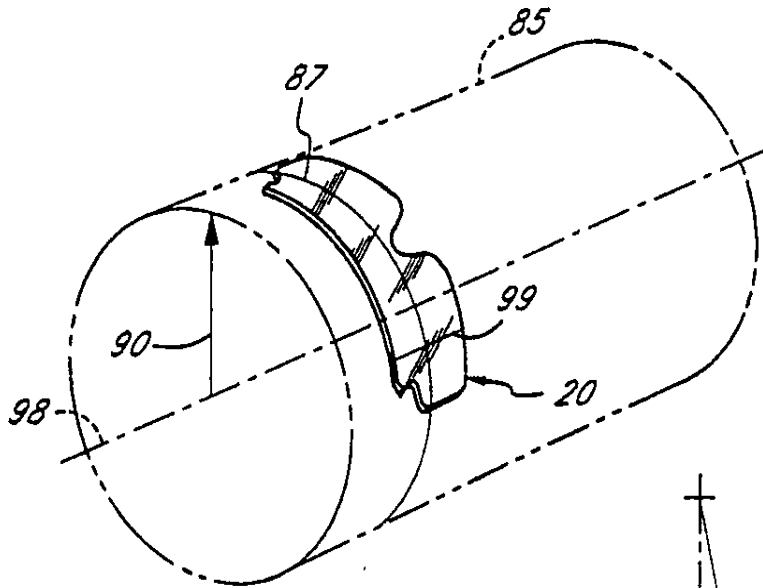


FIG. 6

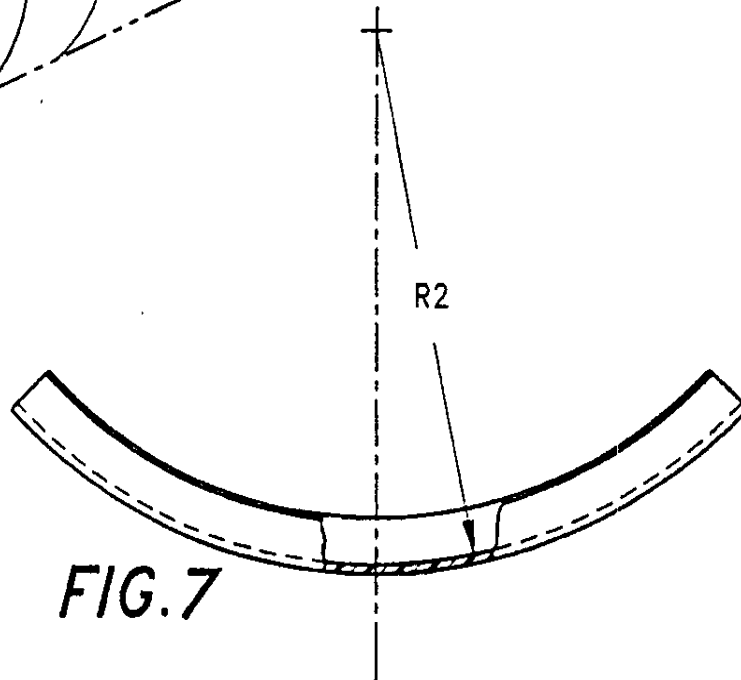


FIG. 7

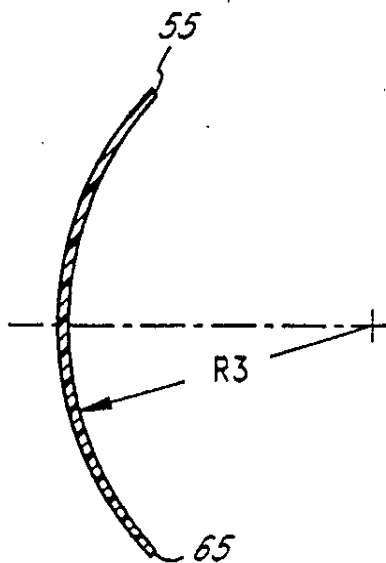
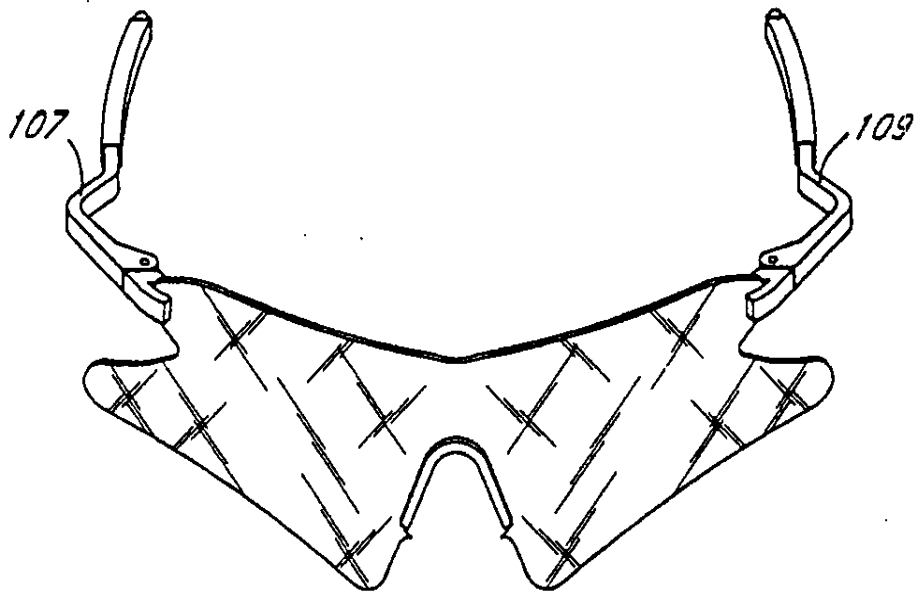
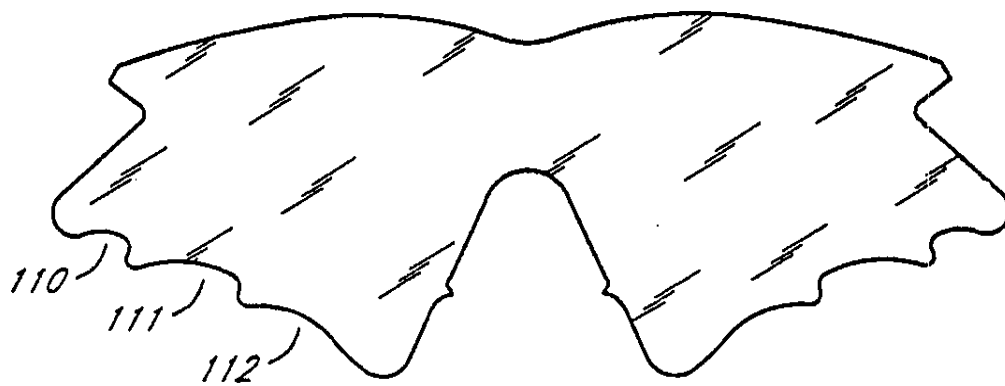


