

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

SRAM, LLC	)	
	)	
Plaintiff,	)	Civil Action No. 1:23-cv-00492-SCJ
	)	
v.	)	
	)	
FOX FACTORY, INC.	)	
	)	
Defendant.	)	
	)	

**FOX FACTORY, INC.’S PRELIMINARY
INVALIDITY CONTENTIONS**

Pursuant to Patent L.R. 4.3, Defendant FOX Factory, Inc. (FOX) hereby discloses its Preliminary Invalidity Contentions for the patents-in-suit, namely, United States Patent No. 10,328,993 B2 (“the ’993 patent”) and United States Patent No. 7,147,207 B2 (“the ’207 patent) (collectively, the “Asserted Patents”).

I. INTRODUCTION

In its Preliminary Disclosure of Infringement Contentions, Defendant SRAM, LLC (“SRAM”) asserts the following claims of the Asserted Patents:

The ’993 patent: claims 1–4, 6, 8, 10, 12, 14–18, 20, 22, 24, 26–29, 31, 33–38, 40, 42, 44, 46–49, 51, 53, and 56–64

The '207 patent: claims 1–3, 7, 8, and 10–12

Pursuant to Patent L.R. 4.3, these Invalidity Contentions include: (a) the identity of prior art that anticipates each asserted claim or renders it obvious; (b) a statement specifying whether each item of prior art anticipates each asserted claim or renders it obvious; (c) a chart that identifies where in each item of prior art each limitation of each asserted claim is found; and (d) grounds for invalidity of the asserted claims based on indefiniteness, enablement, or written description under 35 U.S.C. § 112.

II. CLAIM CONSTRUCTION

FOX's Preliminary Invalidity Contentions are based on its present understanding of the scope of SRAM's infringement contentions and/or the apparent claim constructions FOX believes SRAM to be asserting based on its infringement contentions, whether or not FOX agrees with such claim constructions. To the extent that FOX's Preliminary Invalidity Contentions reflect constructions of claim limitations consistent with or implicit in SRAM's infringement contentions, that is not an admission that FOX agrees with SRAM's claim constructions (nor should any such inference be drawn), and FOX expressly reserves its right to put forth its own claim constructions and contest SRAM's implicit or explicit constructions in its infringement contentions. FOX's

Preliminary Invalidity Contentions may be in the alternative to any position it may ultimately take as to any claim construction issues, or any position it has taken in its Preliminary Invalidity Contentions. In the absence of a claim construction ruling, FOX's claim construction positions in the Preliminary Invalidity Contentions are taken in the alternative to any position FOX has taken in its Non-Infringement Contentions, and are not necessarily intended to be consistent with each other, and should not be otherwise construed.

III. RIGHT TO SUPPLEMENT

FOX's Preliminary Invalidity Contentions set forth below and in the attached exhibits are subject to supplementation and amendment when the Court issues its claim construction ruling, if and when SRAM provides Final Infringement Contentions, or as otherwise provided for under the Patent Local Rules.

In addition, FOX's investigation regarding invalidity of the Asserted Patents including invalidity based on prior publication, public use, or on sale bar under 35 U.S.C. § 102(b), improper inventorship and derivation, or prior invention, obviousness under 35 U.S.C. § 103(a), and failure to comply with 35 U.S.C. § 112 is ongoing. Accordingly, the following invalidity contentions are subject to revision and amendment pursuant to Federal Rule of Civil Procedure 26(e) and the

Court's Patent Local Rules to the extent appropriate in light of FOX's further investigation and discovery, any supplementation of SRAM's Preliminary Infringement Contentions, the Court's construction of the asserted claims, and the review and analysis of expert witnesses. FOX reserves the right to modify, amend, or supplement these Preliminary Invalidity Contentions in accordance with the Court's Scheduling Order and Patent Local Rules, as additional documents and information become available (including documentation and information that SRAM has not yet produced or provided), and as discovery and investigation proceed. FOX further reserves the right to introduce and use such supplemental materials at trial.

Moreover, FOX is currently unaware of the extent, if any, to which SRAM will contend that limitations of the asserted claims are not disclosed in the art identified by FOX. To the extent that an issue arises with respect to any such limitation, FOX reserves the right to identify references and combinations which may anticipate or render obvious the allegedly missing limitation.

