



US00D613408S

(12) **United States Design Patent**
Gausmann et al.

(10) **Patent No.:** **US D613,408 S**

(45) **Date of Patent:** **** Apr. 6, 2010**

(54) **EYE TREATMENT HEAD GEAR**

(75) Inventors: **Keith H. Gausmann**, Cary, NC (US);
Stephen M. Grenon, Durham, NC (US);
Julia Rose Anderson, Melrose, MA
(US); **David Chesley**, Duxbury, MA
(US)

5,643,336 A 7/1997 Lopez-Claros
5,700,238 A 12/1997 Hyson
5,720,773 A 2/1998 Lopez-Claros
5,958,912 A 9/1999 Sullivan
5,964,723 A 10/1999 Augustine
6,024,095 A 2/2000 Stanley, III

(Continued)

(73) Assignee: **TearScience, Inc.**, Morrisville, NC (US)

(**) Term: **14 Years**

(21) Appl. No.: **29/303,317**

(22) Filed: **Feb. 6, 2008**

(51) **LOC (9) Cl.** **24-02**

(52) **U.S. Cl.** **D24/150**

(58) **Field of Classification Search** D24/150,
D24/107, 110.1, 110.2, 120, 189; 604/289,
604/291, 294, 295, 301, 290, 302; 128/858;
600/400-406; 2/15, 12, 431

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,006,945 A 10/1911 Houston
1,924,315 A 8/1933 Hemphill et al.
2,891,252 A 6/1959 Lazo
3,333,586 A 8/1967 Bellis et al.
4,261,364 A 4/1981 Haddad et al.
4,778,457 A 10/1988 York
4,883,454 A 11/1989 Hamburg
4,914,088 A 4/1990 Glonek et al.
4,955,377 A 9/1990 Lennox et al.
5,030,214 A 7/1991 Spector
5,151,100 A 9/1992 Abele et al.
5,158,082 A 10/1992 Jones
5,251,627 A 10/1993 Morris
5,343,561 A 9/1994 Adamo
5,368,582 A 11/1994 Bertera
5,368,591 A 11/1994 Lennox et al.
5,425,380 A 6/1995 Hudson et al.
5,496,311 A 3/1996 Abele et al.
5,601,548 A 2/1997 Smith et al.

FOREIGN PATENT DOCUMENTS

CA 2679448 A1 9/2008

(Continued)

OTHER PUBLICATIONS

Mori, A., et al., "Efficacy of the Treatment by the Disposable Eyelid Warming Instrument for Meibomian Gland Dysfunction," Poster Presentation, Hall A, 1 page.

(Continued)

Primary Examiner—Ian Simmons
Assistant Examiner—Wan Laymon

(74) *Attorney, Agent, or Firm*—Withrow & Terranova, PLLC

(57) **CLAIM**

The ornamental design for eye treatment head gear, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of an eye treatment head gear according to the present invention;

FIG. 2 is a front view thereof;

FIG. 3 is a rear view thereof;

FIG. 4 is a left side view thereof;

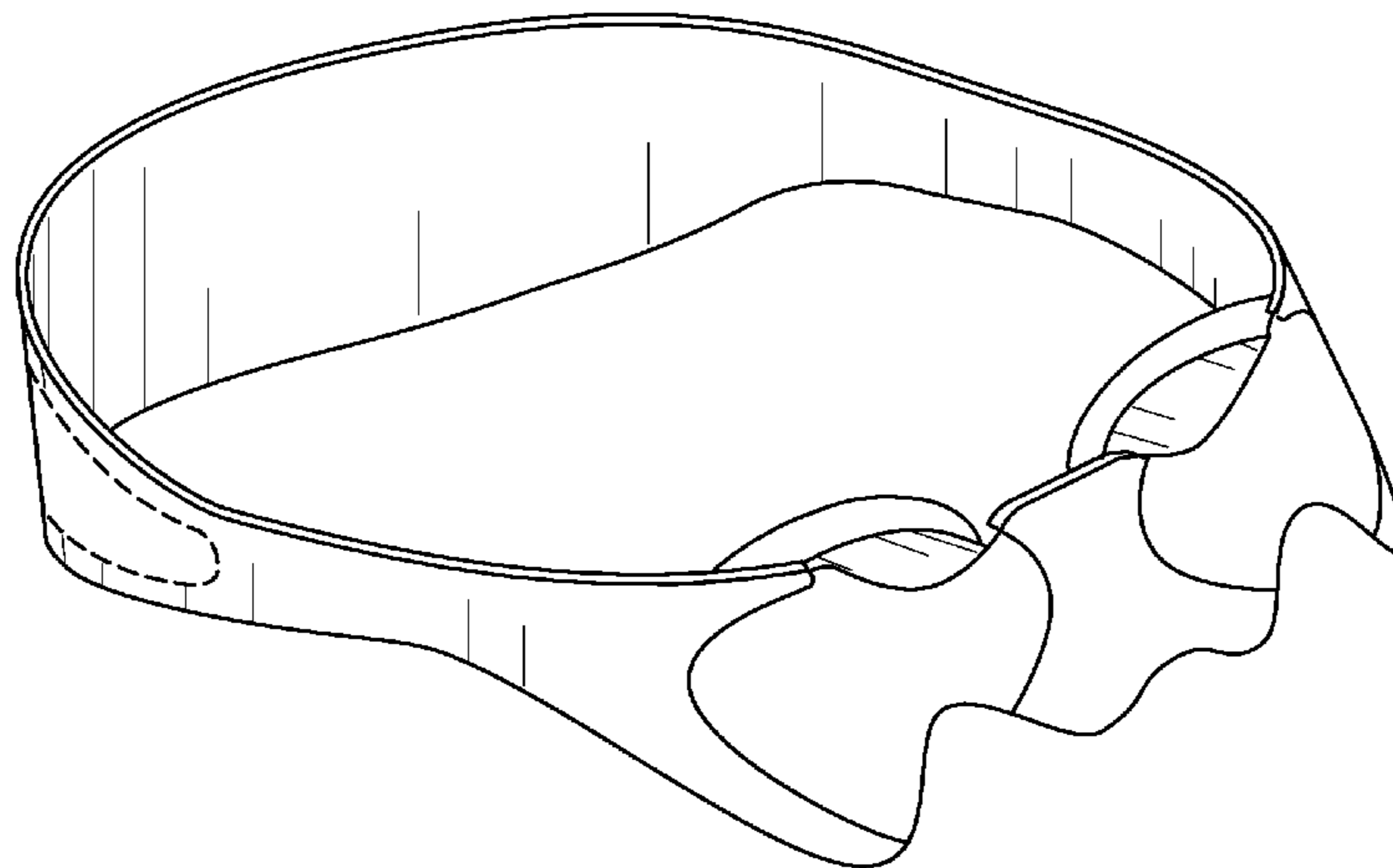
FIG. 5 is a right side view thereof;

