

US00D702349S

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

(10) **Patent No.:** **US D702,349 S**
(45) **Date of Patent:** **** Apr. 8, 2014**

(54) **TIBIAL PROSTHESIS**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **Laboratoires Bodycad Inc.**, Quebec (CA)

WO 2009052562 A1 4/2009
WO 2011150238 A1 12/2011
WO 2012017375 A2 2/2012

(72) Inventors: **Jean Robichaud**, Quebec (CA); **Marc Bedard**, Pont-Rouge (CA); **Geoffroy Rivet-Sabourin**, Stoneham (CA); **Florent Miguel**, Quebec (CA)

OTHER PUBLICATIONS

Kapur et al., Model Based Segmentation of Clinical Knee MRI, 1998, 9 pages, Massachusetts Institute of Technology, Artificial Intelligence Laboratory, Cambridge, Massachusetts, USA.

Lynch et al., Cartilage Segmentation of 3D MRI Scans of the Osteoarthritic Knee Combining User Knowledge and Active Countours, Jun. 2000, 11 pages, Osteoporosis & Arthritis Research Group, Department of Radiology, UCSF, San Francisco, CA, USA.

(73) Assignee: **Laboratories Bodycad Inc.**, Quebec (CA)

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

(Continued)

(21) Appl. No.: **29/454,767**

Primary Examiner — Ian Simmons

(22) Filed: **May 14, 2013**

Assistant Examiner — Charles Hanson

(51) **LOC (10) Cl.** **24-02**

(74) *Attorney, Agent, or Firm* — Sutherland Asbill & Brennan LLP

(52) **U.S. Cl.**

USPC **D24/155**

(58) **Field of Classification Search**

USPC D24/155, 140; 623/20.14, 20.33, 20.3, 623/20.35, 901; 264/264; 606/96, 88

See application file for complete search history.

(57) **CLAIM**

The ornamental design for a tibial prosthesis, as shown and described.

DESCRIPTION

(56) **References Cited**

U.S. PATENT DOCUMENTS

D242,957 S	1/1977	Treace	
D243,123 S *	1/1977	Shen et al.	D24/140
D245,259 S	8/1977	Shen	
D248,771 S	8/1978	Groth, Jr. et al.	
D269,547 S	6/1983	Rosenthal	
D274,090 S	5/1984	Kenna	
D274,094 S	5/1984	Kenna	
D346,218 S *	4/1994	White	D24/140
D358,211 S	5/1995	Cohen	
D358,647 S	5/1995	Cohen	
D365,396 S	12/1995	Hayes	
D369,863 S *	5/1996	Hayes	D24/155
D373,825 S *	9/1996	Hayes	D24/155
5,878,170 A	3/1999	Kim	

(Continued)

FIG. 1 is a front perspective view of a tibial prosthesis showing our new design;

FIG. 2 is a rear perspective view thereof;

FIG. 3 is a front elevation view thereof;

FIG. 4 is a rear elevation view thereof;

FIG. 5 is a right-side elevation view thereof;

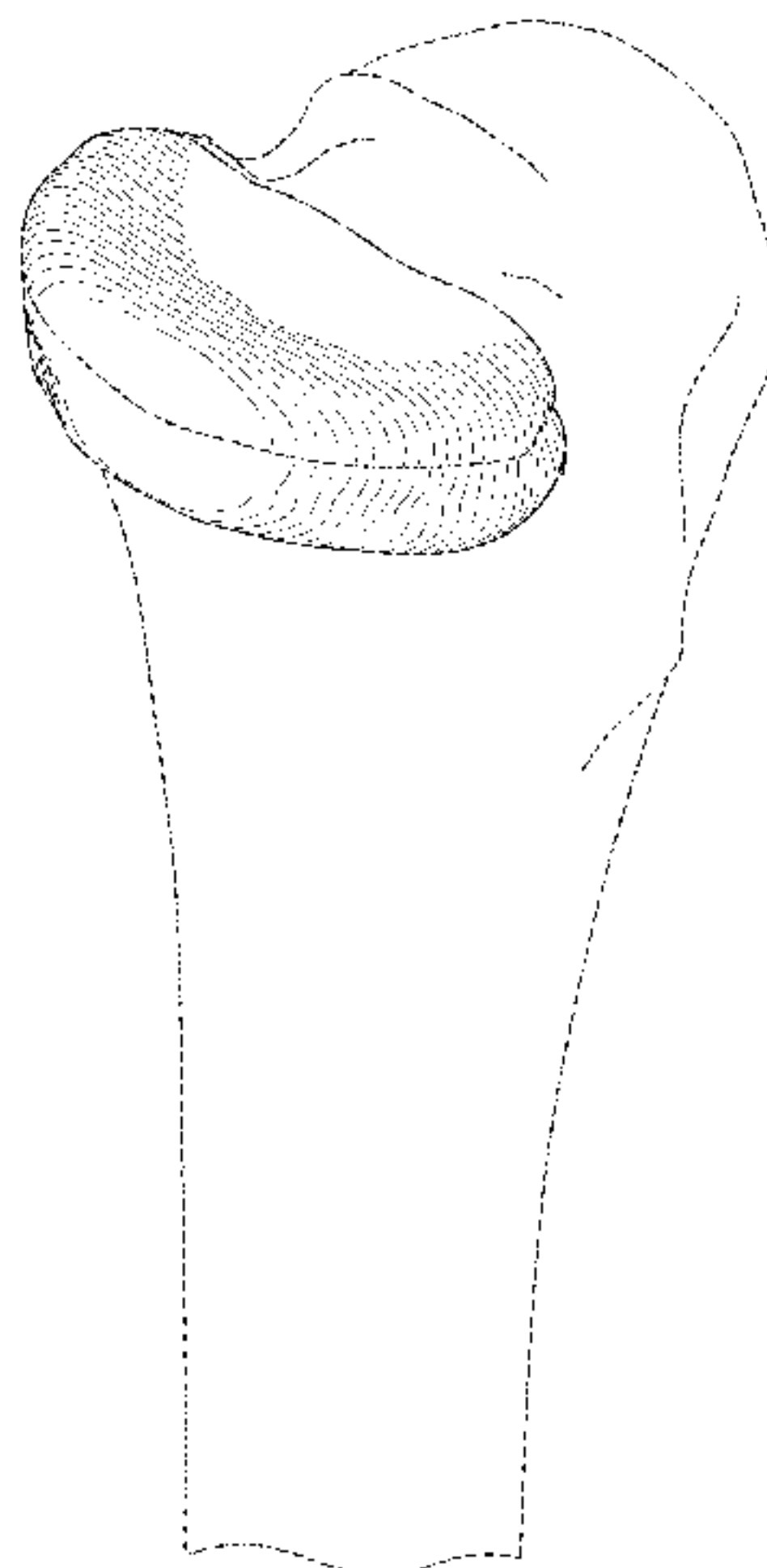
FIG. 6 is a left-side elevation view thereof;

