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Aogi et al.

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(54) **RETRACTOR**

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(52) **U.S. Cl.**
USPC **D24/135**

(58) **Field of Classification Search**
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CPC . A61B 17/02; A61B 17/0206; A61B 17/0218;
A61B 2017/2837

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

319,516 A * 6/1885 Shank B65D 33/1675
24/19
3,183,010 A * 5/1965 Bram F16L 21/04
277/618
3,323,785 A * 6/1967 Mather F16C 25/08
267/167
3,468,527 A * 9/1969 Mather F16F 1/045
267/167

(Continued)

FOREIGN PATENT DOCUMENTS

CN 3234197 * 5/2002
CN 302065964 * 9/2012

(Continued)

OTHER PUBLICATIONS

Westfield. <URL:https://uk.westfield.com/london/products/uk-dorothy-perkins/womens-silver-spring-wrap-...2/14/2017>. Visited Feb. 14, 2017. Dorothy Perkins Womens Silver Spring Wrap Bracelet.*

(Continued)

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(57) **CLAIM**

The ornamental design for a retractor, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a retractor showing, our new design;

FIG. 2 is a front view thereof;

FIG. 3 is a rear view thereof;

FIG. 4 is a right side view thereof;

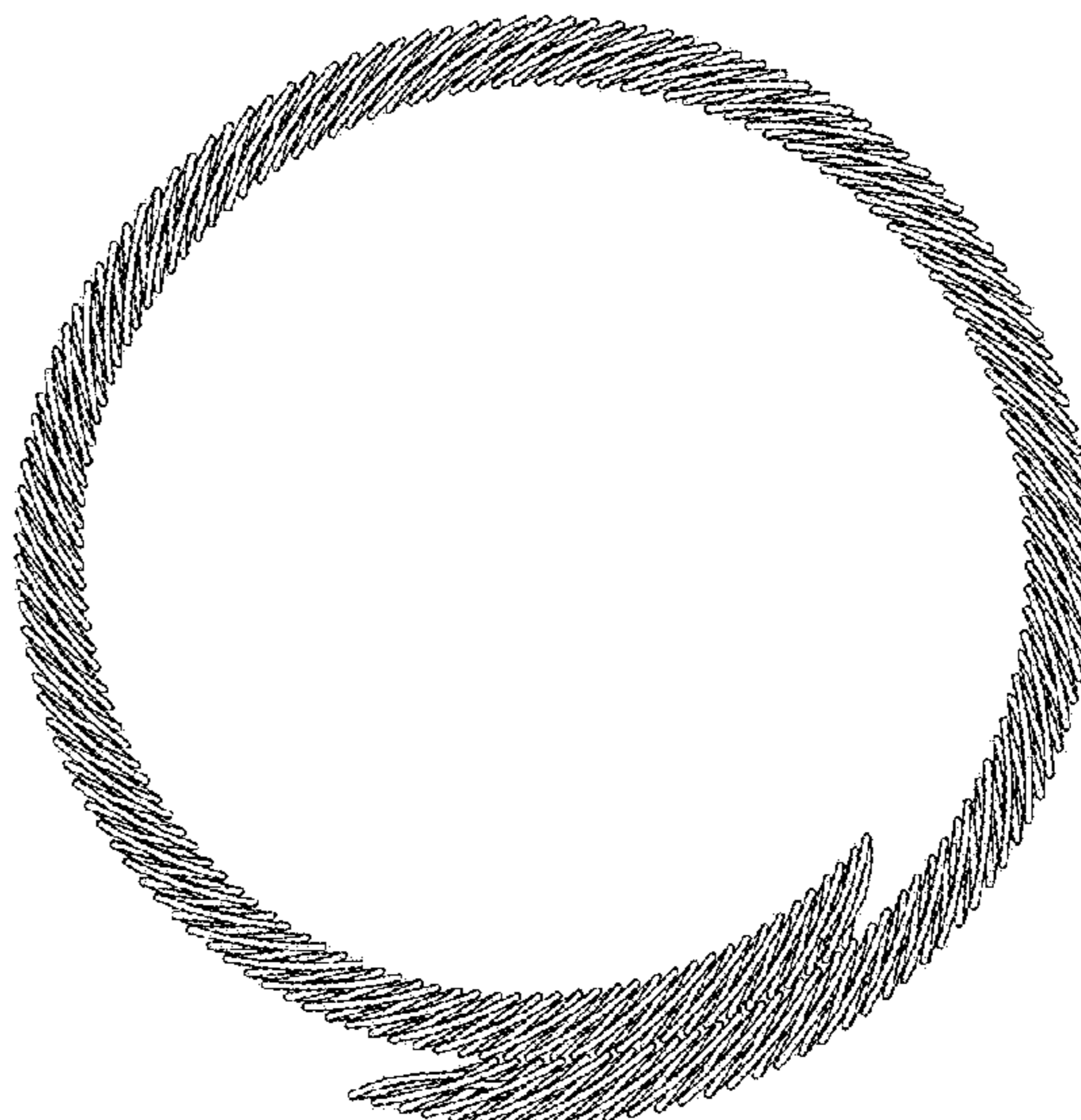
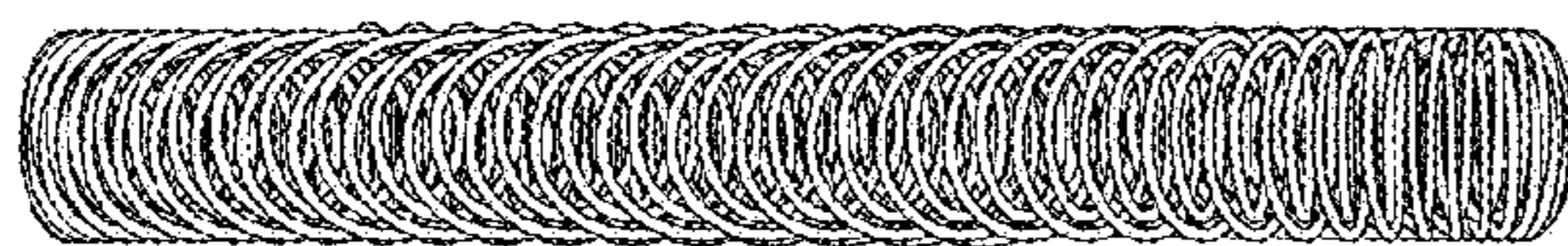
FIG. 5 is a left side view thereof;

