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FULL SPEED AHEAD, INC.

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON

TIEN HSIN INDUSTRIES CO., LTD., a Taiwanese corporation, and FULL SPEED AHEAD, INC., a Washington Corporation, Plaintiffs, vs. CANE CREEK CYCLING COMPONENTS, a North Carolina Corporation, and HOMER JOHN RADER, III, an Individual, Defendants	Case No. C07 – 1272 TSZ **AMENDED COMPLAINT FOR DECLARATORY JUDGMENT OF PATENT NON- INFRINGEMENT, INVALIDITY, AND UNENFORCEABILITY**

Plaintiffs, Tien Hsin Industries, Co., Ltd. ("Tien Hsin") and Full Speed Ahead, Inc., a Washington Corporation ("Full Speed Ahead"), hereby allege for their complaint against defendants Cane Creek Cycling Components ("Cane Creek") and Homer John Rader, III ("Rader") on personal knowledge as to their own actions and on information and belief as to actions of others, as follows:

THE PARTIES

1. Plaintiff Tien Hsin is a corporation of Taiwan with its corporate headquarters located in Taichung, Taiwan, the Republic of China. Full Speed Ahead, Inc. is a Washington Corporation, with its corporate headquarters located at 12810 NE 178th St., Suite 102, Woodinville, WA 98072. Full Speed Ahead is a wholly owned subsidiary of Tien Hsin and manages the United States and North America sales, marketing, service and distribution operations for the company product lines.

2. Tien Hsin is in the business of designing, manufacturing and distributing precision parts and components for cycling equipment under the brand names of Full Speed Ahead, FSA, Gravity, Vision and ProBMX. Tien Hsin researches and develops its technology and manufactures parts and components incorporating the technology.

3. Tien Hsin manufactures and sells its parts and components worldwide.

4. Upon information and belief, Defendant Homer John Rader, III ("Rader"), an individual residing at 4344 Mockingbird Parkway, Dallas, Texas, 75205, is the Inventor, owner, and licensor of the Patent in suit, U.S. Patent No. 5,095,770 ("'770 Patent") entitled "Steering Bearing Assembly for Wheeled Vehicle" issued on 17 March 1992.

5. Upon information and belief, Defendant Cane Creek is a corporation of North Carolina with offices at Cane Creek Road, Fletcher, North Carolina 28732.

6. Upon information and belief, Defendant Cane Creek is a manufacturer of, among other products, bicycle headsets.

7. Upon information and belief, Defendant Cane Creek is the worldwide exclusive licensee of Defendant Rader for the '770 Patent in suit.

JURISDICTION AND VENUE

8. This Court has subject matter jurisdiction of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a), as this action involves a claim arising under the Patent Law of the United States, 35 U.S.C. § 1, *et seq.* This Court is also conferred jurisdiction under the Federal Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202.

9. Personal jurisdiction and venue are proper in this Court pursuant to 28 U.S.C. §§ 1391(a),

1391(b), 1391(c), and/or 1400(b), because Defendants have conducted, or sought to conduct, business in this judicial district, because a substantial part of the events giving rise to this action are occurring in this judicial district, and because the acts complained of herein are directed at and have effect in this judicial district. Full Speed Ahead is a resident of the State of Washington with its principal place of business located within the Western District of the United States District Court, Washington at Seattle. Upon information and belief, Cane Creek products, either directly or incorporated into products of others, are offered for sale and/or sold in the Western District of Washington through retail outlets.

FIRST CAUSE OF ACTION

(DECLARATORY JUDGMENT OF INVALIDITY OF U.S. PATENT NO. 5,095,770)

10. Tien Hsin and Full Speed Ahead repeat and reallege the allegations of Paragraphs 1-9 in their entirety.

11. Defendant Cane Creek claims to be the worldwide exclusive licensee of the '770 Patent. A true and correct copy of the '770 Patent is attached hereto as Exhibit A.

12. Through its communications and conduct, Cane Creek has indicated that it will assert its rights under the '770 Patent against Tien Hsin products (which products are defined to include bicycle headset products branded Full Speed Ahead and sold, distributed and serviced by Plaintiff Full Speed Ahead).

13. Tien Hsin is a primary competitor of Cane Creek in the market for precision cycling parts and components.

14. Since sometime in or about 1998, on the threat of suing Tien Hsin, Full Speed Ahead and their customers for infringement of the '770 Patent, Cane Creek has compelled Tien Hsin to enter into a sub-licensee relationship therewith in order to manufacture and sell Tien Hsin's headset products anywhere in the world. Since the original filing of this Complaint on August 15, 2007, and subsequent service of process upon it, Cane Creek has in fact taken retaliatory action by filing on August 24, 2007 an Amended Complaint in the Western District of North Carolina which newly adds a patent infringement count and naming Full Speed Ahead as Defendant in a dormant Complaint against Tien Hsin (that Cane Creek had earlier filed more than 120 days earlier, on April 12, 2007, but had refrained

from serving up to that point).

15. Since sometime in 1998, Tien Hsin has accordingly paid royalties under the sub-license to Cane Creek for sales of its headset products anywhere in the world.

16. Recently, the parties terminated the sub-license relationship because of a disagreement, *inter alia*, over the scope and validity of the patent.

17. Since then, Cane Creek has been making statements to certain customers and commercial partners of Tien Hsin that it has terminated the sub-license relationship with Tien Hsin, and that Tien Hsin's headset products are thenceforth in violation of the '770 Patent. A true and accurate copy of a written communication sent to certain customers and partners of Tien Hsin, dated 21 May 2007, by Cane Creek making such statements is attached as Exhibit B. Upon information and belief, this is but one of several such written communications sent by Cane Creek to certain customers and partners of Tien Hsin.

18. In an effort to address the concerns being expressed by its customers and partners in response to the implicit threats of Cane Creek's statements, Tien Hsin issued a written response. A true and correct copy of such written response is attached as Exhibit C.

19. In yet another written communication, dated 8 June 2007, to certain of Tien Hsin's customers and partners, Cane Creek re-asserted the alleged violation of the '770 Patent by Tien Hsin's Full Speed Ahead headset products. A true and correct copy of the Cane Creek June 8, 2007 letter is attached hereto as Exhibit D.

20. These statements of Cane Creek threaten to disrupt Tien Hsin's and Full Speed Ahead's commercial relationships with its customers and partners, unless Tien Hsin and Full Speed Ahead cease their commercial activities relating to their headset products.

21. By these statements, Cane Creek has threatened to charge Tien Hsin and its customers and partners with patent infringement, unless Tien Hsin and Full Speed Ahead cease their commercial activities relating to its headset products. Implicit in its statements is Crane Creek's contention that the '770 Patent is valid and enforceable.

