



US00D502644S

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

(10) **Patent No.: US D502,644 S**
(45) **Date of Patent: ** Mar. 8, 2005**

(54) **CAPTIVE SCREW**

(75) Inventors: **Thomas J Ellis**, Wilmington, DE (US);
Edward A. McCormack, Chadds Ford,
PA (US); **Harry L. Dickerson**,
Downingtown, PA (US); **William R.**
Frame, Brookhaven, PA (US); **Steven**
M. Lubeck, Aldan, PA (US)

(73) Assignee: **Southco, Inc.**, Concordville, PA (US)

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

(21) Appl. No.: **29/201,395**

(22) Filed: **Mar. 15, 2004**

Related U.S. Application Data

(60) Division of application No. 29/189,634, filed on Sep. 9, 2003, now Pat. No. Des. 492,895, which is a division of application No. 29/170,528, filed on Nov. 7, 2002, now Pat. No. Des. 484,031, which is a division of application No. 29/120,902, filed on Mar. 28, 2000, now Pat. No. Des. 472,797, which is a continuation-in-part of application No. 29/107,132, filed on Jun. 28, 1999, now abandoned, which is a continuation-in-part of application No. 29/089,913, filed on Jun. 25, 1998, now abandoned.

(51) **LOC (7) Cl. 08-08**

(52) **U.S. Cl. D8/387; D8/382**

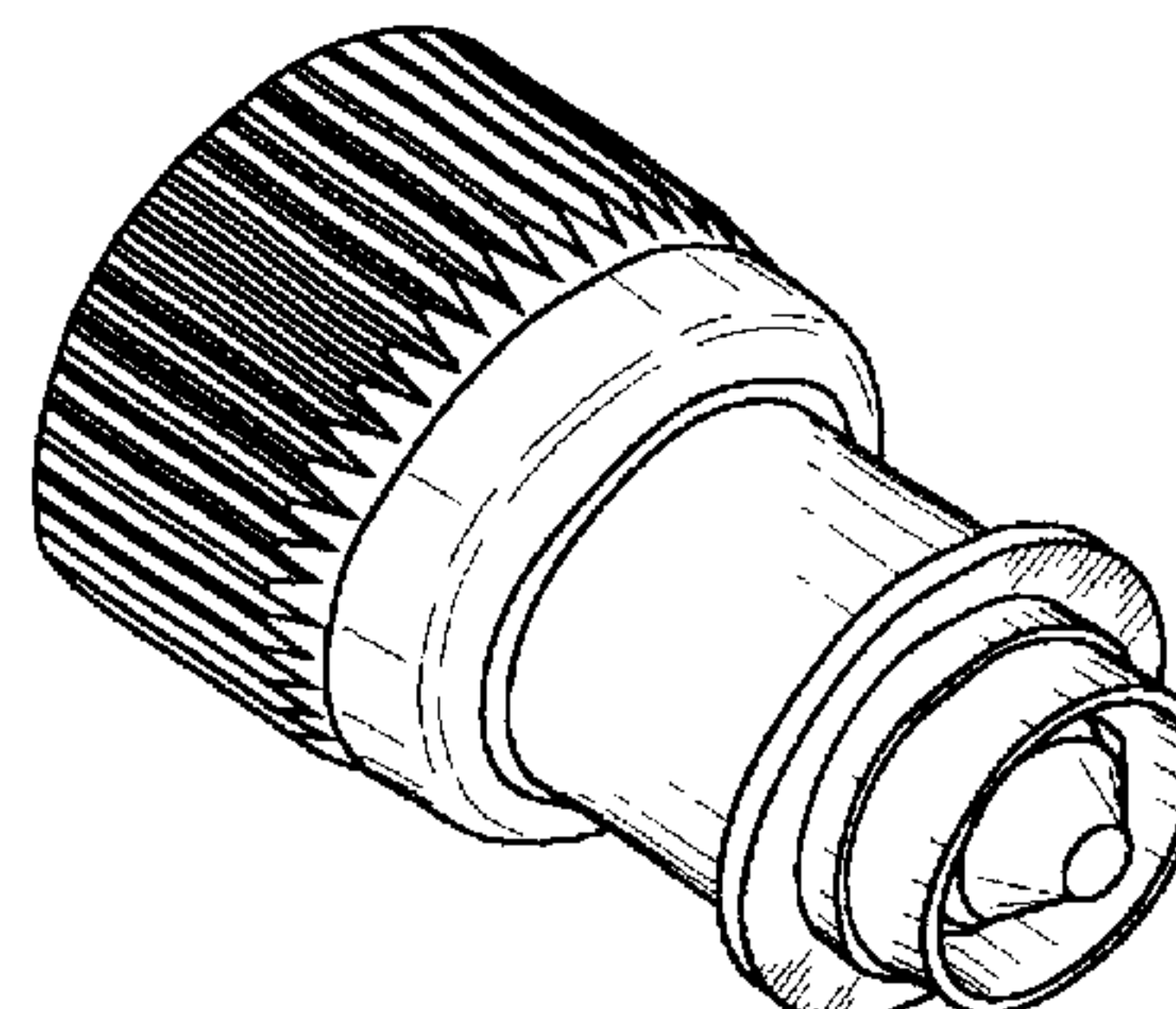
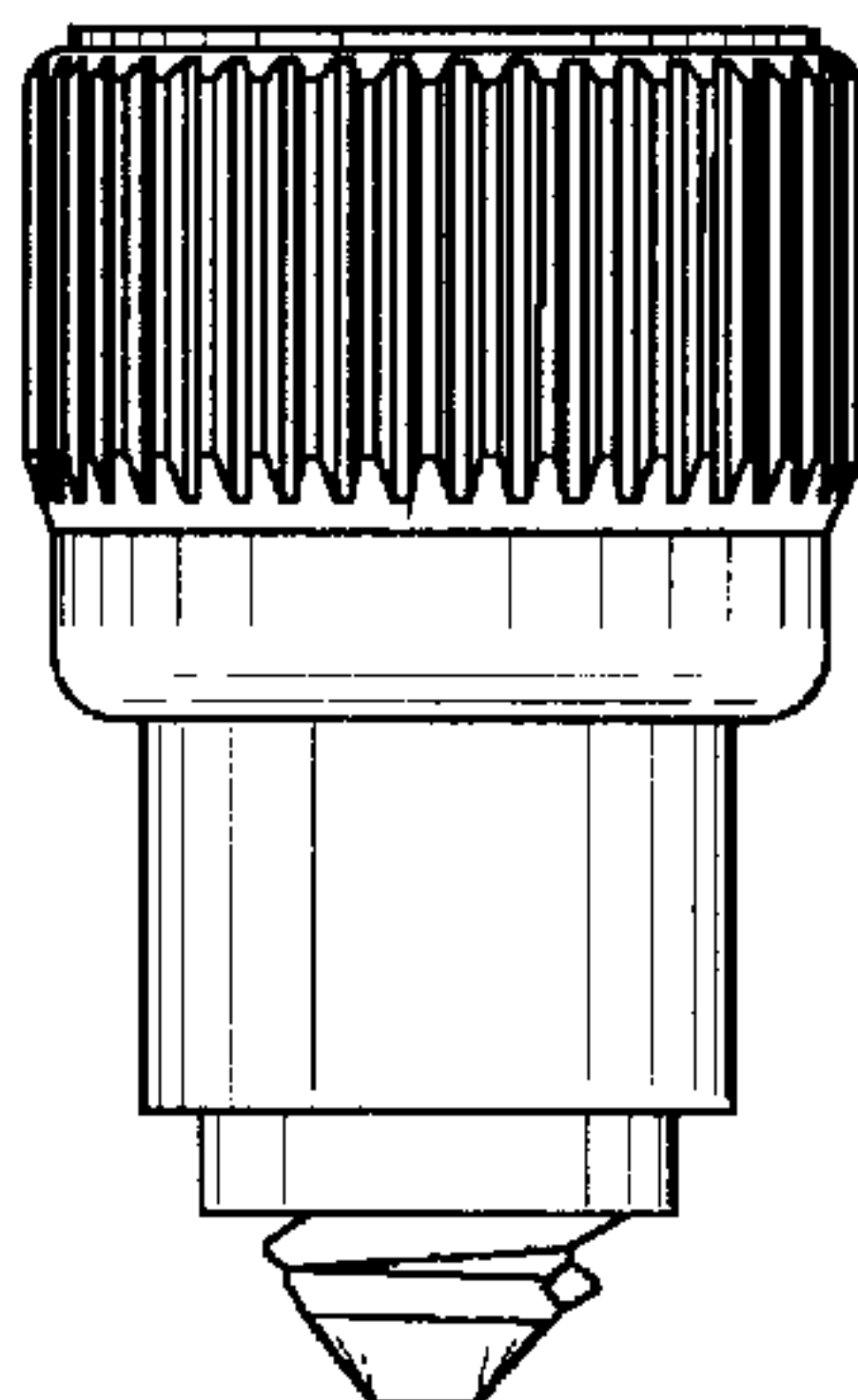
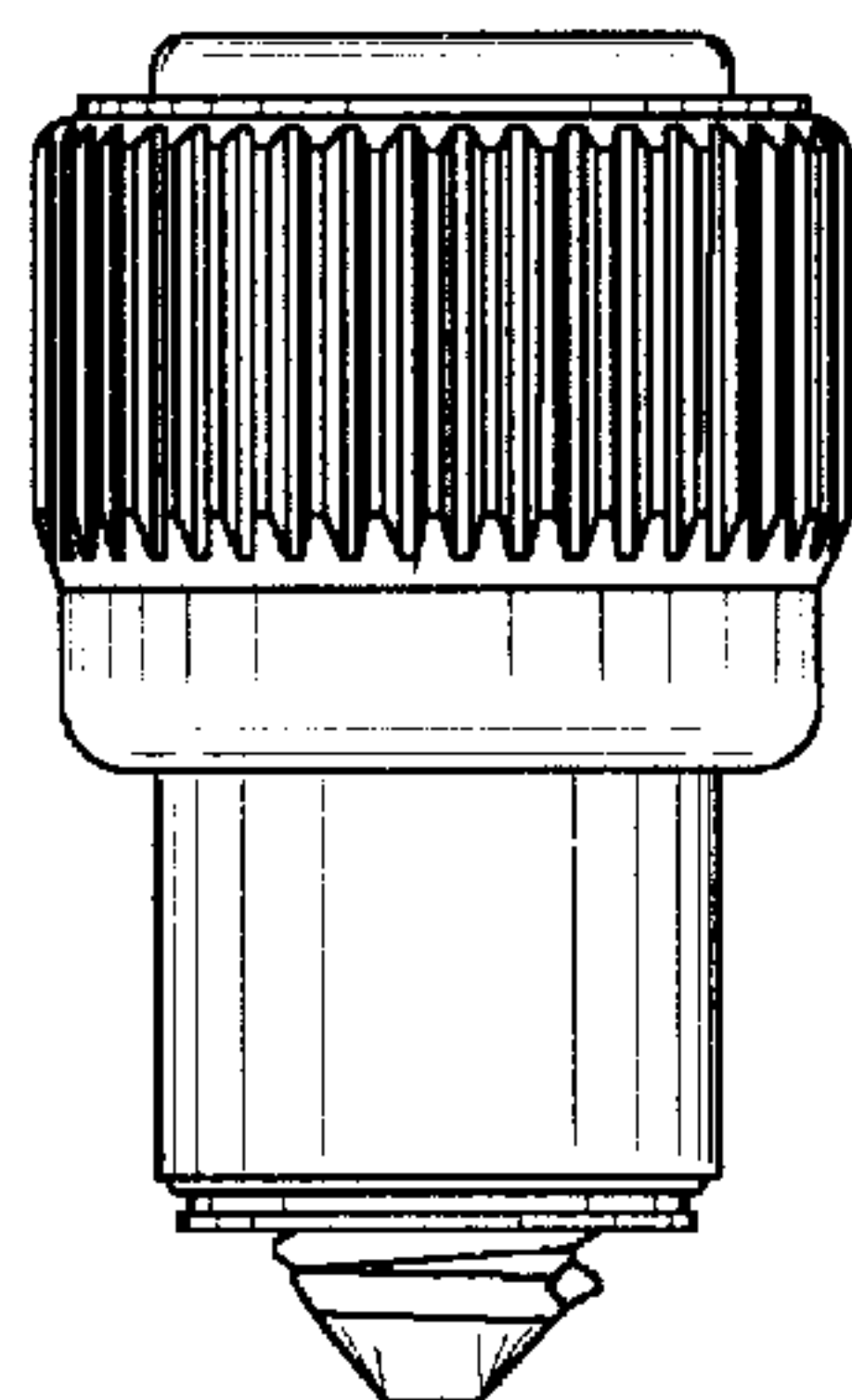
(58) **Field of Search D8/387, 310, 312,**
D8/347, 382, 394, 397; 411/107, 108, 349,
350, 352, 353, 5, 103, 222, 366, 367, 500;
248/501; 16/110.1, 412, 413, 414, 417,
422, 430

(56) **References Cited**

U.S. PATENT DOCUMENTS

748,078 A * 12/1903 Kaisling 292/251
1,166,345 A * 12/1915 Gates 200/338
1,188,420 A * 6/1916 Eadie 411/117
1,664,820 A * 4/1928 Hughes 292/251
2,006,359 A * 7/1935 Lackner 411/145
2,151,255 A * 3/1939 Witchger 411/427
2,331,322 A * 10/1943 Heinick 411/103
D140,862 S * 4/1945 Conlan D13/161

