



US00D814366S

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

(10) **Patent No.:** **US D814,366 S**
(45) **Date of Patent:** **** Apr. 3, 2018**

- (54) **TRIPOD KIT FOR TRIPOD TYPE CONSTANT VELOCITY JOINT**
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- (72) Inventors: **Tatsuro Sugiyama**, Shizuoka (JP);
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- (73) Assignee: **NTN CORPORATION**, Osaka (JP)
- (**) Term: **15 Years**
- (21) Appl. No.: **29/553,579**
- (22) Filed: **Feb. 3, 2016**
- (30) **Foreign Application Priority Data**

Aug. 3, 2015 (JP) 2015-017256

- (51) **LOC (11) Cl.** **12-16**
- (52) **U.S. Cl.**
USPC **D12/159**
- (58) **Field of Classification Search**
USPC D12/87-88, 93, 159-161, 400-401, 406,
D12/412, 414, 414.1
CPC .. B60R 9/00; B60R 9/06; B60R 3/005; B60R
13/00; Y10T 70/7638; Y10T 70/7655;
Y10T 70/7667; F16F 9/3242; F16F
9/0218; F16F 9/0227; F16F 9/3221; F16F
9/3235; B60G 11/22; B60G 2204/125;
B60G

(Continued)

- (56) **References Cited**
U.S. PATENT DOCUMENTS

7,083,522 B2 * 8/2006 Bongartz F16D 3/2055
464/111
7,160,193 B2 * 1/2007 Itagaki F16D 3/2055
464/111

(Continued)

FOREIGN PATENT DOCUMENTS

EP 1995481 A1 * 11/2008 F16D 3/2055
JP 11063004 A * 3/1999 F16D 3/2055

OTHER PUBLICATIONS

Tripod joint for inner cv joint bearing EE90, posted at Alibaba.com, posted on Sep. 7, 2015, site visited Apr. 19, 2017, <https://www.alibaba.com/product-detail/tripod-joint-for-inner-cv-joint_60224037231.html>.*