22. Based on the above conduct, the Court has proper jurisdiction over this action. There is a substantial and continuing justiciable controversy between Tien Hsin and Full Speed Ahead, on one

hand, and Cane Creek, on the other hand, as there was at the time of the original filing of this Complaint a real and imminent danger that Cane Creek would sue for alleged infringement of the '770 Patent. The reality of that danger was actually borne out by Cane Creek's retaliatory action to allege patent infringement in the Amended Complaint it filed in the Western District of North Carolina on August 24, 2007. A declaratory judgment action is proper because Cane Creek's frequent ongoing allegations of patent violation in continued commercial activities relating to Tien Hsin's headset products are not only endangering Tien Hsin's and Full Speed Ahead's customer/partner relationships, they may give rise to patent infringement indemnification claims against Tien Hsin by its customers and partners.

23. Tien Hsin and Full Speed Ahead contend that the '770 Patent is invalid for failing to satisfy the conditions and requirements for patentability set forth in 35 U.S.C. §§ 102, 103, and/or 112.

24. Tien Hsin and Full Speed Ahead believe on this basis that they have the right to continue manufacturing and selling their headset products without a license or sub-license under the '770 Patent.

25. As a valid and justiciable controversy has arisen and exists between Tien Hsin, Full Speed Ahead and the defendants, Tien Hsin and Full Speed Ahead seek judicial determination and declaration of the respective rights and duties of the parties herein. Such a determination and declaration is necessary and appropriate at this time to enable the parties to ascertain their respective rights and duties.

SECOND CAUSE OF ACTION

(DECLARATORY JUDGMENT OF NONINFRINGEMENT OF U.S. PATENT NO. 5,095,770)

26. Tien Hsin and Full Speed Ahead repeat and reallege the allegations of Paragraphs 1-25 in their entirety.

27. As discussed in preceding paragraphs, Tien Hsin and Full Speed Ahead believe the claims of the '770 Patent are invalid because they fail to satisfy the conditions and requirements for patentability set forth in 35 U.S.C. §§ 102, 103, and/or 112. Unless a patent claim is valid, it cannot be infringed.

28. Assuming the claims of the '770 Patent to be valid, Tien Hsin's and Full Speed Ahead's headset products do not come within the scope of any of such claims.

29. Tien Hsin and Full Speed Ahead have not infringed, have not willfully infringed, are not now infringing, have not contributorily infringed, and have not induced infringement of any claim of the '770 Patent.

30. As a valid and justiciable controversy has arisen and exists between Tien Hsin and Full Speed Ahead and the defendants, Tien Hsin and Full Speed Ahead seek judicial determination and declaration of the respective rights and duties of the parties herein. Such a determination and declaration is necessary and appropriate at this time to enable the parties to ascertain their respective rights and duties.

THIRD CAUSE OF ACTION

(UNENFORCEABILITY OF U.S. PATENT NO. 5,095,770)

31. Tien Hsin and Full Speed Ahead repeat and reallege the allegations of Paragraphs 1-30 in their entirety.

32. Tien Hsin and Full Speed Ahead contend on information and belief that the '770 Patent is invalid, unenforceable, and void for failure to pay proper maintenance fees as required under 37 C.F.R. § 1.20 pursuant to 35 U.S.C. § 41.

Failure to Pay Proper Maintenance Fees

a. Upon information and belief, Cane Creek has entered into sub-licensing agreements with certain companies worldwide, granting such companies rights in the '770 Patent as sub-licensees. By virtue of its sub-licensees, Cane Creek does not qualify for small entity status under the rules of the U.S. Patent & Trademark Office and of the Small Business Administration size standards incorporated therein, as set 37 C.F.R. § 1.27, 13 C.F.R. §§ 121.801-121.805.

b. Upon information and belief, the number of employees of Cane Creek and its sub-licensees of Cane Creek have totaled and continue to total more than 500, with at least one sub-licensee of Cane Creek being a commercial entity whose number of employees alone exceeds 1,500. Accordingly, Cane Creek does not qualify for small entity status, and is therefore a large entity for purposes of fee calculations at the U.S. Patent and Trademark Office.

c. Upon information and belief, small entity fees were paid to the U.S. Patent and

Trademark Office for the '770 Patent's first, second, and third Maintenance Fees.

d. Upon information and belief, these small entity fees for at least the second and third Maintenance Fees of the '770 Patent were paid by, or at the direction of, defendant Rader. At the time of such Maintenance Fee payments, Cane Creek owned an interest in the '770 Patent as exclusive licensee of defendant Rader. By virtue of such exclusive license relationship with Cane Creek, defendant Rader did not qualify for small entity status at that time.

e. Defendant Rader knew or should have known that he did not qualify for small entity status for at least the second and third Maintenance Fee payments; yet, defendant Rader claimed the small entity status discount for such Maintenance Fee payments and made, or directed another to make, the payments on the misrepresentation that small entity status did apply. As a result, deficient Maintenance Fees were knowingly and fraudulently paid on the '770 Patent to maintain that patent in force.

f. The '770 Patent is unenforceable and invalid as a result of such deficient Maintenance Fee payments knowingly and fraudulently made thereon by or at the direction of defendant Rader.

33. Tien Hsin and Full Speed Ahead believe on these bases that they have the right to continue manufacturing and selling headset products without a license or sub-license under the '770 Patent.

34. As a valid and justiciable controversy has arisen and exists between Tien Hsin and the defendants, Tien Hsin and Full Speed Ahead seek judicial determination and declaration of the respective rights and duties of the parties herein. Such a determination and declaration is necessary and appropriate at this time to enable the parties to ascertain their respective rights and duties.

FOURTH CAUSE OF ACTION

(UNFAIR COMPETITION BY DEFENDANTS)

35. Tien Hsin and Full Speed Ahead repeat and reallege the allegations of Paragraphs 1-34 in their entirety.

36. As discussed in preceding paragraphs, Cane Creek has made, and continues to make,

statements to certain customers and commercial partners of Tien Hsin and Full Speed Ahead that it has terminated its sub-license relationship with Tien Hsin, and that Tien Hsin's and Full Speed Ahead's headset products are thenceforth in violation of the '770 Patent. Cane Creek has and continues to do so with the full knowledge that deficient Maintenance Fees have been paid on the '770 Patent and that Tien Hsin's and Full Speed Ahead's headset products do not fall within the scope of any of the '770 Patent's claims.

37. Such actions, if unabated, would cause irreparable injury to Tien Hsin's and Full Speed Ahead's goodwill and reputation.