FIG. 6 is a top view thereof; and,

FIG. 7 is a bottom view thereof.

The broken line showing a portion of an eye treatment apparatus is included for illustrating environmental structure and forms no part of the claimed design.

1 Claim, 5 Drawing Sheets



U.S. PATENT DOCUMENTS

6,107,289 A 8/2000 Sullivan
 6,110,292 A 8/2000 Jewett et al.
 6,112,900 A 9/2000 Adkins, Jr.
 6,113,561 A 9/2000 Augustine
 6,153,607 A 11/2000 Pflugfelder et al.
 6,155,995 A 12/2000 Lin
 6,181,970 B1 1/2001 Kasevich
 6,193,740 B1 2/2001 Rodriguez
 6,206,842 B1 3/2001 Tu et al.
 6,213,966 B1 4/2001 Augustine
 6,423,018 B1 7/2002 Augustine
 6,425,888 B1 7/2002 Embleton et al.
 6,438,398 B1 8/2002 Pflugfelder et al.
 6,455,583 B1 9/2002 Pflugfelder et al.
 6,482,203 B2 11/2002 Paddock et al.
 6,490,488 B1 12/2002 Rudie et al.
 6,641,264 B1 11/2003 Schwebel
 6,788,977 B2 9/2004 Fenn et al.
 6,827,898 B1 12/2004 Fausset et al.
 6,840,954 B2 1/2005 Dietz et al.
 6,860,852 B2 3/2005 Schonenberger et al.
 6,860,880 B2 3/2005 Treat et al.
 6,874,884 B2 4/2005 Schwebel
 6,882,885 B2 4/2005 Levy, Jr. et al.
 6,886,933 B2 5/2005 Schwebel
 6,908,195 B2 * 6/2005 Fuller 604/291
 6,925,317 B1 8/2005 Samuels et al.
 6,974,454 B2 12/2005 Hooven
 7,001,379 B2 2/2006 Behl et al.
 7,004,942 B2 2/2006 Laird et al.
 7,036,928 B2 5/2006 Schwebel
 7,069,084 B2 6/2006 Yee
 7,108,694 B2 9/2006 Miura et al.
 7,118,591 B2 10/2006 Frank et al.
 7,123,968 B1 10/2006 Casscells, III et al.
 7,211,070 B2 5/2007 Soroudi
 7,231,922 B2 * 6/2007 Davison et al. 128/858
 7,357,500 B2 * 4/2008 Schwebel 604/300
 7,513,893 B2 * 4/2009 Soroudi 604/294
 2001/0041886 A1 11/2001 Durkin et al.
 2002/0035345 A1 3/2002 Beck
 2002/0099094 A1 7/2002 Anderson
 2002/0111608 A1 8/2002 Baerveldt et al.
 2002/0128696 A1 9/2002 Pearl et al.
 2003/0056281 A1 3/2003 Hasegawa
 2003/0114426 A1 6/2003 Pflugfelder et al.
 2003/0139790 A1 7/2003 Ingle et al.
 2003/0195438 A1 10/2003 Petillo
 2003/0211043 A1 11/2003 Korb
 2003/0233135 A1 12/2003 Yee
 2004/0076695 A1 4/2004 Gilbard
 2004/0153093 A1 8/2004 Donovan
 2005/0022823 A1 * 2/2005 Davison et al. 128/858
 2005/0119629 A1 6/2005 Soroudi
 2005/0220742 A1 10/2005 Breen
 2006/0018953 A1 1/2006 Guillon et al.
 2006/0030604 A1 2/2006 Elsinger et al.
 2006/0154901 A1 7/2006 Pflugfelder et al.
 2006/0183698 A1 8/2006 Abelson
 2006/0233859 A1 10/2006 Whitcup et al.
 2007/0016256 A1 1/2007 Korb et al.
 2007/0049913 A1 3/2007 Grenon et al.
 2007/0203462 A1 8/2007 Soroudi
 2007/0280924 A1 12/2007 Daniels et al.
 2008/0051741 A1 2/2008 Grenon et al.
 2008/0075787 A1 3/2008 Hibino
 2009/0043365 A1 2/2009 Friedland et al.
 2009/0137533 A1 5/2009 Adkins, Jr.

