

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

DR. MARK A. BARRY,

Plaintiff,

v.

ALPHATEC HOLDINGS, INC., AND

ALPHATEC SPINE, INC.,

Defendants.

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C. A. No.:

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

1. Plaintiff Dr. Mark A. Barry (“Dr. Barry”), through his undersigned counsel, hereby alleges as follows:

I. THE PARTIES

2. Dr. Barry is an orthopedic surgeon who resides in San Diego, California. Dr. Barry is sole owner of United States Patent Nos. 7,670,358 (“the ’358 patent”); 8,361,121 (“the ’121 patent”); 9,339,301 (“the ’301 patent”); 9,668,787 (“the ’787 patent”); and 9,668,788 (“the ’788 patent”) (collectively, the “Asserted Patents”).

3. On information and belief, Defendant Alphatec Spine, Inc., is a corporation organized and existing under the laws of the state of California, with a registered agent Craig E. Hunsaker at 5818 El Camino Real, Carlsbad, CA 92008. Alphatec Spine, Inc. is a subsidiary of Alphatec Holdings, Inc.

4. On information and belief, Defendant Alphatec Holdings, Inc. (collectively with Alphatec Spine, Inc., “Alphatec”) is a corporation organized and existing under the laws of the state of Delaware, with a registered agent Corporation Service Company at 251 Little Falls Drive, Wilmington, DE 19808.

II. JURISDICTION AND VENUE

5. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 1, *et seq.* The Court has subject matter jurisdiction pursuant to 35 U.S.C. §§ 1331 and 1338(a).

6. The Court has personal jurisdiction over Alphatec Holdings, Inc. because it is incorporated in Delaware and thus resides within this judicial district.

7. The Court has personal jurisdiction over Alphatec Spine, Inc. because Alphatec Spine, Inc. has sufficient minimum contacts with this District stemming from business conducted within this District. On information and belief, Defendants Alphatec Holdings, Inc. and Alphatec Spine, Inc. act in concert to commit acts of infringement in this District through the manufacture, sale, distribution, loaning, consignment, promotion, and education of the Alphatec Products as described herein and their subsequent use by surgeons in an infringing manner. Upon further information and belief, Alphatec's inducement has led to acts of direct infringement in this District.

8. Venue is proper pursuant to 28 U.S.C. § 1400(b) because Alphatec Holdings, Inc. is incorporated in Delaware and thus resides in this judicial district.

9. Upon information and belief, venue is proper pursuant to 28 U.S.C. § 1400(b) because Alphatec Spine, Inc. has induced the acts of direct infringement alleged herein in this District and these claims arise from those acts. Upon information and belief, Alphatec Spine, Inc. has regularly engaged in business in this District by maintaining sales representatives in this District who promote, sell, loan, consign, and distribute the systems and methods described in this Complaint and educate, instruct, and train physicians in the use of those systems and methods. Additionally, Alphatec Spine, Inc. has purposefully availed itself of the privilege of conducting business in the District, for example, by at least its offering, promoting, educating,

and either loaning/consigning or selling products in this District that are used to infringe the patents described herein.

10. Further, venue is proper pursuant to 28 U.S.C. § 1400(b) with regard to Alphatec Spine, Inc. by virtue of the acts of its parent company, Alphatec Holdings, Inc. Alphatec Spine, Inc. is intimately connected to Alphatec Holdings, Inc. and, on information and belief, formal corporate separateness was not maintained. On information and belief, Alphatec Spine, Inc. and Alphatec Holdings, Inc. share the same executive team and board of directors and hold themselves out as acting as a single corporate enterprise.¹ Further, Alphatec Holding, Inc.'s Annual Report on Form 10-K consistently refer to Alphatec Holdings, Inc. and Alphatec Spine, Inc. as a single enterprise.²

III. THE '358 PATENT

11. On March 2, 2010, the United States Patent and Trademark Office issued the '358 patent, entitled SYSTEM AND METHOD FOR ALIGNING VERTEBRAE IN THE AMELIORATION OF ABERRANT SPINAL COLUMN DEVIATION CONDITIONS. (Copy Attached as Exhibit A.)

12. Dr. Barry is the owner of all right, title, and interest in the '358 patent, including the right to sue, enforce, and recover damages for all infringements.

13. The '358 patent has not expired and is in full force and effect.

14. Pursuant to 35 U.S.C. § 282, the '358 patent and each of its claims are presumed valid and enforceable.

¹ See, e.g., <https://atecspine.com/about/#leadership> (last accessed May 27, 2021).