FIG. 8



**FIG. 9**



**FIG. 10**



## CONCAVELY INDENTED LENSES FOR EYEWEAR

### BACKGROUND OF THE INVENTION

This invention relates generally to lenses used in eyewear suitable for active sports, and more particularly, to functional improvements attributable to the shape of the bottom edge of such lenses.

Eyewear typically worn during active sports such as hiking, skiing and bicycle racing is commonly designed to conform closely to the front and sides of the wearer's head. It is advantageous in such low profile eyewear to use arcuately molded lenses. Notwithstanding certain advantages attributable to the close fit, such as peripheral light interception and aerodynamic efficiency, sufficient ventilation may be impaired, resulting in the wearer being uncomfortable and possibly having impaired vision from fogging of the eyewear lenses. Prior efforts to alleviate this problem have been disclosed in U.S. Pat. Nos. 4,859,048 and 4,867,550, but they are by no means exclusive. The present invention offers an additional means to achieve the desired goals of providing comfort and optimum visibility without diminishing the advantages attendant in arcuately formed eyewear used for participation in active sports.

### SUMMARY OF THE INVENTION

There has been provided, in accordance with one aspect of the present invention, an arcuately molded lens for use in eyewear suitable for participation in active sports. The lens has a top edge and a bottom edge having a nose opening for mounting the lens on the nose of a wearer and for defining a right and a left lens region. In one embodiment, there is a nose piece disposed in the nose opening. Over the nose opening in the lens there is a bridge portion. The distance separating the lower edge of the bridge portion and the top edge of the lens is defined as  $d_1$  and the distance separating the top edge of the lens and the lowest bottom edge of the lens is defined as  $d_2$ .  $d_1$  is in the range of about  $\frac{1}{4}$  inch to  $1\frac{1}{2}$  inches, and  $d_2$  is in the range of about  $1\frac{1}{2}$  inches to 3 inches. The lens also has an arcuate horizontal cross sectional configuration, wherein its arc length ( $L_1$ ) is in the range of from about 5 inches to about 7 inches. The bottom edge of each right and left lens region is concavely indented. There may be more than one concave indentation per each lens region. The concavely indented regions have a depth dimension within the range of about  $\frac{1}{32}$  inch to about  $1\frac{1}{2}$  inches. The sum of the areas of the indentations in a given lens pane in this embodiment may be between approximately 1% and 50% of the remaining area of the surface of that lens pane.

The lens of the present invention has an inner concave surface and an outer convex surface and a thickness there between. The thickness of the lens may be substantially constant throughout or may in at least one portion of each distal region be less than the thickness of the lens in its central region. The thickness of the lens at the midpoint of the central region may taper gradually to a reduced thickness in the distal regions.

In one embodiment of the present invention, the arcuate cross sectional configuration of the lens in its molded condition substantially conforms to the surface of a cylinder. The radius from the axis of the cylinder to an arc defining the inner concave surface of the lens is a substantially constant radius in the range of from

about  $2\frac{1}{2}$  inches to about  $4\frac{1}{2}$  inches. The radius of curvature of the lens along a horizontal plane may be defined by  $R_2$ , and the radius of curvature along a vertical plane through the lens may have a radius defined by  $R_3$ , and  $R_2$  may be equal to or less than  $R_3$ . In another embodiment,  $R_2$  is in the range of from about two inches to about four inches, and  $R_3$  is greater than or equal to  $1.10 R_2$ .

The lenses of the present invention may be mounted in a pair of eyeglasses, by pivotably attaching a right and a left earstem to each lens region. Alternatively, the lenses of the present invention may be secured to an upper frame, and earstems are pivotably secured to that frame.

In a further embodiment of the present invention, the lenses described above may be adapted to be used in a dual lens eyewear system suitable for participation in active sports.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of a lens of the present invention in a flattened condition;

FIG. 2 is a front elevational view of a lens of the present invention, having a frame attached and showing a measurement of the extent of indentation;

FIG. 3 is a front perspective view showing a lens of the present invention as part of an eyewear system;

FIG. 4 is a section along lines 4—4 of FIG. 1 normal to the vertical axis of the lens, in its normal arcuate configuration.