2009/0306111 A1 12/2009 Nakamura et al.

FOREIGN PATENT DOCUMENTS

JP 06269473 9/1994
 JP 11221247 8/1999
 JP 200278727 3/2002
 JP 2006198249 8/2006
 WO 99/09965 3/1999
 WO 99/58131 A1 11/1999
 WO 2004/041134 A1 5/2004
 WO 2009064834 A2 5/2009

OTHER PUBLICATIONS

Korb, Donald R., O.D., et al., "Meibomian Gland Dysfunction and Contact Lens Intolerance," *Jnl American Optometric Association*, vol. 51, No. 3, Mar. 1980, 9 pages (pp. 243-251).
 Korb, Donald R. et al., "Increase in Tear Film Lipid Layer Thickness Following Treatment of Meibomian Gland Dysfunction" *Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science Clinical Relevance. Adv. Exp. Med. Biol.*, vol. 350, 1994, 6 pages (pp. 293-298).
 Sullivan, Benjamin D., et al., "Impact of Antiandrogen Treatment on the Fatty Acid Profile of Neutral Lipids in Human Meibomian Gland Secretions," *The Journal of Clinical Endocrinology & Metabolism*, vol. 85, No. 12, 2000, 8 pages (pp. 4866-4873).
 Goto, E., et al. "Treatment of Non-Inflamed Obstructive Meibomian Gland Dysfunction by an Infrared Warm Compression Device" *British Journal of Ophthalmology, BJO Online*, <http://www.bmjournals.com/cgi/reprintform>, vol. 26, 2002, 6 pages (pp. 1402-1407).
 Goto, Eiki, et al., "Tear Evaporation Dynamics in Normal Subjects and Subjects with Obstructive Meibomian Gland Dysfunction," *Investigative Ophthalmology & Visual Science*, vol. 44, No. 2, Feb. 2003, 7 pages (pp. 533-539).
 Kuscu, Naci Kemal, et al., "Tear Function Changes of Postmenopausal Women in Response to Hormone Replacement Therapy," *Maturitas* 44, 63-68, 2003, 6 pages.
 Mori, Asako, et al., "Disposable Eyelid-Warming Device for the Treatment of Meibomian Gland Dysfunction," *Jpn J Ophthalmol*, vol. 47: 578-586, 2003, 9 pages (pp. 578-586).
 Olson, Mary Catherine, B.A., et al., "Increase in Tear Film Lipid Layer Thickness Following Treatment with Warm Compresses in Patients with Meibomian Gland Dysfunction" *Eye & Contact Lens*, vol. 29(2), 2003, 6 pages.
 Romero, Juan M., et al., "Conservative Treatment of Meibomian Gland Dysfunction," *Eye and Contact Lens*, vol. 30, No. 1, 2004, 6 pages (pp. 14-19).
 Lemp, Michael A., et al., "The Therapeutic Role of Lipids—Managing Ocular Surface Disease," *Refractive Eyecare for Ophthalmologists*, vol. 9, No. 6, Jun. 2005, 14 pages.
 Mitra, M. et al., "Tear Film Lipid Layer Thickness and Ocular Comfort after Meibomian Therapy via Latent Heat with a Novel Device in Normal Subjects" *Eye*, vol. 19, 2005, 4 pages (pp. 657-660).
 Minco "Introducing: Thermofoil Heaters" *Bulletin HS-202*, 9 pages. Unknown, "Anatomy of the Eye and Orbit," p. 170.
 Paugh, J.R. et al., "Meibomian Therapy in Problematic Contact Lens Wear," *Entrez PubMed, Optom Vis Sci*. Nov. 1990; 68(11): 803-6, 1 page.
 Tobler, David et al., "Nanotech Silver Fights Microbes in Medical Devices," *0 ND & DI, devicelink.com*, 1 page.
 Unknown, "IFU Manual for PNT Model 1000—Rev H," 24 pages.
 Blackie, Caroline A. et al., "Recovery Time of an Optimally Secreting Meibomian Gland," *Cornea*, vol. 28, No. 3, Apr. 2009, pp. 293-297.
 "New Over-the-Counter Dry Eye Drop Now Available to Help Estimated 40 Percent of Americans Who Suffer from Occasional or Chronic Dry Eye" *Business Wire News Release*, Published Mar. 31, 2008.
 Gupta, S. et al. "Docetaxel-induced Meibomian Duct Inflammation and Blockage Leading to Chalazion Formation" *Prostate Cancer Prostatic Diseases*, vol. 10, No. 4, 2007.
 Aronowicz, J D et al. "Short Term Oral Minocycline Treatment of Meibomiantis" *Br. J Ophthalmol*, vol. 90, No. 7, Jul. 2006.

