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

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(54) **CONFIGURABLE CAGED BALL INSERT FOR A DOWNHOLE TOOL**

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(*) Notice: This patent is subject to a terminal disclaimer.

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

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(51) **LOC (9) Cl.** **15-09**

(52) **U.S. Cl.**
USPC **D15/139**

(58) **Field of Classification Search**
USPC . D8/70, 71; D15/21, 138, 139, 140; 166/118, 166/133, 134, 170, 173, 206, 244.1, 316, 166/318, 332.1, 336, 373, 375, 376, 381, 166/386, 387; 175/317; 294/86.3; 340/854.4
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
2,286,126 A	7/1940	Thornhill
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
2,714,932 A	8/1951	Thompson
2,737,242 A	8/1952	Baker
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)

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)

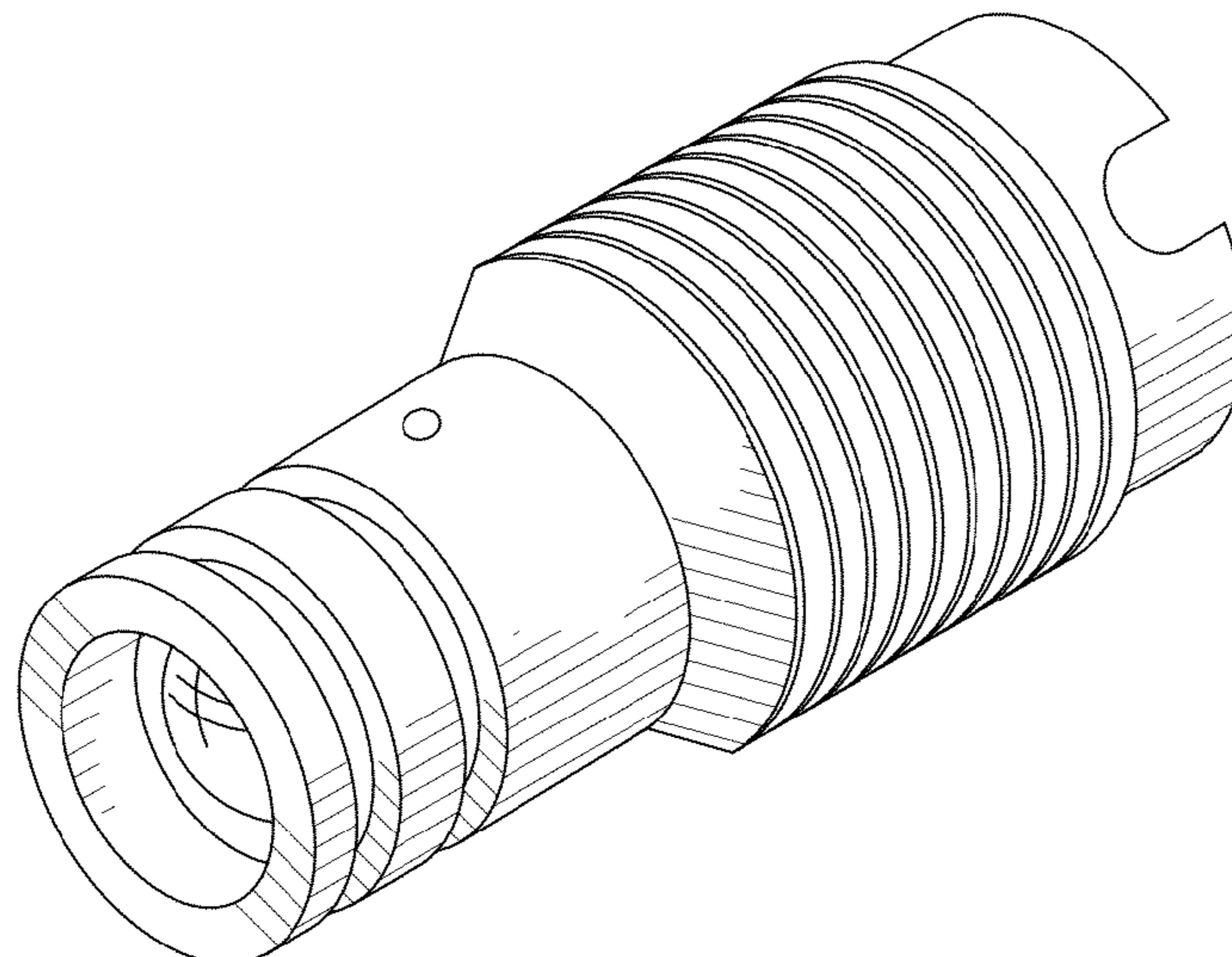
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(57) **CLAIM**
The ornamental design for a configurable caged ball insert for a downhole tool, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a configurable caged ball insert for a downhole tool;
FIG. 2 is a bottom plan view thereof;
FIG. 3 is a front side plan view thereof, wherein the front side plan view and the back side plan views are identical;
FIG. 4 is a top plan view thereof; and,
FIG. 5 is a left side plan view thereof, wherein the left side plan view and the right side plan views are identical.
The broken lines in the drawings depict unclaimed environmental subject matter.