IV. IDENTIFICATION OF PRIOR ART

FOX contends that the following prior art anticipate and/or render obvious each asserted claim:

Prior Art	Country of Origin	Date of Filing/ Issue/Publication/ Sale/Public Use/Public Availability	Applicable Statutory Grounds for Invalidity
FOX Float Ti Fork ("FOX Ti Fork")	US	At least as early as September 2010	35 U.S.C. §§ 102(a), 103
US 2010/0259028 ("Moechnig")	US	October 14, 2010	35 U.S.C. §§ 102(a), 103
DE 196 29 740 ("Denk")	Germany	January 29, 1998	35 U.S.C. §§ 102(a), 103
GB 287,452 ("Valat")	UK	August 9, 1928	35 U.S.C. §§ 102(a), 103
US 7,503,576 ("Schroeder")	US	March 17, 2009	35 U.S.C. §§ 102(a), 103
EP0063719 ("Campagnolo")	EP	November 3, 1982	35 U.S.C. §§ 102(a), 103
FOX Float RL Rear Shock	US	At least as early as September 2003	35 U.S.C. §§ 102(b), 103 (pre-AIA)
US 6,360,857 ("Fox")	US	March 26, 2002	35 U.S.C. §§ 102(b), 103 (pre-AIA)
JP2516279 ("JP279")	Japan	November 6, 1996	35 U.S.C. §§ 102(b), 103 (pre-AIA)
US 5,597,054 ("Nagai")	US	January 28, 1997	35 U.S.C. §§ 102(b), 103 (pre-AIA)
US 6,491,146 ("Yi")	US	December 10, 2002	35 U.S.C. §§ 102(b), 103 (pre-AIA)

US 7,097,014	US	June 4, 2004	35 U.S.C. §§ 102(e), 103 (pre-AIA)
US 2003/0019701	US	January 30, 2003	35 U.S.C. §§ 102(b), 103 (pre-AIA)

V. STATEMENT OF WHETHER PRIOR ART ANTICIPATES OR RENDERS OBVIOUS THE ASSERTED CLAIMS

FOX states that the following identified prior art anticipate or render obvious the asserted claims. The claim charts in Exhibits 1-6 identify how the prior art listed above correlates with the limitations in each of the asserted claim. The charts cite exemplary portions of the prior-art references that disclose particular limitations of the asserted claims; the citations are illustrative and informative, not exhaustive, and should not be construed as limiting. FOX intends to rely on each reference in its entirety, including uncited portions. One of ordinary skill in the art would read a prior art reference as a whole and in the context of the state of the art. Therefore, FOX may rely on uncited portions of the prior art references, other publications, and the general state of the art to aid the understanding of the cited portions of the prior art references and to establish the motivation to modify or combine the cited references.

Moreover, the charts are based on FOX's present understanding of the meaning and scope of the claims and SRAM's apparent interpretation of claim

element (which FOX does not necessarily agree with). As discussed below, several claim terms/limitations of the asserted claims are indefinite, and FOX's mapping of prior art to the asserted claims does not admit or suggest that the claim limitations are not indefinite (nor should any such inference be drawn). Nor does FOX's mapping of prior art to the asserted claims imply that FOX should be able to determine infringement/non-infringement of indefinite claims by accused FOX instrumentalities (nor should any such inference be drawn).

A. The '993 patent

Asserted Claims	Grounds for Invalidity	Exhibit No.
1–4, 6, 8, 10, 12, 14–18, 20, 22, 24, 26–29, 31, 33–38, 40, 42, 44, 46–49, 51, 53, and 56–64	Anticipated by Valat, or Rendered Obvious by Valat Alone or in View of One or More of Moechnig, Schroeder, and Campagnolo	1
1–4, 6, 8, 10, 12, 14–18, 20, 22, 24, 26–29, 31, 33–38, 40, 42, 44, 46–49, 51, 53, and 56–64	Anticipated by Denk, or Rendered Obvious by Denk Alone or in View of One or More of Moechnig, Schroeder, and Campagnolo	2
1–4, 6, 8, 10, 12, 14–18, 20, 22, 24, 26–29, 31, 33–38, 40, 42, 44,	Anticipated by FOX Float Ti Fork, or Rendered Obvious by FOX Float Ti Fork Alone or in View of One or More of Denk,	3

