



US00D697088S

(12) **United States Design Patent**
Frazier

(10) **Patent No.:** **US D697,088 S**
(45) **Date of Patent:** **** Jan. 7, 2014**

(54) **LOWER SET INSERT FOR A DOWNHOLE
PLUG FOR USE IN A WELLBORE**

(76) Inventor: **W. Lynn Frazier**, Corpus Christi, TX
(US)

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

(21) Appl. No.: **29/398,390**

(22) Filed: **Jul. 29, 2011**

2,640,546 A	6/1953	Baker et al.
2,833,354 A	2/1955	Sailers
3,054,453 A	3/1955	Bonner
2,713,910 A	7/1955	Baker et al.
2,830,666 A	7/1956	Rhodes
3,160,209 A	10/1956	Bonner
3,082,824 A	3/1959	Taylor et al.
3,062,296 A	12/1960	Brown
3,163,225 A	2/1961	Perkins
3,282,342 A	11/1963	Mott
3,291,218 A	2/1964	Lebourg
3,013,612 A	12/1964	Angel

(Continued)

Related U.S. Application Data

(62) Division of application No. 12/317,497, filed on Dec. 23, 2008, now Pat. No. 8,496,052.

(51) **LOC (10) Cl.** **15-03**

(52) **U.S. Cl.**
USPC **D15/21**

(58) **Field of Classification Search**
USPC D15/21-28; 166/118-142, 192-194,
166/318, 319, 373-378; 277/322, 340
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

RE17,217 E	2/1929	Burch
2,040,889 A	5/1933	Whinnen
2,223,602 A	10/1938	Cox
2,160,228 A	5/1939	Pustmueller
2,286,126 A	7/1940	Thornhill
2,230,447 A	2/1941	Bassinger
2,331,532 A	10/1943	Bassinger
2,376,605 A	5/1945	Lawrence
2,593,520 A	10/1945	Baker et al.
2,616,502 A	3/1948	Lenz
2,756,827 A	6/1948	Farrar
2,555,627 A	6/1951	Baker
2,714,932 A	8/1951	Thompson
2,589,506 A	3/1952	Morrisett
2,737,242 A	8/1952	Baker

FOREIGN PATENT DOCUMENTS

GB	914030	12/1962
WO	WO2010127457	11/2010

OTHER PUBLICATIONS

“Teledyne Merla Oil Tools-Products-Services,” Teledyne Merla, Aug. 1990 (40 pages).

(Continued)

Primary Examiner — Richard E Chilcot

(74) *Attorney, Agent, or Firm* — Edmonds & Nolte, P.C.