FIG. 5 is a sectional view like FIG. 4, of a tapered thickness embodiment of the lens of the present invention;

FIG. 6 is a perspective view of an arcuate lens of the present invention shown conforming to the surface of a cylinder;

FIG. 7 is a top plan view of a lens of the present invention with the  $R_2$  radius less than  $R_3$ ;

FIG. 8 is an elevational sectional view of the non-cylindrical embodiment of the lens illustrated in FIG. 7;

FIG. 9 is a front perspective view of assembled eyewear in accordance with one aspect of the present invention.

FIG. 10 is a front elevational view of a lens of the present invention having more than one concavity per lens pane.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1-3, there has been provided in accordance with one aspect of the present invention a lens 20 for mounting in a frame 25 to form eyewear 18 (FIG. 3), conformed to extend in the path of the wearer's left and right eye fields of vision. In particular, the invention relates to the indented or concave opening downward shape of the lower edge of the lens. The shape of one embodiment of the lens of the present invention is best understood by reference to FIG. 1, which illustrates a relatively smoothly curved, single, concave indentation 27 in each lens pane 30, 35. However, lenses of many other shapes may be envisioned having irregularly shaped indentations or multiple concave indentations for each eye pane (see FIG. 10), which will accrue the advantages of the present invention.

Lenses in accordance with the present invention can be manufactured by any of a variety of processes well

known in the art. Preferably, the lens is injection molded and comprises a relatively rigid and optically acceptable material such as polycarbonate. The indentation 27 can be formed in the molding, cutting, or stamping process used to form the lens, or, preferably, is machined into a previously molded lens blank.

Alternatively, the lens can be stamped or cut from flat sheet stock and bent into a curved configuration. This curved configuration can then be maintained by the use of a relatively rigid, curved frame, or by heating the curved sheet to retain its curved configuration, as is well known in the thermoforming art.

A first eye pane 30 and a second eye pane 35 are located in front of the wearer's right and left eyes, respectively. A bridge portion 40 is provided to merge the first and second eye panes into a single lens. Beneath the bridge 40 there is provided a generally triangular nose opening 45. In another embodiment, the first and second panes are not merged into a single lens eyewear system, rather they consist of two separate lenses adapted for use in a dual lens system.

It is understood that the eye panes 30 and 35 will, in the preferred embodiment, be essentially mirror images of each other about a central vertical axis 50 (FIG. 1), and the discussion in connection with one is intended to apply to both. The maximum height  $d_2$  of the lens 20 (see FIG. 1) of the present invention, measured from the top edge 55 of the lens 20 to the lowest point 60 along the bottom edge 65, may be varied to optimize aesthetic and functional considerations, but will typically fall within the range of from about 1 to 3 inches, preferably from about  $1\frac{1}{2}$  to about  $2\frac{1}{2}$  and most preferably between about  $1\frac{1}{2}$  to about  $1\frac{3}{4}$  inches. The height  $d_1$  of the lens 20, measured from the center of top edge 55 of the lens to the lower edge 63 of the bridge portion 40, may also vary, but preferably it is within the range of from about  $\frac{1}{2}$  inch to  $\frac{3}{4}$  inches and more preferably between about  $\frac{1}{2}$  and  $\frac{3}{4}$  inch.

The bottom edge 65 of lens 20 is provided with at least one region 27 which is concave, opening in a downward direction. One embodiment of such a concave region is illustrated in FIG. 2 as extending between the lowest points of the concavity 67 and 69. As illustrated therein, the bottom edge 65 is concave in relation to an imaginary straight line 73 drawn between relative low points 67 and 69. Thus, the bottom edge 65 can be seen as diverging away from straight line 73 for a distance  $d_3$  which is greater than zero at at least one point.

Thus, by "concave downward," "indented," "diverging away" and the like terms herein used, it is meant that an imaginary straight line 73 drawn between the two lowest points of a concave indentation 27, for example 67 and 69, defines a regular or irregular enclosure having an area 75 of greater than 0 square inches. A lens in which no straight line 73 can be positioned so as to define a closed area 75 thus does not have a "concavity" as intended herein. This is true of continuously convex prior art lenses, in which case the imaginary line 73 can only be drawn as a tangent to some point along the lower edge 65 of the lens. In a lens having a perfectly straight lower edge, line 73 can only be parallel or coextensive with the lower edge 65, thereby failing to produce a closed space having a positive area 75.

In a dual lens system, there are two distinct lenses, or lens panes, as is well understood. In connection with single lens systems, the singular terms "eye pane" or "lens pane" herein will refer to precisely half of the area of the overall single lens. Thus, a single lens system will

be deemed for the present purpose to be comprised precisely of two equal eye panes.

The extent of the indentation 27 can be characterized in terms of the ratio of the area 75 to the remaining area of the associated eye pane. For example, the area 75 of the concavity preferably is within the range of from about 1% to about 100% of the remaining area of the eye pane. Thus, in the latter instance, the area 75 is precisely the same as the area of the associated eye pane. Preferably, the area of the concavity will be within the range of about 1% to about 30% of the remaining area of the associated eye pane, and more preferably within the range of from about 3% or 4% to about 10% of the area of the associated eye pane.

An alternative way to characterize the indentation 27 in the lens of the present invention is by the depth  $d_3$  thereof along an axis perpendicular to the axis of the imaginary straight line 73. Since the indentation 27 by definition requires a distance between straight line 73 and the bottom edge 65 of the lens, the depth  $d_3$  can be measured along a perpendicular line drawn between straight line 73 and at least some point along bottom edge 65. Since the depth  $d_3$  will vary across the length of the concavity, it is convenient to measure the maximum depth  $d_4$  for each concavity. The maximum depth  $d_4$  is the deepest part of the concavity measured by a line drawn perpendicularly to straight line 73.

