



US00D933225S

(12) **United States Design Patent** (10) **Patent No.:** **US D933,225 S**  
**Marsteller et al.** (45) **Date of Patent:** **\*\* Oct. 12, 2021**

(54) **OPHTHALMIC BRACHYTHERAPY DEVICE**

(71) Applicant: **RADIANCE THERAPEUTICS, INC.**,  
Tucson, AZ (US)

(72) Inventors: **Laurence J. Marsteller**, Tucson, AZ  
(US); **James A. Fazio**, Tucson, AZ  
(US)

(73) Assignee: **RADIANCE THERAPEUTICS, INC.**,  
Tucson, AZ (US)

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

(21) Appl. No.: **29/671,710**

(22) Filed: **Nov. 29, 2018**

(51) **LOC (13) Cl.** ..... **24-02**

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

(58) **Field of Classification Search**  
USPC ..... D24/150  
CPC ..... A61F 2/14; A61F 2/167; A61F 2/1662;  
A61F 2/1664; B65D 83/10  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,525,158 A	2/1925	Viol	
1,733,159 A	10/1929	Leach	
2,517,568 A	8/1950	Hissong	
D387,162 S *	12/1997	Zeimer	D24/133
D441,447 S *	5/2001	Hjertman	D24/133
6,443,881 B1	9/2002	Finger	
D621,508 S *	8/2010	Bindra	D24/150
D642,266 S *	7/2011	Marsteller	D24/150
D691,270 S *	10/2013	Marsteller	D24/150
D702,346 S *	4/2014	Ben Nun	D24/150
D731,058 S *	6/2015	Dietrich	D24/150
D731,060 S *	6/2015	Little, III	D24/150
D747,806 S *	1/2016	Wargner	D24/150
D752,749 S *	3/2016	Van Dalen	D24/150

D755,970 S *	5/2016	Bergmanson	D24/150
D756,515 S *	5/2016	Chin	D24/135
D795,427 S *	8/2017	Korenfeld	D24/150
2002/0115902 A1	8/2002	Dejuan, Jr. et al.	
2005/0277802 A1	12/2005	Larsen et al.	
2007/0265485 A1	11/2007	Dejuan, Jr. et al.	
2008/0300444 A1	12/2008	Ye et al.	
2009/0124955 A1	5/2009	Ayyala	
2009/0216062 A1	8/2009	Axelrod et al.	
2010/0004581 A1	1/2010	Brigatti et al.	

(Continued)

**FOREIGN PATENT DOCUMENTS**

CA	643082 A	6/1962
DE	1149134 B	5/1963

(Continued)

**OTHER PUBLICATIONS**

Schultz et al. Growth Factors and Ocular Wound Healing. Eye (1994) 8, 184-187.

(Continued)

*Primary Examiner* — Wan Laymon  
(74) *Attorney, Agent, or Firm* — Nguyen Tarbet LLC

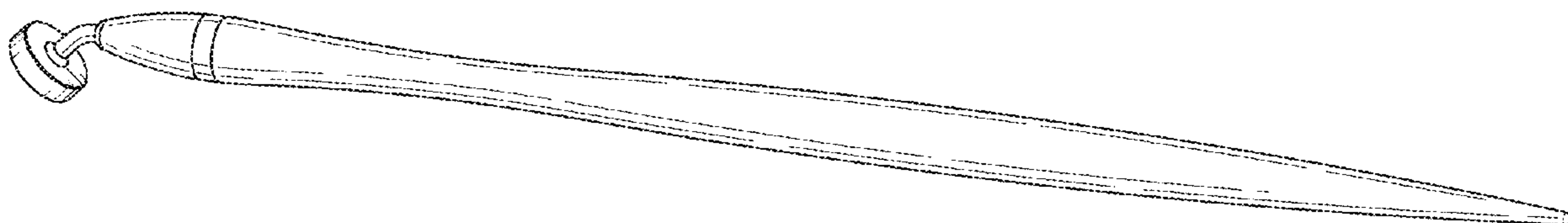
(57) **CLAIM**

The ornamental design for an ophthalmic brachytherapy device, as shown and described.

