

US00D869656S

(12) **United States Design Patent** (10) **Patent No.:** **US D869,656 S**
Adams (45) **Date of Patent:** **** *Dec. 10, 2019**

(54) **SINGLE STRAND BI-DIRECTIONAL BARB SUTURE WITH COATING SHIELD**

Adhere Less to Barbed Monofilament Than Braided Sutures in a Contaminated Wound Model, Feb. 2013; 471(2): 665-671.

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

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(**) Term: **15 Years**

(57) **CLAIM**

(21) Appl. No.: **29/623,769**

The ornamental design for a single strand bi-directional barb suture with coating shield, as shown and described.

(22) Filed: **Oct. 26, 2017**

DESCRIPTION

Related U.S. Application Data

(63) Continuation-in-part of application No. 15/096,496, filed on Apr. 12, 2016, now abandoned.

(51) **LOC (12) Cl.** **24-02**

(52) **U.S. Cl.**
USPC **D24/145**

(58) **Field of Classification Search**
USPC D24/145, 146, 147, 148, 133, 155, 169

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,720,055 A * 3/1973 de Mestral D02G 3/22
57/248
4,622,777 A * 11/1986 Greene, Jr. A01G 9/022
47/67

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2777345 A1 11/2012
EP 2338421 B1 11/2012

(Continued)

OTHER PUBLICATIONS

John R. Fowler, MD, Tiffany A. Perkins, BS, Bettina A. Buttaro, PhD, and Allan L. Truant, PhD, Clin Ortho Relat Res. Bacteria

FIG. 1 is a side elevation view of a single strand bi-directional barb suture with coating shield in accordance with the invention, showing the single strand bi-directional barb suture with coating shield in a first condition of use wherein both strands are shown in a coated condition;

FIG. 2 is an enlarged, partial side elevation of a portion of the; single strand bi-directional barb suture with coating shield taken from FIG. 1;

FIG. 3 is another enlarged, side elevation of a portion of the single strand bi-directional barb suture with coating shield take from FIG. 1;

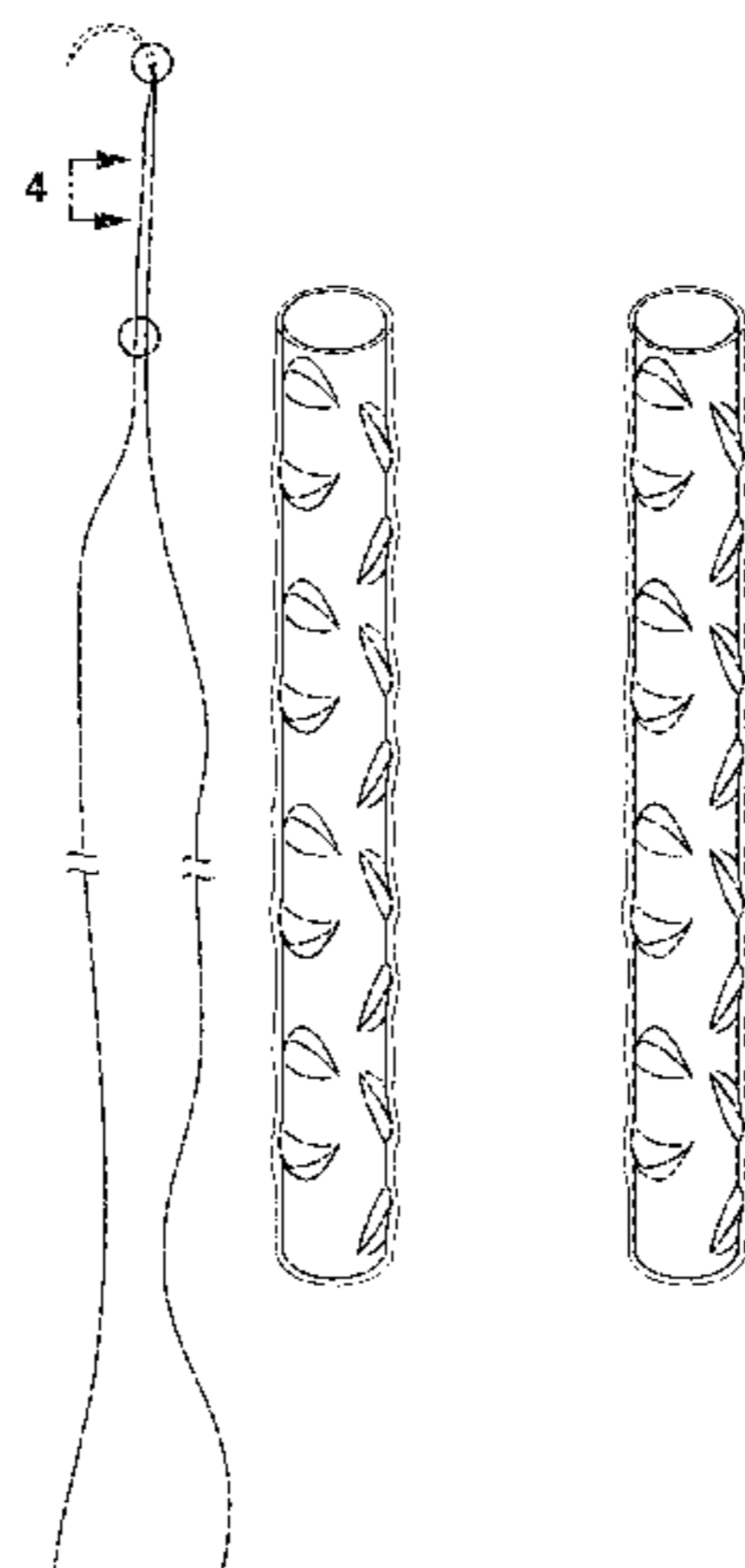
FIG. 4 is a perspective view of the single strand bi-directional barb suture with coating shield showing the portion indicated by Line 4-4 in FIG. 1;