² <https://sec.report/Document/0001564590-21-011278/> (last accessed May 27, 2021) (In this Annual Report on Form 10-K, "the terms 'we,' 'us,' 'Alphatec Holdings' and 'Alphatec' mean Alphatec Holdings, Inc., our subsidiaries and their subsidiaries."); *id.* ("The Company operates in one reportable business segment."); *id.* ("Alphatec Holdings, Inc. (the 'Company'), through its wholly owned subsidiaries, Alphatec Spine, Inc. ('Alphatec Spine') and SafeOp Surgical, Inc. ('SafeOp'), is a medical technology company that designs, develops, and markets technology for the treatment of spinal disorders associated with disease and degeneration, congenital deformities, and trauma.").

15. The '358 patent contains claims, for example claims 4 and 5, directed to a method of derotating vertebrae via the simultaneous application of force to linked engagement members attached to implanted pedicle screws.

IV. THE '121 PATENT

16. On January 29, 2013, the United States Patent and Trademark Office issued the '121 patent, entitled SYSTEM AND METHOD FOR ALIGNING VERTEBRAE IN THE AMELIORATION OF ABERRANT SPINAL COLUMN DEVIATION CONDITIONS. (Copy Attached as Exhibit B.)

17. Dr. Barry is the owner of all right, title, and interest in the '121 patent, including the right to sue, enforce, and recover damages for all infringements.

18. The '121 patent has not expired and is in full force and effect.

19. Pursuant to 35 U.S.C. § 282, the '121 patent and each of its claims are presumed valid and enforceable.

20. The '121 patent contains claims, for example claims 2, 3, and 4, directed to a system used in derotating vertebrae via the simultaneous application of force to linked engagement members attached to implanted pedicle screws.

V. THE '301 PATENT

21. On May 17, 2016, the United States Patent and Trademark Office issued the '301 patent, entitled SYSTEM AND METHOD FOR ALIGNING VERTEBRAE IN THE AMELIORATION OF ABERRANT SPINAL COLUMN DEVIATION CONDITIONS. (Copy Attached as Exhibit C.)

22. Dr. Barry is the owner of all right, title, and interest in the '301 patent, including the right to sue, enforce, and recover damages for all infringements.

23. The '301 patent has not expired and is in full force and effect.

24. Pursuant to 35 U.S.C. § 282, the '301 patent and each of its claims are presumed valid and enforceable.

25. The '301 patent contains claims, for example claims 1-10, directed to both a system for use in, as well as the method for, derotating vertebrae via the simultaneous application of force to linked engagement members attached to implanted pedicle screws.

VI. THE '787 PATENT

26. On June 6, 2017, the United States Patent and Trademark Office issued the '787 patent, entitled SYSTEM AND METHOD FOR ALIGNING VERTEBRAE IN THE AMELIORATION OF ABERRANT SPINAL COLUMN DEVIATION CONDITIONS. (Copy Attached as Exhibit D.)

27. Dr. Barry is the owner of all right, title, and interest in the '787 patent, including the right to sue, enforce, and recover damages for all infringements.

28. The '787 patent has not expired and is in full force and effect.

29. Pursuant to 35 U.S.C. § 282, the '787 patent and each of its claims are presumed valid and enforceable.

30. The '787 patent contains claims, for example claims 1-9, directed to a method for derotating vertebrae via the simultaneous application of force to linked elongated levers attached to implanted pedicle screws.

VII. THE '788 PATENT

31. On June 6, 2017, the United States Patent and Trademark Office issued the '788 patent, entitled SYSTEM AND METHOD FOR ALIGNING VERTEBRAE IN THE AMELIORATION OF ABERRANT SPINAL COLUMN DEVIATION CONDITIONS. (Copy Attached as Exhibit E.)

32. Dr. Barry is the owner of all right, title, and interest in the '788 patent, including the right to sue, enforce, and recover damages for all infringements.

33. The '788 patent has not expired and is in full force and effect.

34. Pursuant to 35 U.S.C. § 282, the '788 patent and each of its claims are presumed valid and enforceable.

35. The '788 patent contains claims, for example claims 1-6, directed to a system for use in derotating vertebrae via the simultaneous application of force to linked elongated levers attached to implanted pedicle screws.