In a single concavity embodiment such as illustrated in FIG. 2, the depth  $d_4$  is generally within the range of from about  $1/64$  of an inch to about one inch. Preferably, the depth will be in the range of from about  $1/32$  inch to about  $\frac{1}{2}$  inch, and most preferably between about  $\frac{1}{4}$  inch and about  $3/16$  inch, although in a design for applications where maximizing ventilation is deemed desirable, a minimum depth of at least about  $3/16$  inch will be used, and a minimum of at least about  $\frac{1}{4}$  inch or even  $\frac{1}{2}$  inch may be desired.

The ventilation function will be maximized by a combination of factors, as will be understood by one of skill in the art in view of the teachings of this disclosure. For example, a lens with a relatively large vertical coverage of the face will tend to require a deeper  $d_4$  dimension to achieve meaningful ventilation as compared to a relatively vertically narrow lens, the lower edge of which is already generally at or above the cheek bone. In a lens which has multiple concavities along the bottom edge of a single lens pane (FIG. 10), the depth  $d_4$  of each individual concavity 110, 111, 112 will generally be less than the depth  $d_4$  of the concavity in a single concavity lens pane.

The precise geometric profile of the indented regions may vary, and where there are more than one indented region per eye pane, they need not repeat the same shape (see FIG. 10).

In an embodiment where lower lens edge 65 defining the concave indentation 27 in the lens 20 has a curve of substantially constant radius throughout its arc length between low points 67 and 69, the radius of curvature is preferably within the range of from about 1 to about 12 inches, or more preferably from about  $1\frac{1}{2}$  to about 6 inches.

and contained by the axis 98 (FIG. 6) of the cylinder defined by the panes. The lens 20 has a horizontal length dimension  $L_1$  (FIG. 4) between the generally rearwardly extending distal ends 80 and 83 which measures in the range of from about 5 inches to about 7 inches. The lens is further characterized by a radius  $R_2$ , detailed infra.

5

In the preferred embodiment of the present invention, the lens pane, be it single or adapted for use in a dual lens system, is arcuately formed. For example, the embodiments depicted in FIGS. 4, 5 and 6 exhibit cylindrical curvature along the horizontal plane, preferably imparted from the molding process. Note that panes 30 and 35 and distal ends 80 and 83 wrap backwardly or rearwardly to extend in the paths of the wearer's peripheral fields of vision, without such abruptly changing curvature as would distort the light passing through the side wrapping portions of the panes.

FIG. 6 depicts a unitary lens of the present invention substantially conforming to the exterior surface of a cylinder 85. The benefits derived from a cylindrically shaped unitary lens are expounded in U.S. Pat. No. 4,859,048, which is incorporated herein by reference. Thus, one embodiment of the lens of the present invention is preferably provided with a substantially uniform curve, such that a line 87 (FIG. 6) drawn along the surface of the lens 20 in a circumferential direction defines an arc of substantially uniform radius 90. A line 99 drawn along the surface of the lens 20 in an axial direction is substantially parallel to the axis 98 of a cylinder 85.

Although a variety of radii might accrue the advantages of the present invention, the lens is preferably provided with a radius 90 within the range of from about  $2\frac{1}{2}$  to about  $4\frac{1}{2}$  inches, and preferably within the range of from about  $3\frac{1}{2}$  to 4 inches. The foregoing radius dimensions represent the distance from the axis 98 to the interior, concave surface of the lens.

The lens of the present invention may alternatively be curved along each of two substantially perpendicular axes to produce a lens, for example, which conforms to the surface of generally toroidal configuration. Thus, a cross-section of the lens taken along a horizontal plane (not illustrated) midway from the bottom edge 65 of the lens to the top edge 55 will reveal an arcuate cross-sectional configuration, characterized by a first radius dimension  $R_2$  as shown in FIG. 7. Unlike the cylindrical lens, however, a vertical cross-section through the lens reveals a curvature from top edge 55 to bottom edge 65 characterized by a second radius dimension  $R_3$ , as shown in FIG. 8. Where  $R_2$  equals  $R_3$ , the lens will conform to the surface of a sphere. Where  $R_2$  is less than  $R_3$ , the lens will conform to the surface of a toroid. Such toroidal lenses are the subject of U.S. Pat. No. 4,867,550 which is incorporated herein by reference.

The lens of the present invention has sufficient thickness that it is not accurately defined as having only a single radius. Instead, referring to FIG. 5, the lens 20 has a thickness or depth dimension 93 along its entire arc length which causes the arc defined by the outer, convex surface 95 to have an additional radius  $R_1$  to the radius  $R_2$  defined by the inner, concave surface 97 of lens 20. In an embodiment where the lens is of substantially uniform thickness throughout, and the axes are coincident, the radius  $R_1$  of the convex surface 95 is essentially equal to the sum of the radius  $R_2$  of the concave surface 97 and the depth 93 of the lens.

In accordance with another embodiment of the present invention, there has been provided a unitary lens substantially as any of those described above, with one following modification. Referring to the horizontal sectional view illustrated in FIG. 5, there is disclosed a lens 20 defined between an outer convex surface 95, having a radius  $R_1$ , and an inner concave surface 97, having a radius  $R_2$ . The principal difference from the

6

previously detailed embodiment is that the thickness of the lens 20 at each of the distal ends 80 and 83 is less than the average thickness of the lens at every point intermediate the two distal ends 80 and 83. In addition, the thickness of lens 20 measured at at least one point intermediate the two ends 80 and 83 is greater than the thickness at each of those ends.

