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Moua et al.

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(54) **OPEN VESSEL SEALING FORCEPS**

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D24/153, 143-144, 146-148; 606/40-41,
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D249,549 S 9/1978 Pike
(Continued)

FOREIGN PATENT DOCUMENTS

DE 2415263 10/1975
(Continued)

OTHER PUBLICATIONS

Covidien's LigaSure Curved, Small Jaw, Open Sealer/Divider
Cleared in US. 2004-2011 [retrieved on Jan. 19, 2012]. Retrieved
from the Internet: <URL: [http://medgadget.com/2011/02/
covidien_ligasure_curved_small_jaw_open_sealerdivider...](http://medgadget.com/2011/02/covidien_ligasure_curved_small_jaw_open_sealerdivider...)
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(Continued)

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(57) **CLAIM**

The ornamental design for an open vessel sealing forceps, as
shown and described.

DESCRIPTION

FIG. 1 is a left side perspective view of an open vessel sealing
forceps of the present design;

FIG. 2 is a front view of the open vessel sealing forceps of
FIG. 1;

FIG. 3 is a rear view of the open vessel sealing forceps of FIG.
1;

FIG. 4 is a bottom view of the open vessel sealing forceps of
FIG. 1;

FIG. 5 is a top view of the open vessel sealing forceps of FIG.
1;

FIG. 6 is a right, side view of the open vessel sealing forceps
of FIG. 1;

FIG. 7 is a left, side view of the open vessel sealing forceps of
FIG. 1;

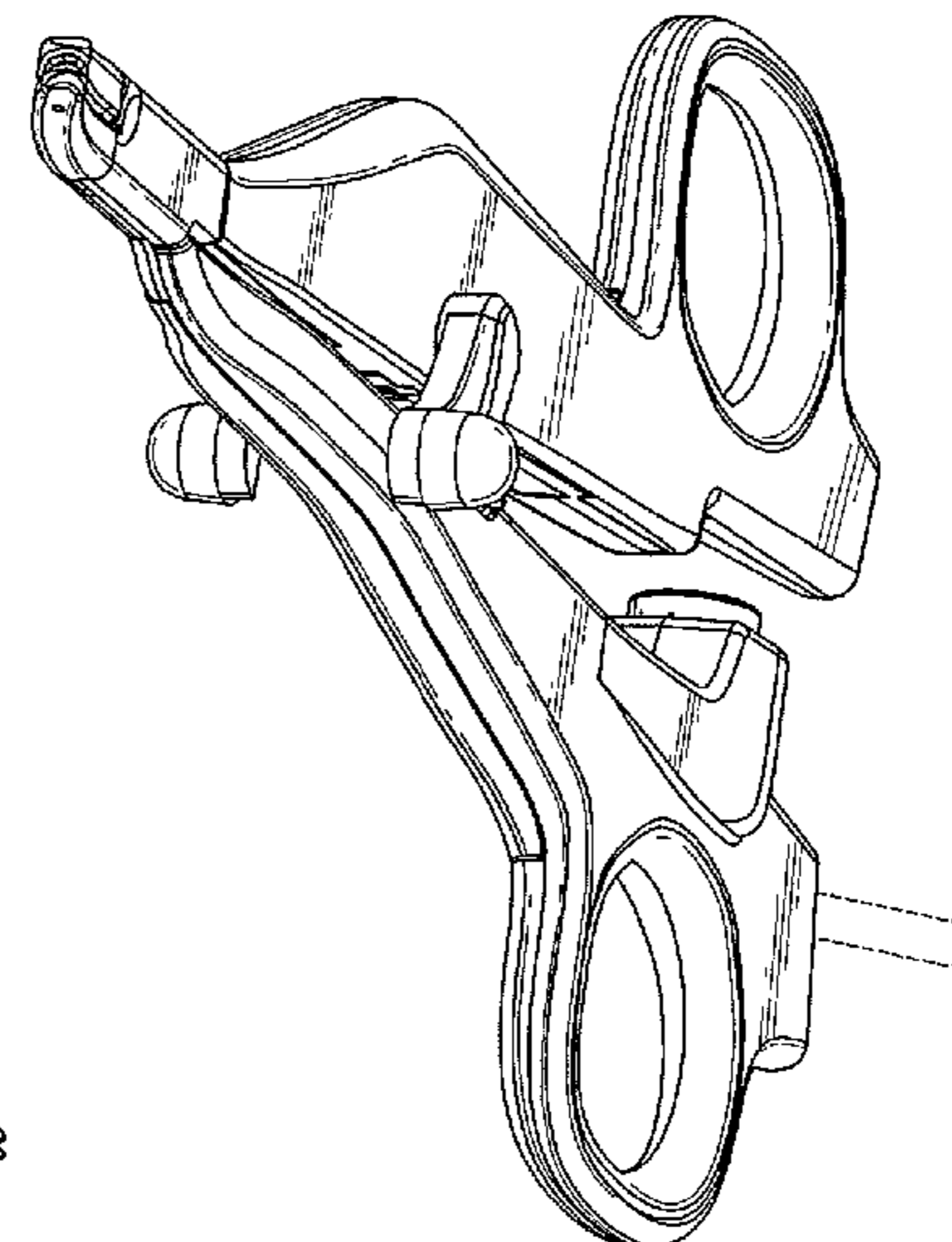
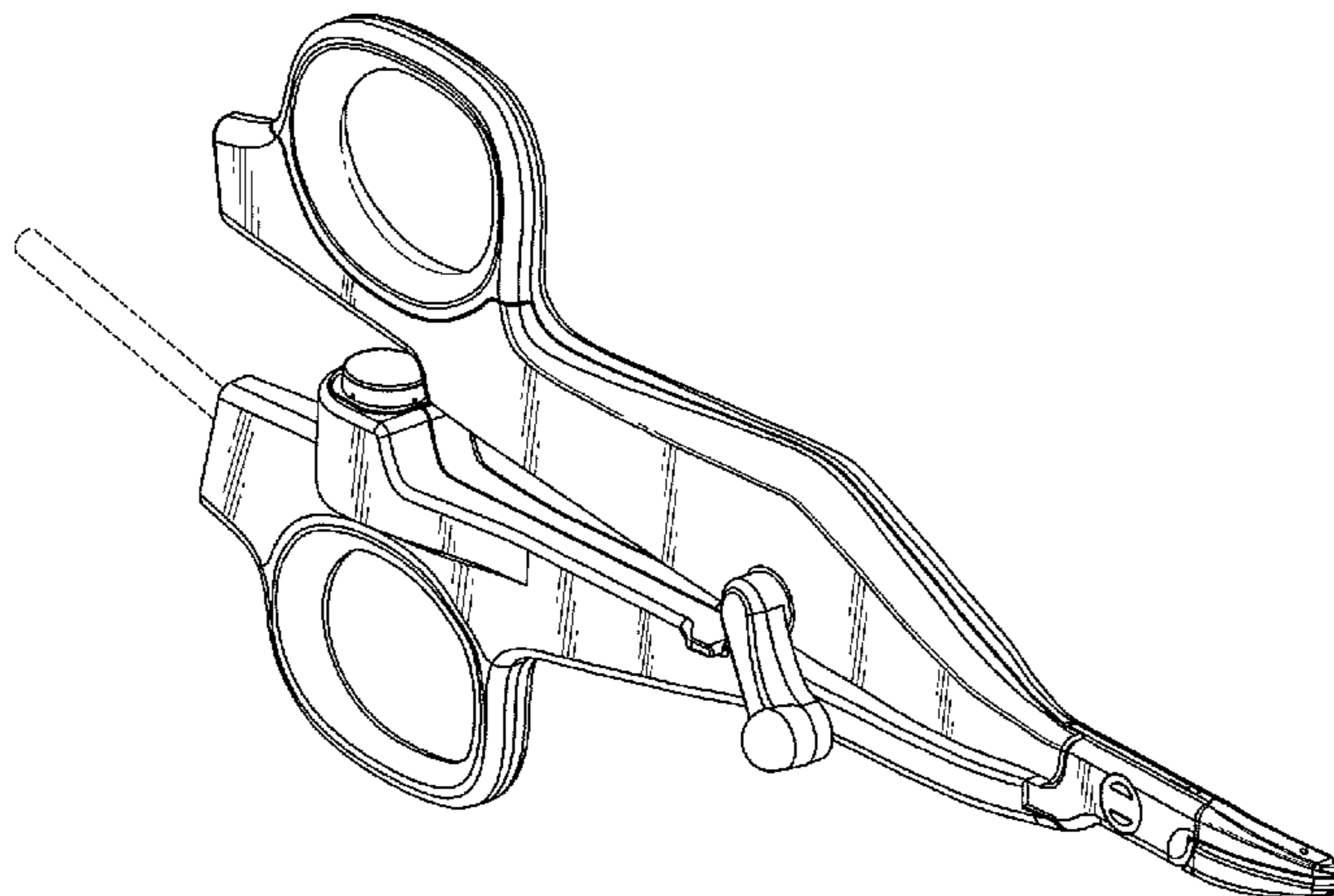
FIG. 8 is a right, front perspective view of the open vessel
sealing forceps of FIG. 1;

FIG. 9 is a left, rear perspective view of the open vessel
sealing forceps of FIG. 1; and,

FIG. 10 is a left, front perspective view of the open vessel
sealing forceps of FIG. 1.