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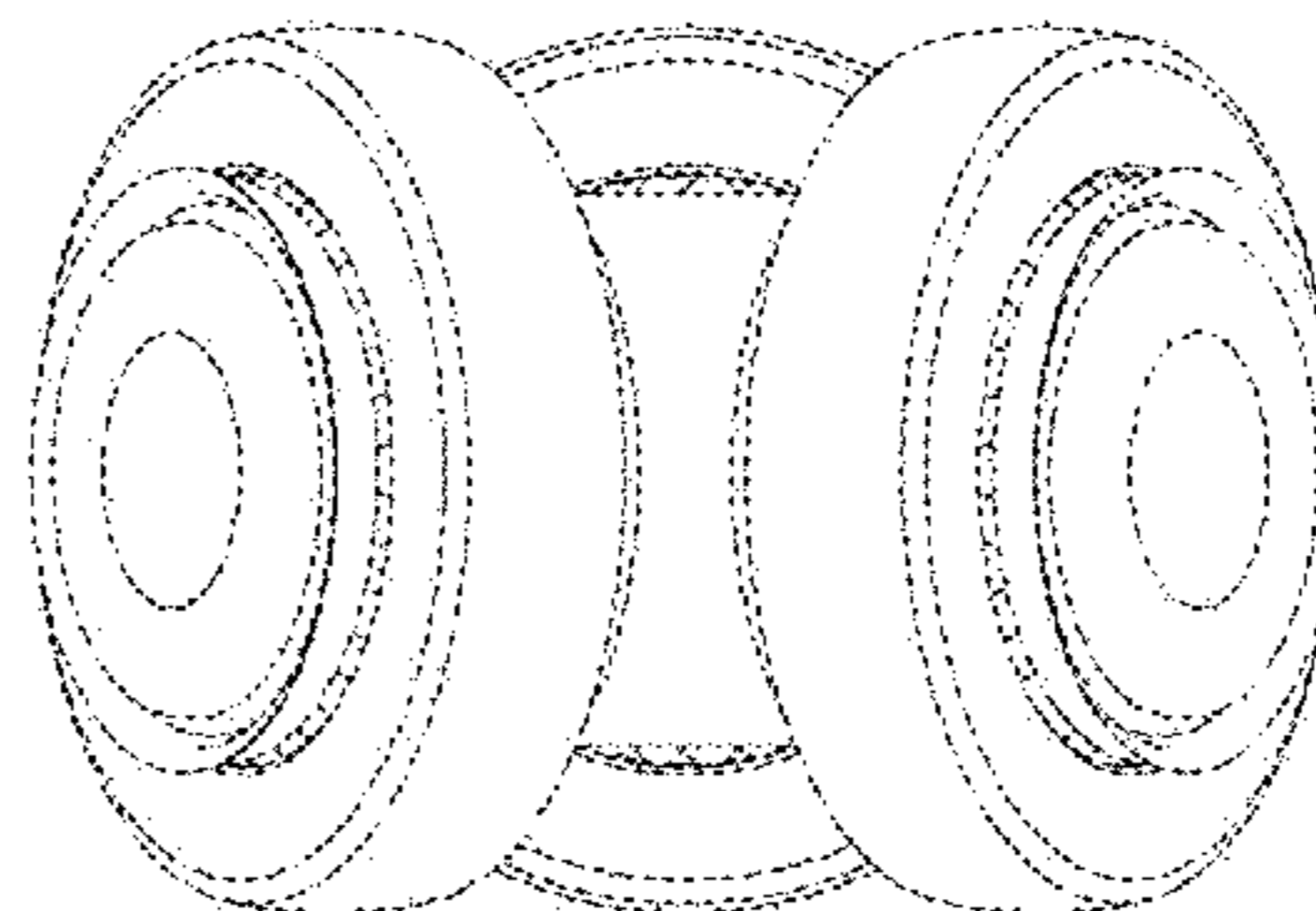
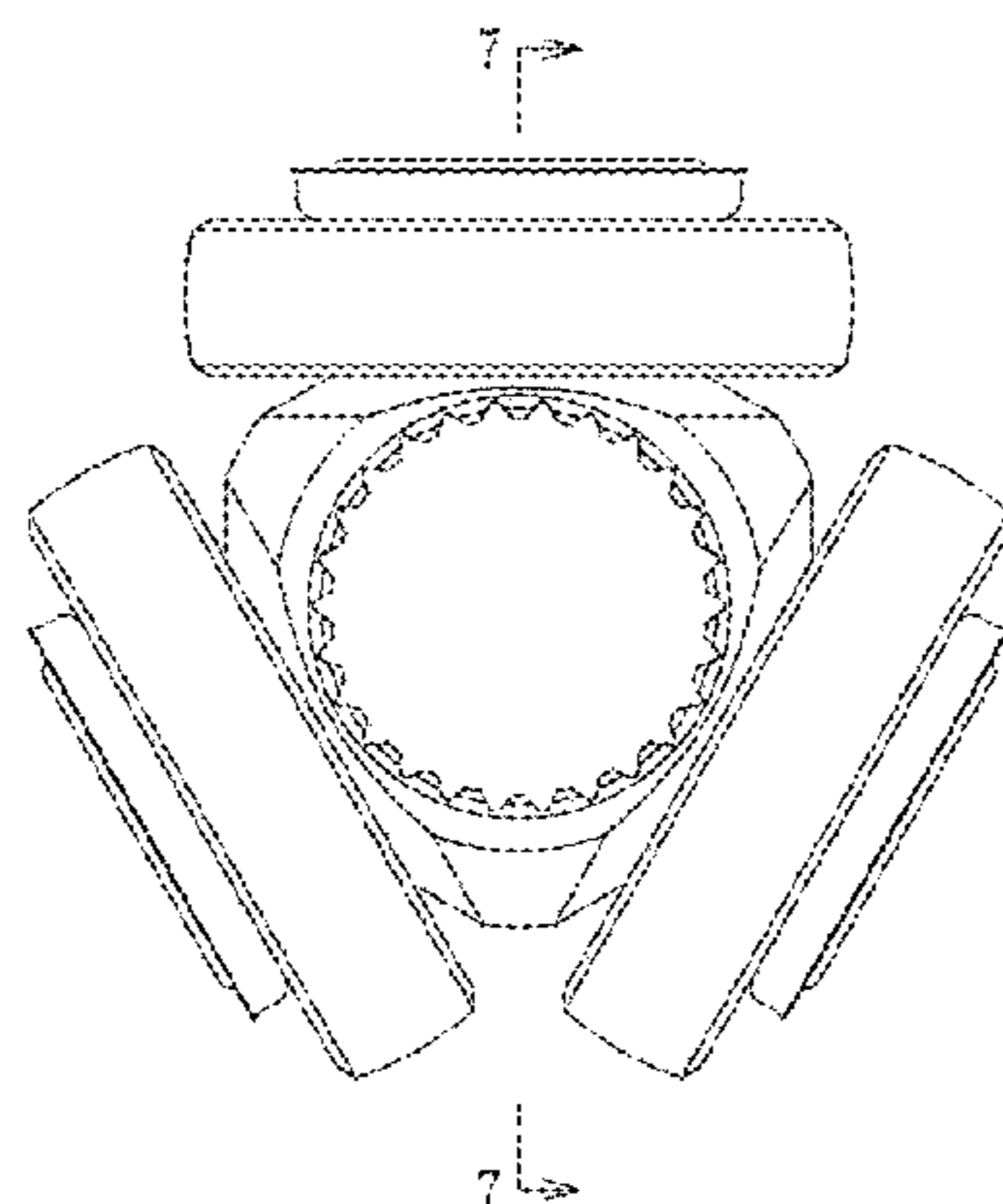
(57) **CLAIM**

The ornamental design for a tripod kit for a tripod type constant velocity joint, as shown and described.

DESCRIPTION

FIG. 1 is a front view of a tripod kit for a tripod type constant velocity joint, showing the new design;
FIG. 2 is a rear view thereof;
FIG. 3 is a top view thereof;
FIG. 4 is a bottom view thereof;
FIG. 5 is a right side view thereof, the left side view being a mirror image;
FIG. 6 is a cross-sectional view taken in the direction of 6-6 in FIG. 5;
FIG. 7 is a cross-sectional view taken in the direction of 7-7 in FIG. 1;
FIG. 8 is a cross-sectional view taken in the direction of 8-8 in FIG. 5;
FIG. 9 is a reference drawing of a vertical and central cross-sectional view of a front side of a constant velocity joint showing its state of use; and,
FIG. 10 is a front view of a reference drawing of a constant velocity joint showing its state of use.

(Continued)



The broken lines in the figures illustrate environmental structure that forms no part of the claimed design.