FIG. 7 is a top plan view thereof;

FIG. 8 is a bottom plan view thereof; and,

FIG. 9 is a front perspective view thereof mounted on a tibia. The broken line showing of the line circumscribing the prosthesis is unclaimed and the tibia in FIG. 9 is included for the purpose of illustrating environment and forms no part of the claimed design.

1 Claim, 9 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

6,249,594	B1	6/2001	Hibbard	
6,345,112	B1	2/2002	Summers et al.	
6,912,310	B1	6/2005	Park et al.	
7,184,814	B2	2/2007	Lang et al.	
7,376,254	B2	5/2008	Barth	
7,773,786	B2	8/2010	Fidrich et al.	
7,799,077	B2	9/2010	Lang et al.	
D626,234	S	10/2010	Otto et al.	
7,995,810	B2	8/2011	Li et al.	
8,007,533	B2	8/2011	Zhukauskas et al.	
8,036,729	B2	10/2011	Lang et al.	
8,073,252	B2	12/2011	Florin et al.	
8,077,950	B2	12/2011	Tsougarakis et al.	
8,090,172	B2	1/2012	Shinagawa et al.	
8,098,909	B2	1/2012	Hibbard et al.	
8,112,142	B2	2/2012	Alexander et al.	
8,160,345	B2	4/2012	Pavlovskaja et al.	
2004/0153162	A1*	8/2004	Sanford et al.	623/20.3
2004/0167630	A1*	8/2004	Rolston	623/20.14
2004/0193280	A1*	9/2004	Webster et al.	623/20.33
2006/0184176	A1*	8/2006	Straszheim-Morley et al.	606/88
2008/0030497	A1	2/2008	Hu et al.	
2008/0139922	A1	6/2008	Pelletier et al.	
2008/0215059	A1*	9/2008	Carignan et al.	606/96
2009/0076371	A1	3/2009	Lang et al.	
2009/0136103	A1	5/2009	Sonka et al.	
2009/0190815	A1	7/2009	Dam et al.	
2009/0226060	A1	9/2009	Gering et al.	
2009/0306496	A1	12/2009	Koo et al.	
2009/0324078	A1	12/2009	Wu et al.	
2010/0232671	A1	9/2010	Dam et al.	
2011/0066245	A1	3/2011	Lang et al.	
2011/0144760	A1	6/2011	Wong et al.	
2011/0295378	A1	12/2011	Bojarski et al.	
2011/0304332	A1	12/2011	Mahfouz et al.	
2012/0004725	A1	1/2012	Shterling et al.	
2012/0197408	A1	8/2012	Lang et al.	
2012/0209394	A1	8/2012	Bojarski et al.	
2012/0316563	A1	12/2012	Metzger et al.	
2012/0323334	A1	12/2012	Jones et al.	

OTHER PUBLICATIONS

Yezzi et al., A Variational Framework for Joint Segmentation and Registration, 2001, 8 pages, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, Artificial Intelligence Laboratory, Cambridge, MA, Visualization Technology Inc.; Lawrence, MA, USA.

Pakin et al., Segmentation, Surface Extraction and Thickness Computation of Articular Cartilage, 2002, 13 pages, University of Rochester, Electrical and Computer Engineering, Rochester NY, University of Rochester, Department of Radiology, Rochester NY, USA.

Ray et al., Merging Parametric Active Contours Within Homogeneous Image Regions for MRI-Based Lung Segmentation, Feb. 2003, 11 pages, IEEE Transactions on Medical Imaging, vol. 22, No. 2.

Tamez-Pena et al., Knee Cartilage Extraction and Bone-Cartilage Interface Analysis From 3D MRI Data Sets, 2004, 11 pages, Osteoporosis & Arthritis Research Group, Department of Radiology, UCSF, San Francisco, CA, USA.

Yushkevich et al., User-Guided 3D Active Contour Segmentation of Anatomical Structures: Significantly Improved Efficiency and Reliability, 2006, 13 pages, Penn Image Computing and Science Laboratory, Dept. of Radiology, University of Pennsylvania, PA, Depts. of Computer Science and Psychiatry, University of North Carolina, NC, Neurodevelopmental Disorders Research Center, University of North Carolina, NC, USA.

Folkesson et al. Segmenting Articular Cartilage Automatically Using a Voxel Classification Approach, Jan. 2007, 10 pages, IEEE Transactions on Medical Imaging, vol. 26, No. 1.

El Naqa et al, Concurrent Multimodality Image Segmentation by Active Contours for Radiotherapy Treatment Planning, Dec. 2007, 12 pages, Department of Radiation Oncology, School of Medicine, Washington University, St. Louis, Missouri, USA.

Sun et al., Active Contour Based Subthalamic Nucleus Segmentation on MRI MIPPR 2009: Medical Imaging, Parallel Processing of Images, and Optimization Techniques, 2009, 12 pages, Dept. of Biomedical Engineering, Nanchang Hangkong University, Nanchang, China.