The broken lines immediately adjacent the claimed areas in
FIG. 5 represent the bounds of the claimed design while all
other broken lines represent environmental structure and are
for illustrative purposes only; the broken lines form no part of
the claimed design.

1 Claim, 7 Drawing Sheets



US D670,808 S

U.S. PATENT DOCUMENTS

D263,020 S 2/1982 Rau, III
 D295,893 S 5/1988 Sharkany et al.
 D295,894 S 5/1988 Sharkany et al.
 D298,353 S 11/1988 Manno
 D299,413 S 1/1989 DeCarolis
 5,122,139 A 6/1992 Sutter
 5,215,101 A 6/1993 Jacobs et al.
 D343,453 S 1/1994 Noda
 5,324,289 A 6/1994 Eggers et al.
 D348,930 S 7/1994 Olson
 D349,341 S 8/1994 Lichtman et al.
 D354,564 S 1/1995 Medema
 D358,887 S 5/1995 Feinberg
 5,443,480 A 8/1995 Jacobs et al.
 5,472,443 A 12/1995 Cordis et al.
 5,542,945 A 8/1996 Fritsch
 D384,413 S 9/1997 Zlock et al.
 5,797,938 A 8/1998 Paraschac et al.
 5,833,690 A 11/1998 Yates et al.
 D402,028 S 12/1998 Grimm et al.
 5,849,022 A 12/1998 Sakashita et al.
 5,860,976 A 1/1999 Billings et al.
 5,891,140 A 4/1999 Ginn
 5,891,142 A 4/1999 Eggers et al.
 5,911,719 A 6/1999 Eggers
 5,925,043 A 7/1999 Kumar et al.
 5,957,923 A 9/1999 Hahnen et al.
 D416,089 S 11/1999 Barton et al.
 6,010,516 A 1/2000 Hulka
 D424,694 S 5/2000 Tetzlaff et al.
 D425,201 S 5/2000 Tetzlaff et al.
 6,059,782 A 5/2000 Novak et al.
 6,123,701 A 9/2000 Nezhath
 6,206,877 B1 3/2001 Kесе et al.
 6,235,027 B1 5/2001 Herzon
 6,270,497 B1 8/2001 Sekino et al.
 D449,886 S 10/2001 Tetzlaff et al.
 D454,951 S 3/2002 Bon
 D457,958 S 5/2002 Dycus et al.
 D457,959 S 5/2002 Tetzlaff et al.
 6,443,952 B1 9/2002 Mulier et al.
 D465,281 S 11/2002 Lang
 D466,209 S 11/2002 Bon
 6,533,778 B2 3/2003 Herzon
 6,682,527 B2 1/2004 Strul
 D493,888 S 8/2004 Reschke
 6,776,780 B2 8/2004 Mulier et al.
 D496,997 S 10/2004 Dycus et al.
 6,802,843 B2 10/2004 Truckai et al.
 D499,181 S 11/2004 Dycus et al.
 D502,994 S 3/2005 Blake, III
 D509,297 S 9/2005 Wells
 6,964,662 B2 11/2005 Kidooka
 D525,361 S 7/2006 Hushka
 7,083,613 B2 8/2006 Treat
 D531,311 S 10/2006 Guerra et al.
 7,131,970 B2 11/2006 Moses et al.
 D533,274 S 12/2006 Visconti et al.
 D533,942 S 12/2006 Kerr et al.
 D535,027 S 1/2007 James et al.
 D538,932 S 3/2007 Malik
 D541,418 S 4/2007 Schechter et al.
 D541,611 S 5/2007 Aglassinger
 D541,938 S 5/2007 Kerr et al.
 7,211,079 B2 5/2007 Treat
 D545,432 S 6/2007 Watanabe
 D547,154 S 7/2007 Lee
 7,252,667 B2 8/2007 Moses et al.
 7,267,677 B2 9/2007 Johnson et al.
 7,329,256 B2 2/2008 Johnson et al.
 D564,662 S 3/2008 Moses et al.
 D567,943 S 4/2008 Moses et al.
 D575,395 S 8/2008 Hushka
 D575,401 S 8/2008 Hixson et al.
 D582,038 S 12/2008 Swoyer et al.
 7,470,272 B2 12/2008 Mulier et al.
 7,500,975 B2 3/2009 Cunningham et al.
 7,513,898 B2 4/2009 Johnson et al.

D617,900 S 6/2010 Kingsley et al.
 D617,901 S 6/2010 Unger et al.
 D617,902 S 6/2010 Twomey et al.
 D617,903 S 6/2010 Unger et al.
 D618,798 S 6/2010 Olson et al.
 D621,503 S 8/2010 Otten et al.
 7,811,283 B2 10/2010 Moses et al.
 D627,462 S 11/2010 Kingsley
 D628,289 S 11/2010 Romero
 D628,290 S 11/2010 Romero
 D630,324 S 1/2011 Reschke
 7,887,536 B2 2/2011 Johnson et al.
 7,896,878 B2 3/2011 Johnson et al.
 7,909,823 B2 3/2011 Moses et al.
 7,922,718 B2 4/2011 Moses et al.
 7,972,328 B2* 7/2011 Wham et al. 606/51
 2006/0074417 A1 4/2006 Cunningham et al.
 2006/0167452 A1 7/2006 Moses et al.
 2007/0088356 A1 4/2007 Moses et al.
 2007/0173813 A1* 7/2007 Odom 606/51
 2008/0114356 A1 5/2008 Johnson et al.
 2008/0234672 A1* 9/2008 Bastian 606/41
 2009/0149854 A1 6/2009 Cunningham et al.
 2009/0171353 A1 7/2009 Johnson et al.
 2009/0306660 A1 12/2009 Johnson et al.
 2010/0023009 A1 1/2010 Moses et al.
 2010/0042100 A1* 2/2010 Tetzlaff et al. 606/51
 2010/0100122 A1* 4/2010 Hinton 606/207
 2010/0312242 A1* 12/2010 Odom 606/52
 2011/0034918 A1 2/2011 Reschke
 2011/0054468 A1* 3/2011 Dycus 606/45
 2011/0054472 A1 3/2011 Romero
 2011/0060356 A1* 3/2011 Reschke et al. 606/205
 2011/0071523 A1* 3/2011 Dickhans 606/45
 2011/0077648 A1 3/2011 Lee et al.
 2011/0190765 A1* 8/2011 Chojin 606/41
 2011/0196368 A1* 8/2011 Moses et al. 606/51
 2011/0218530 A1* 9/2011 Reschke 606/52
 2011/0251606 A1* 10/2011 Kerr 606/41
 2011/0251611 A1* 10/2011 Horner et al. 606/49
 2011/0257680 A1* 10/2011 Reschke et al. 606/206
 2011/0257681 A1* 10/2011 Reschke et al. 606/206

FOREIGN PATENT DOCUMENTS

DE 2514501 10/1976
 DE 2627679 1/1977
 DE 3423356 6/1986
 DE 3612646 4/1987
 DE 8712328 3/1988
 DE 4303882 8/1994
 DE 4403252 8/1995
 DE 19515914 7/1996
 DE 19506363 8/1996
 DE 29616210 1/1997
 DE 19608716 4/1997
 DE 19751106 5/1998
 DE 19751108 5/1999
 DE 10045375 10/2002
 DE 10 2004 026179 12/2005
 DE 20 2007 009165 10/2007
 DE 20 2007 009317 10/2007
 DE 19738457 1/2009
 EP 1159926 12/2001
 EP 1 532 932 A1 5/2005
 EP 1 609 430 A1 12/2005
 EP 1 645 240 A2 4/2006
 JP 61-501068 9/1984
 JP 65-502328 3/1992
 JP 5-5106 1/1993
 JP 5-40112 2/1993
 JP 06343644 12/1994
 JP 07265328 10/1995
 JP 08056955 3/1996
 JP 08252263 10/1996
 JP 09010223 1/1997
 JP 10-24051 1/1998
 JP 11-070124 5/1998
 JP 2000-102545 9/1998
 JP 11-169381 6/1999

JP	11244298	9/1999
JP	2000-342599	12/2000
JP	2000-350732	12/2000
JP	2001-008944	1/2001
JP	2001-029356	2/2001
JP	2001-128990	5/2001
SU	401367	11/1974
WO	WO 00/36986	6/2000
WO	WO 01/15614	3/2001
WO	WO 01/54604	8/2001
WO	WO 2005/110264	11/2005

