



US00D795437S

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

(10) **Patent No.:** **US D795,437 S**
(45) **Date of Patent:** **** Aug. 22, 2017**

(54) **DISPOSABLE POLYMER-STRUCTURED FILTER**

(71) Applicants: **Jianjian Cai**, Dover, MA (US);
Xiaogao Liu, Dover, MA (US)

(72) Inventors: **Jianjian Cai**, Dover, MA (US);
Xiaogao Liu, Dover, MA (US)

(73) Assignee: **CHEMRUS INC.**, Dover, MA (US)

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

(21) Appl. No.: **29/511,788**

(22) Filed: **Dec. 13, 2014**

Related U.S. Application Data

(63) Continuation-in-part of application No. 12/461,474,
filed on Aug. 12, 2009, now Pat. No. 8,978,897.

(51) **LOC (10) Cl.** **24-01**

(52) **U.S. Cl.**
USPC **D24/162**; D24/232

(58) **Field of Classification Search**
USPC D24/232, 162, 231, 224, 121, 108;
D7/700; D23/207, 209
CPC B01D 23/28; B01D 29/085; B01D 29/01;
B01D 29/05; B01D 61/18; B01D 61/14;
B01D 2201/18; B01D 2201/182; B01D
2201/30; B01D 2201/309; B01L 3/56;
B01L 2300/0681; B01L 2300/0832
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

65,515 A 6/1867 Spencer
1,487,824 A * 3/1924 Vincent B67C 11/02
D7/700

1,501,073 A * 7/1924 Stead B01D 23/28
210/478
1,727,195 A * 9/1929 Black B67C 11/02
D7/700
2,449,238 A 9/1948 Lightfoot, Jr.
3,295,686 A 1/1967 Krueger
3,437,211 A 4/1969 Lindsey
3,463,322 A 8/1969 Gerarde
3,788,483 A 1/1974 Conway
3,838,978 A 10/1974 Eddleman et al.
4,251,366 A 2/1981 Simon et al.
4,301,010 A 11/1981 Eddleman et al.
4,523,934 A 6/1985 Joshua
4,678,576 A 7/1987 Leoncavallo
D310,123 S * 8/1990 Carlson D24/162
5,043,082 A * 8/1991 Hermann, Jr. B01D 61/18
210/451
5,308,483 A 5/1994 Sklar et al.
5,695,639 A 12/1997 Johnson
5,948,246 A 9/1999 Zuk, Jr.
6,443,314 B2 9/2002 Shiraiwa et al.
6,623,631 B1 9/2003 Graus et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 321064 6/1989
EP 0 815 915 7/1998

(Continued)