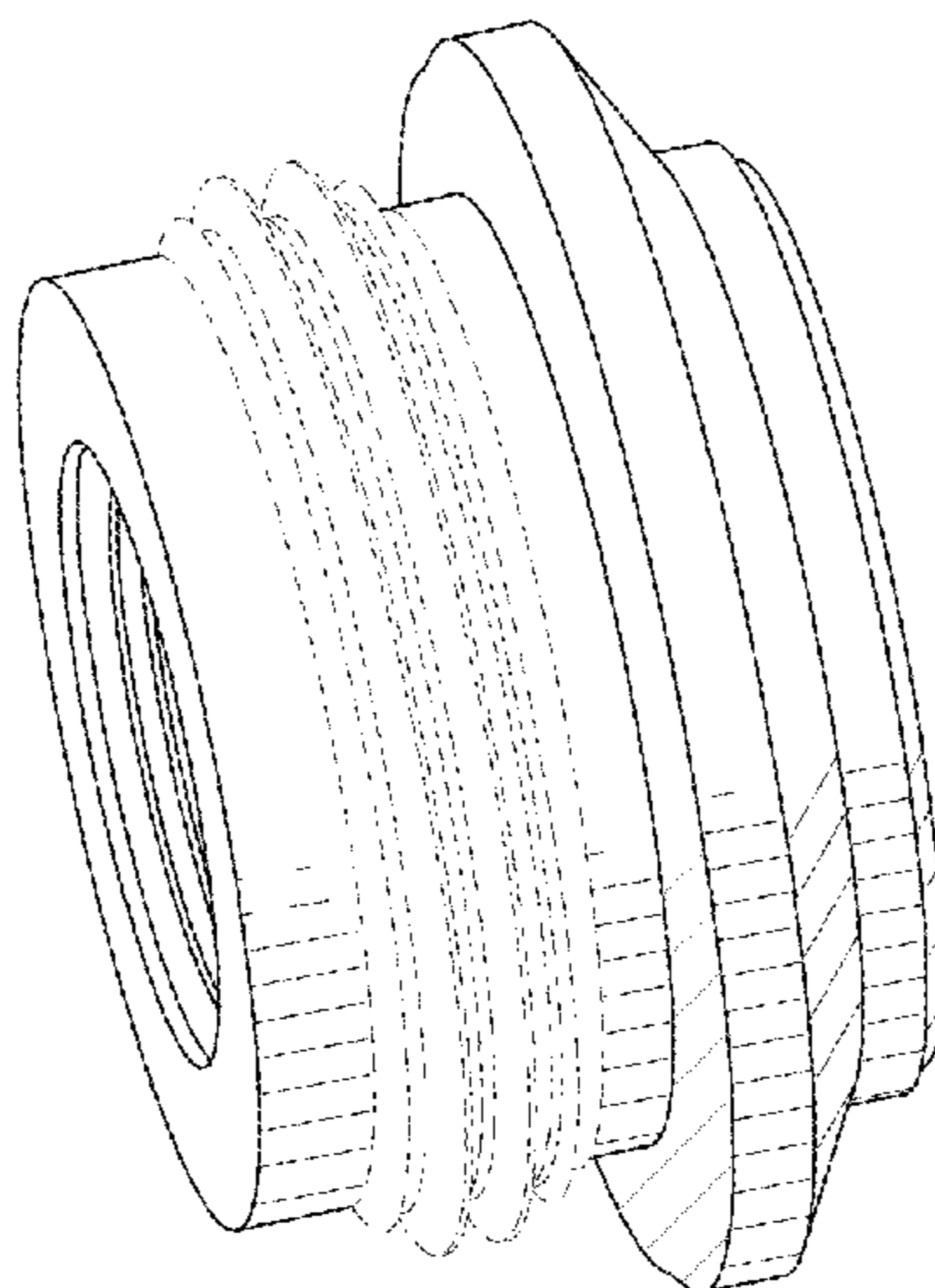
(57) **CLAIM**

The ornamental design for a lower set insert for a downhole plug for use in a wellbore, as shown.

DESCRIPTION

FIG. 1 is a perspective view of a lower set insert for a downhole plug;
FIG. 2 is a top plan view thereof;
FIG. 3 is a side plan view thereof; and,
FIG. 4 is a bottom plan view.
The broken lines shown in the drawings are for illustrative purpose only and form no part of the claimed design.