VIII. KNOWLEDGE OF DR. BARRY'S PATENTS AND PATENT RIGHTS

36. Alphatec manufactures medical devices and competes in the relevant area of spinal correction with various companies.

37. Given the competitive landscape in which Alphatec operates, on information and belief, Alphatec has monitored not only the products and techniques offered by its competitors, but also the intellectual property and licenses competitors have reached regarding third-party intellectual property rights.

38. As stated on the face of the '358 patent, Dr. Barry's earliest patent at issue in this Complaint and the parent to the other Asserted Patents, Dr. Barry's '358 patent published in 2006. Dr. Barry's patent rights were licensed by what is now known as Zimmer Biomet ("Biomet"), which initially commercialized Dr. Barry's invention and provides a licensed product called the Trivium Derotation System. Upon information and belief, Alphatec has known of Dr. Barry, his inventions, and his Asserted Patents for years. Upon further information and belief, Alphatec, through its efforts to keep apprised of its industry and/or the intellectual property associated with its industry, has known of the Asserted Patents as each was issued by the United States Patent and Trademark Office.

39. In 2014, Dr. Barry sued Alphatec's competitor, Medtronic, Inc. ("Medtronic"), in the Eastern District of Texas (Civil Action No. 1:14-cv-104) ("Medtronic Case") for infringement of two of the Asserted Patents at issue in this case: the '358 and '121 patents. These patents are the parent patents to the remaining Asserted Patents in this Complaint.

40. Dr. Barry asserted that Medtronic induced surgeons to infringe the '358 and '121 patents through their use of Medtronic's Vertebral Column Manipulation ("VCM") system. Dr. Barry ultimately prevailed at trial. The jury found Medtronic liable for willful infringement and that both patents were not invalid. The court found against Medtronic on its inequitable conduct defense. Medtronic lost its appeal to the United States Court of Appeals for the Federal Circuit, and the United States Supreme Court denied Medtronic's petition for a writ of certiorari.

41. Medtronic filed several unsuccessful petitions for *inter partes* review of the '358 patent and '121 patent. Alphatec knows of this fact.

42. While the Medtronic case was on appeal, in 2017 Dr. Barry sued two additional Alphatec competitors—Globus Medical, Inc. ("Globus") and various DePuy entities³—accusing them of inducing infringement of all Asserted Patents. Dr. Barry brought these actions in the United States District Court for the Eastern District of Pennsylvania (Civil Action Nos. 2:17-cv-02998 ("Globus Case") and 2:17-cv-03003 ("DePuy Case")). The Globus Case settled and was dismissed with prejudice on August 29, 2019. The DePuy Case is still pending.

43. Upon information and belief, Alphatec was aware of the Medtronic Case since the inception of that suit. At the very least, Alphatec would have learned of Dr. Barry and his '358 and '121 patents no later than January 26, 2016, when Dr. Barry served Alphatec Spine, a subsidiary of Alphatec Holdings, Inc., with subpoenas in relation to the Medtronic Case.

³ The DePuy defendants consist of DePuy Synthes Products, Inc., Medical Device Business Services, Inc., and DePuy Synthes Sales, Inc. (d/b/a DePuy Synthes Spine).

44. Alphatec was aware of the '301 patent, '787 patent, and '788 patent at least by or around August 28, 2017, when Dr. Barry sent Alphatec Spine a letter regarding infringement of the Asserted Patents.

45. Upon information and belief, Alphatec has been aware of Medtronic's VCM system since that product was released on the market. Alphatec knows that Medtronic was found to willfully infringe the '358 and '121 patents through Medtronic's inducement of surgeons to use the VCM system.

46. Likewise, upon information and belief, Alphatec has been aware of Biomet's Trivium Derotation System since that product was released on the market.

47. In light of all of the indications of the patented methods and systems that Alphatec's products implemented, Alphatec should have been compelled to conduct a patent search that would identify Dr. Barry's patent rights. To the extent Alphatec did not do so, such conduct was intentional, or at the very least, Alphatec was willfully blind to Dr. Barry's patent rights.

48. Based on these facts, Alphatec has either affirmatively known of Dr. Barry's intellectual property covering the equipment and techniques associated with the Alphatec Products as described herein, or at the very least, been willfully blind to the existence of that intellectual property and its relation to the Alphatec Products as described herein.