Primary Examiner — Wan Laymon

(74) *Attorney, Agent, or Firm* — Steptoe & Johnson LLP

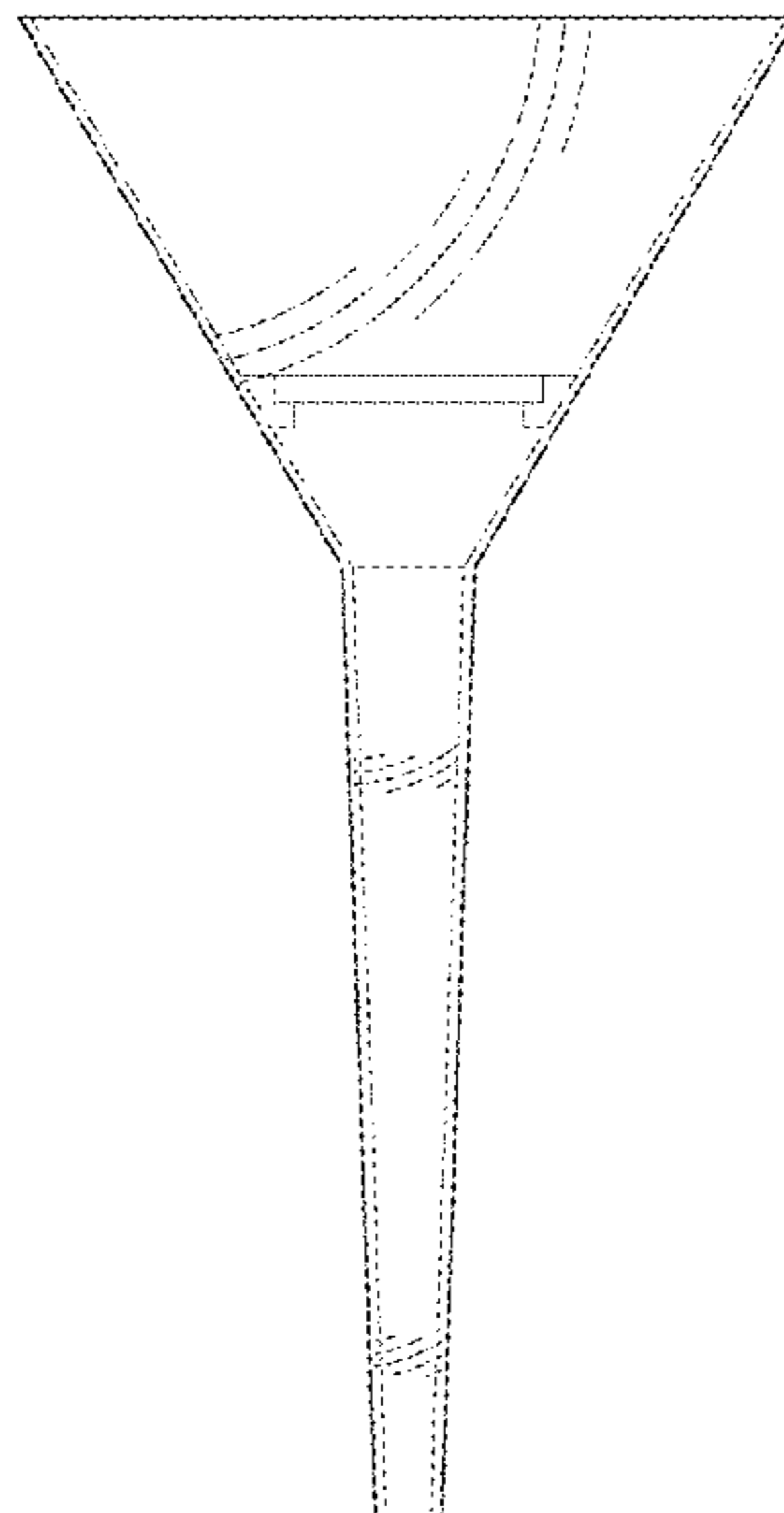
(57) **CLAIM**

The ornamental design for a disposable polymer-structured filter, as shown and described.

DESCRIPTION

FIG. 1 is a side view of a disposable polymer-structured filter;
FIG. 2 is a top view thereof; and,
FIG. 3 is a bottom view thereof.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

6,719,896	B1 *	4/2004	Clark	B01D 61/18 210/247
6,770,203	B2	8/2004	Leoncavallo et al.	
6,776,294	B2	8/2004	Lemonnier	
7,798,333	B2	9/2010	Zuk, Jr.	
2007/0144959	A1	6/2007	Zuk	
2014/0291234	A1 *	10/2014	Chi	B01L 3/56 210/406
2015/0190739	A1 *	7/2015	Cai	B01L 3/56 422/534