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,308,895 A	12/1964	Oxford et al.	5,390,737 A	2/1995	Jacobi et al.
3,393,743 A	11/1965	Stanescu	5,392,540 A	2/1995	Cooper et al.
3,273,588 A	9/1966	Dollison	5,419,399 A	5/1995	Smith
3,429,375 A	12/1966	Craig	RE35,088 E	11/1995	Gilbert
3,298,437 A	1/1967	Conrad	5,484,191 A	1/1996	Sollami
3,298,440 A	1/1967	Current	5,490,339 A	2/1996	Accettola
3,306,362 A	2/1967	Urbanosky	5,540,279 A	7/1996	Branch et al.
3,356,140 A	12/1967	Young	5,564,502 A	10/1996	Crow et al.
3,517,742 A	6/1970	Williams	5,593,292 A	1/1997	Ivey et al.
3,554,280 A	1/1971	Tucker	D377,969 S	2/1997	Grantham
3,602,305 A	8/1971	Kisling	5,655,614 A	8/1997	Azar
3,623,551 A	11/1971	Randermann, Jr.	5,701,959 A	12/1997	Hushbeck et al.
3,687,202 A	8/1972	Young et al.	5,785,135 A	7/1998	Crawley et al.
3,787,101 A	1/1974	Sugden	5,791,825 A	8/1998	Gardner et al.
3,818,987 A	6/1974	Ellis	5,803,173 A	9/1998	Fraser, III et al.
3,851,706 A	12/1974	Ellis	5,810,083 A	9/1998	Kilgore
3,860,066 A	1/1975	Pearce et al.	5,819,846 A	10/1998	Bolt, Jr.
3,926,253 A	12/1975	Duke	D415,180 S	10/1999	Rosanwo
4,035,024 A	7/1977	Fink	5,961,185 A	10/1999	Friant et al.
4,049,015 A	9/1977	Brown	5,967,231 A *	10/1999	Laurel et al. 166/250.04
4,134,455 A	1/1979	Read	5,984,007 A	11/1999	Yuan et al.
4,151,875 A	5/1979	Sullaway	5,988,277 A	11/1999	Vick, Jr. et al.
4,185,689 A	1/1980	Harris	6,012,519 A	1/2000	Allen et al.
4,189,183 A	2/1980	Borowski	6,085,446 A	7/2000	Posch
4,250,960 A	2/1981	Chammas	6,098,716 A	8/2000	Hromas et al.
4,314,608 A	2/1982	Richardson	6,105,694 A	8/2000	Scott
4,381,038 A	4/1983	Sugden	6,142,226 A	11/2000	Vick
4,391,547 A	7/1983	Jackson	6,152,232 A	11/2000	Webb et al.
4,405,017 A	9/1983	Allen et al.	6,167,963 B1	1/2001	McMahan et al.
4,432,418 A	2/1984	Mayland	6,182,752 B1	2/2001	Smith, Jr. et al.
4,436,151 A	3/1984	Callihan et al.	6,199,636 B1	3/2001	Harrison
4,437,516 A	3/1984	Cockrell	6,220,349 B1	4/2001	Vargus et al.
4,457,376 A	7/1984	Carmody et al.	6,283,148 B1	9/2001	Spears et al.
4,493,374 A	1/1985	Magee, Jr.	6,341,823 B1	1/2002	Sollami
4,532,995 A	8/1985	Kaufman	6,367,569 B1	4/2002	Walk
4,548,442 A	10/1985	Sugden et al.	6,394,180 B1	5/2002	Berscheidt et al.
4,554,981 A	11/1985	Davies	6,457,267 B1	10/2002	Porter et al.
4,566,541 A	1/1986	Moussy et al.	6,491,108 B1	12/2002	Slup
4,585,067 A	4/1986	Blizzard et al.	6,543,963 B2	4/2003	Bruso
4,595,052 A	6/1986	Kristiansen	6,581,681 B1	6/2003	Zimmerman et al.
4,602,654 A	7/1986	Stehling et al.	6,629,563 B2	10/2003	Doane
4,688,641 A	8/1987	Knieriemen	6,695,049 B2	2/2004	Ostocke et al.
4,708,163 A	11/1987	Deaton	6,708,770 B2	3/2004	Slup et al.
4,708,202 A	11/1987	Sukup et al.	6,725,935 B2	4/2004	Szarka et al.
D293,798 S	1/1988	Johnson	6,739,398 B1	5/2004	Yokley et al.
4,776,410 A	10/1988	Perkin et al.	6,769,491 B2	8/2004	Zimmerman et al.
4,784,226 A	11/1988	Wyatt	6,779,948 B2	8/2004	Bruso
4,792,000 A	12/1988	Perkin et al.	6,796,376 B2	9/2004	Frazier
4,830,103 A	5/1989	Blackwell et al.	6,799,633 B2	10/2004	McGregor
4,848,459 A	7/1989	Blackwell et al.	6,834,717 B2	12/2004	Bland
4,893,678 A	1/1990	Stokley et al.	6,851,489 B2	2/2005	Hinds
5,020,590 A	6/1991	McLeod	6,854,201 B1	2/2005	Hunter et al.
5,074,063 A	12/1991	Vannette	6,902,006 B2	6/2005	Myerley et al.
5,082,061 A	1/1992	Dollison	6,918,439 B2	7/2005	Dallas