38. Such actions of Cane Creek are unwarranted and in bad faith. Such actions are unwarranted and in bad faith for the additional reason that Cane Creek has not actually initiated a patent infringement suit against Tien Hsin and Full Speed Ahead.

39. Tien Hsin and Full Speed Ahead believe on this basis that they have the right to continue manufacturing and/or selling their headset products without a license or sub-license under the '770 Patent.

40. As a valid and justiciable controversy has arisen and exists between Tien Hsin and Full Speed Ahead and the defendants, Tien Hsin and Full Speed Ahead seek judicial determination and declaration of the respective rights and duties of the parties herein. Such a determination and declaration is necessary and appropriate at this time to enable the parties to ascertain their respective rights and duties.

FIFTH CAUSE OF ACTION

(PATENT MISUSE BY DEFENDANTS)

41. Tien Hsin and Full Speed Ahead repeat and reallege the allegations of Paragraphs 1-40 in their entirety.

42. As discussed in preceding paragraphs, Cane Creek has compelled Tien Hsin, on the threat of imminent patent infringement litigation under the '770 Patent, to enter into a sub-license relationship therewith in order to manufacture and sell head set products. Cane Creek thus required Tien Hsin to pay royalties as sub-licensees of the '770 Patent for all manufacture and sales of Tien Hsin's head set

products anywhere in the world.

43. Tien Hsin have been paying royalties as sub-licensees since sometime in 1998 even for the manufacture and sale of their head set products outside the United States, in various countries including the Peoples' Republic of China and Taiwan. By imposing the sub-license relationship on the threat of patent infringement litigation under the '770 Patent, Cane Creek has required Tien Hsin to pay substantial royalties regardless of whether or not their manufacture and sales of particular head set products were subject to the patent laws of the United States.

44. Tien Hsinhas complied with Cane Creek's demands to the extent they could afford in order to avoid the considerable cost and disruptive effect that patent litigation would have on their business. The overall cost of complying with Cane Creek's demands, however, have become overly burdensome to the point that Tien Hsin and Full Speed Ahead cannot remain competitive in the market for head set products if they continues to comply with such demands.

45. Upon information and belief, Cane Creek enjoys market power in the market for headset products. In addition to manufacturing and selling its own headset products, Cane Creek licenses at least 10 different manufacturers and/or suppliers from around the world for sales of headset products.

46. Cane Creek has impermissibly broadened and attempted to broaden the physical or temporal scope of its '770 Patent with anticompetitive effect by requiring on the basis of its '770 Patent royalty payments even for the manufacture and sales of head set products occurring outside the United States, which therefore are not subject to United States patent laws.

47. Such actions of Cane Creek, if unabated, would cause irreparable injury to Tien Hsin's and Full Speed Ahead's goodwill and reputation.

48. Tien Hsin and Full Speed Ahead believe on this basis that they have the right to continue manufacturing and selling their head set products without a license or sub-license under the '770 Patent.

49. As a valid and justiciable controversy has arisen and exists between Tien Hsin/Full Speed Ahead and the defendants, Tien Hsin and Full Speed Ahead seek judicial determination and declaration of the respective rights and duties of the parties herein. Such a determination and declaration is necessary and appropriate at this time to enable the parties to ascertain their respective rights and duties.

PRAYER FOR RELIEF

WHEREFORE, plaintiffs Tien Hsin and Full Speed Ahead request entry of judgment in their favor as follows:

A. Declaring that Tien Hsin and Full Speed Ahead have not infringed, willfully infringed, induced others to infringe, or contributed to the infringement of any valid claims of the '770 Patent;

B. Declaring that the claims of the '770 Patent are invalid;

C. Enjoining Defendants Rader and Cane Creek, its officers, partners, employees, agents, parents, subsidiaries, attorneys, and anyone acting in concert or participation with any of them from making any claims that Tien Hsin or Full Speed Ahead infringes the '770 Patent;

D. Enjoining Defendants Rader and Cane Creek, its officers, partners, employees, agents, parents, subsidiaries, attorneys, and anyone acting in concert or participation with any of them from threatening, instituting, or prosecuting any lawsuit or proceeding, placing in issue the right of Tien Hsin and Full Speed Ahead to make, use, or sell the products which allegedly infringe the '770 Patent;

E. Awarding Tien Hsin and Full Speed Ahead their costs of suit, including reasonable attorneys' fees; and,

F. Granting such other and further relief as this Court may deem just.

DATED: ___ September 2007

THE ADOLPH LAW GROUP, PLLC

By: __/s/ Robert J. Adolph_____
ROBERT J. ADOLPH, WSBA #4788

By: __/s/ Jun Y. Lee_____
JUN Y. LEE, Federal Bar No. 22986 (MD)
Attorneys for Plaintiffs

TIEN HSIN INDUSTRIES CO., LTD.
FULL SPEED AHEAD, INC.

EXHIBIT A

US005095770A

United States Patent [19]

Rader, III

[11] Patent Number: 5,095,770

[45] Date of Patent: Mar. 17, 1992

[54] STEERING BEARING ASSEMBLY FOR WHEELED VEHICLE

[76] Inventor: Homer J. Rader, III, 4344 Mockingbird Pkwy., Dallas, Tex. 75205

[21] Appl No.: 590,575

[22] Filed: Sep. 28, 1990

[51] Int. Cl.[5] B62K 21/12

[52] U.S. Cl. 74/551.1; 74/551.3; 280/279; 403/24

[58] Field of Search 74/551, 551.1, 551.2, 74/551.3; 280/275-280; 403/24, 88

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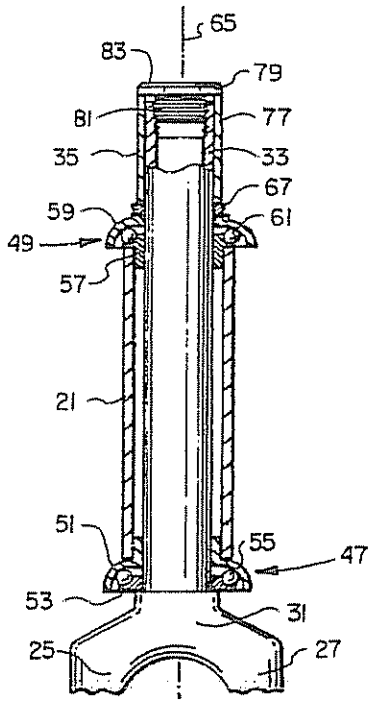
Primary Examiner—Rodney H. Bonck
Assistant Examiner—Winnie Yip
Attorney, Agent, or Firm—David L. McCombs

