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(12) **United States Design Patent** (10) **Patent No.:** **US D950,611 S**  
**Sullivan et al.** (45) **Date of Patent:** **\*\* May 3, 2022**

(54) **SIGNAL TRANSMISSION PIN PERFORATING GUN ASSEMBLY**  
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See application file for complete search history.

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**  
3,945,322 A 3/1976 Carlson et al.  
4,759,291 A 7/1988 Barker et al.  
7,591,212 B2 9/2009 Myers, Jr. et al.  
7,902,469 B2 3/2011 Hurst  
8,074,737 B2 12/2011 Hill et al.  
8,256,337 B2 9/2012 Hill et al.  
8,395,878 B2 3/2013 Stewart et al.  
8,875,787 B2 11/2014 Tassaroli

(Continued)

**OTHER PUBLICATIONS**

Screen shot of OsoLite® Lite'n Your Workload with Oso's Prewired, Disposable Perforating Gun System; <https://www.osoperf.com/perf-hardware/osolite>; Date of access of Feb. 1, 2021; 2 pages.

(Continued)

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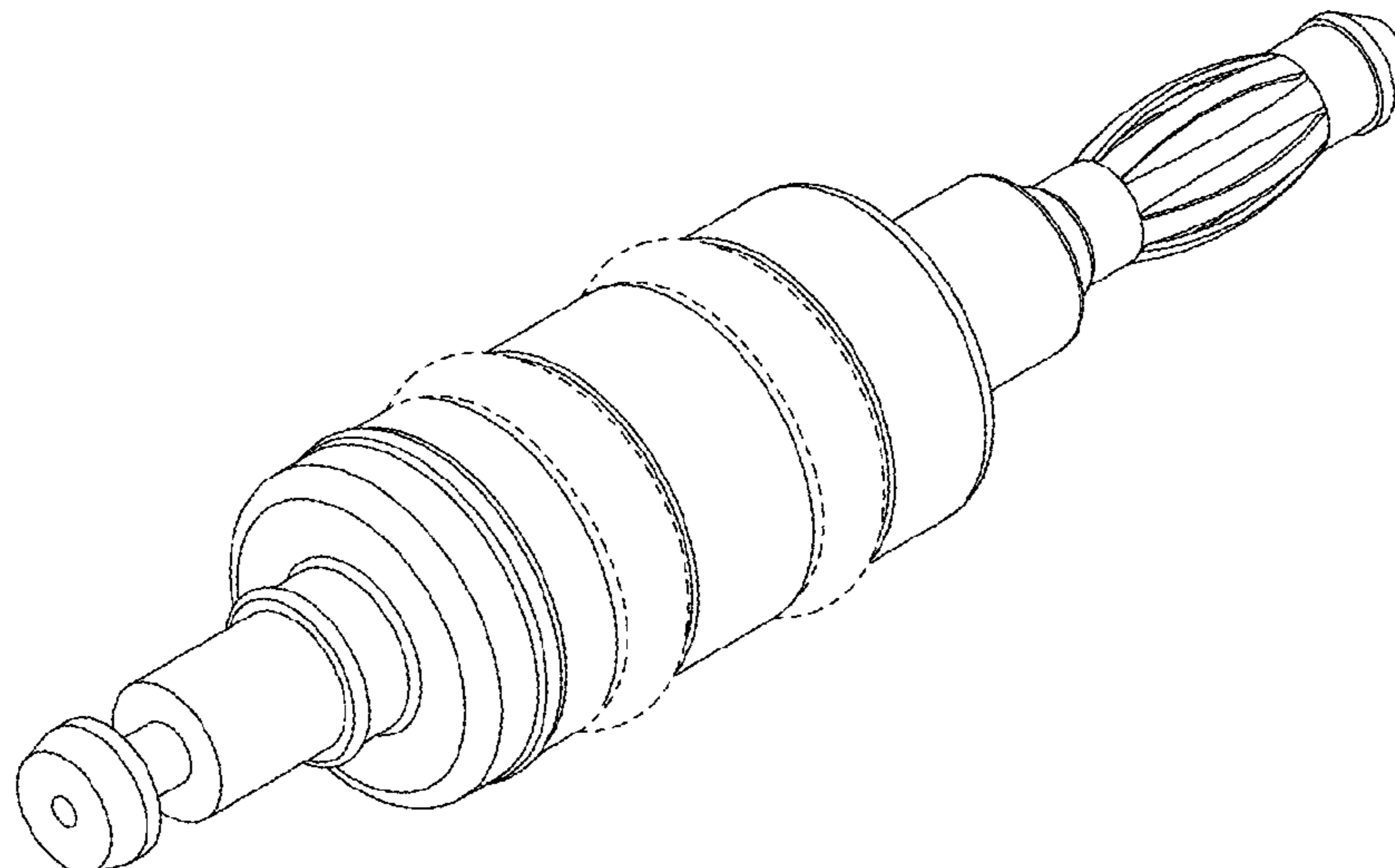
(57) **CLAIM**

The ornamental design for a signal transmission pin for a perforating gun assembly, as shown and described.

