US00D971192S

(12) United States Design Patent

Milroy et al.

(10) Patent No.: US D971,192 S
(45) Date of Patent: ** Nov. 29, 2022

(54) **ANTENNA APPARATUS**

(71) Applicant: **Space Exploration Technologies Corp.**, Hawthorne, CA (US)

(72) Inventors: **David Milroy**, Kirkland, WA (US); **Duncan Edwin Adams**, Kirkland, WA (US); **Anthony Sims**, Manhattan Beach, CA (US); **J Gabriel Rustia**, Pasadena, CA (US)

(73) Assignee: **Space Exploration Technologies Corp.**, Hawthorne, CA (US)

(**) Term: **15 Years**

(21) Appl. No.: **29/693,568**

(22) Filed: **Jun. 3, 2019**

(51) **LOC (13) Cl.** **14-03**

(52) **U.S. Cl.**
USPC **D14/230**

(58) **Field of Classification Search**
USPC D14/230, 231, 155, 216
CPC H01Q 13/18; H01Q 19/132; H01Q 1/20; H01Q 19/134; H01Q 19/19; H01Q 19/20;
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,831,948 A 4/1958 Fraser
2,850,735 A 9/1958 Harris
(Continued)

FOREIGN PATENT DOCUMENTS

CN 305869075 S 6/2020
CN 305920986 * 7/2020
(Continued)

OTHER PUBLICATIONS

Winegard 76cm Satellite Dish . . . , available in solidsignal.com, oldest review date Mar. 16, 2018 [online], [site visited Feb. 8, 2022], Internet URL: https://www.solidsignal.com/winegard-76cm-satellite-dish-antenna-w-universal-lnb-clamp-ds-2076?utm_source=google&utm_medium=cse&utm_term=DS2076&gclid=EAlalQobC (Year: 2018).*
(Continued)

Primary Examiner — Daniel J Domino
Assistant Examiner — Samina Vieth
(74) *Attorney, Agent, or Firm* — Polsinelli PC

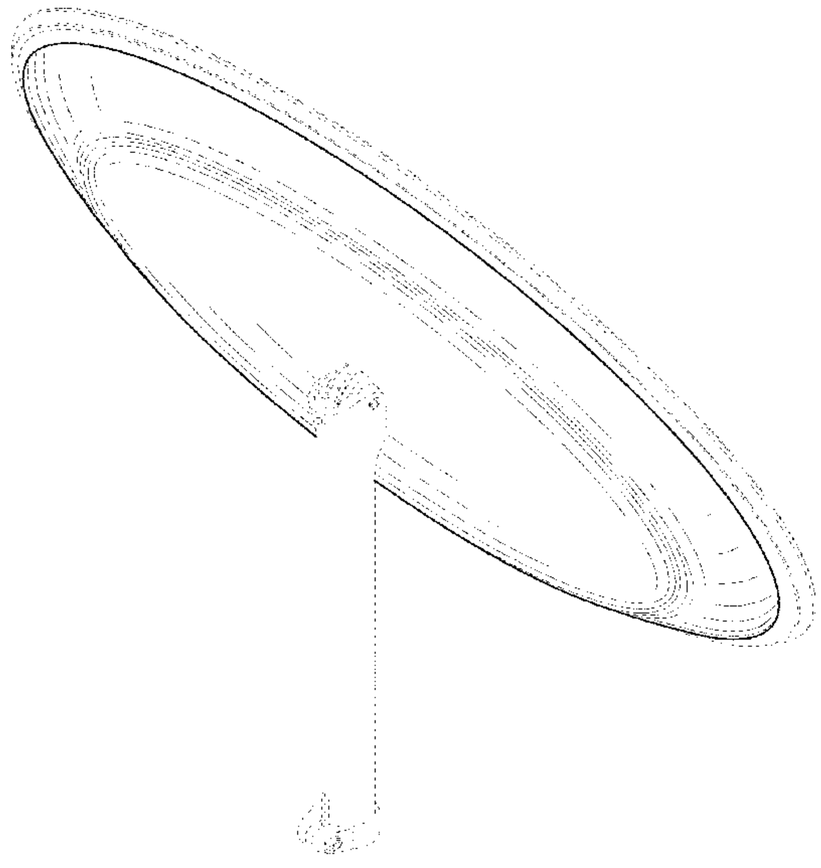
(57) **CLAIM**

The ornamental design for an antenna apparatus, as shown and described.

DESCRIPTION

FIG. **1** is a bottom perspective view of an antenna apparatus shown in a first configuration;
FIG. **2** is a left side view of the antenna apparatus shown in FIG. **1**;
FIG. **3** is a top perspective view of the antenna apparatus of FIG. **1** shown in a second configuration;
FIG. **4** is a bottom perspective view of the antenna apparatus of FIG. **3**;
FIG. **5** is a right side view of the antenna apparatus shown in FIG. **3**;
FIG. **6** is a left side view of the antenna apparatus shown in FIG. **3**;
FIG. **7** is a top view of the antenna apparatus shown in FIG. **3**;
FIG. **8** is a bottom view of the antenna apparatus shown in FIG. **3**;
FIG. **9** is a front view of the antenna apparatus shown in FIG. **3**; and,
FIG. **10** is a rear view of the antenna apparatus shown in FIG. **3**.
The broken lines shown in the figures represent portions of the antenna apparatus that form no part of the claimed design.