1 Claim, 10 Drawing Sheets

(58) Field of Classification Search

CPC ... 2204/41; B60G 2202/143; B60G 2202/142;
B60G 2202/14; B60P 9/00; B60P 3/40
See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

7,235,015	B2 *	6/2007	Margerie	F16D 3/2055	464/111
7,654,908	B2 *	2/2010	Izumino	F16D 3/2055	464/111
7,708,644	B2 *	5/2010	Izumino	F16D 3/2055	464/111
7,758,430	B2 *	7/2010	Yoon	F16D 3/2055	464/111
8,221,249	B2 *	7/2012	Mondragon-Parra .	F16D 3/2055	464/111
8,251,827	B2 *	8/2012	Oh	F16D 3/2055	464/111
D721,029	S *	1/2015	Sato	D12/400	
2001/0046899	A1 *	11/2001	Sugiyama	F16D 3/2055	464/111
2002/0028711	A1 *	3/2002	Ishiguro	F16D 3/2055	464/111

2002/0055390	A1 *	5/2002	Mizukoshi	F16D 3/2055	464/111
2002/0183121	A1 *	12/2002	Kura	F16D 3/205	464/111
2004/0157667	A1 *	8/2004	Ishijima	F16D 3/2055	464/111
2006/0223642	A1 *	10/2006	Izumino	F16D 3/2055	464/111
2009/0011843	A1 *	1/2009	Oh	F16D 3/2055	464/147
2010/0216556	A1 *	8/2010	Mondragon-Parra .	F16D 3/2055	464/111
2013/0137526	A1 *	5/2013	Sugiyama	F16D 3/205	464/120
2014/0091507	A1 *	4/2014	Oldfield	B60G 7/001	267/292

OTHER PUBLICATIONS

Front Position and Ball Joint Type Tripod CV Joint tripod bearing, posted at Alibab.com, posted on Aug. 31, 2015, site visited Apr. 19, 2017, <https://www.alibaba.com/product-detail/Front-Position-and-Ball-Joint-Type_60502280379.html>.*

Car spare parts 30teeth Tripod Joints fit for Toyota Prado 2008—cv joint bearing, posted at Alibaba.com, posted on Nov. 27, 2012, site visited Apr. 19, 2017, <https://www.alibaba.com/product-detail/Car-spare-parts-30teeth-Tripod-Joints_60468280257.html>.*

CV Joint Blog, posted at CVjoint.org, posted on Mar. 15, 2011, site visited Apr. 19, 2017, <<http://www.cvjoint.org/tripod-joint/>>.*

CV Joints & Boots, posted at DriveInn.co.nz, no posting date given, site visited Apr. 19, 2017, <<http://www.driveinn.co.nz/cv-jointsboots/4550007267>>.*