[57] ABSTRACT

A steering bearing assembly is provided for connecting the front wheel and handle bars of a bicycle to the frame. The assembly includes a steerer tube, connected to the front wheel and passing through a head tube on the frame. Bearing assemblies on the upper and lower ends of the head tube allow the steerer tube to pivot within the head tube. The upper bearing assembly has a first race connected to the head tube and a second race having a tapered contact surface. Above the second race on the steerer tube is a compression ring having a gap so the ring can be compressed against the steerer tube. The connector of a stem is located on the steerer tube above the compression ring. The handle bars of the bicycle are connected to the stem. An adjuster nut is threaded into the upper end of the steerer tube, exerting a downward force on the connector and the compression ring. The second race compresses the compression ring, locking the upper bearing assembly in place on the steerer tube. The connector is then clamped onto the steerer tube

10 Claims, 2 Drawing Sheets



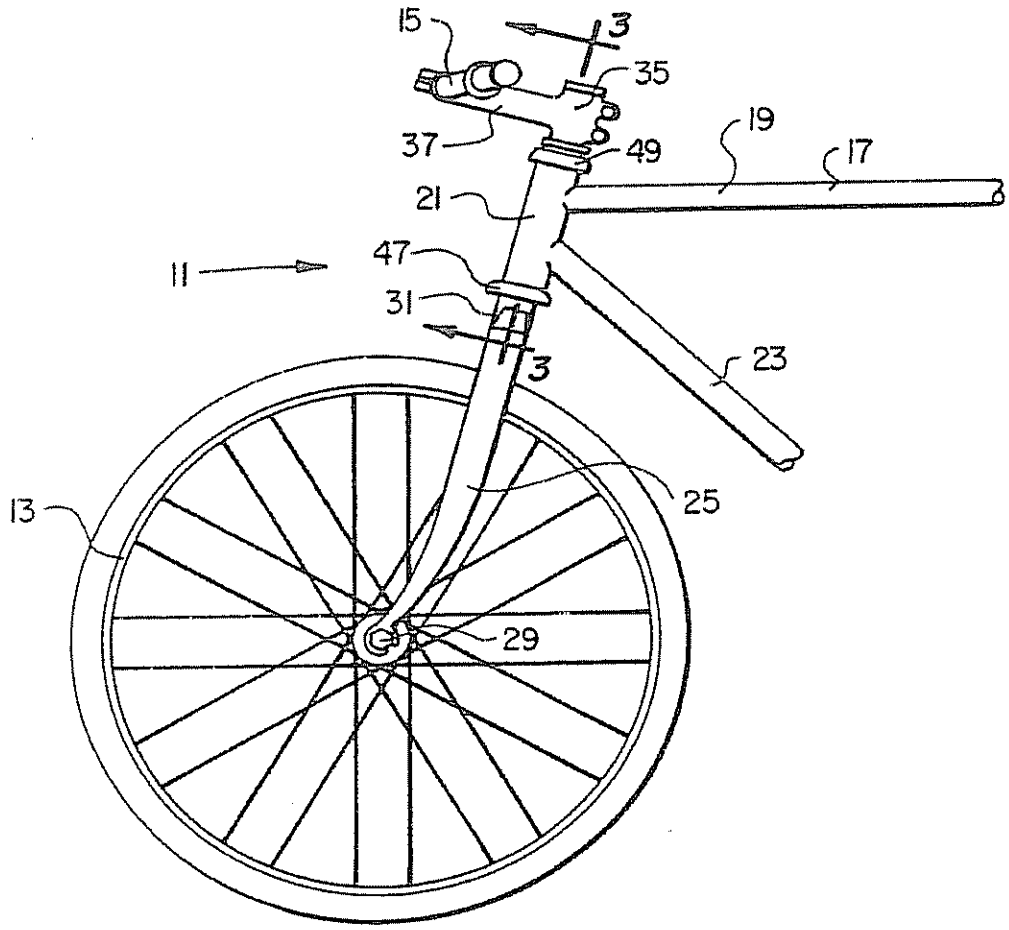
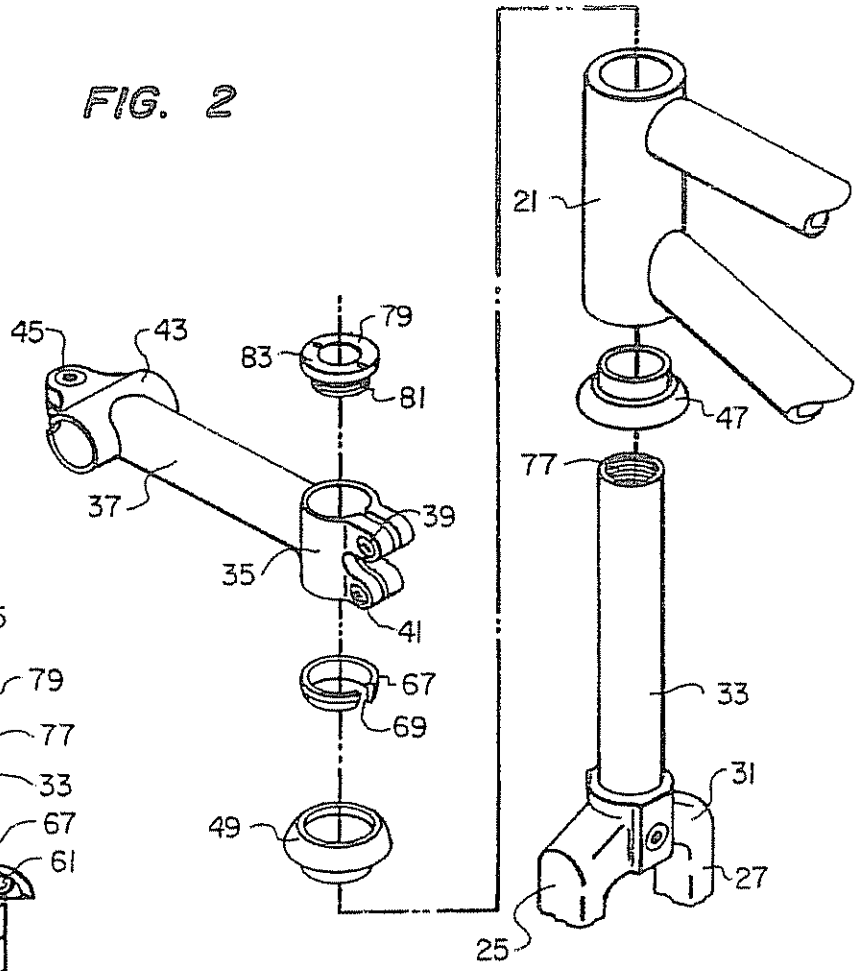


