UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

Nitto Denko Corporation, Plaintiff, v. Hutchinson Technology Incorporated, Defendant.	Case No. 18-cv-1669 (SRN/LIB) **AMENDED COMPLAINT FOR PATENT INFRINGEMENT** **JURY TRIAL DEMANDED**

Nitto Denko Corporation ("Nitto") brings this action against Hutchinson Technology Incorporated ("HTI") and alleges as follows:

PARTIES

1. Nitto Denko Corporation is a Japanese corporation with its principal place of business located at 33rd Floor, Grand Front Osaka, 4-20, Ofuka-cho, Kita-ku, Osaka 530-0011, Japan.

2. Defendant HTI is incorporated in the State of Minnesota with its principal place of business at 40 West Highland Park Drive NE, Hutchinson, Minnesota 55350.

BACKGROUND

Nitto Denko Corporation's Technological Leadership

3. Since its foundation in 1918, Nitto has conducted business globally across various industries including the electronics, automotive, housing, infrastructure, environmental, and medical sectors.

4. To remain a market leader, Nitto spends tens of millions of dollars on research and development annually. Indeed, last year alone, Nitto spent the equivalent of over $250 million on research and development.

5. Because innovation is key to Nitto's success, Nitto is a leader in filing for, and receiving, patents on its inventions. Nitto files hundreds of patent applications a year and, annually, is issued, on average, over 1,000 patents a year. To date, Nitto owns over 10,000 patents, including over 6,500 patents in countries outside Japan, including the United States.

Nitto's Market-Defining Flexure Technology

6. Nitto is the market leader in researching and developing "flexures."

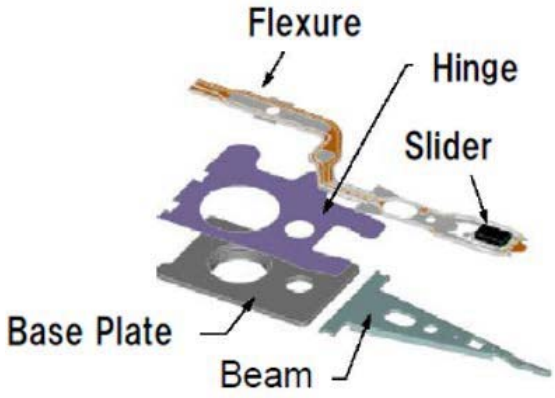
7. Flexures are thin, flexible metal strips on which are deposited near-microscopic electrical wires—called "wiring traces"—wrapped in insulating material. The wiring traces conduct data signals between a magnetic head, which reads and writes information onto a disk, and a hard-disk drive ("HDD") circuit

board. In effect, the flexure is the superhighway on which data moves between the magnetic head and the rest of the HDD circuitry.

8. Each flexure is mounted on a suspension, which is a metal beam that supports the magnetic head as it hovers over the disk. The flexure is the highest value-added component of a suspension.

9. Once the flexure is mounted on the suspension, a magnetic read/write head is installed at the tip of the suspension arm. The opposite end of the suspension arm is attached to a pivot, thus allowing the magnetic head to sweep over the full useful surface of the disk platter.

10. The figure below depicts the structural assembly of a flexure with other components in an HDD:



11. The quality of the flexures is important. The failure of any one flexure renders a whole HDD non-operational. As a result, the more flexures in a multi-disk HDD, the higher the likelihood of HDD failure due to failure of any individual flexure.

12. Generally, a number of technical challenges place demands on flexure quality. First, flexures must have solid mechanical properties, including mechanical strength and endurance. Second, flexures must have finely tailored electrical properties to enable transmission of huge volumes of data at high accuracy. Finally, the mass manufacture of such technologically sophisticated products requires precision down to the millionths of an inch. If a flexure fails to meet any of the precision requirements discussed above, the failure will cause a loss in manufacturing yield, which is especially costly for defects that can only be detected late in the manufacturing process.

13. Importantly, Nitto is one of only two suppliers—the other being HTI—that manufacture flexures using additive processes, which are crucial to meeting the technical specifications for most modern flexures.

14. Nitto and HTI compete directly for business in the HDD market.

Hutchinson Technology's Infringement of Nitto's Technology

15. While HTI sometimes purchases Nitto flexures to incorporate into its suspension assemblies for its customers, this lawsuit does not concern those flexures that HTI purchases from Nitto.

