
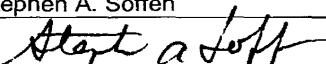


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UTILITY PATENT APPLICATION TRANSMITTAL		Attorney Docket No. A8130.0047/P047-A		
		First Inventor Reinhold Schmieding		
		Title CORKSCREW SUTURE ANCHOR		
(Only for new nonprovisional applications under 37 CFR 1.53(b))		Express Mail Label No.		
APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.		ADDRESS TO: Box Patent Application Commissioner for Patents Washington, DC 20231		
1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original, and a duplicate for fee processing) 2. <input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. 3. <input checked="" type="checkbox"/> Specification [Total Pages 11] (preferred arrangement set forth below) - Descriptive title of the invention - Cross Reference to Related Applications - Statement Regarding Fed sponsored R & D - Reference to sequence listing, a table, or a computer program listing appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure 4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets 2] 5. Oath or Declaration [Total Pages 1] a. <input type="checkbox"/> Newly executed (original or copy) b. <input checked="" type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 18 completed) i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b). 6. <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76		7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) 8. <input type="checkbox"/> Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. <input type="checkbox"/> Computer Readable Form (CRF) b. Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> paper c. <input type="checkbox"/> Statements verifying identity of above copies		
		ACCOMPANYING APPLICATIONS PARTS		
		9. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) 10. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of (when there is an assignee) Attorney 11. <input type="checkbox"/> English Translation Document (if applicable) 12. <input checked="" type="checkbox"/> Information Disclosure <input type="checkbox"/> Copies of IDS Statement (IDS)/PTO-1449 Citations 13. <input type="checkbox"/> Preliminary Amendment 14. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized) 15. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed) 16. <input type="checkbox"/> Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent. 17. <input type="checkbox"/> Other:		
18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76: <input checked="" type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No.: 09/823,988 Prior application information: Examiner Gary Jackson Group / Art Unit: 3731 For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.				
19. CORRESPONDENCE ADDRESS				
<input checked="" type="checkbox"/> Customer Number or Bar Code Label		24998		
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Name (Print/Type)	Stephen A. Soffen		Registration No. (Attorney/Agent)	31,063
Signature			Date	October 31, 2002

1516496 v1; W\$4W011.DOC
1516496 v1; W\$4W011.DOCS&N Exhibit 1109
S&N v. Arthrex

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**FEE TRANSMITTAL
for FY 2002**

Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** 370.00**Complete if Known**

Application Number	Not Yet Assigned
Filing Date	
First Named Inventor	Reinhold Schmieding
Examiner Name	Not Yet Assigned
Group Art Unit	N/A
Attorney Docket No.	A8130.0047/P047-A

METHOD OF PAYMENT (check all that apply)☐ Check ☒ Credit Card ☐ Money Order ☐ Other ☐ None☐ Deposit AccountDeposit
Account
Number

04-1073

Deposit
Account
NameDickstein Shapiro Morin &
Oshinsky LLP

The Commissioner is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments☐ Charge any additional fee(s) during the pendency of this application☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	370.00
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) (\$) 370.00**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims	Extra Claims	Fee from below	Fee Paid
20** =		x	
Independent Claims	-3** =	x	
Multiple Dependent			

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for ex parte reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR 1.129(a))	
149	740	249	370	For each additional invention to be examined (37CFR 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0.00**SUBMITTED BY**

Name (Print/Type) Stephen A. Soffen

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Signature

Stephen A. Soffen

Date

October 31, 2002

CORKSCREW SUTURE ANCHOR

This application is a continuation of U.S. Application Serial No. 09/823,988, filed April 3, 2001, which is a continuation of U.S. Application Serial No. 09/588,065, filed June 5, 2000, now U.S. Patent No. 6,214,031, which is a continuation of U.S. Application Serial No. 08/954,206, filed October 20, 1997, now U.S. Patent No. 6,117,162, which is a continuation of U.S. Application Serial No. 08/905,393, filed August 4, 1997, now abandoned. This application also claims the benefit of U.S. Provisional Application Serial No. 60/023,011, filed August 5, 1996.

10

BACKGROUND OF THE INVENTION

1. Field of the Invention

15

The present invention relates to an apparatus and method for anchoring surgical suture to bone. More specifically, the present invention relates to arthroscopic apparatus and methods for anchoring suture to cancellous bone using a suture anchor having an auger-like configuration.

20

2. Description of the Related Art

25

When soft tissue tears away from bone, reattachment becomes necessary. Various devices, including sutures alone, screws, staples, wedges, and plugs have been used to secure soft tissue to bone. Recently, various types of threaded suture anchors have been developed for this purpose.

Suture anchors have been developed that are designed to be inserted into a pre-drilled hole. Other suture anchors are self-tapping. Self-tapping screws are shown, for example, in U.S. Pat. No. 4,632,100, which discloses a cylindrical suture anchor. The

suture anchor of the '100 patent includes a drill bit at a leading end for boring a hole in a bone, followed by a flight of threads spaced from the drill bit for securing the anchor into the hole created by the drill bit. U.S. Pat. No. 5,370,662 discloses a self-tapping suture anchor having a flight of threads around a solid body. U.S. Pat. No. 5,156,616 discloses a
5 similar suture anchor having an axial opening for holding a knotted piece of suture.

All of the above-noted suture anchors rely on a flight of threads disposed on the outer surface of a shank to secure the anchor to the bone. They all provide a relatively easy method of suture fixation in hard, cortical bone.

Recent studies indicate, however, that the above-noted suture anchors may have
10 problems related to inadequate "pull-out" strength. This is true especially in softer bone sites, such as cancellous bone, or in bone tissue that has become compromised, such as in osteoporotic bone sites. The structure of cancellous, or cancellated, bone is lattice-like, or spongy. Osteoporotic bone is the result of a condition that reduces the quantity of bone or atrophies skeletal tissue, causing a porous condition of the bones. These bone types may
15 present a limited range of specific fixation points that are available to the surgeon.

Also, certain known suture anchors also have a tendency to "back out" of the implantation site. Moreover, substantial bone loss is incurred simply upon installation of the above-described prior art suture anchors. This problem is acute particularly during procedures that require removal or relocation of suture anchors.

Accordingly, a need exists for a suture anchor that can be secured easily and
20 effectively, especially in softer types of bone. A need also exists for a suture anchor that displaces a minimum amount of bone upon insertion. In addition, a need exists for a suture anchor having exceptional pull-out strength, especially in soft bone. A need also exists for a suture anchor that is averse to "backing out" of the insertion site.

25

SUMMARY OF THE INVENTION

The suture anchor of the present invention overcomes disadvantages of the prior art, such as those noted above, and achieves the foregoing objectives by providing a corkscrew suture anchor having preferably a single thread spiralling helically around a central body.

5 The corkscrew suture anchor has a central body, a distal end, and a proximal end. The central body preferably tapers from the proximal end to terminate in a point at the distal end. The distal point preferably is rounded to avoid possible breakage sometimes encountered when using a sharp point. The point is approached by a concave cone having a taper more pronounced than that of the central body.

10 The proximal end of the corkscrew suture anchor body has a hex drive head incorporating a slotted suture eye for receiving one or more pieces of suture. At the junction between the hex drive head and the central body, the circumference of the central body advantageously is larger than the outer circumferential dimension of the hex drive head. Accordingly, the enlarged body adjacent the hex drive head forms a hole sufficient to
15 accommodate a hex driver disposed over the hex drive head. The hex driver is described more fully below. This allows the suture anchor to be at least partially countersunk below the surface of the bone upon installation by preventing impingement of the distal end of the hex driver on the bone surface.