FIG. 6 is a top plan view thereof;

FIG. 7 is a bottom plan view thereof; and,

FIG. 8 is a perspective view thereof in a state of being spread.

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,657,582 A * 4/1972 Phelon H02K 1/2786
310/156.31
3,880,414 A * 4/1975 Smith F16F 3/04
267/168
4,655,462 A * 4/1987 Balsells F16J 15/3212
267/1.5
4,826,144 A * 5/1989 Balsells F16F 1/045
267/1.5
4,907,788 A * 3/1990 Balsells F16F 1/04
267/1.5
5,052,782 A * 10/1991 Myer G02B 7/026
359/694
5,091,606 A * 2/1992 Balsells F16F 1/04
174/370
5,134,244 A * 7/1992 Balsells F16J 15/3212
174/352
5,139,243 A * 8/1992 Balsells F16J 15/027
267/1.5
5,139,276 A * 8/1992 Balsells F16F 1/04
267/1.5
5,160,122 A * 11/1992 Balsells F16F 1/045
267/1.5
5,161,806 A * 11/1992 Balsells F16J 15/027
267/1.5
5,197,978 A * 3/1993 Hess A61F 2/82
606/194
5,304,194 A * 4/1994 Chee A61B 17/12022
604/104
5,474,309 A * 12/1995 Balsells H05K 9/0016
174/351
5,503,375 A * 4/1996 Balsells F16F 1/045
267/167
D407,818 S * 4/1999 Mariant D24/143
D409,816 S * 5/1999 Young D21/692
D423,975 S * 5/2000 Graziano D11/20
D474,421 S * 5/2003 Weiser D11/162
D532,292 S * 11/2006 Duwel D8/395
D581,531 S * 11/2008 Alinsod D24/135
D698,996 S * 2/2014 Krasniansky D28/41
9,010,740 B2 * 4/2015 Jaster F16F 1/045
267/1.5
D757,870 S * 5/2016 Leslie D21/693