D140,863 S * 4/1945 Conlan D13/178
2,464,133 A * 3/1949 Herbert 411/432
2,470,927 A * 5/1949 Hale, Jr. 411/353
2,503,189 A * 4/1950 Biba, Jr. 464/38
2,553,236 A * 5/1951 Bratfisch 411/34
2,831,520 A * 4/1958 Clarke 411/349
2,900,697 A * 8/1959 Cuss 411/349
2,967,557 A * 1/1961 Tait et al.
2,987,811 A * 6/1961 Acres 29/437
3,033,260 A * 5/1962 Snow 411/103
3,052,942 A * 9/1962 Mulvaney 292/256.71
3,059,736 A * 10/1962 Boyd 403/7
3,126,935 A * 3/1964 Tuozzo 411/352
3,137,336 A * 6/1964 Wing 411/135
3,180,389 A * 4/1965 Frank 411/350
3,195,600 A * 7/1965 Middleton, Jr. 411/352
3,204,680 A * 9/1965 Barry 411/349
3,209,807 A * 10/1965 Ryner 411/361
3,244,212 A * 4/1966 Barry 411/361
3,245,450 A * 4/1966 Sauter 411/349
3,250,559 A * 5/1966 Sommerfeld 292/251
3,263,728 A * 8/1966 Lynch 411/349
3,279,302 A * 10/1966 Modrey 411/350
3,343,581 A * 9/1967 Martin et al. 411/349
3,346,032 A * 10/1967 Tait et al.
3,385,341 A * 5/1968 Garstkiewicz 411/134
3,437,119 A * 4/1969 Dey 411/349
3,465,803 A * 9/1969 Swanstrom et al. 411/349
3,502,130 A * 3/1970 Gulistan 411/361
3,564,563 A * 2/1971 Trotter et al. 411/552
3,718,950 A * 3/1973 Engstrom 411/347
3,912,411 A * 10/1975 Moffat 403/259
3,958,308 A * 5/1976 Gooding 411/554
4,007,516 A * 2/1977 Coules 411/349
4,047,266 A * 9/1977 Bisbing 411/349
4,387,497 A * 6/1983 Gulistan 29/511
4,398,322 A * 8/1983 Ewen 24/595.1
4,472,098 A * 9/1984 Kiefer 411/369
4,492,500 A * 1/1985 Ewing 411/5
D283,591 S * 4/1986 Swanstrom D8/387
4,594,040 A * 6/1986 Molina 411/353
4,602,903 A * 7/1986 Wilburn
4,692,075 A * 9/1987 Metz 411/7
4,915,557 A * 4/1990 Stafford 411/107
4,952,107 A * 8/1990 Dupree 411/103
5,042,880 A * 8/1991 Garuti et al. 301/35.624
5,056,974 A * 10/1991 Dolin 411/102
D324,479 S * 3/1992 Tinz D8/310
5,094,579 A * 3/1992 Johnson 411/107



5,120,168	A	*	6/1992	Padula	.....	411/5
5,209,018	A	*	5/1993	Heinrich	.....	49/449
5,336,028	A	*	8/1994	Yamamoto	.....	411/107
5,338,139	A	*	8/1994	Swanstrom	.....	411/353
5,382,124	A	*	1/1995	Frattarola	.....	411/352
D357,176	S	*	4/1995	Ernest et al.	.....	D8/387
5,429,467	A	*	7/1995	Gugle et al.	.....	411/182
5,537,262	A	*	7/1996	Aoki et al.	.....	359/822
5,544,992	A	*	8/1996	Ciobanu et al.	.....	411/353
5,611,654	A	*	3/1997	Frattarola et al.	.....	411/432
5,642,972	A	*	7/1997	Ellis et al.	.....	411/353
5,667,346	A	*	9/1997	Sharp	.....	411/10
D388,316	S	*	12/1997	McDonough et al.	.....	D8/387
5,741,101	A	*	4/1998	Gulistan	.....	411/107
D400,430	S	*	11/1998	McDonough et al.	.....	D8/387
D402,522	S	*	12/1998	Gillman	.....	D8/82
5,851,095	A	*	12/1998	Ellis et al.	.....	411/353
5,865,582	A	*	2/1999	Ellis et al.	.....	411/353
D411,952	S	*	7/1999	Alderisio, Jr.	.....	D8/387
D417,827	S	*	12/1999	Gillman	.....	D8/14
6,033,168	A	*	3/2000	Creely et al.	.....	411/107

FOREIGN PATENT DOCUMENTS

CA	558456	*	6/1958
CA	766082	*	8/1967
FR	3245450	*	11/1962
FR	2268977	*	4/1975
FR	2578009	*	2/1986
FR	2636384	*	9/1988
GB	626013	*	9/1940
GB	825877	*	12/1959
GB	1579730	*	11/1980

OTHER PUBLICATIONS

Southco Latches and Access Hardware handbook 45NA; pp. B19–B22 and C1–C44.*

Southco Latches and Access Handbook n–47NA; pp. C1–C3.*

Penn Engineering & Manufacturing Corp., Snap–Top Stand– offs, Pem Bulletin SSA–988, (Danboro, PA).*

Penn Engineering & Manufacturing Corp., Fasteners for Use In or With PC Boards, Pem Bulletin K–488, (Danboro, PA).*

Penn Engineering & Manufacturing Corp., “Type PF–11 Self–Clinching Panel Fastener Assembly”, Pem Bulletin PF 11–297, (Danboro, PA).*

Penn Engineering & Manufacturing Corp., Fastener Guide– Pem’s 1996 Catalog, (Danboro, PA).*

Camloc Fasteners, 1993 Catalog, pp. C8–C12 (Hasbrouck Heights, NJ).*

Huck International, Inc., “Captive Fasteners and Rivetless Nut Plates”, Huck 1996 Catalog (California, 90712).*

Huck International Inc., Deutschert, Press–In Captive screw, Floating, Retractable, 1 pg., Lakewood, CA 1994.*

Matdan American Corp., Brochure, (Cincinnati, Ohio).*

Kanebridge Corp., 1994 Catalog, pp. I, II, 211–214, 245–246 (New Jersey).*

* cited by examiner

Primary Examiner—Clare E. Heflin
(74) Attorney, Agent, or Firm—Paul & Paul

(57)

CLAIM

The ornamental design for a captive screw, as shown and described.

DESCRIPTION

FIG. 1 is a side elevation of a captive screw showing a first embodiment of our new design, all remaining sides being identical;

FIG. 2 is a perspective view thereof;

FIG. 3 is a bottom plan view thereof;

FIG. 4 is a top plan view thereof showing a six lobed driver recess;

FIG. 5 is an alternate top plan view thereof showing a combined six lobed/slotted driver recess;

FIG. 6 is an alternate top plan view thereof showing a slotted driver recess;

FIG. 7 is an alternate top plan view thereof showing a Phillips driver recess;

FIG. 8 is an alternate top plan view thereof showing a combined slotted/Phillips driver recess;

FIG. 9 is a side elevational view of the captive screw showing a second embodiment of our new design, the remaining views appearing the same as those of the first embodiment;

FIG. 10 is a side elevation of a captive screw showing a third embodiment of our new design, all remaining sides being identical;

FIG. 11 is a perspective view thereof;

FIG. 12 is a bottom plan view thereof;

FIG. 13 is a top plan view thereof showing a six lobed driver recess;

FIG. 14 is an alternate top plan view thereof showing a combined six lobed/slotted driver recess;

FIG. 15 is an alternate top plan view thereof showing a slotted driver recess;

FIG. 16 is an alternate top plan view thereof showing a Phillips driver recess;

FIG. 17 is an alternate top plan view thereof showing a combined slotted/Phillips driver recess;

FIG. 18 is a side elevational view of the captive screw showing a fourth embodiment of our new design, the remaining views appearing the same as those of the third embodiment;

FIG. 19 is a side elevation of a captive screw showing a fifth embodiment of our new design, all remaining sides being identical;

FIG. 20 is a perspective view thereof;

FIG. 21 is a bottom plan view thereof;

FIG. 22 is a top plan view thereof showing a six lobed driver recess;

FIG. 23 is an alternate top plan view thereof showing a combined six lobed/slotted driver recess;

FIG. 24 is an alternate top plan view thereof showing a slotted driver recess;

FIG. 25 is an alternate top plan view thereof showing a Phillips driver recess;

FIG. 26 is an alternate top plan view thereof showing a combined slotted/Phillips driver recess; and,

FIG. 27 is a side elevational view of the captive screw showing a sixth embodiment of our new design, the remaining views appearing the same as those of the fifth embodiment.

It is understood that for each alternate top plan view in each embodiment in the drawings, the bottom plan, perspective and side elevations are identical to those shown.