IX. ALPHATEC PRODUCTS

49. The term "Alphatec Products" as used herein refers to the Zodiac® Deformity System (including the Zodiac® Direct Vertebral Rotation (DVR) System), Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System, and any other Alphatec instruments manufactured, sold, distributed, loaned, consigned, or otherwise used to derotate *en bloc* multiple levels of vertebrae.

50. Upon information and belief, the Alphatec Products were designed to compete in the market with products such as Medtronic's VCM kit and Biomet's Trivium Derotation System. Indeed, in its press release announcing the launch of the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System, Alphatec admitted the following:

Terry Rich, Alphatec Spine's Chief Executive Officer commented, "With the launch of our differentiated AIS Deformity System ***we are able to compete directly with the market leaders in complex spine*** and it opens up a new segment for us in pediatric procedures. This unique system extends our Arsenal platform and provides surgeons with easy-to-use, differentiated surgical tools for corrective maneuvers to better treat adolescent patients who are diagnosed with idiopathic scoliosis. These successful initial patient cases demonstrate ATEC's ongoing commitment to developing innovative solutions that are targeted at improving overall patient outcomes and surgeon experience. ***The Arsenal AIS system gives us the opportunity to gain greater share in the deformity market*** and to benefit a vast number of patients who are suffering today."⁴

A. ZODIAC

51. Alphatec has manufactured, sold, distributed, loaned, consigned, or otherwise made available vertebral derotation instruments under the name Zodiac® Deformity System and/or Zodiac® Direct Vertebral Rotation (DVR) System (collectively, "Zodiac Deformity System").

52. The following image of the Zodiac Deformity System shows eight levers, attached to eight pedicle screws and connected via a coupler along the length of the spine and transversely across the spine. This image was taken from MedicalExpo product page for the Zodiac Deformity System, which is attached hereto as Exhibit F, at 1.

⁴ Exhibit G (<https://investors.alphatecspine.com/press-releases/news-details/2017/Alphatecs-Arsenal-Deformity-Adolescent-Scoliosis-AIS-System-Launched-in-Limited-Markets-in-the-US/default.aspx>) (emphasis added).



53. The levers can be attached to any combination of pedicle regions on either side of the spine. Exhibit F at 1. Upon information and belief, surgeons have used the Zodiac Deformity System to build constructs with at least six reducers or levers attached to six pedicle screws and connected via couplers both along the length of the spine as well as transversely across the spine, and thereafter performed a derotation maneuver.

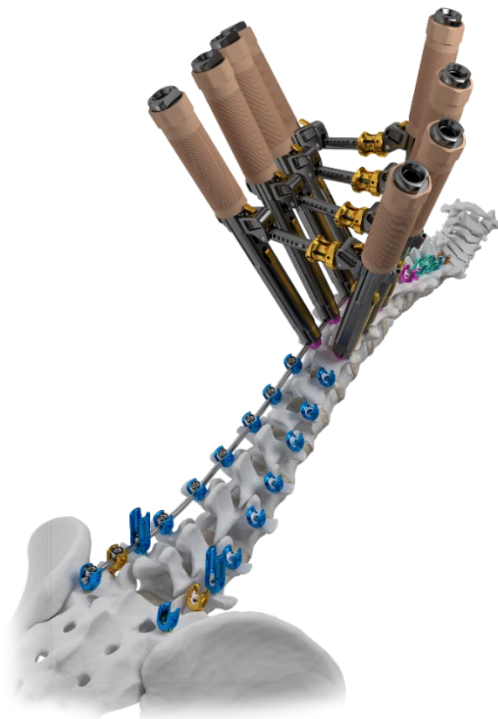
54. The coupling feature allows for *en bloc* vertebral derotation which distributes force over multiple vertebral levels. Exhibit F at 1.

55. Upon information and belief, the Zodiac Deformity System can be used with the Zodiac line of implantable products.

B. ARSENAL

56. Alphatec has manufactured, sold, distributed, loaned, consigned, or otherwise made available vertebral derotation instruments under the name Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System.

57. The following image of the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System shows eight levers, attached to eight pedicle screws. Couplers connect the eight levers (in sets of two) transversely across the spine. This image comes from Exhibit H, at 1.



58. Upon information and belief, the levers can be attached to any combination of pedicle regions on either side of the spine. Upon information and belief, the couplers can connect levers along the spine as well as across the spine. Upon further information and belief, surgeons have used Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System to build constructs with at least six levers attached to six pedicle screws and connected via couplers both along the length of the spine as well as transversely across the spine, and thereafter performed a derotation maneuver.