1 Claim, 10 Drawing Sheets



(58) **Field of Classification Search**
CPC ... H01Q 9/28; H01Q 1/44; H01Q 5/45; G01S 3/56
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,611,393	A *	10/1971	Kibler	H01Q 19/13	343/781 R
D236,301	S	8/1975	Mudde		
4,801,946	A	1/1989	Matz, Jr.		
5,038,201	A *	8/1991	Brewer	H01L 25/0657	257/784
D322,254	S	12/1991	Su		
5,185,499	A *	2/1993	Yahraus	H01R 31/02	174/59
5,233,356	A *	8/1993	Lee	H01Q 21/22	342/368
D339,859	S	9/1993	Cheslock		
D345,362	S	3/1994	Kadono et al.		
5,289,932	A	3/1994	Dimeo et al.		
5,291,212	A	3/1994	Cox		
D405,430	S	2/1999	Matsushima		
D407,696	S	4/1999	Shimazu		
5,901,045	A	5/1999	Bencivenga et al.		
5,934,509	A *	8/1999	Niss	A21C 15/005	222/91
D418,841	S	1/2000	Saslow et al.		
D418,913	S	1/2000	Thakur		
D426,631	S	6/2000	Thakur		
6,072,441	A	6/2000	Tanabe		
D452,229	S	12/2001	Sato		
6,359,596	B1	3/2002	Claiborne		
D457,877	S	5/2002	McDonald et al.		
6,483,475	B1	11/2002	Tokuda		
6,538,605	B2	3/2003	Lebaric et al.		
D483,030	S	12/2003	Melton		
D519,992	S	5/2006	McAnally		
7,161,549	B1 *	1/2007	Cuchanski	H01Q 19/19	343/781 CA
D585,883	S *	2/2009	Kaneko	D14/230	
7,567,215	B1	7/2009	All et al.		
D605,789	S	12/2009	Ko		
D606,952	S *	12/2009	Lee	D13/182	
D661,902	S	6/2012	Italiano		
8,319,697	B2	11/2012	Conrad		
D674,657	S	1/2013	Fields et al.		
D694,928	S	12/2013	Chen		
D696,649	S *	12/2013	Siemers	D14/231	
D698,765	S	2/2014	Bremaud et al.		
D721,645	S	1/2015	Brown		
D732,644	S	6/2015	Yamagishi et al.		
D787,458	S	5/2017	Kim et al.		
D793,572	S *	8/2017	Kozuka	D24/224	
D794,210	S	8/2017	Jarvius et al.		
D803,342	S *	11/2017	Goff	D22/199	
D807,481	S	1/2018	Iu et al.		
D813,928	S	3/2018	van Hoff et al.		
D816,641	S	5/2018	Courtney et al.		
D843,981	S	3/2019	Yang et al.		
D843,984	S *	3/2019	Yang	D14/230	
D848,295	S	5/2019	Johnson et al.		
D853,017	S	7/2019	Rioux et al.		
D855,171	S	7/2019	Xu		
D862,404	S	10/2019	Murata et al.		
D863,614	S	10/2019	Renvall		
D864,172	S *	10/2019	Yang	D14/230	
D864,880	S	10/2019	Mishim		
D865,725	S *	11/2019	Yang	D14/230	
D868,993	S *	12/2019	Isozaki	D24/224	
D868,995	S *	12/2019	Tanaka	D24/225	
D872,713	S	1/2020	Courtney et al.		
D873,224	S	1/2020	Mishim		
10,847,893	B2	11/2020	Dominocielo et al.		
D904,359	S *	12/2020	Ahn	D14/231	
D907,609	S *	1/2021	Courtney	D14/230	
D909,323	S	2/2021	Yoshida et al.		
D924,823	S *	7/2021	Saiki	D13/182	
D924,854	S *	7/2021	Zhao	D14/230	
D928,752	S *	8/2021	Tinaphong	D14/231	
D932,855	S *	10/2021	Brahmbhatt	D8/17	
D941,271	S	1/2022	Ray et al.		
D942,431	S	2/2022	Zhao		
2006/0114655	A1	6/2006	Wallace		
2008/0239674	A1	10/2008	Gustine et al.		
2008/0278399	A1 *	11/2008	Nakajima	H01Q 1/42	343/878
2011/0193764	A1 *	8/2011	Shen	H01Q 1/125	343/882
2016/0006115	A1 *	1/2016	Etzkorn	H01Q 1/273	29/601
2016/0036134	A1 *	2/2016	Clayton	H01Q 15/161	343/781 R
2016/0352022	A1	12/2016	Thomson et al.		
2017/0097196	A1	4/2017	Yoo et al.		
2020/0381815	A1	12/2020	Milroy et al.		
2020/0381816	A1 *	12/2020	Milroy	H01Q 9/0414	
2020/0381842	A1 *	12/2020	Milroy	H01Q 15/144	
2021/0135696	A1 *	5/2021	Jang	H04B 1/28	

FOREIGN PATENT DOCUMENTS

CN	305965554	*	8/2020
CN	306040152	S	9/2020
CN	306587742	*	6/2021
CN	306984978	*	12/2021
JP	D1676649	*	1/2021
JP	D1676650	*	1/2021
JP	D1676651	*	1/2021
JP	D1676652	*	1/2021
JP	D1676653	*	1/2021

OTHER PUBLICATIONS

Shakespeare Seawatch 15" Marine TV Antenna . . . , available in hodgesmarine.com, oldest review date Jun. 9, 2017 [online], [site visited Feb. 8, 2022], Internet URL:https://www.hodgesmarine.com/sha3015-shakespeare-seawatchreg-15-marine-tv-antenna.html (Year: 2017).*

Starlink Install, Speed Test, and Review, available in youtube.com, published on Apr. 9, 2021 [online], [site visited Feb. 10, 2022], Internet URL: https://www.youtube.com/watch?v=JOMbJAXzGfs (Year: 2021).*

In×24in Polyethylene Pipe, available in homedepot.com, oldest review date Dec. 9, 2014 [online], [site visited Feb. 9, 2022], Internet URL:https://www.homedepot.com/pNPC-1-in-x-24-in-Polyethylene-Pipe-410/202277579?source=shoppingads&locale=en-US (Year: 2014).

Adhesive Disk to Mount Magnetic Antenna . . . , available at signalbooster.com, oldest review date Jul. 19, 2021 [online], [site visited Feb. 7, 2022], Internet URL: https://www.signalbooster.com/products/adhesive-disk-to-mount-magnetic-antenna-on-non-magnet-vehicle-roof (Year: 2021).

Heying 15pcs Black Acrylic Round Circle . . . , available at amazon.com, date first available Jun. 2, 2018 [online], [site visited Feb. 7, 2022], Internet URL: https://www.amazon.com/dp/B07DH4FD38/ref=cnn sw enn r nnt dp4QB2B14JCCCZJH3HWM7G (Year: 2018).

Juvitus, 20 Round Metal Disks . . . , available at amazon.com, date first available Apr. 30, 2018 [online], [site visited Feb. 7, 2022], Internet URL: https://www.amazon.com/20-Round-Metal-Disks-Thickness/dp/B07CRQ5M3M (Year: 2018).

Ozgoe, JF-03 Happy Bell (8 Pack) Mount Metal . . . , available at amazon.com, date first available Dec. 6, 2015 [online], [site visited Feb. 10, 2022], Internet URL:https://www.amazon.com/Ozgoe-JF-03-Magnetic-Adhesive-Rectangular/dp/B0190BLT2M/ref=psdc 1293686011 t4 B0823FLL2C (Year: 2015.

Spancraft Glass, 42" Round Clear Tempered Glass Table Top . . . , available at amazon.com, date first available Aug. 11, 2018 [online], site visited Feb. 7, 2022], Internet URL: https://www.amazon.com/dp/B001E6F3BA/ref=cnn sw enn r nnt dp K52J7250JV2D4N5JV5AV?encoding=UTF8&psc=1 (Year: 2008).