- Goto, E. et al., "Treatment of Non-Inflamed Obstructive Meibomian Gland Dysfunction by an Infrared Warm Compression Device" *Br J Ophthalmol*, vol. 86, No. 12, Dec. 2002.
- "arGentis Licenses Third Treatment for Dry Eye Syndrome" www.businesswire.com, May 12, 2008.
- Blackie, Caroline A. et al., "Inner Eyelid Surface Temperature as a Function of Warm Compress Methodology," *Optometry and Vision Science*, vol. 85, No. 8, Aug. 2008, pp. 675-683.
- Kokke, K.H. et al., "Oral Omega-6 Essential Fatty Acid Treatment in Contact Lens Associated Dry Eye," *Contact Lens and Anterior Eye*, vol. 31, No. 3, 2008, pp. 141-146.
- Korb, Donald R., Slide entitled "Inner Eyelid Surface Temperature as a Function of Warm Compress Methodology," from presentation entitled "The Tear Film and Dry Eye States A Fertile Research Area," University of California at Berkeley, School of Optometry, Apr. 11, 2008. 2 pages.
- Korb, Donald R. et al., Slide entitled "Inner Eyelid Surface Temperature as a Function of Warm Compress Methodology," from presentation entitled "The Greatest Anterior Segment Disease and Contact Lens Complications Course," AOA Meeting, Seattle, Washington, Jun. 27, 2008, 2 pages.
- Sullivan, David et al., "Do Sex Steroids Exert Sex-Specific and/or Opposite Effects on Gene Expression in Lacrimal and Meibomian Glands?" *Molecular Vision*, vol. 15, No. 166, Aug. 10, 2009, pp. 1553-1572.
- Paugh, Jerry R. et al., "Precorneal Residence Time of Artificial Tears Measured in Dry Eye Subjects," *Optometry and Vision Science*, vol. 85, No. 8, Aug. 2008, pp. 725-731.
- Lemp, Michael A. et al., "Blepharitis in the United States 2009: A Survey-Based Perspective on Prevalence and Treatment." *Ocul. Surf.*, vol. 7, No. 2 Suppl, Apr. 2009, pp. S1-S14.
- Matsumoto, Yukihiro et al., "The Evaluation of the Treatment Response in Obstructive Meibomian Gland Disease by In Vivo Laser Confocal Microscopy," *Graefes Arch Clin Exp Ophthalmol*, vol. 247, No. 6, Jun. 2009, pp. 821-829.
- Toyos, Rolando, "Intense Pulsed Light for Dry Eye Syndrome," *Cataract & Refractive Surgery Today*, Apr. 2009, pp. 1-3.
- Donnenfeld, Eric et al., "Topical Ophthalmic Cyclosporine: Pharmacology and Clinical Uses," *Survey of Ophthalmology*, vol. 54, No. 3, May/Jun. 2009, pp. 321-338.
- Suzuki, Tomo et al., "Estrogen and Progesterone Control of Gene Expression in the Mouse Meibomian Gland," *Invest. Ophthalmol. Vis. Sci.*, vol. 49, No. 5, Apr. 2008, pp. 1797-1818.
- Vasta, Stephanie, "Aggressive Treatments Developed for Meibomian Gland Dysfunction," *Primary Care Optometry News*, Nov. 1, 2009, 3 pages.