**DESCRIPTION**

FIG. 1 is a first perspective view of a signal transmission pin for a perforating gun assembly, showing our new design. The signal transmission pin is shown residing within a bulkhead.  
FIG. 2 is a second perspective view of the signal transmission pin for a perforating gun assembly and bulkhead of FIG. 1, shown from a different angle.  
FIG. 3 is a front plan view of the signal transmission pin for a perforating gun assembly and bulkhead of FIG. 1.  
FIG. 4 is a rear plan view thereof.  
FIG. 5 is a top plan view thereof.  
FIG. 6 is a bottom plan view thereof.  
FIG. 7 is a right side elevation view thereof.  
FIG. 8 is a left side elevation view thereof.  
FIG. 9 is a third perspective view of a signal transmission pin for a perforating gun assembly and bulkhead of FIGS. 1 and 2. Here the o-rings have been removed.  
FIG. 10 is a fourth perspective view of the signal transmission pin for a perforating gun assembly and bulkhead of FIG. 9, shown from a different angle.  
FIG. 11 is a front plan view of the signal transmission pin for a perforating gun assembly and bulkhead of FIGS. 1 and 2, with o-rings attached; and,  
FIG. 12 is a rear view of the signal transmission pin for a perforating gun assembly and bulkhead of FIG. 11.  
The broken lines in the drawings depict portions of the signal transmission pin for a perforating gun assembly that form no part of the claimed designs.

**1 Claim, 5 Drawing Sheets**



(56)

**References Cited**

U.S. PATENT DOCUMENTS

9,145,764	B2	9/2015	Burton et al.	
9,581,422	B2	2/2017	Preiss et al.	
9,845,666	B2	12/2017	Hardesty et al.	
10,066,921	B2	9/2018	Eitschberger	
10,188,990	B2	1/2019	Burmeister et al.	
10,273,788	B2	4/2019	Bradley et al.	
10,352,136	B2	7/2019	Goyeneche	
10,352,674	B2	7/2019	Eitschberger	
10,365,078	B2	7/2019	Eitschberger	
10,458,213	B1	10/2019	Eitschberger et al.	
10,465,462	B2	11/2019	Frazier et al.	
10,472,938	B2	11/2019	Parks et al.	
10,502,036	B2	12/2019	Spring	
10,507,433	B2	12/2019	Eitschberger et al.	
10,519,733	B2	12/2019	Rosenthal et al.	
10,519,754	B2	12/2019	Prisbell et al.	
10,584,950	B2	3/2020	Saltarelli et al.	
10,662,750	B2	5/2020	Angman et al.	
10,669,821	B2	6/2020	Knight et al.	
10,677,026	B2	6/2020	Sokolove et al.	
10,689,955	B1	6/2020	Mauldin et al.	
10,731,444	B2 *	8/2020	Wells .....	E21B 47/092
10,731,445	B2	8/2020	Akkerman et al.	
10,731,955	B2	8/2020	Baum	
10,844,697	B2	11/2020	Preiss et al.	
10,858,919	B2 *	12/2020	Anthony .....	E21B 43/1185
10,900,334	B2	1/2021	Knight et al.	
10,900,335	B2	1/2021	Knight et al.	
10,914,145	B2 *	2/2021	Sullivan .....	E21B 43/1185
11,078,763	B2 *	8/2021	Anthony .....	E21B 43/119
11,091,987	B1 *	8/2021	Benker .....	E21B 43/119
2012/0199352	A1 *	8/2012	Lanclos .....	F42D 1/05 166/297
2013/0126237	A1	5/2013	Burton et al.	
2020/0217635	A1 *	7/2020	Eitschberger .....	F42D 1/04
2020/0308938	A1 *	10/2020	Sullivan .....	E21B 43/116

OTHER PUBLICATIONS

Screen shot of SWM International Inc. Thunder Disposable Gun System; [https://web.archive.org/web/20200109183633/http://swmtx.com/pdf/thunder\\_gun.pdf](https://web.archive.org/web/20200109183633/http://swmtx.com/pdf/thunder_gun.pdf); Date of access of Feb. 1, 2021; 5 pages.

Screen shot of Yellow Jacket Oil Tools: Perforating Guns; <https://www.yjoiltools.com/perforating-guns>; Date of access of Feb. 1, 2021; 1 page.

Screen shot of Nexus Perforating: Double Nexus Connect (Thunder Gun System); <https://www.yjoiltools.com/perforating-guns>; Date of access of Feb. 1, 2021; 1 page.

Screen shot of Vigor USA: Perforating Gun Accessories—Economical and Dependable Perforating Gun Accessories; <https://vigorusa.com/perforating-gun-accessories/>; Date of access of Feb. 1, 2021; 2 page.

Screen shot of Yellow Jacket Oil Tools: Pre-Wired Perforating Gun; <https://www.yjoiltools.com/Perforating-Guns/Pre-Wired-Perforating-Gun>; Date of access of Feb. 1, 2021; 1 page.

Screen shot of GR Energy Services—ZipFire™ ReFrac gun system; <https://www.grenergyservices.com/zipfire-refrac/>; Date of access of Feb. 1, 2021; 2 pages.

Screen shot of GR Energy Services—ZipFire™ high-efficiency perforating system answers current completion demands for higher stage-per-day performance; <https://www.grenergyservices.com/zipfire/>; date of access of Feb. 1, 2021; 2 pages.

Screen shot of Rock Faithwell—Perforating Gun System; <http://www.cnrock.com.cn/h-col.116.html>; date of access of Feb. 1, 2021; 2 pages.