(56) **References Cited**

OTHER PUBLICATIONS

Stainless Steel Stacking Disc . . . , available at sausagemaker.com, oldest review date Feb. 26, 2016 [online], [site visited Feb. 7, 2022], Internet URL: https://www.sausagennaker.com/Stainless-Steel-Stacking-Disc-Small-p/24-2320.htnn (Year: 2016).
The Wifi Umbrella Ultra, available in youtube.com, published on Apr. 26, 2018 [online], [site visited on Feb. 9, 2022], Internet URL: https://www.youtube.com/watch?v=E1iv3OpeQ1g (Year: 2018).
Wilson Outdoor Antenna Mounts, available in wilsonamplifiers.com, oldest review date Feb. 1, 2020 [online], [site visited Feb. 8, 2022], Internet URL: https://www.wilsonamplifiers.com/wilson-outdoor-antenna-mounts/?sku=WA901117&gclid=EAlalQobChMIjPzPpqHz9QIVgb2GCh0eNwiWEAQYByABEgKSQPDBwE (Year: 2020).
Winegard Pathway X2 ., available in dishformytv.com, oldest review date May 5, 2017 [online], [site visited Feb. 8, 2022], (Year: 2017) [Line U cont'd] Internet URL: https://www.dishfomnyrv.com/winegard-pathway-x2-bundle-with-wally/?st-t=D4RV Adwords& utnn source=adwords&utnn cannpaign=DishForMyRV+Cannpaign &utnn temn=&utnnmedium=ppc&hsa cam=1342011734&hsa acc=7879220173&hsa kw=&hsa src=s&hsa grp=53472602066 &hsatgt=pla-320059304314&hsa net= (Year: 2017).
Winegard TB-005 Mounting Pole., available in officedepot.com, oldest review date Nov. 2021 [online], [site visited Feb. 8, 2022], Internet URL: https://www.officedepot.cmn/a/products/3030551/Winegard-TB-0005-Mounting-Pole-for/?utnn source=google& utnn nnediunn=sag (Year: 2021) [Line U con'td] Internet URL: adwords &hsaad=262047004525&hsa ver=3&hsa nnt=&gclid= EAlalQobChMI-sCI0Pvt9QIVBeXICh2BAAe2EAQYDiABEglnTPDBwE (Year: 2017).