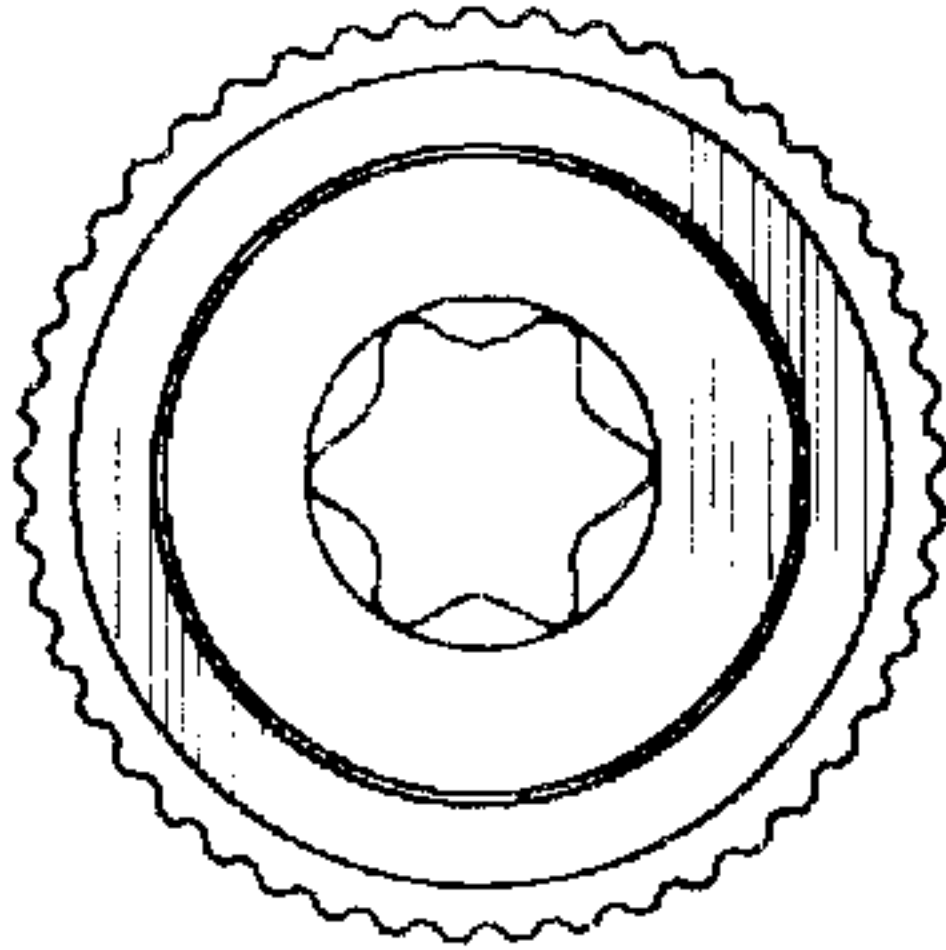


Figure 4

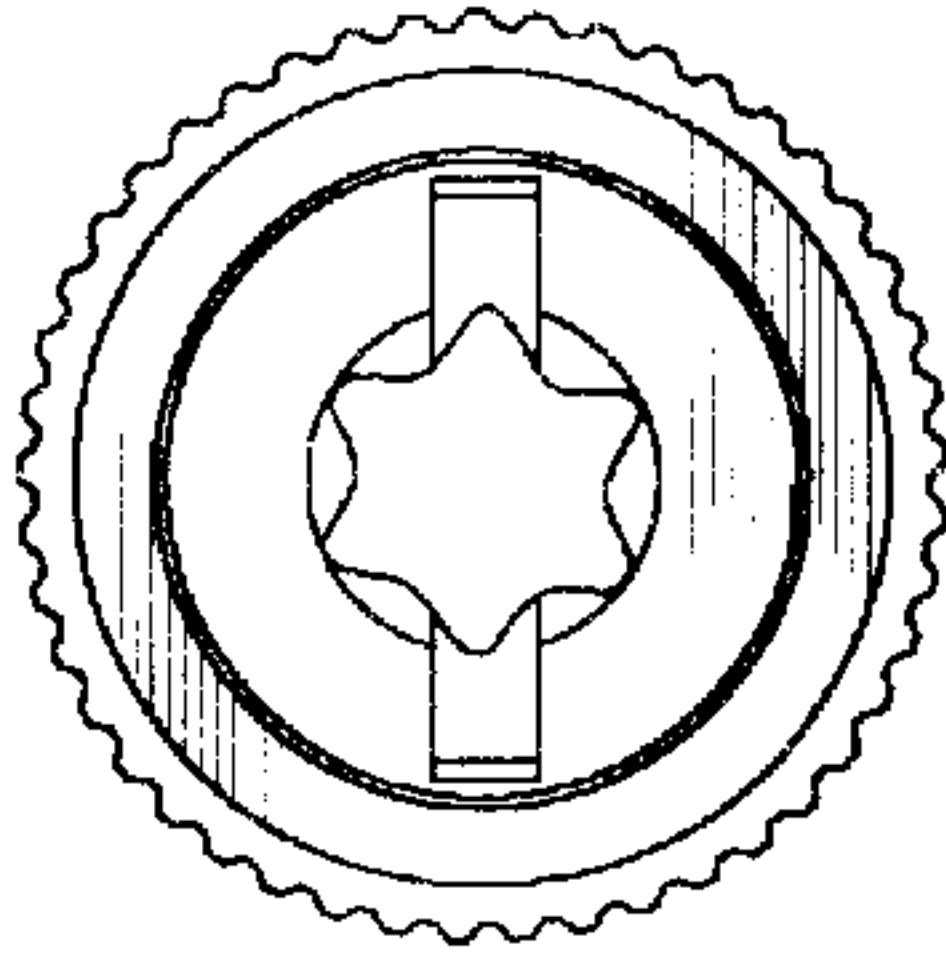


Figure 5

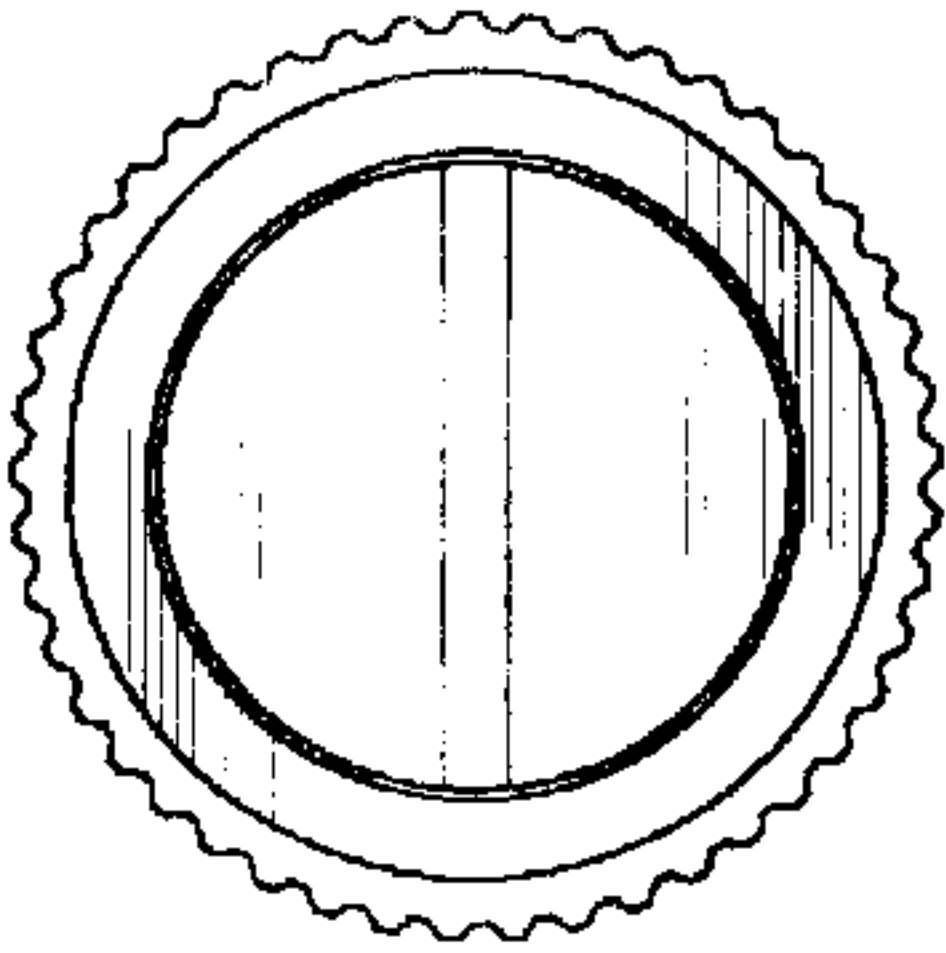


Figure 6

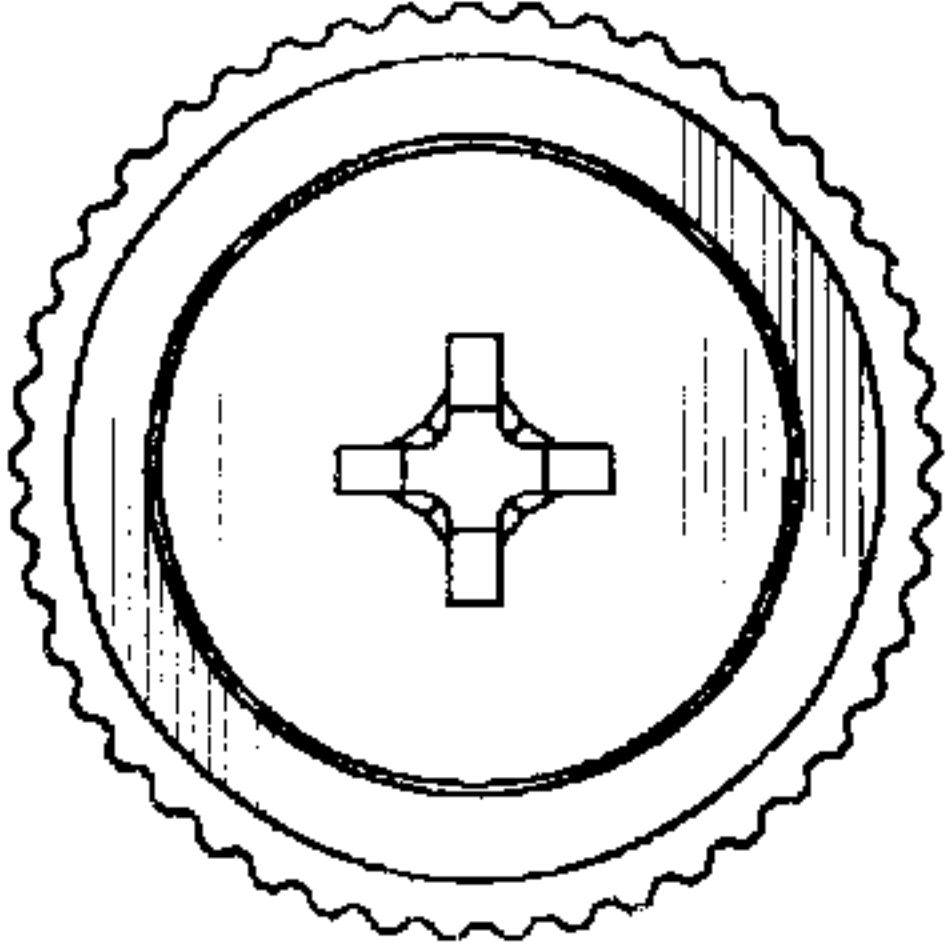


Figure 7

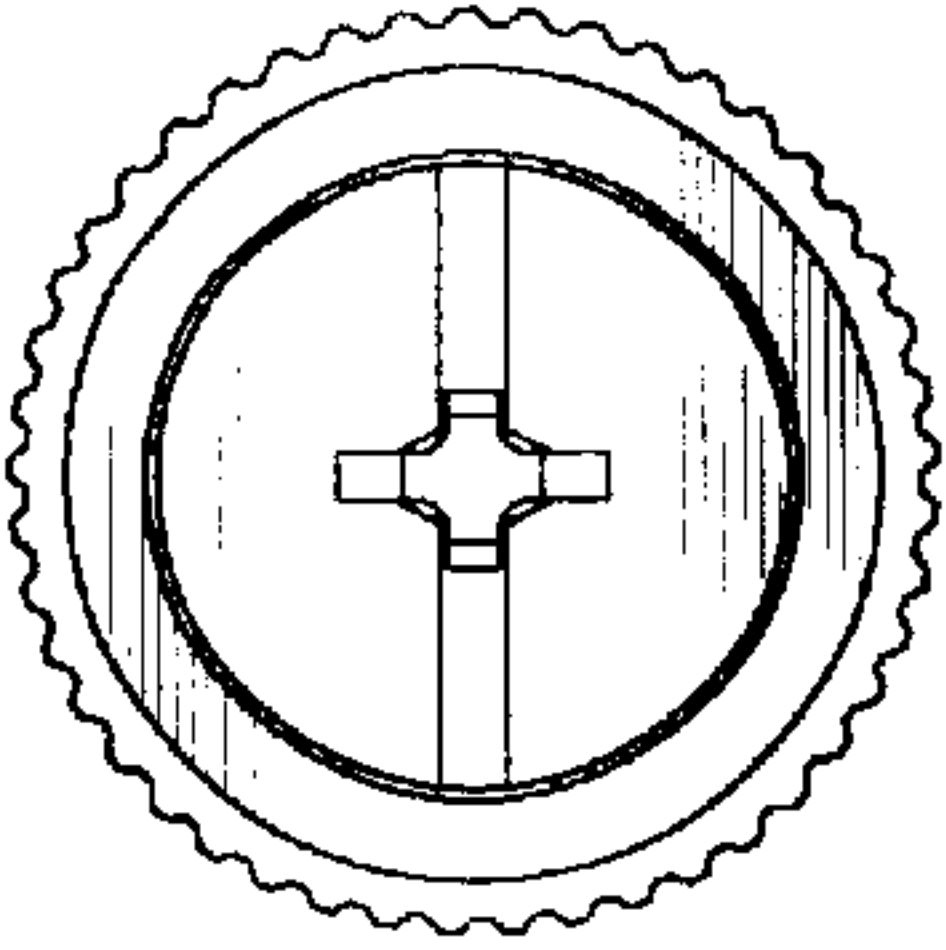