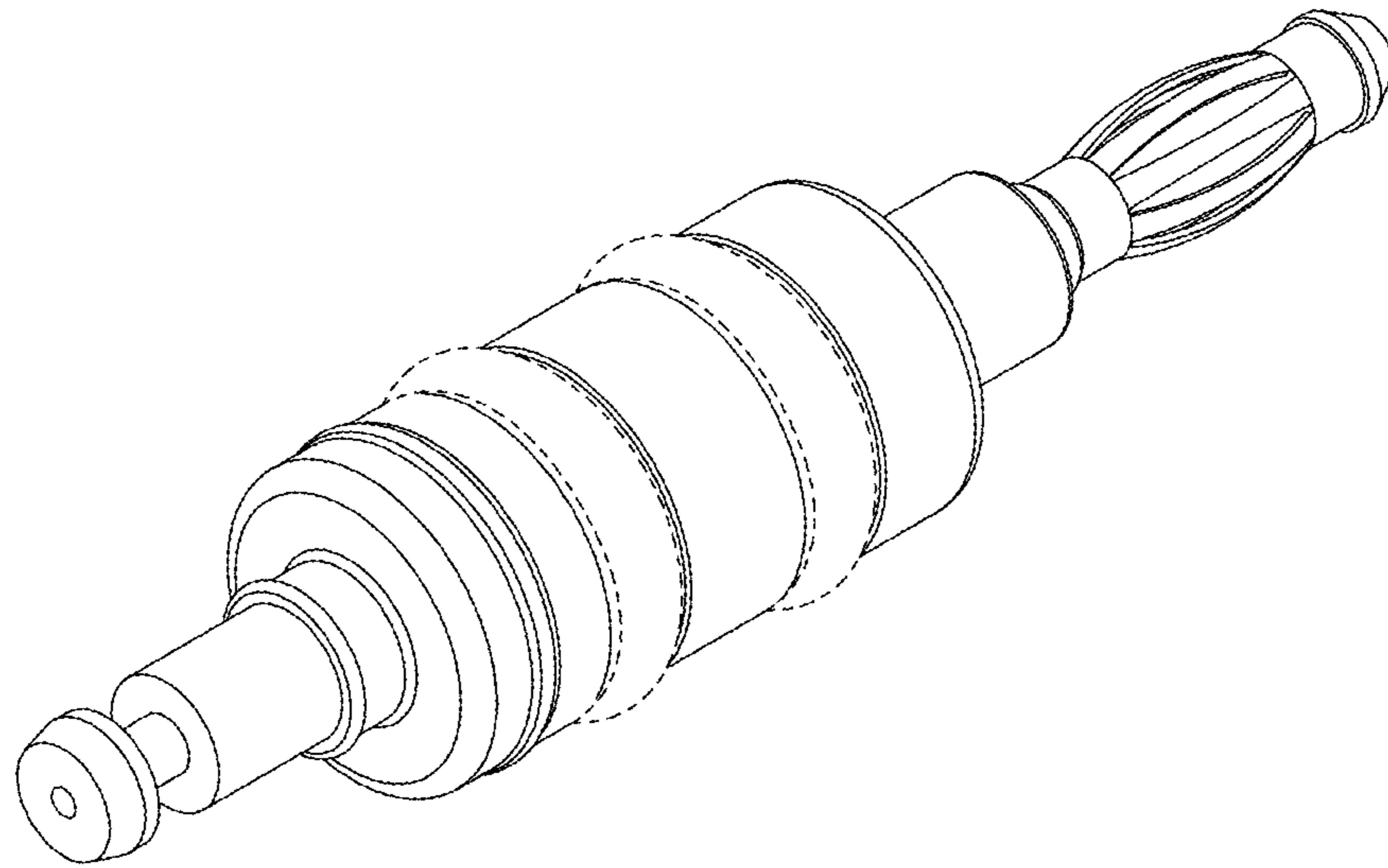
Screen shot of APT American—Perforating Guns; <https://aptamerican.com/perforating-guns>; date of access of Feb. 1, 2021; 1 page.

Screen shot of NextTier—Innovative Solutions: GameChanger™ Perforating System; <https://nexttierofs.com/solutions/innovative-solutions/gamechanger/>; date of access of Feb. 1, 2021; 2 pages.  
GEODynamics' EPIC™ Switches Brochure; GEODynamics; Copyright 2020; v.03; 1 page.

