Morgan W. Tovey (SBN 136242)
William Ross Overend (SBN 180209)
REED SMITH LLP
Two Embarcadero Center, Suite 2000
San Francisco, CA 94111-3922
Tel: (415) 543-8700; Facsimile: (415) 391-8269

Gregory J. Vogler (admitted pro hac vice)
Robert A. Surrette (admitted pro hac vice)
William B. Gont (admitted pro hac vice)
McANDREWS HELD & MALLOY
500 West Madison Street, Suite 3400
Chicago, IL 60661
Telephone: (312) 775-8000

Attorneys for Defendant,
STRYKER CORPORATION

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA
SACRAMENTO DIVISION

SYNVASIVE TECHNOLOGY, INC., Plaintiff, v. STRYKER CORPORATION, Defendant.	Case No. 2:05-CV-01515-WBS-DAD (Consolidated)
SYNVASIVE TECHNOLOGY, INC., Plaintiff, v. STRYKER CORPORATION, Defendant. AND RELATED COUNTERCLAIMS.	Case No. 2:06-CV-00049-WBS-DAD (Consolidated) **DECLARATION OF DR. CARL H. JACOBS IN SUPPORT OF STRYKER CORPORATION'S OPPOSITION TO SYNVASIVE'S MOTION FOR PARTIAL SUMMARY JUDGMENT OF INFRINGEMENT OF THE '353 AND '253 PATENTS**

I, Dr. Carl H. Jacobs, declare as follows:

I. BACKGROUND

1. I have personal knowledge of all facts set forth herein.

2. I am over 21 years of age and competent to testify.

3. I have been retained by Stryker Corporation's ("Stryker") counsel to provide my expert opinion on infringement and validity of certain claims of U.S. Patent Nos. 6,022,353 ("'353 patent"), 6,503,253 ("'253 patent"), and 6,723,101 ("'101 patent"). I submit this declaration in support of Stryker Corporation's Opposition to Synvasive Technology, Inc.'s Motion for Partial Summary Judgment of Infringement of the '353 and '253 Patents.

4. I have previously submitted three expert reports in connection with this action addressing the issues of invalidity and noninfringement.

5. I received a Bachelor of Science Degree in Mechanical Engineering from the University of Vermont in 1970. I received a Master of Science Degree in 1972 and a Ph.D. in 1974 from the Graduate School of the University of Vermont. I was an Assistant Professor in the School of Mechanical Engineering at the Georgia Institute of Technology from 1974 until 1979.

6. I was Group Leader, Materials Characterization for Howmedica (now part of Stryker Corporation) from 1979-1983 in Groton, Connecticut. Between 1983 and 1989, I served in various positions at the Warsaw, Indiana facility of the Zimmer Orthopaedic Implant Division of Bristol-Myers Squibb. These positions included: Director of the Research Laboratories, Director of Quality Assurance and Director of Materials Processing. From 1989 to 1991, I was Vice President, Manufacturing operations for Orthomet, a manufacturer of Orthopaedic Implant Systems located in Minneapolis, Minnesota. From 1991 to 1992, I served as Director of Quality Assurance for the Osteonics Division of Stryker Corporation, located in Allendale, New Jersey.

7. Between 1993 and 2003, I was employed by the Collagen Products Division of Datascope Corp located in Montvale, New Jersey. The positions I held included: Director and Vice President, Operations & Engineering, and Managing Director of a wholly owned subsidiary (Bioplex Medical, B.V., located in The Netherlands).

8. Since 2003, I have been doing independent consulting for medical device start-up companies. Attached as Ex. 1 is a true and correct copy of my current resume.[1]

9. My expertise includes: cutting tool design for orthopaedic surgery; experimental design in biomaterials research, quality and regulatory systems; medical device testing; medical device packaging and sterilization; collagen processing; national and international medical device related regulations; processes, practices, and procedures for the shipping and handling of tissue of animal origin for use in medical devices; and the evaluation of failed medical instruments and devices.