* cited by examiner

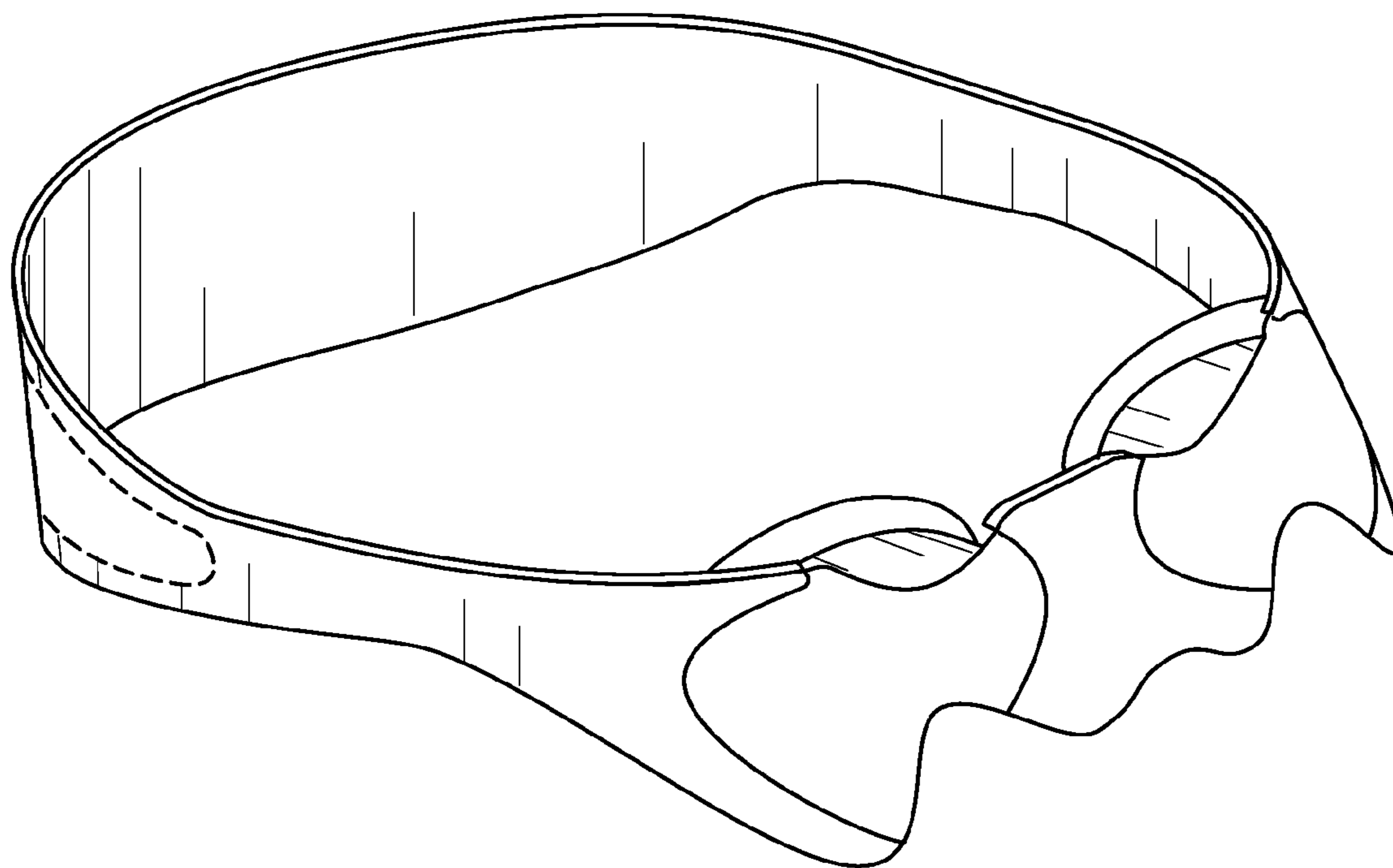


FIG. 1

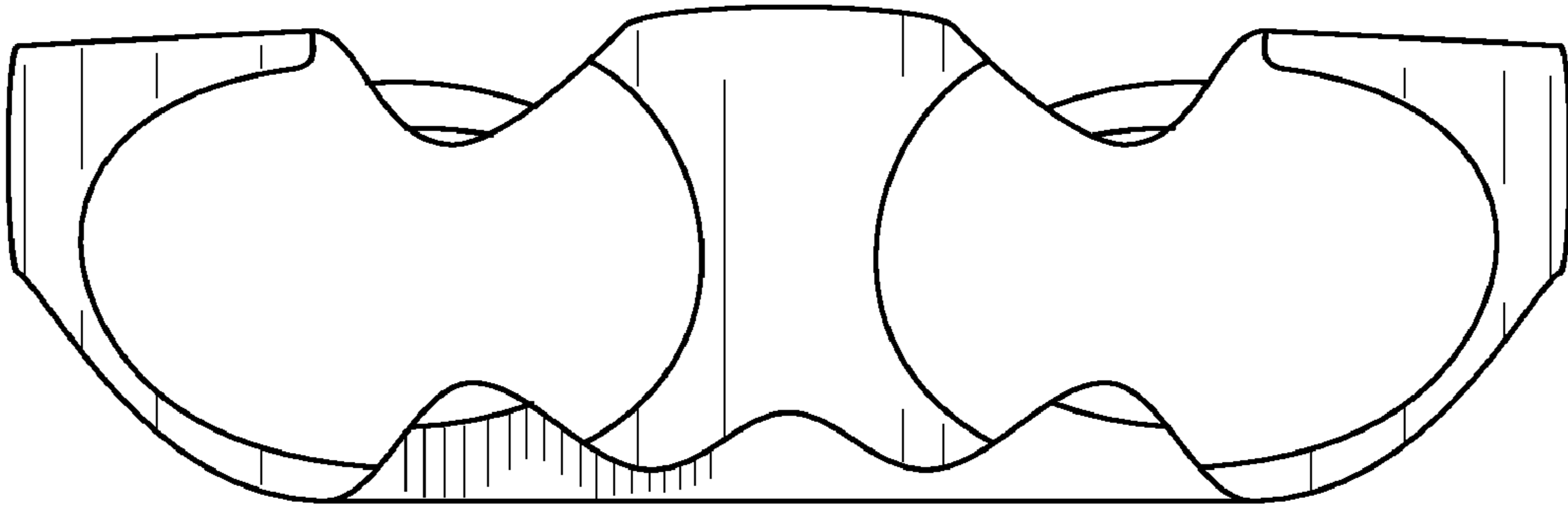