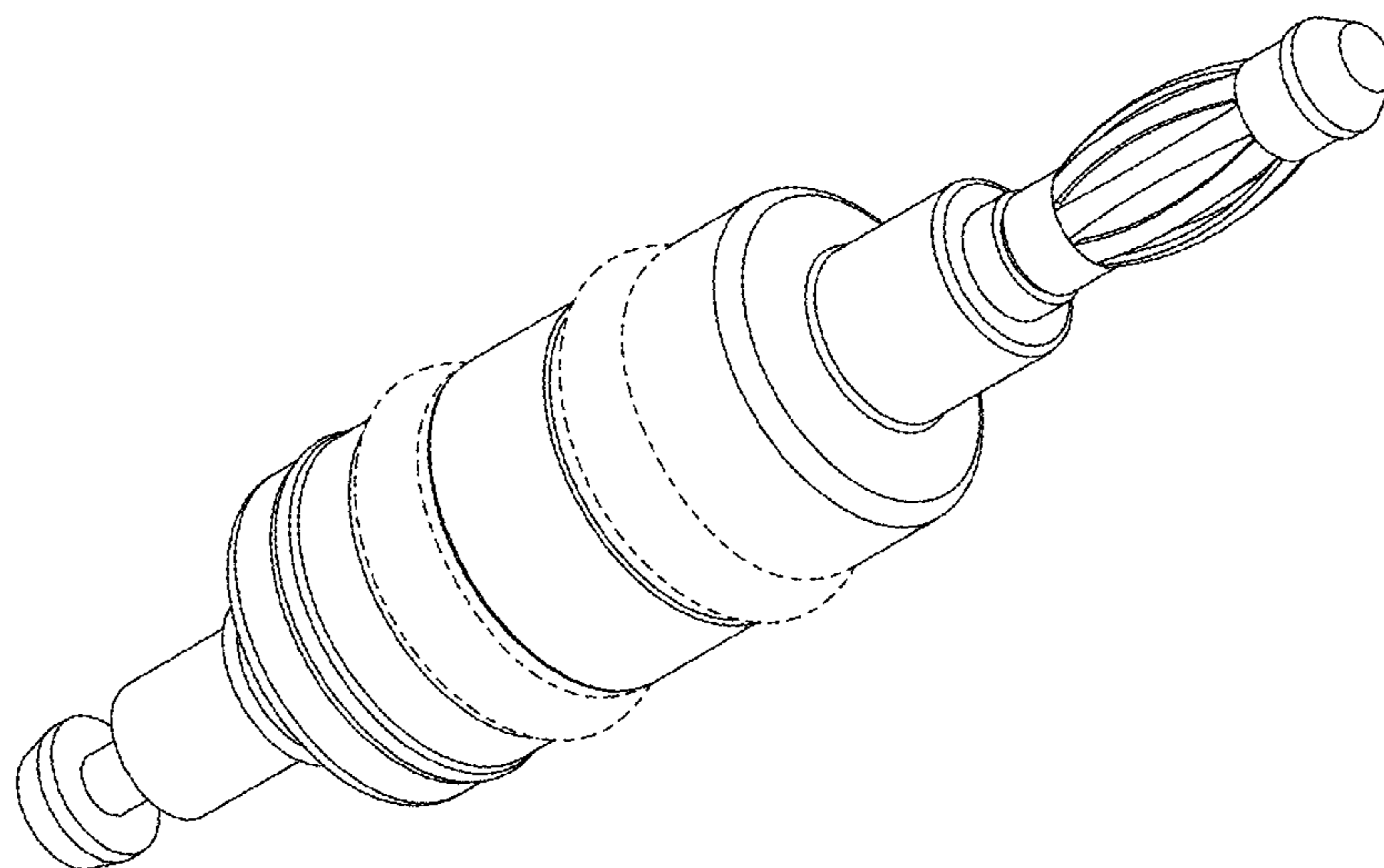
Josh Howk and Adam Dyess; "Mitigating the Problems in Select-Fire Perforating Operations" IPS 16-22; 2016 International Perforating Symposium Galveston; May 10, 2016; 15 pages.

Hunting Titan Brochure; Hunting Energy Services; Copyright 2020; v.9.1; 27 pages.

