



US00D783351S

(12) **United States Design Patent** (10) **Patent No.:** **US D783,351 S**
Fujino et al. (45) **Date of Patent:** **** Apr. 11, 2017**

(54) **GAS NOZZLE SUBSTRATE PROCESSING APPARATUS**

(71) Applicant: **Hitachi Kokusai Electric Inc.**, Chiyoda-ku, Tokyo (JP)

(72) Inventors: **Toshiki Fujino**, Toyama (JP); **Kosuke Takagi**, Toyama (JP); **Ryota Sasajima**, Toyama (JP)

(73) Assignee: **HITACHI KOKUSAI ELECTRIC INC.**, Tokyo (JP)

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

(21) Appl. No.: **29/544,977**

(22) Filed: **Nov. 9, 2015**

(30) **Foreign Application Priority Data**

May 28, 2015 (JP) 2015-011864

(51) **LOC (10) Cl.** **23-03**

(52) **U.S. Cl.**
USPC **D7/407**

(58) **Field of Classification Search**
USPC D7/407, 332, 334-337, 402-405, 391, D7/392.1; D23/127, 129, 415
CPC F23D 14/045; F23D 14/06; F23D 14/105; F23D 14/26; F23D 2203/102; F23D 2900/14042; F23D 2900/14064; F24C 3/085
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D58,914 S * 9/1921 Barber D23/415
D258,309 S * 2/1981 Leighton D23/415
D322,470 S * 12/1991 Garlich D23/200
6,553,986 B1 * 4/2003 Liu F23D 14/105
126/39 R

6,851,420 B2 * 2/2005 Jennings F23D 14/045
126/39 R
D613,116 S * 4/2010 Roberts D7/407
D632,131 S * 2/2011 Manson D7/407
D695,883 S * 12/2013 Vest D23/415
D771,772 S * 11/2016 Morita D23/213
2002/0094385 A1 * 7/2002 Raychaudhuri F26B 3/283
427/385.5
2008/0171296 A1 * 7/2008 Yen F23D 14/82
431/346
2009/0205631 A1 * 8/2009 Tsung F23D 14/045
126/39 E

(Continued)