**DESCRIPTION**

FIG. 1 is a back perspective view of an ophthalmic brachytherapy device showing our new design;  
FIG. 2 is a top view thereof;  
FIG. 3 is a side view thereof;  
FIG. 4 is a bottom view thereof;  
FIG. 5 is a front view thereof;  
FIG. 6 is a back view thereof; and,  
FIG. 7 is an opposite side view of FIG. 3.

**1 Claim, 2 Drawing Sheets**



(56)

**References Cited**

## U.S. PATENT DOCUMENTS

2011/0004045 A1 1/2011 Larsen et al.  
 2013/0006033 A1 1/2013 Cipriani et al.  
 2017/0112520 A1 4/2017 Lavi et al.  
 2018/0229055 A1 8/2018 Marsteller  
 2018/0296855 A1 10/2018 Lohrenz et al.  
 2020/0171323 A1\* 6/2020 Marsteller ..... A61N 5/1017

## FOREIGN PATENT DOCUMENTS

EP 1997532 A1 12/2008  
 FR 4398 E 7/1905  
 GB 2551706 A 1/2018  
 RU 134056 U1 11/2013  
 WO WO200158346 A1 8/2001  
 WO WO2013186779 A2 12/2013  
 WO WO2015057531 A2 4/2015  
 WO WO2016178746 A1 11/2016  
 WO WO2018060983 A1 4/2018

## OTHER PUBLICATIONS

Kirwan et al. Beta irradiation: new uses for an old treatment: a review. *Eye*(2003) 17, 207-215.  
 Khaw et al. Modulation of wound healing after glaucoma surgery. *Curr Opin Ophthalmol*. Apr. 2001;12(2):143-8.  
 Kumar et al. Minimally invasive micro sclerostomy may be alternative to trabeculectomy. *Ocular Surgery News U.S. Edition*, May 10, 2016. <https://www.healio.com/ophthalmology/glaucoma/news/print/ocular-surgery-news/%7Belbe2619-cca2-40cb-8ff4-28062463f4ee%7D/minimally-invasive-micro-sclerostomy-may-be-altemative-to-trabeculectomy>.  
 Cook et al. Randomised clinical trial of trabeculectomy with mitomycin-C versus trabeculectomy with beta radiation. *SA Ophthalmology Journal*, Spring 2018 • vol. 13 | No. 4. pp. 11-14.  
 Peter Egbert, Glaucoma in west Africa: a neglected problem, *Br J Ophthalmol* 2002, 86, pp. 131-132.  
 P T Khaw, S Ward, I Grievson, N S C Rice, Effect of Beta radiation on proliferation human Tenon's capsule fibroblasts, *Br J Ophthalmology*, 1991, 75, 580-583.  
 R Wilder, et. al. Pterygium treated with excision and postoperative beta irradiation, *Int. J. Radiation Oncology Viol. Phys.*, 1992, vol. 23, pp. 533-537.  
 James F Kirwan, Christina Rennie, Jennifer R Evans, Beta radiation for glaucoma surgery (Review), *Cochrane Database of Systematic reviews* 2012, Issue 6., published Jun. 13, 2012. [http://www.cochrane.org/CD003433/EYES\\_beta-radiation-in-glaucoma-surgery](http://www.cochrane.org/CD003433/EYES_beta-radiation-in-glaucoma-surgery).  
 G Hay-Smith, J Kiran, C Usher, I E Murdoch, Beta radiation: an effective and potentially cheap aid to preventing sight loss from glaucoma, 2010. Conference proceedings. [https://pdfs.semanticscholar.org/7da1/23cef3f6203697a584af35561ae3d00306a1](https://www.semanticscholar.org/paper/Beta-radiation%3A-an-effective-and-potentially-cheap-Hay-Smith-Kirwan/7da123cef3f6203697a584af35561ae3d00306a1). pdf.  
 Jimmy S. Lai, Agnes S. Poon, Clement C.Tham, Dennis S. Lam, *Ophthalmology*, Sep. 2003, vol. 110, Issue 9, pp. 1822-1826. <https://www.ncbi.nlm.nih.gov/pubmed/13129883>.  
 H A Quigley, AT Broman, The number of people with glaucoma worldwide in 2010 and 2020, *Br J Ophthalmol* 2006 (90) 262-267.