\* cited by examiner



**FIG. 1**



**FIG. 2**

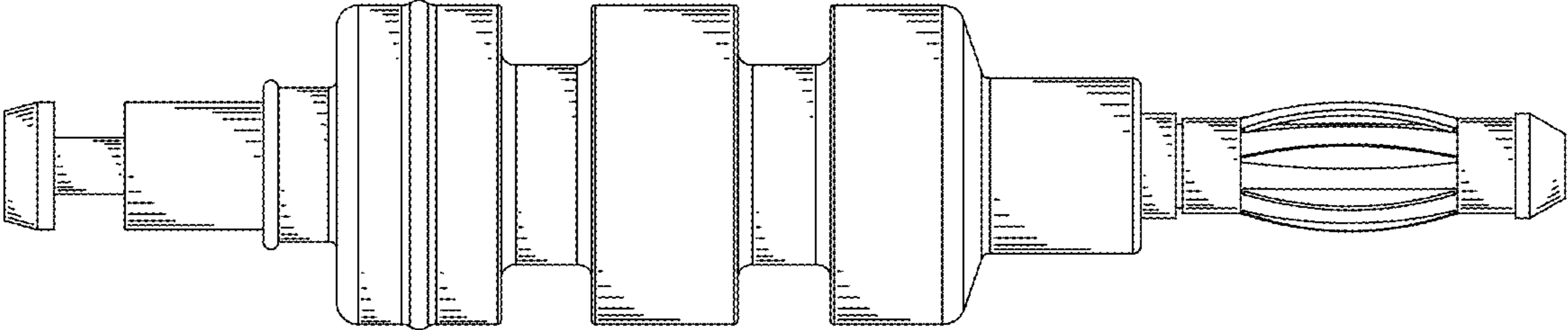


FIG. 3

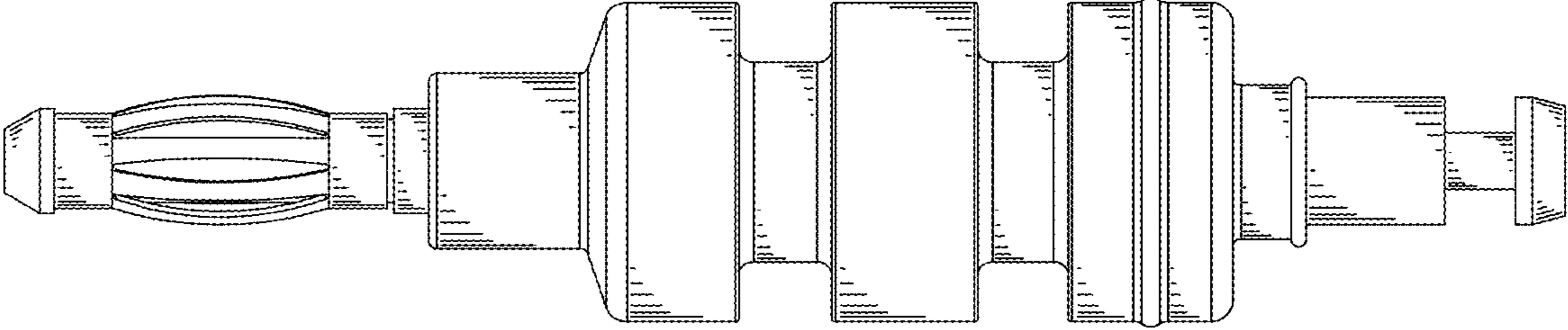