Advantageously, the threads of the suture anchor of the present invention provide
20 an increased percentage of thread surface area for each turn of the screw, as compared with known suture anchors, thus providing increased pull-out strength, and a decreased tendency for back-out. The increase in the surface area of the thread is achieved in part by increasing the ratio of the outer diameter of the threads to the inner diameter of the threads. Preferably, the ratio is between 2.25 and 2.75. Most preferably, the ratio of the
25 outer diameter to the inner diameter is 2.5.

In addition, the suture anchor has a higher thread pitch than prior art screws, thus increasing the area of thread for each turn of the screw, which also leads to greater pull-out strength. Significantly, due to the increased pitch, fewer turns of the corkscrew screw thread are required to advance the suture anchor into position. Accordingly, the suture

anchor is easy to install, and displaces less tissue material upon insertion than known suture anchors.

5 The pull-out strength and minimal tissue damage are enhanced by the relatively compressed cross-sectional aspect of the thread, particularly in relation to the broad axial faces of the threads. The distal and proximal faces of the threads preferably form a square or rounded break edge at the outer diameter of the thread. In addition, the thickness of the thread increases proximally, such that at least the most proximal flight is thicker than each of the more distal flights.

10 Increased back-out resistance is enhanced by surface features, such as radial ridges, on the top and/or bottom faces of the screw threads. The surface features augment the engagement between the thread surfaces and the surrounding tissue once the suture anchor is installed.

15 The present invention also provides a suture anchor and driver assembly for driving the corkscrew suture anchor into bone. The driver is formed of a cannulated tube secured to a cannulated handle. A hexagonal socket formed on the distal end of the tube holds the suture anchor for rotation and installation into the bone. The outer diameter of the tube is equal to or less than the outer diameter of the proximal end of the suture anchor's central body.

20 The driver is provided with a cleat on the side of the handle. Consequently, suture threaded through the cannulated driver can be wrapped around the cleat and fixed for shipping in a slot in the cleat using adhesive foam. One or more sutures, threaded through the suture anchor eye and up through the cannulated driver, can be pulled and secured around the cleat, whereby the suture is pinched under tension. Advantageously, the tensioned suture helps to hold the suture anchor in place at the distal tip of the driver. The suture anchor and driver assembly can be shipped, pre-loaded with suture, as a sterile, surgery-ready unit.

25 The present invention also provides a method of anchoring suture in bone using the suture anchor of the present invention. The method includes threading suture through the suture eye on the proximal end of the suture anchor. The driver is then turned to advance the suture anchor into the bone.

The anchors of the present invention can be used for arthroscopic procedures. Advantageously, the suture anchor can be installed using a hollow, cannulated grasper as described in U.S. Pat. No. 5,466,243 to Schmieding, the disclosure of which is incorporated herein by reference. The anchors also are advantageous for open and mini-
5 open surgical procedures, such as open rotator cuff repair, as described in U.S. Pat. No. 5,575,801 to Habermeyer et al.

Other features and advantages of the present invention will become apparent from the following description of the invention, which refers to the accompanying drawings.

10 BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a corkscrew suture anchor according to the present invention.

FIG. 2 is a proximal end view of the corkscrew suture anchor of FIG. 1.

15 FIG. 3 is a distal end view of the suture anchor of FIG. 1.

FIG. 4 is a side view of a suture anchor assembly including a suture anchor, threaded with suture, and a driver according to the present invention.

20 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the suture anchor 2 of the present invention includes a body 4 provided in the shape of a tapered cylinder. A continuous thread 6 wraps around body 4 in a clockwise direction, as shown.

Suture anchor 2 is provided at a proximal end 8 of body 4 with hexagonal drive
25 head 10 having a suture eye 12. The suture eye 12 preferably is in the form of an oval aperture in the drive head for holding at least one, and preferably two or more pieces of braided suture. Channels 14, also shown in FIG. 2, are formed along either side of the drive head 10 to accommodate the suture, such as when the suture anchor is held in a suture anchor driver, set forth more fully below.

A tip 18 is provided. Tip 18 terminates in a rounded point 20, which is approached by a concave, conically tapered surface 22. Conical taper 22 begins at the distal end of the screw thread, and features an angle of taper deeper than the taper of body 4.

5 The body preferably is formed of a biocompatible material such as stainless steel or titanium alloy. The central core preferably is circular in cross-section, and tapers from a maximum diameter near proximal end 8 to a minimum diameter toward distal end 14.

Corkscrew thread 6 has a proximal face 24, a distal face 26 and a break edge 28. Referring to FIG. 2, suture anchor 2 is shown from the proximal end. Radial ridge lines 30 are shown on proximal face 24 of corkscrew thread 6.

10 The major, outside diameter of the suture anchor thread of the present invention preferably is about 2.5 times the minor, inner diameter of the thread, or the minor diameter of the body toward distal end 16. Accordingly, on a 5 mm. diameter suture anchor, for example, where central core 4 is approximately 2 mm. in diameter, the outer diameter of the thread is 5 mm.

15 Preferably, between two and three flights or turns of thread 6 are provided along body 4, between proximal end 8 and distal end 16. The thickness of the thread increases proximally, such that at least the outer edge of the most proximal flight is thicker than the edge of each of the more distal flights, as shown in Fig. 1. Adjacent sections of each flight are separated by a gap that is determined by the number of turns per inch of the suture anchor thread. For example, a 5 mm. suture anchor preferably has about 6 turns per inch, while a 3.5 mm. suture anchor preferably has about 9. Accordingly, on a 5 mm or 6.5 mm suture anchor, the pitch distance A from flight to flight is 0.167 inches. On a 3.5 mm suture anchor, pitch distance A typically is 0.118 inches.

25 Referring again to FIG. 1, proximal thread surface 24 forms a 10.degree. angle .alpha. with an axial perpendicular to the central axis of the body 4, in the case of a 3.5 or 5.0 mm suture anchor, and a 5.degree. angle .alpha. in a 6.5 mm suture anchor. Distal thread surface 26 preferably forms a 20° angle β with an axial perpendicular to the central axis of the body 4, in the case of a 3.5 or 5.0 mm suture anchor, and a 15° angle β in a 6.5 mm suture anchor, as shown in Table I, as follows:

30

TABLE I
Suture Anchor Dimensions and Features

Size	3.5		5.0	6.5
Thread Flights	No.	2.5	2	2
	Pitch (A) (mm)	3.0	4.24	4.24
Diameter (mm)	Major	3.5	5.0	6.5
	Minor	1.22	1.40	1.40
Thread Angle (°)		10	10	5
	β	20	20	15

FIG. 4 shows suture anchor 2 threaded with two pieces of suture 32 and held on a cannulated suture anchor driver 34. The suture is wrapped around cleat 36. Tension on the suture aids in retaining the suture anchor in the distal end of the driver. The suture is held in place in slot 38 using a foam adhesive, for example, during shipping. The assembly is provided as a sterile unit ready for surgical application.

Table II shows the results of various pullout tests performed with suture anchors according to the present invention, as follows:

TABLE II
Pull-out strength of corkscrew suture anchors

	5.0 mm anchor		6.5 mm anchor
Test No.	20 lb. bone block	30 lb. bone block	20 lb bone block
1	N/A	112.2 (wire break)	98.4 (wire break)
2	116.1 (pulled out)	106.9 (wire break)	119.2 (wire break)
3	95.4 (pulled out)	111.5 (wire break)	125.1 (wire break)
4	104.9 (pulled out)	99.6 (wire break)	99.7 (slot break)
5	125.1 (pulled out)	84.7 (wire break)	125.2 (wire break)
Avg.	110.375	103.0	113.52
St. dev.	13.0	11.4	13.4

Although the present invention has been described in relation to particular embodiments thereof, many other variations and modifications and other uses will become apparent to those skilled in the art. Therefore, the present invention is to be limited not by the specific disclosure herein, but only by the appended claims.