1 Claim, 2 Drawing Sheets



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U.S. PATENT DOCUMENTS					
3,308,895	A	12/1964 Oxford et al.	6,799,633	B2	10/2004 McGregor
3,393,743	A	11/1965 Stanescu	6,834,717	B2	12/2004 Bland
3,273,588	A	9/1966 Dollison	6,851,489	B2	2/2005 Hinds
3,429,375	A	12/1966 Craig	6,902,006	B2	6/2005 Myerley et al.
3,298,440	A	1/1967 Current	6,918,439	B2	7/2005 Dallas
3,356,140	A	12/1967 Young	6,938,696	B2	9/2005 Dallas
3,517,742	A	6/1970 Williams	7,021,389	B2	4/2006 Bishop et al.
3,554,280	A	1/1971 Tucker	7,040,410	B2	5/2006 McGuire et al.
3,687,202	A	8/1972 Young et al.	7,055,632	B2	6/2006 Dallas
3,818,987	A	6/1974 Ellis	7,069,997	B2	7/2006 Coyes et al.
3,851,706	A	12/1974 Ellis	7,107,875	B2	9/2006 Haugen et al.
3,860,066	A	1/1975 Pearce et al.	7,128,091	B2	10/2006 Istre, Jr.
3,926,253	A	12/1975 Duke	7,281,584	B2	10/2007 McGarian et al.
4,049,015	A	9/1977 Brown	D560,109	S *	1/2008 Huang D8/70
4,134,455	A	1/1979 Read	7,337,847	B2	3/2008 McGarian et al.
4,185,689	A	1/1980 Harris	7,350,582	B2	4/2008 McKeachnie et al.
4,250,960	A *	2/1981 Chammas 166/55	7,527,104	B2	5/2009 Branch et al.
4,391,547	A	7/1983 Jackson	7,552,779	B2	6/2009 Murray
4,436,151	A	3/1984 Callihan et al.	D597,110	S *	7/2009 Anitua Aldecoa D15/139
4,437,516	A	3/1984 Cockrell	7,604,058	B2	10/2009 McGuire
4,457,376	A	7/1984 Carmody et al.	7,637,326	B2	12/2009 Bolding et al.
4,493,374	A	1/1985 Magee, Jr.	7,644,767	B2	1/2010 Kalb et al.
4,532,995	A	8/1985 Kaufman	7,644,774	B2	1/2010 Branch et al.
4,554,981	A	11/1985 Davies	D612,875	S *	3/2010 Beynon D15/139
4,566,541	A	1/1986 Moussy et al.	7,673,677	B2	3/2010 King et al.
4,585,067	A	4/1986 Blizzard et al.	D618,715	S *	6/2010 Corcoran D15/140
4,595,052	A	6/1986 Kristiansen	7,740,079	B2	6/2010 Clayton et al.
4,602,654	A	7/1986 Stehling et al.	7,775,286	B2	8/2010 Duphorne
4,688,641	A	8/1987 Knieriemen	7,775,291	B2	8/2010 Jacob
4,708,163	A	11/1987 Deaton	7,784,550	B2	8/2010 Nutley et al.
4,708,202	A	11/1987 Sukup et al.	7,810,558	B2	10/2010 Shkurti et al.
D293,798	S *	1/1988 Johnson D15/140	D629,820	S *	12/2010 Van Ryswyk D15/139
4,776,410	A	10/1988 Perkin et al.	7,866,396	B2	1/2011 Rytlewski
4,784,226	A	11/1988 Wyatt	7,878,242	B2	2/2011 Gray
4,792,000	A	12/1988 Perkin et al.	7,886,830	B2	2/2011 Bolding et al.
4,830,103	A	5/1989 Blackwell et al.	7,900,696	B1 *	3/2011 Nish et al. 166/133
4,893,678	A	1/1990 Stokley et al.	7,909,108	B2	3/2011 Swor et al.
5,020,590	A	6/1991 McLeod	7,909,109	B2	3/2011 Angman et al.
5,082,061	A *	1/1992 Dollison 166/378	D635,429	S *	4/2011 Hakki D8/70
5,095,980	A	3/1992 Watson	7,918,278	B2	4/2011 Barbee