C D Moyet, S K Alli, N E Zaure, Site of trabeculectomy and control of intraocular pressure: a preliminary report, *The Nigerian Journal of Surgical research* vol. 4, No. 3-5, Jul.-Dec. 2002, pp. 94-97.  
 J F Kirwan, S Cousins, L Venter, C Cook, A Stunting, P Roux, I Murdoch, *BMJ*, Effect of beta radiation on success of glaucoma drainage surgery in South Africa: randomized controlled trial, doi:10.1136/bmj.38971.395301.7C (published Oct. 5, 2006).  
 R J Venkatesh, K Palanisway, Glaucoma care in India, *Glaucoma Today*, Jan./Feb. 2013, pp. 37-39.  
 Kazoo Dhalla, Simon Cousens, Richard Bowman, Mark Wood, Ian Murdoch, *PLOS One*, Sep. 8, 2016. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0161674>.  
 R George, L Vijaya, Prevalence of glaucoma in India: a review, *J of Current Glaucoma Practice*, Spetdec 2007 1(2) pp. 7-11.  
 Technical Information and Instruction Manual for users of Beta Therapy Source Model 67-850, Nuclear Associates, Carle Place, N.Y. Copyright 1979.  
 Strontium-90 surface and ophthalmic applicators, from Amersham product manual. Publication year unknown.  
 Soares CG. Comparison of NIST and manufacturer calibrations of 90Sr+90Y ophthalmic applicators. *Med Phys* 1995, 22(9): 1487-1493.  
 Bahrassa and Datta. Postoperative beta radiation treatment of pterygium. *Int J Radiat Oncol Biol Phys* 1983, 9(5): 679-84.  
 Castroviejo. *Trans Am Acad Ophthalmol Otolaryngol*. 1956, 60(3):486.  
 Zhang et al., In Vivo Cross-Sectional Observation and Thickness Measurement of Bulbar Conjunctiva Using Optical Coherence Tomography. *Investigative Ophthalmology & Visual Science* 2011, 52(10):7787-7791.  
 Wells AP, Ashraff NN, Hall RC, et al. Comparison of two clinical bleb grading systems. *Ophthalmology* 2006;113:77-83. Abstract.  
 Dhingra S, Khaw PT. The Moorfields Safer Surgery System. *Middle East African Journal of Ophthalmology*. 2009;16(3)112-115.  
 Invitation to Pay Additional Fees issued for PCT Application No. PCT/US18/49400 on Nov. 1, 2018.  
 UKIPO Examination Opinion and Search Report issued for GB Application No. GB1714392.6 dated Feb. 16, 2018.  
 Constable et al. "The effects of single doses of beta radiation on the wound healing behaviour of human Tenon's capsule fibroblasts" *Br J Ophthalmol*. 2004; 88:169-173 (doi:1 0.1136/bjo.2003.020388).  
 Assmann et al. "Biodegradable radioactive implants for glaucoma filtering surgery produced by ion implantation" *Nucl Instrum Meth B*. 2007; 257(1-2):108-113 (doi:10.1016/j.nimb.2006.12.155).  
 International Search Report issued for PCT Application No. PCT/US18149400 dated Jan. 2, 2019.  
 Ayyala et al. Early Follow-Up After Xen Implantation Needed. *Ocular Surgery News U.S. Edition*, Mar. 5, 2018. <https://www.healio.com/ophthalmology/glaucoma/news/online/%7B4f090e9a-4661-42a7-a8b7-4fa0cd690316%7D/early-follow-up-after-xen-implantation-needed>.  
 Ayyala et al. Xen Gel Stent Early Results: Safety and Efficacy in the Short Term. AGS 2018 Annual Meeting. Mar. 1-4. <https://ags.planion.com/Web/User/AbstractDet?ACCOUNT=AGS&CONF=AM18&ABSID=11997>.  
 Howlet J et al., *Journal of Current Glaucoma Practice* 2014, 8(2):63-66.  
 NRC Information Notice 96-66: United States Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Washington D.C. 20555, Dec. 13, 1996.  
 K. Nilsen, PhD, Department of Physics and Scientific Computing Group University of Oslo, N-0316 Oslo, Norway in Spring 2008.