What is claimed is:

1. A method of anchoring suture in bone, comprising inserting a suture anchor into bone, the suture anchor comprising:
 - 5 a central body having a central axis, a distal end and a proximal end, the central body having a diameter, the central body being tapered from a maximum diameter near the proximal end to a minimum diameter toward the distal end, and a tip portion disposed at the distal end of the central body;
 - a drive head disposed on the proximal end of the central body;
 - 10 an eyelet for receiving at least one strand of suture; and
 - a continuous thread disposed in a spiral around the central body and having an inner diameter, an outer diameter, and a thickness, the thickness of the thread at the outer edge of the thread increasing proximally along a portion of the thread, the outer diameter of the thread being at least twice the inner diameter of the thread along a portion of the thread.
- 15 2. The method of claim 1, wherein the bone is in the shoulder.
3. The method of claim 2, wherein the anchor is used for rotator cuff repair.
- 20 4. The method of claim 1, wherein the bone is soft or cancellous bone.
5. The method of claim 1, wherein the suture anchor is installed arthroscopically.
- 25 6. The method of claim 1, wherein the thread has a distal and a proximal face, the proximal face forming a radial angle of about 5 to about 10 degrees from a perpendicular to a central axis of the suture anchor.

30

7. The method of claim 6, wherein the distal face forms a radial angle of about 15 to about 20 degrees from the perpendicular to the central axis of the suture anchor.

8. The method of claim 1, wherein the ratio of the outer diameter to the inner diameter of the thread is between about 2.25 and about 2.75 along a portion of the thread.

9. The method of claim 1, wherein the thread has a pitch between about 6 and about 9 flights per inch.

10. The method of claim 1, wherein the central body tapers from the proximal end to the distal end.

11. The method of claim 1 further comprising channels for suture on the drive head.

12. The method of claim 1, further comprising two lengths of suture attached to the suture anchor.

13. The method of claim 1, wherein the drive head is hexagonal.

14. The method of claim 1, wherein the suture anchor is inserted into the bone using a driver formed of a cannulated tube secured to a cannulated handle.

15. The method of claim 14, wherein the driver includes a hexagonal socket on the distal end of the cannulated tube which is inserted over and holds the suture anchor for rotation and installation into bone.

16. The method of claim 14, wherein the cannulated tube of the driver has an outer diameter which is equal to or less than the outer diameter of the proximal end of the suture anchor body.

ABSTRACT OF THE DISCLOSURE

5 A corkscrew suture anchor has a continuous thread spiraling around a tapering
 central core. At the distal end, the suture anchor terminates in a rounded point. At the
 proximal end of the suture anchor is an eye for receiving suture. The suture anchor has a
 large thread surface per turn of thread. Anti-backout ridges can be formed on the front
 and/or back faces of the threads. A driver for the suture anchor is provided, the driver
 including a shaft having a central axis, a length, a distal end, and a proximal end. The shaft
 is provided at its distal end with an opening aligned with the central axis of the shaft, for
 10 receiving the hexagonal proximal end of the suture anchor. One or more sutures threaded
 through the suture eye are threaded through the hollow tubular shaft. The suture is pulled
 into and captured by V-shaped notches on the proximal end of the handle to hold the
 suture anchor in place on the distal end of the driver under the tension of the captured
 sutures.

15

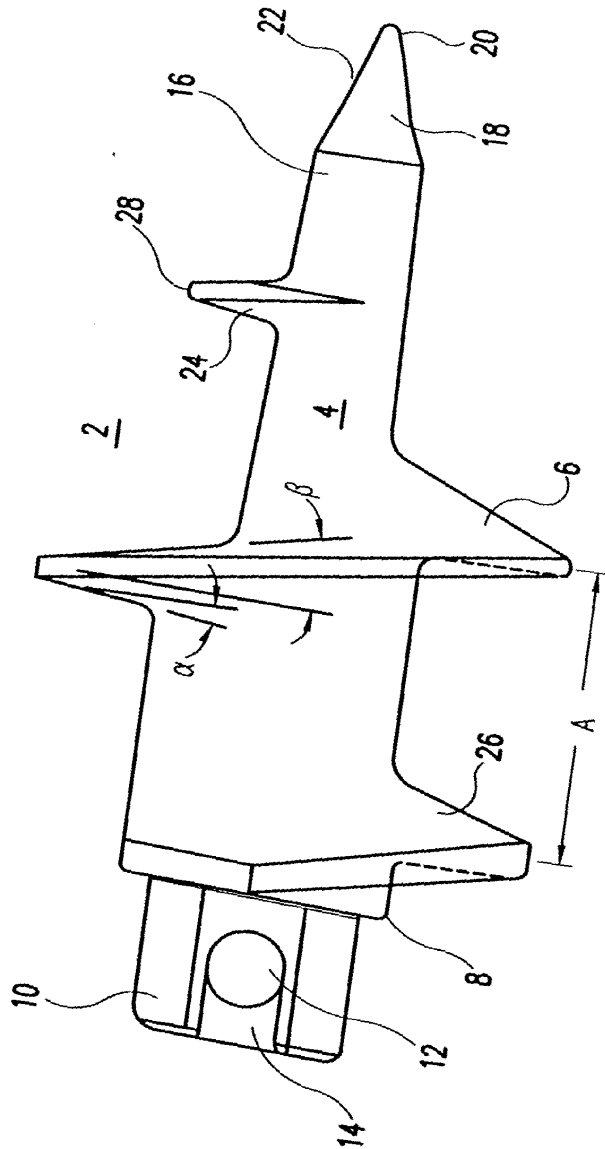


FIG. 1

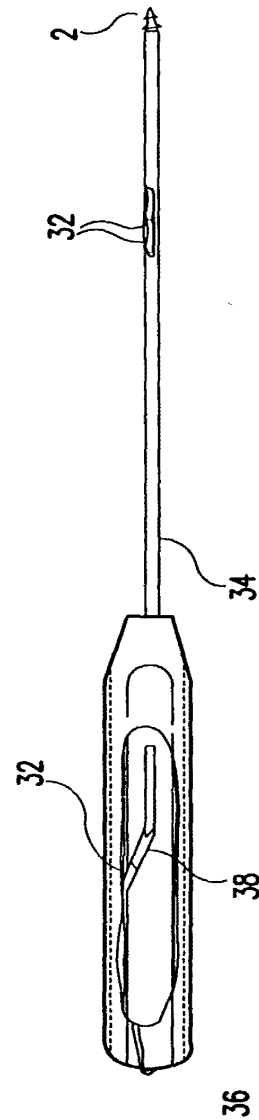
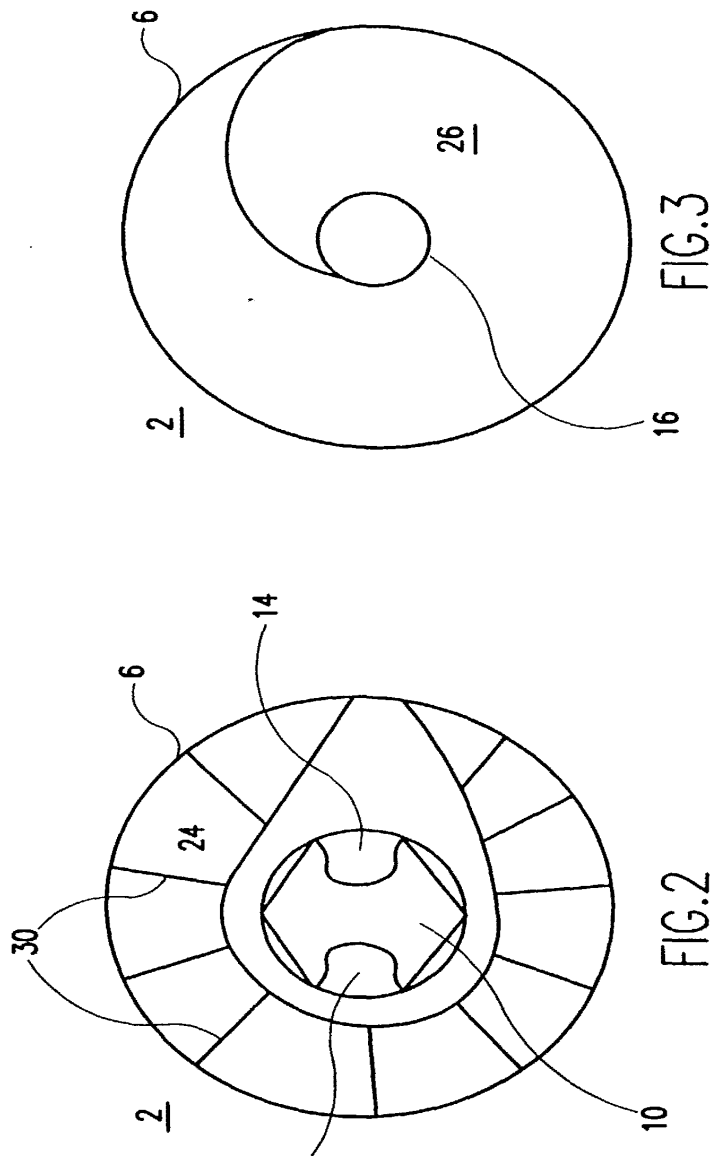
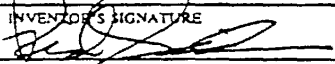