5,113,940	A	5/1992 Glaser	7,921,923	B2	4/2011 McGuire
5,154,228	A	10/1992 Gambertoglio et al.	7,921,925	B2	4/2011 Maguire et al.
5,183,068	A	2/1993 Prosser	7,926,571	B2	4/2011 Hofman
5,188,182	A	2/1993 Echols, III et al.	2001/0040035	A1 *	11/2001 Appleton et al. 166/387
5,207,274	A	5/1993 Streich et al.	2003/0024706	A1	2/2003 Allamon
5,209,310	A	5/1993 Clydesdale	2003/0188860	A1	10/2003 Zimmerman et al.
5,224,540	A	7/1993 Streich et al.	2004/0150533	A1 *	8/2004 Hall et al. 340/854.4
5,230,390	A	7/1993 Zastressek et al.	2005/0173126	A1 *	8/2005 Starr et al. 166/376
5,234,052	A	8/1993 Coone et al.	2006/0001283	A1 *	1/2006 Bakke 294/86.3
5,253,705	A	10/1993 Clary et al.	2006/0011389	A1 *	1/2006 Booth 175/317
5,311,939	A	5/1994 Pringle et al.	2007/0051521	A1	3/2007 Fike et al.
5,316,081	A	5/1994 Baski et al.	2007/0068670	A1 *	3/2007 Booth 166/173
D350,887	S *	9/1994 Sjolander et al. D8/70	2007/0107908	A1	5/2007 Vaidya et al.
5,343,954	A	9/1994 Bohlen et al.	2007/0227745	A1 *	10/2007 Roberts et al. 166/386
D353,756	S *	12/1994 Graves D8/29	2007/0240883	A1 *	10/2007 Telfer 166/375
D355,428	S *	2/1995 Hatcher D15/139	2008/0060821	A1	3/2008 Smith et al.
5,419,399	A	5/1995 Smith	2008/0110635	A1	5/2008 Loretz et al.
5,564,502	A	10/1996 Crow et al.	2009/0126933	A1 *	5/2009 Telfer 166/301
5,593,292	A	1/1997 Ivey	2009/0211749	A1	8/2009 Nguyen et al.
D377,969	S *	2/1997 Grantham D23/262	2010/0064859	A1 *	3/2010 Stephens 81/125
5,803,173	A	9/1998 Fraser, III et al.	2010/0084146	A1	4/2010 Roberts
5,810,083	A	9/1998 Kilgore	2010/0132960	A1	6/2010 Shkurti et al.
D415,180	S *	10/1999 Rosanwo D15/140	2010/0155050	A1	6/2010 Frazier
6,012,519	A	1/2000 Allen et al.	2010/0252252	A1	10/2010 Harris et al.
6,098,716	A	8/2000 Hromas et al.	2010/0263876	A1	10/2010 Frazier
6,142,226	A	11/2000 Vick	2010/0276159	A1	11/2010 Mailand et al.
6,152,232	A	11/2000 Webb et al.	2010/0288503	A1	11/2010 Cuiper et al.
6,167,963	B1	1/2001 McMahan et al.	2011/0005779	A1 *	1/2011 Lembcke 166/387
6,182,752	B1	2/2001 Smith, Jr. et al.	2011/0036564	A1	2/2011 Williamson
6,199,636	B1	3/2001 Harrison	2011/0061856	A1	3/2011 Kellner et al.
6,283,148	B1	9/2001 Spears et al.	2011/0088915	A1	4/2011 Stanojic et al.
6,491,108	B1	12/2002 Slup et al.	2011/0103915	A1	5/2011 Tedeschi
6,629,563	B2	10/2003 Doane	2011/0168404	A1 *	7/2011 Telfer et al. 166/378
6,695,049	B2	2/2004 Ostocke et al.	2011/0198082	A1 *	8/2011 Stromquist et al. 166/298
6,708,770	B2	3/2004 Slup et al.			
6,725,935	B2	4/2004 Szarka et al.			
6,769,491	B2	8/2004 Zimmerman et al.			
6,796,376	B2	9/2004 Frazier			