FIG. 4

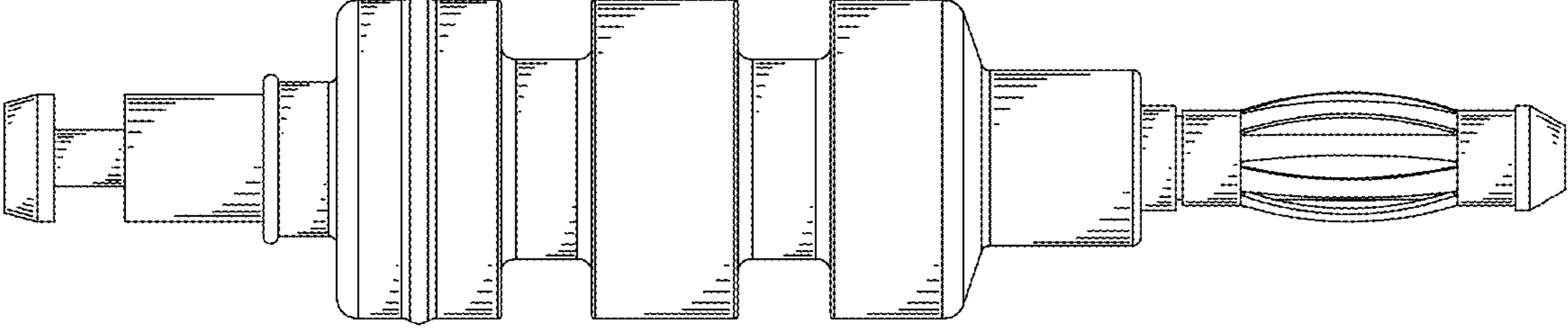
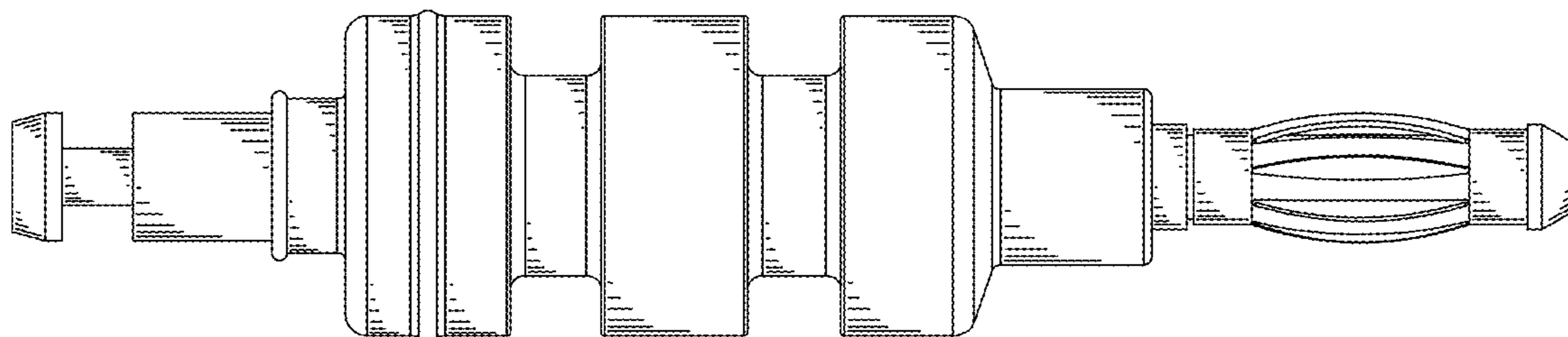
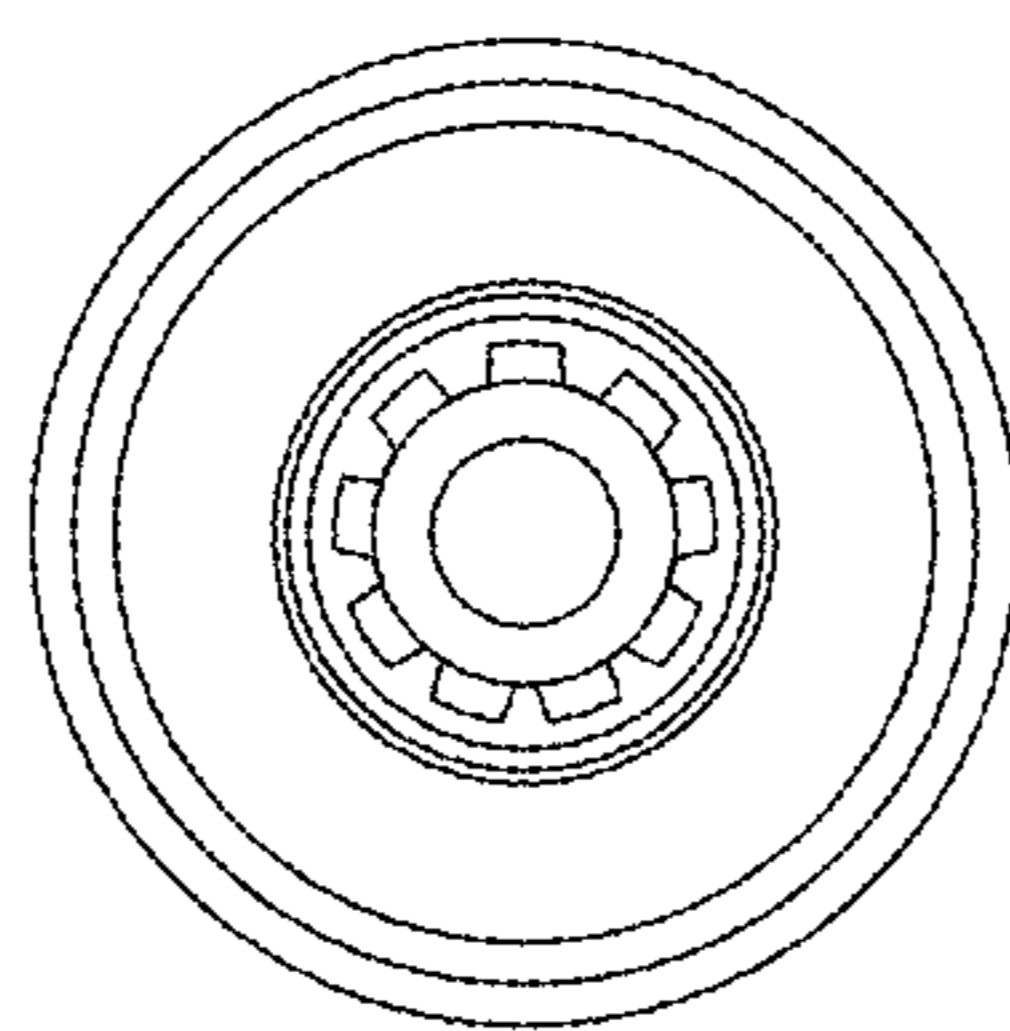