OTHER PUBLICATIONS

- U.S. Appl. No. 09/387,883, filed Sep. 11, 1999, Dale F. Schmaltz.
U.S. Appl. No. 09/591,328, filed Jun. 9, 2000, Thomas P. Ryan.
U.S. Appl. No. 12/336,970, filed Dec. 17, 2008, Paul R. Sremeich.
U.S. Appl. No. 12/574,001, filed Oct. 6, 2009, Duane E. Kerr.
U.S. Appl. No. 12/574,292, filed Oct. 6, 2009, Duane E. Kerr.
U.S. Appl. No. 12/576,380, filed Oct. 9, 2009, Wayne Siebrecht.
U.S. Appl. No. 12/607,191, filed Oct. 28, 2009, William H. Nau Jr.
U.S. Appl. No. 12/619,100, filed Nov. 16, 2009, Jennifer S. Harper.
U.S. Appl. No. 12/692,414, filed Jan. 22, 2010, Peter M. Mueller.
U.S. Appl. No. 12/696,592, filed Jan. 29, 2010, Jennifer S. Harper.
U.S. Appl. No. 12/696,857, filed Jan. 29, 2010, Edward M. Chojin.
U.S. Appl. No. 12/700,856, filed Feb. 5, 2010, James E. Krapohl.
U.S. Appl. No. 12/719,407, filed Mar. 8, 2010, Arlen J. Reschke.
U.S. Appl. No. 12/728,994, filed Mar. 22, 2010, Edward M. Chojin.
U.S. Appl. No. 12/748,028, filed Mar. 26, 2010, Jessida E.C. Olson.
U.S. Appl. No. 12/757,340, filed Apr. 9, 2010, Carine Hoarau.
U.S. Appl. No. 12/758,524, filed Apr. 12, 2010, Duane E. Kerr.
U.S. Appl. No. 12/759,551, filed Apr. 13, 2010, Glenn A. Horner.
U.S. Appl. No. 12/769,444, filed Apr. 28, 2010, Glenn A. Norner.
U.S. Appl. No. 12/770,369, filed Apr. 29, 2010 Glenn A. Horner.
U.S. Appl. No. 12/770,380, filed Apr. 29, 2010, Glenn A. Horner.
U.S. Appl. No. 12/770,387, filed Apr. 29, 2010, Glenn A. Horner.
U.S. Appl. No. 12/773,526, filed May 4, 2010 Duane E. Kerr.
U.S. Appl. No. 12/773,644, filed May 4, 2010, Thomas J. Gerhardt.
U.S. Appl. No. 12/786,589, filed May 25, 2010, Duane E. Kerr.
U.S. Appl. No. 12/791,112, filed Jun. 1, 2010, David M. Garrison.
U.S. Appl. No. 12/792,001, filed Jun. 2, 2010, Duane E. Kerr.
U.S. Appl. No. 12/792,008, filed Jun. 2, 2010, Duane E. Kerr.
U.S. Appl. No. 12/792,019, filed Jun. 2, 2010, Duane E. Kerr.
U.S. Appl. No. 12/792,038, filed Jun. 2, 2010, Glenn A. Horner.
U.S. Appl. No. 12/792,051, filed Jun. 2, 2010, David M. Garrison.
U.S. Appl. No. 12/792,068, filed Jun. 2, 2010, Glenn A. Horner.
U.S. Appl. No. 12/792,097, filed Jun. 2, 2010, Duane E. Kerr.
U.S. Appl. No. 12/792,262, filed Jun. 2, 2010, Jeffrey M. Roy.
U.S. Appl. No. 12/792,299, filed Jun. 2, 2010, Jeffrey M. Roy.
U.S. Appl. No. 12/792,330, filed Jun. 2, 2010, David M. Garrison.
U.S. Appl. No. 12/822,024, filed Jun. 23, 2010, Peter M. Mueller.
U.S. Appl. No. 12/821,253, filed Jun. 23, 2010, Edward M. Chojin.
U.S. Appl. No. 12/832,772, filed Jul. 8, 2010, Gary M. Couture.
U.S. Appl. No. 12/843,384, filed Jul. 26, 2010, David M. Garrison.
U.S. Appl. No. 12/845,203, filed Jul. 28, 2010, Gary M. Couture.
U.S. Appl. No. 12/853,896, filed Aug. 10, 2010, William H. Nau, Jr.
U.S. Appl. No. 12/859,896, filed Aug. 20, 2010, Peter M. Mueller.
U.S. Appl. No. 12/861,198, filed Aug. 23, 2010, James A. Gilbert.
U.S. Appl. No. 12/861,209, filed Aug. 23, 2010, William H. Nau, Jr.
U.S. Appl. No. 12/876,668, filed Sep. 7, 2010, Sara E. Anderson.
U.S. Appl. No. 12/876,680, filed Sep. 7, 2010, Peter M. Mueller.
U.S. Appl. No. 12/876,705, filed Sep. 7, 2010, Kristin D. Johnson.
U.S. Appl. No. 12/876,731, filed Sep. 7, 2010, Kristin D. Johnson.
U.S. Appl. No. 12/877,199, filed Sep. 8, 2010, Arlen J. Reschke.
U.S. Appl. No. 12/877,482, filed Sep. 8, 2010, Gary M. Couture.
U.S. Appl. No. 12/895,010, filed Sep. 30, 2010, Jeffrey M. Roy.
U.S. Appl. No. 12/896,100, filed Oct. 1, 2010, Ryan Artale.
U.S. Appl. No. 12/897,346, filed Oct. 4, 2010, Ryan Artale.
U.S. Appl. No. 12/906,672, filed Oct. 18, 2010, Kathy E. Rooks.
U.S. Appl. No. 12/915,809, filed Oct. 29, 2010, Thomas J. Gerhardt, Jr.
U.S. Appl. No. 12/947,352, filed Nov. 16, 2010, Jason L. Craig.
U.S. Appl. No. 12/947,420, filed Nov. 16, 2010, Jason L. Craig.
U.S. Appl. No. 12/948,081, filed Nov. 17, 2010, Boris Chernov.
U.S. Appl. No. 12/948,144, filed Nov. 17, 2010, Boris Chernov.
U.S. Appl. No. 12/950,505, filed Nov. 19, 2010, David M. Garrison.
U.S. Appl. No. 12/955,010, filed Nov. 29, 2010, Paul R. Romero.
U.S. Appl. No. 12/955,042, filed Nov. 29, 2010, Steven C. Rupp.
U.S. Appl. No. 12/981,771, filed Dec. 30, 2010, James D. Allen, IV.
U.S. Appl. No. 12/981,787, filed Dec. 30, 2010, John R. Twomey.
Michael Choti, "Abdominoperineal Resection with the LigaSure Vessel Sealing System and LigaSure Atlas 20 cm Open Instrument" ; Innovations That Work, Jun. 2003.
Chung et al., "Clinical Experience of Sutureless Closed Hemorrhoidectomy with LigaSure" Diseases of the Colon & Rectum vol. 46, No. 1 Jan. 2003.
Tinkler L.F., "Combined Diathermy and Suction Forceps", Feb. 6, 1967 (Feb. 6, 1965), British Medical Journal Feb. 6, 1976, vol. 1, nr. 5431 p. 361, ISSN: 0007-1447.
Carbonell et al., "Comparison of the Gyrus PlasmaKinetic Sealer and the Valleylab LigaSure Device in the Hemostasis of Small, Medium, and Large-Sized Arteries" Carolinas Laparoscopic and Advanced Surgery Program, Carolinas Medical Center, Charlotte, NC; Date: Aug. 2003.
Peterson et al. "Comparison of Healing Process Following Ligation with Sutures and Bipolar Vessel Sealing" Surgical Technology International (2001).
"Electrosurgery: A Historical Overview" Innovations in Electrosurgery; Sales/Product Literature; Dec. 31, 2000.
Johnson et al. "Evaluation of a Bipolar Electrothermal Vessel Sealing Device in Hemorrhoidectomy" Sales/Product Literature; Jan. 2004.
E. David Crawford "Evaluation of a New Vessel Sealing Device in Urologic Cancer Surgery" Sales/Product Literature 2000.
Johnson et al. "Evaluation of the LigaSure Vessel Sealing System in Hemorrhoidectomy" American College of Surgeons (ACS) Clinica Congress Poster (2000).
Muller et al., "Extended Left Hemicolectomy Using the LigaSure Vessel Sealing System" Innovations That Work, Sep. 1999.
Kennedy et al. "High-burst-strength, feedback-controlled bipolar vessel sealing" Surgical Endoscopy (1998) 12: 876-878.
Burdette et al. "In Vivo Probe Measurement Technique For Determining Dielectric Properties At VHF Through Microwave Frequencies", IEEE Transactions on Microwave Theory and Techniques, vol. MTT-28, No. 4, Apr. 1980 pp. 414-427.
Carus et al., "Initial Experience With The LigaSure Vessel Sealing System in Abdominal Surgery" Innovations That Work, Jun. 2002.
Heniford et al. "Initial Research and Clinical Results with an Electrothermal Bipolar Vessel Sealer" Oct. 1999.
Heniford et al. "Initial Results with an Electrothermal Bipolar Vessel Sealer" Surgical Endoscopy (2000) 15:799-801.
Herman et al., "Laparoscopic Intestinal Resection With the LigaSure Vessel Sealing System: A Case Report"; Innovations That Work, Feb. 2002.
Koyle et al., "Laparoscopic Palomo Varicocele Ligation in Children and Adolescents" Pediatric Endosurgery & Innovative Techniques, vol. 6, No. 1, 2002.
W. Scott Helton, "LigaSure Vessel Sealing System: Revolutionary Hemostasis Product for General Surgery"; Sales/Product Literature 1999.
LigaSure Vessel Sealing System, the Seal of Confidence in General, Gynecologic, Urologic, and Laparoscopic Surgery; Sales/Product Literature; Apr. 2002.
Joseph Ortenberg "LigaSure System Used in Laparoscopic 1st and 2nd Stage Orchiopexy" Innovations That Work, Nov. 2002.
Sigel et al. "The Mechanism of Blood Vessel Closure by High Frequency Electrocoagulation" Surgery Gynecology & Obstetrics, Oct. 1965 pp. 823-831.
Sampayan et al, "Multilayer Ultra-High Gradient Insulator Technology" Discharges and Electrical Insulation in Vacuum, 1998. Netherlands Aug. 17-21, 1998; vol. 2, pp. 740-743.
Paul G. Horgan, "A Novel Technique for Parenchymal Division During Hepatectomy" The American Journal of Surgery, vol. 181, No. 3, Apr. 2001 pp. 236-237.
Benaron et al., "Optical Time-Of-Flight And Absorbance Imaging Of Biologic Media", Science, American Association for the Advancement of Science, Washington, DC, vol. 259, Mar. 5, 1993, pp. 1463-1466.