The invention can best be understood by reference to FIG. 5, which illustrates the relationship between the lens thickness and angular position along the arc length of a lens. Since the arc length of a lens can be varied considerably, although it is preferably within the range of from about  $5\frac{1}{2}$  to 7 inches, reference points will arbitrarily be selected at the centerline 100 and at the  $45^\circ$  line 103. Since the distance from centerline 100 to reference line 103 is  $\frac{1}{4}$  of  $360^\circ$ , the reference arc length for a radius of 3 inches is about 4.7 inches, which is below the preferred range, thus defining a reference point on the lens.

In accordance with the tapered lens embodiment of the present invention, the thickness of the lens at reference line 103 is preferably from about 40% to about 99% of the thickness at centerline 100. Thus, for example, a lens having a centerline thickness 100 of about 0.060 inches will preferably have a thickness of within the range of about 0.024 to about 0.059 inches at reference line 103, and a thickness near the distal end 83 of the lens within the range of about 0.020 to about 0.055 inch. The thickness of the lens at the midpoint is preferably within the range of from about 0.055 to about 0.070 inch.

Preferably, the thickness of the lens tapers at a substantially even rate from the widest region which is centered about the centerline 100, to narrower regions near each of the distal ends 80 and 83. In this manner, optical distortion is minimized. By even rate it is meant that the taper results from the convergence of an arc defining the outer convex surface 95 of lens 20, and an arc defining the inner concave surface 97 of lens 20, each arc characterized by constant radii  $R_1$  and  $R_2$ , respectively. Although the surfaces need not be perfectly uniform arcs, as in the previously discussed embodiment, conformation of the lens surface to a substantially constant radius curve accrues optical advantages. The foregoing may be accomplished in a variety of ways, such as, for example, by making radius  $R_1$  equal to radius  $R_2$  and displacing the center points from each other. Alternatively, radius  $R_1$  may be greater or lesser than radius  $R_2$ , so long as the converging geometry results.

In the production lens, of course, the distal ends 80 and 83 are formed well before the continuation of the arcs defining surfaces 95 and 97 converge. In a cylindrical lens produced in accordance with this embodiment, for example, and having a centerline thickness of approximately 0.060 inches, the thickness at a point proximate either distal end 80 or 83 will generally be within the range of from about 0.040 to about 0.055 inch.

Finally, since a portion of the lens 20 near the distal ends 80 and 83 serves primarily to block peripheral light and is likely outside of the wearer's direct line of vision, it is less important that the radius of curvature be constant in this area. Thus, the lens may be provided with a smooth taper only up to a certain transition point intermediate the reference line 103 in FIG. 5 and the distal end 83. From that transition point until the distal end 83, the lens 20 may be provided with a relatively constant thickness or a taper of a different rate.



Referring to FIG. 3, the lens of the present invention may be provided with a top frame 25 extending along and bounding the upper edge 55 of the lens, and secured by conventional means. Alternatively, the frame can bound the lower edge of the lens, the entire lens, or any other portion of the base as will be evident to those of skill in the art.

Preferably, the lens of the present invention is mounted in eyewear having no lower frame, thereby leaving the lower edge of the lens exposed. This reduces the weight and bulk of the eyewear, and allows maximization of ventilation through concavity 27. At the same time, the vertical height of the lens can be minimized while still optimizing the vertical field of view without obstruction from the lower frame. The frame advantageously consists of any of a variety of relatively rigid, molded thermoplastic materials which are well known in the art, and may be transparent or dyed any of a variety of colors.

A nosepiece 105 may be provided, as illustrated in FIGS. 2 and 3, which bounds the pane in the region of the nose opening 45. The nosepiece 105 preferably comprises a relatively soft elastomeric material having a coefficient of sliding friction that increases when the material is wetted. Such a material is preferably hydrophilic, and tends to retain the eyewear in position on the wearer's upper nose area as the wearer perspires or encounters moisture as during skiing. Also, the preferred material is soft, for comfort. One such material is KRATON G, a product of Shell Oil Company.

Finally, referring to FIGS. 2, 3 and 9, eyewear embodying the lens of the present invention are provided with a pair of earstems 107, 109. Earstems 107, 109 may be formed in the same manner as upper frame 25. Earstems 107, 109 may be pivotably secured to the lateral ends of an upper frame 25 (FIGS. 2 and 3) or to a frame which also or alternatively bounds the lower edge of the lens (not illustrated). Earstems 107, 109 may also be pivotably secured directly to the lens (FIG. 9) without the use of a conventional frame.

Although this invention has been described in terms of certain preferred embodiments, other embodiments that are apparent to those of ordinary skill in the art are also within the scope of this invention. Accordingly, the scope of this invention is intended to be limited only by the appended claims.

What is claimed is:

1. An arcuately molded lens for eyeglasses for participation in active sports, such as biking and skiing, said lens comprising:
  - a top edge and a bottom edge, said bottom edge having a nose opening therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region;
  - said lens having a bridge portion over said nose opening, the distance separating the lower edge of said bridge portion and the top edge of the lens being defined as  $d_1$  and the distance separating the top edge of the lens and the lowest bottom edge of the lens being defined as  $d_2$ , wherein  $d_1$  is in the range of about  $\frac{1}{4}$  inch to about  $1\frac{1}{4}$  inches, and  $d_2$  is in the range of about  $1\frac{1}{4}$  inches to about 3 inches;
  - said lens having an arcuate horizontal cross sectional configuration, wherein the arc length (L1) of said lens is in the range of from about five inches to about seven inches;
  - wherein the bottom edge of each of said right and left lens regions is concavely indented, open in the

downward direction, with a maximum indentation depth of no less than about  $1/16$  of an inch.