46–49, 51, 53, and 56–64	Moechnig, Schroeder, and Campagnolo	
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B. The '207 patent

Asserted Claims	Grounds for Invalidity	Exhibit No.
1–3, 7, 8, and 10–12	Anticipated by Fox, or Rendered Obvious by Fox Alone or in View of One or More of Yi and Nagai	4
1–3, 7, 8, and 10–12	Anticipated by Yi, or Rendered Obvious by Yi Alone or in View of One or More of JP279 and Nagai	5
1–3, 7, 8, and 10–12	Anticipated by FOX Float RL, or Rendered Obvious by FOX Float RL Alone or in View of One or More of Yi and Nagai	6

Exhibits 3 and 6 map the asserted claims to confidential engineering drawings of the FOX Float Ti Fork and FOX Float RL rear shock, respectively, for illustrative purposes only. FOX is relying on the devices themselves as prior art in Exhibits 3 and 6, and not any drawings or publications of the FOX Float Ti Fork and FOX Float RL rear shock.

To the extent the above-cited prior art, alone or in the combinations indicated, lacks any specific limitation exactly, the claims are obvious over the prior art under the following standard from the Supreme Court:

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR International Co. v. Teleflex Inc., 550 U.S. 398, 421 (2007).

With regard to the proposed combinations, the following standard applies:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417.

All of the combinations set forth above involve references in the same field attempting to solve the same problems.

VI. GROUNDS OF INVALIDITY BASED ON 35 U.S.C. § 112

A. Indefiniteness

35 U.S.C. § 112(b) and 35 U.S.C. § 112, ¶2 (pre-AIA) require that a patent “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter” which the applicant regards as his invention. The primary function of this requirement is to ensure that the language of a patent claim is sufficiently “definite” to inform the public of the boundaries of the protected invention. A lack of definiteness renders a patent claim invalid. “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

Several claim limitations of the Asserted Patents fail to meet this standard, thereby rendering the claims (and the claims that depend therefrom) invalid as indefinite under § 112(b) or § 112, ¶2 (pre-AIA).

B. Lack of Written Description

To meet the written description requirement under 35 U.S.C. § 112(a) and 35 U.S.C. § 112, ¶1 (pre-AIA), the specification must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought, [the inventor] was

in possession of the invention.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991); *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351–52 (Fed. Cir. 2010) (citations omitted). The Federal Circuit has also explained that a specification cannot support expansive claim language and satisfy the §112 written description requirement “merely by clearly describing one embodiment of the thing claimed.” *LizardTech v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1346 (Fed. Cir. 2005) (claims to a generic method of making a seamless discrete wavelet transformation (DWT) were held invalid under §112, ¶1 because the specification taught only one particular method for making a seamless DWT and there was no evidence that the specification contemplated a more generic method).

Several claim limitations of the Asserted Patents fail to meet these standards, thereby rendering the claims (and the claims that depend therefrom) invalid for lack of written description under § 112(a) or §112, ¶1 (pre-AIA).

C. The '993 Patent

The claim limitation “a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle” in independent claims 1, 61, and 64 is indefinite because the meaning and scope of this limitation cannot be determined with “reasonable

certainty” by a person skilled in the art. *Nautilus*, 134 S. Ct. at 2124. Specifically, a person skilled in the art would not be able to reasonably determine, based on the claim language and/or the specification, whether the wall thickness of the steerer tube body must vary continuously or linearly throughout the cross-section of tube body, or whether the thickness must vary at only two or more points (not continuously) on an inner cross-section of the tube body. Moreover, the meaning of the phrase “a function of the cross-sectional angle of the point relative to the plane of travel” is unclear and cannot be reasonably understood by one skilled in the art. Accordingly, asserted independent claims 1, 61, and 64, and each of the asserted dependent claims that depend from claim 1 or 61, are invalid as indefinite.