Figure 8

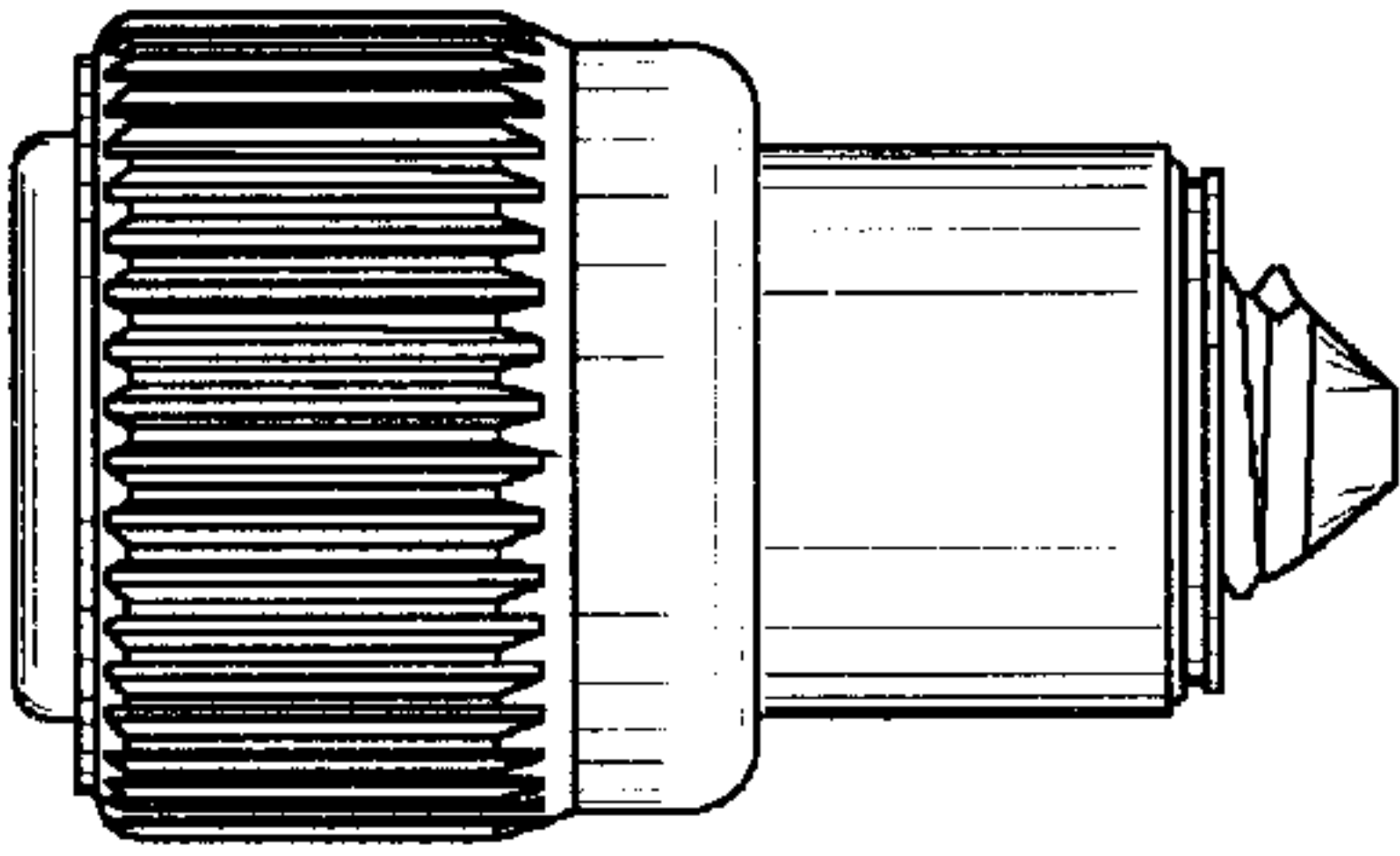


Figure 9

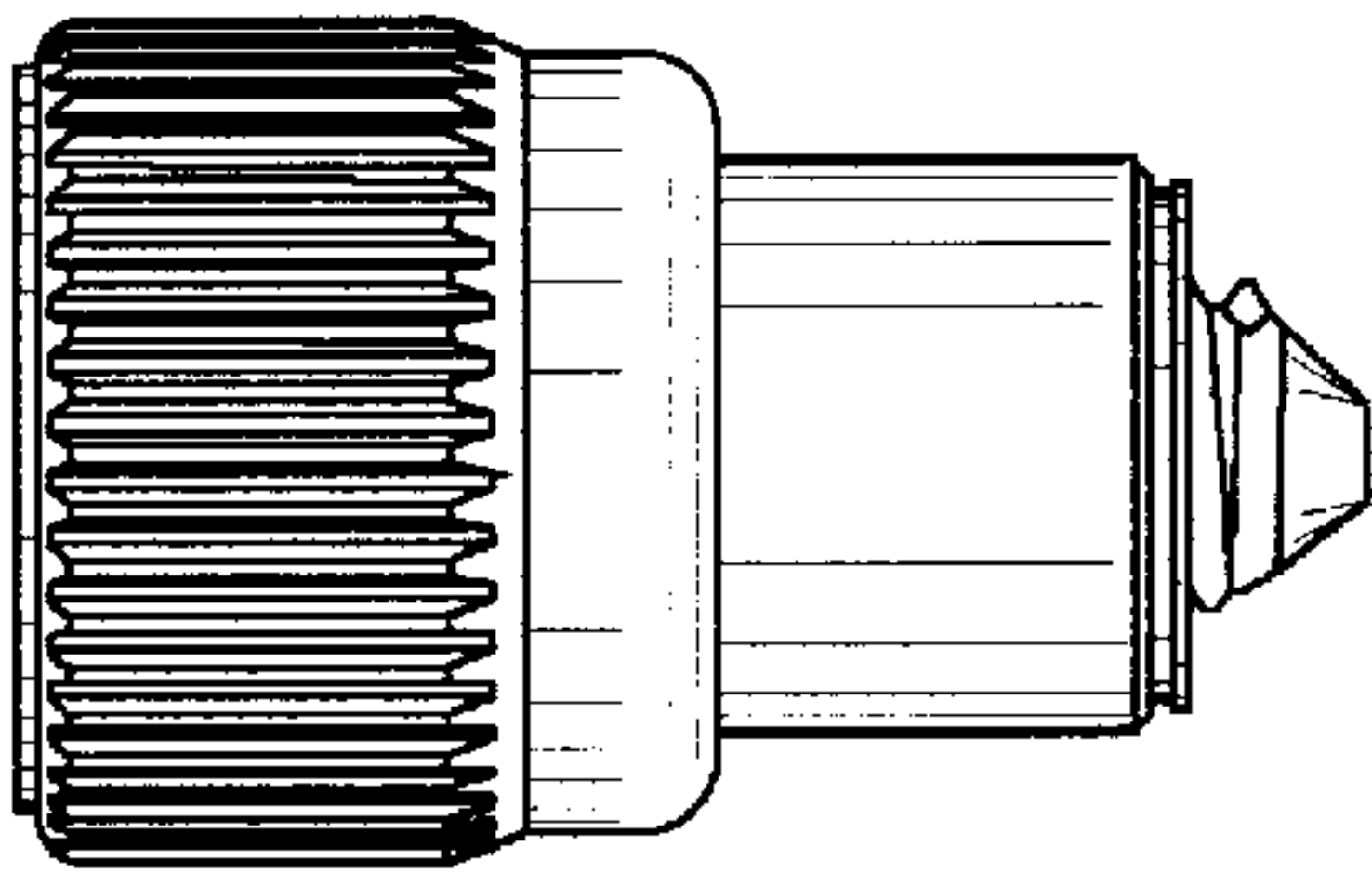


Figure 1

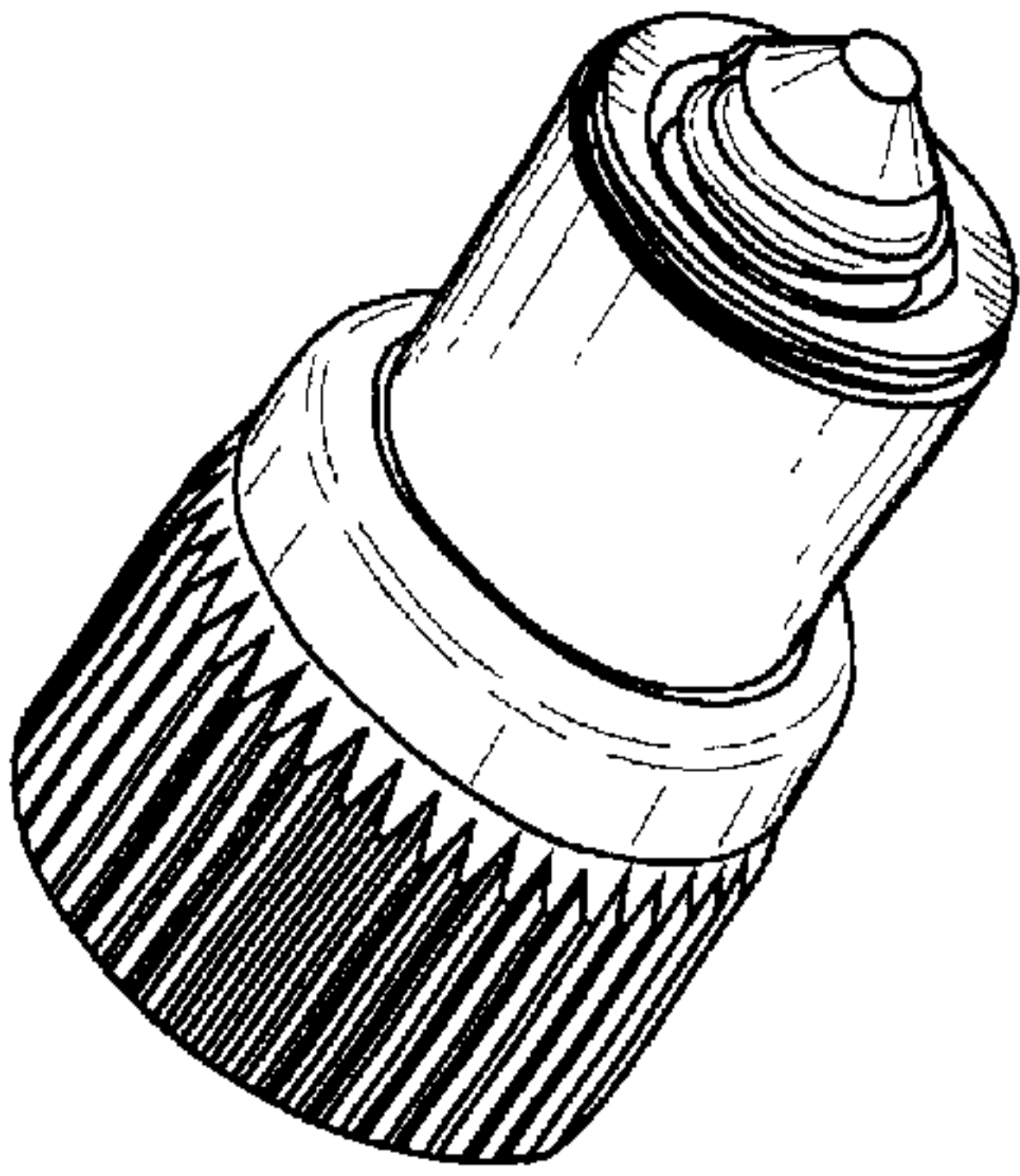


Figure 2

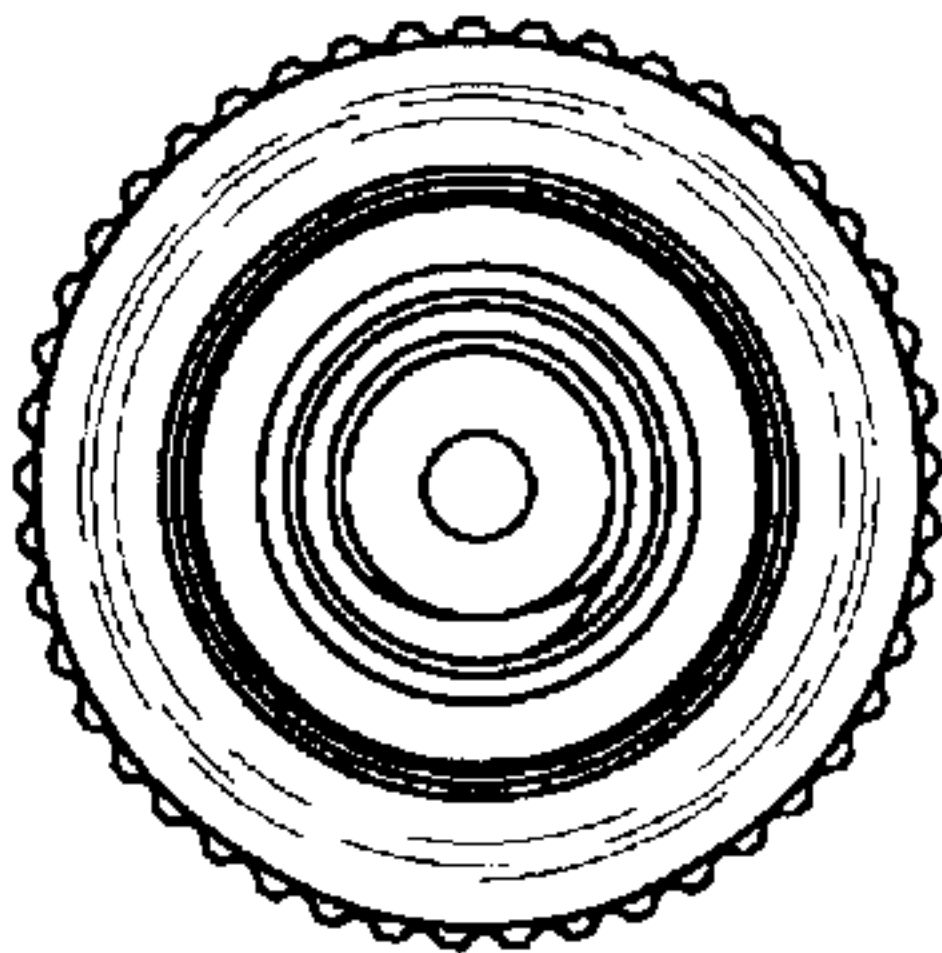


Figure 3