9,394,957 B2 * 7/2016 Meier F16F 1/123
D774,646 S * 12/2016 Sato D24/130
2003/0096526 A1 * 5/2003 Balsells H01R 13/187
439/346
2005/0263946 A1 * 12/2005 Zawilinski F16F 3/06
267/140.12
2007/0042648 A1 * 2/2007 Balsells F16F 1/045
439/817
2009/0301510 A1 * 12/2009 Hsu A45D 8/00
132/273
2010/0090379 A1 * 4/2010 Balsells F16B 21/18
267/1.5
2013/0330122 A1 * 12/2013 Ghasiri F16F 1/045
403/327
2014/0259617 A1 * 9/2014 Kompa F16F 1/045
29/450
2017/0027554 A1 * 2/2017 Vaillancourt A61B 17/0293

FOREIGN PATENT DOCUMENTS

EM 002756643-0001 * 11/2015
JP 3008219 U 3/1995
JP D1526324 * 6/2015
JP D1533771 * 9/2015
JP D1539256 * 11/2015
WO WO 2016121169 A1 * 8/2016 A61B 17/02

OTHER PUBLICATIONS

Nelson Products, Inc. <URL: <http://www.npisprings.com/pages/dynaflex.php>>. Visited Feb. 13, 2017. Dynaflex Slanted Coil Springs.*
Maudlin Products. <URL: <http://www.npisprings.com/pages/dynaflex.php>>. Visited Feb. 13, 2017. Maudlin Slant Coil Spring.*
Li Spring. <URL: <http://www.lispring.com/sale-8190120-slanted-coil-spring.html>>. Visited Feb. 13, 2017. Slanted Coil Spring.*
Maudlin Products. <URL: <http://www.npisprings.com/pages/dynaflex.php>>. Nov. 5, 2014. New Maudlin Slant Coil Springs.*
Bal Seal Engineering, Inc. <URL: <http://www.balseal.com/springs>>. Visited Feb. 13, 2017. Canted coil springs.*
Acxes Spring. <URL: <http://www.acxesspring.com/garter-spring-design.html>>. Visited Feb. 13, 2017. Garter springs.*