II. ANALYSIS

10. Attorneys for Stryker have informed me that Synvasive Technology, Inc. ("Synvasive") has asserted claims ("asserted claims") from the '353 (Ex. 2), '253 (Ex. 3), and '101 patents (collectively "patents-in-suit") against certain Stryker products.

11. Attorneys for Stryker have also informed me that Synvasive has filed a partial summary judgment motion for literal infringement of claim 1 of the '353 patent and claim 2 of the '253 patent against certain Stryker products, namely Stryker Offset Blades (Stryker Part Nos. 4225-070-090, 4225-085-127, 2108-182-001, and 4113-119-090S1 (Ex. 4)) and no longer manufactured versions of two accused specialty blades (Stryker Part Nos. 2108-151S4 and 2108-102S12 ("Specialty Blades") (Ex. 5)). In my previous reports and declarations, I have referred to Stryker "Specialty Blades" as "Current Curved Top-Blades."

12. I have reviewed Synvasive's motion for partial summary judgment of infringement of the '353 and '253 patents.

13. It is my understanding that the test for infringement is a two-step process. First, the claims must be construed or interpreted. Second, the claims, as construed, must be compared to the accused infringing product to determine whether that product includes each and every limitation recited in the claim, either literally or under the doctrine of equivalents.

14. It is my understanding that literal infringement exists when the accused product contains

[1] References to Exhibits (i.e. "Ex. __") are the exhibits attached hereto my declaration.

each and every limitation recited in the claim exactly.

15. I have reviewed the '353, '253, and '101 patents and their respective prosecution histories.

16. I have reviewed the Court's March 30 Memorandum and Order Re: Summary Judgment ("March 30 Order) (Docket Entry 43) relating to the '353 patent and '253 patent, in which certain disputed claim terms of the '353 patent and '253 patent have been construed. I have used the Court's claim constructions when comparing the claims asserted in Synvasive's motion for partial summary judgment of literal infringement against the accused Stryker Offset Blades and Specialty Blades.

17. I am familiar with the structure, function, and operation of the accused Stryker blades through the preparation and submission of my expert reports relating to noninfringement.

18. For the reasons set forth below, it is my opinion that Stryker Offset Blades and Specialty Blades do not infringe the claims asserted in Synvasive's motion for partial summary judgment of infringement, namely claim 1 of the '353 patent and claim 2 of the '253 patent.

A. Offset Blades

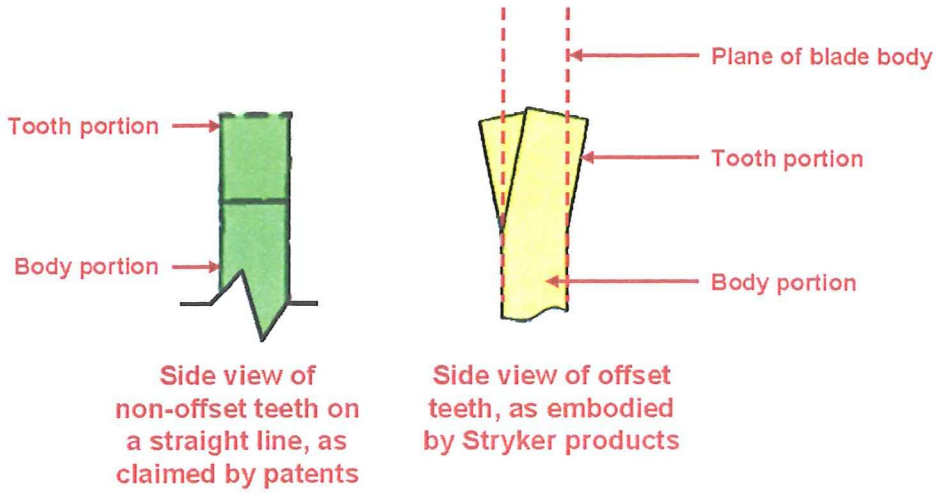
19. Two distinct categories of surgical saw blades are saw blades that have offset teeth, such as Stryker Offset Blades, and surgical saw blades that do not have offset teeth, such as those that are arrayed on a single line.