* cited by examiner

FIGURE 1

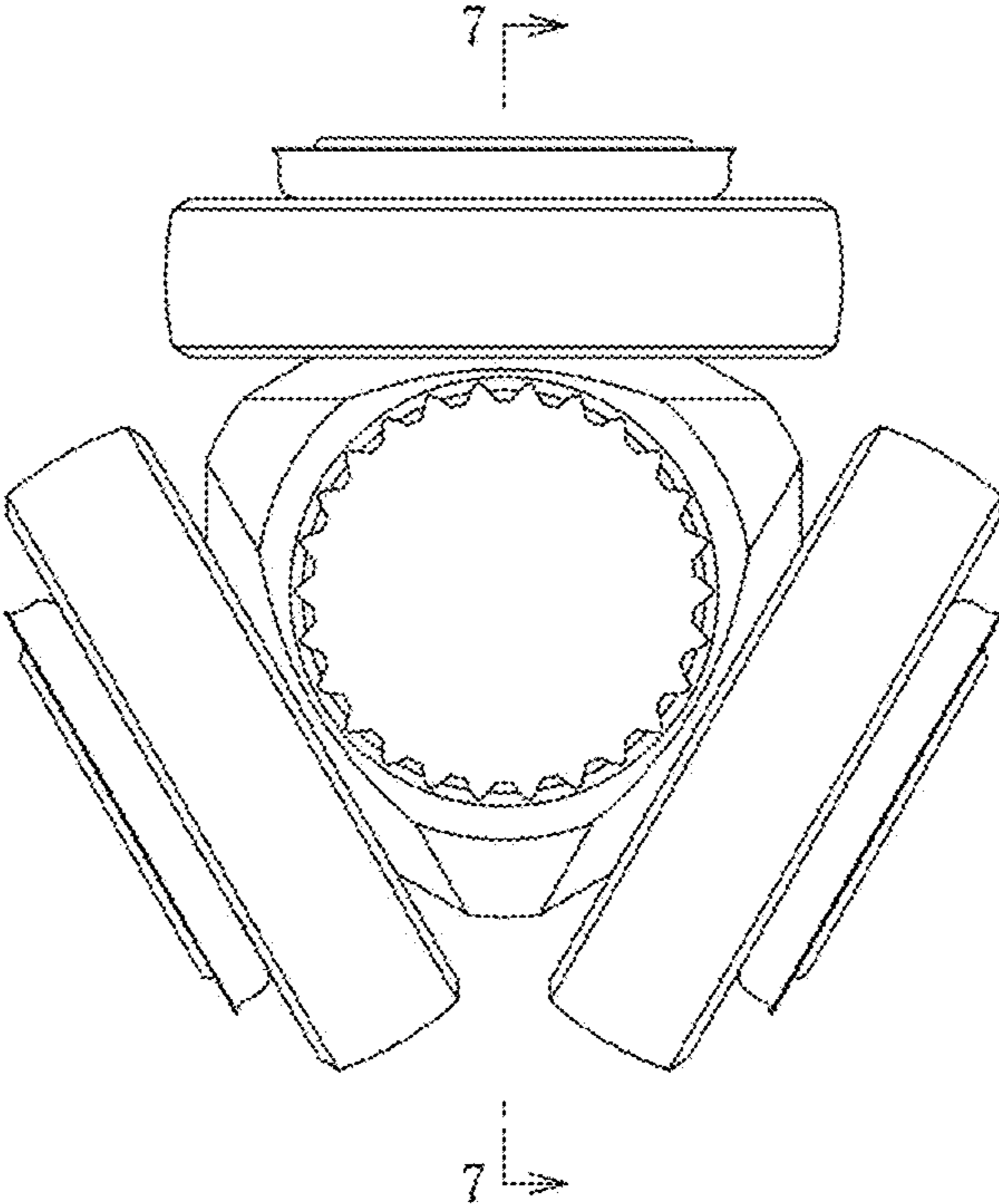


FIGURE 2