* cited by examiner

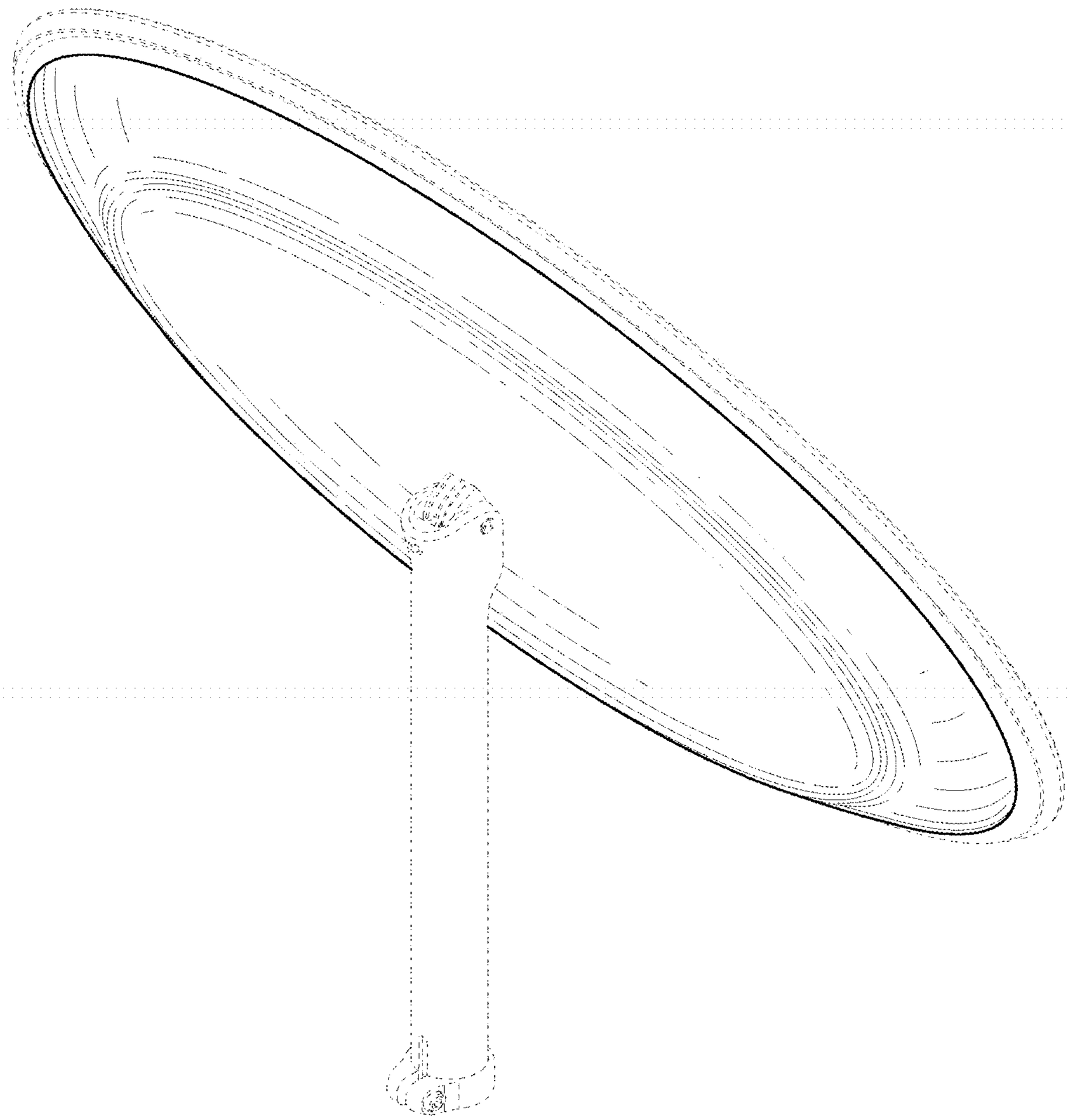


FIG. 1

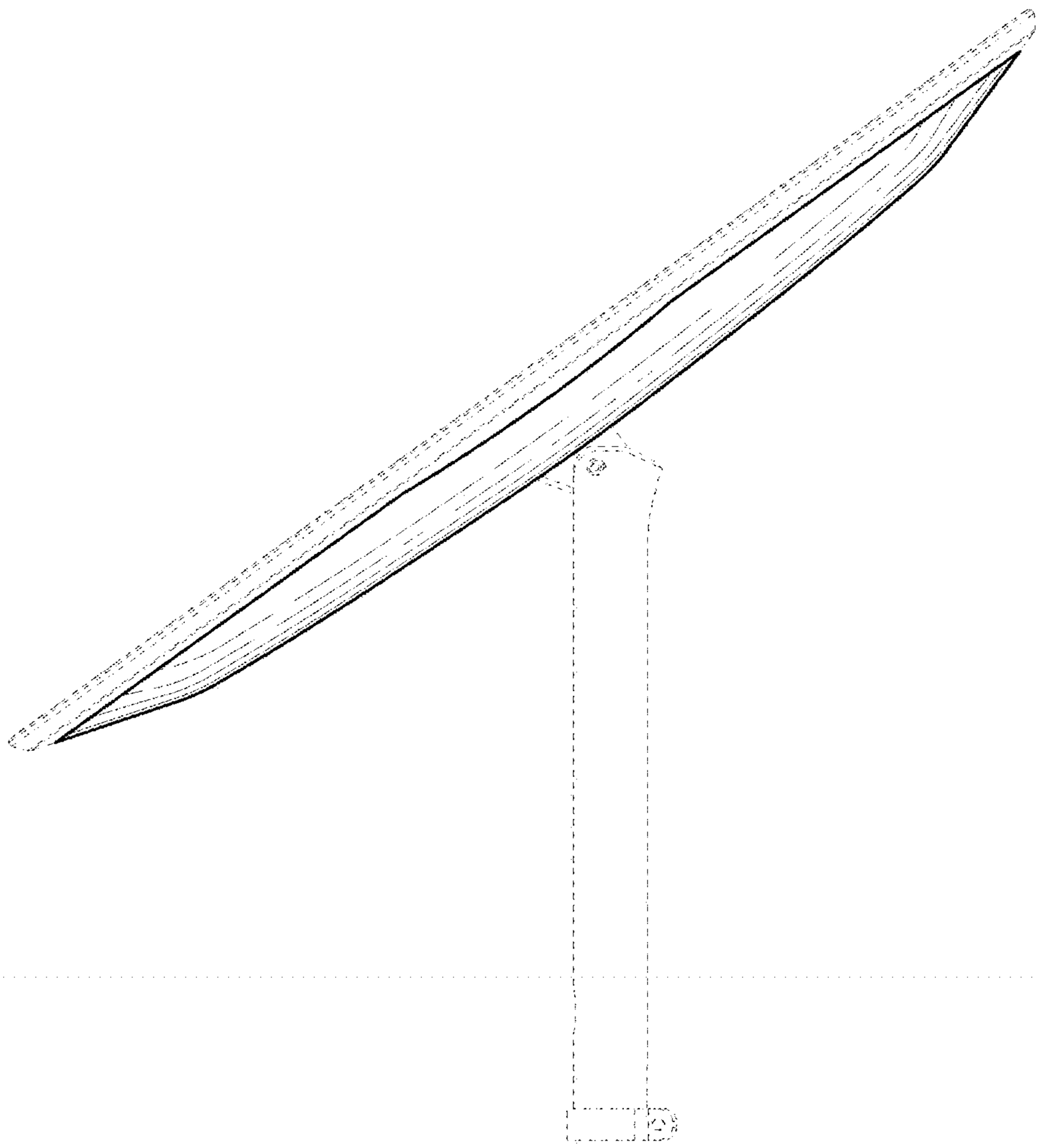
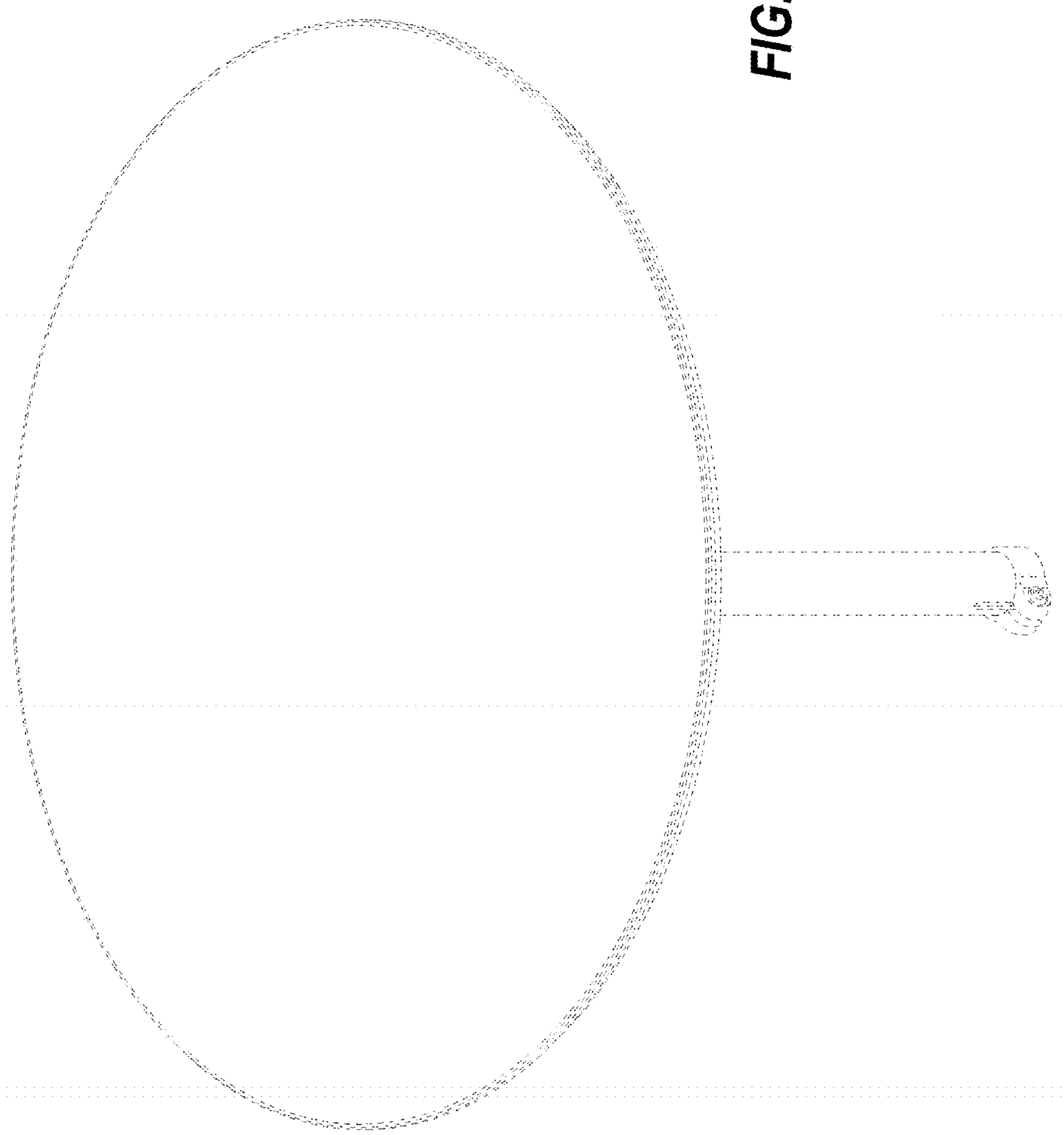