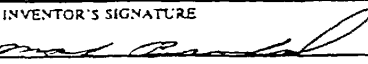


FIG. 4

UNITED STATES OF AMERICA		OPGS FILE NO.																
COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION		P/1493-158																
<p>As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named) of the subject matter which is claimed and for which a patent is sought on the invention entitled:</p> <p>CORKSCREW SUTURE ANCHOR</p>																		
<p>the specification of which is attached hereto, unless the following box is checked:</p> <p><input type="checkbox"/> was filed on _____ as United States patent Application Number or PCT International patent application number _____ and was amended on _____ (if any).</p> <p>I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.</p> <p>I acknowledge the duty to disclose all information known to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.</p> <p>I hereby claim priority benefits under Title 35, United States Code, §119/365 of any foreign application(s) for patent or inventor's certificate or United States provisional application(s) listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:</p>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">COUNTRY</th> <th style="width: 25%;">APPLICATION NUMBER</th> <th style="width: 25%;">DATE OF FILING (day, month, year)</th> <th style="width: 25%;">PRIORITY CLAIMED</th> </tr> </thead> <tbody> <tr> <td>U.S.A.</td> <td>60/023,011</td> <td>August 5, 1996</td> <td>YES <input checked="" type="checkbox"/> NO <input type="checkbox"/></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td>YES <input type="checkbox"/> NO <input type="checkbox"/></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td>YES <input type="checkbox"/> NO <input type="checkbox"/></td> </tr> </tbody> </table>			COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED	U.S.A.	60/023,011	August 5, 1996	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				YES <input type="checkbox"/> NO <input type="checkbox"/>				YES <input type="checkbox"/> NO <input type="checkbox"/>
COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED															
U.S.A.	60/023,011	August 5, 1996	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>															
			YES <input type="checkbox"/> NO <input type="checkbox"/>															
			YES <input type="checkbox"/> NO <input type="checkbox"/>															
<p>I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.</p>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">UNITED STATES APPLICATION NUMBER</th> <th style="width: 30%;">DATE OF FILING (day, month, year)</th> <th style="width: 40%;">STATUS (patented, pending, abandoned)</th> </tr> </thead> <tbody> <tr> <td>08/905,393</td> <td>August 4, 1997</td> <td>pending</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			UNITED STATES APPLICATION NUMBER	DATE OF FILING (day, month, year)	STATUS (patented, pending, abandoned)	08/905,393	August 4, 1997	pending										
UNITED STATES APPLICATION NUMBER	DATE OF FILING (day, month, year)	STATUS (patented, pending, abandoned)																
08/905,393	August 4, 1997	pending																
<p>I hereby appoint OSTROLENK, FABER, GERB & SOFFEN, LLP, and the members of the firm, Marvin C. Soffen - Reg. No. 17,542; Samuel H. Weiner - Reg. No. 13,510; Jerome M. Berliner - Reg. No. 13,553; Robert C. Faber - Reg. No. 24,322; Edward A. Meilman - Reg. No. 24,735; Stanley H. Lieberstein - Reg. No. 22,400; Steven I. Weisburd - Reg. No. 27,409; Max Moskowitz - Reg. No. 30,576; Stephen A. Soffen - Reg. No. 31,063; James A. Finder - Reg. No. 30,173; William O. Gray, III - Reg. No. 30,944 and Louis C. Dujmich - Reg. No. 30,525, as attorneys with full power of substitution and revocation to prosecute this application, to transact all business in the Patent & Trademark Office connected therewith and to receive all correspondence.</p> <p>SEND CORRESPONDENCE TO: OSTROLENK, FABER, GERB & SOFFEN, LLP 1130 AVENUE OF THE AMERICAS NEW YORK, NEW YORK 10036-8403</p> <p>DIRECT TELEPHONE CALLS TO: (212) 382-0700</p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p>																		
<p>FULL NAME OF SOLE OR FIRST INVENTOR Reinhold Schmieding</p>		<p>INVENTOR'S SIGNATURE </p>																
<p>RESIDENCE Naples, FL 33963</p>		<p>DATE 10-16-97</p>																
<p>POST OFFICE ADDRESS 163 Eugenia Drive, Naples, FL 33963</p>		<p>COUNTRY OF CITIZENSHIP U.S.A.</p>																
<p>FULL NAME OF SECOND JOINT INVENTOR (IF ANY) R. Donald Grafton</p>		<p>INVENTOR'S SIGNATURE </p>																
<p>RESIDENCE Naples, FL 33942</p>		<p>DATE 10-16-97</p>																
<p>POST OFFICE ADDRESS 152 Plantation Circle, Naples, FL 33963</p>		<p>COUNTRY OF CITIZENSHIP U.S.A.</p>																
<p>FULL NAME OF THIRD JOINT INVENTOR (IF ANY) Mark Brunsvold</p>		<p>INVENTOR'S SIGNATURE </p>																
<p>RESIDENCE Naples, FL 34116</p>		<p>DATE 10/16/97</p>																
<p>POST OFFICE ADDRESS 5224 31st Place S.W., Naples, FL 34116</p>		<p>COUNTRY OF CITIZENSHIP U.S.A.</p>																

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2001

Application or Docket Number

10,285,553

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	16	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	16 minus 20 = *	
INDEPENDENT CLAIMS	1 minus 3 = *	
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY

TYPE ☐

OR

OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL	370	OR	TOTAL	

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

11/04/2002 SDIRETA1 00000016 10285553

01 FC:2001

370.00 DP

PTO-1556
(5/87)

Docket No.: A8130.0047/P047-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Reinhold Schmieding, et al.