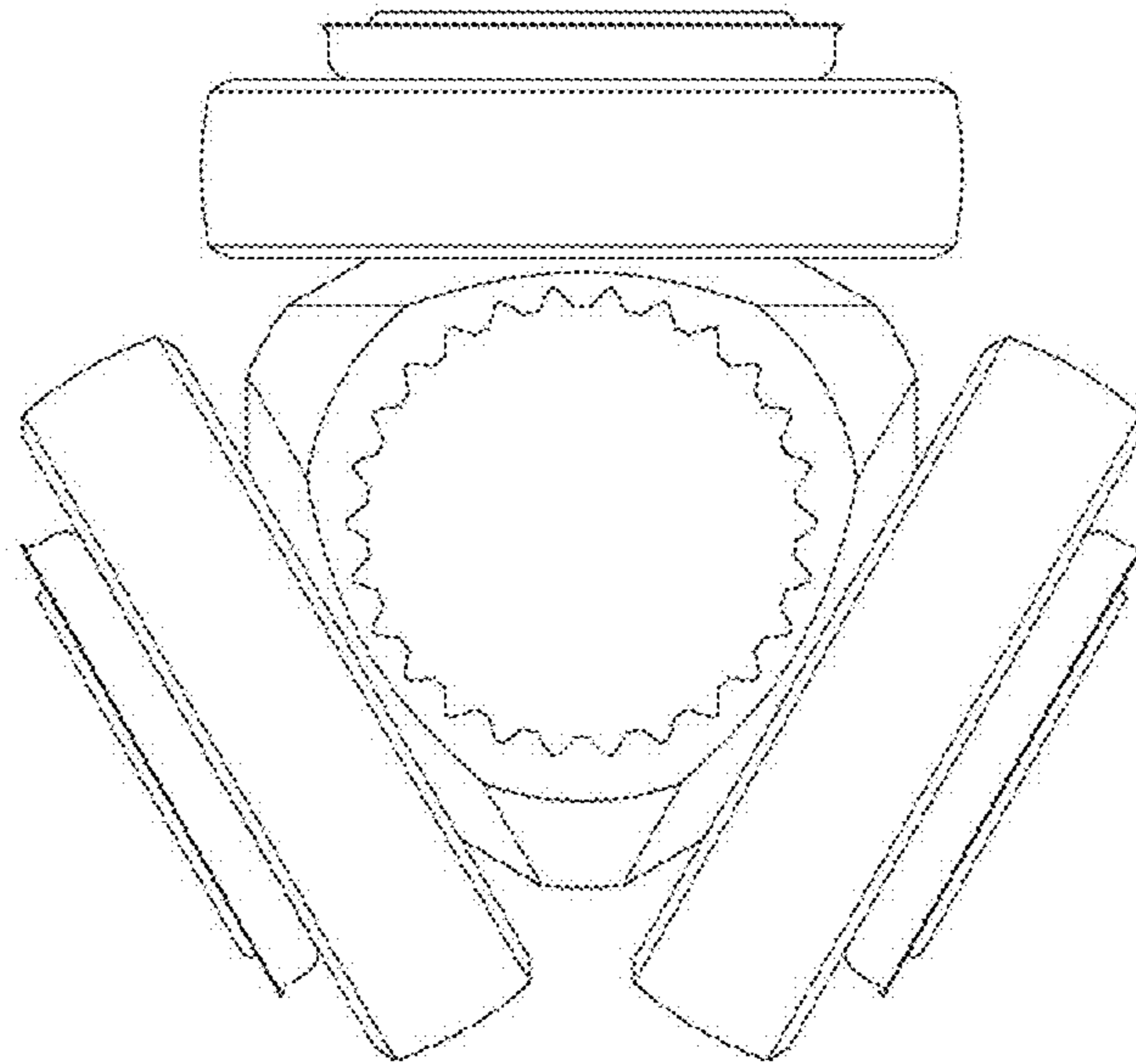


FIGURE 3

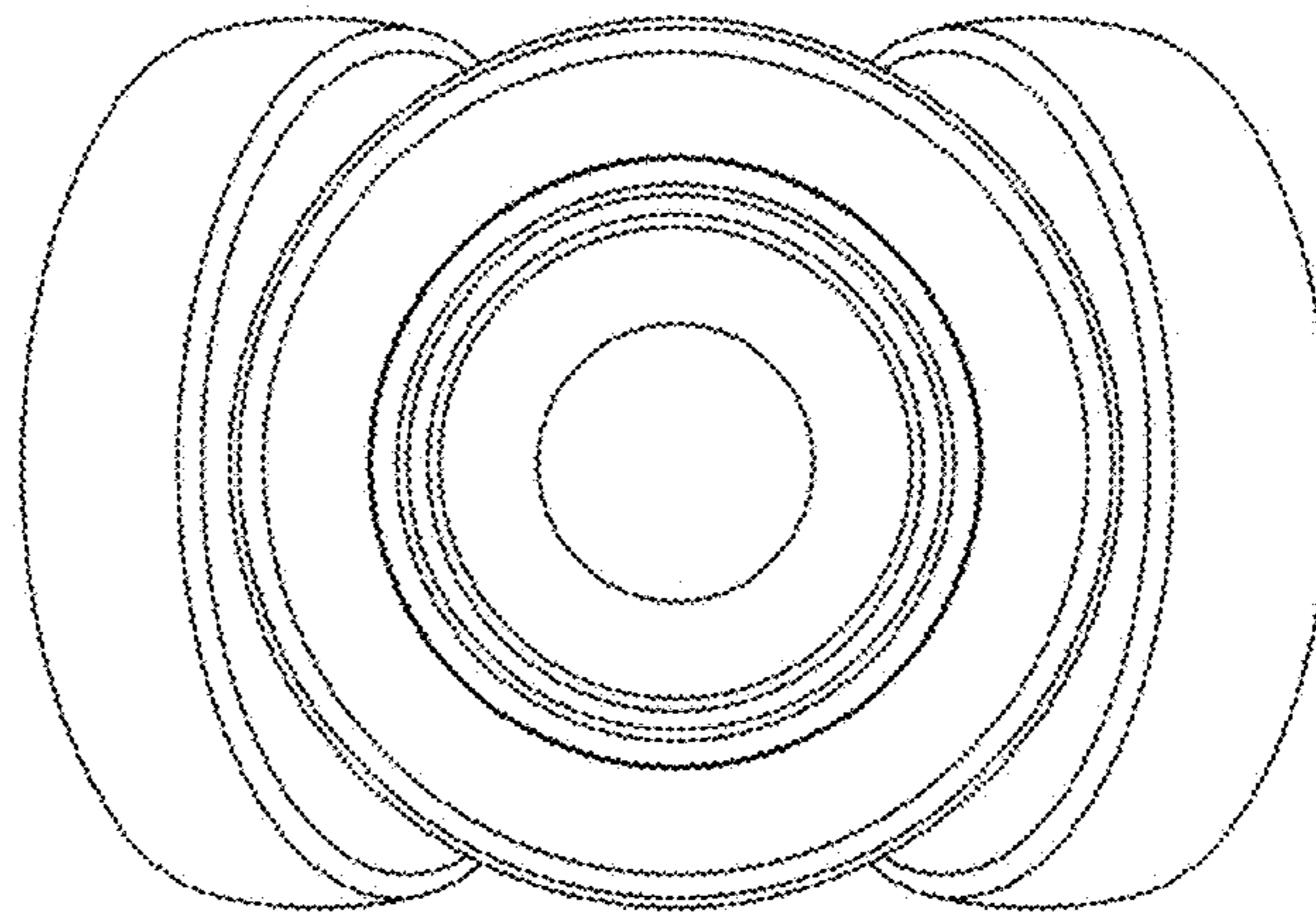


FIGURE 4