2. An arcuately molded lens for eyeglasses as in claim 1, wherein each of said concavely indented regions has a maximum depth within the range of from about  $1/16$  inch to about  $\frac{1}{4}$  inch.

3. An arcuately molded lens for eyeglasses as in claim 1, wherein at least two concavely indented regions are provided in each of said right and left lens regions.

4. The lens of claim 1, wherein the sum of the areas of the indentations in any one of said lens regions is between approximately 1% and 50% of the remaining area of said lens region.

5. An arcuately molded lens for eyeglasses as in claim 4, wherein each of said concavely indented regions has a depth within the range of about  $1/32$  inch to about  $1\frac{1}{4}$  inches.

6. A pair of eyeglasses, comprising a right and left earstem pivotably attached to an arcuately molded lens, wherein said lens comprises a top edge and a bottom edge;

said bottom edge having a nose opening therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region;

said lens having a bridge portion over said nose opening, the distance separating the lower edge of said bridge portion and the top edge of the lens being defined as  $d_1$  and the distance separating the top edge of the lens and the lowermost bottom edge of the lens being defined as  $d_2$ , wherein  $d_1$  is in the range of  $\frac{1}{4}$  to about  $1\frac{1}{4}$  inches, and  $d_2$  is in the range of about  $1\frac{1}{4}$  inches to about 3 inches,

said lens having an arcuate horizontal cross sectional configuration, wherein the arc length (L1) of said lens is in the range of from about five inches to about seven inches,

wherein the bottom edge of each of said right and left lens regions is concavely indented, open in the downward direction, with a maximum indentation depth of no less than about  $1/16$  inch.

7. A pair of eyeglasses as in claim 6, further comprising an upper frame, wherein said earstems are pivotably secured to said upper frame and said upper frame is secured to said lens.

8. A pair of eyeglasses as in claim 6, further comprising an upper and a lower frame, wherein said earstems are pivotably secured to said upper frame and said upper frame is secured to said lens.

9. A pair of eyeglasses as in claim 6, further comprising a frame which surrounds said lens, wherein said earstems are pivotably secured to said frame and said frame is secured to said lens.

10. A lens for eyeglasses, said lens being suitable for participation in active sports, such as biking and skiing, comprising:

an upper edge and a lower edge, said lower edge having a nose piece opening therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region,

said lens having an arcuate horizontal cross sectional configuration in its molded condition, said lens having an inner concave surface and an outer concave surface and a thickness there between,

wherein the lower edge of each of said right and left lens regions is provided with at least one indentation having a depth no less than about  $1/16$  inch,

9

thereby facilitating ventilation below and behind the lens.

11. The lens of claim 10, wherein said arcuate horizontal cross-sectional configuration of said lens is comprised of a central region and a first and second adjacent, distal regions, the thickness of said lens in at least one portion of each of said distal regions being less than the thickness of said lens in said central region.

12. The lens of claim 11, wherein the thickness of said lens at the midpoint of said central region tapers gradually to a reduced thickness in said distal regions.

13. The lens of claim 10, wherein the sum of the areas of said indentations in either of said left or right lens regions is between approximately 1% and 50% of the remaining area of said left or right lens region.

14. The lens of claim 13, wherein no more than one indentation is provided in each of said right and left lens regions.

15. The lens of claim 10, wherein said lens has an arcuate horizontal cross-sectional configuration in its molded condition which substantially conforms to the surface of a cylinder.

16. The lens of claim 15, wherein the radius from the axis of said cylinder to the inner concave surface of said lens is a substantially constant radius in the range of from about 2½ inches to about 4½ inches.

17. The lens of claim 10, wherein the radius of curvature of said lens along a horizontal plane is defined by  $R_2$ , the radius of curvature along a vertical plane through said lens has a radius defined by  $R_3$ , and wherein  $R_2$  is equal to or less than  $R_3$ .

18. A lens as in claim 17, wherein  $R_2$  is in the range of from about 2 inches to about 4 inches, and  $R_3$  is greater than or equal to 1.10  $R_2$ .

19. A pair of eyeglasses, comprising:

a lens having an upper edge and a lower edge,

said lower edge having a nose piece opening therein for mounting said lens on the nose of the wearer and for defining a right and left lens region,

said lens having an arcuate horizontal cross sectional configuration in its molded condition,

said lens having an inner concave surface and an outer concave surface and a thickness therebetween,

wherein the lower edge of each of said right and left lens regions is provided with at least one indentation having a depth no less than about

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1/16 inch, thereby facilitating ventilation below and behind the lens; and

a right and a left earstem pivotably attached to the lens.

20. A pair of eyeglasses as in claim 19, further comprising an upper frame, wherein said earstems are pivotably secured to said upper frame and said upper frame is secured to said lens.

21. A pair of eyeglasses as in claim 19, further comprising a nose piece disposed in the nose piece opening formed on the lower edge of said lens.

22. A pair of eyeglasses as in claim 19, further comprising a frame which surrounds said lens, wherein said earstems are pivotably secured to said frame and said frame is secured to said lens.

23. An eyeglass lens of the type adapted to be used in a dual lens eyewear system suitable for participation in active sports, such as biking and skiing, said lens comprising a top edge and bottom edge wherein the bottom edge of said lens is indented upwardly to form at least one downward facing concavity for facilitating ventilation between the bottom edge of the lens and the face of a wearer when said lens is mounted on a frame to form a pair of eyeglasses.