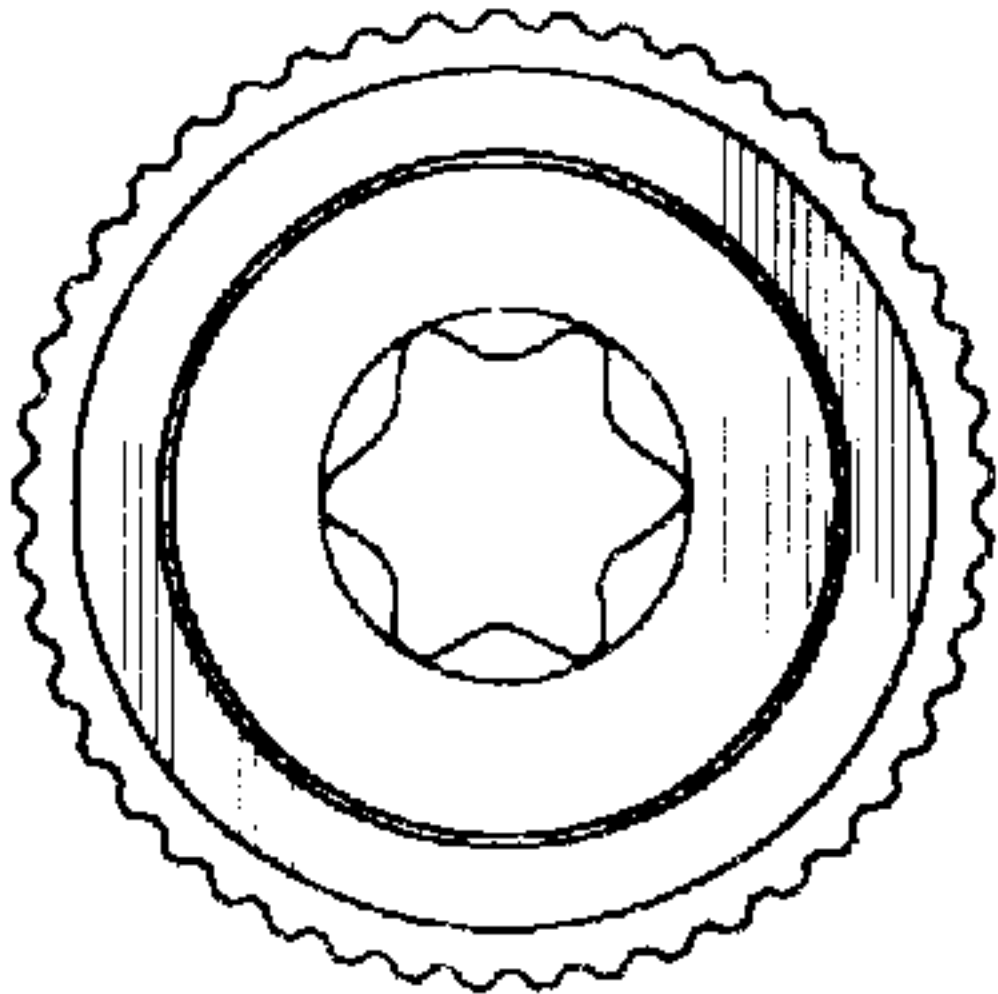


Figure 13

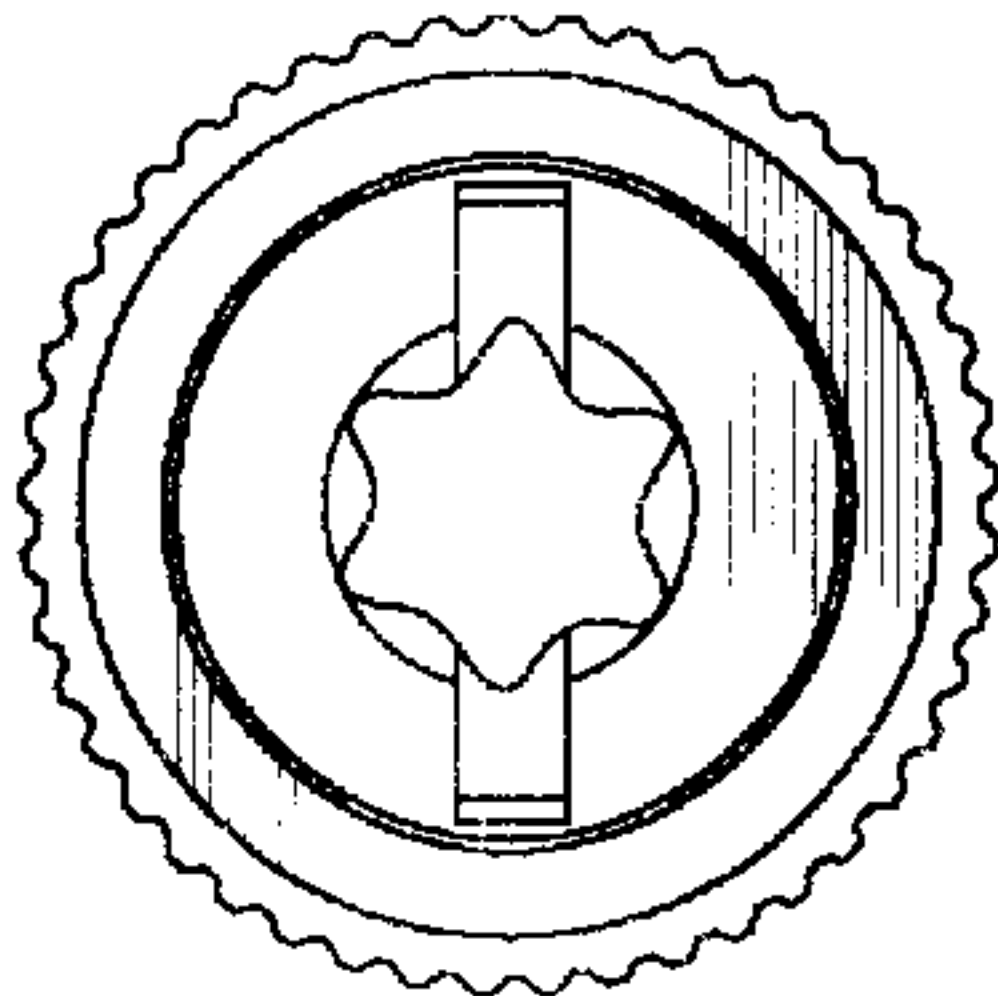


Figure 14

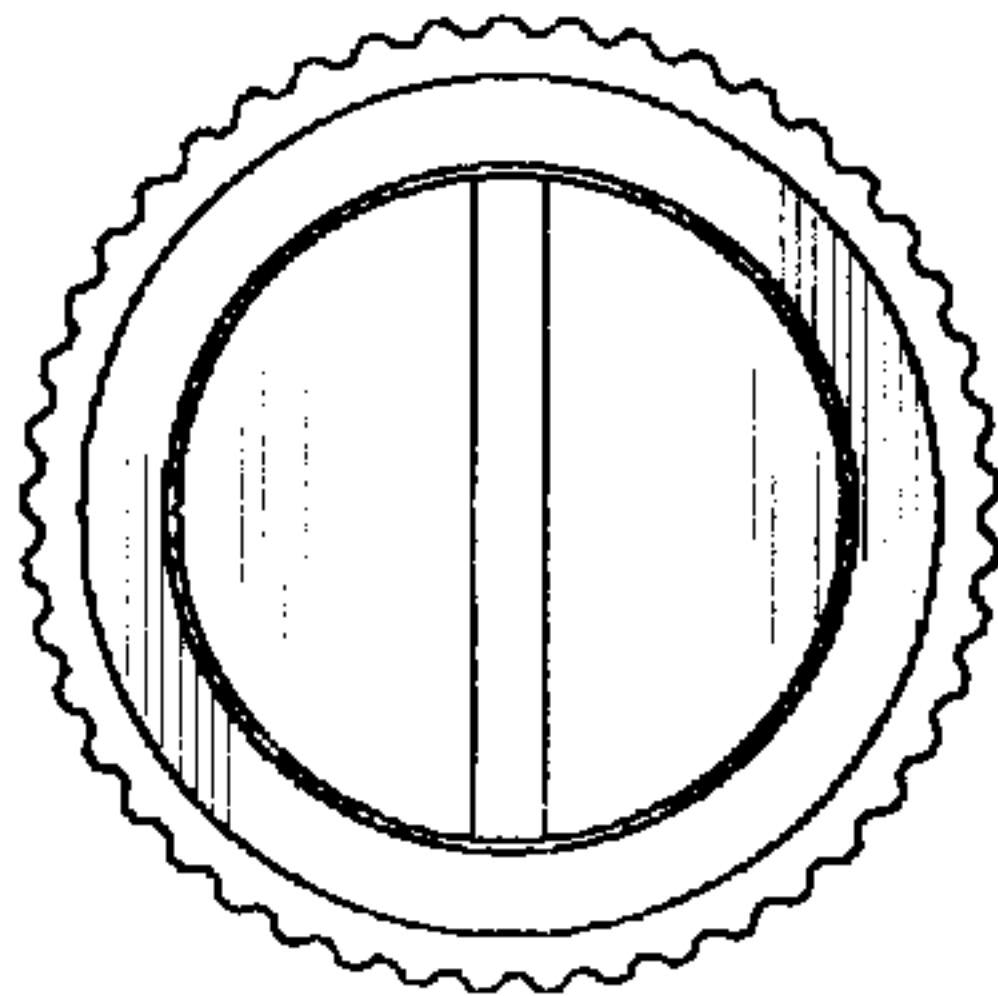


Figure 15

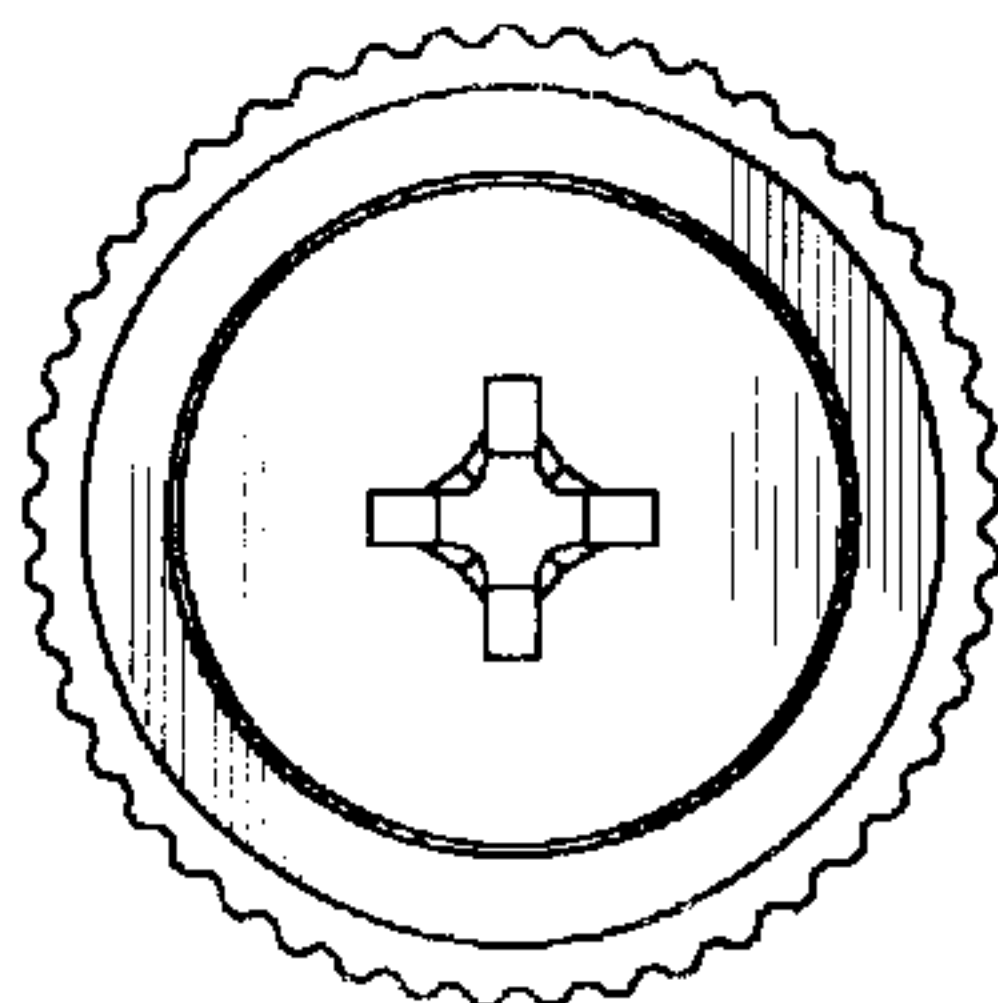


Figure 16

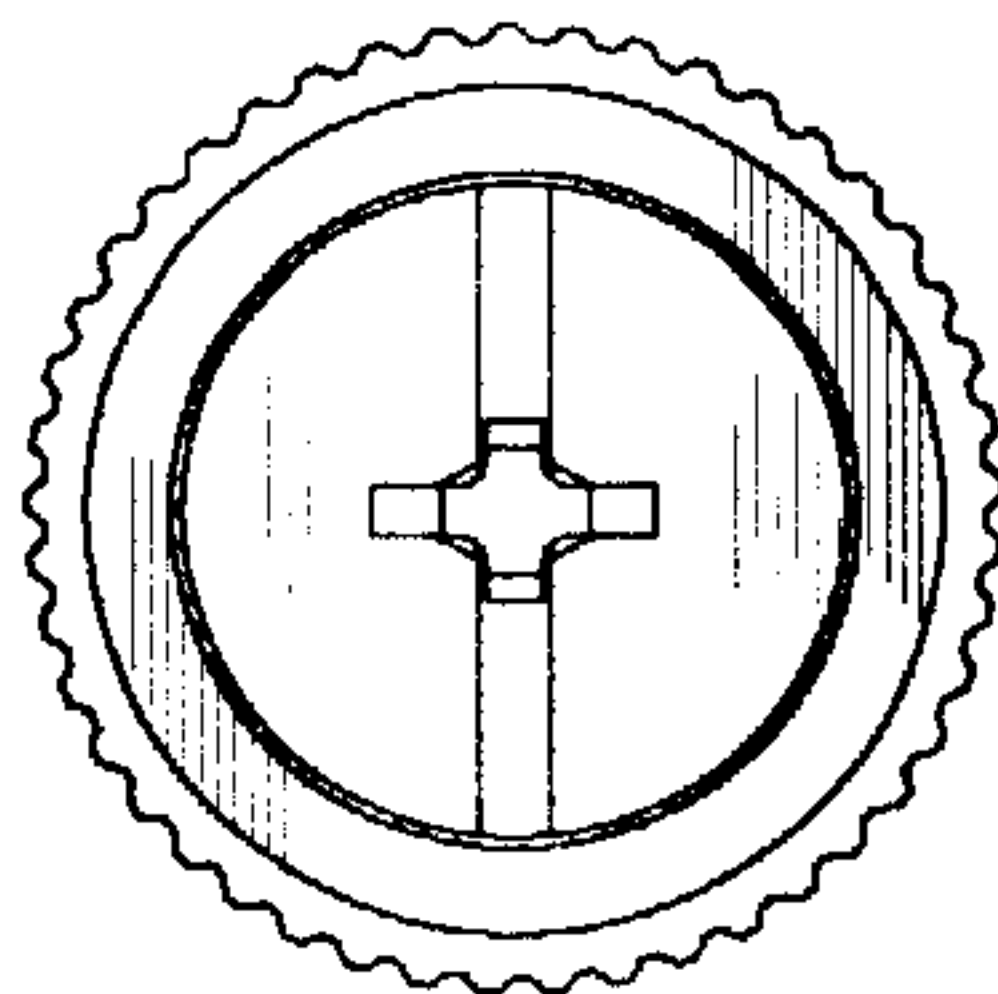