FIG. 2

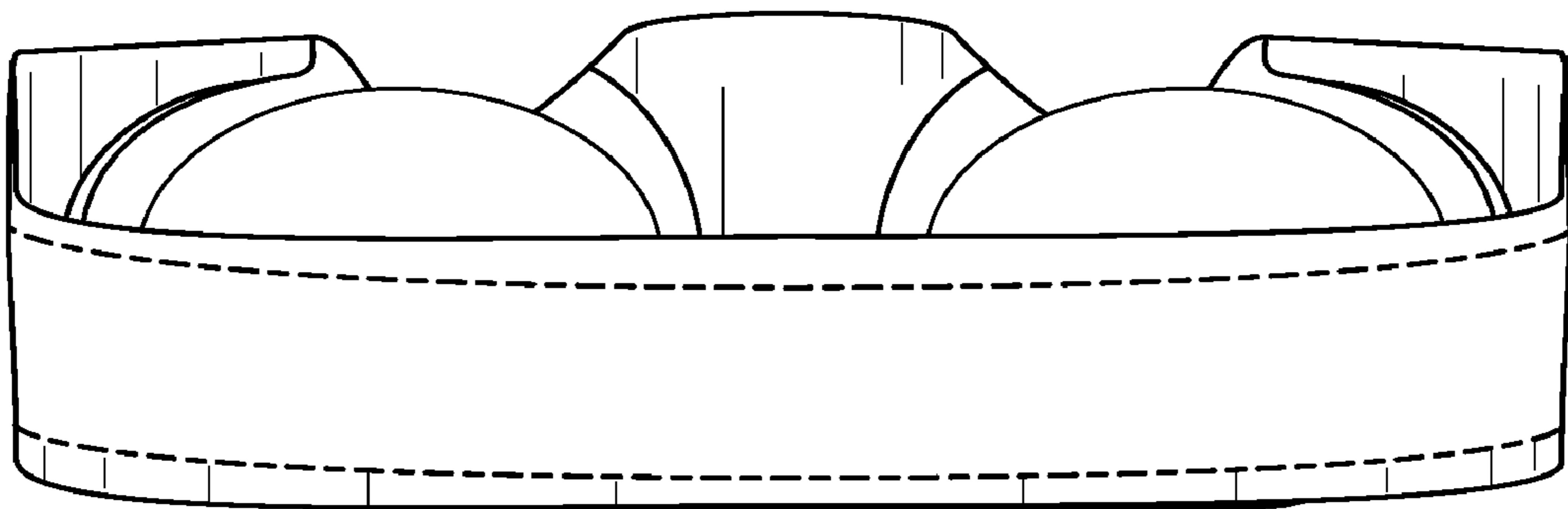


FIG. 3