Moreover, the claim limitation “a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle” in independent claims 1, 61, and 64 is not fully disclosed in the ’993 patent, and thus impermissibly broadens the scope of the claim. The specification and drawings teach only one embodiment of the claimed invention in which an inner cross-sectional contour of the lower section of the steerer tube body is elliptical. There is no disclosure in the ’993 patent that supports a broadened definition/scope of this limitation that encompasses

embodiments where the thickness varies at only two or more points (not continuously) on an inner cross-section of the tube body. *LizardTech*, 424 F.3d at 1346. Accordingly, asserted independent claims 1, 61, and 64, and each of the asserted dependent claims that depend from claim 1 or 61, are invalid for lack of written description.

D. The '207 Patent

The claim term “operatively connected” in claims 1, 2, 7, and 11 is indefinite because the meaning and scope of this term cannot be determined with “reasonable certainty” by a person skilled in the art. *Nautilus*, 134 S. Ct. at 2124. Specifically, a person skilled in the art would not be able to reasonably understand or determine whether two elements must be physically or functionally connected to fall within the scope of the claims. Nor would a person skilled in the art be able to reasonably understand whether two elements must be directly or indirectly connected to meet this claim requirement. Accordingly, the asserted claims 1, 2, 7, and 11, and the asserted claims that depend therefrom, are invalid as indefinite. Moreover, this claim term lacks written description support because nowhere does the specification or the drawings describe “operatively connect[ing]” two or more claim elements. Therefore, claims 1, 2, 7, and 11, and the asserted claims that depend therefrom, are also invalid for lack of written description.

The claim limitation “the cam surfaces are disposed substantially parallel to the camshaft axis” in claim 8, and the limitation “the cam surfaces disposed substantially parallel to the axis of the camshaft” in claim 10, are indefinite because the meaning and scope of these claim limitations cannot be determined with “reasonable certainty” by a person skilled in the art. *Nautilus*, 134 S. Ct. at 2124. Specifically, a person skilled in the art would not be able to reasonably understand or determine how a surface can be “substantially parallel” to an axis. Accordingly, claims 8 and 10, and claim 11 that depends from claim 10, are invalid as indefinite. Moreover, these claim terms lack written description support because nowhere does the specification or the drawings describe a single embodiment that meets all claim requirements, including cam surfaces that are “substantially parallel” to the camshaft axis. Therefore, claims 8 and 10, and claim 11 that depends from claim 10, are also invalid for lack of written description.

The limitation in independent claim 1, namely, “an adjuster assembly operatively connected to the valve assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly,” is indefinite because the meaning and scope of this limitation cannot be determined with “reasonable certainty” by a

person skilled in the art. *Nautilus*, 134 S. Ct. at 2124. Specifically, in the case of a device having three or more adjustment positions of the valve actuating assembly, a person skilled in the art would not be able to reasonably understand or determine whether adjustment of damping characteristics in one position leaves the damping characteristics of each of the other positions unaffected, or whether adjustment of damping characteristics in one position leaves the damping characteristics of only one or some (but not all) of the other positions unaffected. Accordingly, independent claim 1, and the asserted claims that depend from claim 1, are invalid as indefinite.

Moreover, this claim limitation (“an adjuster assembly operatively connected to the valve assembly for adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly”) impermissibly broadens the scope of claim 1 (and its dependent claims) beyond what is disclosed and supported by the specification. The specification and drawings teach only embodiments having three positions of the valve actuating assembly. There is no disclosure in the ’207 patent that supports a broadened scope that encompasses embodiments having only two adjustment positions, or more than three positions. Accordingly, independent claim

1, and the asserted claims that depend from claim 1, are invalid for lack of written description.

Dated: June 16, 2023

Respectfully submitted,

/s/ Arpita Bhattacharyya

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CERTIFICATE OF COMPLIANCE

Pursuant to Local Rule 7.1(D), counsel for Defendant FOX Factory, Inc. certifies that the foregoing was prepared in 14-point Times New Roman font and otherwise conforms to the requirements of Local Rule 5.1.

/s/Arpita Bhattacharyya

Arpita Bhattacharyya

CERTIFICATE OF SERVICE

I, Arpita Bhattacharyya, hereby certify that on June 16, 2023, a true and correct copy of the following document(s):

FOX FACTORY, INC.'S PRELIMINARY INVALIDITY CONTENTIONS; EXHIBITS 1-6

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I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Executed at Palo Alto, California, on June 16, 2023.