FIG. 5 is a cross-section view thereof, showing the single strand bi-directional barb suture with coating shield in a second condition of use wherein one strand is shown in a coated condition and the other strand is shown in a non-coated condition, taken along line 5-5 of FIG. 3; and,

FIG. 6 is another cross-section view thereof, showing the single strand bi-directional barb suture with coating shield in a second condition of use wherein both strands are in a non-coated condition.

The broken lines shown in FIGS. 1 and 2 illustrated the environment of the single strand bi-directional barb suture with coating shield and forms no part of the claimed design. The single strand bi-directional barb suture with coating shield is shown with a symbolic break in its length in FIG.

(Continued)



1. The appearance of any portion of the article between the break lines forms no part of the claimed design.

The single strand bi-directional barb suture with coating shield contains a repeating pattern of barbs, wherein the pattern of barbs repeats along the length of the suture filaments forming a double-stranded suture. Before and during use, the double-stranded suture contains both strands with coating. Once the single strand bi-directional barb suture with coating shield is installed, the coating on the strand dissolves.

1 Claim, 2 Drawing Sheets

(58) **Field of Classification Search**

CPC A61B 17/06166; A61B 17/0401; A61B 2017/00526; A61B 2017/06176; A61B 17/06066; A61B 17/04; A61B 2017/0417; A61B 2017/0608; A61B 17/0469; A61B 17/0483; A61B 17/0485; A61B 17/062; A61B 2017/0046; A61B 2017/047; A61F 2002/075; B21G 1/08

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,649,920 A * 3/1987 Rhum A61L 17/145
606/230
4,844,067 A * 7/1989 Ikada A61L 17/145
606/231
8,062,363 B2 11/2011 Hirpara et al.
8,353,931 B2 1/2013 Stopek et al.
8,562,644 B2 10/2013 Yuan et al.
D734,459 S * 7/2015 Arnett D24/145
D745,964 S * 12/2015 Ponganis D24/133
D745,965 S * 12/2015 Anderson D24/133
D746,449 S * 12/2015 Ponganis D24/133
D746,450 S * 12/2015 Anderson D24/133
D749,726 S * 2/2016 Ponganis D24/133
9,307,983 B2 * 4/2016 Stopek A61B 17/06166
D844,140 S * 3/2019 Adams D24/145
2003/0074023 A1 * 4/2003 Kaplan A61B 17/00234
606/228
2007/0005110 A1 * 1/2007 Collier A61B 17/06166
606/228