16. Historically, HTI struggled to meet market demand for increasing precision necessitated by rising HDD transmission speeds and data density. HTI's inability to keep pace with technological change caused one of its customers to

specifically request that HTI purchase flexures from Nitto for incorporation within HTI's suspension assemblies. But instead of purchasing Nitto's flexures, HTI turned to patent infringement to meet its customer's demands.

17. This lawsuit concerns these flexures that HTI is producing itself.

18. HTI is making, using, and selling flexures by infringing on Nitto's patented technology. This includes Nitto's technology for:

- novel and strengthened flexure terminals for connections to magnetic heads and hard drive circuitry;
- novel wiring patterns for the wiring traces in high-density disk drive flexures for reducing impedance of wiring patterns;
- novel designs for "reference holes" in a flexure, used for more accurately positioning a magnetic head;
- a novel configuration for lead wires in a flexure for reducing an electrical signal's "blunt waveform" without increasing manufacturing cost;
- a novel flexure production method, controlling the variation in thickness at low cost; and
- a novel design of a suspension board assembly sheet with flexures, for preventing the assembly sheet from being warped in the manufacturing process.

19. HTI's infringing flexures are already found in HDD products sold by Western Digital.

JURISDICTION AND VENUE

20. HTI designs, manufactures, uses, markets, imports into the United States, sells, and/or offers for sale in the United States suspension assemblies incorporating "flexures" for hard disk drives.

21. This action for patent infringement arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*, including but not limited to 35 U.S.C. § 271.

22. This Court has subject matter jurisdiction over this controversy under 28 U.S.C. §§ 1331 and 1338(a).

23. Nitto initially filed this lawsuit in the District Court for the District of New Jersey, but voluntarily agreed to transfer this matter to the United States District Court for the District of Minnesota based on HTI's representation that this Court could exercise personal jurisdiction over HTI and venue would be appropriate in this District. The District Court for the District of New Jersey ordered the transfer.

24. HTI also has its principal place of business in this District, and venue is therefore proper pursuant to 28 U.S.C. §§ 1391(c) and 1400(b).

CLAIMS FOR RELIEF

CLAIM 1

INFRINGEMENT OF THE '737 PATENT

25. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-24 above.

26. Nitto owns United States Patent No. 6,841,737, entitled "Wired circuit board," which was duly and legally issued on January 11, 2005. A certified copy of the '737 patent is attached as Exhibit A.

27. The '737 patent claims strengthened flexure terminals for connections to the HDD circuitry. The strengthened connections prevent breakage during bonding of the flexure terminal with the rest of the HDD circuitry, thus improving the reliability of data transmissions and raising manufacturing yield and lowering per-unit cost. This also prolongs the useful life of the HDD.

28. HTI's infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of products, including but not limited to HTI products incorporated in hard drives identified as "WD Blue 3.5 inch / 500GB (WD5000AAKX)" made by Western Digital Corporation and being sold in the United States ("'737 Infringing Products").

29. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the '737 patent.

30. HTI was aware of the '737 patent prior to the filing of this lawsuit.

31. Upon information and belief, direct end users of HTI's infringing products have infringed the '737 patent by using the '737 Infringing Products.

32. Upon information and belief, HTI has encouraged the end users to use the '737 Infringing Products.

33. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto's '737 patent.

34. Upon information and belief, HTI knew that the '737 Infringing Products were made or adapted for a use that would infringe Nitto's '737 patent.

35. Upon information and belief, the '737 Infringing Products are not commonly available items with substantial non-infringing uses.

36. On information and belief, HTI's infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

CLAIM 2

INFRINGEMENT OF THE '644 PATENT

37. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-36 above.

38. Nitto owns United States Patent No. 7,923,644, entitled "Printed circuit board and method of manufacture the same," which was duly and legally issued on April 12, 2011. A certified copy of the '644 patent is attached as Exhibit B.

39. The ’644 patent claims a flexure with an interleaved wiring trace pattern (and related methods of manufacture) that produces lower impedance to the flow of electrical current and enables lower manufacturing costs. This sharply reduces the bit-error rate because low impedance is crucial to the transmission of the large data streams found in high-capacity HDDs. Indeed, the face of the ’644 patent states that it addresses a “growing need for larger currents” produced by adoption of “PMR (Perpendicular Magnetic Recording).”