Application No.: Not Yet Assigned

Group Art Unit: N/A

Filed: October 31, 2002

Examiner: Not Yet Assigned

For: CORKSCREW SUTURE ANCHOR

11002 U.S. PTO
10/285553
11/01/02
42/86
48003

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
Washington, DC 20231

Dear Sir:

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

Those patent(s) or publication(s) which are marked with an asterisk (*) in the attached form PTO/SB/08 (facsimile) are not supplied because they were previously cited by or submitted to the Office in a prior Application No. 09/823,988, filed April 3, 2001, which is relied upon in this application for an earlier filing date under 35 U.S.C. 120.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR 1.56, it is not intended to constitute an

Application No.: Not Yet Assigned

Docket No.: A8130.0047/P047-A

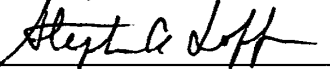
admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. A8130.0047/P047-A.

Dated: October 31, 2002

Respectfully submitted,

By 

Stephen A. Soffen

Registration No.: 31,063

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant

Substitute for form 1449A/PTO <h2 style="text-align: center; margin: 10px 0;">INFORMATION DISCLOSURE STATEMENT BY APPLICANT</h2> <p style="text-align: center; margin-top: 10px;">(use as many sheets as necessary)</p>		Complete if Known <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Application Number</td> <td>Not assigned</td> </tr> <tr> <td>Filing Date</td> <td>October 31, 2002</td> </tr> <tr> <td>First Named Inventor</td> <td>Reinhold Schmieding</td> </tr> <tr> <td>Art Unit</td> <td></td> </tr> <tr> <td>Examiner Name</td> <td></td> </tr> <tr> <td>Attorney Docket Number</td> <td>A8130.0047/P047-A</td> </tr> </table>		Application Number	Not assigned	Filing Date	October 31, 2002	First Named Inventor	Reinhold Schmieding	Art Unit		Examiner Name		Attorney Docket Number	A8130.0047/P047-A
Application Number	Not assigned														
Filing Date	October 31, 2002														
First Named Inventor	Reinhold Schmieding														
Art Unit															
Examiner Name															
Attorney Docket Number	A8130.0047/P047-A														
Sheet	1	of	2												

11002 U.S. PRO
 10/285553
 11/01/02

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		DES 385,352	10-1997	Bales et al.	
		4,175,555	11-1979	Herbert	
		4,870,957	10-1989	Goble et al.	
		4,988,351	1-1991	Paulos, et al	
		5,102,414	04-1992	Kirsch	
		5,139,499	08-1992	Small et al.	
		5,242,447	9/1993	Borzone	
		5,364,400	11-1994	Rego, Jr. et al.	
		5,447,401	9-1995	Jones et al	
		5,456,685	10-1995	Huebner	
		5,470,334	11-1995	Ross et al.	
		5,492,442	2-1996	Lasner	
		5,571,139	11-1996	Jenkins, Jr.	
		5,618,314	04-1997	Harwin et al	
		5,626,613	05-1997	Schmieding	
		5,690,676	11-1997	DiPoto et al.	
		5,733,307	3-1998	Dinsdale	
		5,792,142	08-1998	Galitzer	
		5,824,011	10-1998	Stone, et al.	
		5,851,219	12-1998	Goble et al.	

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		"Implants for Surgery-Metal Bone Screws With Hexagonal Drive Connection, Spherical Under-Surface of Head, Asymmetrical Thread-Dimensions," International Standard <u>ISO 5834</u> , 1991(E), pp. 1-10	
		"Bone Screw Technical Information," Richards Manufacturing Company, Inc. Tech. Publ. 1980, pp.1-14	
		R.M. Altieri, "Mitek Surgical Products announces fourth-quarter and year-end results, <i>Business Wire</i> (Feb. 24, 1995).	

Examiner Signature	Date Considered
-----------------------	--------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number	Not Yet Assigned		
		Filing Date			
		First Named Inventor	Reinhold Schmieding		
		Art Unit	N/A		
		Examiner Name	Not Yet Assigned		
Sheet	2	of	2	Attorney Docket Number	A8130.0047/P047-A

11002 U.S. PTO
10/25/93
11/01/02

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		4,289,124	9-1981	Zickel	
		4,537,185	8-1985	Stednitz	
		4,631,100	12-1986	Somers et al.	
		5,061,181	10-1991	Niznick	
		5,067,956	11-1991	Buford, III, et al.	
		5,100,417	3-1992	Cerier, et al.	
		5,152,790	10-1992	Rosenberg et al.	
		5,156,616	10-1992	Meadows et al.	
		5,180,382	1-1993	Frigg et al.	
		5,246,441	9-1993	Ross et al.	
		5,370,662	12-1994	Stone et al.	
		5,417,533	5-1995	Lasner	
		5,443,482	8-1995	Stone et al.	
		5,522,843	6-1996	Zang	
		5,573,548	11-1996	Nazre et al.	
		5,607,432	3-1997	Fucci	
		5,643,269	7-1997	Harle	
		5,683,401	11-1997	Schmieding, et al.	
		5,697,950	12-1997	Fucci et al.	
		5,720,766	2-1998	Zang et al.	
		5,738,685	4-1998	Halm et al.	
		5,743,914	4-1998	Skiba	
		5,827,291	10-1998	Fucci et al.	
		6,117,162	9-2000	Schmieding et al.	
		6,214,031	4-2001	Schmieding, et al.	

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)			
		FR 258 8332	4-1987		
		SU 103 4734	8-1983		

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CA	Linvatec Revo™ Cancellous Screw Advertisement, 1993	
Examiner		Date Considered	



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov



Bib Data Sheet

CONFIRMATION NO. 2470

SERIAL NUMBER 10/285,553	FILING OR 371(c) DATE 11/01/2002 RULE	CLASS 606	GROUP ART UNIT 3731	ATTORNEY DOCKET NO. A8130.0047/P047-A
APPLICANTS Reinhold Schmieding, Naples, FL; R. Donald Grafton, Naples, FL; Mark Brunsvold, Naples, FL;				
** CONTINUING DATA ***** This application is a CON of 09/823,988 04/03/2001 PAT 6,511,499 which is a CON of 09/588,065 06/05/2000 PAT 6,214,031 which is a CON of 08/954,206 10/20/1997 PAT 6,117,162 which is a CON of 08/905,393 08/04/1997 ABN				
** FOREIGN APPLICATIONS *****				
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/23/2002				
Foreign Priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after met Allowance Verified and Acknowledged _____ Examiner's Signature _____ Initials _____		STATE OR COUNTRY FL	SHEETS DRAWING 2	TOTAL CLAIMS 16
INDEPENDENT CLAIMS 1				
ADDRESS 24998				
TITLE CORKSCREW SUTURE ANCHOR				
FILING FEE RECEIVED 670	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit	



IFW

cc/3731/

Docket No.: A8130.0047/P047-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Reinhold Schmieding, et al.

Application No.: 10/285,553

Art Unit: 3731

Filed: November 1, 2002

Examiner: G. Jackson

For: CORKSCREW SUTURE ANCHOR

PRELIMINARY AMENDMENT

MS Non-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of anchoring suture in bone, comprising inserting a suture anchor into bone, the suture anchor comprising:
 - a central body having a central axis, a distal end and a proximal end, the central body having a diameter, the central body being tapered from a maximum diameter near the proximal end to a minimum diameter toward the distal end, ~~and a tip portion disposed at the distal end of the central body;~~
 - a drive head disposed on the proximal end of the central body;
 - an eyelet for receiving at least one strand of suture; and
 - a continuous thread disposed in a spiral around the central body and having an inner diameter, an outer diameter, and a thickness, the thickness of the thread at the outer edge of the thread increasing proximally along a portion of the thread, the outer diameter of the thread being at least twice the inner diameter of the thread along a portion of the thread.
2. (Original) The method of claim 1, wherein the bone is in the shoulder.
3. (Original) The method of claim 2, wherein the anchor is used for rotator cuff repair.
4. (Original) The method of claim 1, wherein the bone is soft or cancellous bone.
5. (Original) The method of claim 1, wherein the suture anchor is installed arthroscopically.
6. (Original) The method of claim 1, wherein the thread has a distal and a proximal face, the proximal face forming a radial angle of about 5 to about 10 degrees from a perpendicular to a central axis of the suture anchor.