FIG. 2

FIG. 3



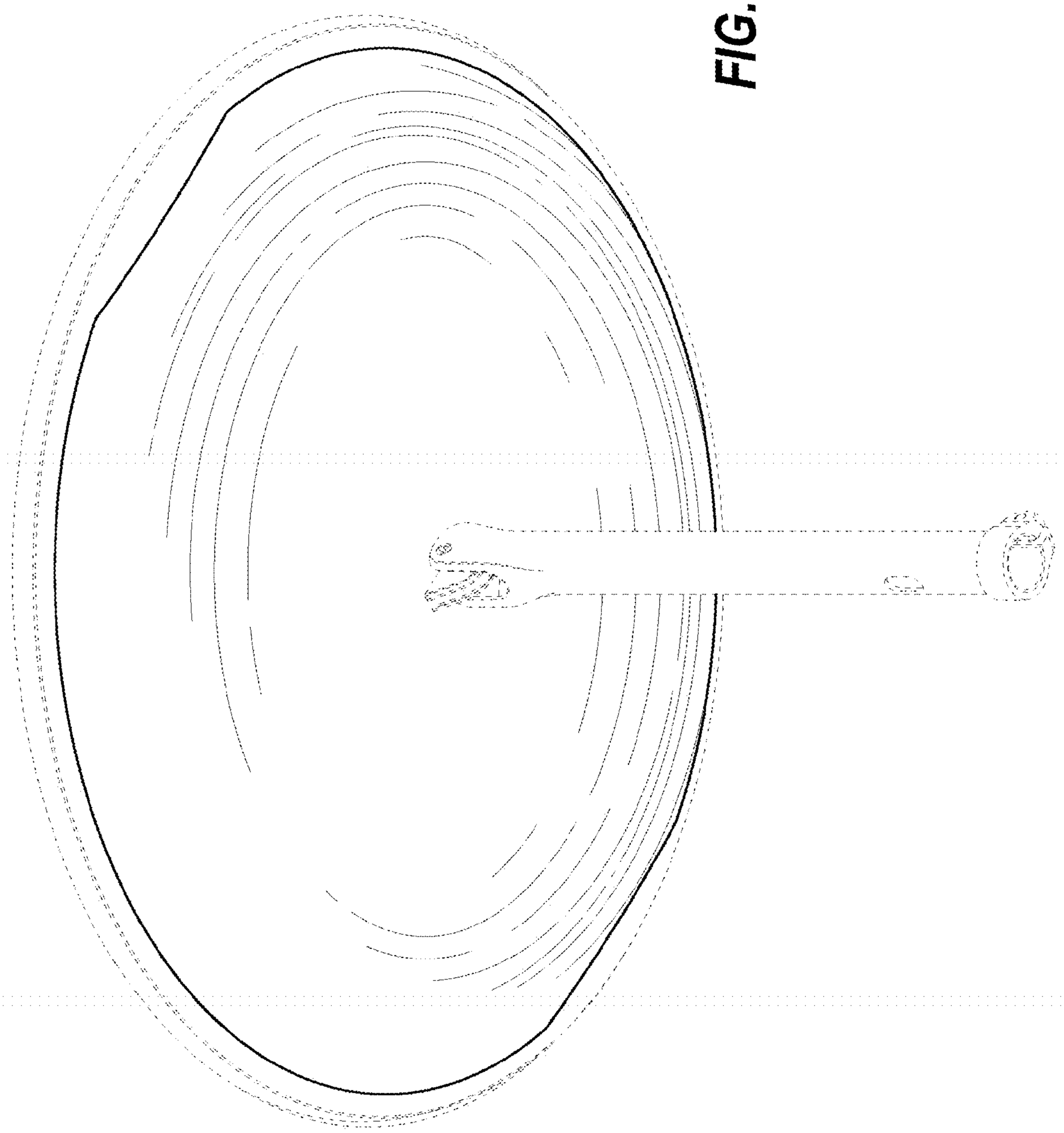


FIG. 4

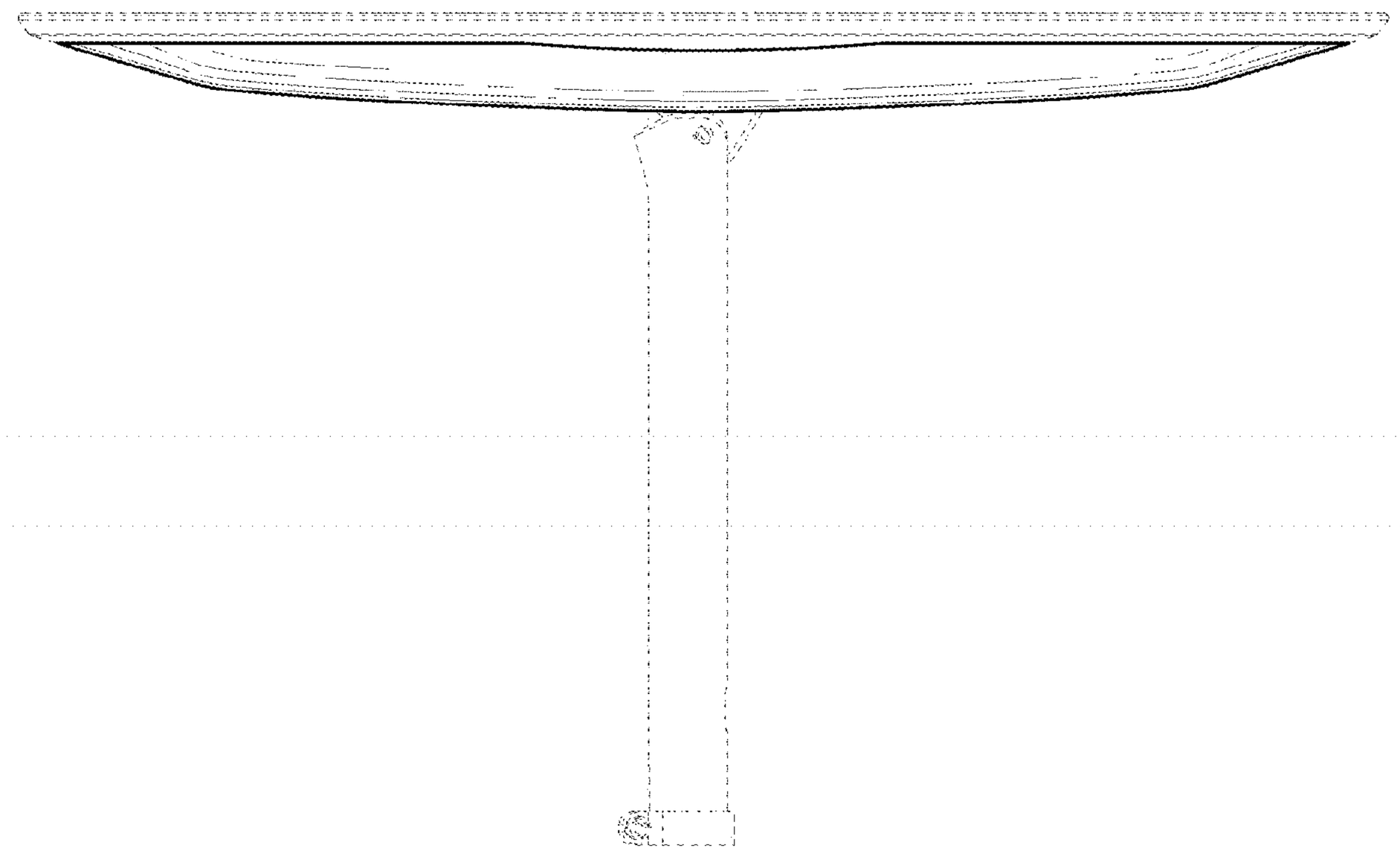