* cited by examiner

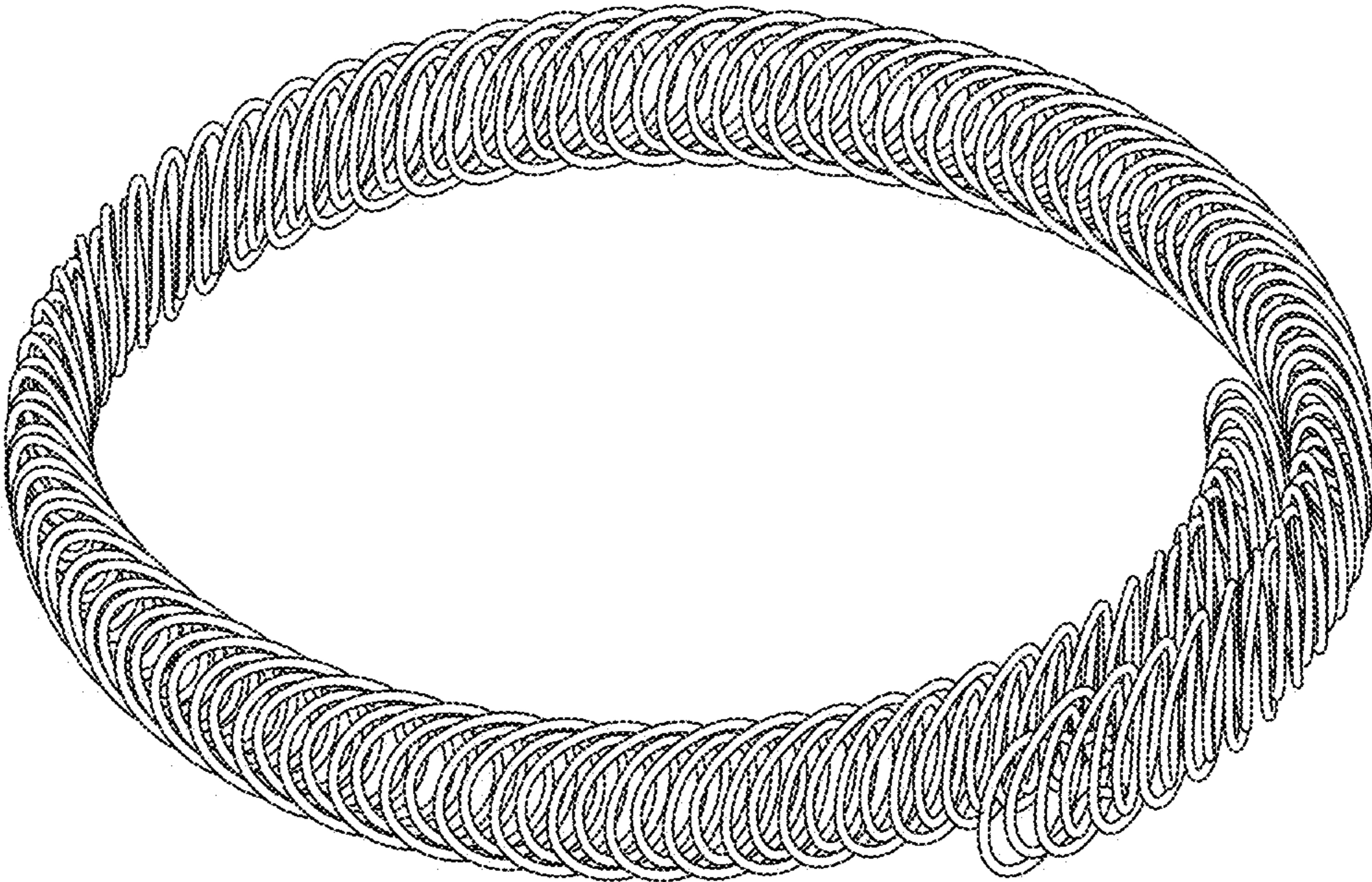


Fig. 1

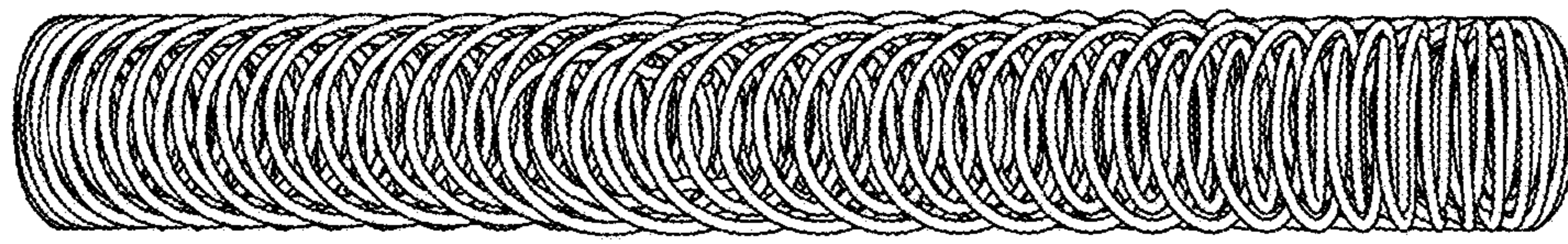