2009/0177228 A1 * 7/2009 Aspenberg A61B 17/06166
606/228
2009/0210006 A1 * 8/2009 Cohen A61B 17/06166
606/232
2012/0277793 A1 * 11/2012 Marczyk A61B 17/06166
606/228
2013/0066369 A1 3/2013 Collier et al.
2013/0165971 A1 6/2013 Leung et al.
2015/0272720 A1 * 10/2015 Marks A61B 17/00008
623/13.2
2016/0045636 A1 * 2/2016 Rizk A61L 17/105
606/230
2016/0120543 A1 * 5/2016 Nawrocki A61B 17/06166
606/230
2016/0278769 A1 * 9/2016 Kim D02J 3/10
2017/0189016 A1 * 7/2017 Gross A61B 17/06166
2017/0281160 A1 * 10/2017 Lin A61B 17/06166
2017/0319195 A1 * 11/2017 Denham A61B 17/0401
2017/0319203 A1 * 11/2017 Cohen A61B 17/06166
2017/0360543 A1 * 12/2017 Rosenblatt A61B 17/06
2018/0103944 A9 * 4/2018 Sauer A61B 17/0401
2018/0116648 A1 * 5/2018 Kim A61B 17/06109
2018/0125472 A1 * 5/2018 Dreyfuss A61B 17/0401
2018/0140291 A1 * 5/2018 Dreyfuss A61B 17/0401
2018/0353173 A1 * 12/2018 Kinney A61B 17/06166
2019/0119838 A1 * 4/2019 Pilgeram D04C 3/48

FOREIGN PATENT DOCUMENTS

EP 2447040 A3 12/2013
JP 61171998 2/1986

OTHER PUBLICATIONS

James A. Greenberg, MD, US National Library of Medicine National Institute of Health, The Use of Barbed Sutures in Obstetrics and Gynecology, v.3(3); Summer 2010.
Dr. R.K. Mishra, Barbed Suture in Laparoscopic Surgery, Feb. 9, 2016.
Angiotech Puerto Rico, Inc., Quill™ Knotless Tissue-Closure Device Product Catalog, 2007-2013.
Angiotech Pharmaceuticals, Inc. Quill™ SRS Product Catalog, 2009.
Covidien, V-Loc™ Wound Closure Devices Product Overview, 2011.
Covidien, V-Loc™ Wound Closure Device (the secure advantage), 2013.
DePuy Mitek, a Johnson & Johnson Company, MicroFix Absorbable QuickAnchor® Plus, Massachusetts, 2005.