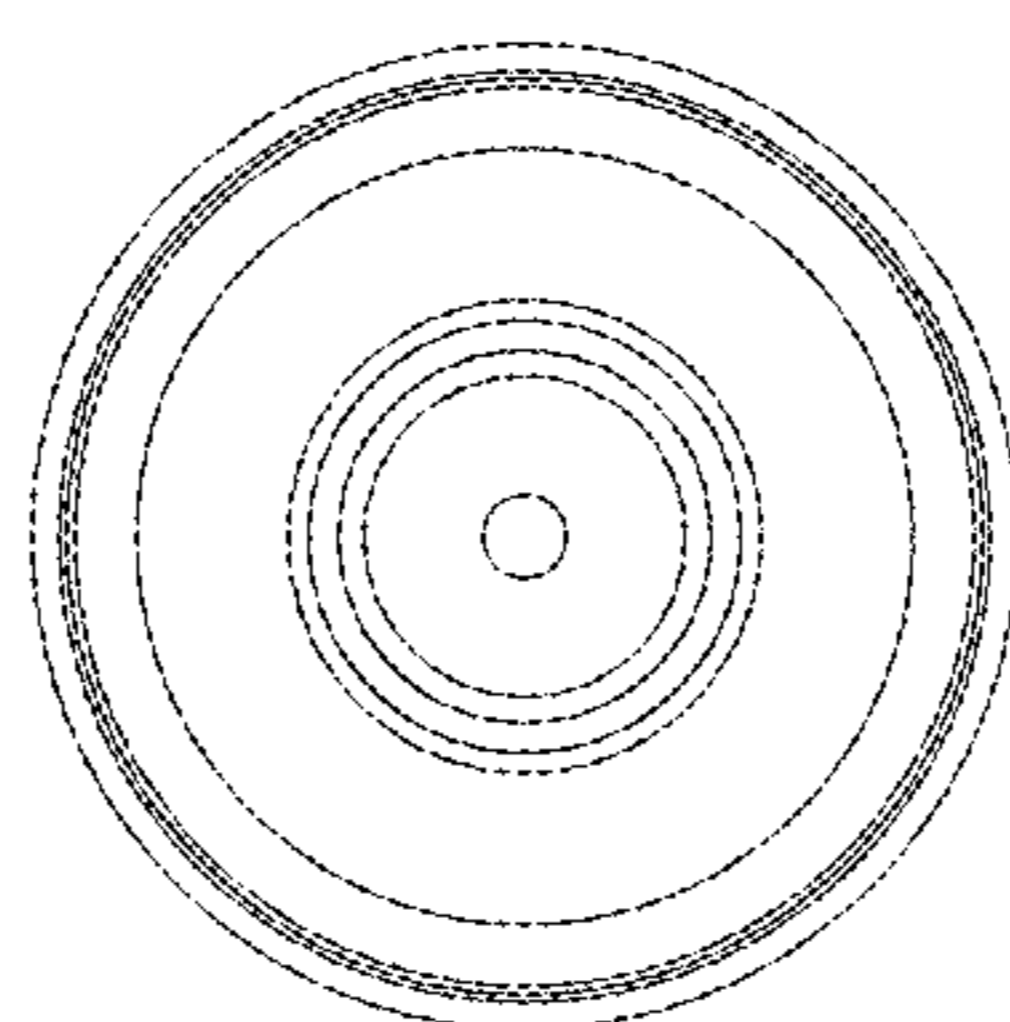
FIG. 5



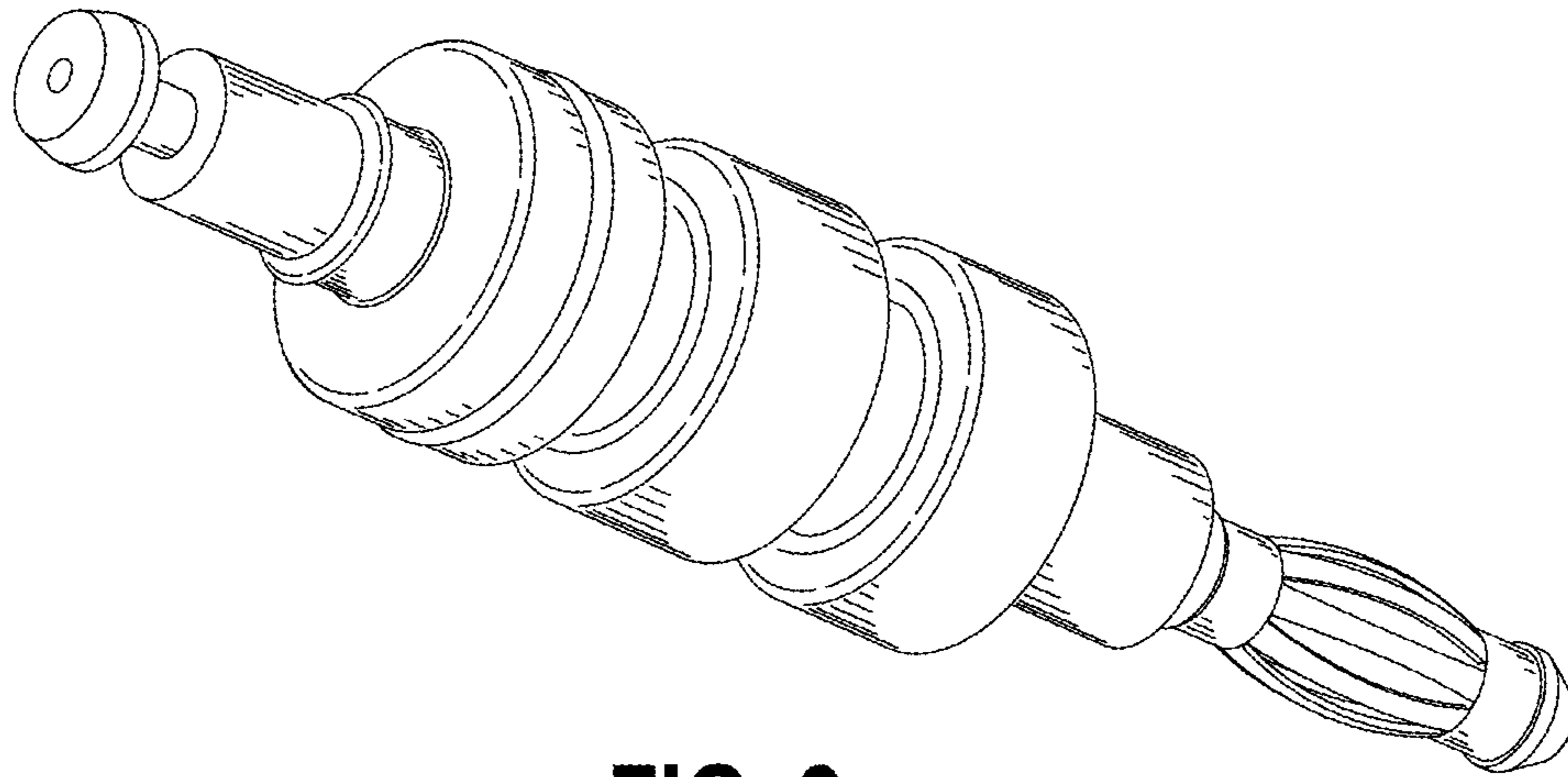
**FIG. 6**



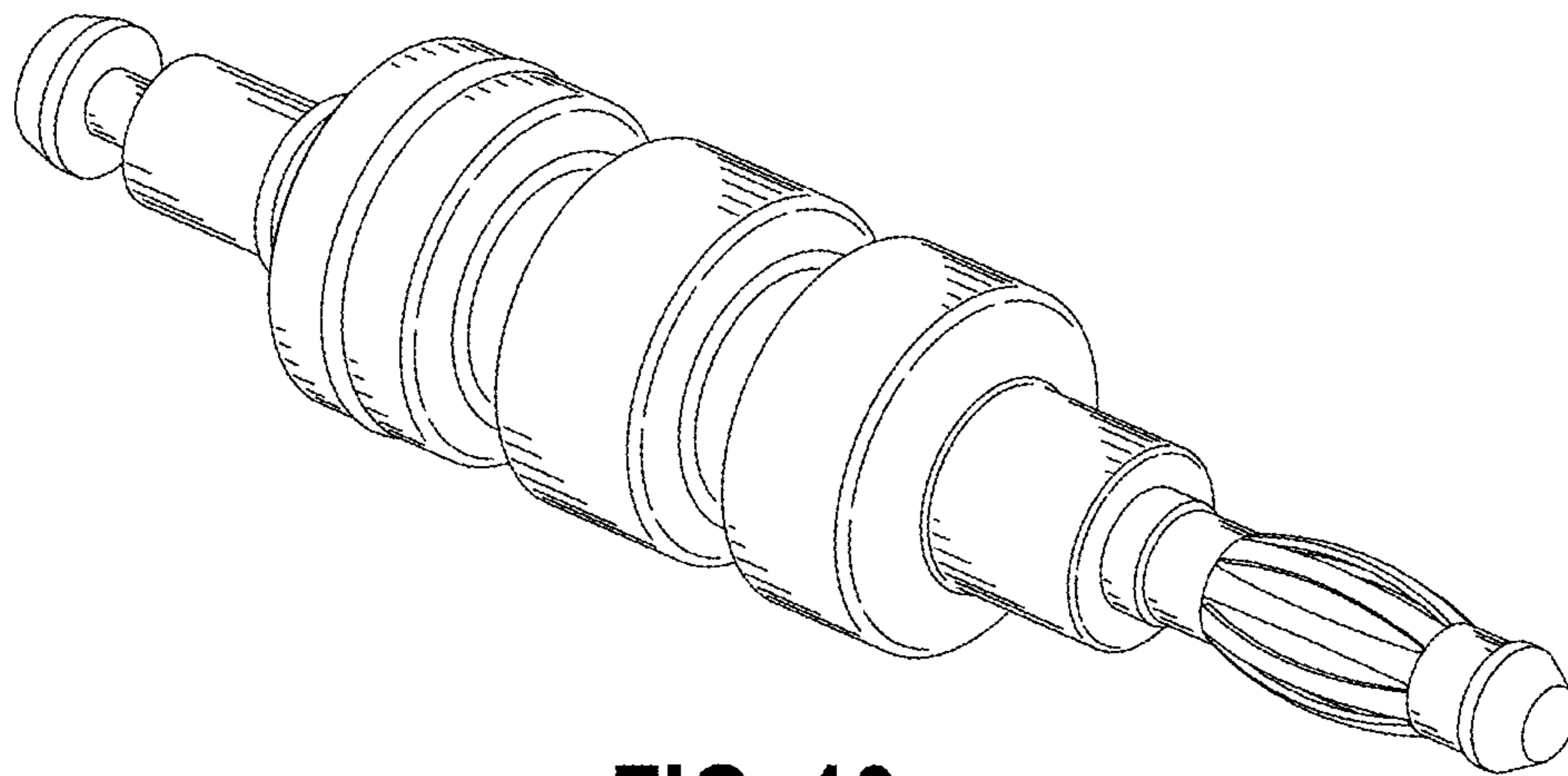