Fig. 2

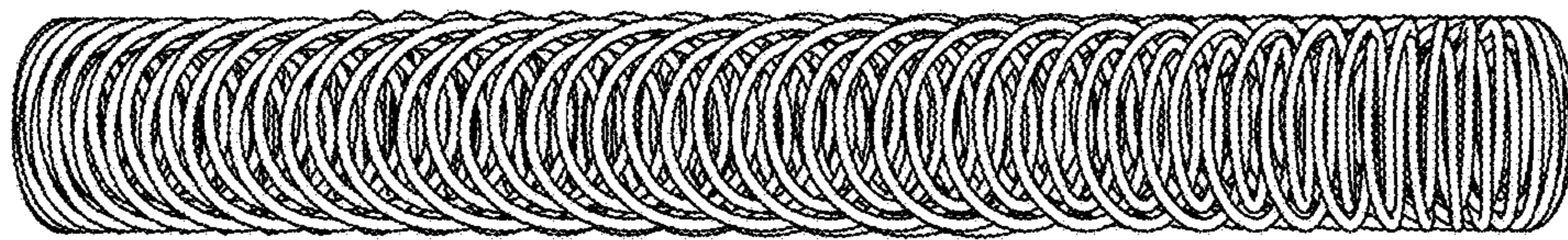


Fig. 3