7. (Original) The method of claim 6, wherein the distal face forms a radial angle of about 15 to about 20 degrees from the perpendicular to the central axis of the suture anchor.

8. (Original) The method of claim 1, wherein the ratio of the outer diameter to the inner diameter of the thread is between about 2.25 and about 2.75 along a portion of the thread.

9. (Original) The method of claim 1, wherein the thread has a pitch between about 6 and about 9 flights per inch.

10. (Original) The method of claim 1, wherein the central body tapers from the proximal end to the distal end.

11. (Original) The method of claim 1 further comprising channels for suture on the drive head.

12. (Original) The method of claim 1, further comprising two lengths of suture attached to the suture anchor.

13. (Original) The method of claim 1, wherein the drive head is hexagonal.

14. (Original) The method of claim 1, wherein the suture anchor is inserted into the bone using a driver formed of a cannulated tube secured to a cannulated handle.

15. (Original) The method of claim 14, wherein the driver includes a hexagonal socket on the distal end of the cannulated tube which is inserted over and holds the suture anchor for rotation and installation into bone.

Application No.: 10/285,553

Docket No.: A8130.0047/P047-A

16. (Original) The method of claim 14, wherein the cannulated tube of the driver has an outer diameter which is equal to or less than the outer diameter of the proximal end of the suture anchor body.

Application No.: 10/285,553

Docket No.: A8130.0047/P047-A

REMARKS

By this Preliminary Amendment, claim 1 has been amended.

A Terminal Disclaimer accompanies this submission.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for examination.

Dated: April 30, 2004

Respectfully submitted,

By 

Stephen A. Soffen

Registration No.: 31,063

DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorney for Applicant



Docket No.: A8130.0047/P047-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Reinhold Schmieding et al.

Application No.: 10/285,553

Confirmation No.: 2470

Filed: November 1, 2002

Art Unit: 3731

For: CORKSCREW SUTURE ANCHOR

Examiner: G. Jackson

TERMINAL DISCLAIMER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The undersigned is attorney of record for the assignee of the above-identified application. Arthrex, Inc. certifies that it is the owner of 100% interest in the above identified patent application, as evidenced by the assignment, which was recorded in the U.S. Patent and Trademark Office on October 20, 1997, Reel 8866, Frame 0651.

The owner hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the above-identified application, which would extend beyond the expiration date of the full statutory term defined in 35 U.S.C. 154 to 156 and 173, as presently shortened by any terminal disclaimer, of prior U.S. Patent Nos. 6,511,499, 6,214,031, 6,117,162. The owner hereby agrees that any patent that is granted on the above-identified application shall be enforceable only for and during such period that it and the above listed patent are commonly owned. This agreement runs with any patent granted on the above-identified application and is binding upon the grantee, its successors or assignees.

05/03/2004 CCHAU1 00000110 10285553

01 FC:2814

55.00 0P

1763150 v1; 11SG#011.DOC

Application No.: 10/285,553

Docket No.: A8130.0047/P047-A

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the above-identified application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 to 156 and 173 of the prior patent, as presently shortened by any terminal disclaimer, in the event that it later: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminate prior to the expiration of its full statutory term.

Please charge our Credit Card in the amount of \$55.00 covering the fee set forth in 37 CFR 1.20(d). Credit Card Payment Form SB-2038, with a signature from an authorized cardholder, is enclosed. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. A8130.0047/P047-A.

Dated: April 30, 2004

Respectfully submitted,

By 

Stephen A. Soffen

Registration No.: 31,063

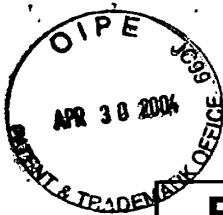
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorney for Applicant



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Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004 <small>Effective 10/01/2003, Patent fees are subject to annual revision.</small>		Complete if Known	
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		Application Number	10/285,553
TOTAL AMOUNT OF PAYMENT (\$)		Filing Date	November 1, 2002
55.00		First Named Inventor	Reinhold Schmieding
		Examiner Name	G. Jackson
		Art Unit	3731
		Attorney Docket No.	A8130.0047/P047-A
METHOD OF PAYMENT (check all that apply)		FEE CALCULATION (continued)	
<input type="checkbox"/> Check <input checked="" type="checkbox"/> Credit Card <input type="checkbox"/> Money Order <input type="checkbox"/> Other <input type="checkbox"/> None		3. ADDITIONAL FEES	
Deposit Account: Deposit Account Number: 04-1073 Deposit Account Name: Dickstein Shapiro Morin & Oshinsky LLP		Large Entity Small Entity	
The Director is authorized to: (check all that apply) <input type="checkbox"/> Charge fee(s) indicated below <input checked="" type="checkbox"/> Credit any overpayments <input type="checkbox"/> Charge any additional fee(s) or any underpayment of fee(s) <input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.		Fee Code Fee (\$) Fee Code Fee (\$) Fee Description Fee Paid	
FEE CALCULATION		1051 130 2051 65 Surcharge - late filing fee or oath	
1. BASIC FILING FEE		1052 50 2052 25 Surcharge - late provisional filing fee or cover sheet.	
Large Entity Small Entity		1053 130 1053 130 Non-English specification	
Fee Code Fee (\$)	Fee Code Fee (\$)	1812 2,520 1812 2,520 For filing a request for ex parte reexamination	
1001 770 2001 385 Utility filing fee		1804 920* 1804 920* Requesting publication of SIR prior to Examiner action	
1002 340 2002 170 Design filing fee		1805 1,840* 1805 1,840* Requesting publication of SIR after Examiner action	
1003 530 2003 265 Plant filing fee		1251 110 2251 55 Extension for reply within first month	
1004 770 2004 385 Reissue filing fee		1252 420 2252 210 Extension for reply within second month	
1005 160 2005 80 Provisional filing fee		1253 950 2253 475 Extension for reply within third month	
SUBTOTAL (1) (\$) 0.00		1254 1,480 2254 740 Extension for reply within fourth month	
2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE		1255 2,010 2255 1,005 Extension for reply within fifth month	
Total Claims 16 -20** = 0.00		1401 330 2401 165 Notice of Appeal	
Independent Claims 1 -3** = 0.00		1402 330 2402 165 Filing a brief in support of an appeal	
Multiple Dependent		1403 290 2403 145 Request for oral hearing	
Large Entity Small Entity		1451 1,510 1451 1,510 Petition to institute a public use proceeding	
Fee Code Fee (\$)	Fee Code Fee (\$)	1452 110 2452 55 Petition to revive - unavoidable	
1202 18 2202 9 Claims in excess of 20		1453 1,330 2453 665 Petition to revive - unintentional	
1201 86 2201 43 Independent claims in excess of 3		1501 1,330 2501 665 Utility issue fee (or reissue)	
1203 290 2203 145 Multiple dependent claim, if not paid		1502 480 2502 240 Design issue fee	
1204 86 2204 43 ** Reissue independent claims over original patent		1503 640 2503 320 Plant issue fee	
1205 18 2205 9 ** Reissue claims in excess of 20 and over original patent		1460 130 1460 130 Petitions to the Commissioner	
SUBTOTAL (2) (\$) 0.00		1807 50 1807 50 Processing fee under 37 CFR 1.17(q)	
**or number previously paid, if greater; For Reissues, see above		1806 180 1806 180 Submission of Information Disclosure Stmt	
		8021 40 8021 40 Recording each patent assignment per property (times number of properties)	
		1809 770 2809 385 Filing a submission after final rejection (37 CFR 1.129(a))	
		1810 770 2810 385 For each additional invention to be examined (37CFR 1.129(b))	
		1801 770 2801 385 Request for Continued Examination (RCE)	
		1802 900 1802 900 Request for expedited examination of a design application	
		Other fee (specify) 2814 Statutory Disclaimer 55.00	
		*Reduced by Basic Filing Fee Paid SUBTOTAL (3) (\$) 55.00	
SUBMITTED BY		(Complete if applicable)	
Name (Print/Type) Stephen A. Soffen		Registration No. (Attorney/Agent)	31,063
Signature		Telephone	(202) 828-4879
		Date	April 30, 2004