5,095,980 A	3/1992	Watson	6,938,696 B2	9/2005	Dallas
5,113,940 A	5/1992	Glaser	6,944,977 B2	9/2005	Deniau et al.
5,117,915 A	6/1992	Mueller et al.	7,021,389 B2	4/2006	Bishop et al.
5,154,228 A	10/1992	Gambertoglio et al.	7,040,410 B2	5/2006	McGuire et al.
5,183,068 A	2/1993	Prosser	7,055,632 B2	6/2006	Dallas
5,188,182 A	2/1993	Echols, III et al.	7,069,997 B2	7/2006	Coyes et al.
5,207,274 A	5/1993	Streich et al.	7,107,875 B2	9/2006	Haugen et al.
5,209,310 A	5/1993	Clydesdale	7,124,831 B2	10/2006	Turley et al.
5,219,380 A	6/1993	Young et al.	7,128,091 B2	10/2006	Istre, Jr.
5,224,540 A	7/1993	Streich et al.	7,150,131 B2	12/2006	Barker
5,230,390 A	7/1993	Zastresek et al.	7,168,494 B2	1/2007	Starr et al.
5,234,052 A	8/1993	Coone et al.	7,281,584 B2	10/2007	McGarian et al.
5,253,705 A	10/1993	Clary et al.	D560,109 S	1/2008	Huang
5,295,735 A	3/1994	Cobbs et al.	7,325,617 B2	2/2008	Murray
5,311,939 A	5/1994	Pringle et al.	7,337,847 B2	3/2008	McGarian et al.
5,316,081 A	5/1994	Baski et al.	7,350,582 B2	4/2008	McKeachnie et al.
5,318,131 A	6/1994	Baker	7,353,879 B2	4/2008	Todd et al.
D350,887 S	9/1994	Sjolander et al.	7,363,967 B2	4/2008	Burris, II et al.
5,343,954 A	9/1994	Bohlen et al.	7,373,973 B2	5/2008	Smith et al.
D353,756 S	12/1994	Graves	7,428,922 B2	9/2008	Fripp et al.
D355,428 S	2/1995	Hatcher	7,506,691 B2 *	3/2009	Vilela et al. 166/381
			7,527,104 B2	5/2009	Branch et al.
			7,552,779 B2	6/2009	Murray
			D597,110 S	7/2009	Anitua Aldecoa
			7,600,572 B2	10/2009	Slup et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,604,058 B2 10/2009 McGuire
 7,637,326 B2 12/2009 Bolding et al.
 7,644,767 B2 1/2010 Kalb et al.
 7,644,774 B2 1/2010 Branch et al.
 D612,875 S 3/2010 Beynon
 7,673,677 B2 3/2010 King et al.
 7,690,436 B2 4/2010 Turley et al.
 D618,715 S 6/2010 Corcoran
 7,735,549 B1 6/2010 Nish et al.
 7,740,079 B2 6/2010 Clayton et al.
 7,775,286 B2 8/2010 Duphorne
 7,775,291 B2 8/2010 Jacob
 7,784,550 B2 8/2010 Nutley et al.
 7,798,236 B2 9/2010 McKeachnie et al.
 7,810,558 B2 10/2010 Shkurti et al.
 D629,820 S 12/2010 Van Ryswyk
 7,866,396 B2 1/2011 Rytlewski
 7,878,242 B2 2/2011 Gray
 7,886,830 B2 2/2011 Bolding et al.
 7,900,696 B1 3/2011 Nish et al.
 7,909,108 B2 3/2011 Swor et al.
 7,909,109 B2 3/2011 Angman et al.
 D635,429 S 4/2011 Hakki
 7,918,278 B2 4/2011 Barbee
 7,921,923 B2 4/2011 McGuire
 7,921,925 B2 4/2011 Maguire et al.
 7,926,571 B2 4/2011 Hofman
 8,074,718 B2 12/2011 Roberts
 8,079,413 B2 12/2011 Frazier
 8,113,276 B2 2/2012 Greenlee et al.
 8,127,856 B1 3/2012 Nish et al.
 D657,807 S 4/2012 Frazier
 8,205,671 B1 * 6/2012 Branton 166/118
 8,231,947 B2 7/2012 Vaidya et al.
 D673,182 S * 12/2012 Frazier D15/21
 D673,183 S * 12/2012 Frazier D15/21
 8,360,141 B2 * 1/2013 Smith 166/177.3
 8,490,691 B2 * 7/2013 Purkis 166/237
 2001/0040035 A1 11/2001 Appleton et al.
 2003/0024706 A1 2/2003 Allamon
 2003/0188860 A1 10/2003 Zimmerman et al.
 2004/0150533 A1 8/2004 Hall et al.
 2005/0173126 A1 8/2005 Starr et al.
 2006/0001283 A1 1/2006 Bakke
 2006/0011389 A1 1/2006 Booth
 2006/0278405 A1 12/2006 Turley et al.
 2007/0051521 A1 3/2007 Fike et al.
 2007/0068670 A1 3/2007 Booth
 2007/0107908 A1 5/2007 Vaidya et al.
 2007/0227745 A1 10/2007 Roberts et al.
 2007/0240883 A1 10/2007 Telfer
 2008/0060821 A1 3/2008 Smith et al.
 2008/0110635 A1 5/2008 Loretz et al.