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

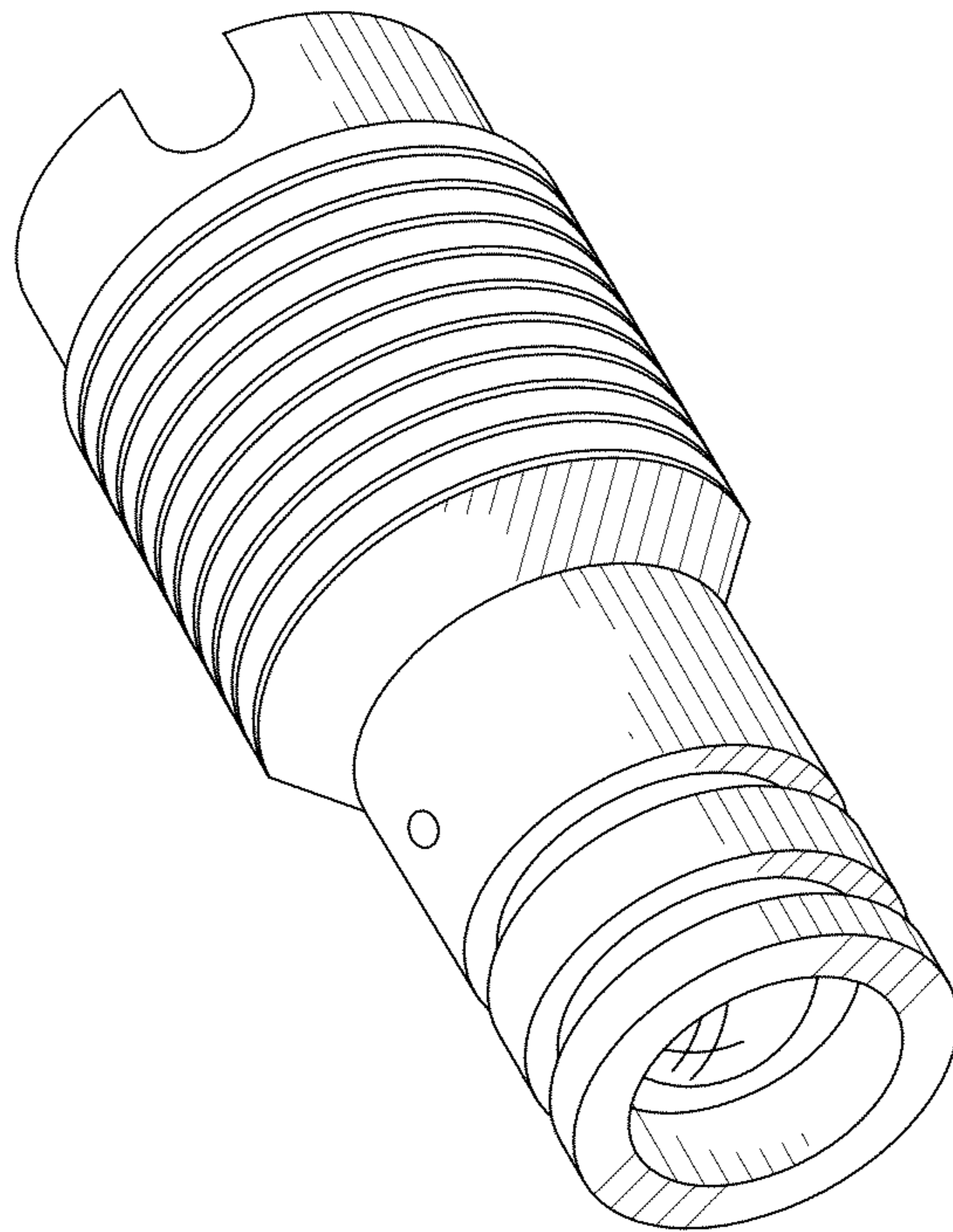