Figure 17

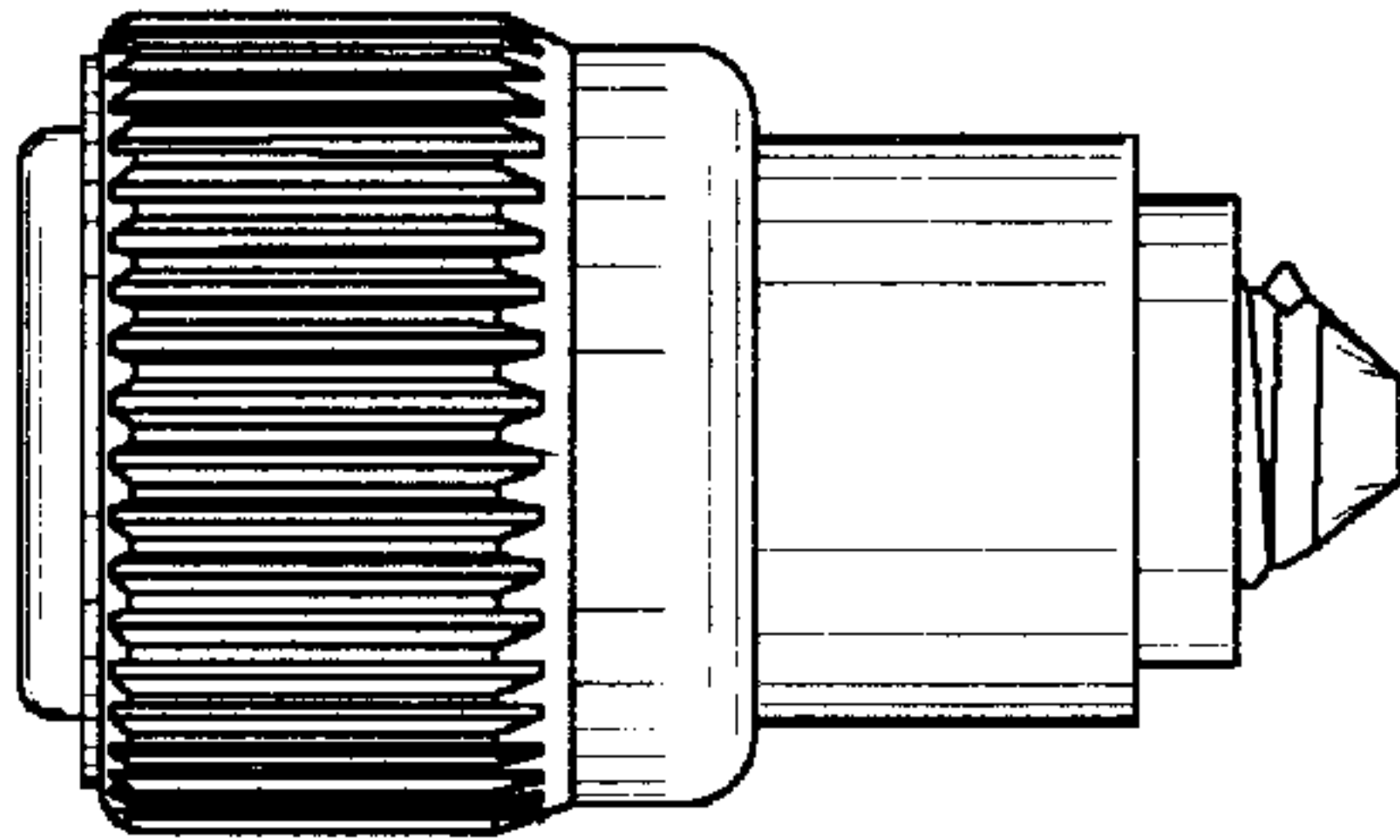


Figure 18

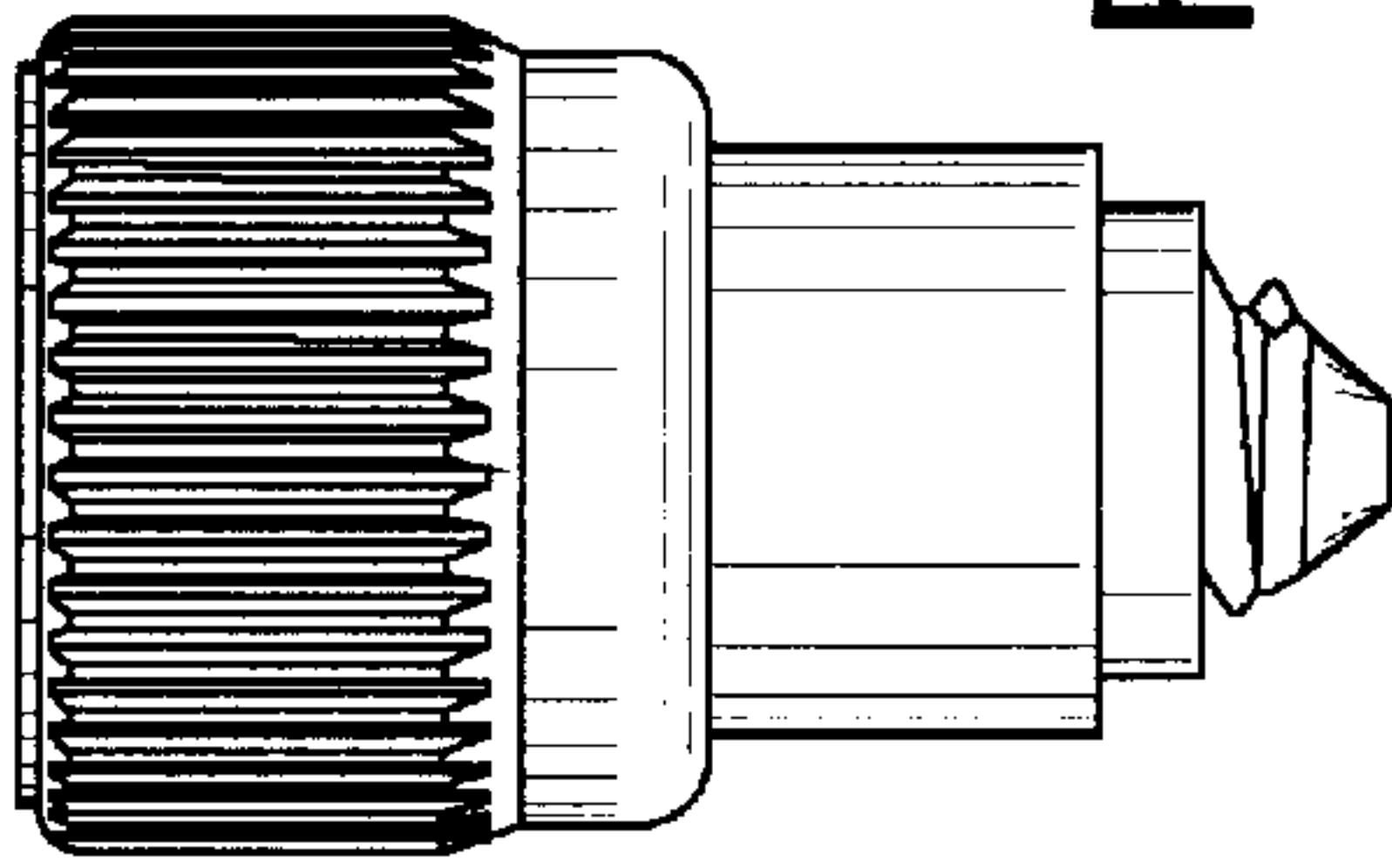


Figure 10

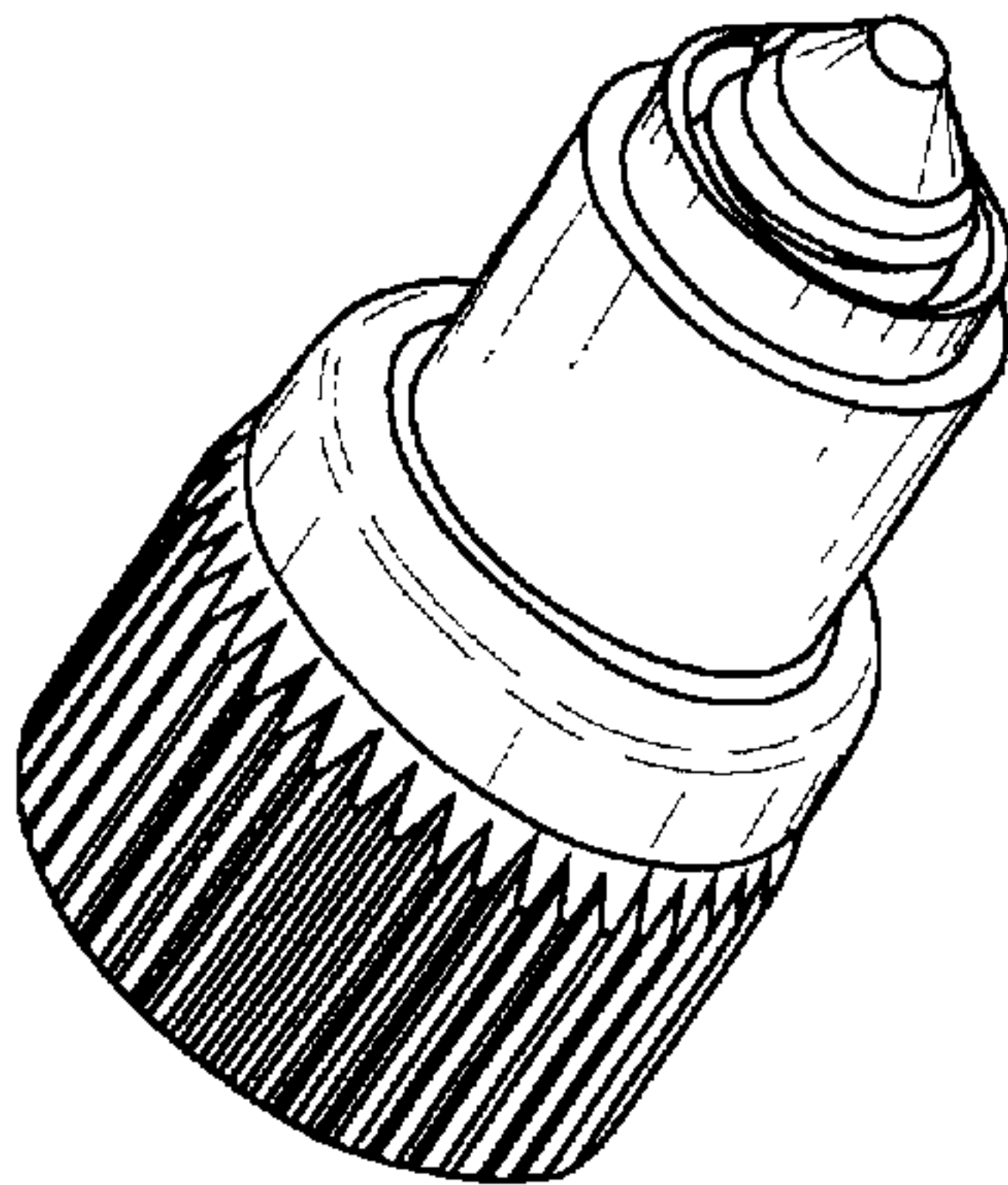


Figure 11

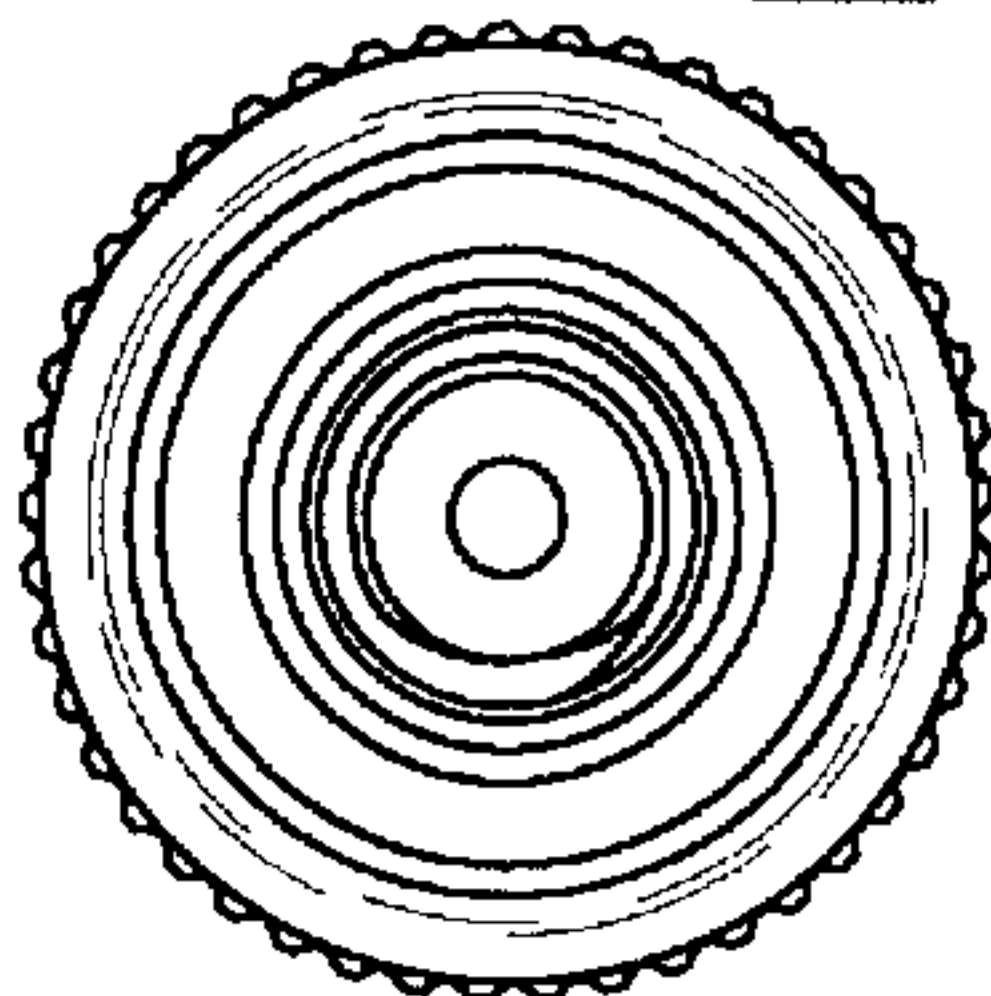


Figure 12