Williams et al., Anatomically Corresponded Regional Analysis of Cartilage in Asymptomatic and Osteoarthritic Knees by Statistical Shape Modelling of the Bone, Aug. 2010, 19 pages, IEEE Transactions on Medical Imaging, vol. 29, No. 8.

Yin et al., Logismos-Layered Optimal Graph Image Segmentation of Multiple Objects and Surfaces: Cartilage Segmentation in the Knee Joint, Dec. 2010, 15 pages, IEEE Transactions on Medical Imaging, vol. 29, No. 12.

Yin et al., Electric Field Theory Based Approach to Search-Direction Line Definition in Image Segmentation: Application to Optimal Femur-Tibia Cartilage Segmentation in Knee-Joint 3-D MR, 2010, 9 pages, Dept. of Electrical and Computer Engineering, The University of Iowa, Iowa City, Iowa, USA.

Tamez-Pena et al., Unsupervised Segmentation and Quantification of Anatomical Knee Features: Data From the Osteoarthritis Initiative, 19 pages, Apr. 2012, IEEE Transactions on Medical Imaging, vol. 29, No. 8.

* cited by examiner

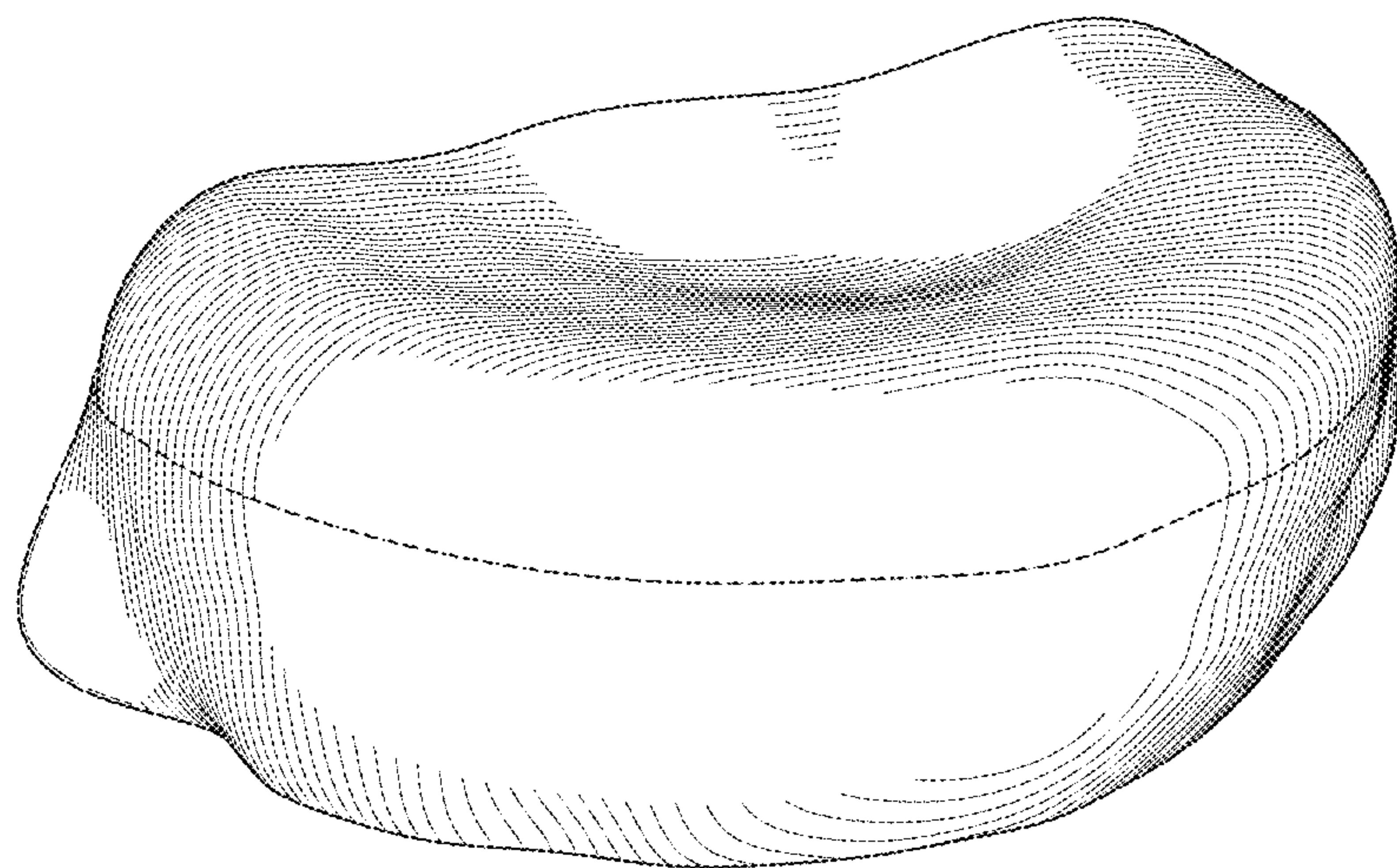


FIG. 1

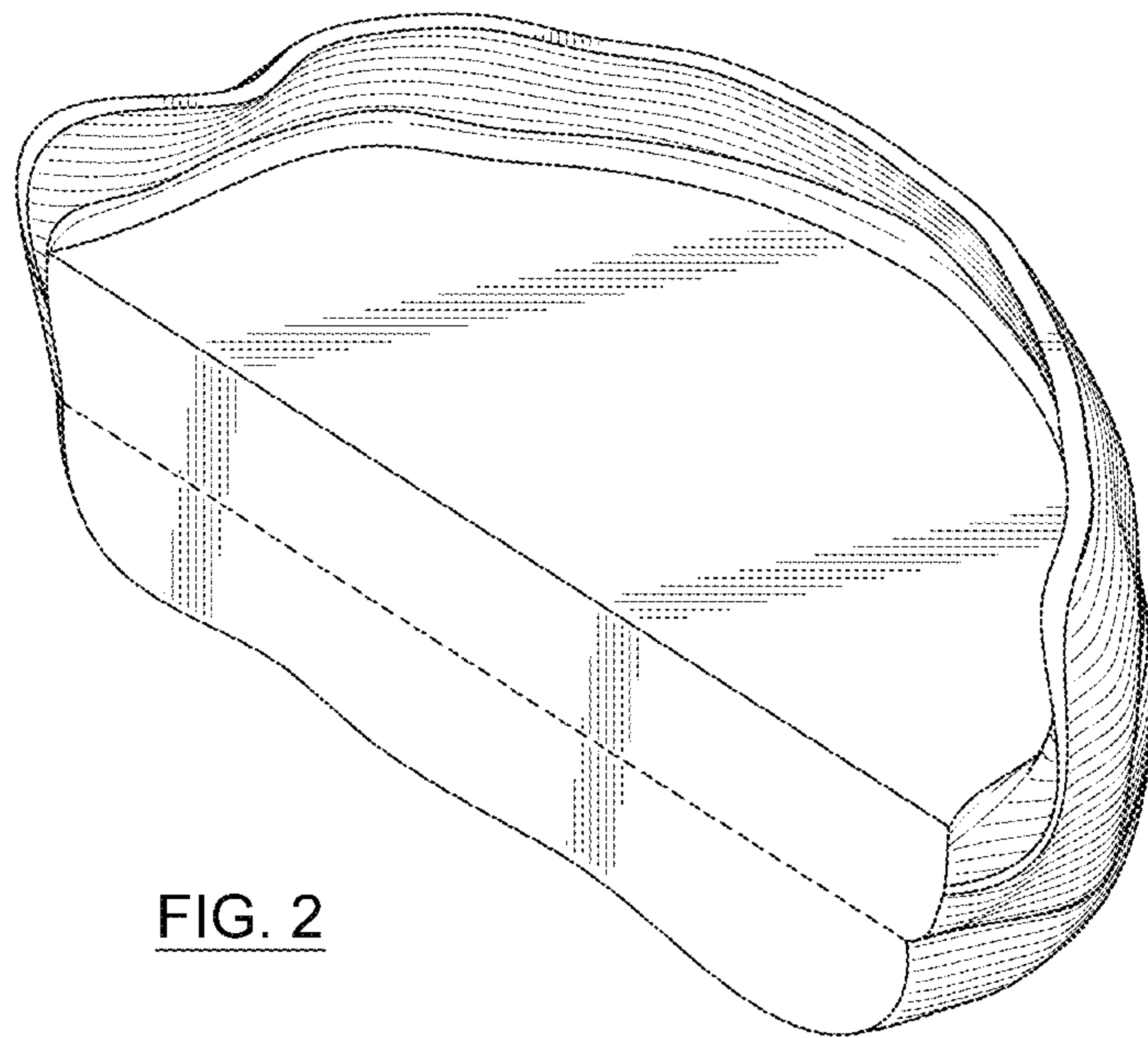


FIG. 2

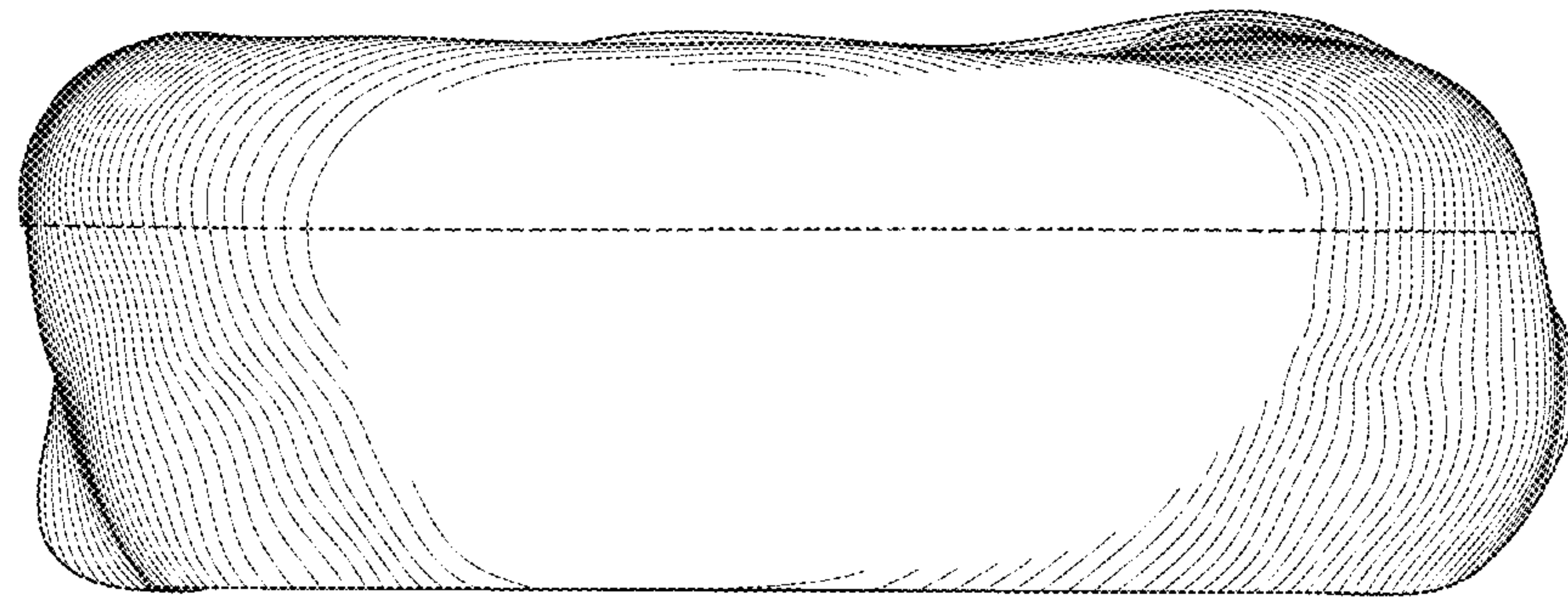


FIG. 3

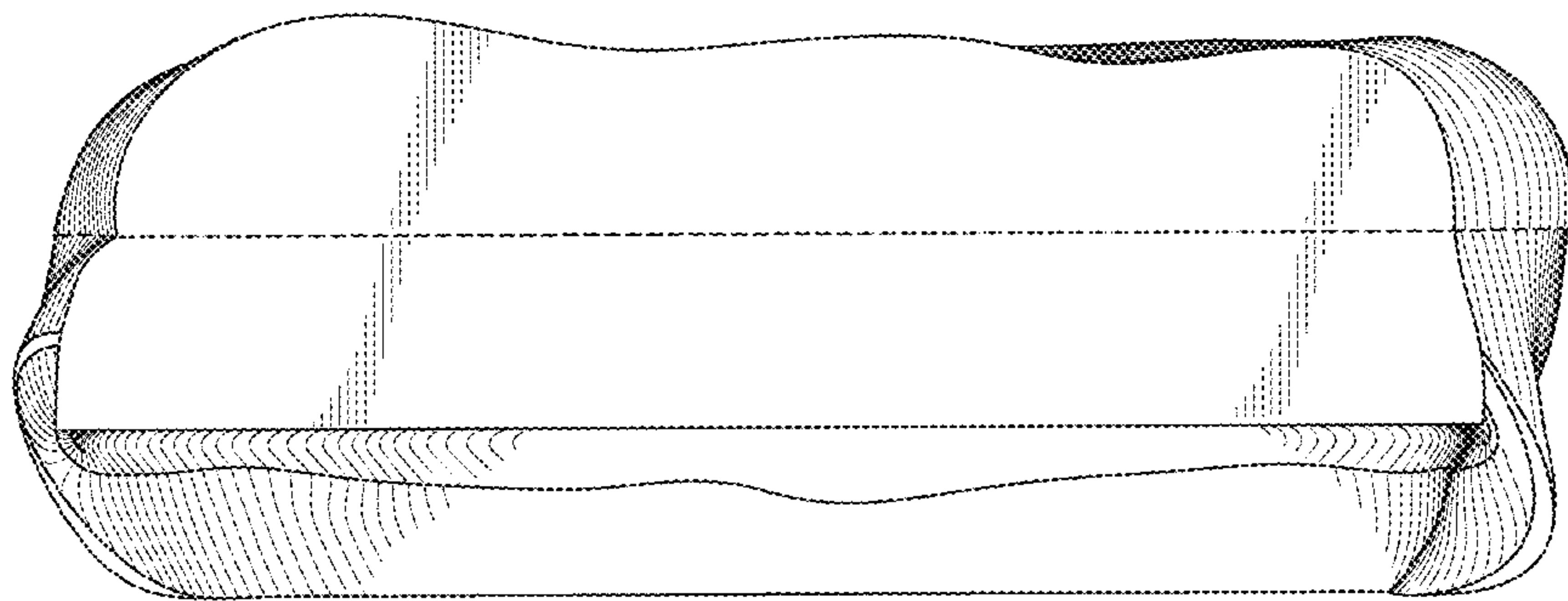


FIG. 4

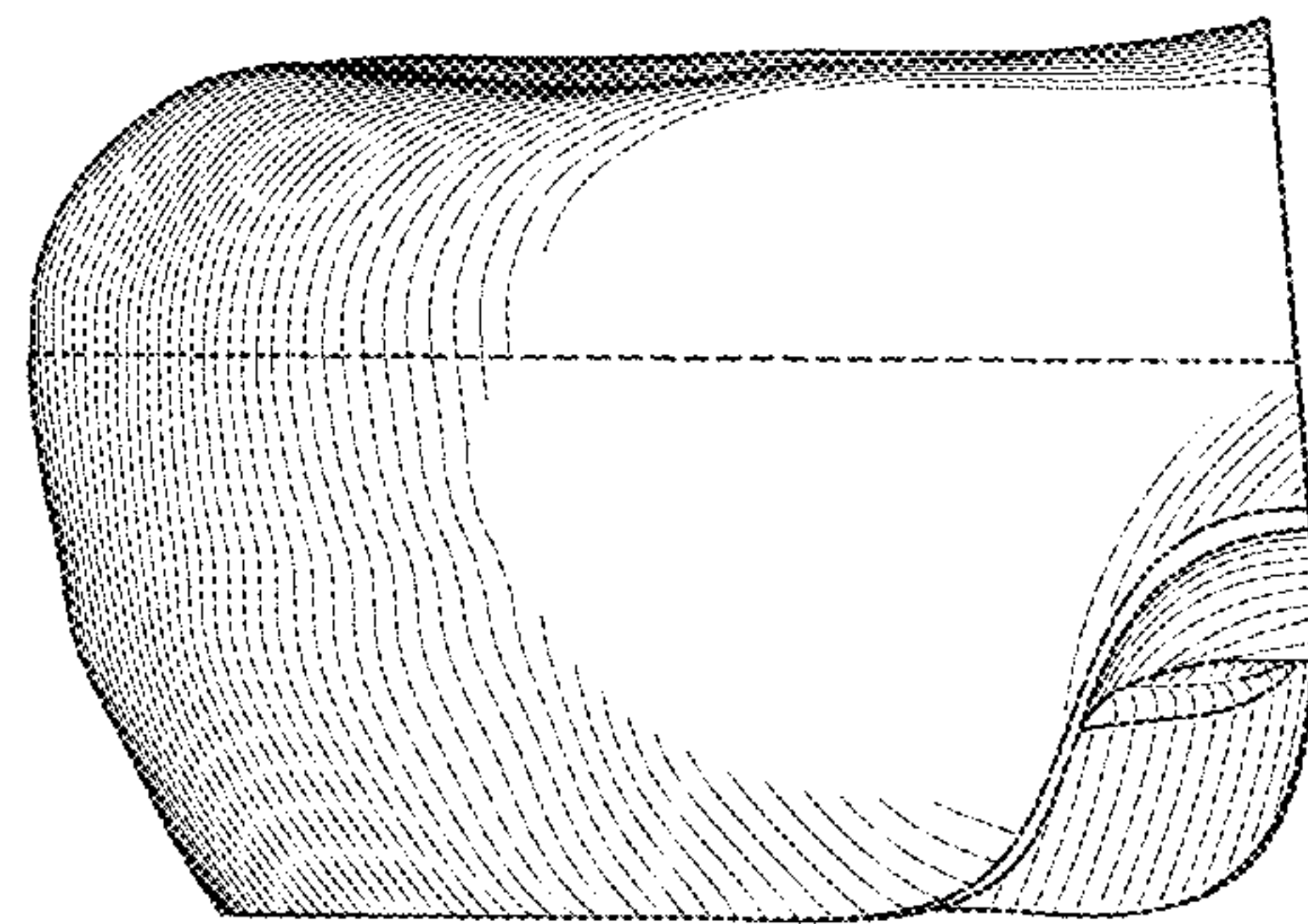


FIG. 5

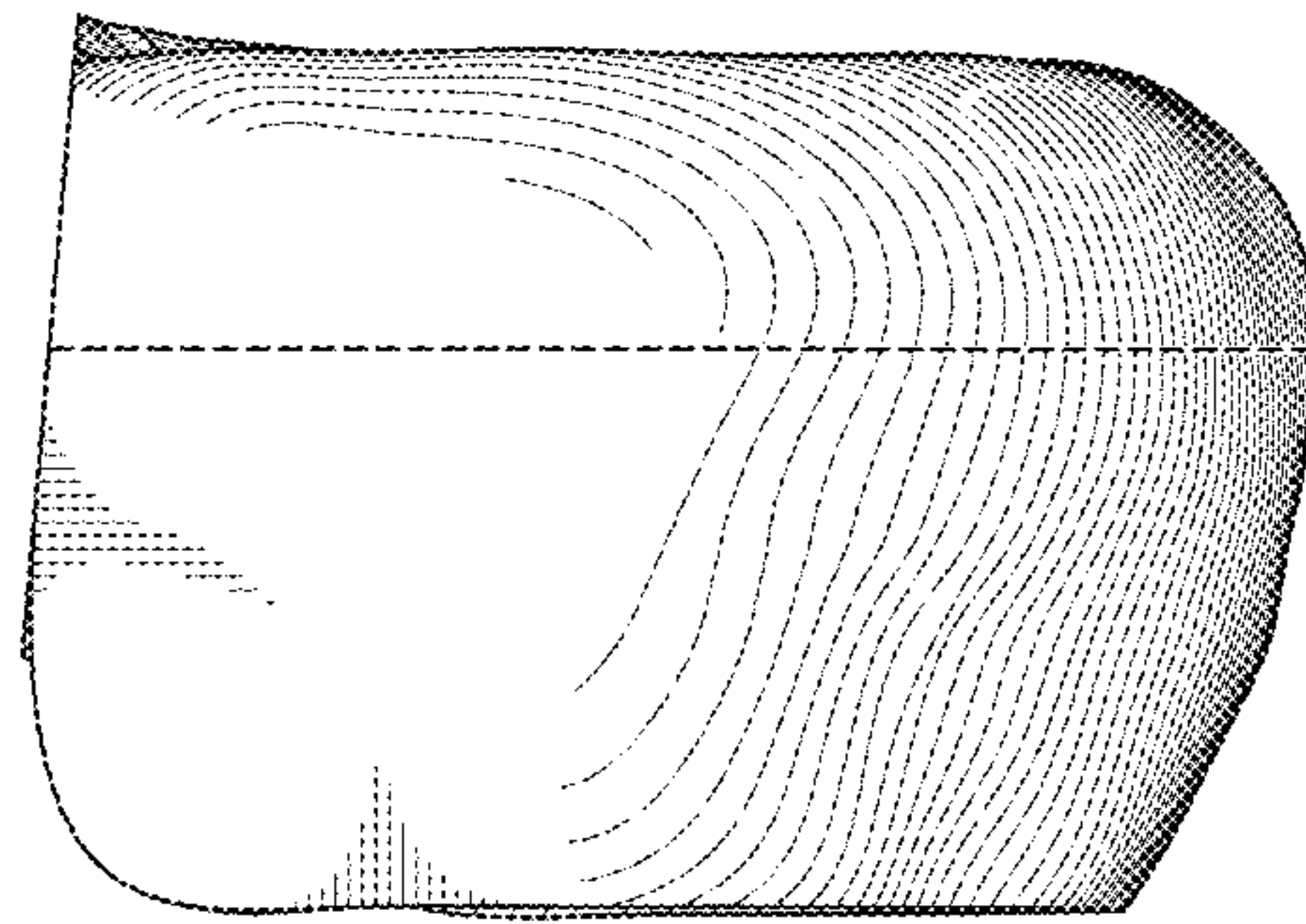