Primary Examiner — Robin V Webster

Assistant Examiner — Rachel Voorhies

(74) *Attorney, Agent, or Firm* — Fitch, Even, Tabin & Flannery, LLP

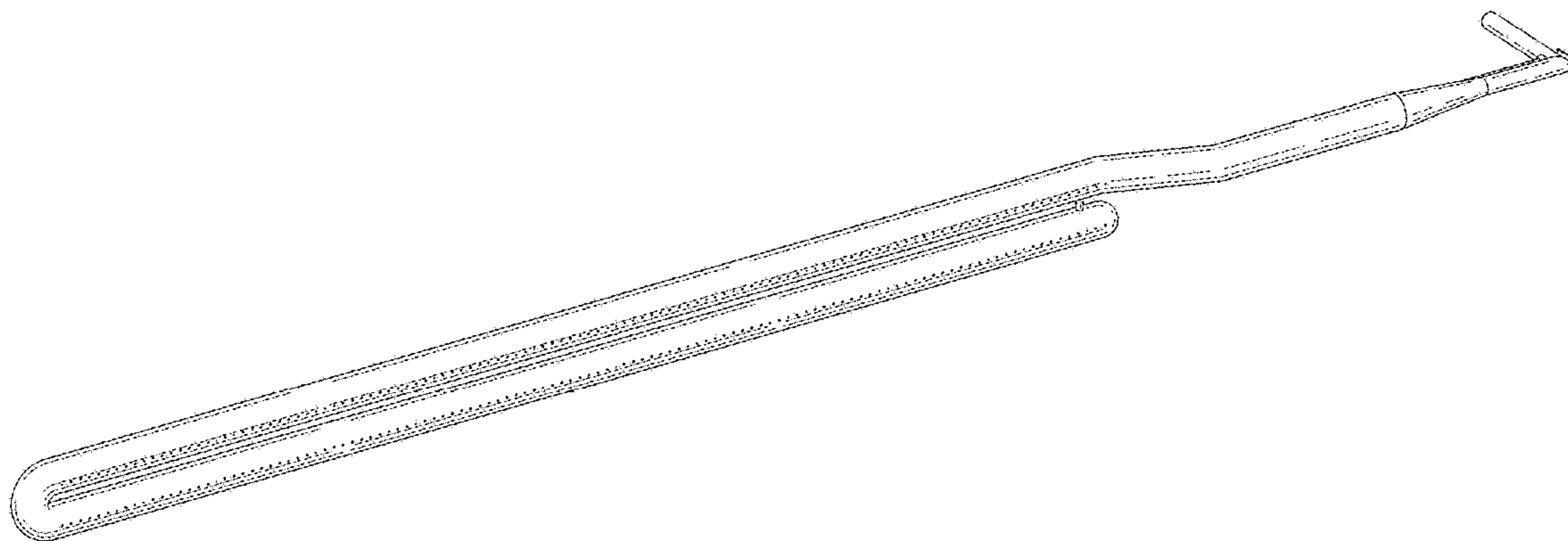
(57) **CLAIM**

We claim the ornamental design for a gas nozzle substrate processing apparatus, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a gas nozzle substrate processing apparatus showing my new design; FIG. 2 is a front elevational view thereof; FIG. 3 is a rear elevational view thereof; FIG. 4 is a top plan view thereof; FIG. 5 is a bottom plan view thereof; FIG. 6 is a left side elevational view thereof; FIG. 7 is a right side elevational view thereof; FIG. 8 is an enlarged right side elevational view thereof; and FIG. 9 is an enlarged portion view taken along line 9-9 in FIG. 2; FIG. 10 is a cross sectional view take along line 10-10 in FIG. 9; and, FIG. 11 is a cross sectional view take along line 11-11 in FIG. 9.