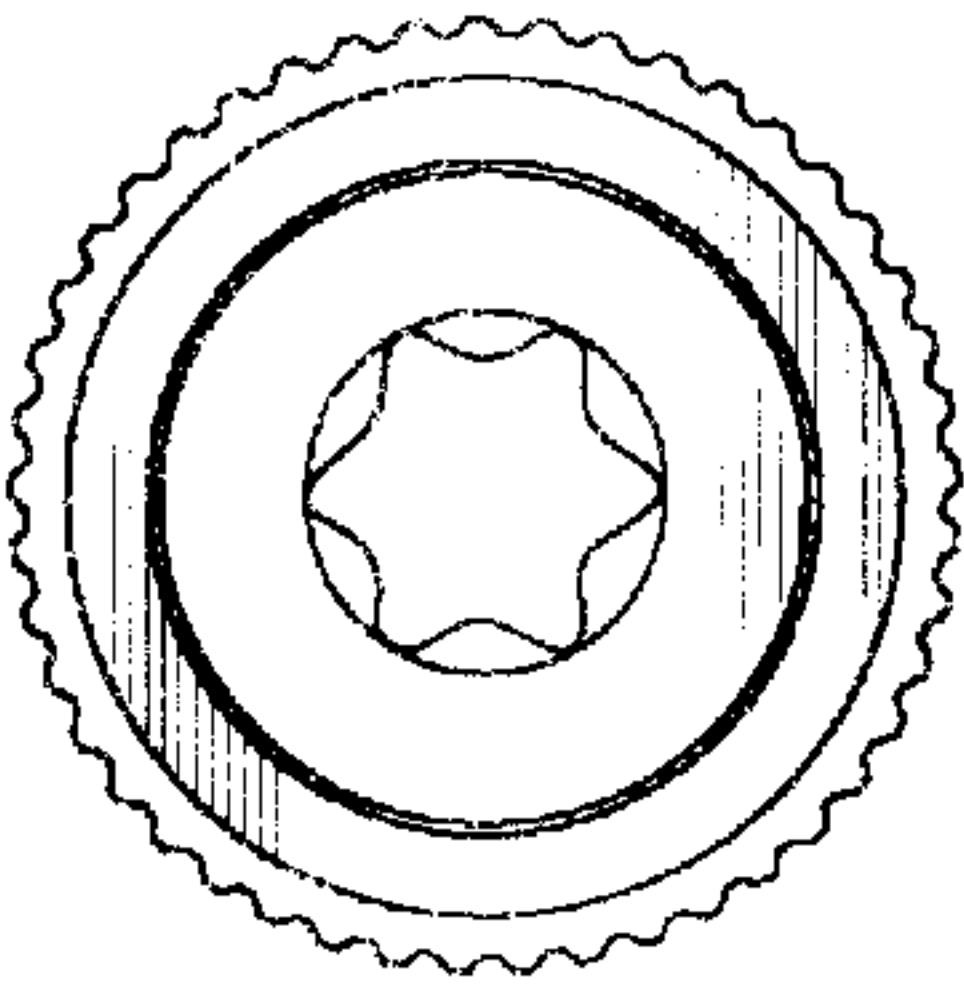


Figure 22

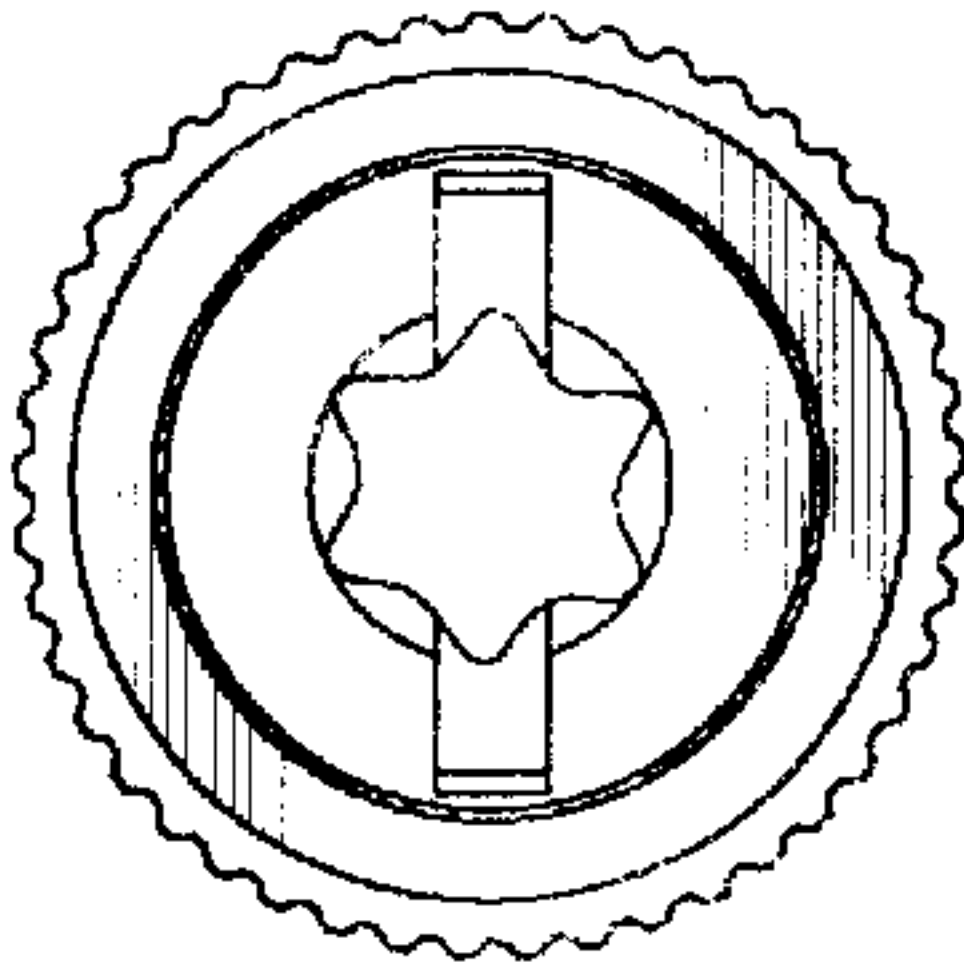


Figure 23

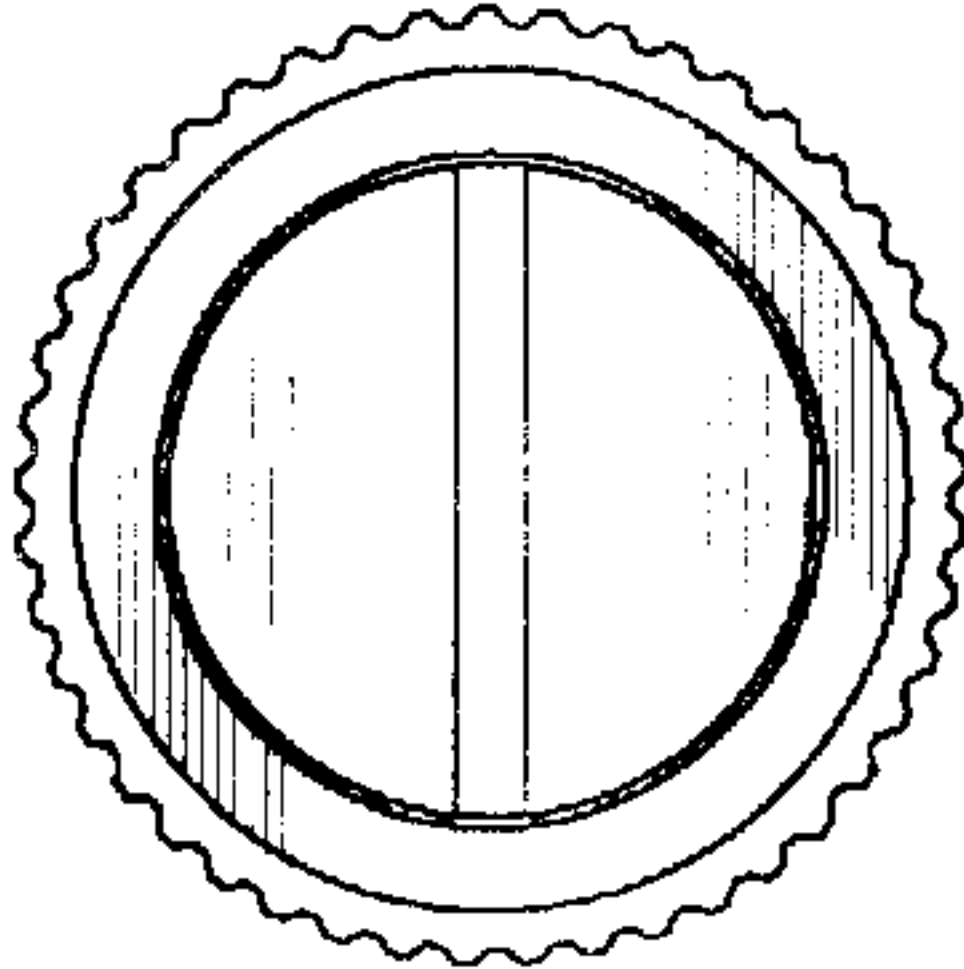


Figure 24

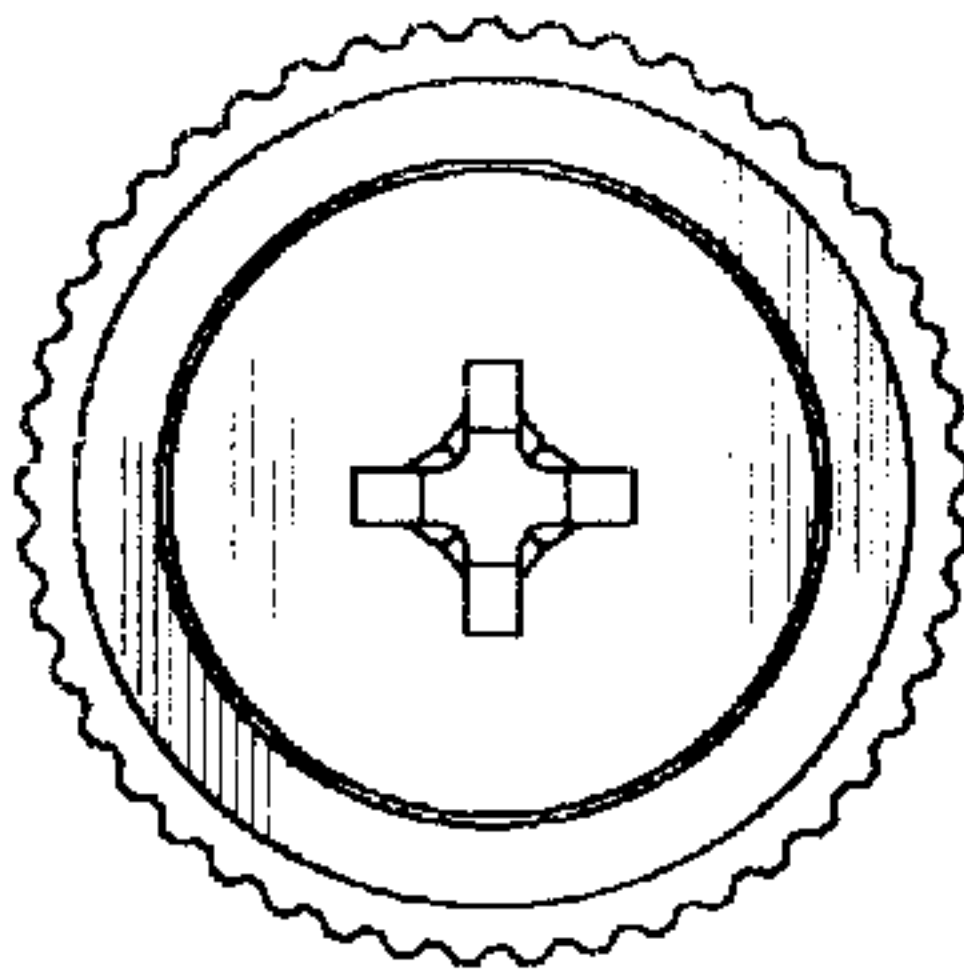


Figure 25

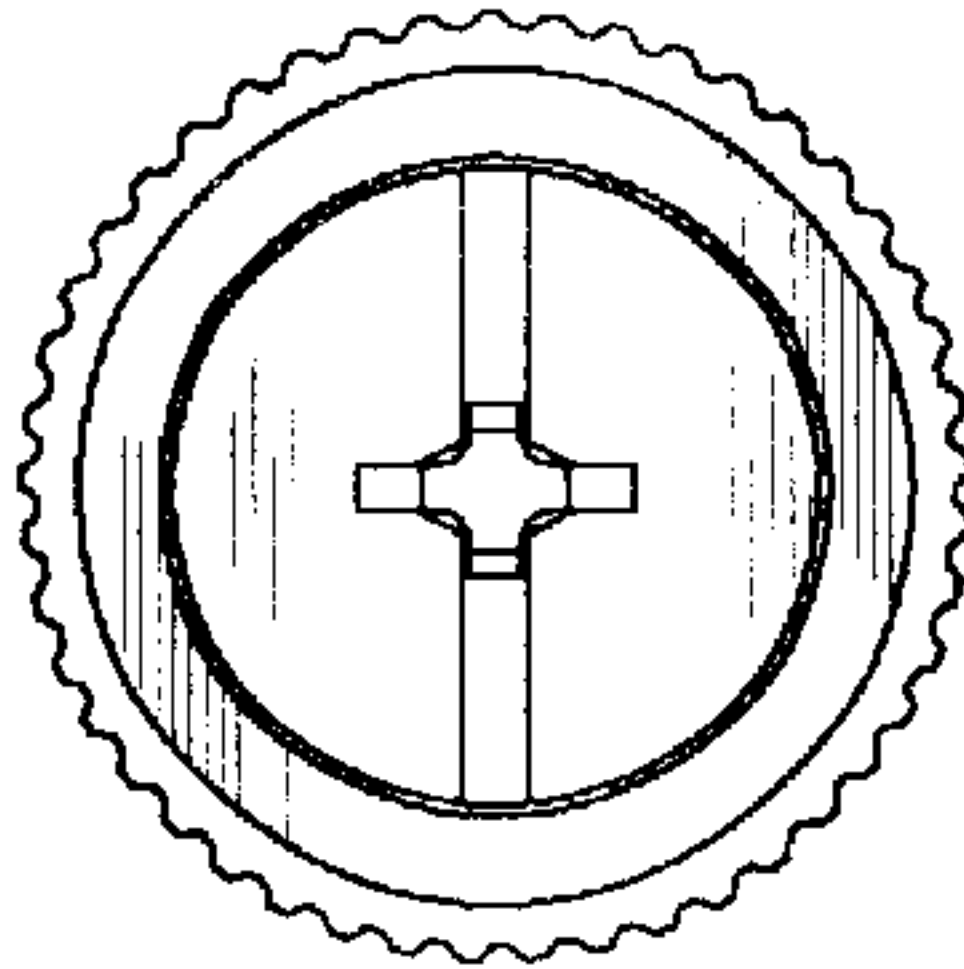