FIG. 5

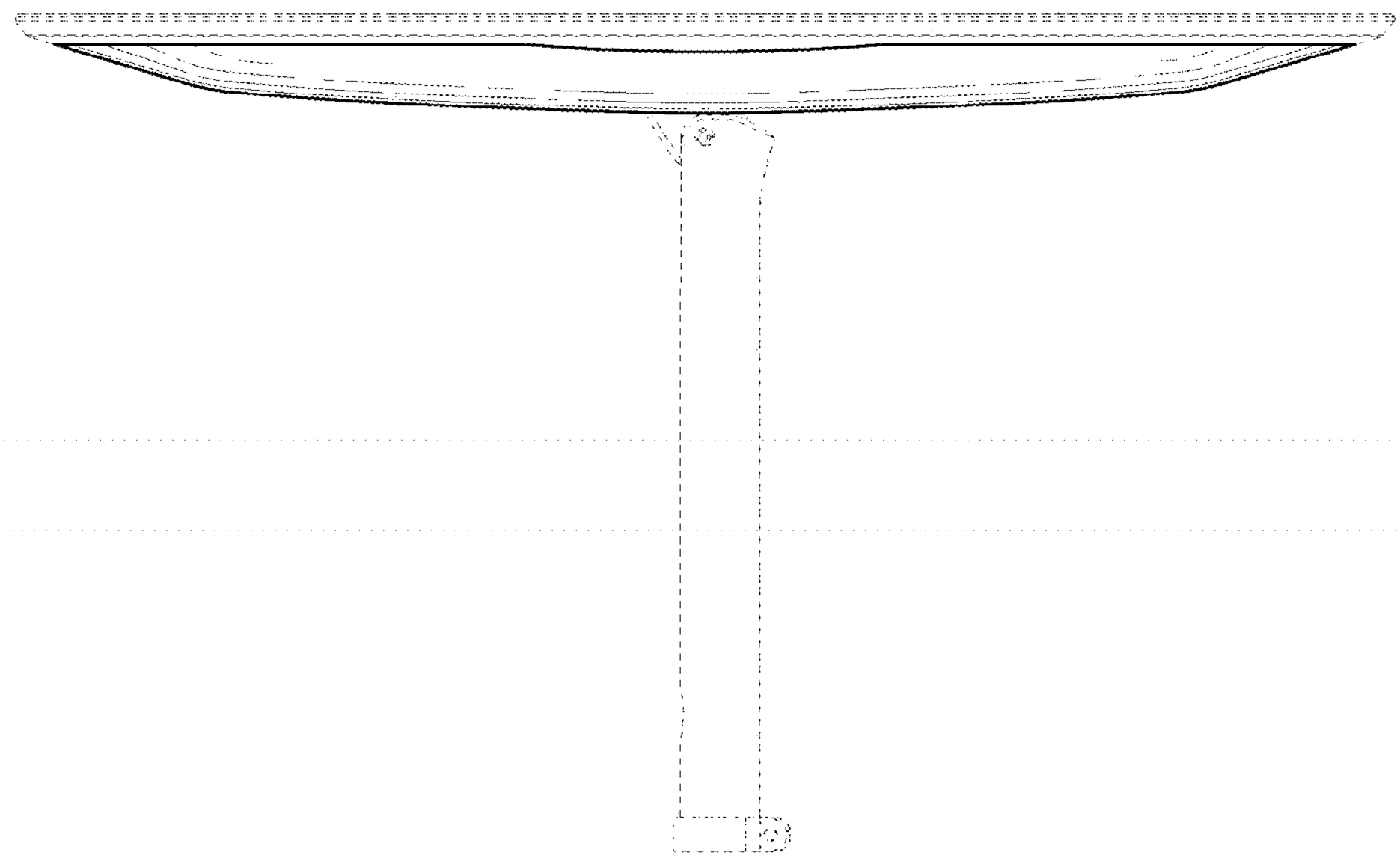


FIG. 6