20. Blades with offset teeth are substantially different than blades without offset teeth.

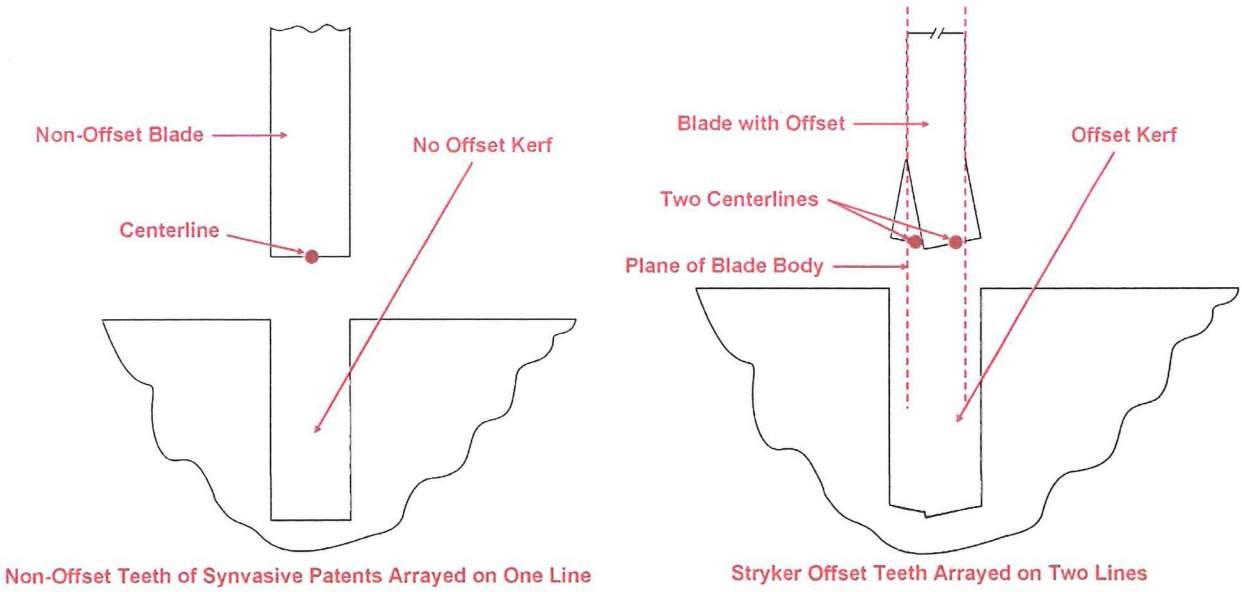
21. Blades having offset teeth have each neighboring tooth alternately mechanically bent or curved to permanently deform the teeth over both sides, and out of the plane, of the blade body.

22. As illustrated below, by offsetting the teeth, the width of the area covered by the tooth portion of the blade is wider than that of the body portion of the blade.

23. As illustrated below, blades that do not have offset teeth have teeth that remain within the plane of the blade body. Accordingly, blades that do not have offset teeth have the same width at both the body and tooth portions of the blade.



24. As illustrated below, blades with offset teeth produce a kerf that is wider than the narrower thickness of the body portion of the blade. Blades without offset produce a kerf having a width equal to the thickness of the blade.



25. Because blades with offset produce a wider kerf, the potential for frictional rubbing between the body portion of the oscillating blade and the wall of the kerf, and any associated local heating caused by frictional rubbing, is reduced.

26. Surgical saw blades are often inserted into the slot of a cutting guide so as to assist the

surgeon in cutting bone at a desired location.

27. When used with surgical saw blades that do not have offset teeth, the width of the cutting guide slot may be close to that of the uniform width of the blade body. This close fit may improve the accuracy of the cut, as there is little space for the blade to wander during the cutting process.