/s/ Arpita Bhattacharyya
Arpita Bhattacharyya

Exhibit

1

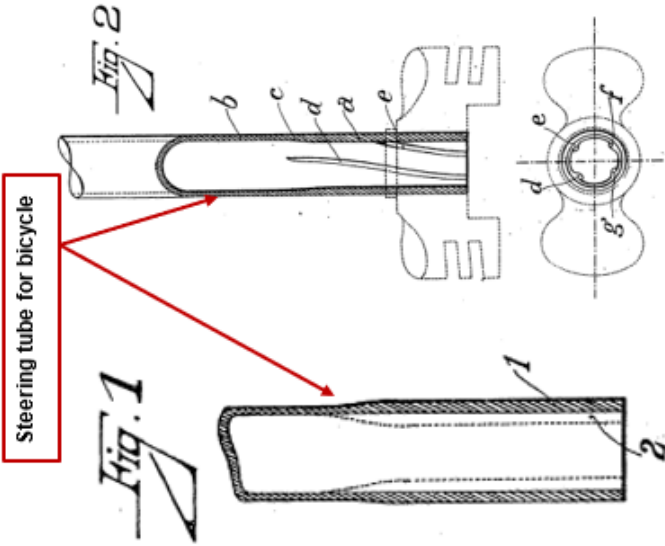
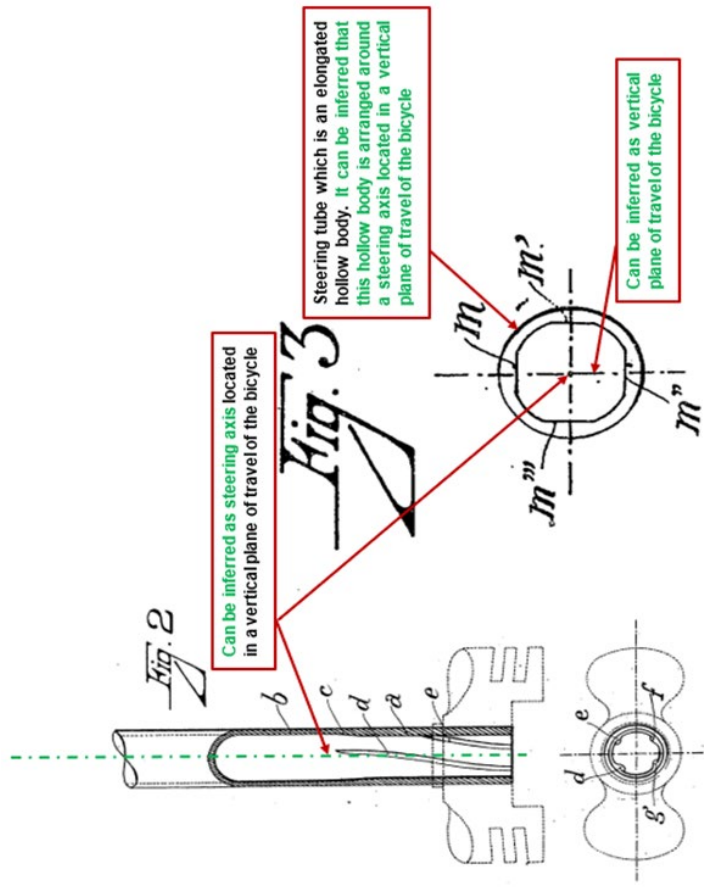
Claim No.	'993 Patent	Valat in View of One or More of Moechnig, Schroeder, and Campagnolo Renders the Claims Obvious
1	A steerer tube for a bicycle, the steerer tube comprising:	Valat discloses a steerer tube for a bicycle. Valat, ll. 44-54 (“Among the parts of a bicycle, motor assisted cycle, or motor cycle most dangerously loaded the steering tube may be cited, particularly on its perimeter at entry to the fork bridge. It is frequently in this region that fractures commence, which are rapidly transferred into complete failures. For this reason the drawings accompanying the present specification show more particularly this steering tube”); Valat Figs. 1 and 2 (depicted below).  Moechnig also discloses a steerer tube for a bicycle. Moechnig at Title, Abstract, ¶[0001].