2009/0044957 A1 2/2009 Clayton et al.
 2009/0114401 A1 5/2009 Purkis
 2009/0126933 A1 5/2009 Telfer
 2009/0211749 A1 8/2009 Nguyen et al.
 2010/0064859 A1 3/2010 Stephens
 2010/0084146 A1 4/2010 Roberts
 2010/0132960 A1 6/2010 Shkurti et al.
 2010/0155050 A1 6/2010 Frazier
 2010/0252252 A1 10/2010 Harris et al.
 2010/0263876 A1 10/2010 Frazier
 2010/0276159 A1 11/2010 Mailand et al.
 2010/0288503 A1 11/2010 Cuiper et al.
 2011/0005779 A1 1/2011 Lembcke
 2011/0036564 A1 2/2011 Williamson
 2011/0061856 A1 3/2011 Kellner et al.
 2011/0088915 A1 4/2011 Stanojcic et al.
 2011/0103915 A1 5/2011 Tedeshi
 2011/0168404 A1 7/2011 Telfer et al.
 2011/0198082 A1 8/2011 Stromquist et al.
 2011/0240295 A1 10/2011 Porter et al.
 2011/0259610 A1 10/2011 Shkurti et al.

OTHER PUBLICATIONS

“78/79 Catalog: Packers-Plugs-Completions Tools,” Pengo Industires, Inc., 1978-1979 (12 pages).
 “MAP Oil Tools Inc. Catalog,” MAP Oil Tools, Apr. 1999 (46 pages).
 “Lovejoy-where the world turns for couplings,” Lovejoy, Inc., Dec. 2000 (30 pages).
 “Halliburton Services, Sales & Service Catalog,” Halliburton Services, 1970-1971 (2 pages).
 “1975-1976 Packer Catalog,” Gearhart-Owen Industries Inc., 1975-1976 (52 pages).
 “Formation Damage Control utilizing Composite-Bridge Plug Technology for Monobore, Multizone Stimulation Operations,” Gary Garfield, SPE, May 15, 2001 (8 pages).
 “Composite Bridge Plug Technique for Multizone Commingled Gas Wells,” Gary Garfield, SPE, Mar. 24, 2001 (6 pages).
 “Composite Research: Composite bridge plugs used in multi-zone wells to avoid costly kill-weight fluids,” Gary Garfield, SPE, Mar. 24, 2001 (4 pages).
 “It’s About Time-Quick Drill Composite Bridge Plug,” Baker Oil Tools, Jun. 2002 (2 pages).
 “Baker Hughes-Baker Oil Tools-Workover Systems-QUIK Drill Composite Bride Plug,” Baker Oil Tools, Dec. 2000 (3 pages).
 “Baker Hughes 100 Years of Service,” Baker Hushes In Depth, Special Centennial Issue, Publication COR-07-13127, vol. 13, No. 2, Baker Hughes Incorporated, Jul. 2007 (92 pages).
 “Halliburton Services, Sales & Service Catalog No. 43,” Halliburton Co., 1985 (202 pages).
 “Alpha Oil Tools Catalog,” Alpha Oil Tools, 1997 (136 pages).