FOREIGN PATENT DOCUMENTS

WO	WO 95/04585	2/1995
WO	WO 2007/028157	3/2007

* cited by examiner

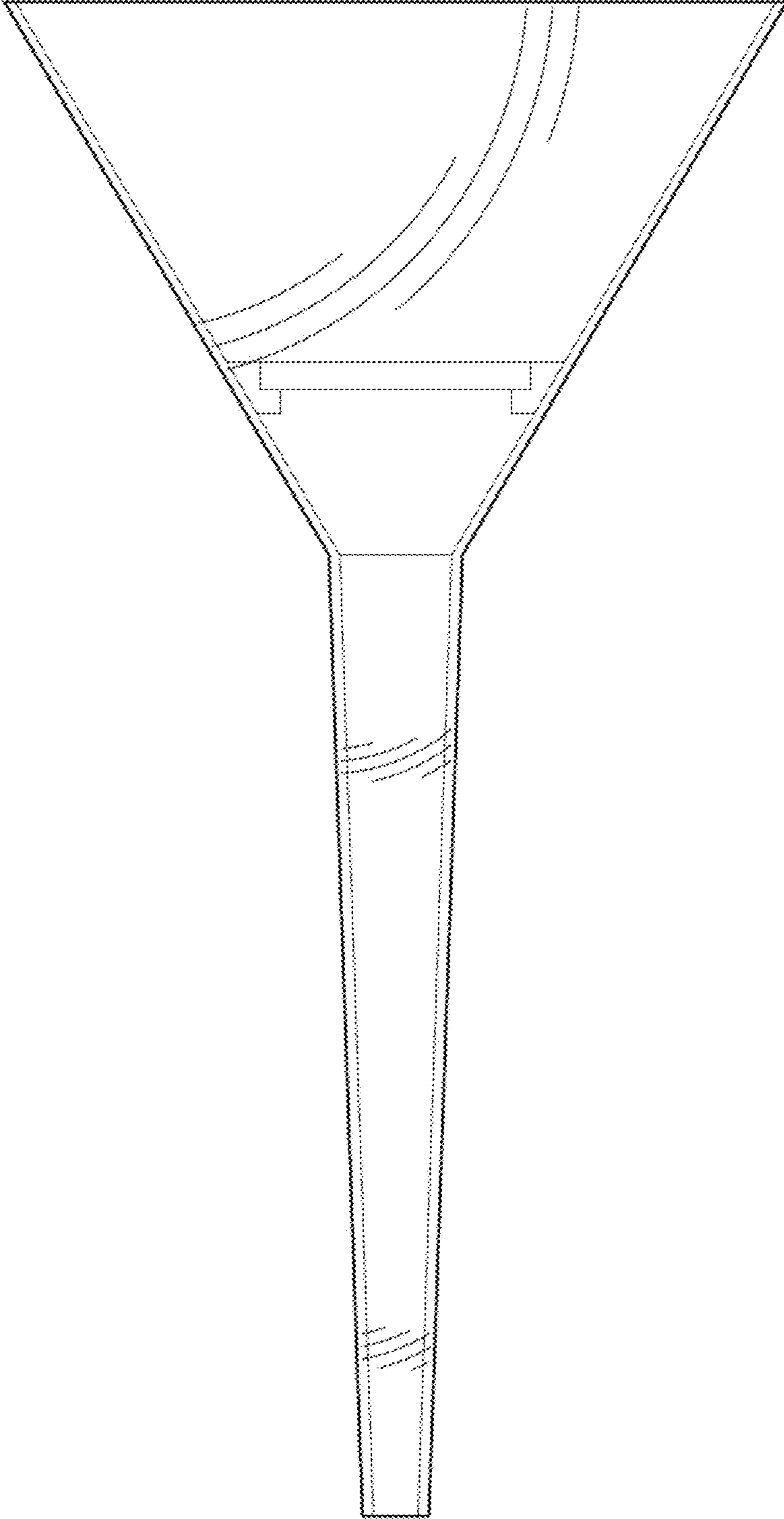


FIG. 1