- Olsson et al. "Radical Cystectomy in Females" *Current Surgical Techniques in Urology*, vol. 14, Issue 3, 2001.
- Palazzo et al. "Randomized clinical trial of Ligasure versus open haemorrhoidectomy" *British Journal of Surgery* 2002, 89, 154-157.
- Levy et al. "Randomized Trial of Suture Versus Electrosurgical Bipolar Vessel Sealing in Vaginal Hysterectomy" *Obstetrics & Gynecology*, vol. 102, No. 1, Jul. 2003.
- "Reducing Needlestick Injuries in the Operating Room" *Sales/Product Literature* 2001.
- Bergdahl et al. "Studies on Coagulation and the Development of an Automatic Computerized Bipolar Coagulator" *J.Neurosurg*, vol. 75, Jul. 1991, pp. 148-151.
- Strasberg et al. "A Phase I Study of the LigaSure Vessel Sealing System in Hepatic Surgery" *Section of HPB Surger, Washington University School of Medicine, St, Louis MO, Presented at AHPBA*, Feb. 2001.
- Sayfan et al. "Sutureless Closed Hemorrhoidectomy: A New Technique" *Annals of Surgery* vol. 234 No. 1 Jul. 2001; pp. 21-24.
- Levy et al., "Update on Hysterectomy—New Technologies and Techniques" *OBG Management*, Feb. 2003.
- Dulemba et al. "Use of a Bipolar Electrothermal Vessel Sealer in Laparoscopically Assisted Vaginal Hysterectomy" *Sales/Product Literature*; Jan. 2004.
- Strasberg et al., "Use of a Bipolar Vessel-Sealing Device for Parenchymal Transection During Liver Surgery" *Journal of Gastrointestinal Surgery*, vol. 6, No. 4, Jul./Aug. 2002 pp. 569-574.
- Sengupta et al., "Use of a Computer-Controlled Bipolar Diathermy System in Radical Prostatectomies and Other Open Urological Surgery" *ANZ Journal of Surgery* (2001) 71.9 pp. 538-540.
- Rothenberg et al. "Use of the LigaSure Vessel Sealing System in Minimally Invasive Surgery in Children" *Int'l Pediatric Endosurgery Group (IPEG)* 2000.
- Crawford et al. "Use of the LigaSure Vessel Sealing System in Urologic Cancer Surgery" *Grand Rounds in Urology* 1999 vol. 1 Issue 4 pp. 10-17.
- Craig Johnson, "Use of the LigaSure Vessel Sealing System in Bloodless Hemorrhoidectomy" *Innovations That Work*, Mar. 2000.
- Levy et al. "Use of a New Energy-based Vessel Ligation Device During Vaginal Hysterectomy" *Int'l Federation of Gynecology and Obstetrics (FIGO) World Congress* 1999.
- Barbara Levy, "Use of a New Vessel Ligation Device During Vaginal Hysterectomy" *FIGO* 2000, Washington, D.C.
- E. David Crawford "Use of a Novel Vessel Sealing Technology in Management of the Dorsal Venous Complex" *Sales/Product Literature* 2000.
- Jarrett et al., "Use of the LigaSure Vessel Sealing System for Perihilar Vessels in Laparoscopic Nephrectomy" *Sales/Product Literature* 2000.
- Crouch et al. "A Velocity-Dependent Model for Needle Insertion in Soft Tissue" *Miccai* 2005; LNCS 3750 pp. 624-632, Dated: 2005.
- McLellan et al. "Vessel Sealing for Hemostasis During Pelvic Surgery" *Int'l Federation of Gynecology and Obstetrics FIGO World Congress* 2000, Washington, D.C.
- McLellan et al. "Vessel Sealing For Hemostasis During Gynecologic Surgery" *Sales/Product Literature* 1999.
- Int'l Search Report EP 98944778.4 dated Oct. 31, 2000.
- Int'l Search Report EP 98957771 dated Aug. 9, 2001.
- Int'l Search Report EP 98957773 dated Aug. 1, 2001.
- Int'l Search Report EP 98958575.7 dated Sep. 20, 2002.
- Int'l Search Report EP 04013772.1 dated Apr. 1, 2005.
- Int'l Search Report EP 04027314.6 dated Mar. 10, 2005.
- Int'l Search Report EP 04027479.7 dated Mar. 8, 2005.
- Int'l Search Report EP 04027705.5 dated Feb. 3, 2005.
- Int'l Search Report EP 04709033.7 dated Dec. 8, 2010.
- Int'l Search Report EP 04752343.6 dated Jul. 20, 2007.
- Int'l Search Report EP 05002671.5 dated Dec. 22, 2008.
- Int'l Search Report EP 05002674.9 dated Jan. 16, 2009.
- Int'l Search Report EP 05013463.4 dated Oct. 7, 2005.
- Int'l Search Report EP 05013894 dated Feb. 3, 2006.
- Int'l Search Report EP 05013895.7 dated Oct. 21, 2005.
- Int'l Search Report EP 05016399.7 dated Jan. 13, 2006.
- Int'l Search Report EP 05017281.6 dated Nov. 24, 2005.
- Int'l Search Report EP 05019130.3 dated Oct. 27, 2005.
- Int'l Search Report EP 05019429.9 dated May 6, 2008.
- Int'l Search Report EP 05020532 dated Jan. 10, 2006.
- Int'l Search Report EP 05020665.5 dated Feb. 27, 2006.
- Int'l Search Report EP 05020666.3 dated Feb. 27, 2006.
- Int'l Search Report EP 05021197.8 dated Feb. 20, 2006.
- Int'l Search Report EP 05021779.3 dated Feb. 2, 2006.
- Int'l Search Report EP 05021780.1 dated Feb. 23, 2006.
- Int'l Search Report EP 05021937.7 dated Jan. 23, 2006.
- Int'l Search Report—extended—EP 05021937.7 dated Mar. 15, 2006.
- Int'l Search Report EP 05023017.6 dated Feb. 24, 2006.
- Int'l Search Report EP 06002279.5 dated Mar. 30, 2006.
- Int'l Search Report EP 06005185.1 dated May 10, 2006.
- Int'l Search Report EP 06006716.2 dated Aug. 4, 2006.
- Int'l Search Report EP 06008515.6 dated Jan. 8, 2009.
- Int'l Search Report EP 06008779.8 dated Jul. 13, 2006.
- Int'l Search Report EP 06014461.5 dated Oct. 31, 2006.
- Int'l Search Report EP 06020574.7 dated Oct. 2, 2007.
- Int'l Search Report EP 06020583.8 dated Feb. 7, 2007.
- Int'l Search Report EP 06020584.6 dated Feb. 1, 2007.
- Int'l Search Report EP 06020756.0 dated Feb. 16, 2007.
- Int'l Search Report EP 06 024122.1 dated Apr. 16, 2007.
- Int'l Search Report EP 06024123.9 dated Mar. 6, 2007.
- Int'l Search Report EP 07 001480.8 dated Apr. 19, 2007.
- Int'l Search Report EP 07 001488.1 dated Jun. 5, 2007.
- Int'l Search Report EP 07 004429.2 dated Nov. 2, 2010.
- Int'l Search Report EP 07 009026.1 dated Oct. 8, 2007.
- Int'l Search Report Extended—EP 07 009029.5 dated Jul. 20, 2007.
- Int'l Search Report EP 07 009321.6 dated Aug. 28, 2007.
- Int'l Search Report EP 07 010672.9 dated Oct. 16, 2007.
- Int'l Search Report EP 07 013779.9 dated Oct. 26, 2007.
- Int'l Search Report EP 07 014016 dated Jan. 28, 2008.
- Int'l Search Report EP 07 015191.5 dated Jan. 23, 2008.
- Int'l Search Report EP 07 015601.3 dated Jan. 4, 2008.
- Int'l Search Report EP 07 016911 dated May 28, 2010.
- Int'l Search Report EP 07 020283.3 dated Feb. 5, 2008.
- Int'l Search Report EP 07 021646.0 dated Mar. 20, 2008.
- Int'l Search Report EP 07 021646.0 dated Jul. 9, 2008.
- Int'l Search Report EP 07 021647.8 dated May 2, 2008.
- Int'l Search Report EP 08 002692.5 dated Dec. 12, 2008.
- Int'l Search Report EP 08 004655.0 dated Jun. 24, 2008.
- Int'l Search Report EP 08 006732.5 dated Jul. 29, 2008.
- Int'l Search Report EP 08 006917.2 dated Jul. 3, 2008.
- Int'l Search Report EP 08 016539.2 dated Jan. 8, 2009.
- Int'l Search Report EP 08 020807.7 dated Apr. 24, 2009.
- Int'l Search Report EP 09 003677.3 dated May 4, 2009.
- Int'l Search Report EP 09 003813.4 dated Aug. 3, 2009.
- Int'l Search Report EP 09 004491.8 dated Sep. 9, 2009.
- Int'l Search Report EP 09 005051.9 dated Jul. 6, 2009.
- Int'l Search Report EP 09 005575.7 dated Sep. 9, 2009.
- Int'l Search Report EP 09 010521.4 dated Dec. 16, 2009.
- Int'l Search Report EP 09 011745.8 dated Jan. 5, 2010.
- Int'l Search Report EP 09 012629.3 dated Dec. 8, 2009.
- Int'l Search Report EP 09 012687.1 dated Dec. 23, 2009.
- Int'l Search Report EP 09 012688.9 dated Dec. 28, 2009.
- Int'l Search Report EP 09 152267.2 dated Jun. 15, 2009.
- Int'l Search Report EP 09 152898.4 dated Jun. 10, 2009.
- Int'l Search Report EP 09 154850.3 dated Jul. 20, 2009.
- Int'l Search Report EP 09 160476.9 dated Aug. 4, 2009.
- Int'l Search Report EP 09 164903.8 dated Aug. 21, 2009.
- Int'l Search Report EP 09 165753.6 dated Nov. 11, 2009.
- Int'l Search Report EP 09 168153.6 dated Jan. 14, 2010.
- Int'l Search Report EP 09 168810.1 dated Feb. 2, 2010.
- Int'l Search Report EP 09 172749.5 dated Dec. 4, 2009.
- Int'l Search Report EP 10 000259.1 dated Jun. 30, 2010.
- Int'l Search Report EP 10 157500.9 dated Jul. 30, 2010.
- Int'l Search Report EP 10 159205.3 dated Jul. 7, 2010.
- Int'l Search Report EP 10 160870.1 dated Aug. 9, 2010.
- Int'l Search Report EP 10 161596.1 dated Jul. 28, 2010.
- Int'l Search Report EP 10 168705.1 dated Oct. 4, 2010.
- Int'l Search Report EP 10 169647.4 dated Oct. 29, 2010.
- Int'l Search Report EP 10 172005.0 dated Sep. 30, 2010.
- Int'l Search Report EP 10 175956.1 dated Nov. 12, 2010.