FIG. 1

FIG. 2



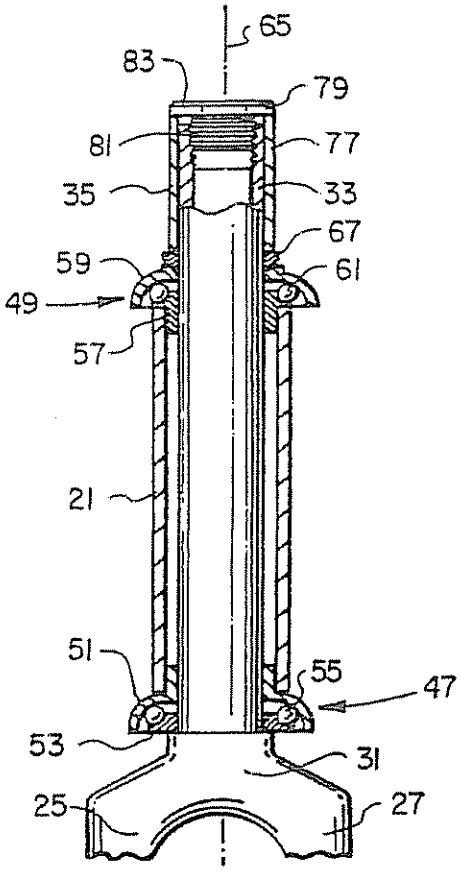


FIG. 3

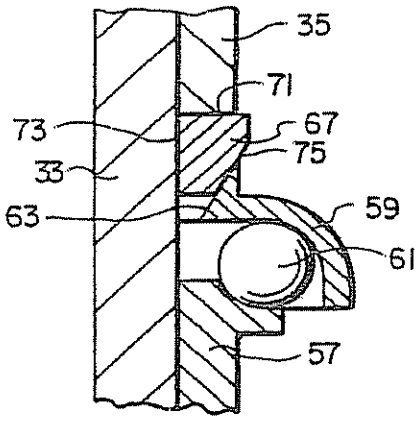


FIG. 4

STEERING BEARING ASSEMBLY FOR WHEELED VEHICLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates in general to wheeled vehicles, such as bicycles. In particular, the invention relates to an assembly for connecting the front wheel and handle bars to the frame of the wheeled vehicle.

2. Description of the Prior Art

In some prior art bicycles, the front wheel and the handle bars are connected to a steerer tube. The steerer tube passes through a head tube connected to the bicycle frame. Ball bearing assemblies, located at the upper and lower ends of the head tube, allow the steerer tube to pivot within the head tube.

The upper end of the steerer tube is threaded externally. An internally threaded lock nut is placed on the steerer tube and tightened until the lock nut secures the upper race of the upper bearing assembly downward against the lower race.

Unfortunately, this assembly is difficult to adjust with respect to preload on the bearings. Further, the prior art assembly includes a multiplicity of components which renders it unnecessarily complicated and heavy. Most types of bicycling, such as mountain biking, racing, and free-style biking can cause the lock nut to become loose in a very short time. Also, the manufacture of such assemblies is relatively expensive. Other shortcomings are apparent to those skilled in the art.

SUMMARY OF THE INVENTION

The steering bearing assembly of the invention has a head tube connected to the vehicle frame. A steerer tube is connected between the front wheel of the vehicle and the handle bars and passes through the head tube. A pair of bearing assemblies allow the steerer tube to pivot within the head tube.

The upper bearing assembly has two races, the first race being connected to the head tube. The second race has a contact surface tapered at an angle to the longitudinal axis of the steerer tube.

A compression ring is located on the steerer tube above the second race. The compression ring has a tapered contact surface that abuts the contact surface on the second race. The compression ring also has one or more gaps, or is suitably elastic, so that the ring can be compressed against the steerer tube.

An adjuster nut having external threads is threaded into internal threads in the upper end of the steerer tube. As the adjuster nut is threaded inward, the nut exerts a longitudinal force on the compression ring. The tapered contact surface on the compression ring exerts a longitudinal force and a radial force on the second race.

In reaction, the second race exerts equal and opposite forces on the compression ring. The compression ring is compressed into the steerer tube, thus locking the compression ring to the steerer tube.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of the front end of a bicycle incorporating the steering bearing assembly of the invention.

FIG. **2** is an exploded view of the steering bearing assembly of the invention.

FIG. **3** is a sectional view of the steering bearing assembly of the invention, as seen along line 3—3 in FIG. **1**.

FIG. **4** is a enlarged view of a portion of the steering bearing assembly shown in FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The steering bearing assembly of the invention is intended for use on wheeled vehicles. FIG. **1** shows the invention in use on a bicycle **11**, although the invention would also be useful on a tricycle.

FIG. **1** shows the front wheel **13**, the handle bars **15**, and the forward portion of the bicycle frame **17**. The bicycle frame **17** has a horizontal top tube **19**, welded to a head tube **21**. A down tube **23** extends downward and rearward from the head tube **21**, below the top tube **19**.

A pair of fork blades **25** and **27** are bolted to the axle bolt **29** of the front wheel **13**. The upper ends of the fork blades **25** and **27** are connected to a fork crown **31**.

A steerer tube **33** extends upward from the fork crown **31**, as shown in FIGS. **2** and **3**. The steerer tube **33** passes through the head tube **21** and through a connector **35** on one end of stem a **37**. The connector **35** is clamped to the steerer tube **33** with a pair of bolts **39** and **41**, so the stem **37** can be replaced or adjusted.

The handle bars **15** pass through a second connector **43** on the other end of the stem **37**. The second connector **43** has a bolt **45**, so the handle bars **15** can be replaced or adjusted. Thus, the handle bars **15** are connected to the front wheel **13**, so that the front wheel **13** can be turned by turning the handle bars **15**.

The steerer tube **33** must be secured relative to the head tube **21** for rotational movement only with respect to the head tube **21** when the handle bars **15** are turned. Thus, there is a lower bearing assembly **47** and an upper bearing assembly **49** between the steerer tube **33** and the head tube **21**. As shown in FIG. **3**, the lower bearing assembly **47** has a first race **51** and a second race **53**. A plurality of ball bearings **55** are enclosed between the first and second races **51** and **53**.

The first race **51** of the lower bearing assembly **47** is press fit into the lower end of the head tube **21**, so the that the first race pivots with the head tube **21**. The second race **53** of the lower bearing assembly **47** is press fit into the steerer tube **21**, so that the second race **53** pivots with the steerer tube **33**. The first and second races **51**, **53** are supported to rotate relative to each other by the ball bearings **55**.