* cited by examiner

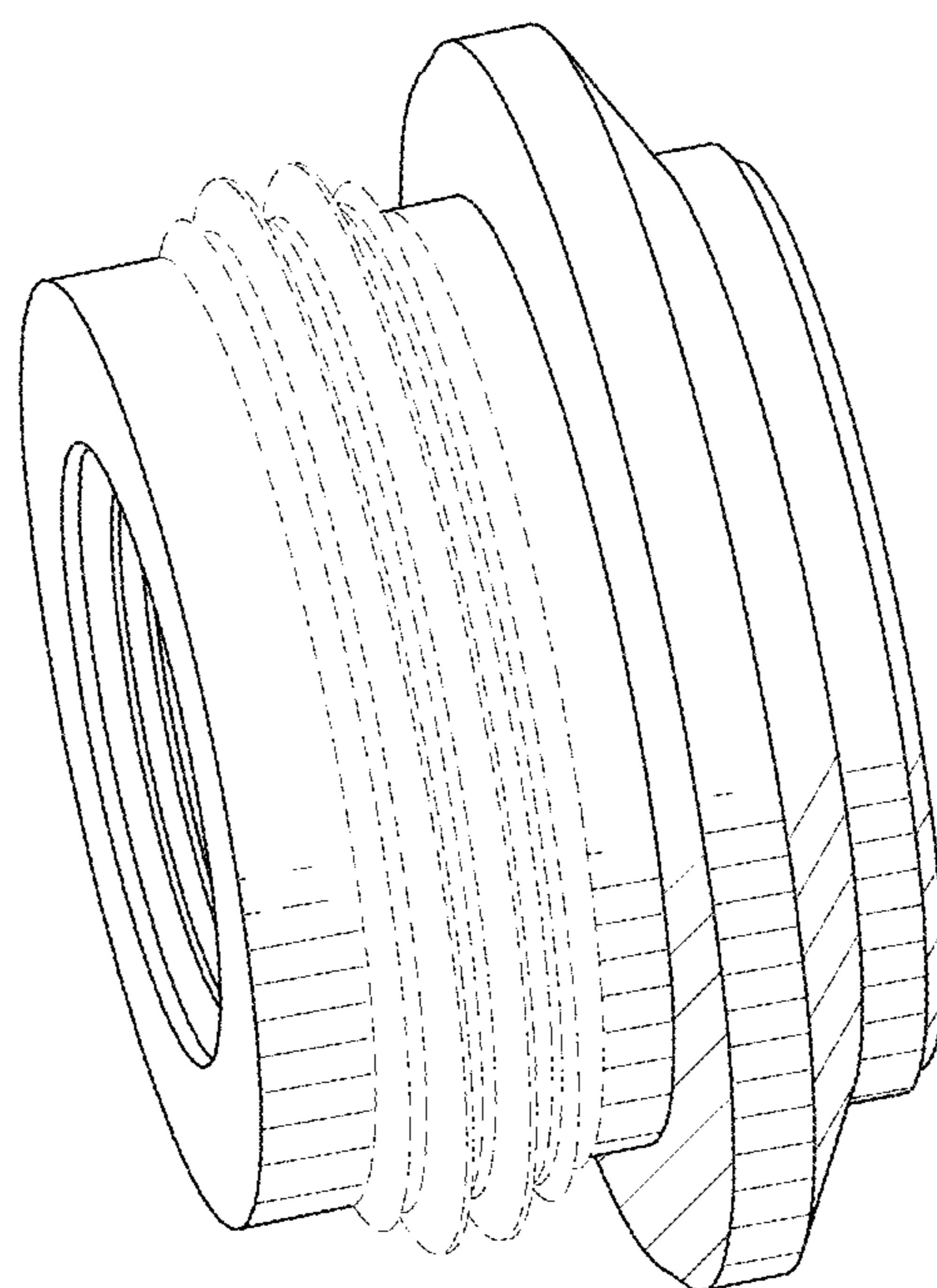


FIG. 1