1 Claim, 5 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2010/0154775 A1* 6/2010 Robinson F23D 14/06
126/39 E

* cited by examiner

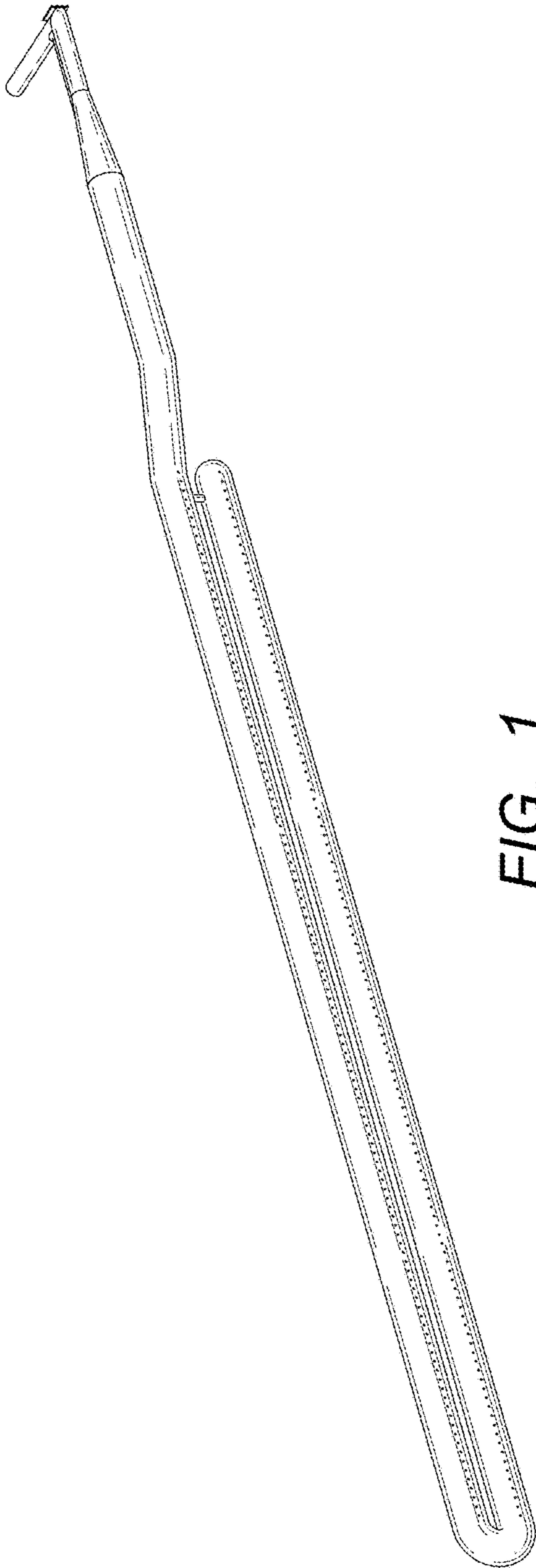