Exhibit 1 – Invalidity of U.S. Patent No. 10,328,993

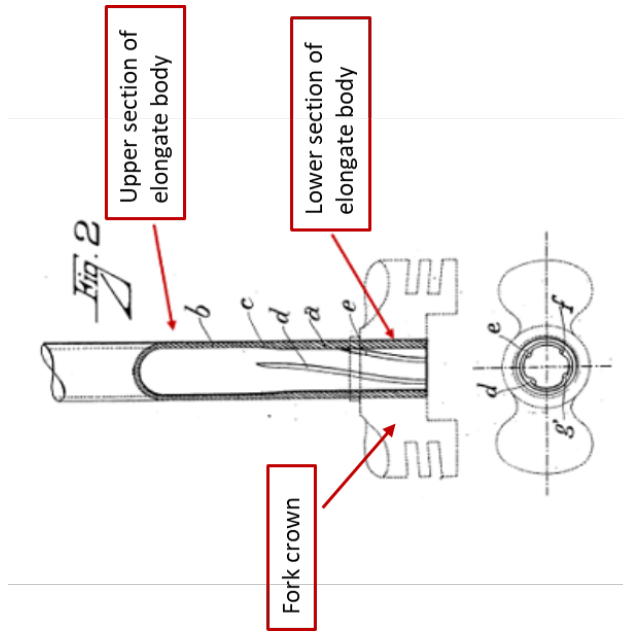
1a	an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	Valat discloses a steering tube having an elongate hollow body. Valat, ll. 22-26 (“It has already been proposed to provide drawn seamless tubes with internal helical ribs of long pitch, the ribs being produced in the drawing process by means of the dies used.”); Valat, Figs. 1 and 2 (showing steering tube having an elongate hollow body).  Although Valat does not explicit disclose that the elongate hollow body of the steering tube is arranged around a steering axis located in a vertical plane of travel of the bicycle, it is well known and inherent that the steering tube of a bicycle would be arranged around the bicycle’s steering axis, which lies in a vertical plane of travel of the bicycle, in order to steer the bicycle. Indeed, the ’993 patent discloses in the “Background of the Invention Section,” which is admitted prior art, that in a “conventional bicycle (a mountain bike [as] shown at 100 in FIG. 1)” a steerer tube 200 “is disposed along . . . steering axis X,” which “is within the plane of travel P” of the bicycle. ’933 patent. 1:8-22. Thus, the requirement that the steerer tube be “arranged around a steering axis located in a
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	vertical plane of travel of the bicycle” is inherently disclosed by Valat and is also admitted as prior art in the ’993 patent. Moreover, Moechnig also discloses a steerer tube having an elongate body arranged around a steering axis located in a vertical plane of travel of the bicycle. <i>See</i> Moechnig, Figs. 2 and 3 (showing steerer tube 30 having an elongate body 110 arranged around longitudinal axis 140), ¶[0035] (“Radially asymmetric portion 114 tapers inward relative to a longitudinal axis 140, indicated by the intersection of longitudinal and lateral diameters 120, 130 as shown in FIG. 4, of body 100 as it extends from lower radial portion 106 toward upper radial portion 110.”), ¶[0027] (“[H]andlebar 18 is attached to bicycle 10 such that rotation of handlebar 18 rotates fork crown 32 about a longitudinal axis of steerer tube 30 and/or head tube 28.”). Moechnig also discloses that body 100 may be hollow. Moechnig, Fig. 4 (showing body 100 being hollow); ¶[0045] (“Steerer tube 30 includes an optional cavity 206 formed in body 100. Optional cavity 206 can extend a majority of the length of steerer tube 30 and provides a lighter steerer assembly 16. Such a construction forms a steerer tube wall 208 that has a thickness that is selected to withstand the loaded interaction between steerer tube 30 and head tube 28.”). A POSITA would have understood that the Valat steerer tube is also hollow because a solid (non-hollow) tube would have increased the weight of the steering assembly and the bicycle as a whole which is undesirable. <i>See</i> Valat, ll. 10-14 (discussing “a lighter weight machine”). A POSITA would also have known that Valat’s hollow steerer tube body is arranged around a steering axis located in a vertical plane of travel of the bicycle, as shown by Moechnig, to steer the bicycle around the plane of travel.
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1b	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section,	Valat discloses that the elongate hollow body of the steerer tube has an upper section and a lower section. Valat, ll. 70-78 (“Considering more particularly the steering tube shewn by way of example it should be mentioned that this tube which has the same external diameter over its whole length and is screw threaded at its upper end, generally has a greater thickness a at its lower end, where the loads are greatest, than in the upper part b. The junction is formed by a slight taper c.”). Fig. 1 and Fig. 2 illustrate the steering tube structure. Fig. 1 shows a side cross-section of the elongate hollow body with an upper section (b) and a lower section (e) joined at a junction (c). The upper section is labeled 'Upper section of elongate body' and the lower section is labeled 'Lower section of elongate body'. Fig. 2 shows a top-down view of the junction, with labels 'd', 'e', 'f', and 'g' indicating specific features of the transition. As shown in Figs. 1 and 2 of Valat above, the elongate hollow body of the steerer tube has an upper section and a lower section. In Valat’s Fig. 1 embodiment, the steerer tube has a greater outer diameter in the first lower section relative to the upper section Whereas, in the Fig. 2 embodiment, both the upper and lower sections have the same external diameter. Also, as shown in Figs. 1 and 2 above, the upper and lower sections of the elongate body are joined. See <i>also</i> Valat, ll. 77-78 (“The junction is formed by a slight taper c.”).
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Exhibit 1 – Invalidity of U.S. Patent No. 10,328,993