The upper bearing assembly **49** is located at the upper end of the head tube **21**. The upper bearing assembly **49** also has a first race **57** and a second race **59**, encasing a plurality of ball bearings **61**. The first and second races **57**, **59** are supported to rotate relative to each other by the ball bearings **61**. The first race **57** of the upper bearing assembly **49** is press fit into the upper end of the head tube **21**, so that the first race **57** pivots with the head tube **21**.

The second race **59** of the upper bearing assembly **49** has an annular contact surface **63**, best shown in FIG. **4**. The annular contact surface **63** is tapered at an angle to the longitudinal axis **65** of the steerer tube **33**, shown in FIG. **3**. Also, as shown in FIG. **4**, the second race has an inner diameter that is greater than the outer diameter of the steerer tube, so that it is carried thereby with clearance relative to the steerer tube.

An annular compression ring **67** is located above the upper bearing assembly **49**. The compression ring **67** has

a small gap 69, as shown in FIG. 2, so that the ring 67 can be compressed. The compression ring 67 also has an upper surface 71, an inner surface 73, and a tapered contact surface 75. The contact surface 75 is tapered at the same angle, relative to the longitudinal axis of the steerer tube 33, as the contact surface 63 on the second race 59 of the upper bearing assembly 49. The contact surface 75 on the compression ring 67 abuts the contact surface 63 on the second race 59. The upper surface 71 of the compression ring 67 abuts the lower end of the connector 35 on the stem 37.

The upper end of the steerer tube 33 has internal threads 77, as shown in FIGS. 2 and 3. An adjuster nut 79, having external threads 81, is threaded into the upper end of the steerer tube 33. The adjuster nut 79 has a head 83 that contacts the upper end of the connector 35 on the stem 37. The connector 35 extends above the upper end of the steerer tube 33, leaving a gap between the head 83 of the adjuster nut 79 and the steerer tube 33, as shown in FIG. 3.

In assembly of the steering bearing assembly of the invention, the head tube 21 is placed over the steerer tube 33, with the upper bearing assembly 49 on the upper end of the head tube 21. The compression ring 67 is then placed on the steerer tube 33 above the upper bearing assembly 49. Next, the connector 35 of the stem 37 is positioned on the steerer tube 33, above the compression ring 69.

When all of the elements are in place, the adjuster nut 79 is threaded into the upper end of the steerer tube 33. As the adjuster nut 79 is threaded, the head 83 of the adjuster nut 79 contacts the upper end of the connector 35 on the stem 37, and forces the connector downward on the steerer tube 33. In turn, the connector 35 exerts a downward force on the upper surface 71 of the compression ring 67. Thus, the adjuster nut 79 serves as a locking member which acts to simultaneously axially retain the mounting stem on the steerer tube 33 and to force the compression ring 67 toward the upper bearing assembly so as to firmly engage the compression ring 67 between second race 59 of the upper bearing assembly 49 and the steerer tube 33.

As the compression ring 67 is forced downward, the contact surface 75 on the compression ring 67 exerts a longitudinal force and a radial force on the contact surface 63 of the second race 59 of the upper bearing assembly 49. In reaction, the second race 59 exerts equal and opposite forces on the compression ring 67. The compression ring 67 is compressed against the steerer tube 33, locking the compression ring 67 in place on the steerer tube 33. The head tube 21 and the two bearing assemblies 47 and 49 are secured between the fork crown 31 and the connector 35.

Finally, the bolts 39 and 41 on the connector 35 are tightened to secure the stem 37 to the steerer tube 33. When the connector 35 is secured to the steerer tube 33, the connector 35 does not exert any upward forces on the adjuster nut 79.

The steering bearing assembly of the invention has several advantages over the prior art. The design of the invention allows the stem 37 to be clamped directly to the steerer tube 33, so the connection is lighter and stronger than prior art designs. Further, the assembly of the invention is easier to assemble and to adjust. Also, since there are no forces acting on the adjuster nut 79, the nut 79 is less likely to loosen. Additionally, the internal threads 77 in the steerer tube 33 are not located in a high stress area of the steerer tube. Further, the assembly allows for a secure connection of the steerer tube relative to the head tube without lateral "play" or movement. Over all, a bicycle embodying the invention is lighter, stronger, and less expensive than the prior art.

The invention has been shown in only one embodiment. It should be apparent to those skilled in the art that the invention is not so limited, but is susceptible to various changes and modifications without departing from the spirit of the invention. For example, a variety of means may be implemented to provide radial and longitudinal forces between the second bearing and the steerer tube. Such may form a portion of the connector 35 or be provided as a separate component. The compression ring 67 or other compression element may include multiple gaps or segments and be constructed of a combination of elastic and rigid components, or an elastic compound. It is understood that the assembly may be arranged such that the location of the bearing assembly is inverted, or placed on the other end of the head tube. Other variations will be apparent to those skilled in the art.

What is claimed is:

1. A steering bearing assembly, comprising:

a head tube, connected to a vehicle frame;

a nonexternally threaded steerer tube having a cylindrical, smooth outer surface connected between a wheel and vehicle handle bars and passing through the head tube;

a bearing assembly to allow the steerer tube to pivot within the head tube, the bearing assembly having a first race and a second race, the first race being connected to the head tube and the second race being carried on the steerer tube with a clearance therebetween; and

force means for exerting a radial force between the smooth outer surface of the steerer tube and the second race and for exerting a longitudinal force on the second race to push the second race toward the first race and to fix the second race on the steerer tube.

2. A steering bearing assembly as defined in claim 1, wherein the force means further comprises:

a compression ring having a contact surface for contacting a contact surface on the second race, wherein the contact surfaces are tapered at an angle to the longitudinal axis of the steerer tube; and

said means for exerting said longitudinal force on the compression ring.

3. A steering bearing assembly as defined in claim 2, wherein the means for exerting a said longitudinal force on the compression ring further comprises an adjuster nut threaded to the steerer tube.

4. A steering bearing assembly as defined in claim 3, further comprising:

a stem for connecting said handle bars to the steerer tube;

a connector on one end of the stem, wherein the steerer tube passes through the connector and wherein the connector is located between the adjuster nut and the compression ring; and

a bolt for clamping the connector to the steerer tube.

5. A steering bearing assembly as defined in claim 3, wherein the adjuster nut has external threads and is threaded into internal threads on the steerer tube.

6. A steering bearing assembly, comprising:

a head tube connected to a vehicle frame;

a nonexternally threaded steerer tube having a cylindrical, smooth outer surface and a longitudinal axis connected to a front wheel and passing through the head tube;

a first bearing assembly on a first end of the head tube to allow the steerer tube to pivot within the head tube;

a second bearing assembly on a second end of the head tube, the second bearing assembly having a first race and a second race, the first race being connected to the head tube and the second race being carried on the steerer tube with a clearance therebetween and having a contact surface tapered at an angle to the longitudinal axis of the steerer tube;

a compression ring on a smooth surface of the steerer tube against the second bearing assembly, having a contact surface that is tapered and abuts the contact surface on the second race of the second bearing assembly; and

an adjuster nut for exerting a longitudinal force on the compression ring toward the second bearing assembly to push said second race toward said first race.