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	("6511499") or ("6214031") or ("6117162").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/01/09 17:52
L2	43	("4175555" "4289124" "4537185" "4631100" "4870957" "4988351" "5061181" "5067956" "5100417" "5102414" "5139499" "5152790" "5156616" "5180382" "5242447" "5246441" "5364400" "5370662" "5417533" "5443482" "5447401" "5456685" "5470334" "5492442" "5522843" "5571139" "5573548" "5607432" "5626613" "5643269" "5683401" "5690676" "5697950" "5720766" "5733307" "5738685" "5743914" "5792142" "5824011" "5827291" "5851219" "6117162" "6214031").PN.	US-PGPUB; USPAT	OR	ON	2005/01/09 17:53
L3	16	("0177731" "1693768" "2479730" "4181457").PN. OR ("5643269").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2005/01/09 18:08
L4	735	(606/232).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/01/09 18:08
L5	255	4 and @ad<"19960826"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:12
L6	132	5 and thread	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:12
L7	9	6 and helical	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:11
L8	1126	(606/73).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/01/09 18:12

L9	444	8 and @ad<"19960826"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:12
L10	412	9 and thread\$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:13
L11	85	10 and (helical or spiral)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/01/09 18:13



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

24998 7590 02/02/2005
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L Street, NW
Washington, DC 20037

EXAMINER

JACKSON, GARY

ART UNIT

PAPER NUMBER

3731

DATE MAILED: 02/02/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/285,553	11/01/2002	Reinhold Schmieding	A8130.0047/P047-A	2470

TITLE OF INVENTION: CORKSCREW SUTURE ANCHOR

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	05/02/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24998 7590 02/02/2005

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L Street, NW
Washington, DC 20037

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/285,553	11/01/2002	Reinhold Schmieding	A8130.0047/P047-A	2470

TITLE OF INVENTION: CORKSCREW SUTURE ANCHOR

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	05/02/2005

EXAMINER	ART UNIT	CLASS-SUBCLASS
JACKSON, GARY	3731	606-232000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/285,553	11/01/2002	Reinhold Schmieding	A8130.0047/P047-A	2470
24998	7590	02/02/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			JACKSON, GARY	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	

3731

DATE MAILED: 02/02/2005

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 398 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 398 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571) 272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

64

Notice of Allowability	Application No.	Applicant(s)	
	10/285,553	SCHMIEDING ET AL.	
	Examiner	Art Unit	
	Gary Jackson	3731	

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☒ The drawings filed on 11 November 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37.CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>Nov. 1, 2002</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Gary Jackson
 Primary Examiner
 Art Unit: 3731



EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stephen A. Soffen on January 10, 2005.

The application has been amended as follows:

Claim 1, line 2, "inserting a suture anchor into bone" has been changed to

-- attaching suture to a suture anchor - -;

The last line after "thread" the following has been inserted:

- -;and

inserting the anchor with the attached suture into bone - -

This amendment places the claims in better condition for allowance.

EXAMINER'S COMMENT

The terminal disclaimer filed April 30, 2004 has been received and placed in the file. The terminal disclaimer makes a double patenting rejection over US Patents 6,511,499, 6,214,031 and 6,117,162 moot issue.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: The art of record closest to the claims fail to teach or suggest a method of anchoring a suture in a bone, wherein the anchor comprises a central body having a head at the proximal end; an eyelet and a

continuous thread disposed in a spiral around the central body and the thread having a thickness at the outer edge increasing proximally along a portion of the thread and further, wherein the outer diameter of the thread is at least twice the inner diameter of thread along a portion of the thread.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Jackson whose telephone number is (571) 272-4697. The examiner can normally be reached on Mon.-Thurs. 7:30 am to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Antoine Nguyen can be reached on (571) 272-4693. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary Jackson
Primary Examiner
Art Unit 3731



gj
January 10, 2005




U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete If Known	
				Application Number	Not assigned
				Filing Date	October 31, 2002
				First Named Inventor	Reinhold Schmieding
				Art Unit	
				Examiner Name	
Sheet	1	of	2	Attorney Docket Number	A8130.0047/P047-A

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ³ (If known)			
A		DES 385,352	10-1997	Bales et al.	
		4,175,555	11-1979	Herbert	
		4,870,957	10-1989	Goble et al.	
		4,988,351	1-1991	Paulos, et al	
		5,102,414	04-1992	Kirsch	
		5,139,499	08-1992	Small et al.	
		5,242,447	9/1993	Borzone	
		5,364,400	11-1994	Rego, Jr. et al.	
		5,447,401	9-1995	Jones et al	
		5,456,685	10-1995	Huebner	
		5,470,334	11-1995	Ross et al.	
		5,492,442	2-1996	Lasner	
		5,571,139	11-1996	Jenkins, Jr.	
		5,618,314	04-1997	Harwin et al	
		5,626,613	05-1997	Schmieding	
		5,690,676	11-1997	DiPoto et al.	
		5,733,307	3-1998	Dinsdale	
	H		5,792,142	08-1998	Galltzer
		5,824,011	10-1998	Stone, et al.	
		5,851,219	12-1998	Goble et al.	

¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP §01.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		"Implants for Surgery-Metal Bone Screws With Hexagonal Drive Connection, Spherical Under-Surface of Head, Asymmetrical Thread-Dimensions," International Standard <u>ISO 5834</u> , 1991(E), pp. 1-10	
		"Bone Screw Technical Information," Richards Manufacturing Company, Inc. Tech. Publ. 1980, pp.1-14	
		R.M. Altieri, "Mitek Surgical Products announces fourth-quarter and year-end results, <i>Business Wire</i> (Feb. 24, 1995).	

Examiner Signature	Jackson, Gary	Date Considered	01-09-2005
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	Not Yet Assigned
		Filing Date	
		First Named Inventor	Reinhold Schmieding
		Art Unit	N/A
		Examiner Name	Not Yet Assigned
Sheet	2	of	2
		Attorney Docket Number	A8130.0047/P047-A


11002 U.S. PTO
 10/26/93
 11/01/02

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AS		4,289,124	9-1981	Zickel	
		4,537,185	8-1985	Stednitz	
		4,631,100	12-1986	Somers et al.	
		5,061,181	10-1991	Niznick	
		5,067,956	11-1991	Buford, III, et al.	
		5,100,417	3-1992	Cerier, et al.	
		5,152,790	10-1992	Rosenberg et al.	
		5,156,616	10-1992	Meadows et al.	
		5,180,382	1-1993	Frigg et al.	
		5,246,441	9-1993	Ross et al.	
		5,370,662	12-1994	Stone et al.	
		5,417,533	5-1995	Lasner	
		5,443,482	8-1995	Stone et al.	
		5,522,843	6-1996	Zang	
		5,573,548	11-1996	Nazre et al.	
		5,607,432	3-1997	Fucci	
		5,643,269	7-1997	Harle	
		5,683,401	11-1997	Schmieding, et al.	
		5,697,950	12-1997	Fucci et al.	
		5,720,766	2-1998	Zang et al.	
		5,738,685	4-1998	Halm et al.	
		5,743,914	4-1998	Skiba	
		5,827,291	10-1998	Fucci et al.	
AS		6,117,162	9-2000	Schmieding et al.	
		6,214,031	4-2001	Schmieding, et al	

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ² -Number ³ -Kind Code ⁴ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AS		FR 258 8332	4-1987		
		SU 103 4734	8-1983		


¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
AS	CA	Linatec Revo™ Canc ilous Screw Advertisem nt, 1993	
Examiner	Jackson, Gary		Date Considered 01-09-2005

Application Number 	Application No.	Applicant(s)	
	10/285,553	SCHMIEDING ET AL.	