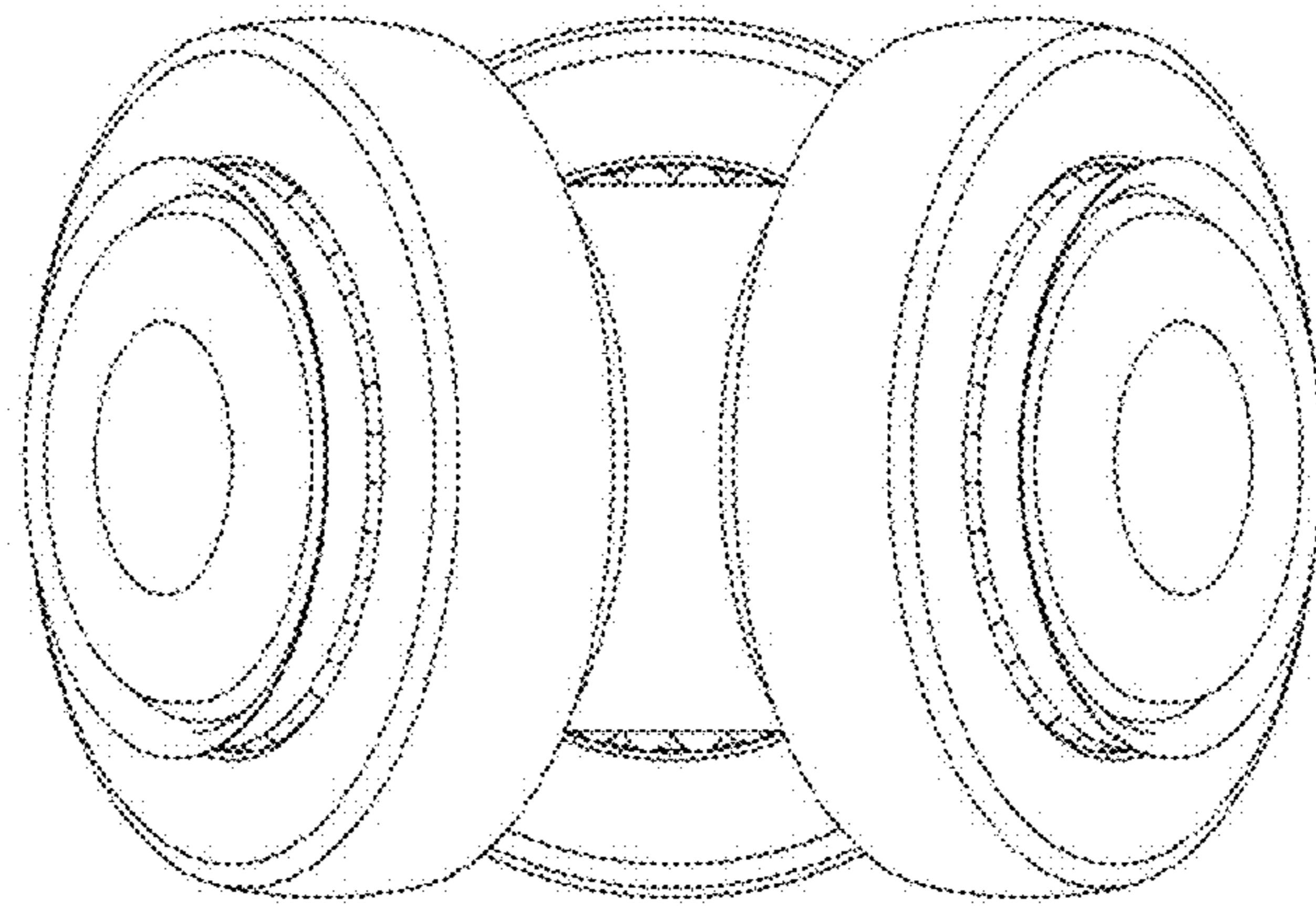


FIGURE 5

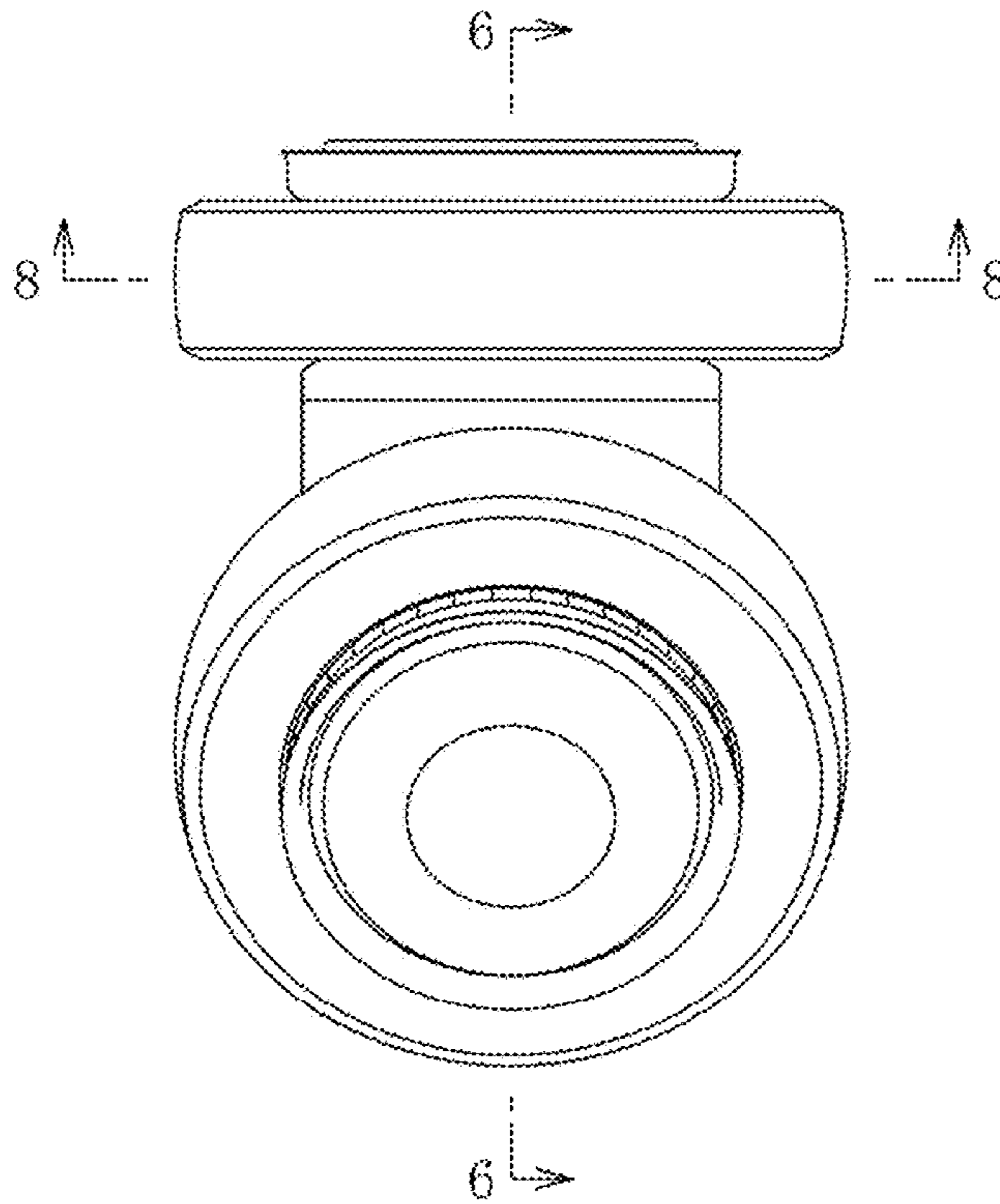


FIGURE 6