Figure 26

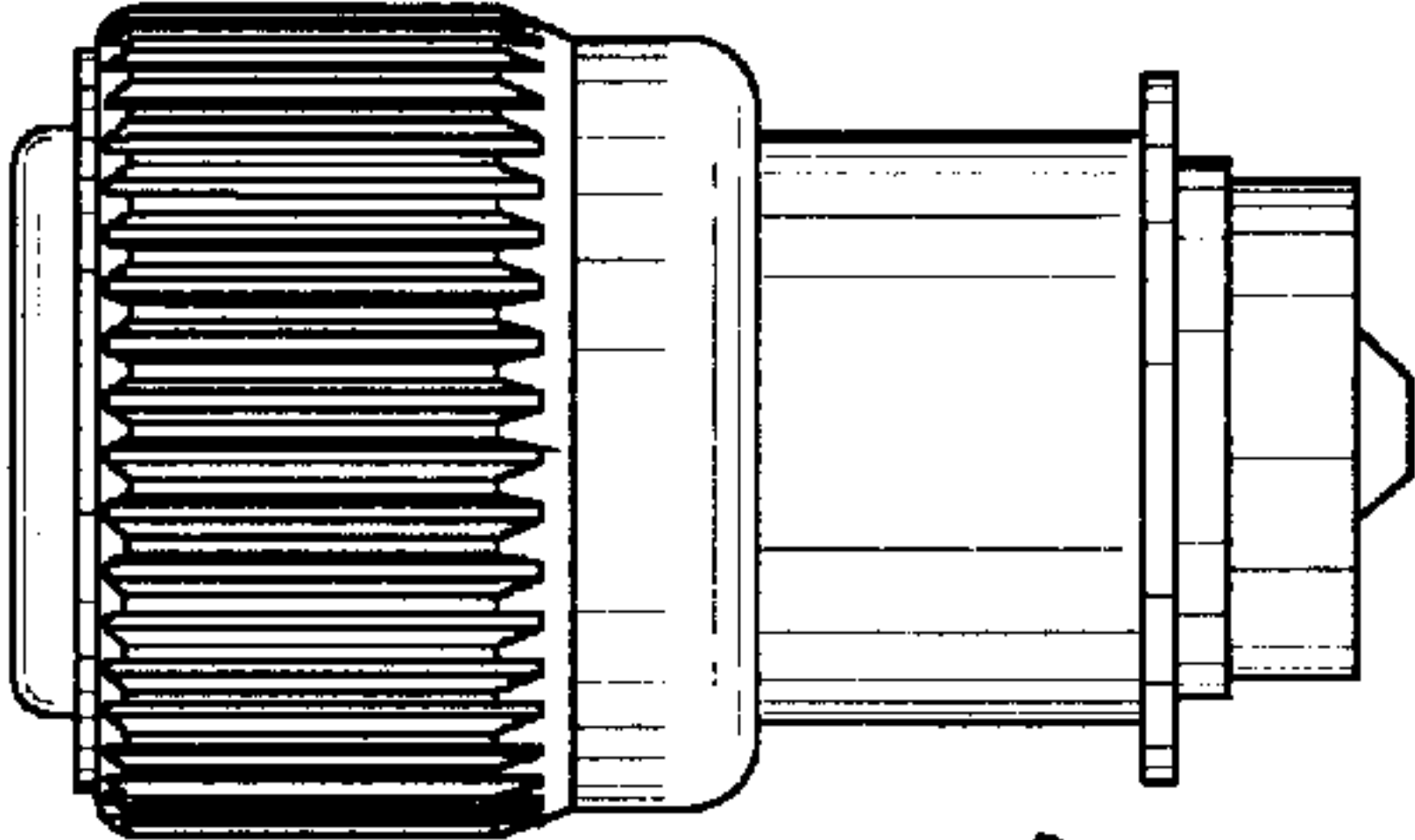


Figure 27

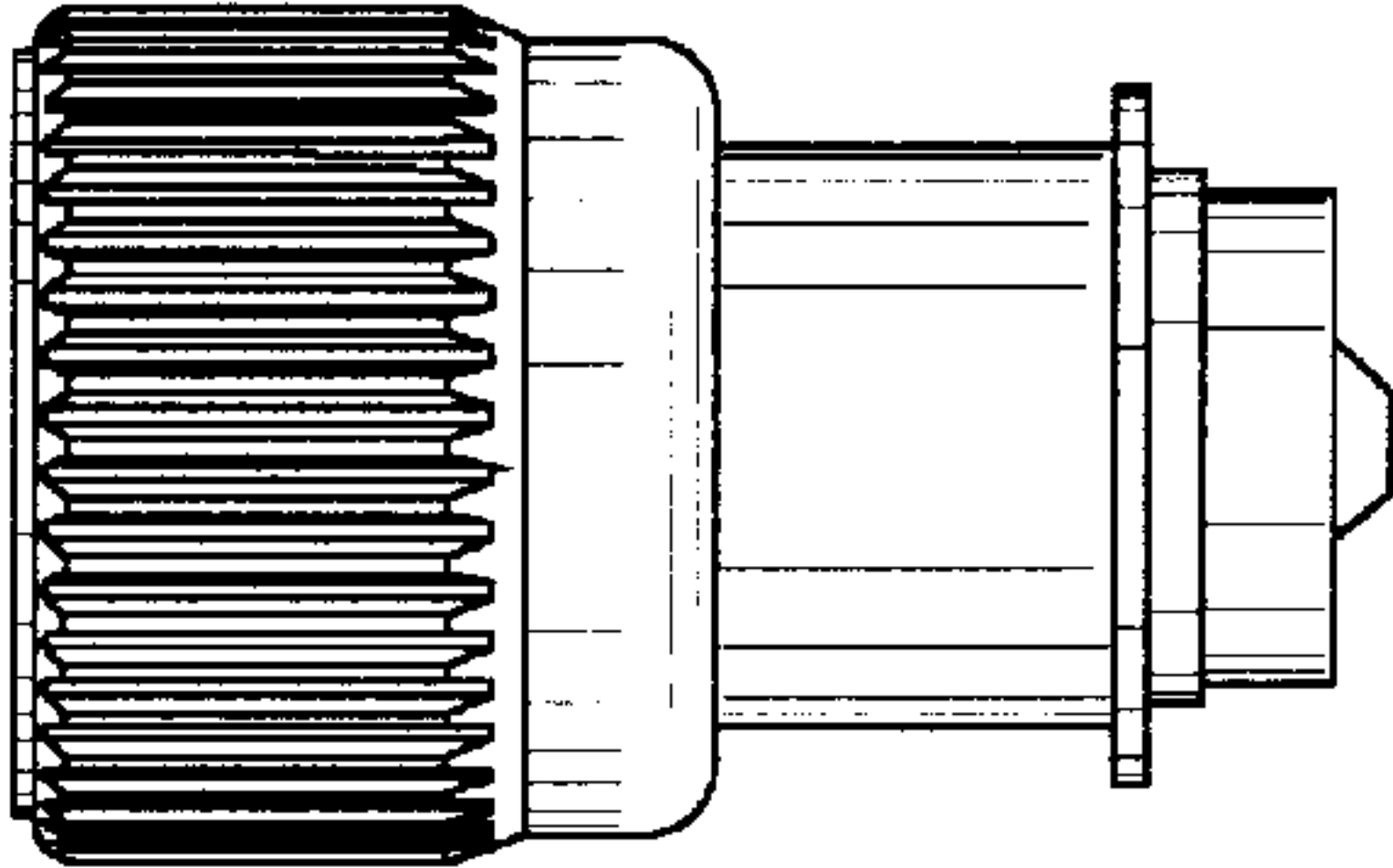


Figure 19

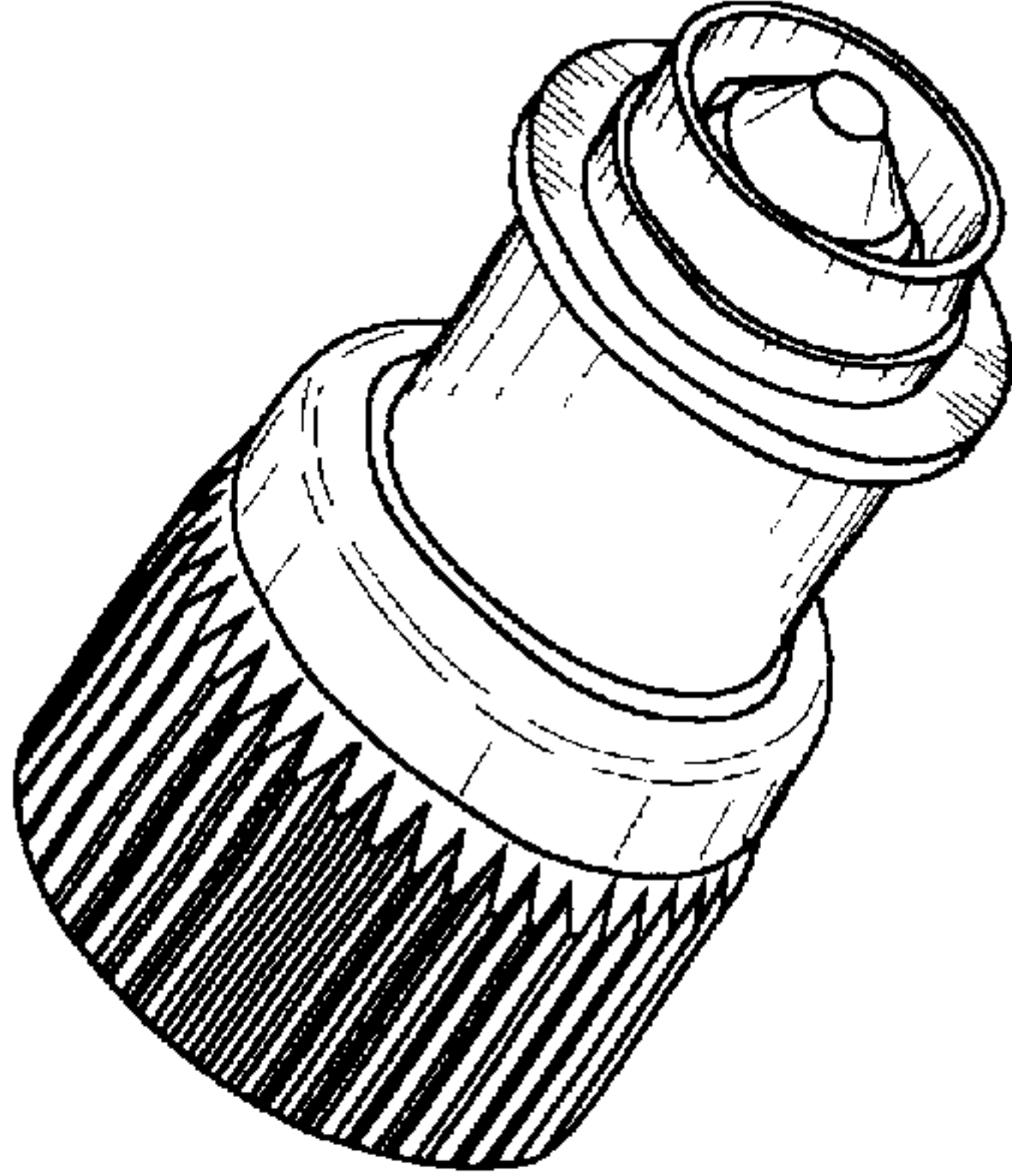


Figure 20

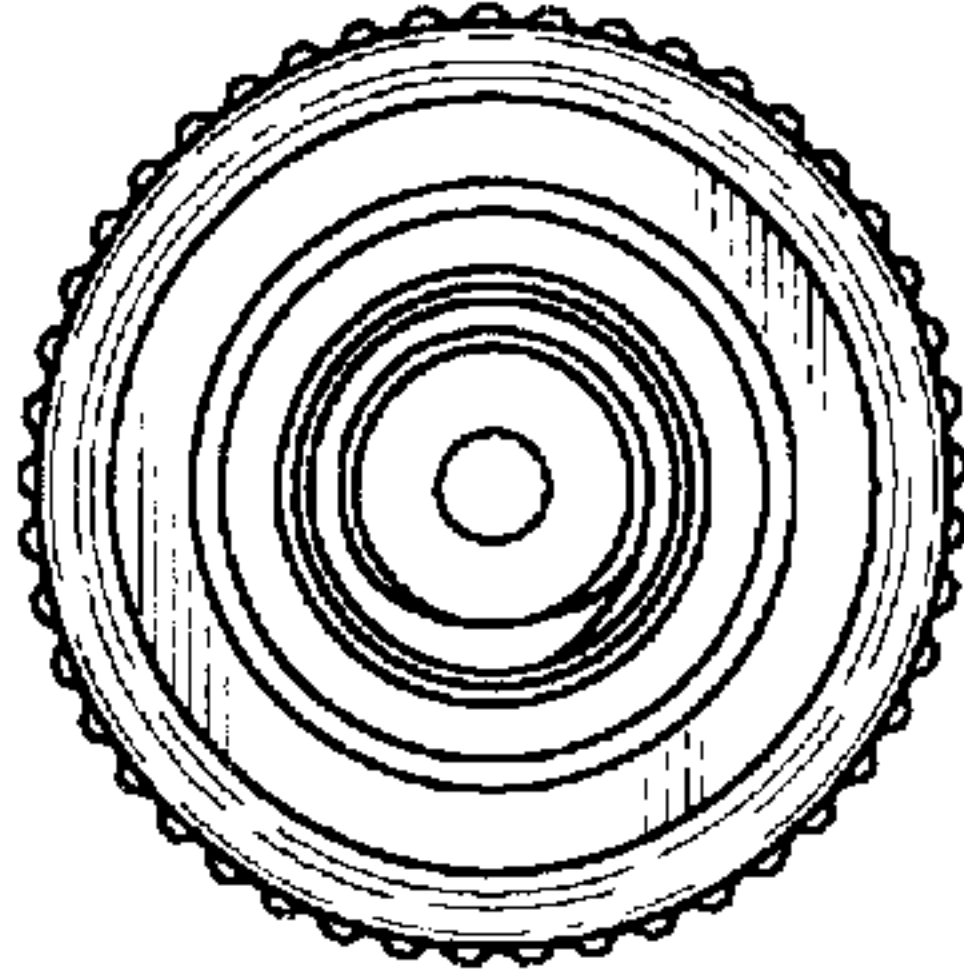


Figure 21