FIG. 1

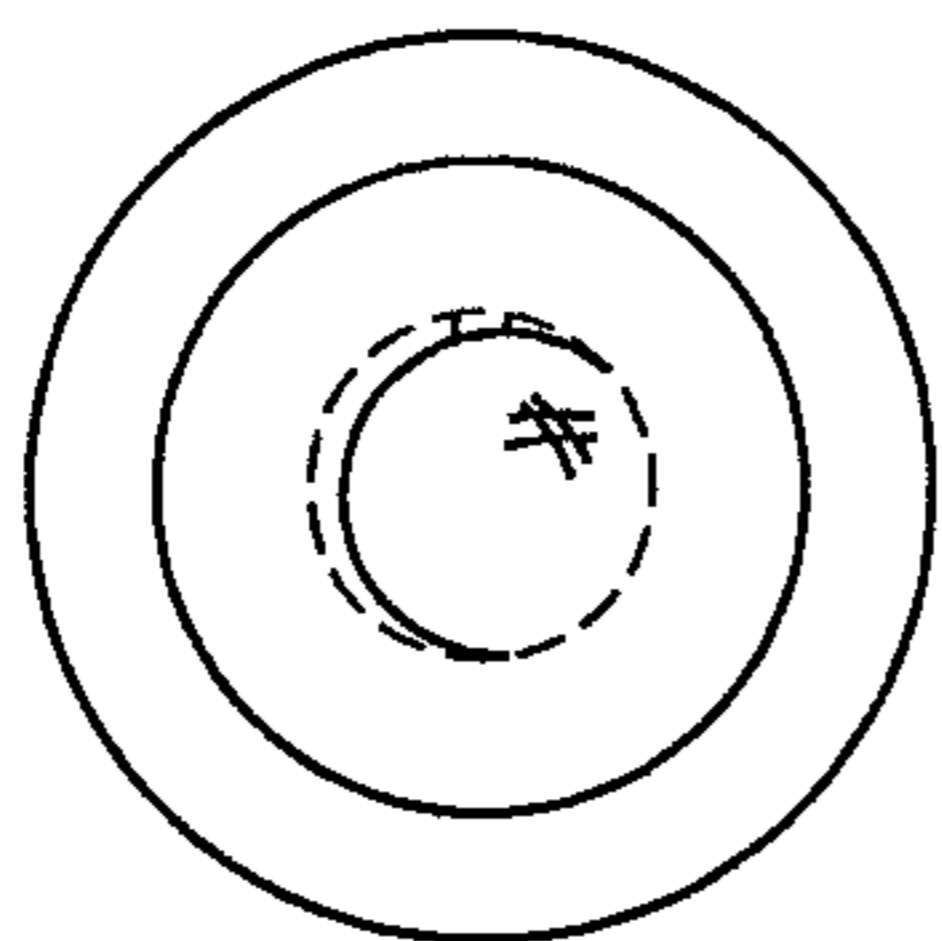


FIG. 2