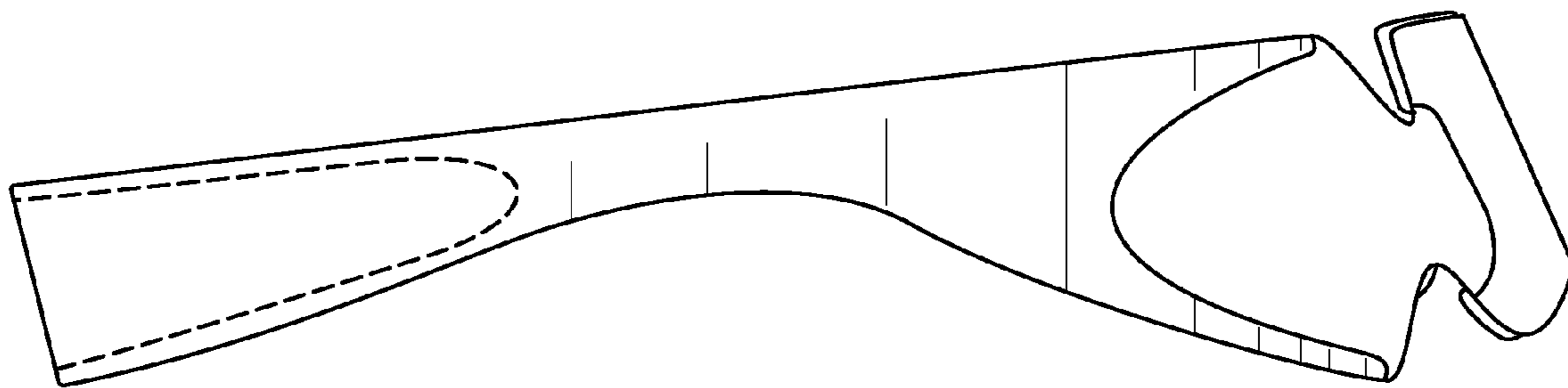


FIG. 4

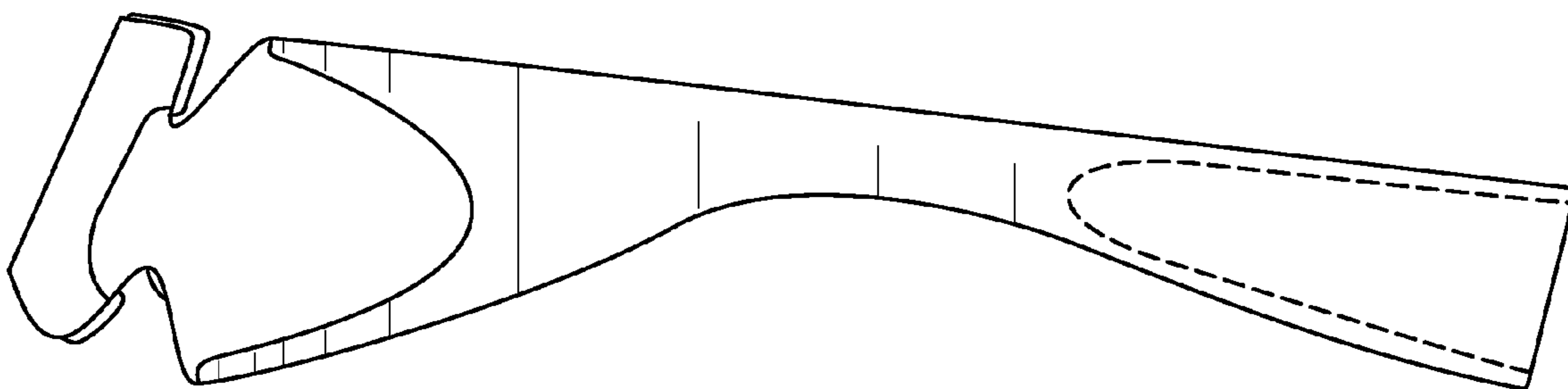


FIG. 5