Valat also discloses that a segment of the lower section is adapted to be joined to a crown (i.e., a fork bridge) of a front wheel fork of the bicycle. Valat, ll. 61-63 (“Figure 2 shows the finished tube mounted on a fork bridge, with helical reinforcements of long pitch.”); Valat, Fig. 2 (showing a segment of the lower section of the steerer tube as joined to a fork bridge/crown).



Although Valat does not explicitly disclose that a segment of the upper section is adapted to be joined to a bicycle handlebar, it is inherent that a segment of the upper section of the elongate body would be attached to the handlebar to perform the steering function. Indeed, the '993 patent discloses in the “Background of the Invention Section,” which is admitted prior art, that “handlebar 104 is affixed in some fashion (as by a star nut, not shown) to an upper end 212 of the steerer tube, and permits the rider to impart torque to the steerer tube 200, the fork 110 and the front wheel 102, which in response rotate around the steering axis X as a unit.” ’993 patent, 1:26-31. Thus, the requirement that a segment of the upper section of the steerer tube be attached to the handlebar is inherently disclosed by Valat and is also admitted as prior art in the ’993 patent.

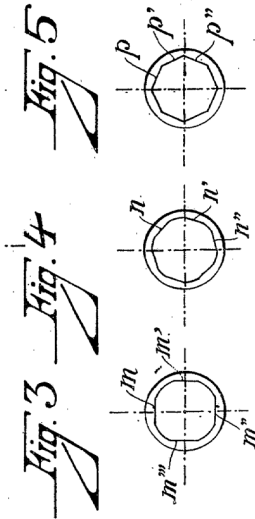
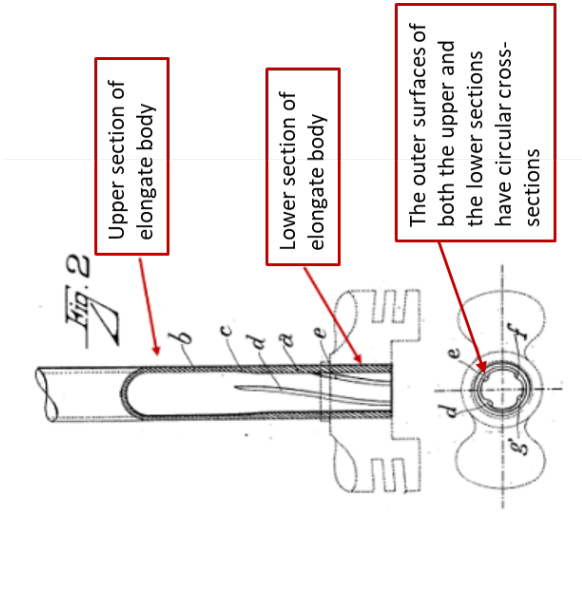
Exhibit 1 – Invalidity of U.S. Patent No. 10,328,993