FIG. 1

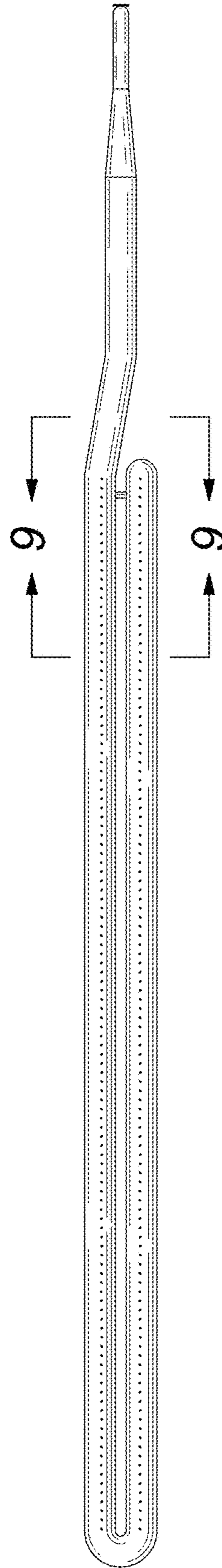


FIG. 2

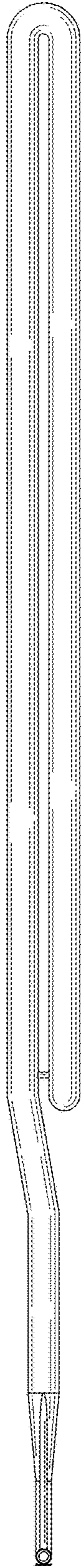


FIG. 3

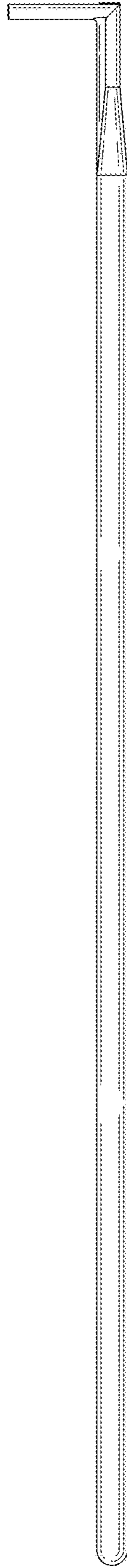


FIG. 4