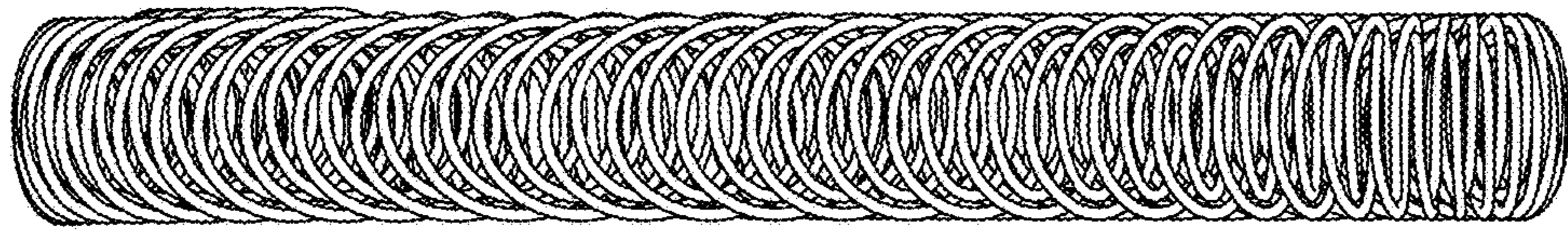


Fig. 4

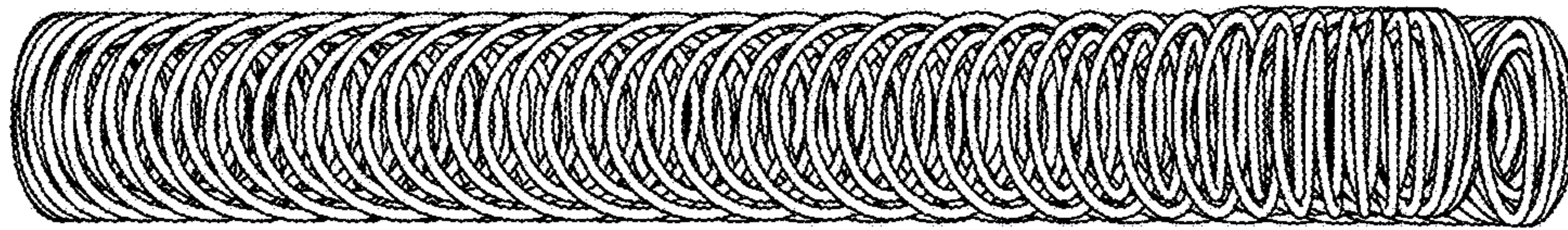


Fig. 5