40. HTI’s infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of products, including but not limited to HTI products incorporated in hard drives identified as “WD Blue 2.5 inch / 1.0 TB (WD10JPVX)” made by Western Digital Corporation and being sold in the United States (“’644 Infringing Products”).

41. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the ’644 patent.

42. HTI was aware of the ’644 patent before the filing of this lawsuit.

43. Upon information and belief, direct end users of HTI’s infringing products have infringed the ’644 patent by using the ’644 Infringing Products.

44. Upon information and belief, HTI has encouraged the end users to use the ’644 Infringing Products.

45. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto's '644 patent.

46. Upon information and belief, HTI knew that the '644 Infringing Products were made or adapted for a use that would infringe Nitto's '644 patent.

47. Upon information and belief, the '644 Infringing Products are not commonly available items with substantial non-infringing uses.

48. On information and belief, HTI's infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

CLAIM 3

INFRINGEMENT OF THE '126 PATENT

49. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-48 above.

50. Nitto owns United States Patent No. 8,692,126, entitled "Wired circuit board and producing method thereof," which was duly and legally issued on April 8, 2014. A certified copy of the '126 patent is attached as Exhibit C.

51. The '126 patent claims a novel design for reference holes used to more accurately position the magnetic head with the flexure, and position of the flexure with suspension. More accurate positioning allows for more precise alignment of the flexure with the suspension and magnetic head during assembly, thus raising manufacturing yield.

52. HTI's infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of products, including but not limited to the HTI products incorporated in hard drives identified as "WD Blue 2.5 inch/1TB (WD10JPVX)" made by Western Digital Corporation and being sold in the United States ("'126 Infringing Products").

53. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the '126 patent.

54. HTI was aware of the '126 patent prior to the filing of this lawsuit.

55. Upon information and belief, direct end users of HTI's infringing products have infringed the '126 patent by using the '126 Infringing Products.

56. Upon information and belief, HTI has encouraged the end users to use the '644 Infringing Products.

57. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto's '126 patent.

58. Upon information and belief, HTI knew that the '126 Infringing Products were made or adapted for a use that would infringe Nitto's '126 patent.

59. Upon information and belief, the '126 Infringing Products are not commonly available items with substantial non-infringing uses.

60. On information and belief, HTI's infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

CLAIM 4

INFRINGEMENT OF THE '870 PATENT

61. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-60 above.

62. Nitto owns United States Patent No. 8,895,870, entitled "Printed circuit board and method of manufacture the same," which was duly and legally issued on November 25, 2014. A certified copy of the '870 patent is attached as Exhibit D.

63. The '870 patent claims a novel configuration for the lead wire that minimizes internal reflections in transmitted data. During additive manufacturing, lead wires are used to supply the electrical current for electroplating nickel and gold onto the terminal pad, and generally must be removed at the end of the manufacturing process. The '870 patent claims a novel lead wire for plating configuration such that the lead wires do not need to be entirely removed and do not compromise a flexure's performance. This reduces the bit-error rate and enables larger storage capacity.

64. HTI's infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of products, including but not limited to the HTI products incorporated in hard drives identified as "WD Blue 2.5 inch / 1TB (WD10JPVX)" made by Western Digital Corporation and being sold in the United States "'870 Infringing Products".

65. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the ’870 patent.

66. HTI was aware of the ’870 patent prior to the filing of this lawsuit.

67. Upon information and belief, direct end users of HTI’s infringing products have infringed the ’870 patent by using the ’126 Infringing Products.

68. Upon information and belief, HTI has encouraged the end users to use the ’870 Infringing Products.

69. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto’s ’870 patent.

70. Upon information and belief, HTI knew that the ’870 Infringing Products were made or adapted for a use that would infringe Nitto’s ’870 patent.

71. Upon information and belief, the ’870 Infringing Products are not commonly available items with substantial non-infringing uses.

72. On information and belief, HTI’s infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

CLAIM 5

INFRINGEMENT OF THE ’379 PATENT

73. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-72 above.

74. Nitto owns United States Patent No. 7,007,379, entitled "Production method of printed circuit board," which was duly and legally issued on March 7, 2006. A certified copy of the '379 patent is attached as Exhibit E.