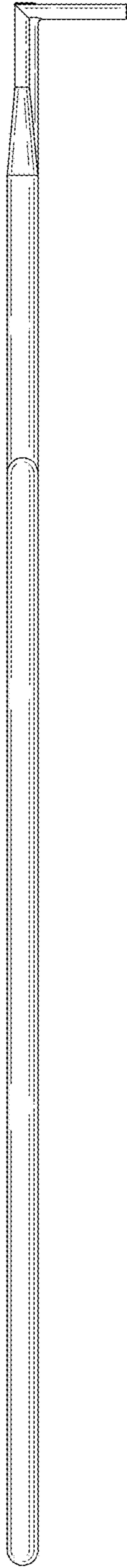


FIG. 5

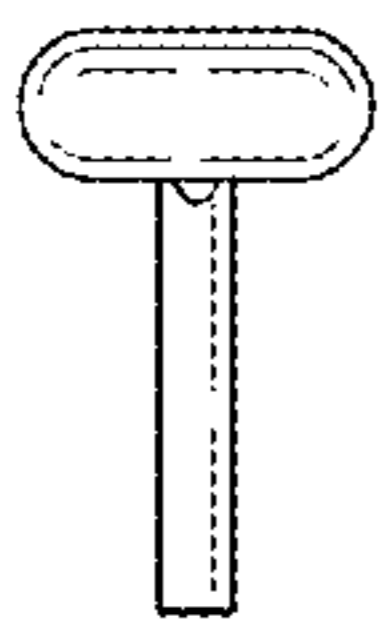


FIG. 6

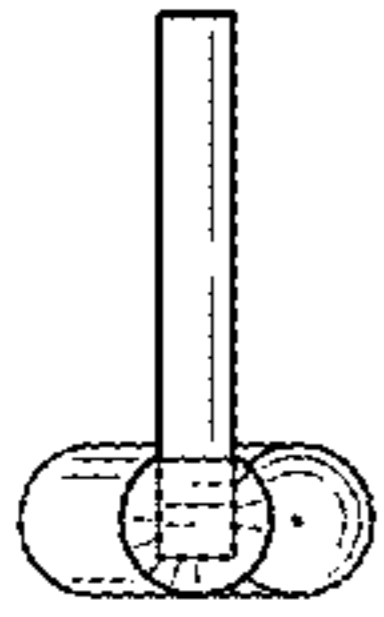


FIG. 7

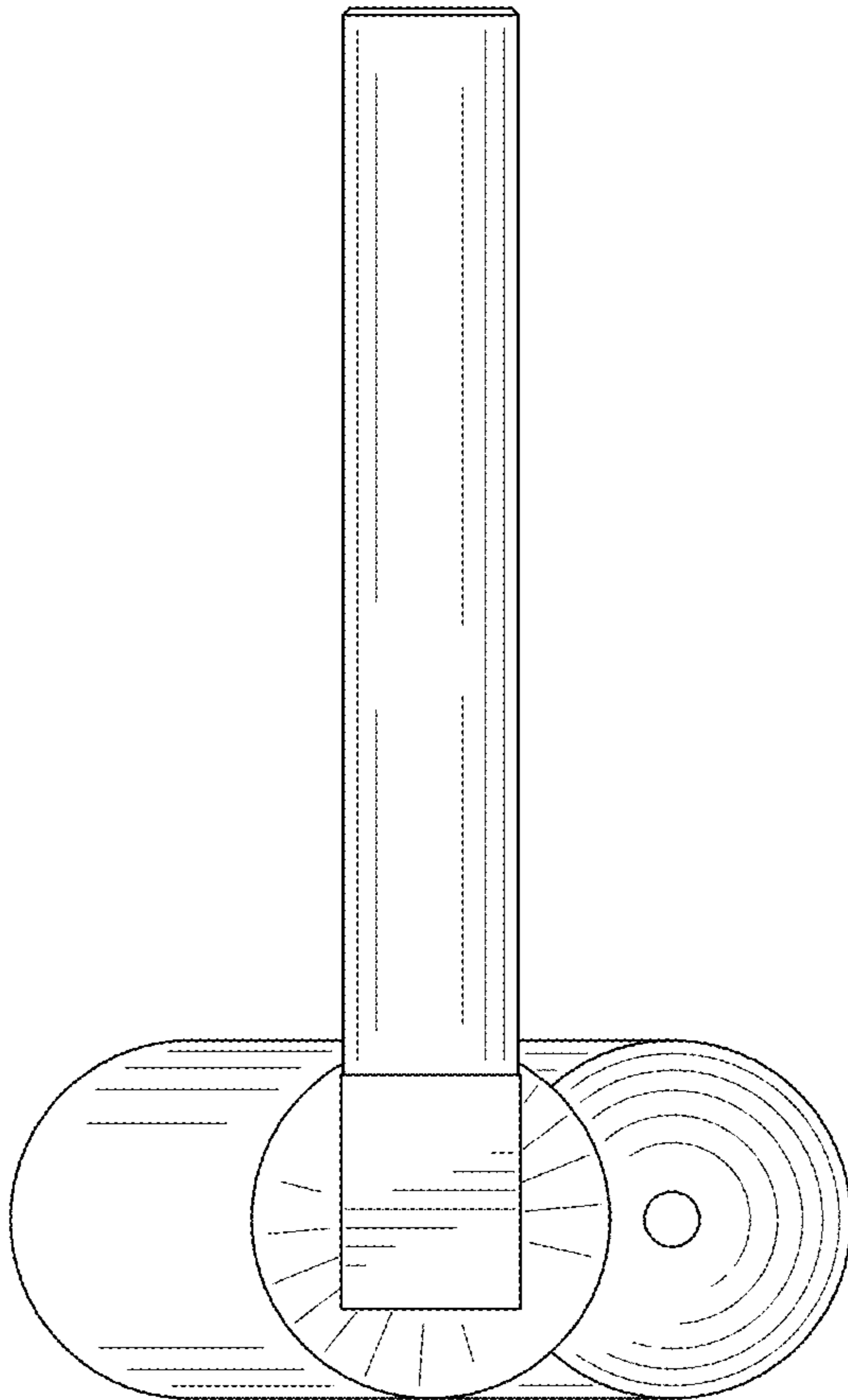