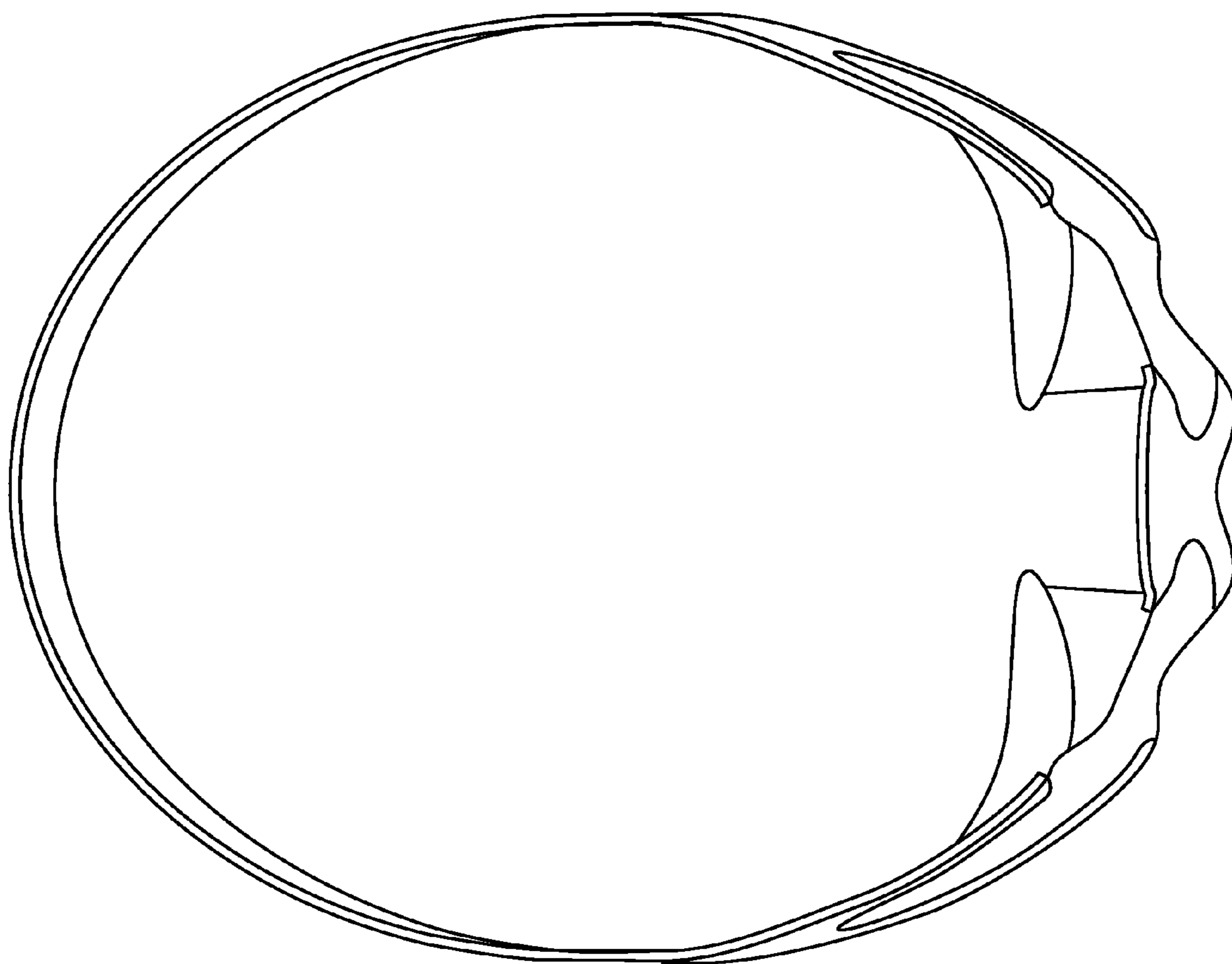


FIG. 6

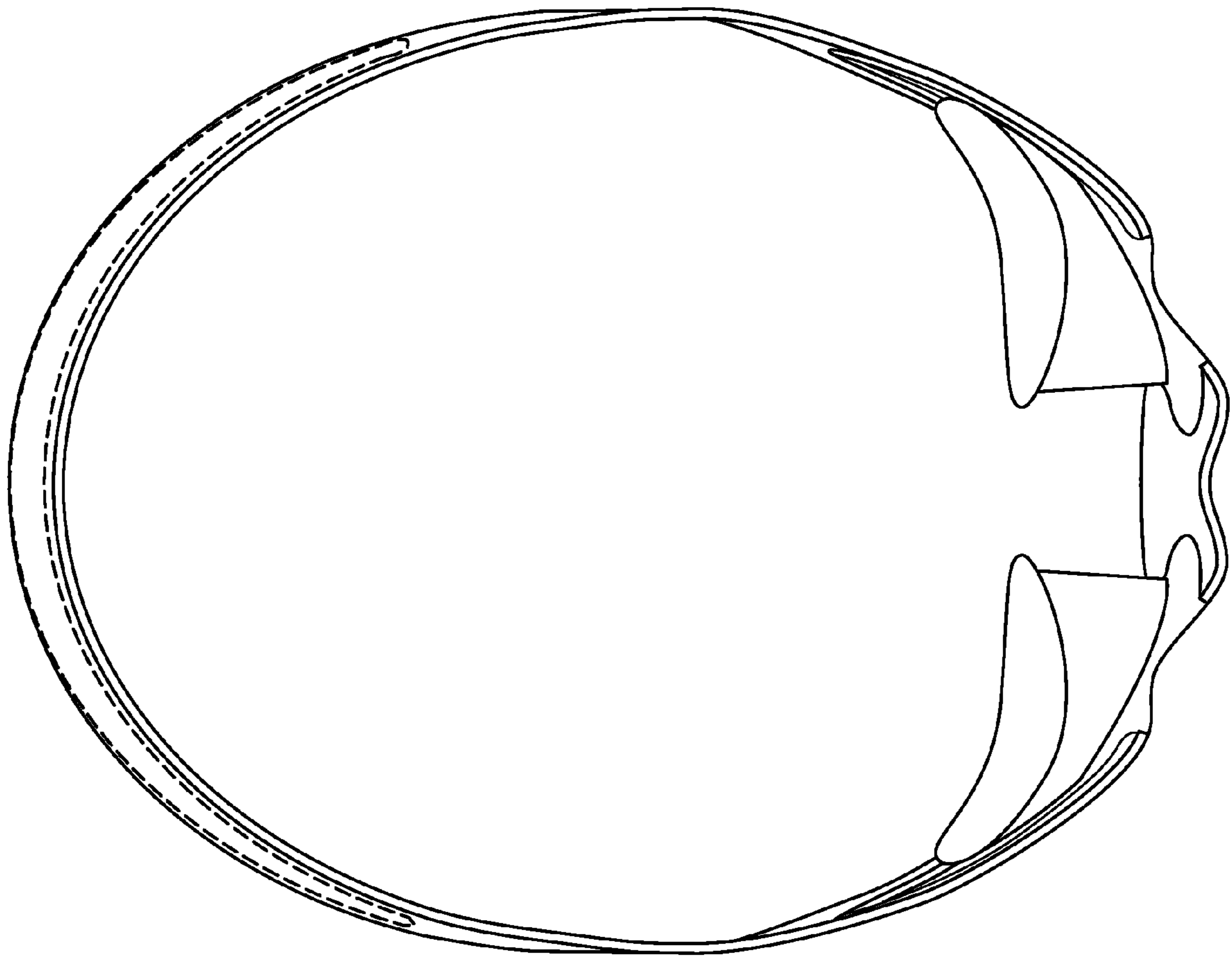


FIG. 7