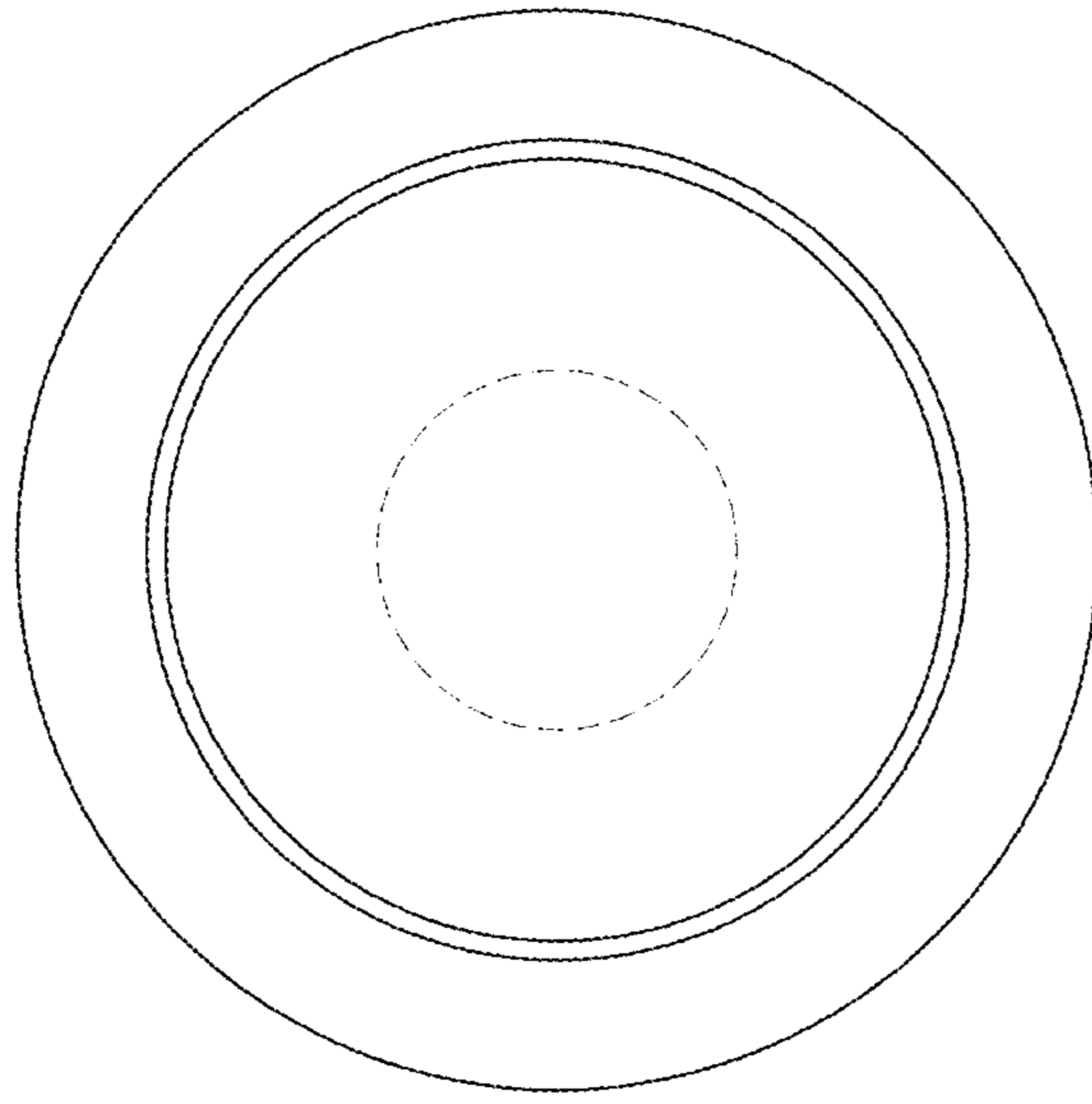


FIG. 4

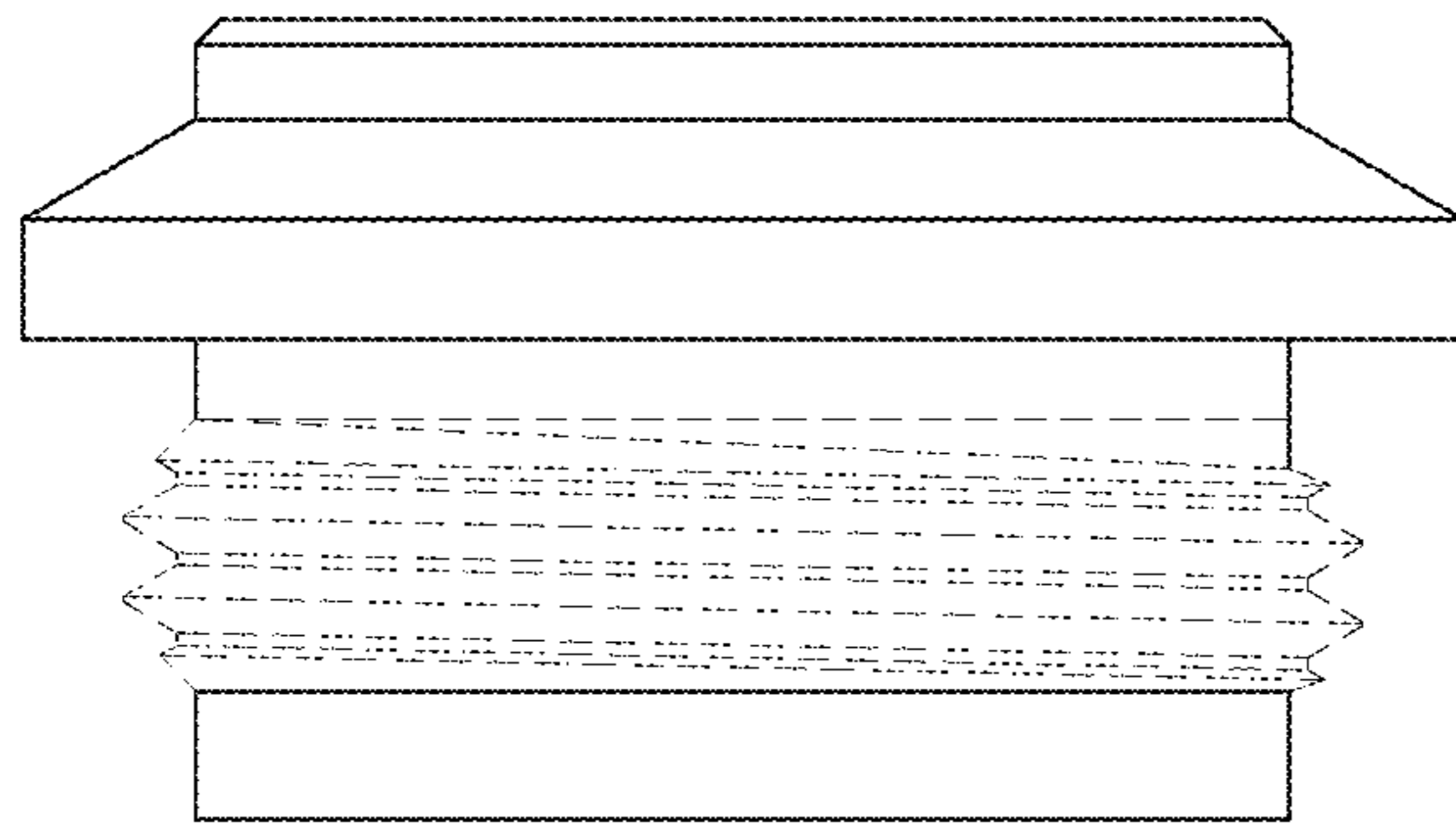