US D670,808 S

Page 5

Int'l Search Report PCT/US98/18640 dated Jan. 29, 1999.
Int'l Search Report PCT/US98/23950 dated Jan. 14, 1999.
Int'l Search Report PCT/US98/24281 dated Feb. 22, 1999.
Int'l Search Report PCT/US99/24869 dated Feb. 3, 2000.
Int'l Search Report PCT/US01/11218 dated Aug. 14, 2001.
Int'l Search Report PCT/US01/11224 dated Nov. 13, 2001.
Int'l Search Report PCT/US01/11340 dated Aug. 16, 2001.
Int'l Search Report PCT/US01/11420 dated Oct. 16, 2001.
Int'l Search Report PCT/US02/01890 dated Jul. 25, 2002.
Int'l Search Report PCT/US02/11100 dated Jul. 16, 2002.
Int'l Search Report PCT/US03/08146 dated Aug. 8, 2003.
Int'l Search Report PCT/US03/18674 dated Sep. 18, 2003.

Int'l Search Report PCT/US03/18676 dated Sep. 19, 2003.
Int'l Search Report PCT/US03/28534 dated Dec. 19, 2003.
Int'l Search Report PCT/US04/03436 dated Mar. 3, 2005.
Int'l Search Report PCT/US04/13273 dated Dec. 15, 2004.
Int'l Search Report PCT/US04/15311 dated Jan. 12, 2005.
Int'l Search Report PCT/US07/021438 dated Apr. 1, 2008.
Int'l Search Report PCT/US07/021440 dated Apr. 8, 2008.
Int'l Search Report PCT/US08/52460 dated Apr. 24, 2008.
Int'l Search Report PCT/US08/61498 dated Sep. 22, 2008.
Int'l Search Report PCT/US09/032690 dated Jun. 16, 2009.