75. HTI's infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of products, including but not limited to HTI products incorporated in hard drives identified as "WD Red 3.5 inch / 3TB (WD30EFRX)" made by Western Digital Corporation and being sold in the United States ("'379 Infringing Products").

76. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the '379 patent.

77. HTI was aware of the '379 patent prior to the filing of this lawsuit.

78. Upon information and belief, direct end users of HTI's infringing products have infringed the '379 patent by using the '379 Infringing Products.

79. Upon information and belief, HTI has encouraged the end users to use the '379 Infringing Products.

80. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto's '379 patent.

81. Upon information and belief, HTI knew that the '379 Infringing Products were made or adapted for a use that would infringe Nitto's '379 patent.

82. Upon information and belief, the ’379 Infringing Products are not commonly available items with substantial non-infringing uses.

83. On information and belief, HTI’s infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

CLAIM 6

INFRINGEMENT OF THE ’906 PATENT

84. Nitto repeats, realleges, and incorporates by reference as if fully set forth herein each and every allegation in paragraphs 1-83 above.

85. Nitto owns United States Patent No. 8,658,906, entitled “Printed circuit board assembly sheet and method for manufacturing the same,” which was duly and legally issued on February 25, 2014. A certified copy of the ’906 patent is attached as Exhibit F.

86. The ’906 patent claims an assembly sheet with novel features that prevent the assembly sheet, and thus the flexures thereon, from curling or warping. Any curling or warping of the flexure is a structural defect that could cause the magnetic head to lurch outside its “flying height.” The reduction of warpage raises manufacturing yield and also greatly facilitates bonding of the flexure onto the suspension.

87. HTI’s infringing activities in the United States and this District include the development, manufacture, use, importation, sale, and/or offer for sale of

products, including but not limited to HTI products incorporated in hard drives identified as "WD Red 3.5 inch / 3TB (WD30EFRX)" made by Western Digital Corporation and being sold in the United States ("'906 Infringing Products").

88. In addition to its direct infringement, HTI also induced and contributorily caused its customers to infringe the '906 patent.

89. HTI was aware of the '906 patent prior to the filing of this lawsuit.

90. Upon information and belief, direct end users of HTI's infringing products have infringed the '906 patent by using the '906 Infringing Products.

91. Upon information and belief, HTI has encouraged the end users to use the '906 Infringing Products.

92. Upon information and belief, HTI knew that the use of the infringing products would infringe Nitto's '906 patent.

93. Upon information and belief, HTI knew that the '906 Infringing Products were made or adapted for a use that would infringe Nitto's '906 patent.

94. Upon information and belief, the '906 Infringing Products are not commonly available items with substantial non-infringing uses.

95. On information and belief, HTI's infringement has been, and continues to be, willful and deliberate, and has caused substantial damage to Nitto.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for the following relief:

A. That the Court render judgment declaring that HTI has infringed the Nitto Patents in violation of 35 U.S.C. § 271;

B. That the Court render judgment declaring HTI's infringement of the Nitto Patents willful and deliberate;

C. That Nitto be awarded damages adequate to compensate Nitto for HTI's infringement of the Nitto Patents;

D. That Nitto be awarded enhanced damages pursuant to 35 U.S.C. § 284;

E. That Nitto be awarded pre-judgment and post-judgment interest to the full extent allowed under the law, as well as its costs and disbursements;

F. That the Court enter an order finding that this is an exceptional case and awarding Nitto its reasonable attorney fees pursuant to 35 U.S.C. § 285;

G. That the Court preliminarily and permanently enjoin HTI, its parents, affiliates, successors, assigns, subsidiaries and transferees, and its officers, directors, agents, servants, and employees, and all those persons in active concert or participation with them, or any of them, from making, using, importing, exporting, distributing, supplying, selling or offering to sell, or causing to be sold any product falling within the scope of the claims of the Nitto Patents, or otherwise contributing to or inducing the infringement of any claim thereof;

H. That the Court award, in the absence of an injunction, an ongoing royalty; and

I. That the Court award such other relief as it may deem appropriate and just under the circumstances.

DEMAND FOR JURY TRIAL

Nitto demands a jury trial on all issues so triable.

Dated: July 16, 2018.

Respectfully submitted,

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