FIG. 3

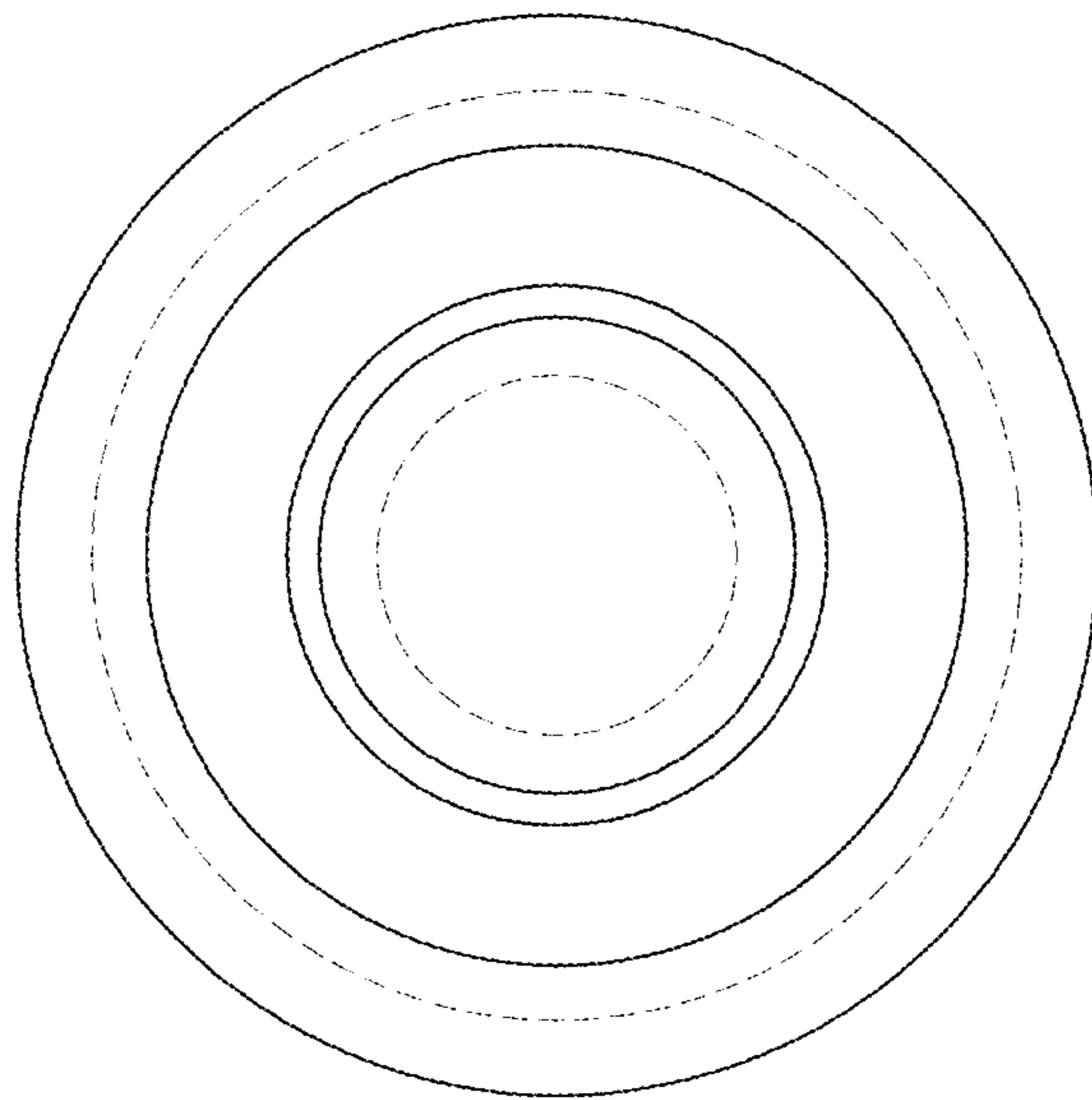


FIG. 2