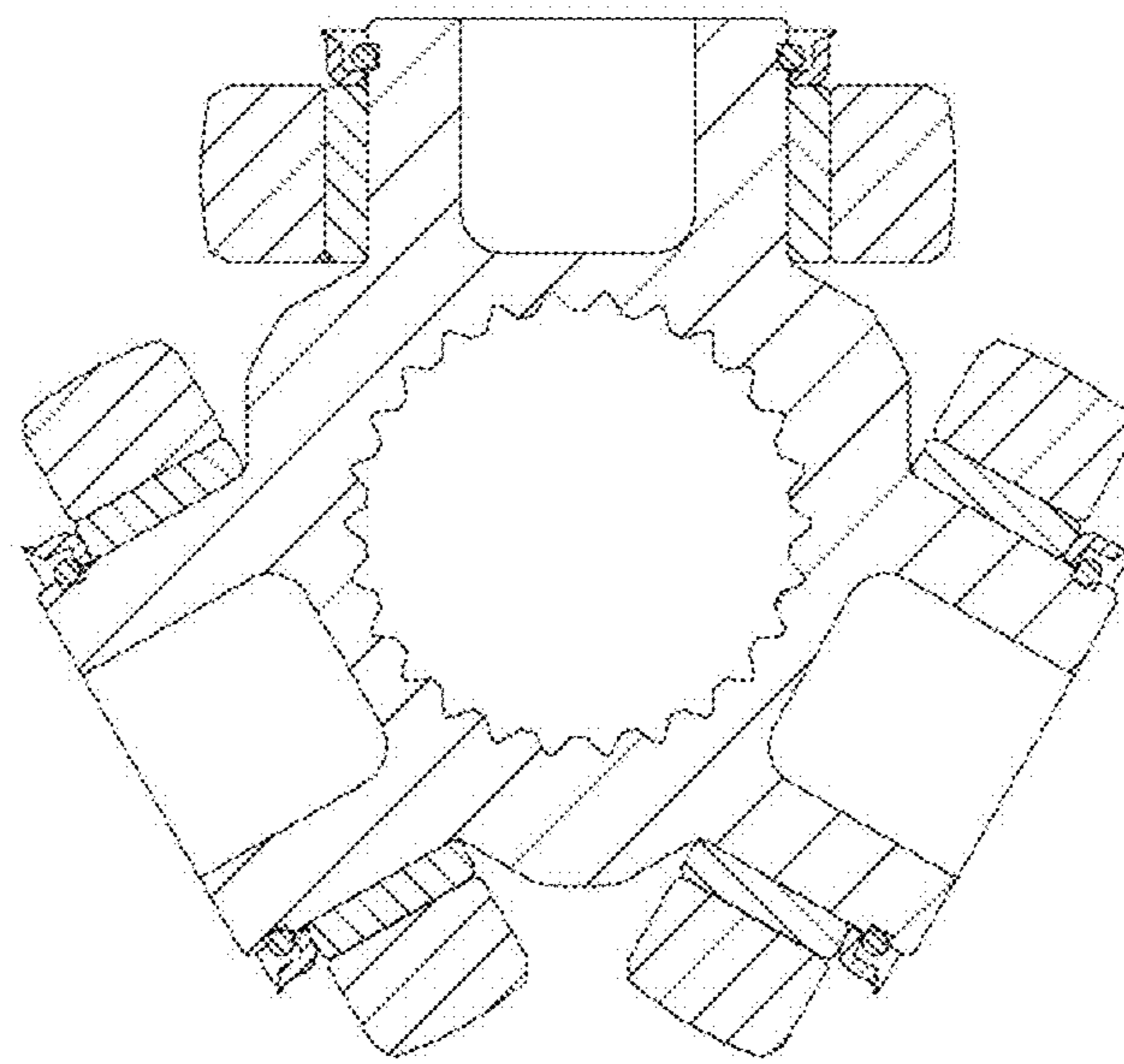


FIGURE 7

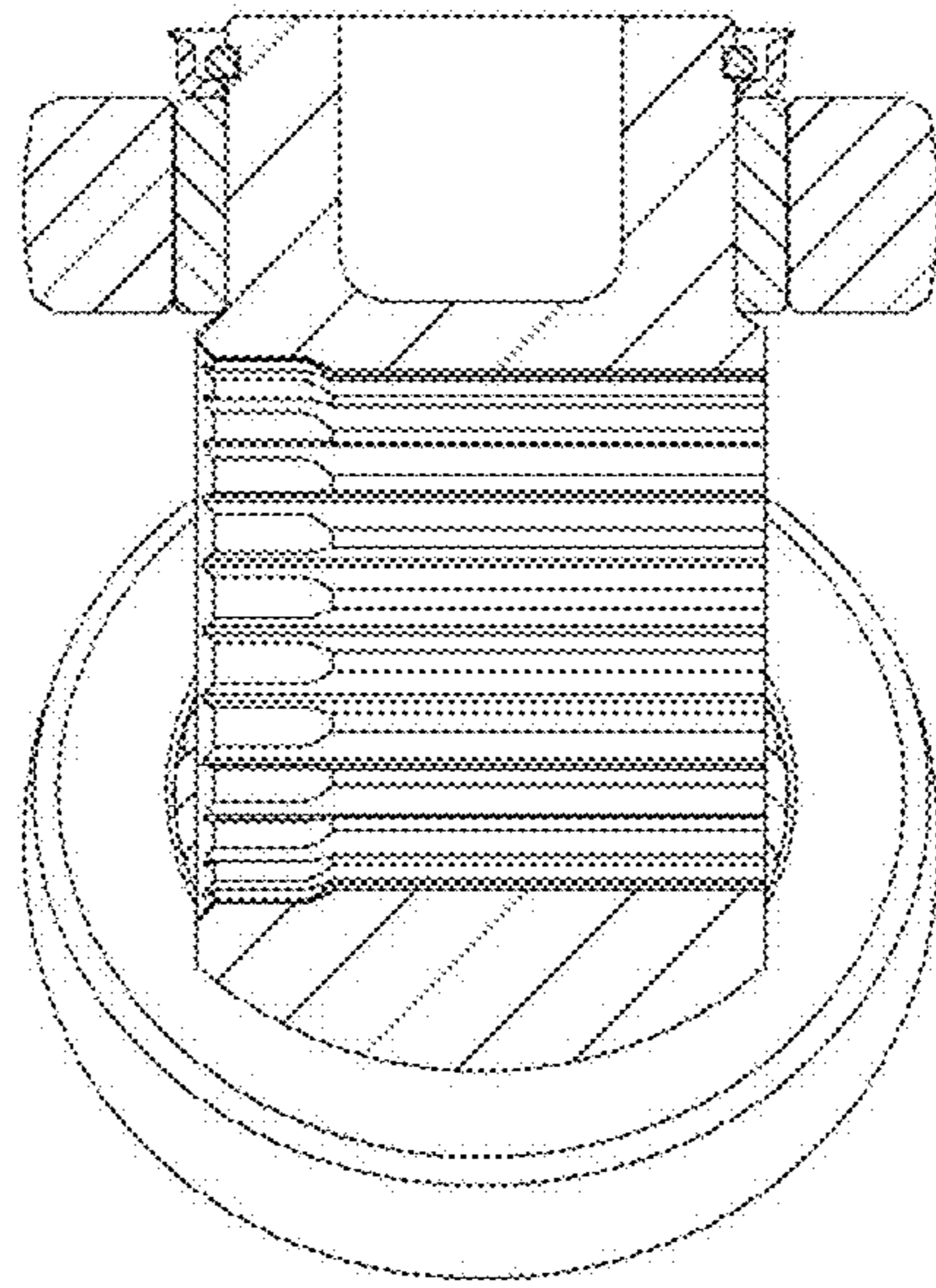


FIGURE 8