* cited by examiner

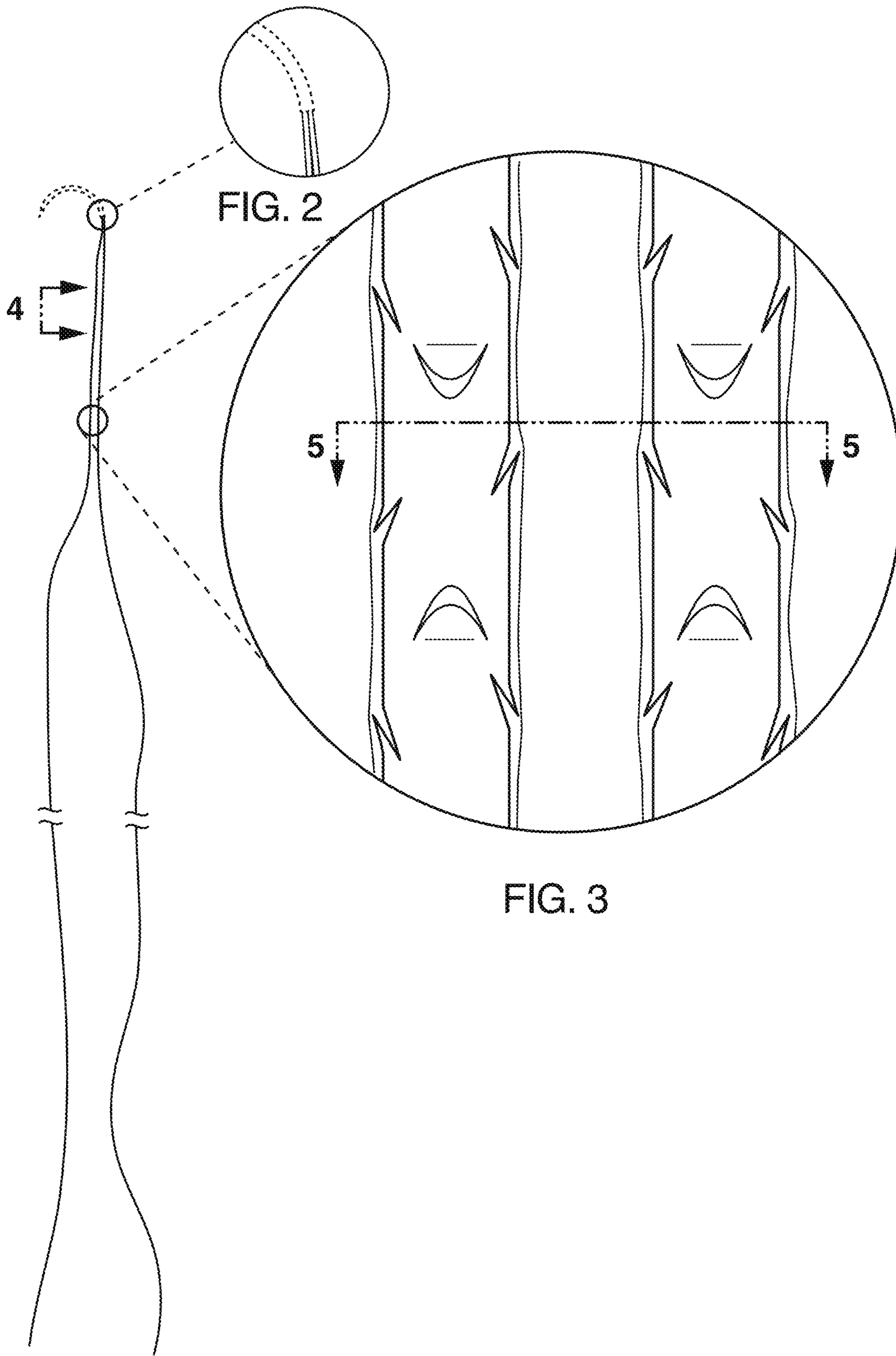


FIG. 2

FIG. 3