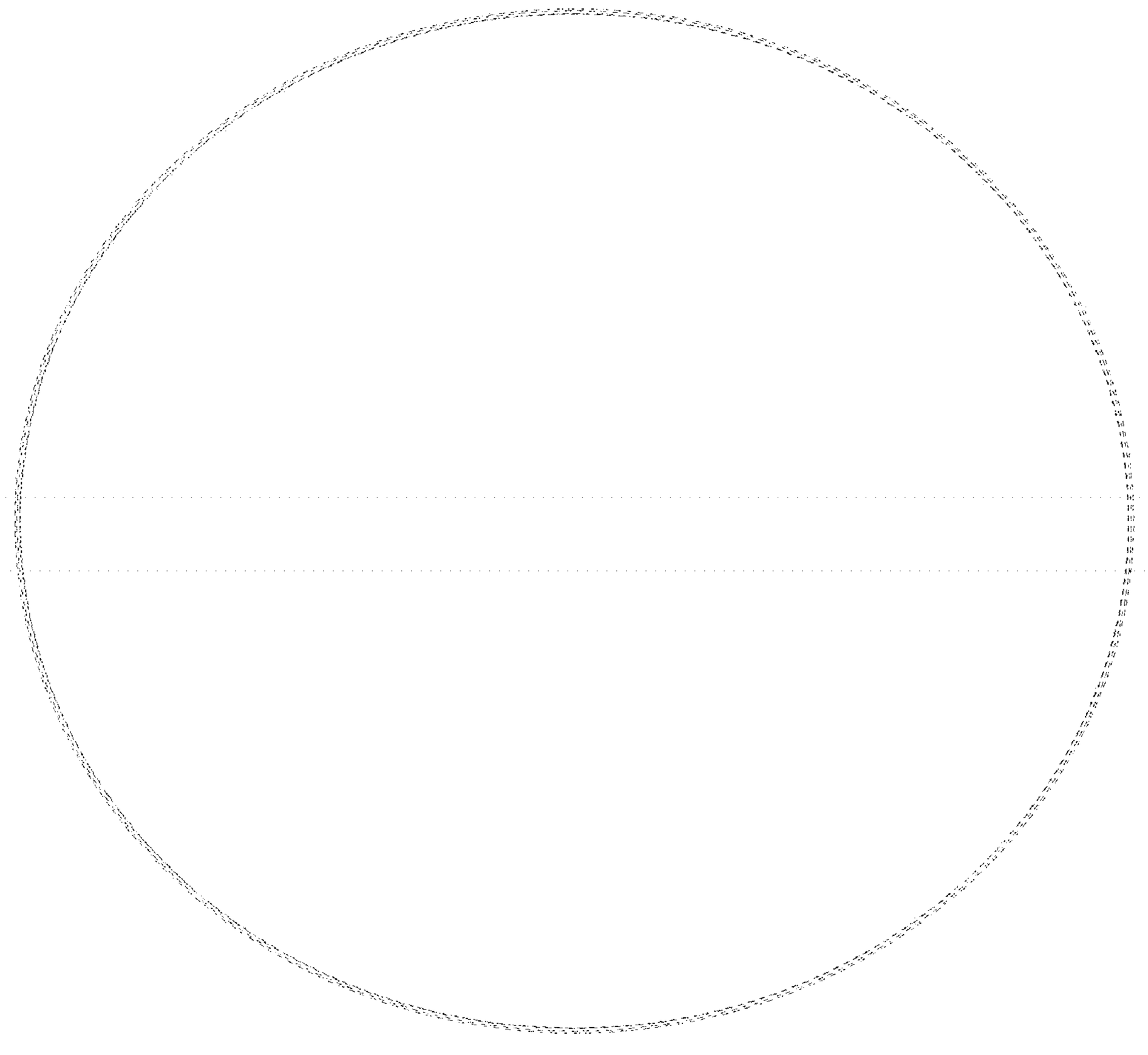


FIG. 7

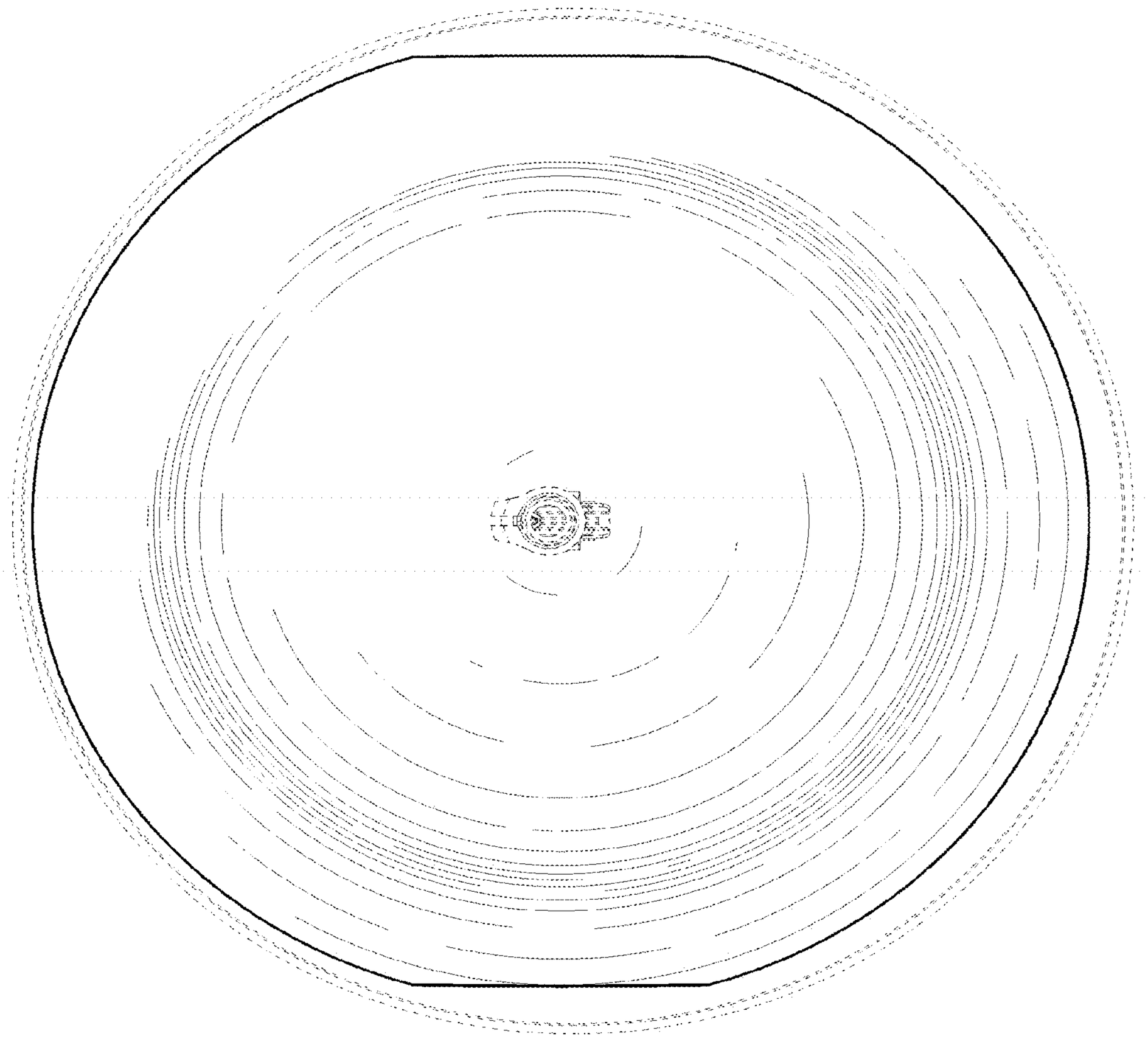


FIG. 8