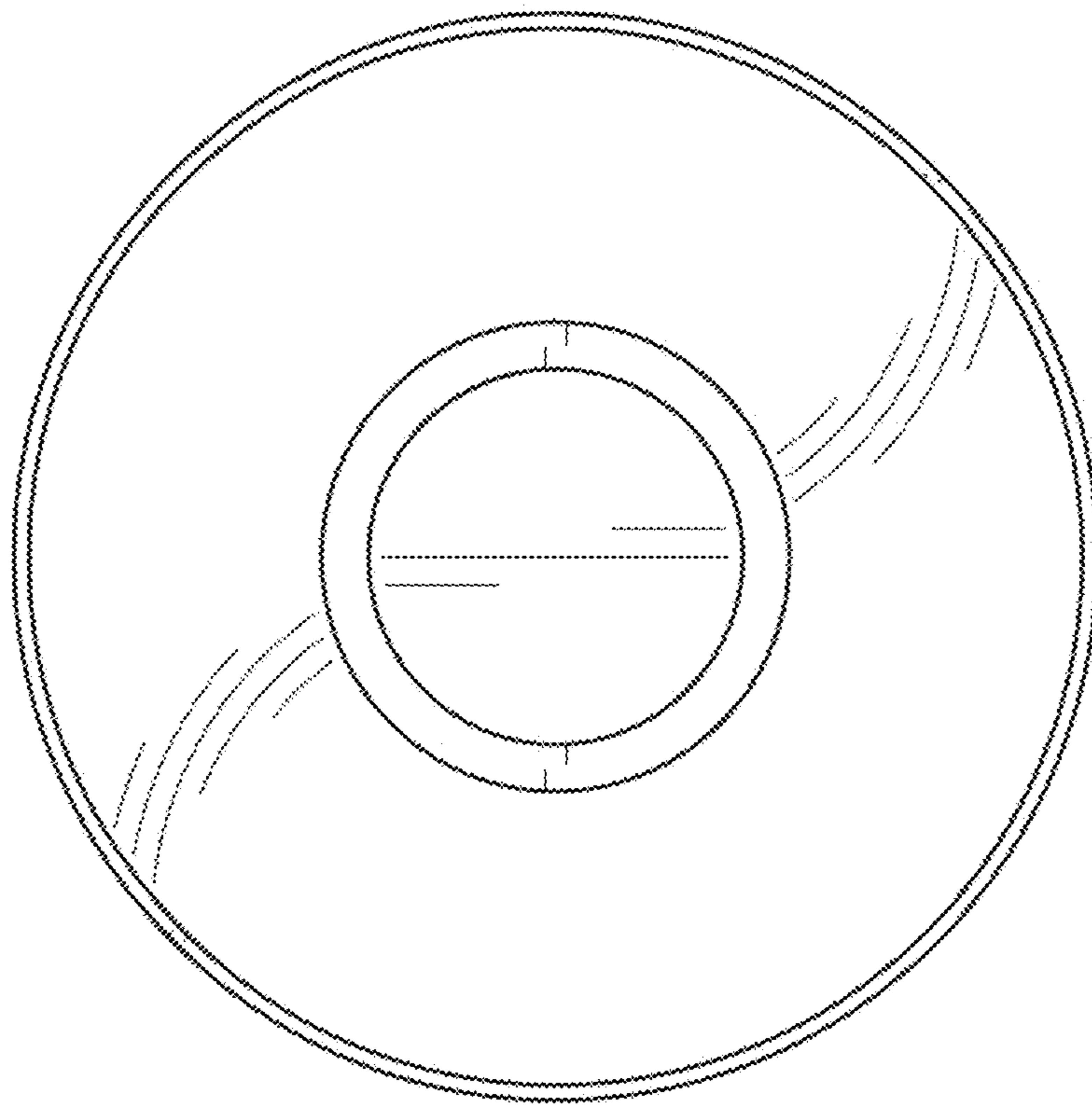


FIG. 2

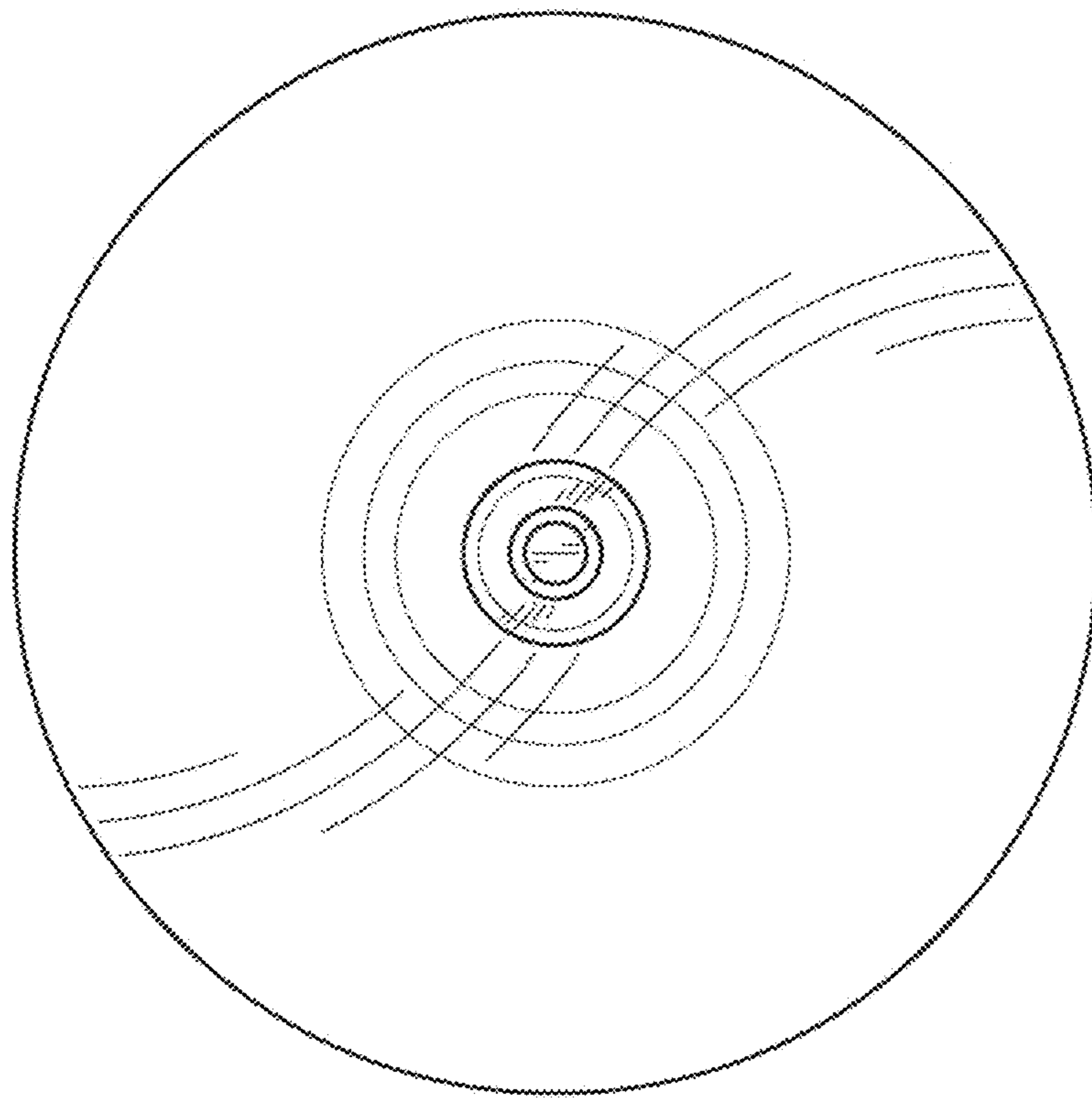


FIG. 3