28. When used with surgical saw blades having offset teeth, the width of the cutting guide slot must be increased so as to accommodate the increased width of the offset tooth portion of the blade. The increased difference between the widths of the cutting guide slot and the body portion of the blade may result in the blade tending to wander during the cutting process, thereby producing different cuts than non-offset blades.

B. '353 Patent

29. Claim 1 of the '353 patent requires "substantially identically teeth" and "substantially identically shaped teeth." (Ex. 2, '353 patent at claim 1.)

30. The claim language "substantially identically teeth" and "substantially identically shaped teeth" are indefinite to one skilled in the art. The '353 and '253 patents provide no objective or other guidance as to the meaning of either "substantially identically teeth" or "substantially identically shaped teeth," and specifically provide no objective measure of what constitutes "substantially identically teeth" or "substantially identically shaped teeth."

31. It is my understanding that the Court has defined "substantially" to mean "approximately." (Docket Entry 43, March 30 Order at 11.)

32. Stryker Offset Blades do not have "substantially identically teeth" or "substantially identically shaped teeth."

33. The teeth on Stryker Offset Blades are manufactured with offset having different alternating teeth. (See, e.g., Ex. 4.)

34. As a result of offsetting the teeth on Stryker Offset Blades, the alternating teeth are different and are bent or curved over the sides of, and out of the plane defined by, the body of the blade.

35. It is my understanding that the Court has previously construed "shaped substantially as a right triangle" to mean "shaped as a triangle in which one of the interior angles is approximately

ninety degrees." (Docket Entry 43, March 30 Order at 11.)

36. A right triangle is a three-sided geometric construction in one plane.

37. A right triangle requires a triangle with two sides defining a 90-degree angle.

38. Offsetting the teeth on Stryker Offset Blades results in teeth that are bent or curved structures that are not co-planar with the blade body, i.e., not right triangles. Instead, every other tooth has a different non-right angled shape due to the curved offset design of the tooth being bent out of the plane of the body of the blade.

39. Because the offset teeth are bent or curved to the sides, Stryker Offset Blades do not have teeth that are "shaped substantially as right triangles."

40. Claim 1 of the '353 patent also requires that the "substantially identically shaped teeth" are "shaped substantially as right triangles including a hypotenuse . . . wherein each hypotenuse is oriented toward the centrally positioned long axis." (Ex. 2, '353 patent at claim 1.)

41. It is my understanding that the Court has previously construed "each hypotenuse is oriented toward" to mean "each tooth should have a hypotenuse that is oriented toward the central long axis, or facing that axis." (Docket Entry 43, March 30 Order at 12.)

42. By bending a tooth and any corresponding alleged hypotenuse that may be associated with that tooth out of the plane defined by the body of the blade, the alleged hypotenuse is no longer "oriented" toward or away, or "facing" the centrally positioned axis of the blade.

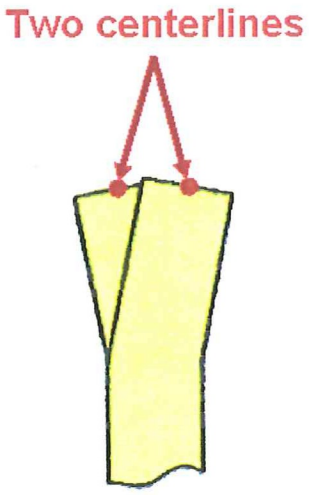
43. Because the offset teeth are bent or curved to the sides, Stryker Offset Blades do not have teeth "wherein each hypotenuse is oriented toward the centrally positioned long axis."

44. Claim 1 of the '353 patent also requires "each of the plurality of teeth ending in a tip distally" and that "the tips are arrayed on a line perpendicular to the centrally positioned long axis." (Ex. 2, '353 patent at claim 1.)

45. A person of ordinary skill in the art would look at the centerlines of the tips of the teeth to determine how the teeth are arrayed or configured to be placed.