7. A steering bearing assembly as defined in claim 6, wherein the compression ring has a gap so that the compression ring is compressed against the steerer tube as the adjuster nut exerts the longitudinal force.

8. A steering bearing assembly as defined in claim 7, further comprising:

a set of handle bars;

a stem connected to the handle bars and having a connector at one end, wherein the steerer tube passes through the connector and the connector is located between the adjuster nut and the compression ring; and

a bolt for clamping the stem to the steerer tube.

9. A steering bearing assembly for a two wheel vehicle comprising:

a head tube connected to a vehicle frame;

a steerer tube connected to a front wheel fork of a vehicle, said steerer tube passing through the head tube with clearance therebetween;

a lower bearing assembly connected between the head tube and the steerer tube and providing rotational support for the head tube relative to the steerer tube;

an upper bearing assembly connected to the head tube and carried thereby with clearance relative to the steerer tube, the inner diameter of the upper bearing assembly being greater than the outer diameter of the steerer tube;

a compression member disposed on the upper bearing assembly and engageable in the clearance between the upper bearing assembly and the steerer tube, said compression member, when engaged in the clearance between the upper bearing assembly and the steerer tube fixing the upper bearing assembly to the steerer tube in a manner providing rotational support therefor;

a mounting stem for connection of a handle bar to the steerer tube, said mounting stem being disposed on said compression member about said steerer tube; and

a locking member secured on said steerer tube above said mounting stem, said locking member being axially displaceable toward said mounting stem and acting to simultaneously axially retain the mounting stem on the steerer tube and to force the compression member toward the upper bearing assembly so as to firmly engage the compression member between the upper bearing assembly and the steerer tube.

10. A steering bearing assembly according to claim 9, wherein the compression member is a compression ring which is directly wedged between an outer surface of the upper bearing assembly and an outer surface of the steerer tube so as to eliminate all play therebetween under the action of said locking member.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 5,095,770

DATED : March 17, 1992

INVENTOR(S) : Homer J. Rader, III

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 2, line 24, change "stem a" to -- a stem --.

Claim 3, line 52, change "exerting a said" to -- exerting said --.

Signed and Sealed this

Tenth Day of August, 1993

Attest:

Michael K. Kirk

MICHAEL K. KIRK

Attesting Officer

Acting Commissioner of Patents and Trademarks

US005095770B1

REEXAMINATION CERTIFICATE (3981st)

United States Patent [19]

Radar, III

[11] B1 5,095,770

[45] Certificate Issued Jan. 25, 2000

[54] **STEERING BEARING ASSEMBLY FOR WHEELED VEHICLE**

[76] Inventor: **Homer J. Radar, III**, 4344 Mockingbird Pkwy., Dallas, Tex. 75205

Reexamination Request:
No. 90/004,391, Sep. 30, 1996

Reexamination Certificate for:

Patent No.:	5,095,770
Issued:	Mar. 17, 1992
Appl. No.:	07/590,575
Filed:	Sep. 28, 1990

Certificate of Correction issued Aug. 10, 1993.

[51] **Int. Cl.**[7] B62K 12/12

[52] **U.S. Cl.** 74/551.1; 74/551.3; 280/279; 403/24

[58] **Field of Search** 74/551, 551.1, 74/551.2, 551.3; 280/275–280; 403/24, 88

[56] **References Cited**

U.S. PATENT DOCUMENTS

573,316 12/1896 Willits .

FOREIGN PATENT DOCUMENTS

7628810 10/1977 France .
1144142 2/1963 Germany .
1-68294 5/1989 Japan .
3-47293 5/1991 Japan .

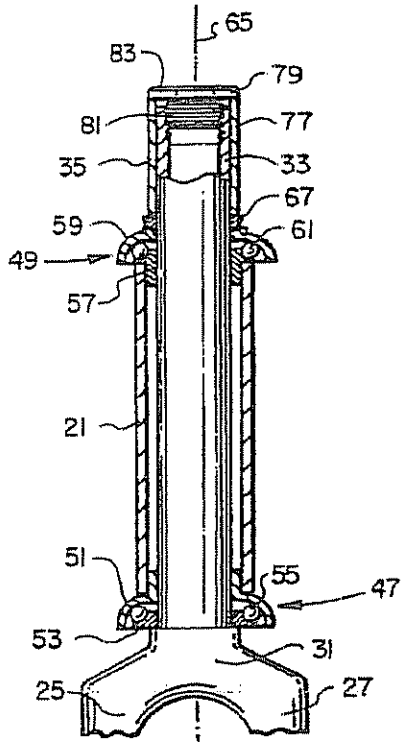
OTHER PUBLICATIONS

Taiwan Bicycles & Parts Buyers' Guide 1989.

Primary Examiner—Carl Friedman

[57] **ABSTRACT**

A steering bearing assembly is provided for connecting the front wheel and handle bars of a bicycle to the frame. The assembly includes a steerer tube, connected to the front wheel and passing through a head tube on the frame. Bearing assemblies on the upper and lower ends of the head tube allow the steerer tube to pivot within the head tube. The upper bearing assembly has a first race connected to the head tube and a second race having a tapered contact surface. Above the second race on the steerer tube is a compression ring having a gap so the ring can be compressed against the steerer tube. The connector of a stem is located on the steerer tube above the compression ring. The handle bars of the bicycle are connected to the stem. An adjuster nut is threaded into the upper end of the steerer tube, exerting a downward force on the connector and the compression ring. The second race compresses the compression ring, locking the upper bearing assembly in place on the steerer tube. The connector is then clamped onto the steerer tube.



REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 307

NO AMENDMENTS HAVE BEEN MADE TO THE PATENT

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–10** is confirmed.

* * * * *

EXHIBIT B

CANE CREEK CYCLING COMPONENTS

355 CANE CREEK ROAD FLETCHER, NC 28732 TEL: 828 684 3551 FAX: 828 684 1057
INTERNET: WWW.CANECREEK.COM INFO@CANECREEK.COM

Open Notice to the Bicycle Industry

May 21, 2007

This notice is to advise that Cane Creek Cycling Components has terminated both its patent license and supply contract relationships with Tien Hsin Industries Co., Ltd.- Taichung, Taiwan This means that Tien Hsin is no longer authorized to accept orders for AheadSet® branded products.