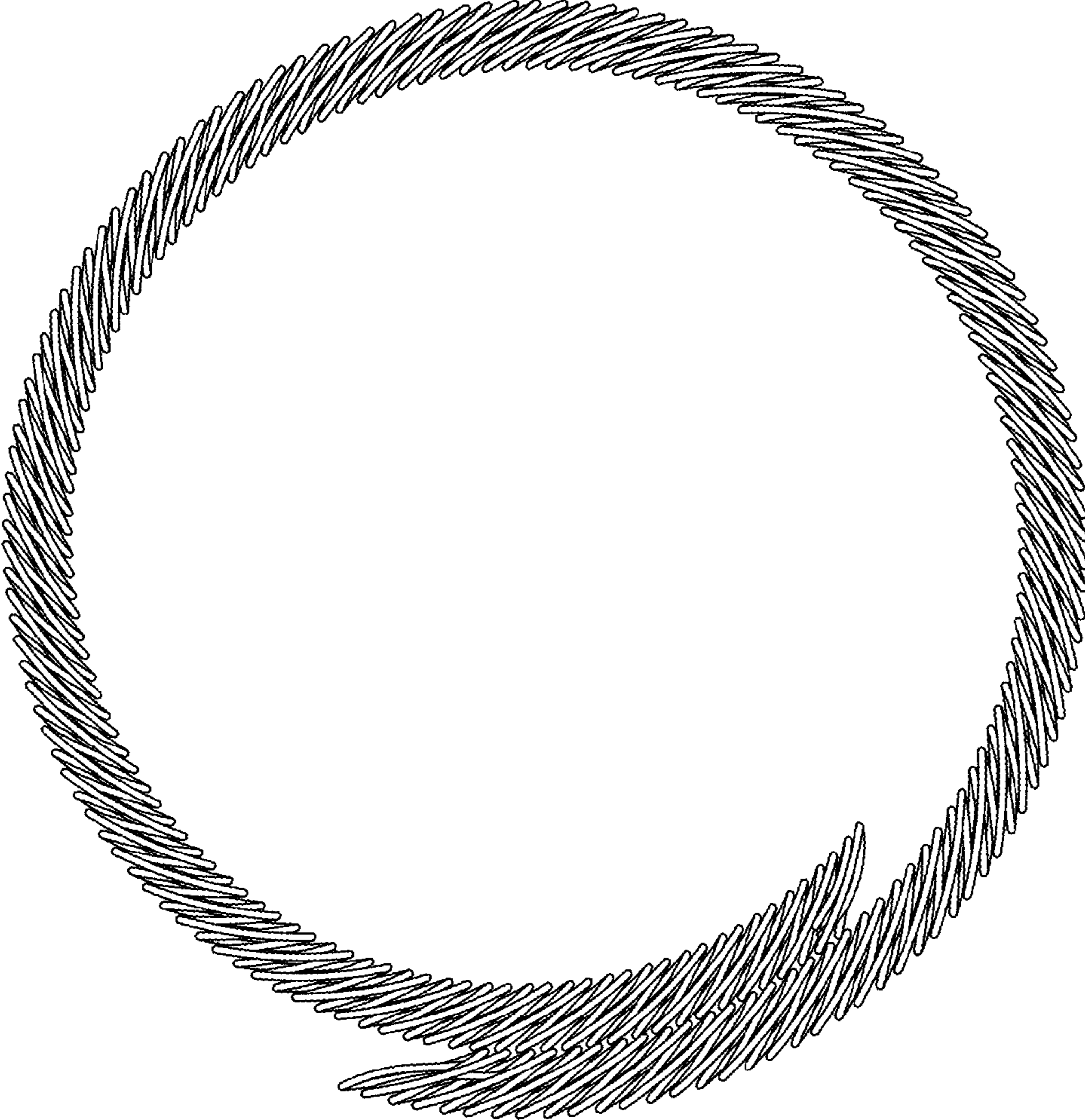


Fig. 6

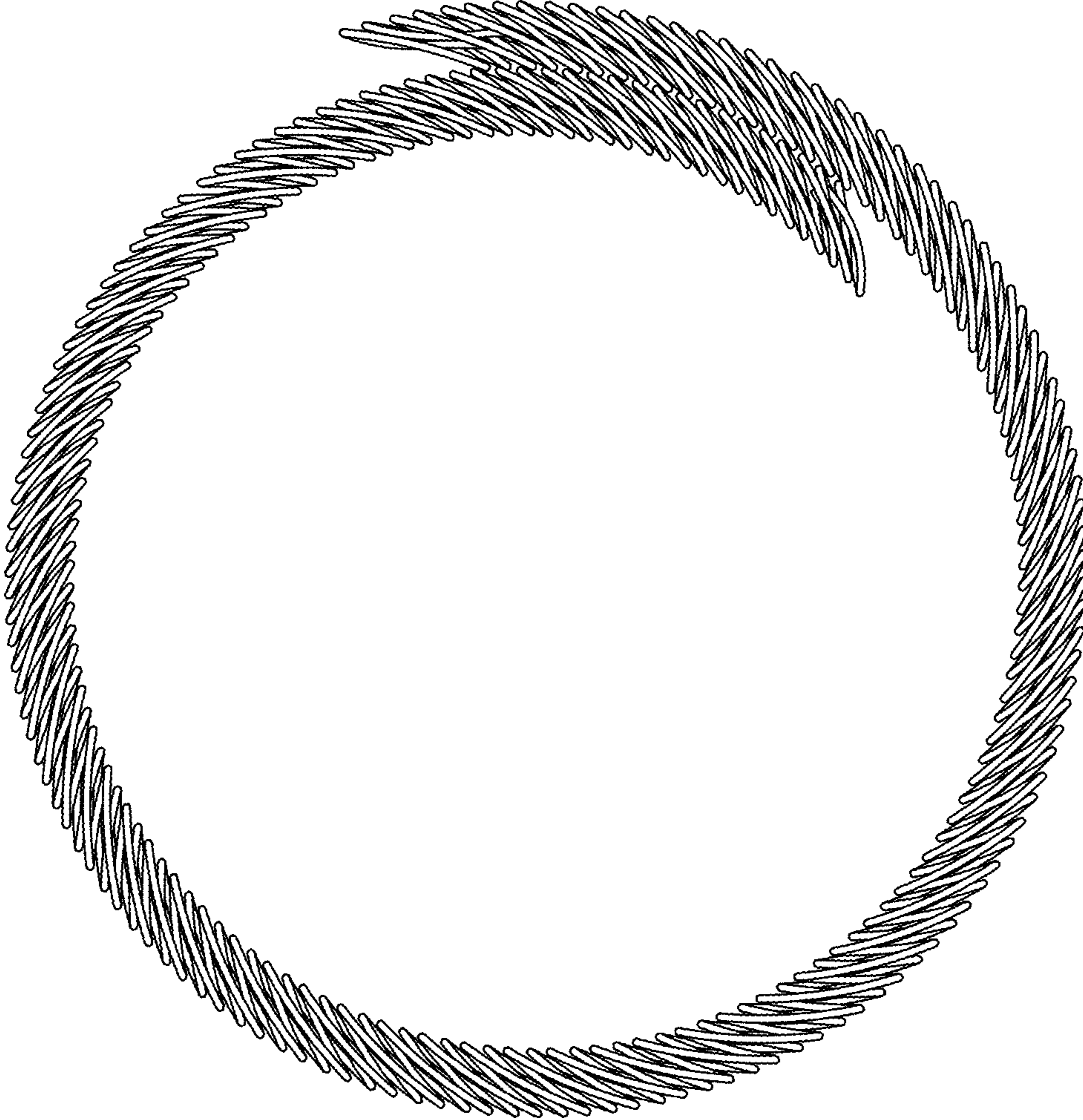


Fig. 7



Fig. 8