59. Upon information and belief, Alphatec explains and instructs that its Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System can be used to perform both segmental and *en bloc* derotation.

60. Upon information and belief, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System can be used with the Arsenal line of implantable products.

61. Alphatec specifically and intentionally has designed the Alphatec Products to be competitive in the market, making use of industry norms in the standard of care such as *en bloc* derotation, and upon information and belief, has and will continue to educate, encourage, direct, train, or otherwise induce the performance of methods and construction of instruments that make use of those norms. *See generally* Exhibit G.

X. COUNT I: WILLFUL INFRINGEMENT OF THE '358 PATENT

62. Dr. Barry incorporates by reference the preceding paragraphs of this Complaint.

A. ZODIAC

63. Alphatec, without license or authorization to do so, induces the infringement of the '358 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Zodiac Deformity System to surgeons performing spinal derotation procedures resulting in the performance of the methods of at least claim 4 of the '358 patent.

64. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons on how to perform spinal derotation procedures using the Zodiac Deformity System that infringe at least claim 4 of the '358 patent.

65. For example, when assembled, the Zodiac Deformity System involves implanting at least two sets of pedicles screws in multiple levels of vertebrae, and using engagement members which act as levers attached to the pedicle screws. As taught by Alphatec, a spinal rod is passed through the head portions (or spinal rod conduits) of the implanted pedicle screws, which is then secured by an engagement means. Alphatec teaches linking the engagement members one to another across the spine (i.e., transverse the spine). Alphatec also teaches linking of engagement members on the same side of the spine (i.e., longitudinal linking). Such

longitudinally linked engagement members form a representative “handle means,” which is mechanically linked to those engagement members. With the exception of the screws and rods, the construct described in this paragraph is a representative pedicle screw cluster derotation tool.

66. Alphatec teaches the use of such constructs to perform a derotation maneuver of the engaged vertebrae.

67. Alphatec provides instruction, education, or encouragement to surgeons on how to use a second pedicle screw cluster derotation tool—with the same components as discussed above—together with a second set of pedicle screws and second spinal rod, to perform a derotation maneuver that involves applying force to the handle means of both tools substantially simultaneously.

68. On information and belief, the Zodiac Deformity System have been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

69. In this manner, Alphatec induces surgeons to infringe at least claim 4 of the ’358 patent when they use the Zodiac Deformity System.

B. ARSENAL

70. Alphatec, without license or authorization to do so, induces the infringement of the ’358 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System to surgeons performing spinal derotation procedures resulting in the performance of the methods of at least claim 4 of the ’358 patent.

71. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons on how to perform spinal derotation procedures using the Arsenal

Deformity Adolescent Idiopathic Scoliosis (AIS) System that infringe at least claim 4 of the '358 patent.

72. For example, when assembled as instructed, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System involves implanting at least two sets of pedicles screws in multiple levels of vertebrae, and using engagement members which act as levers attached to the pedicle screws. As taught by Alphatec, a spinal rod is passed through the head portions (or spinal rod conduits) of the implanted pedicle screws, which is then secured by an engagement means. Alphatec teaches linking the engagement members one to another across the spine (i.e., transverse the spine). On information and belief, Alphatec also teaches linking of engagement members on the same side of the spine (i.e., longitudinal linking). Such longitudinally linked engagement members form a representative “handle means,” which is mechanically linked to those engagement members. With the exception of the screws and rods, the construct described in this paragraph is a representative pedicle screw cluster derotation tool.

73. Alphatec teaches the use of such constructs to perform a derotation maneuver of the engaged vertebrae.

74. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons on how to use a second pedicle screw cluster derotation tool—with the same components as discussed above—together with a second set of pedicle screws and second spinal rod, to perform a derotation maneuver that involves applying force to the handle means of both tools substantially simultaneously.

75. On information and belief, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System has been assembled in the above-described manner, such that when force is

applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

76. In this manner, Alphatec induces surgeons to infringe at least claim 4 of the '358 patent when they use the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System.

C. WILLFUL INFRINGEMENT OF THE '358 PATENT

77. At all times relevant to this cause of action, Alphatec provided the instruction, education, encouragement, or direction described above to surgeons with the intent of having those surgeons perform the methods of the '358 patent and infringe the claims therein.

78. Alphatec knows and at all relevant times has known of its infringement of the '358 patent or at the very least has been willfully blind to its infringement of the '358 patent.