* cited by examiner

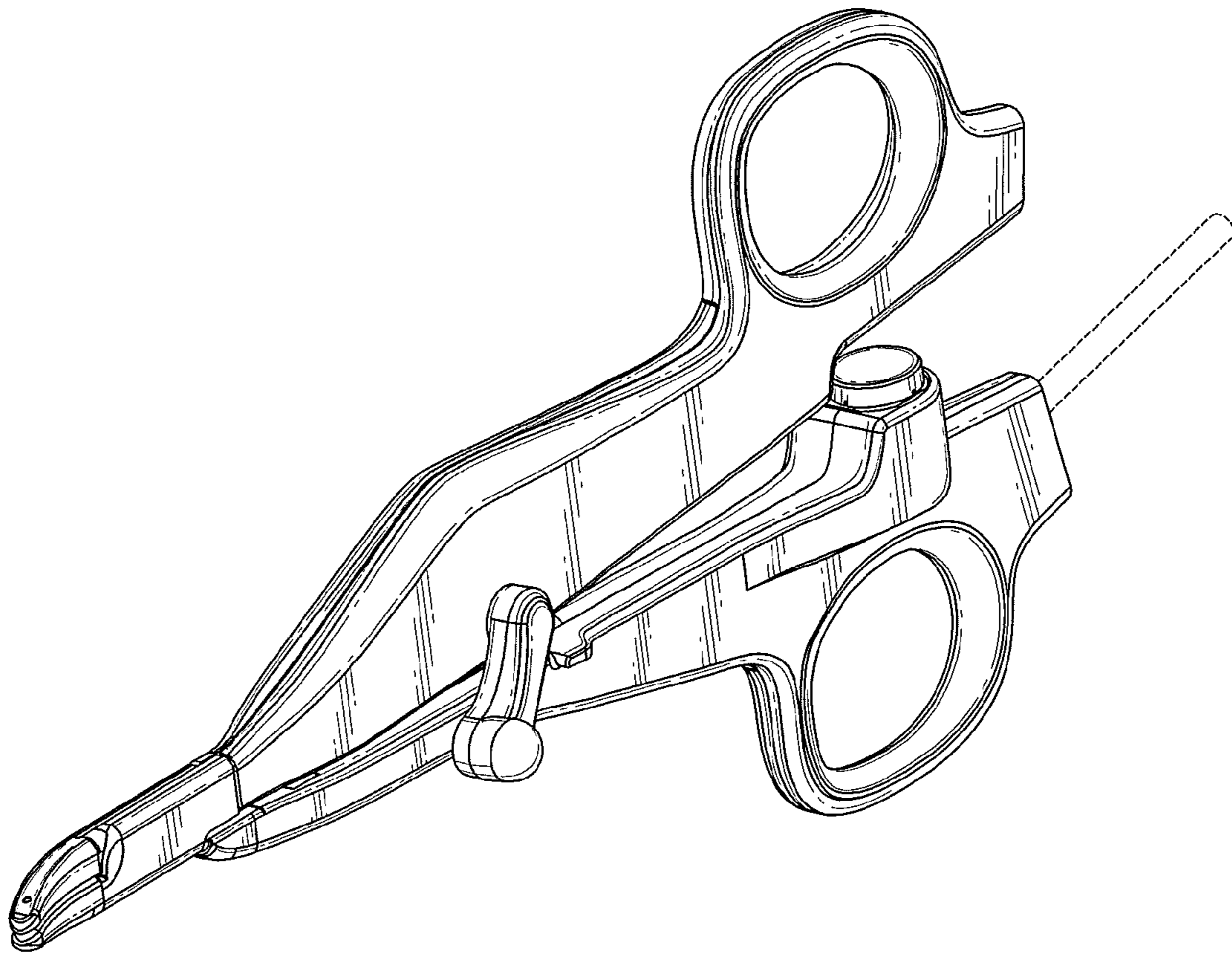


FIG. 1

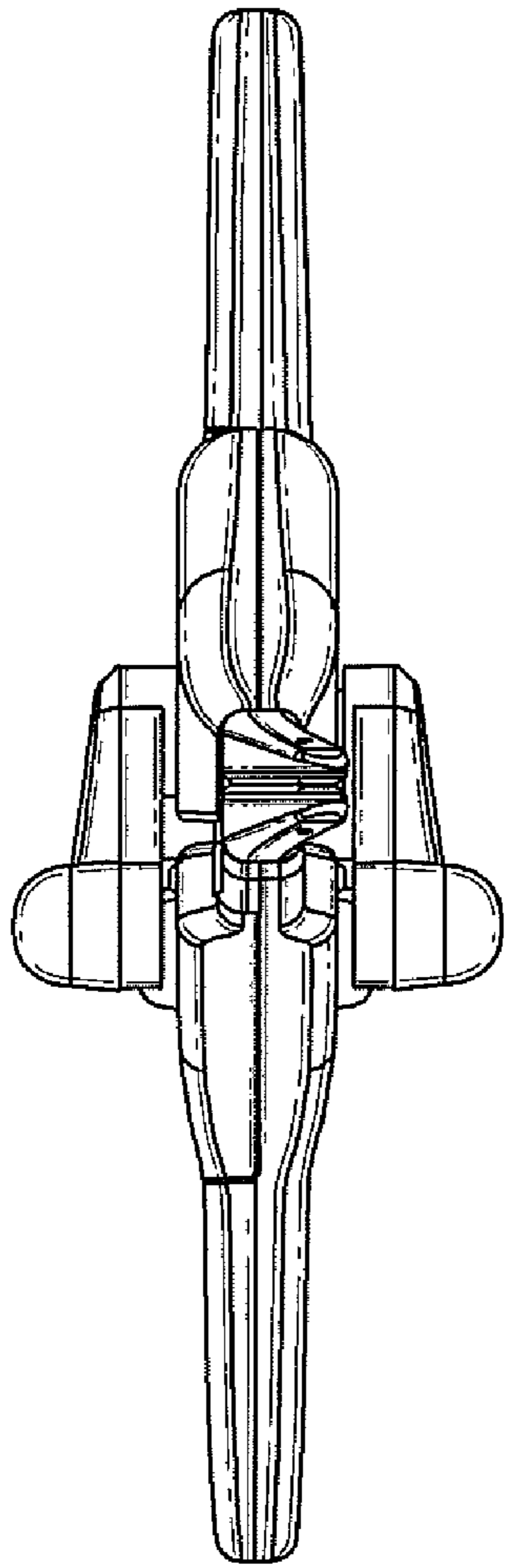


FIG. 2

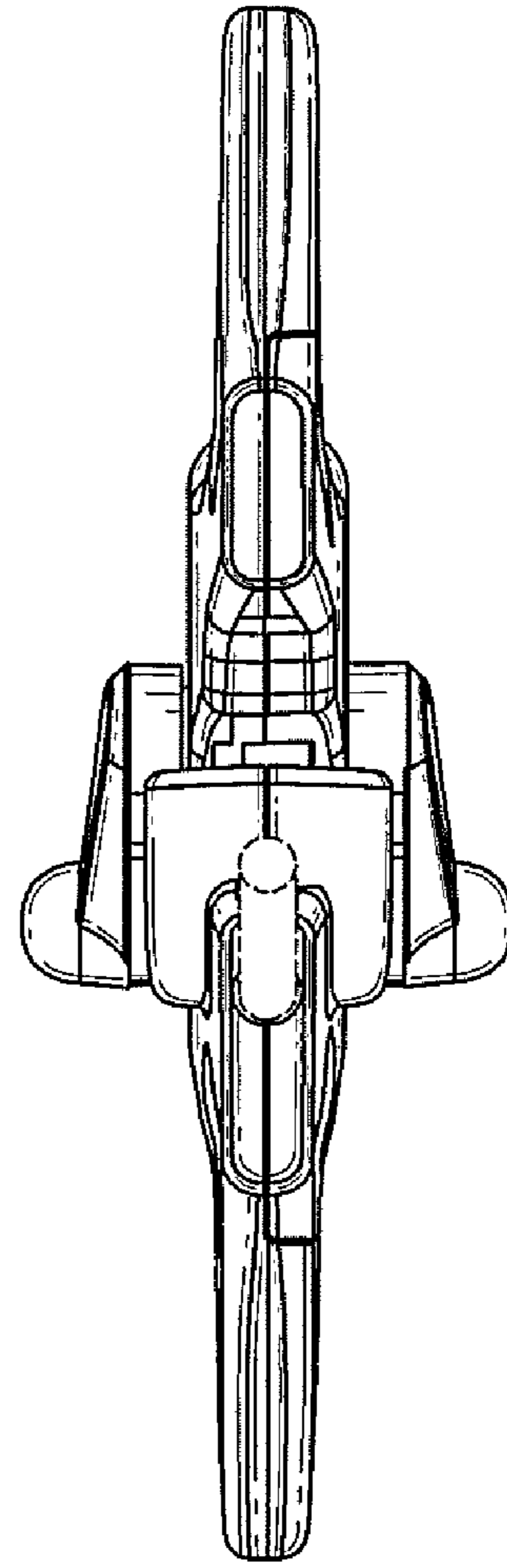


FIG. 3