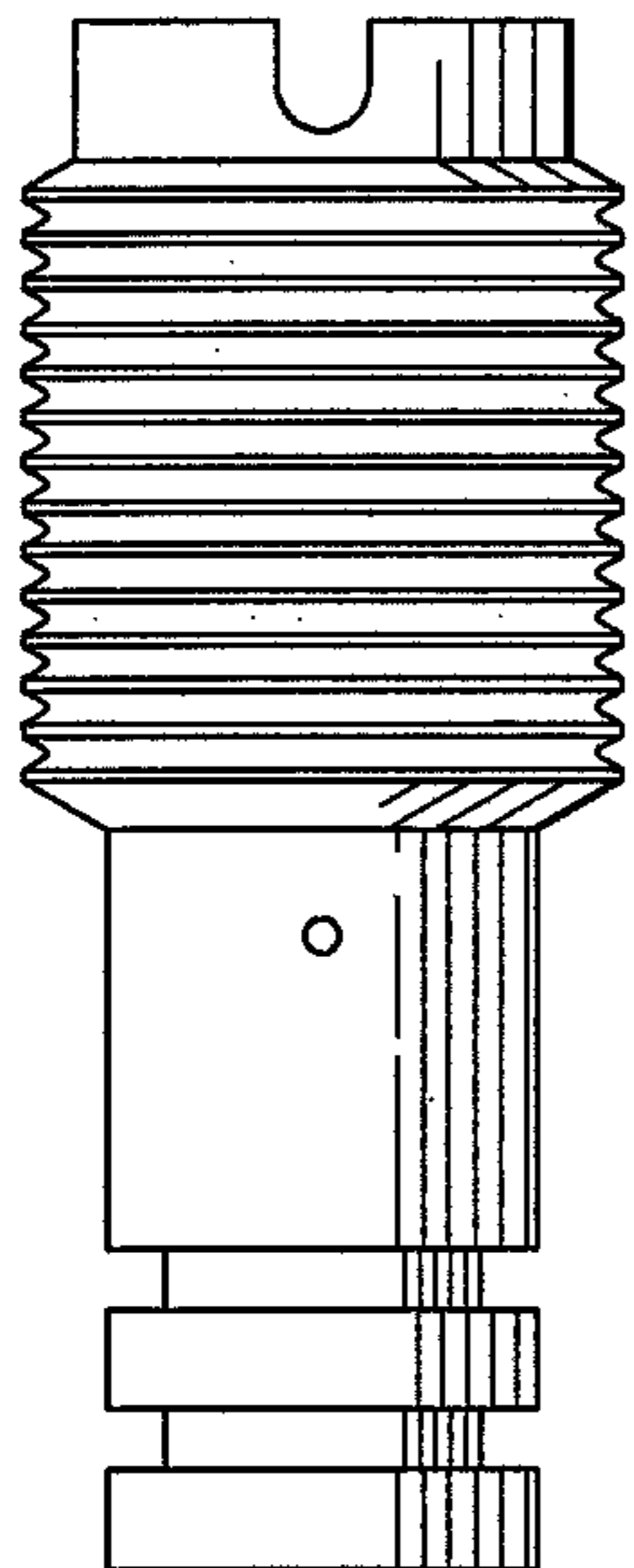


FIG. 3

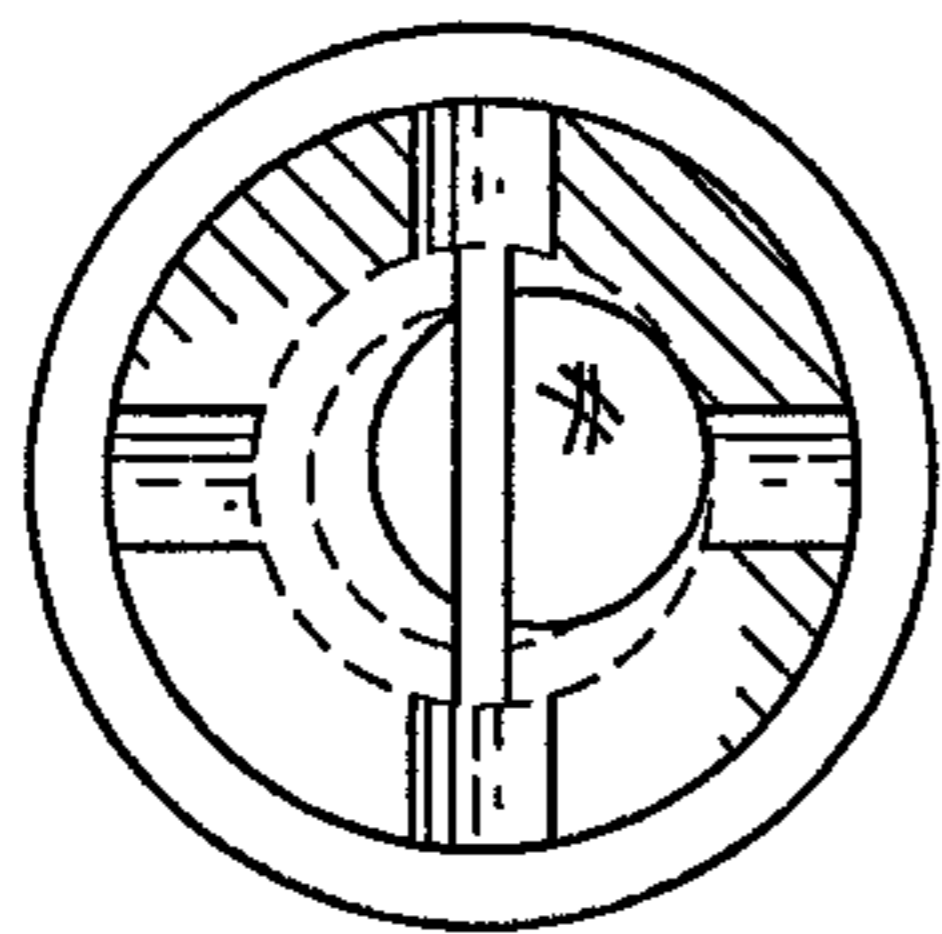