79. Because Alphatec knows and at all relevant times has known of its infringement of the '358 patent, or at the very least has been willfully blind to its infringement of the '358 patent, its infringement is deliberate and willful.

80. Dr. Barry has been and continues to be damaged and irreparably harmed by Alphatec's infringement of the '358 patent.

81. Upon information and belief, such infringement has been, and will continue to be, willful, and upon further belief, Alphatec lacks any reasonable invalidity or non-infringement defenses making this case exceptional and entitling Dr. Barry to increased damages and reasonably attorney's fees pursuant to 35 U.S.C. §§ 284 and 285.

XI. COUNT II: WILLFUL INFRINGEMENT OF THE '121 PATENT

82. Dr. Barry incorporates by reference the preceding paragraphs of this Complaint.

A. ZODIAC

83. Alphatec, without license or authorization to do so, induces the infringement of the '121 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making

available the Zodiac Deformity System to surgeons performing spinal derotation procedures resulting in the assembly of systems that infringe at least claim 2 of the '121 patent.

84. Alphatec provides instruction, education, or encouragement to surgeons performing spinal derotation procedures on how to assemble systems using the Zodiac Deformity System that infringe at least claim 2 of the '121 patent.

85. For example, Alphatec has caused surgeons to assemble the Zodiac Deformity System as described in paragraphs 48-49 and 61-64. Alphatec provides instruction, education, or encouragement to surgeons on how to assemble the two pedicle screw cluster derotation tools described in those paragraphs with a minimum of three engagement members apiece, and further teaches the cross-linking, or connecting across the spine, of the two pedicle screw cluster derotation tools. This construct infringes at least claim 2 of the '121 patent.

86. Upon information and belief, the Zodiac Deformity System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

B. ARSENAL

87. Arsenal, without license or authorization to do so, induces the infringement of the '121 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System to surgeons performing spinal derotation procedures resulting in the assembly of systems that infringe at least claim 2 of the '121 patent.

88. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons performing spinal derotation procedures on how to assemble systems

using the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System that infringe at least claim 2 of the '121 patent.

89. For example, Alphatec has caused surgeons to assemble the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System as described in paragraphs 53-54 and 68-71. On information and belief, Alphatec also provides instruction, education, or encouragement to surgeons on how to assemble the two pedicle screw cluster derotation tools described in those paragraphs with a minimum of three engagement members apiece, and further teaches the cross-linking, or connecting across the spine, of the two pedicle screw cluster derotation tools. This construct infringes at least claim 2 of the '121 patent.

90. Upon information and belief, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

C. WILLFUL INFRINGEMENT OF THE '121 PATENT

91. At all times relevant to this cause of action, Alphatec provided the instruction, education, encouragement, or direction described above to surgeons with the intent of having those surgeons construct and use the systems of the '121 patent and infringe the claims therein.

92. Alphatec knows and at all relevant times has known of its infringement of the '121 patent or at the very least has been willfully blind to its infringement of the '121 patent.

93. Because Alphatec knows and at all relevant times has known of its infringement of the '121 patent or at the very least has been willfully blind to its infringement of the '121 patent, its infringement is deliberate and willful.

94. Dr. Barry has been and continues to be damaged and irreparably harmed by Alphatec's infringement of the '121 patent.

95. Upon information and belief, such infringement has been, and will continue to be, willful and upon further belief Alphatec lacks any reasonable invalidity or non-infringement defense making this case exceptional and entitling Dr. Barry to increased damages and reasonably attorney's fees pursuant to 35 U.S.C. §§ 284 and 285.

XII. COUNT III: WILLFUL INFRINGEMENT OF THE '301 PATENT

96. Dr. Barry incorporates by reference the preceding paragraphs of this Complaint.

A. ZODIAC

97. Alphatec, without license or authorization to do so, induces the infringement of the '301 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Zodiac Deformity System to surgeons performing spinal derotation procedures resulting in the assembly of systems that infringe at least claim 1 of the '301 patent.

98. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons performing spinal derotation procedures on how to assemble systems using the Zodiac Deformity System that infringe at least claim 1 of the '301 patent.