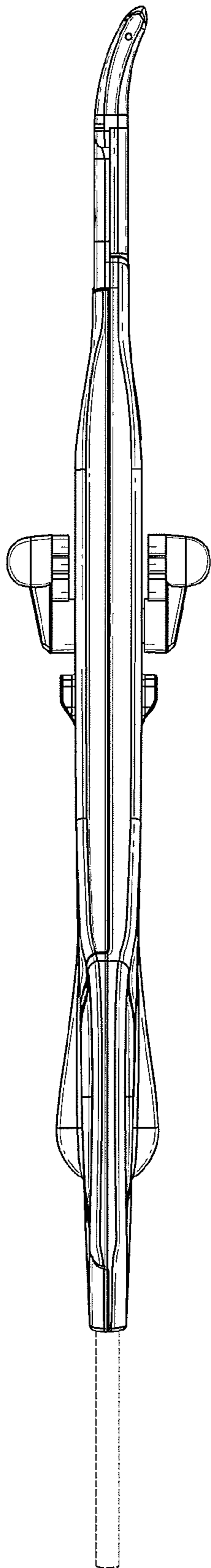


FIG. 4

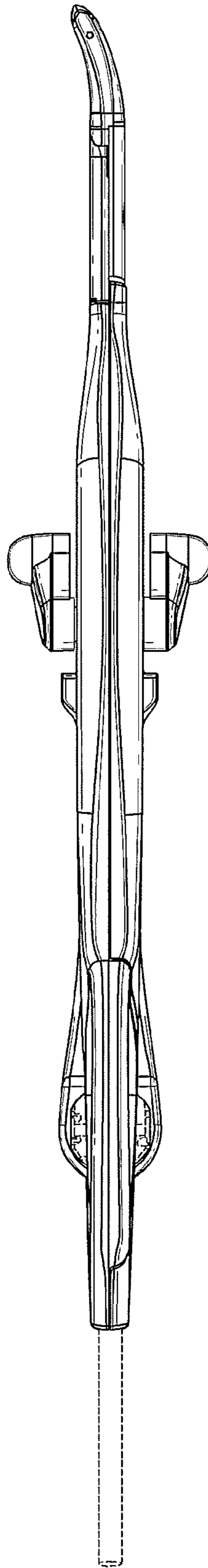


FIG. 5

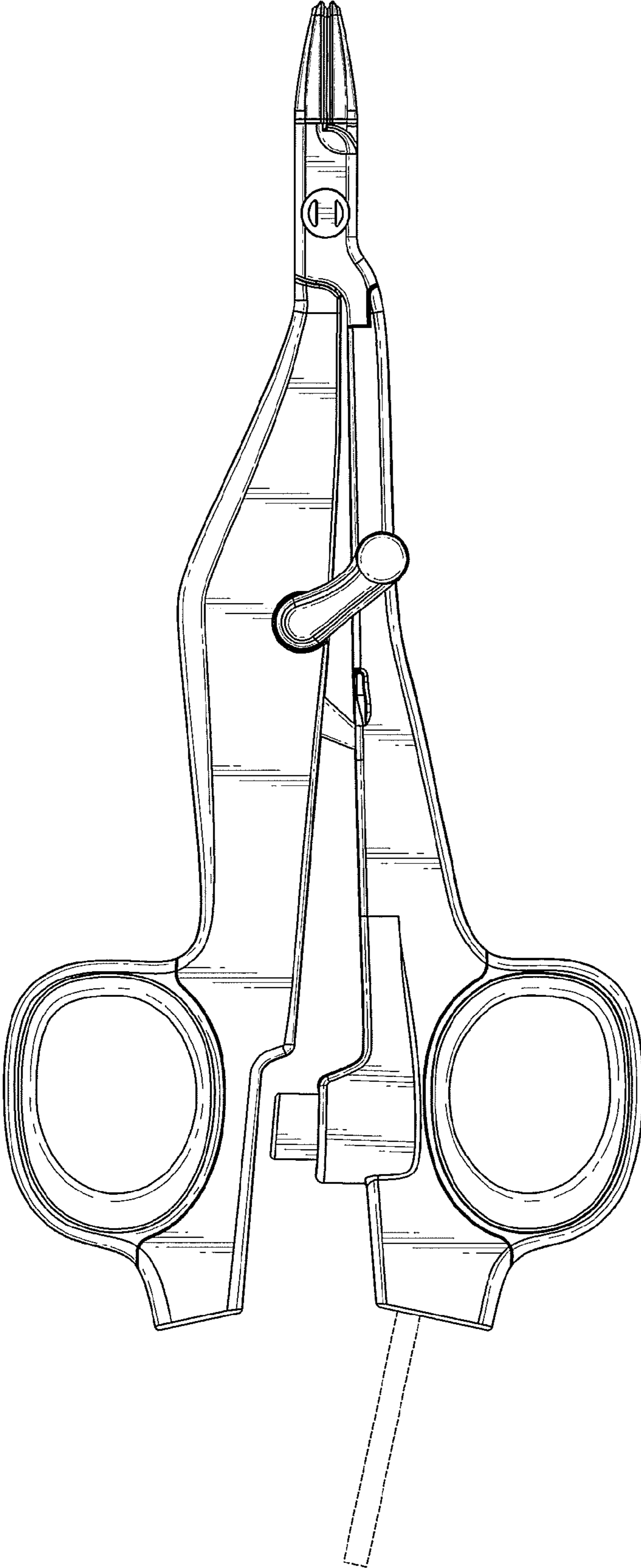


FIG. 6

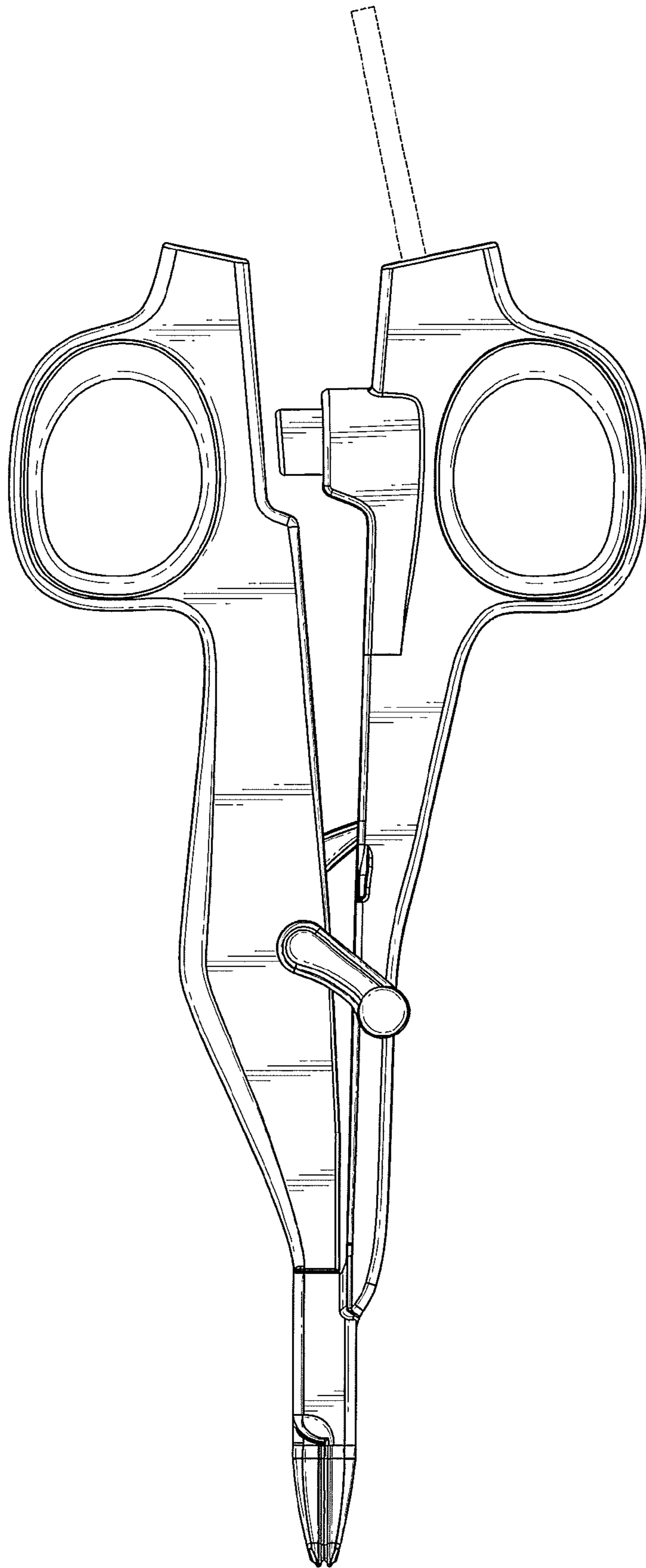