\* cited by examiner

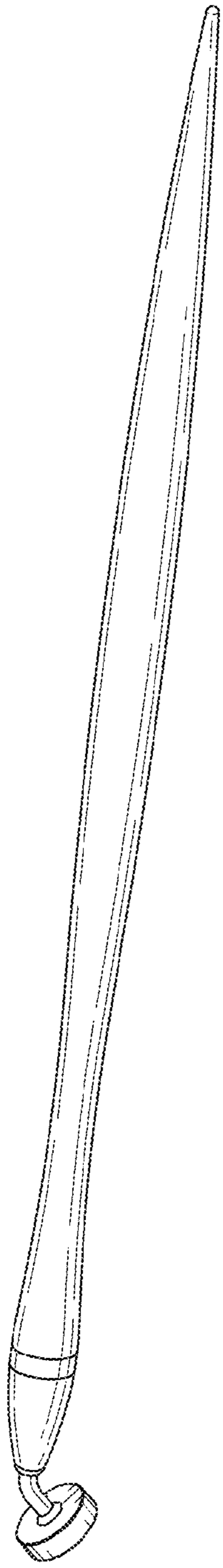


FIG. 1

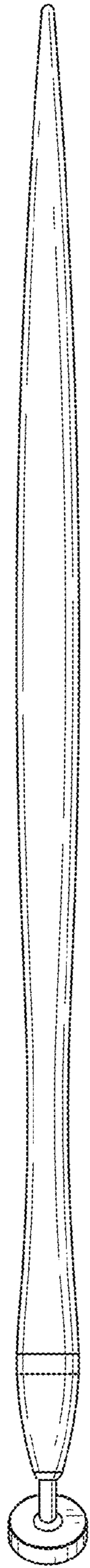


FIG. 2

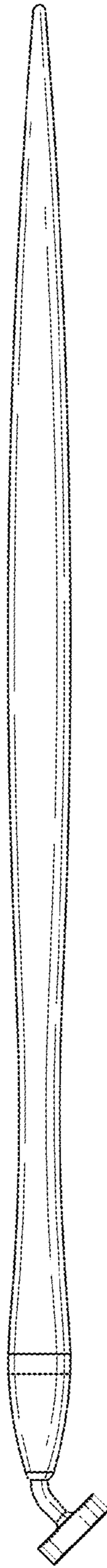


FIG. 3

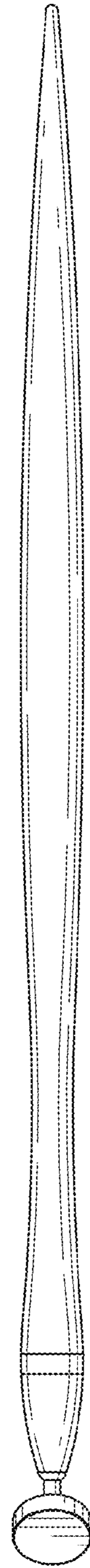


FIG. 4



FIG. 5



FIG. 6

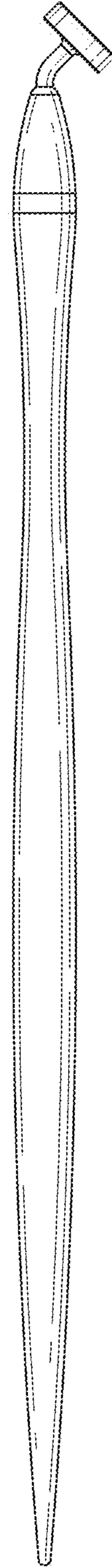


FIG. 7