FIG. 4

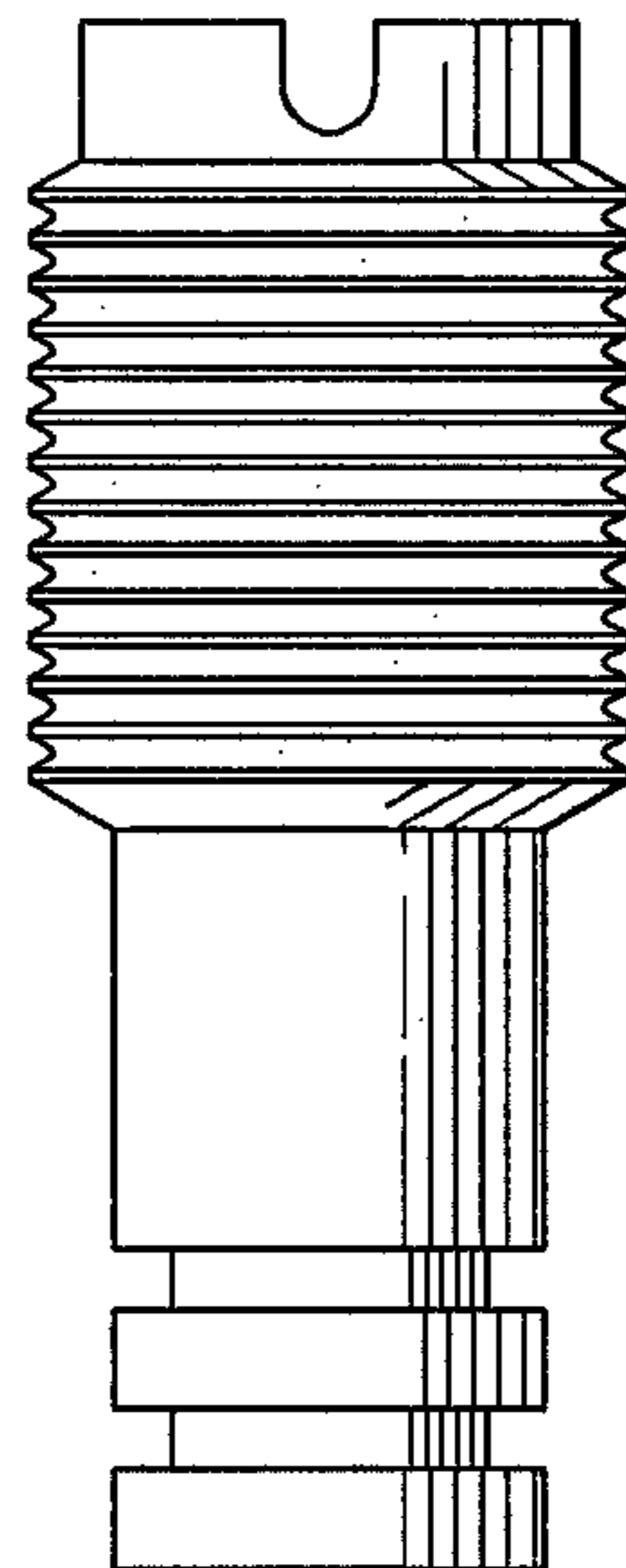


FIG. 5