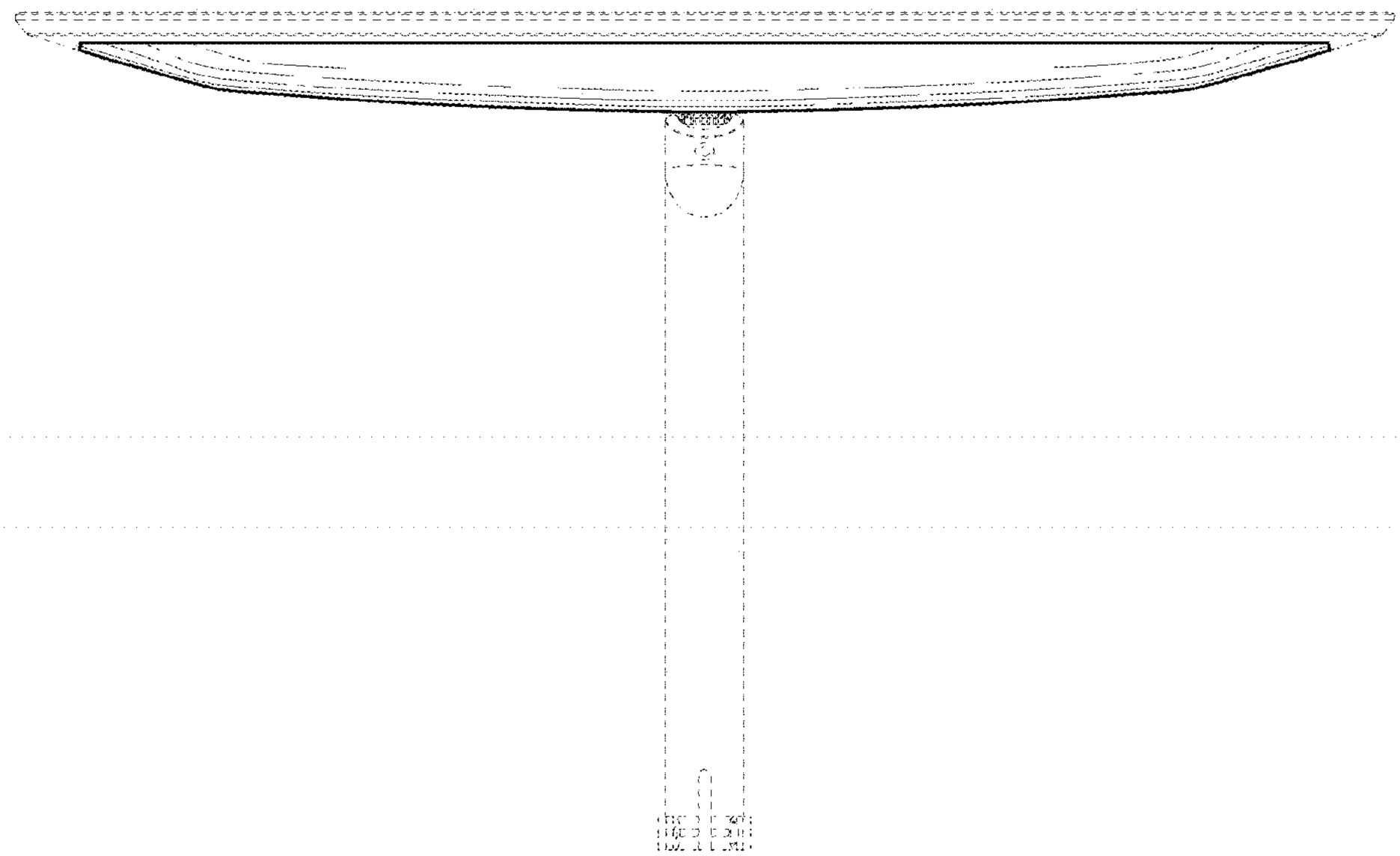


FIG. 9

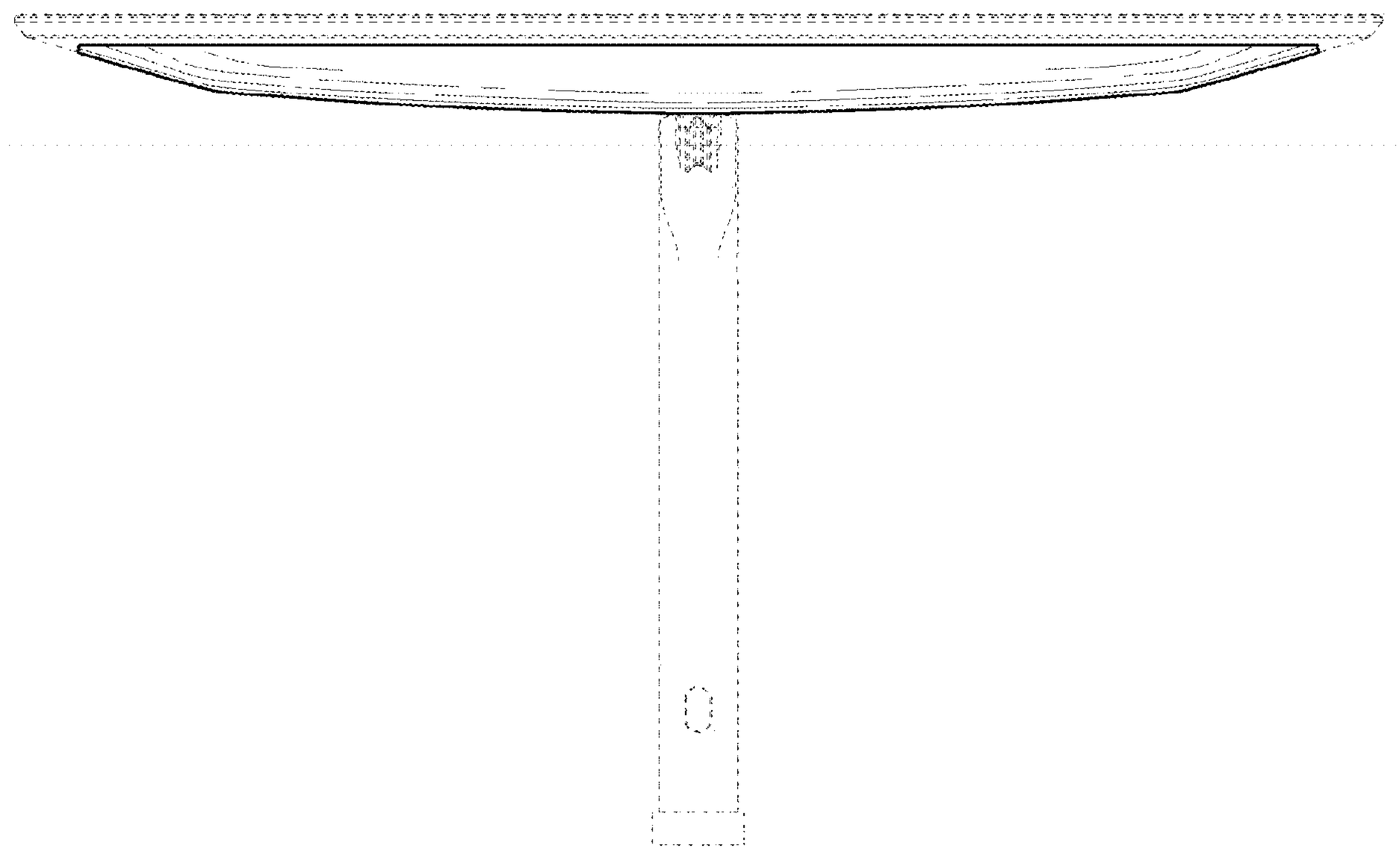


FIG. 10