FIG. 1

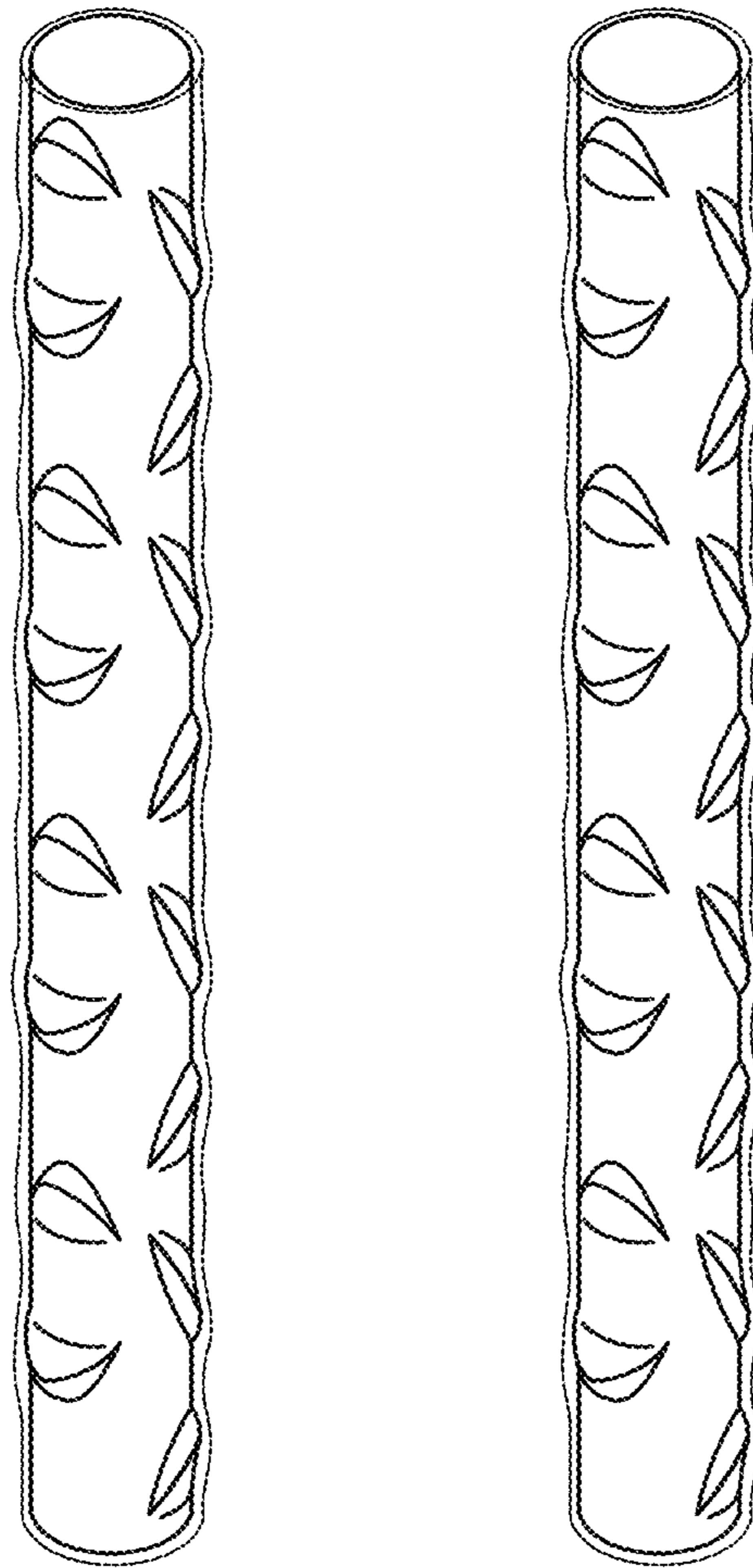


FIG. 4