FIG. 6

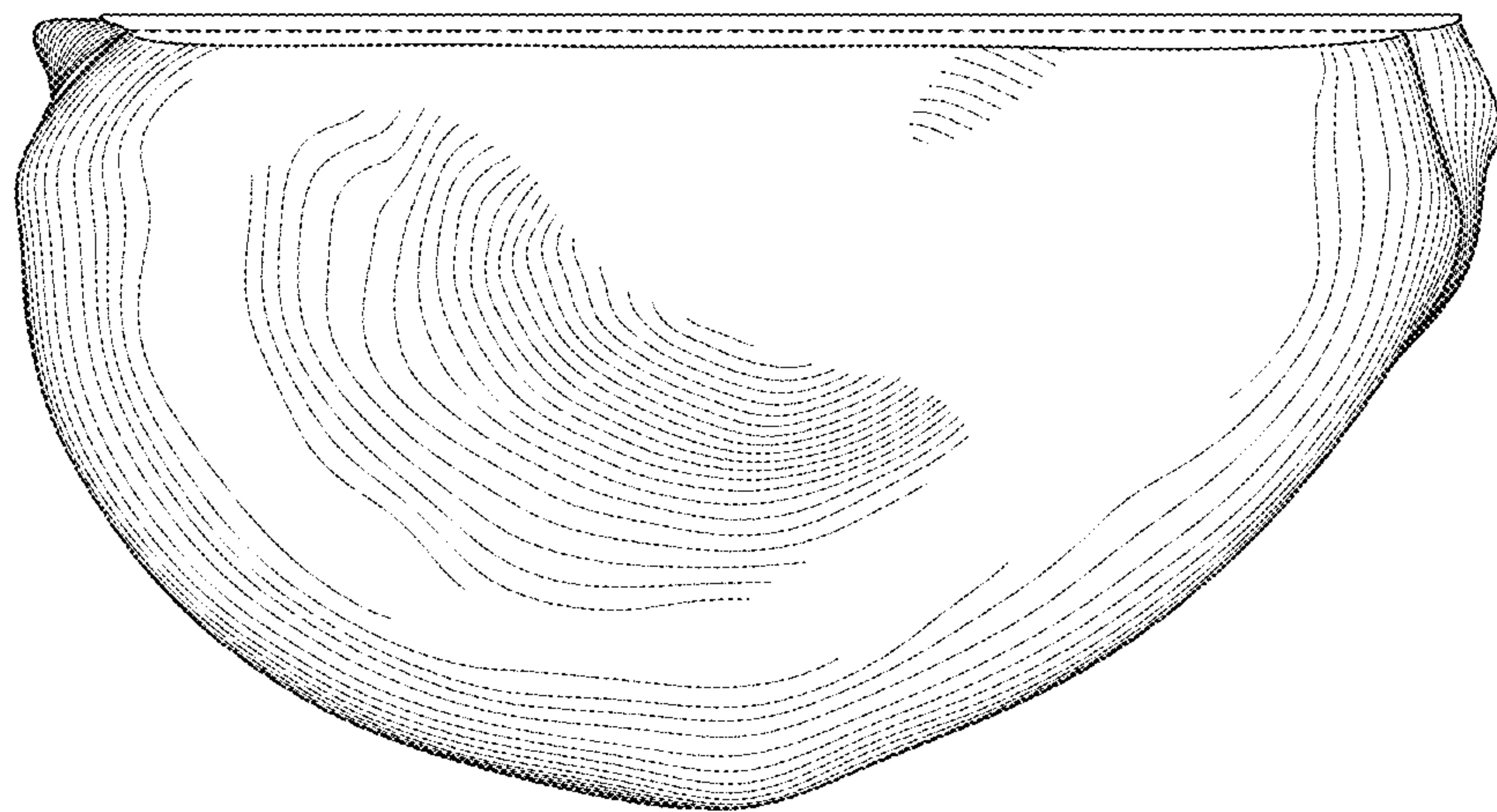


FIG. 7

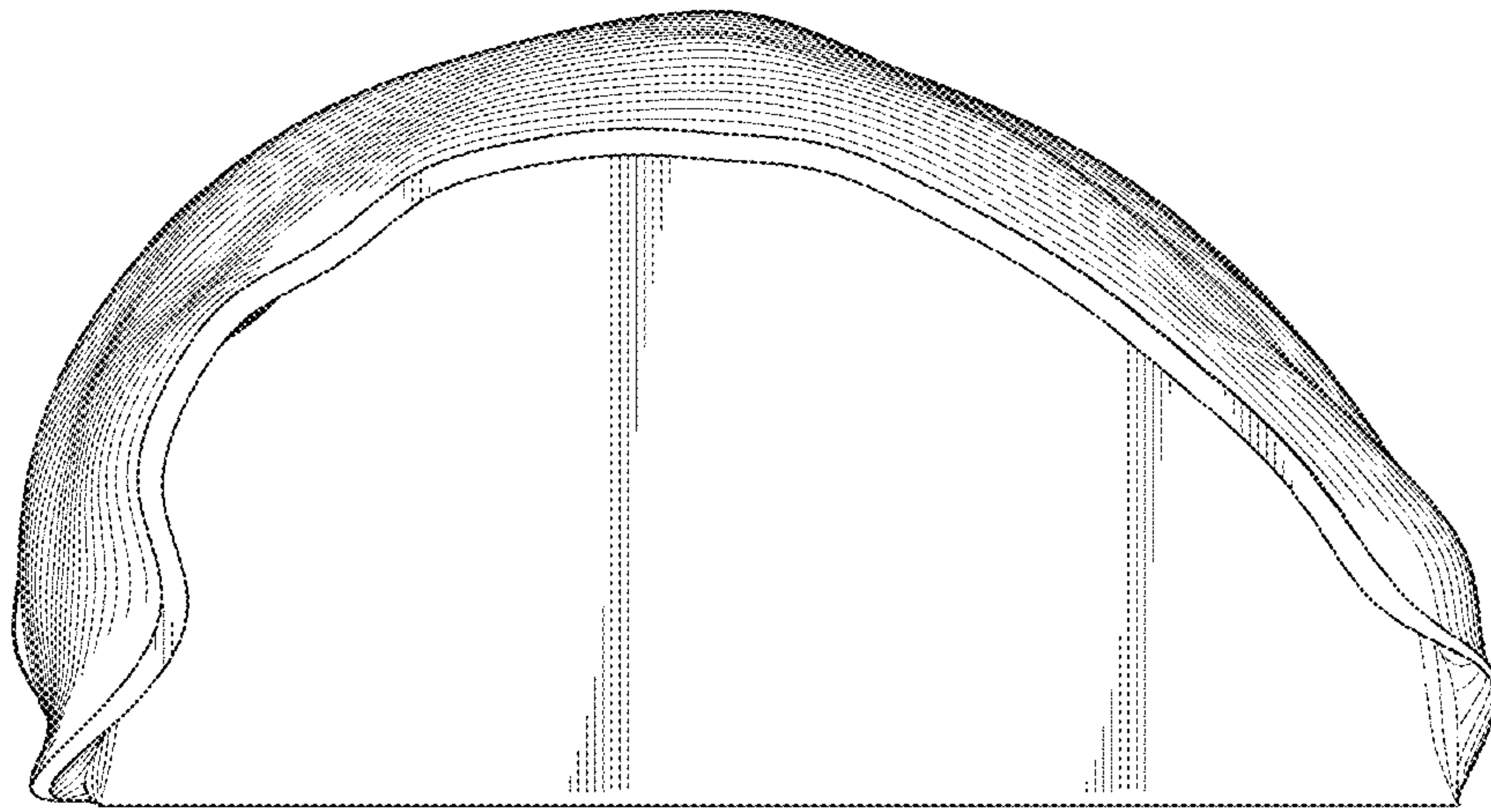


FIG. 8

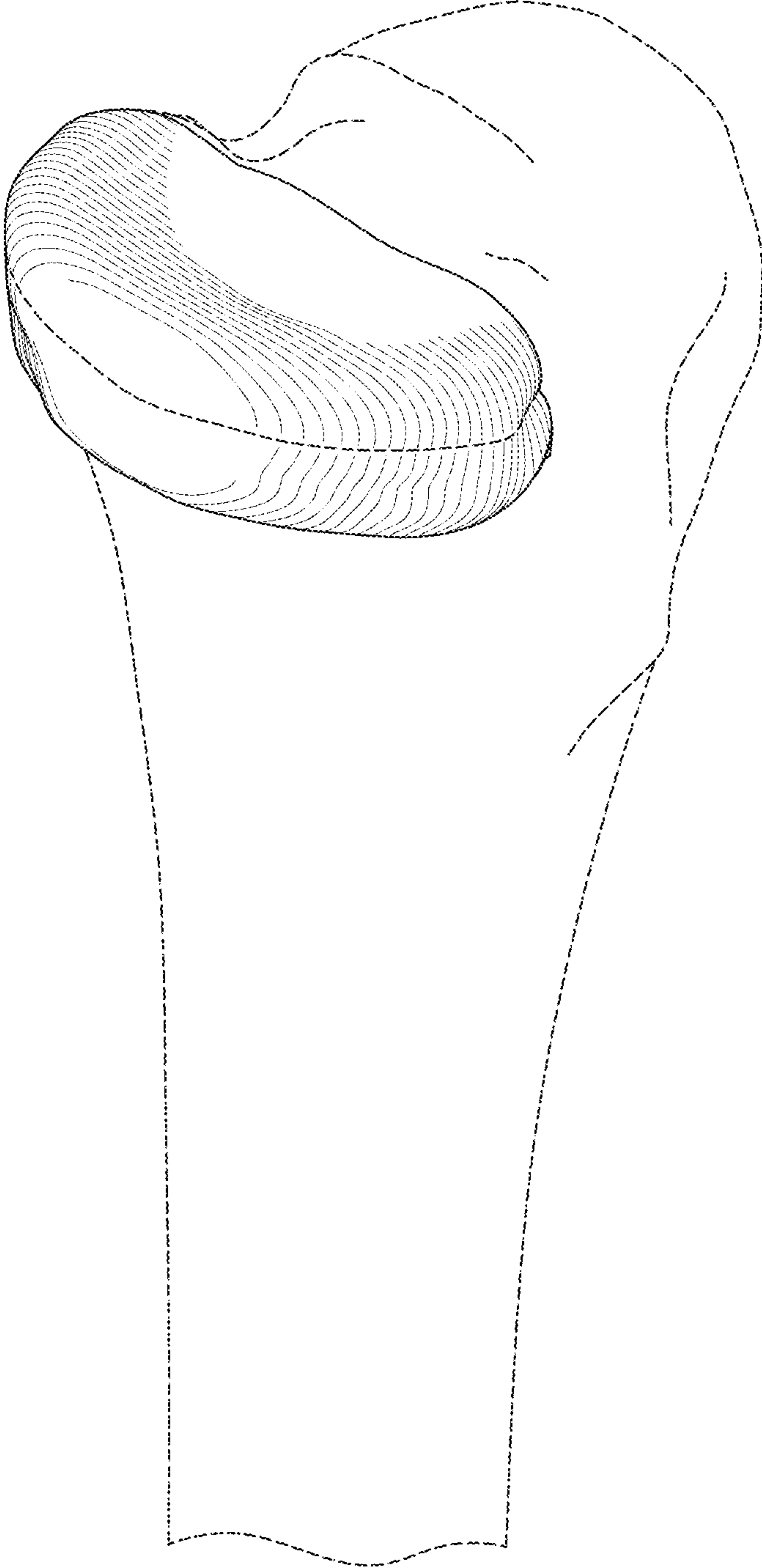


FIG. 9

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : D702,349 S
APPLICATION NO. : 29/454767
DATED : April 8, 2014
INVENTOR(S) : Jean Robichaud et al.

Page 1 of 1

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

On the Title Page, Item (72), fourth inventor should read:

--Florent Miquel, Quebec (CA)--

Signed and Sealed this
Fifteenth Day of July, 2014



Michelle K. Lee
Deputy Director of the United States Patent and Trademark Office