**FIG. 7**



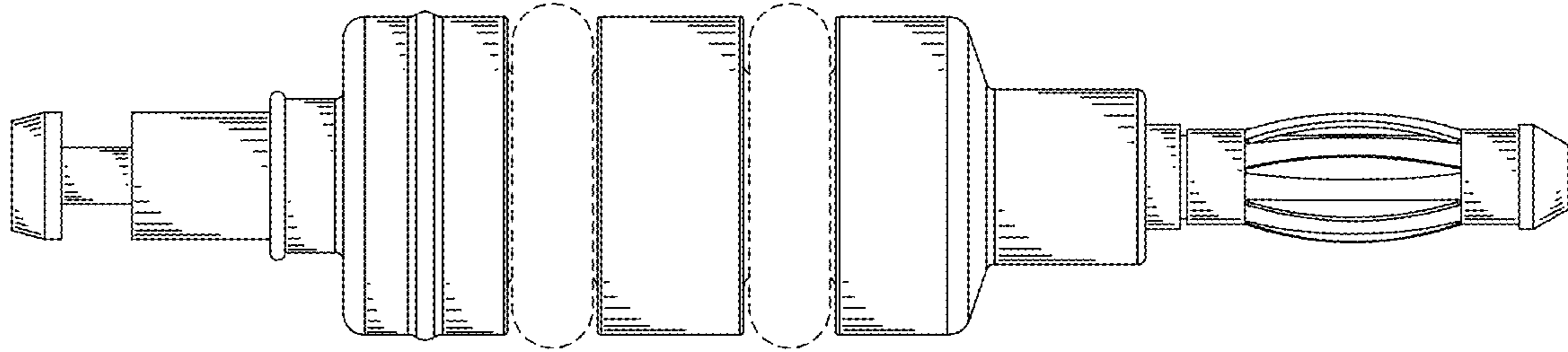
**FIG. 8**



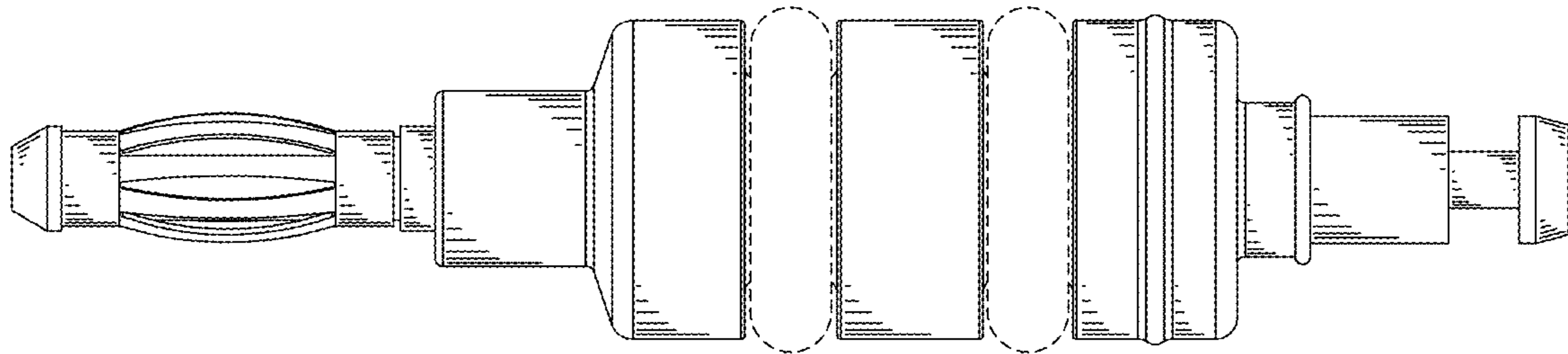
**FIG. 9**



**FIG. 10**



**FIG. 11**



**FIG. 12**