Furthermore, FSA headsets manufactured by Tien Hsin are no longer covered by a license under our US Patent No. 5,095,770 and corresponding patents in Canada and various countries of Europe.

The following companies are licensed by Cane Creek to produce AheadSet® branded headsets:

Fasten Industries Co. Ltd.- Taichung, Taiwan Email: fpdrnd@tcts1.seed.net.tw Fax: 886 (4) 2 327-8801
Tange Seiki Co., Ltd - Taichung, Taiwan Email: tangetw@ms16.hinet.net Fax: 886 (4) 2 451-8485
V.P. Components Co., Ltd.- Taichung, Taiwan Email: vptw@vpcomponents.com Fax: 886 (4) 2 683-5838

In addition to the complete line of headsets offered by Cane Creek, the following are additional licensees of Cane Creek:

King Cycle Group
Race Face Performance Components
Syncros
Ritchey Design, Inc.
Dia-Compe Taiwan
Hope Technology
DT Swiss

Please distribute to the appropriate staff in your purchasing or product management departments. Thank you for your understanding and we will gladly answer any questions you may have regarding this change in our approved licensees.

Sincerely,

Brad Thorne
President

EXHIBIT B

EXHIBIT C

GT PATENT 鉅鼎國際智慧財產權有限公司
GREATTOP INTERNATIONAL INTELLECTUAL PROPERTY RIGHTS Co., Ltd

May 31, 2007

ATTENTION: To all Bicycle and Associated Parts Manufacturers

Re: **Declaration of from Tien Hsin Industries Co., Ltd that our "HEADSET" does not infringe patent of Cane Creek America, and we welcome you to continue purchase "HEADSET" from us.**

Dear Sirs:

The General Manager of Tien Hsin Industries Co., Ltd (Referred as "Tien Hsin"), Mr. Douglas Chiang from has approached Greattop Intl. Intellectual Property Co., Ltd and declares the following:

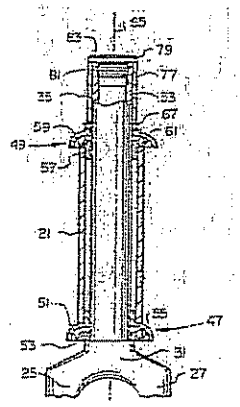
1. Tien Hsin is a bicycle and associated parts manufacturer, its manufactured and developed products have been liked and used by national and international clients. Most of Tien Hsin's products had been issued with patent.

2. Recently Cane Creek Company has declared that Tien Hsin had infringed his patent, Tien Hsin hereby declares to all the bicycle and associated parts manufacturers the following:

a) Tien Hsin's "Headset" has not infringed any of Crane Creek's patent.

b) Tien Hsin's headset components do not match to all the components from Cane Creek's patent, therefore there is no Literal Infringement. Due to lack of main element, equivalent is not necessary to judge.

c) Further more, after Tien Hsin has done research on citing documents, and cited from those cases, Tien Hsin can conclude that Cane Creek's patent is not legal due to obviousness.



40878 台中市南屯區五權西路二段666號12樓之4 電話:04-23860999 傳真:04-23866430
12F-4, No.666,Sec.2, Wuquan W.Rd., Nantun District, Taichung City 408, Taiwan,(R.O.C)
TEL:886-4-23860999 FAX:886-4-23866430 統編:80408655(公司) E-mail:gtptf@ms43.hinet.net

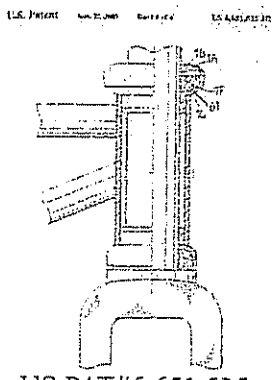
EXHIBIT C

GT PATENT
鉅鼎國際智慧財產權有限公司
GREATTOP INTERNATIONAL INTELLECTUAL PROPERTY RIGHTS Co., Ltd

3. Sum up the above points, once again, Tien Hsin declares that the headset does not infringe Cane Creek's patent, and is absolutely problem free on selling and using, Tien Hsin welcomes your orders. To maintain the good reputation, Tien Hsin shall keep providing you high quality services and wishes your company a prosperous year.

4. If there shall be any questions regarding patents, please contact directly to Mr. Benjamin Su, GREATTOP INTERNATIONAL INTELLECTUAL PROPERTY CO., LTD. We believe you can be well answered.

5. Also, Tien Hsin would like to remind you that Tien Hsin possesses America Invention patent: US PAT#6,651,525 (see figure on right). The main characteristic is the flange on the compression ring. Shall there be any use of this compression ring headset, Tien Hsin will file for infringement lawsuit without delay.



US PAT#6,651,525

Very truly yours,
For: GREATTOP Intl Intellectual Property Co., Ltd

Benjamin Su

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EXHIBIT D

CANE CREEK CYCLING COMPONENTS

355 CANE CREEK ROAD FLETCHER, NC 28732 TEL: 828 684 3551 FAX: 828.684 1057
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Notice to U. S., European, and Canadian Bicycle Assemblers, Manufacturers and Distributors of threadless headsets

June 8, 2007

Subsequent to our Notice of April 25, 2007, Cane Creek has become aware of an opinion that has been circulated by Tien Hsin, expressing the opinion of a Taiwanese attorney concerning our US Patent No. 5,095,770 and its scope and validity. However, according to our U.S. patent attorney, our U.S. Patent No. 5,095,770 is valid and legitimate, and that the FSA threadless headsets in use with this patent are covered by U.S. Patent No. 5,095,770 and the corresponding patents in Canada and various countries in Europe.

As stated in our April 25, 2007 Notice, please be advised that Cane Creek Cycling Components has terminated both its patent license and supply contract relationships with Tien Hsin Industries Co., Ltd. – Taichung, Taiwan. This means that Tien Hsin is no longer authorized to accept orders for AheadSet® branded products.

Furthermore, FSA headsets manufactured by Tien Hsin are no longer covered by a license under our US Patent No. 5,095,770 and corresponding patents in Canada and various countries of Europe.

The following companies are licensed by Cane Creek to produce AheadSet® branded headsets:

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V P. Components Co., Ltd - Taichung, Taiwan Email:vptw@vpcomponents.com Fax: 886 (4) 2 683-5838

In addition to the complete line of headsets offered by Cane Creek, the following are additional licensees of Cane Creek:

King Cycle Group
Race Face Performance Components
Syncros
Ritchey Design, Inc.
Dia-Compe Taiwan
Hope Technology
DT Swiss

Please distribute to the appropriate staff in your purchasing or product management departments. Thank you for your understanding and we will gladly answer any questions you may have regarding this change in our approved licensees.

Sincerely,

Brad Thorne
President