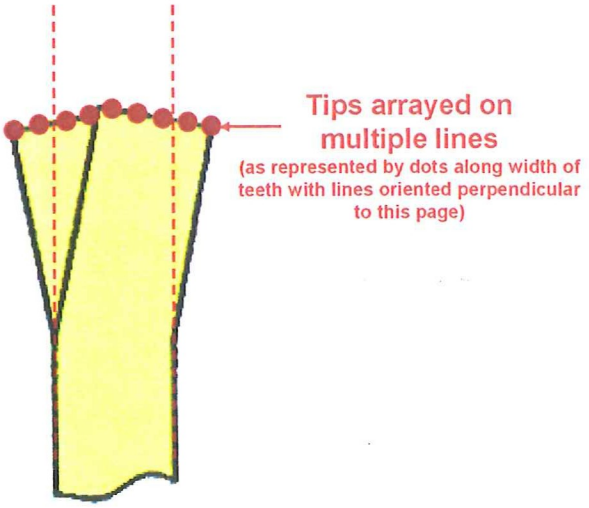
46. "Arrayed" or "configured to be placed" on a line is a term of art in blade design and requires an affirmative act of design.

47. Stryker Offset Blades do not have teeth "wherein the tips are arrayed on a line perpendicular to the centrally positioned long axis." Instead, as exemplified by the representative profile of Stryker Offset Blades illustrated below, because neighboring teeth are alternately bent or curved over the sides of the blade body, Stryker Offset Blades are arrayed on at least two separate and distinct parallel lines.



Partial side view of the accused Stryker blades

48. Were the centerlines not considered when evaluating whether the teeth on Stryker Offset Blades are arrayed on a line, than Stryker Offset Blades are arrayed on many lines, as illustrated below.



49. If offset teeth did not have overlap, there would be a portion of bone between the non-overlapping teeth directly beneath the blade that may not be removed during the cutting process.

50. Teeth are offset so as to be arrayed or configured to be placed on at least two different lines. The amount teeth are offset so as to be arrayed on at least two different lines is determined through detailed engineering assessments of the feature and benefit ratios that create trade-offs in final product design, such as those identified above in paragraphs 22-28.

C. '253 Patent

51. Claim 2 of the '253 patent requires teeth that are "substantially identically shaped." (Ex. 3, '253 patent at claim 2.)

52. Claim 2 of the '253 patent furthers require that the "substantially identically shaped" teeth be "shaped substantially as right triangles including a hypotenuse . . . wherein each hypotenuse is oriented at least one of towards and away from the centrally positioned long axis." (Id.)

53. Claim 2 of the '253 patent also requires "teeth ending in a tip distally . . . wherein the tips are configured to be placed substantially on a tangent which is perpendicular to a radial line extending from the center line of the power tool cutting axis that bisects the arc of travel within which the blade travels." (Id.)

54. It is my understanding that the Court has previously construed "each hypotenuse is oriented at least one of towards or away from" to mean "either all of the individual hypotenuses are oriented towards the centrally positioned long axis, or all of the individual hypotenuses are oriented away from the centrally positioned long axis." (Docket Entry 43, March 30 Order at 14-16.)

55. For the same reasons described above in paragraphs 31-34, Stryker Offset Blades do not have teeth that are "substantially identically shaped."

56. For the same reasons described above in paragraphs 33-39, Stryker Offset Blades do not have teeth that are "shaped substantially as right triangles."

57. For the same reasons described above in paragraphs 33-34 and 41-43, Stryker Offset Blades do not have teeth having alleged hypotenuses "wherein each hypotenuse is oriented at least one of towards and away from the centrally positioned long axis."

58. For the same reasons described above in paragraphs 33-34 and 45-50, Stryker Offset Blades do not have "teeth ending in a tip distally . . . wherein the tips are configured to be placed substantially on a tangent which is perpendicular to a radial line extending from the center line of the power tool cutting axis that bisects the arc of travel within which the blade travels."

I declare under the penalty of perjury that the foregoing is true and accurate to the best of my knowledge.

Dated: this 22 day of January 2007

Dr. Carl H. Jacobs