99. For example, Alphatec has caused surgeons to assemble the Zodiac Deformity System as described in paragraphs 48-49. As shown in those paragraphs and related images, Alphatec provides instruction, education, or encouragement to surgeons on how to assemble the two pedicle screw cluster derotation tools described in that paragraph with a minimum of three engagement members apiece, where the engagement members of the two tools are attached to pedicle screws on the same vertebrae (in other words, and for example, in a three-by-three assembly), and further teaches the cross-linking of the two pedicle screw cluster derotation tools. This construct infringes at least claim 1 of the '301 patent.

100. Upon information and belief, the Zodiac Deformity System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is

received simultaneously across the engagement members resulting in the derotation of the vertebrae.

B. ARSENAL

101. Alphatec, without license or authorization to do so, induces the infringement of the '301 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System to surgeons performing spinal derotation procedures resulting in the assembly of systems that infringe at least claim 1 of the '301 patent.

102. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons performing spinal derotation procedures on how to assemble systems using the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System that infringe at least claim 1 of the '301 patent.

103. For example, Alphatec has caused surgeons to assemble the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System as described in paragraphs 53-54. On information and belief, Alphatec also provides instruction, education, or encouragement to surgeons on how to assemble the two pedicle screw cluster derotation tools described in those paragraphs with a minimum of three engagement members apiece, where the engagement members of the two tools are attached to pedicle screws on the same vertebrae (in other words, and for example, in a three-by-three assembly), and further teaches the cross-linking of the two pedicle screw cluster derotation tools. This construct infringes at least claim 1 of the '301 patent.

104. Upon information and belief, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

C. WILLFUL INFRINGEMENT OF THE '301 PATENT

105. At all times relevant to this cause of action, Alphatec provided the instruction, education, encouragement, or direction described above to surgeons with the intent of having those surgeons construct and use the systems of the '301 patent and infringe the claims therein.

106. Alphatec knows and at all relevant times has known of its infringement of the '301 patent or at the very least has been willfully blind to its infringement of the '301 patent.

107. Because Alphatec knows and at all relevant times has known of its infringement of the '301 patent or at the very least has been willfully blind to its infringement of the '301 patent, its infringement is deliberate and willful.

108. Dr. Barry has been and continues to be damaged and irreparably harmed by Alphatec's infringement of the '301 patent.

109. Upon information and belief, such infringement has been, and will continue to be, willful and upon further belief Alphatec lacks any reasonable invalidity or non-infringement defense making this case exceptional and entitling Dr. Barry to increased damages and reasonably attorney's fees pursuant to 35 U.S.C. §§ 284 and 285.

XIII. COUNT IV: WILLFUL INFRINGEMENT OF THE '787 PATENT

110. Dr. Barry incorporates by reference the preceding paragraphs of this Complaint.

A. ZODIAC

111. Alphatec, without license or authorization to do so, induces the infringement of the '787 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Zodiac Deformity System to surgeons performing spinal derotation procedures resulting in the performance of the methods of at least claim 6 of the '787 patent.

112. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons on how to perform spinal derotation procedures using the Zodiac Deformity System that infringe at least claim 6 of the '787 patent.

113. When assembled as instructed, the Zodiac Deformity System involves implanting at least two sets of pedicles screws in two levels of vertebrae, and using elongated levers which act as levers attached to the pedicle screws (in other words, and for example, in a two-by-two construct). As taught by Alphatec, a spinal rod is passed through the head portions (or spinal rod conduits) of the implanted pedicle screws, which is then secured by an engagement means. Alphatec teaches linking the elongated levers one to another on the same side of the spine, as well as across the spine, such that a single force moves all elongated levers in unison.

114. Alphatec teaches the use of such constructs to perform a derotation maneuver of the engaged vertebrae.

115. On information and belief, the Zodiac Deformity System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the engagement members resulting in the derotation of the vertebrae.

116. In this manner, Alphatec induces surgeons to infringe at least claim 6 of the '787 patent when they use the Zodiac Deformity System.

B. ARSENAL

117. Alphatec, without license or authorization to do so, induces the infringement of the '787 patent by manufacturing, selling, distributing, loaning, consigning, or otherwise making available the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System to surgeons performing spinal derotation procedures resulting in the performance of the methods of at least claim 6 of the '787 patent.

118. Upon information and belief, Alphatec provides instruction, education, or encouragement to surgeons on how to perform spinal derotation procedures using the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System that infringe at least claim 6 of the '787 patent.