TERMINAL DISCLAIMER	<input checked="" type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED
Document Code - DISQ	This patent is subject to a Terminal Disclaimer	
INTERNAL DOCUMENT – DO NOT MAIL		

U.S. Patent and Trademark Office

Issue Classification 	Application No.	Applicant(s)	
	10/285,553	SCHMIEDING ET AL.	
	Examiner	Art Unit	
	Gary Jackson	3731	

ISSUE CLASSIFICATION									
ORIGINAL				CROSS REFERENCE(S)					
CLASS		SUBCLASS		CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
606		232		606	73				
INTERNATIONAL CLASSIFICATION									
A	6	1	B						
				17/0					
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(Assistant Examiner) (Date)		GARY JACKSON PRIMARY EXAMINER GROUP 3300 <i>Gary Jackson</i> 01-09-2005 (Primary Examiner) (Date)		Total Claims Allowed: 16	
<i>[Signature]</i> 1-24-05 (Legal Instruments Examiner) (Date)				O.G. Print Claim(s) 1	O.G. Print Fig 1

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant				<input type="checkbox"/> CPA		<input checked="" type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47	
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	2		32		62		92		122
	3		33		63		93		123
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Search Notes

Application No.

10/285,553

Examiner

Gary Jackson

Applicant(s)

SCHMIEDING ET AL.

Art Unit

3731

SEARCHED

Class	Subclass	Date	Examiner
606	73, 232	1/9/2005	GJ

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST 606/232, 73	1/9/2005	gj

Search Notes

Application No.

10/285,553

Examiner

Gary Jackson

Applicant(s)

SCHMIEDING ET AL.

Art Unit

3731

SEARCHED

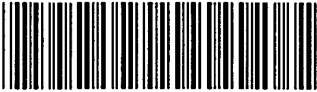
Class	Subclass	Date	Examiner
606	73, 232	1/9/2005	GJ

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
606	232	1/10/2005	GJ

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST 606/232, 73	1/9/2005	gj

Index of Claims 	Application No.		Applicant(s)	
	10/285,553		SCHMIEDING ET AL.	
	Examiner		Art Unit	
	Gary Jackson		3731	

✓	Rejected
=	Allowed

—	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	App al
O	Objected

Claim		Date									
Final	Original	1/9/05									
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 www.uspto.gov

BIBDATASHEET

CONFIRMATION NO. 2470

Bib Data Sheet

SERIAL NUMBER 10/285,553	FILING DATE 11/01/2002 RULE	CLASS 606	GROUP ART UNIT 3731	ATTORNEY DOCKET NO. A8130.0047/P047-A
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APPLICANTS

Reinhold Schmieding, Naples, FL;
 R. Donald Grafton, Naples, FL;
 Mark Brunsvold, Naples, FL;

If yes
 ** CONTINUING DATA *****

This application is a CON of 09/823,988 04/03/2001 PAT 6,511,499
 which is a CON of 09/588,065 06/05/2000 PAT 6,214,031
 which is a CON of 08/954,206 10/20/1997 PAT 6,117,162
 which is a CON of 08/905,393 08/04/1997 ABN

If none
 ** FOREIGN APPLICATIONS *****

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
 ** 12/23/2002

Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	STATE OR COUNTRY FL	SHEETS DRAWING 2	TOTAL CLAIMS 16	INDEPENDENT CLAIMS 1
35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged	Examiner's Signature <i>Dary Jackson</i>	Initials <i>BJ</i>		

ADDRESS
 24998
 DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
 2101 L Street, NW
 Washington, DC
 20037

TITLE
 Corkscrew suture anchor

FILING FEE	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing)
		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

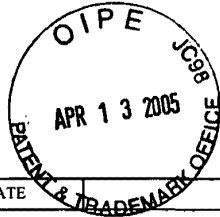
**Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24998 7590 02/02/2005

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L Street, NW
Washington, DC 20037



Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/285,553	11/01/2002	Reinhold Schmieding	A8130.0047/P047-A	2470

TITLE OF INVENTION: CORKSCREW SUTURE ANCHOR

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	05/02/2005

EXAMINER	ART UNIT	CLASS-SUBCLASS
JACKSON, GARY	3731	606-232000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Dickstein Shapiro
2 Morin & Oshinsky LLP
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE
Arthrex, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)
Naples, Florida

04/15/2005 MBEYENE2 00000029 10285553

**01 FC:1501 1400.00 OP
02 FC:1504 300.00 OP
03 FC:8001 15.00 OP**

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted) **5 - \$15.00**
- ☒ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☒ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above. NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature Stephen A. Soffen

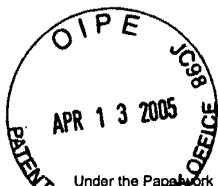
Typed or printed name **Stephen A. Soffen**

Date April 13, 2005

Registration No. 31,063

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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PTO/SB/17 (12-04v2)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).**FEE TRANSMITTAL**
For FY 2005☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 1,715.00**Complete if Known**

Application Number	10/285,553
Filing Date	November 1, 2002
First Named Inventor	Reinhold Schmieding
Examiner Name	G. Jackson
Art Unit	3731
Attorney Docket No.	A8130.0047/P047-A

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☐ Deposit Account Deposit Account Number: 04-1073 Deposit Account Name: Dickstein Shapiro Morin & Oshinsky LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☐ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims	Fee (\$)	Fee Paid (\$)
16	- 20 =	x	=			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)			
1	- 3 =	x	=			

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/50	(round up to a whole number) x	=	

4. OTHER FEE(S)

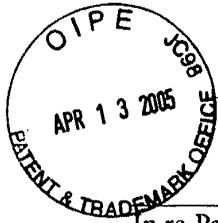
	Fees Paid (\$)
Non-English Specification, \$130 fee (no small entity discount)	
Other (e.g., late filing surcharge): 1501 Utility issue fee	1,400.00
1504 Publication fee for early, voluntary, or normal ...	300.00
8001 Printed copy of patent w/o color	15.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	31,063	Telephone	(202) 828-4879
Name (Print/Type)	Stephen A. Soffen	Date	April 13, 2005		

Application No.: 10/285,553

Docket No.: A8130.0047/P047-A



Docket No.: A8130.0047/P047-A
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Reinhold Schmieding et al.

Application No.: 10/285,553

Confirmation No.: 2470

Filed: November 1, 2002

Art Unit: 3731

For: CORKSCREW SUTURE ANCHOR

Examiner: G. Jackson

CHANGE OF ENTITY STATUS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

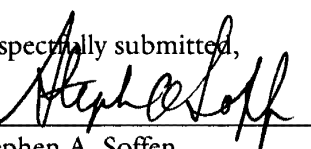
The patent owner no longer qualifies as a small entity.

In accordance with the change to large entity status, the large entity amount (\$1,715.00) for the Issue Fee is submitted herewith.

Dated: April 13, 2005

Respectfully submitted,

By


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