24. An arcuately molded lens for eyeglasses comprising a top edge and a bottom edge, said bottom edge having a nose piece opening formed therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region, the improvement comprising at least one concave ventilation indentation in the bottom edge of each of said right and left lens regions.

25. An arcuately molded lens for eyeglasses comprising a lens having a top edge and a bottom edge, said bottom edge having a nose piece opening formed therein for mounting said lens on the nose of a wearer and for defining a right and a left lens region, and wherein said lens has a bridge portion over said nose piece opening, the distance separating the lower edge of said bridge portion and the top edge of the lens being defined as  $d_1$  and the distance separating the top edge of the lens and the bottom edge of the lens being defined as  $d_2$ , wherein  $d_1$  is in the range of about 17/8 inch to 1½ inches, and  $d_2$  is in the range of about 1½ inches to 2½ inches, and said lens has an arcuate cross-sectional configuration, wherein the arc length ( $L_1$ ) of said lens is in the range of from about 5½ inches to 7 inches, the improvement comprising at least one concave ventilation indentation in the bottom edge of each of said right and left lens regions.

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TO:  <b>Commissioner of Patents and Trademarks</b> <b>Washington, DC 20231</b>	<b>REPORT ON THE</b> <b>FILING OR DETERMINATION OF AN</b> <b>ACTION REGARDING A PATENT OR</b> <b>TRADEMARK</b>
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In Compliance with 35 § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been  
 filed in the U.S. District Court So. Dist. CA on the following ☒ Patents or ☐ Trademarks:

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT Southern District of California
PLAINTIFF OAKLEY, INC.		DEFENDANT CREWS, INC. and APPLIED INDUSTRIAL TECHNOLOGIES
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
<sup>1</sup> D331,587	12/08/92	Oakley, Inc.
<sup>2</sup> 5,137,342	08/11/92	Oakley, Inc.
<sup>3</sup> D384,364	09/30/94	Oakley, Inc.
<sup>4</sup> 5,760,868	06/02/98	Oakley, Inc.
<sup>5</sup> 5,208,614	05/04/93	Oakley, Inc.

In the above—entitled case, the following patent(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
<sup>1</sup>			
<sup>2</sup>			
<sup>3</sup>			
<sup>4</sup>			
<sup>5</sup>			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Commissioner    Copy 3—Upon termination of action, mail this copy to Commissioner  
 Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner    Copy 4—Case file copy

TO:  <b>Commissioner of Patents and Trademarks</b> <b>Washington, DC 20231</b>	<b>REPORT ON THE</b> <b>FILING OR DETERMINATION OF AN</b> <b>ACTION REGARDING A PATENT OR</b> <b>TRADEMARK</b>
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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
<sup>1</sup>			
<sup>2</sup>			
<sup>3</sup>			
<sup>4</sup>			
<sup>5</sup>			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
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CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Commissioner    Copy 3—Upon termination of action, mail this copy to Commissioner  
 Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner    Copy 4—Case file copy



TO: <b>Commissioner of Patents and Trademarks Washington, DC 20231</b>	<b>REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK</b>
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filed in the U.S. District Court So. Dist. CA on the following ☒ Patents or ☐ Trademarks:

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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
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5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
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Copy 1—Upon initiation of action, mail this copy to Commissioner Copy 3—Upon termination of action, mail this copy to Commissioner  
Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner Copy 4—Case file copy

Case 3:02-cv-01863-IEG-JFS Document 1 Filed 09/18/02 Page 56 of 56

(a) PLAINTIFFS OAKLEY, INC., a Washington corporation

(b) COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF: Orange, CA

(c) ATTORNEYS (FIRM NAME, ADDRESS AND TELEPHONE NUMBER) WEEKS, KAUFMAN & JOHNSON 462 Stevens Ave., Suite 310 Solana Beach, CA 92075 (858) 794-2140

DEFENDANTS: GE... INC. a Tennessee corporation, and APPLIED INDUSTRIAL TECHNOLOGIES, a California corporation

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT: Shelby, TN

FILED 02 SEP 18 AM 10:56 CLERK, U.S. DISTRICT COURT SOUTHERN DISTRICT OF CALIFORNIA DEPUTY

II. BASIS OF JURISDICTION (PLACE AN x IN ONE BOX ONLY)

☒ 1 U.S. Government Plaintiff

☒ 3 Federal Question (U.S. Government Not a Party)

☐ 2 U.S. Government Defendant

☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (PLACE AN x IN ONE BOX FOR PLAINTIFF AND ONE FOR DEFENDANT)

Citizen of This State PTF ☐ 1 DEF ☐ 1

Citizen of Another State ☐ 2 ☐ 2

Citizen or Subject of a Foreign Country ☐ 3 ☐ 3

Incorporated or Principal Place of Business In This State PTF ☐ 4 DEF ☐ 4

Incorporated and Principal Place of Business In Another State ☐ 5 ☐ 5

Foreign Nation ☐ 6 ☐ 6

IV. ORIGIN (PLACE AN x IN ONE BOX ONLY)

☒ 1 Original Proceeding

☐ 2 Removed from State Court

☐ 3 Remanded from Appellate Court

☐ 4 Reinstated or Reopened

☐ 5 Transferred from another district (specify)

☐ 6 Multidistrict Litigation

☐ 7 Appeal to District Judge from Magistrate Judgement

V. REQUESTED IN COMPLAINT: CHECK IF THIS IS A CLASS ACTION DEMAND \$

UNDER F.R.C.P. 23

Check YES only if demanded in complaint: JURY DEMAND: ☒ YES ☐ NO

VI. CAUSE OF ACTION (CITE THE U.S. CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE A BRIEF STATEMENT OF CAUSE: DO NOT CITE JURISDICTIONAL STATUTES UNLESS DIVERSITY.)