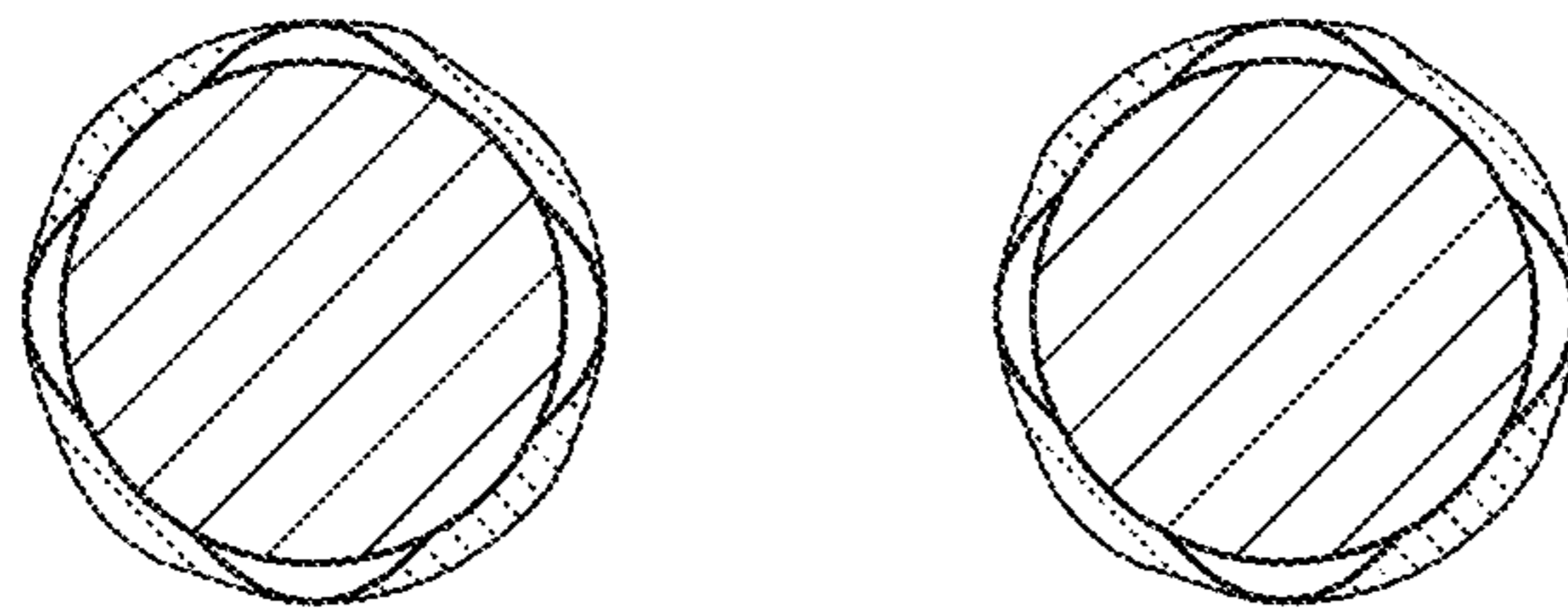


FIG. 5

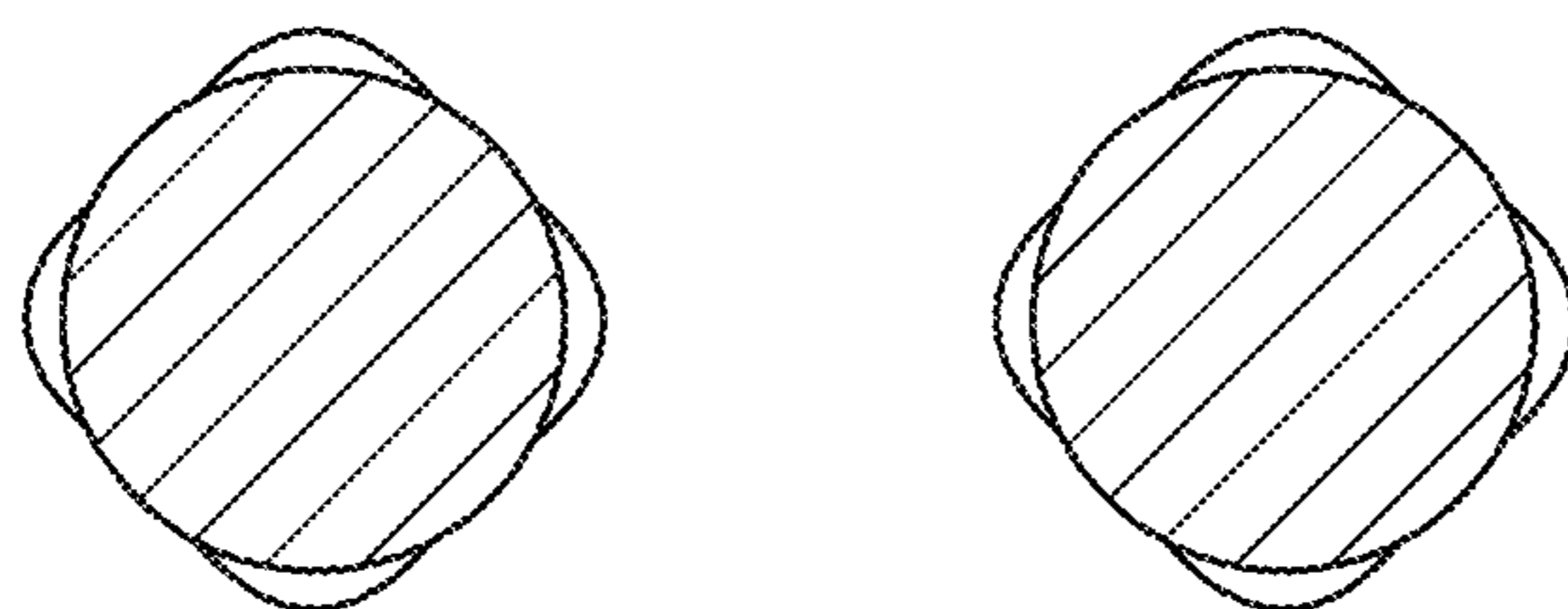


FIG. 6