FIG. 7

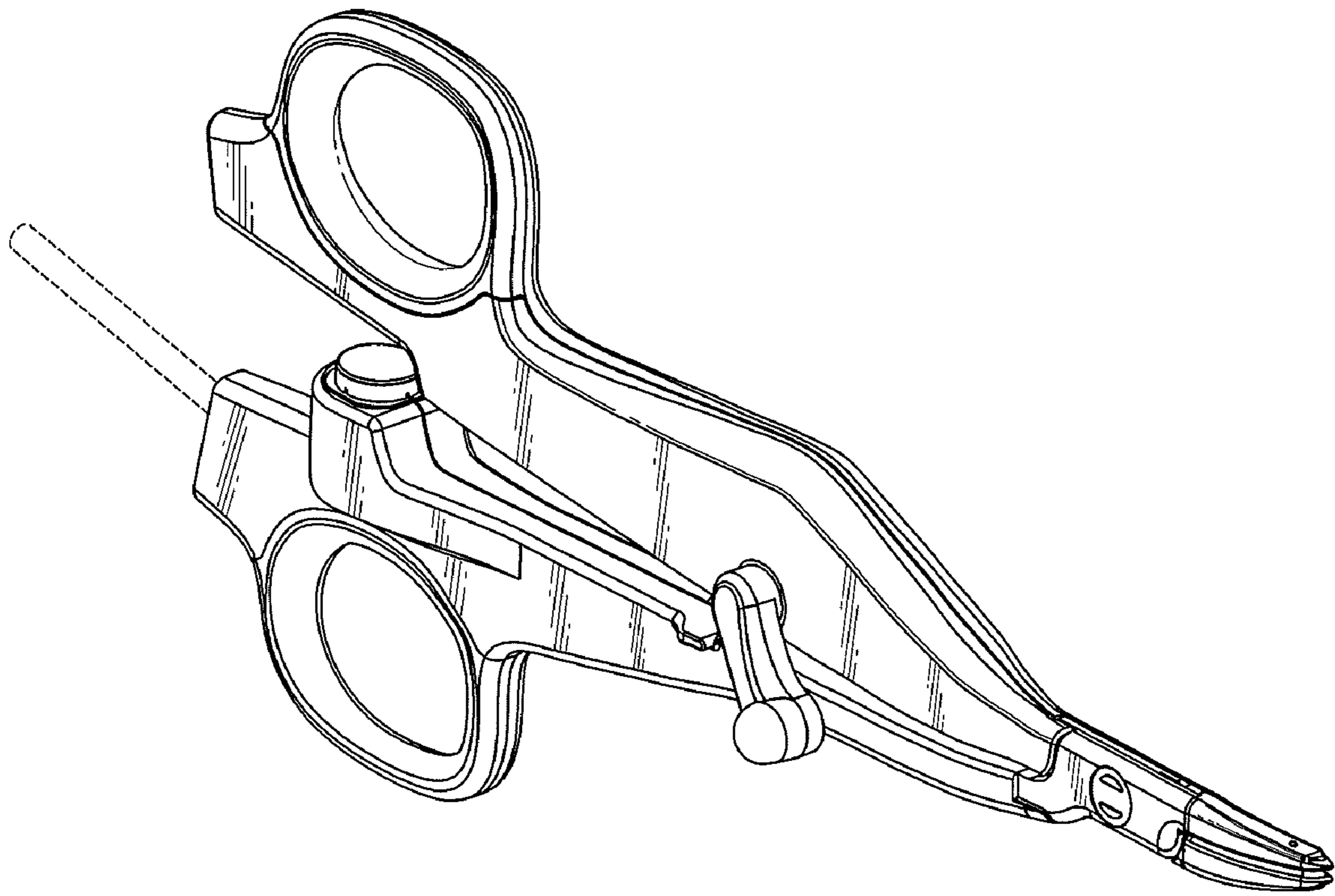


FIG. 8

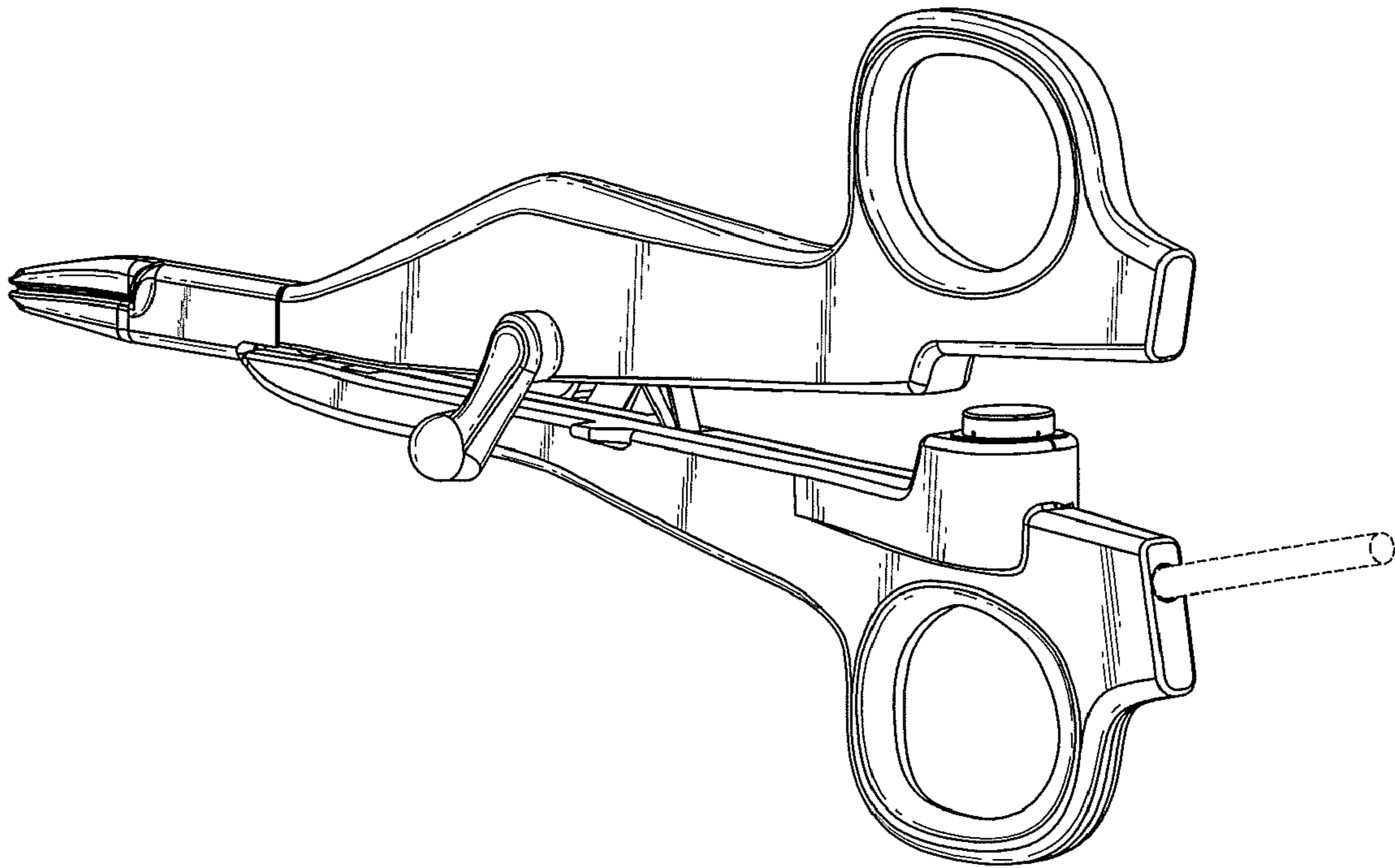


FIG. 9

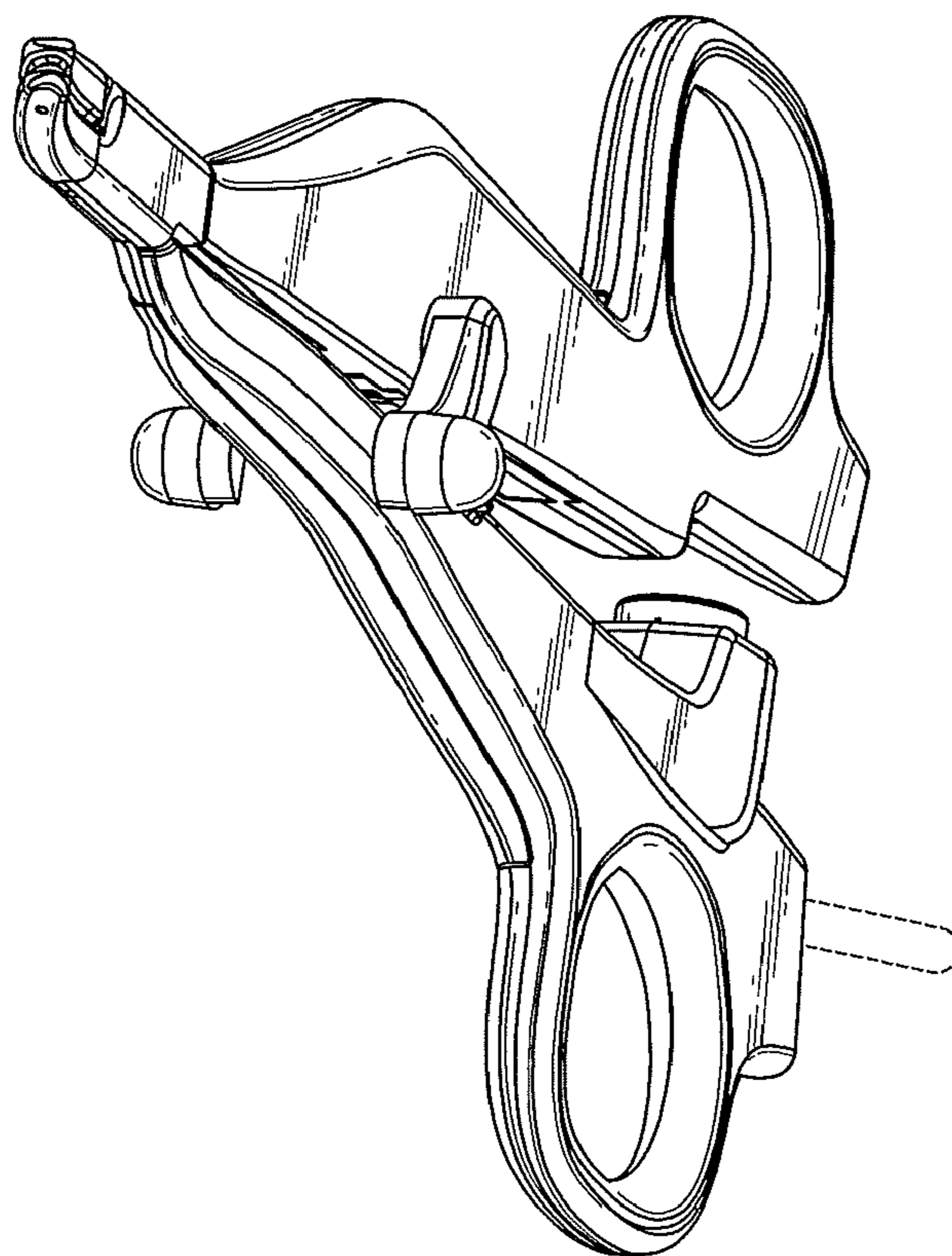


FIG. 10