119. On information and belief, when assembled as instructed, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System involves implanting at least two sets of pedicles screws in two levels of vertebrae, and using elongated levers which act as levers attached to the pedicle screws (in other words, and for example, in a two-by-two construct). As taught by Alphatec, a spinal rod is passed through the head portions (or spinal rod conduits) of the implanted pedicle screws, which is then secured by an engagement means. On information and belief, Alphatec teaches linking the elongated levers one to another on the same side of the spine, as well as across the spine, such that a single force moves all elongated levers in unison.

120. Alphatec teaches the use of such constructs to perform a derotation maneuver of the engaged vertebrae.

121. On information and belief, the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System has been assembled in the above-described manner, such that when force is applied to the entire construct the force is received simultaneously across the elongated levers resulting in the derotation of the vertebrae.

122. In this manner, Alphatec induces surgeons to infringe at least claim 6 of the '787 patent when they use the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System.

C. WILLFUL INFRINGEMENT OF THE '787 PATENT

123. At all times relevant to this cause of action, Alphatec provided the instruction, education, encouragement, or direction described above to surgeons with the intent of having those surgeons perform the methods of the '787 patent and infringe the claims therein.

124. Alphatec knows and at all relevant times has known of its infringement of the '787 patent or at the very least has been willfully blind to its infringement of the '787 patent.

125. Because Alphatec knows and at all relevant times has known of its infringement of the '787 patent or at the very least has been willfully blind to its infringement of the '787 patent, its infringement is deliberate and willful.

126. Dr. Barry has been and continues to be damaged and irreparably harmed by Alphatec's infringement of the '787 patent.

127. Upon information and belief, such infringement has been, and will continue to be, willful and upon further belief Alphatec lacks any reasonable invalidity or non-infringement defense making this case exceptional and entitling Dr. Barry to increased damages and reasonably attorney's fees pursuant to 35 U.S.C. §§ 284 and 285.

XIV. COUNT V: WILLFUL INFRINGEMENT OF THE '788 PATENT

128. Dr. Barry incorporates by reference the preceding paragraphs of this Complaint.

A. ZODIAC

129. For the reasons explained in paragraphs 107-112, Alphatec has induced surgeons to infringe at least claim 1 of the '788 patent through their use of the Zodiac Deformity System.

B. ARSENAL

130. For the reasons explained in paragraphs 113-118, Alphatec has induced surgeons to infringe at least claim 1 of the '788 patent through their use of the Arsenal Deformity Adolescent Idiopathic Scoliosis (AIS) System.

C. WILLFUL INFRINGEMENT OF THE '788 PATENT

131. At all times relevant to this cause of action, Alphatec provided the instruction, education, encouragement, or direction described above to surgeons with the intent of having those surgeons construct and use the system of the '788 patent and infringe the claims therein.

132. Alphatec knows and at all relevant times has known of its infringement of the '788 patent or at the very least has been willfully blind to its infringement of the '788 patent.

133. Because Alphatec knows and at all relevant times has known of its infringement of the '788 patent or at the very least has been willfully blind to its infringement of the '788 patent, its infringement is deliberate and willful.

134. Dr. Barry has been and continues to be damaged and irreparably harmed by Alphatec's infringement of the '788 patent.

135. Upon information and belief, such infringement has been, and will continue to be, willful and upon further belief Alphatec lacks any reasonable invalidity or non-infringement defense making this case exceptional and entitling Dr. Barry to increased damages and reasonably attorney's fees pursuant to 35 U.S.C. §§ 284 and 285.

XV. PRAYER FOR RELIEF

WHEREFORE, Dr. Barry requests the following relief:

A. Judgment under 35 U.S.C. § 271 that Alphatec willfully infringes Dr. Barry's patents referenced and detailed above;

B. Damages under 35 U.S.C. § 284 adequate to compensate Dr. Barry for Alphatec's willful infringement and continued infringement of Dr. Barry's patents referenced and detailed above;

C. Trebling or other enhancement of the damages pursuant to 35 U.S.C. § 284 as a result of Alphatec's willful and deliberate acts of infringement;

D. Award pursuant to 35 U.S.C. § 284 of costs and pre- and post-judgment interest on Dr. Barry's compensatory damages; and

E. Award pursuant to 35 U.S.C. § 285 of Dr. Barry's attorneys' fees incurred in this action; and

F. All other relief the Court deems warranted and appropriate.

XVI. JURY TRIAL REQUEST

136. Dr. Barry pursuant to the Seventh Amendment of the United States Constitution requests trial by jury on all issues properly heard by a jury.

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