This is a case for patent infringement under 35 U.S.C. §271 and §281

VII. NATURE OF SUIT (PLACE AN x IN ONE BOX ONLY)

OTHER STATUTES	CONTRACT	TORTS	FORFEITURE / PENALTY	BANKRUPTCY
<input type="checkbox"/> 400 State Reapportionment	<input type="checkbox"/> 110 Insurance	<input type="checkbox"/> 310 Airplane	<input type="checkbox"/> 610 Agriculture	<input type="checkbox"/> 422 Appeal
<input type="checkbox"/> 410 Antitrust	<input type="checkbox"/> 120 Marine	<input type="checkbox"/> 315 Airplane Product Liability	<input type="checkbox"/> 620 Other Food & Drug	<input type="checkbox"/> 28 USC 158
<input type="checkbox"/> 430 Banks and Banking	<input type="checkbox"/> 130 Miller Act	<input type="checkbox"/> 320 Assault, Libel & Slander	<input type="checkbox"/> 625 Drug Related Seizure of Property	<input type="checkbox"/> 423 Withdrawal
<input type="checkbox"/> 450 Commerce/ICC Rates/etc	<input type="checkbox"/> 140 Negotiable Instrument	<input type="checkbox"/> 330 Federal Employers Liability	<input type="checkbox"/> 21 USC 881	<input type="checkbox"/> 28 USC 157
<input type="checkbox"/> 460 Deportation	<input type="checkbox"/> 150 Recovery of Overpayment & Enforcement of Judgment	<input type="checkbox"/> 340 Marine	<input type="checkbox"/> 630 Liquor Laws	PROPERTY RIGHTS
<input type="checkbox"/> 470 Racketeer Influenced and Corrupt Organizations	<input type="checkbox"/> 151 Medicare Act	<input type="checkbox"/> 345 Marine Product Liability	<input type="checkbox"/> 640 R.R. & Truck	<input type="checkbox"/> 820 Copyrights
<input type="checkbox"/> 810 Selective Service	<input type="checkbox"/> 152 Recovery of Defaulted Student Loan (Excl. Veterans)	<input type="checkbox"/> 350 Motor Vehicle	<input type="checkbox"/> 650 Airline Regs	<input checked="" type="checkbox"/> 830 Patent
<input type="checkbox"/> 850 Securities/Commodities/Exchange	<input type="checkbox"/> 153 Recovery of Overpayment Of Veteran's Benefits	<input type="checkbox"/> 355 Motor Vehicle Product Liability	<input type="checkbox"/> 660 Occupational Safety/Health	<input type="checkbox"/> 840 Trademark
<input type="checkbox"/> 875 Customer Challenge 12 USC 3410	<input type="checkbox"/> 160 Stockholders' Suits	<input type="checkbox"/> 360 Other Personal Injury	<input type="checkbox"/> 690 Other	SOCIAL SECURITY
<input type="checkbox"/> 891 Agricultural Act	<input type="checkbox"/> 190 Other Contract		LABOR	<input type="checkbox"/> 861 HIA (1395ff)
<input type="checkbox"/> 892 Economic Stabilization Act	<input type="checkbox"/> 195 Contract Product Liability		<input type="checkbox"/> 710 Fair Labor Standards Act	<input type="checkbox"/> 862 Black Lung (923)
<input type="checkbox"/> 893 Environmental Matters	REAL PROPERTY	CIVIL RIGHTS	<input type="checkbox"/> 720 Labor/Mgmt. Relations	<input type="checkbox"/> 863 DIWC/DIWW (405(g))
<input type="checkbox"/> 894 Energy Allocation Act	<input type="checkbox"/> 210 Land Condemnation	<input type="checkbox"/> 441 Voting	<input type="checkbox"/> 730 Labor/Mgmt. Reporting & Disclosure Act	<input type="checkbox"/> 864 SSID Title XVI
<input type="checkbox"/> 895 Freedom of Information Act	<input type="checkbox"/> 220 Foreclosure	<input type="checkbox"/> 442 Employment	<input type="checkbox"/> 740 Railway Labor Act	<input type="checkbox"/> 865 RSI (405(g))
<input type="checkbox"/> 900 Appeal of Fee Determination Under Equal Access to Justice	<input type="checkbox"/> 230 Rent Lease & Ejectment	<input type="checkbox"/> 443 Housing/Accommodations	<input type="checkbox"/> 790 Other Labor Litigation	FEDERAL TAX SUITS
<input type="checkbox"/> 950 Constitutionality of State Statutes	<input type="checkbox"/> 240 Torts to Land	<input type="checkbox"/> 444 Welfare	<input type="checkbox"/> 791 Empl. Ret. Inc. Security Act	<input type="checkbox"/> 870 Taxes (U.S. Plaintiff or Defendant)
<input type="checkbox"/> 890 Other Statutory Actions	<input type="checkbox"/> 245 Tort Product Liability	<input type="checkbox"/> 440 Other Civil Rights		<input type="checkbox"/> 871 IRS-Third Party 26 USC 7609
	<input type="checkbox"/> 290 All Other Real Property			

III(a). IDENTICAL CASES: Has this action been previously filed and dismissed, remanded or closed? ☒ No ☐ Yes

If yes, list case number(s):