FIG. 8

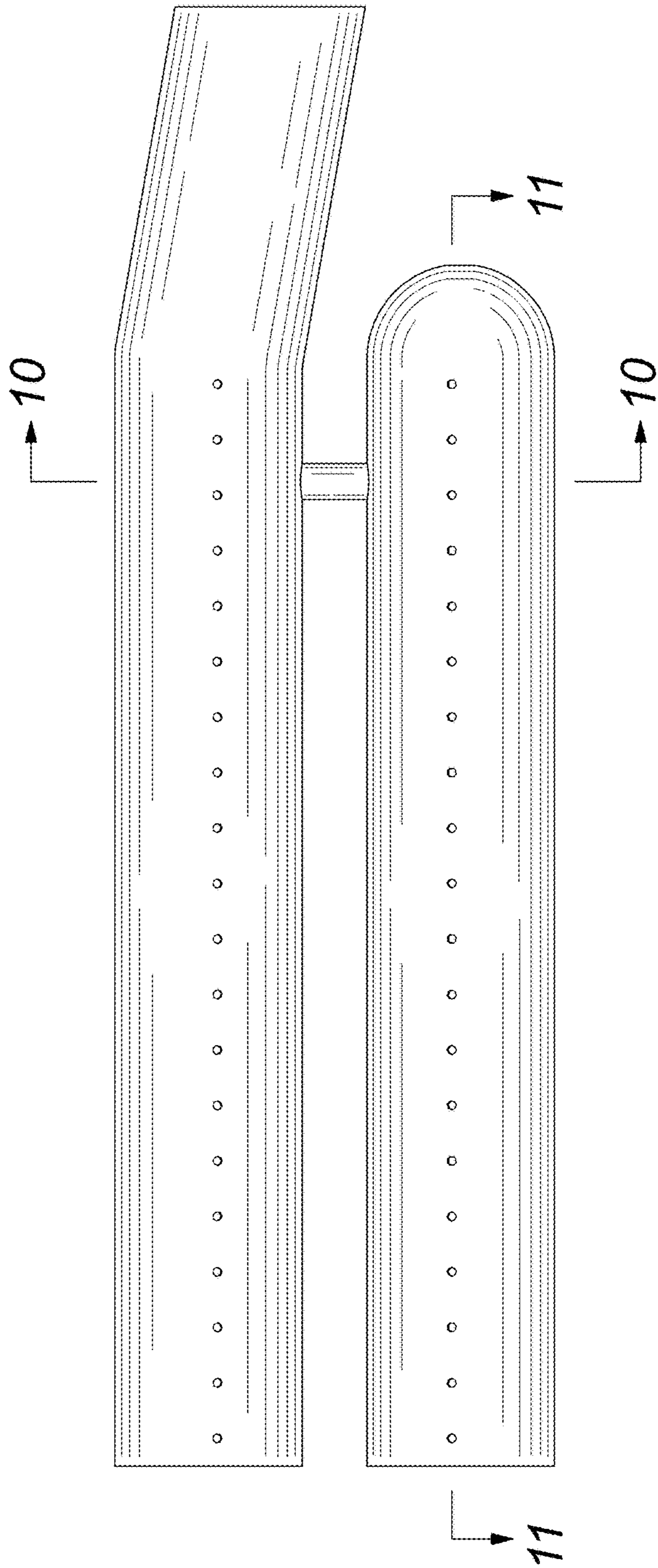


FIG. 9

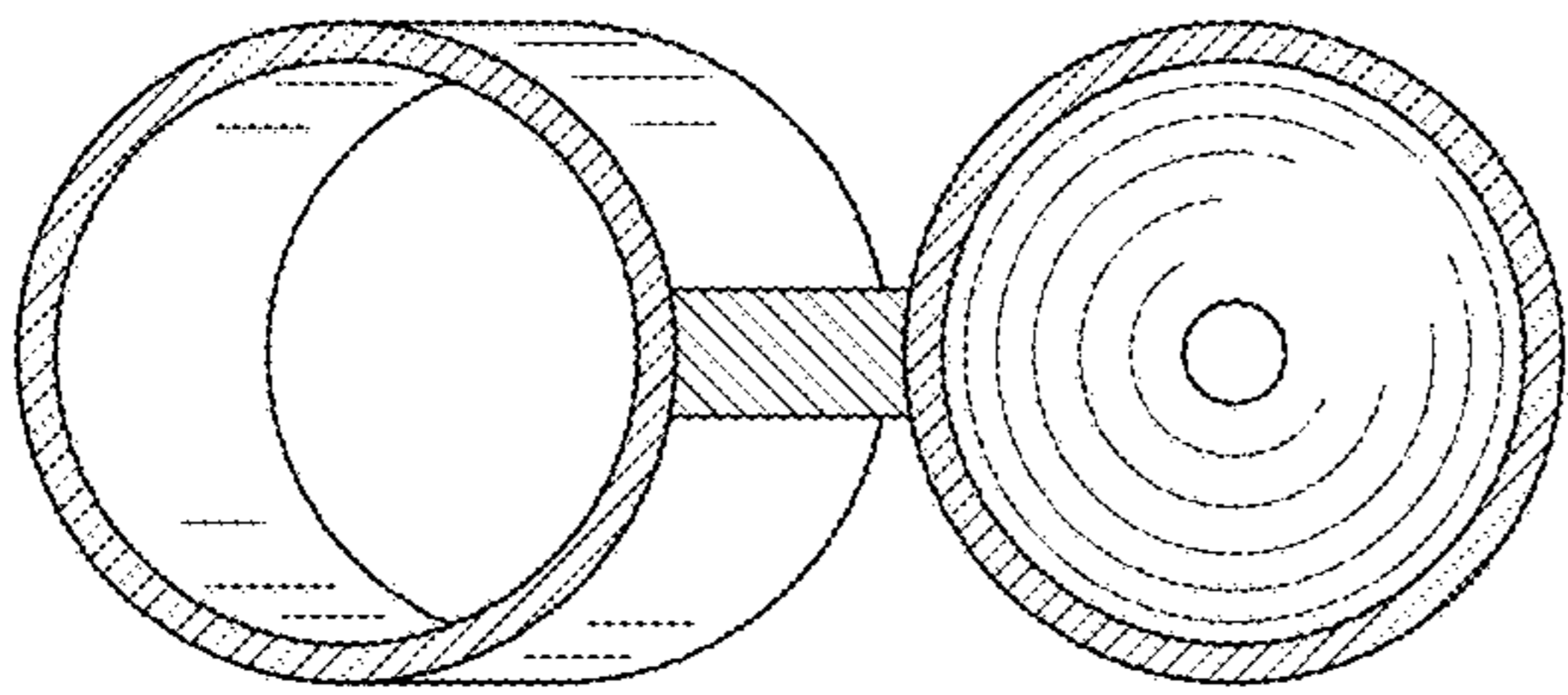


FIG. 10

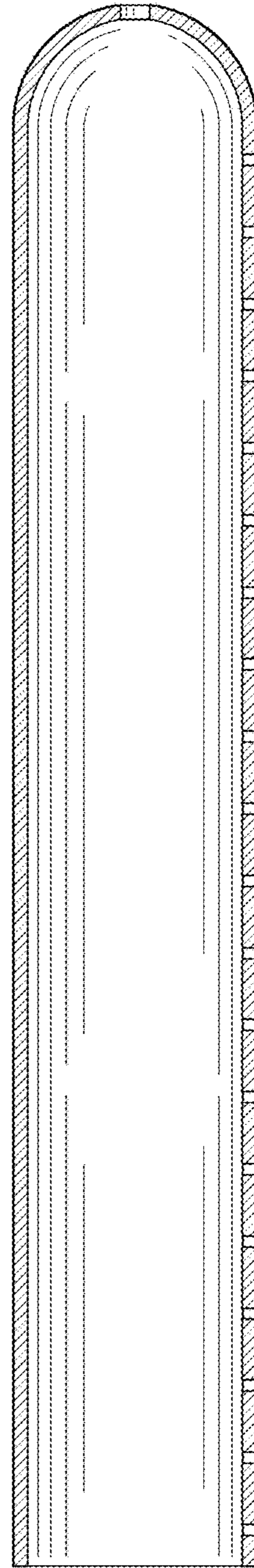


FIG. 11