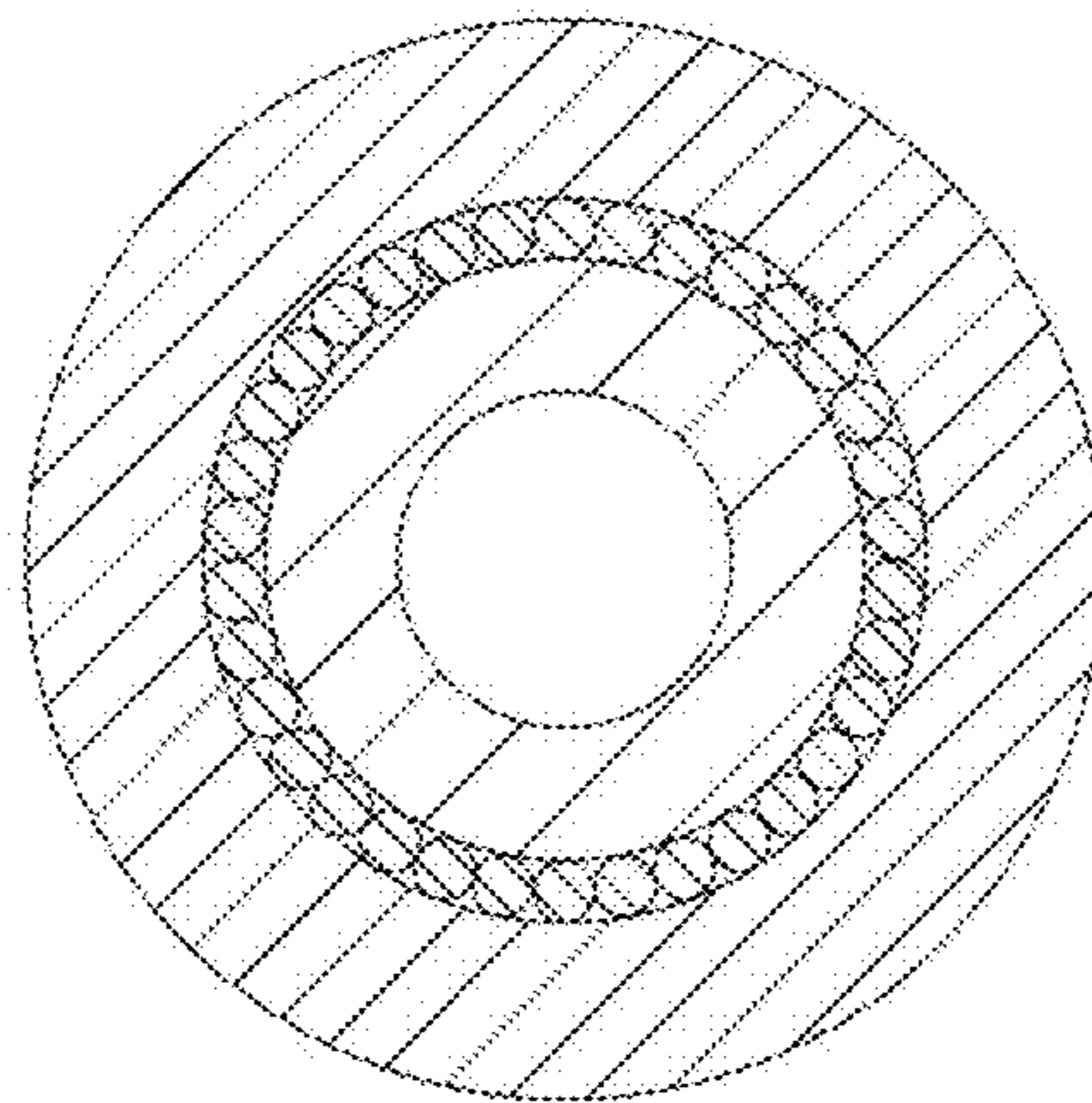


FIGURE 9

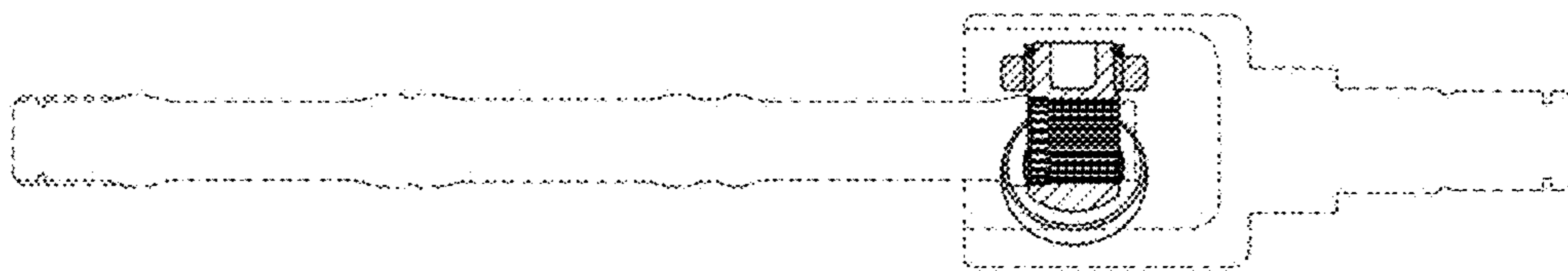


FIGURE 10