	Moreover, Moechnig also discloses that body 100 of steerer tube 30 includes a first or lower radial portion 106 and a radial asymmetric portion 108, which collectively form a “lower section,” and a second or upper radial portion 110 (an “upper section”). Moechnig, ¶[0035]. The “upper section” and “lower section” of body 100 are joined. <i>See id.</i> at Figs. 2 and 3. The “upper section” of body 100 is adapted to be joined to a bicycle handlebar. <i>See id.</i> at ¶[0003] (“A stem and handlebar are commonly engaged with the steerer tube . . .”), ¶[0026] (“Handlebars 18 are connected to a stem or steerer tube 30 that passes through head tube 28 and is rotationally supported thereby. A fork crown 32 extends in a downward direction relative to head tube 28 and is constructed to form or support a pair of forks, fork blades or fork legs 34 that generally flank a front wheel assembly 36. Handlebar 18 may include a stem that is constructed to slidably engage an interior cavity of steerer tube 30.”). The “lower section” of body 100 is adapted to be joined to a crown of a front wheel fork of the bicycle. Moechnig, Figs. 2 and 3; ¶[0002], [0027] (“Steerer tube 30 may be secured to fork crown 32 or may be formed integrally therewith.”). Accordingly, a POSITA would have known that a segment of the upper section of Valat’s steerer tube is adapted to be joined to a bicycle handlebar, a segment of the lower section of Valat’s steerer tube is adapted to be joined to a crown of a front wheel fork of the bicycle.
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1c

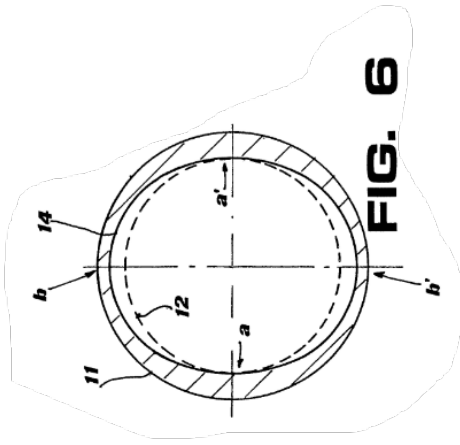
outer surfaces of the upper and lower sections of the body being circular in cross section, and

Valat discloses that the outer surfaces of the upper and the lower sections of the elongate body are circular in cross section. Valat, Fig. 1 and Fig. 2 (annotated below); Valat Figs 3-5 also show that the outer surface of the entire elongate body is circular in cross-section.



1d	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	Valat discloses that the elongate body is formed by a wall. See Valat, Figs. 1 and 2. Valat also discloses that a thickness of the wall at any point in the lower section of the body varies as a function of the cross-sectional angle of the point relative to the plane of travel. Valat, ll. 64-66 (“Finally Figures 3, 4 and 5 show cross sections of tubes with various arrangements of reinforcement.”); <i>id.</i> at 79-95 (“The present invention in this embodiment consists in giving this tube in its lowest part interior reinforcements such as d e f g which can be straight and parallel with the axis of the tube, or better directed along a helix of very long pitch and having the same axis as the tube itself. These reinforcements die away towards the change in internal diameter since from here on the tube has no further need of an addition in solidity and rigidity. It should be understood that these reinforcements can be provided in any number, of larger or smaller section either projecting into the interior of the tube or bounded by chords across its internal perimeter.”) See <i>also</i> Valat, p. 2, ll. 5-6 (“In Figure 3 the reinforcements are bounded by the perpendiculars to the diagonals of a square at m, m', m'', m'''”). In Figure 4 they are bounded by perpendiculars to the bisectors of the angles of a regular hexagon at n, n' . . . Finally, in Figure 5 these reinforcements are bounded by the sides of a regular octagon p, p' . . .”)
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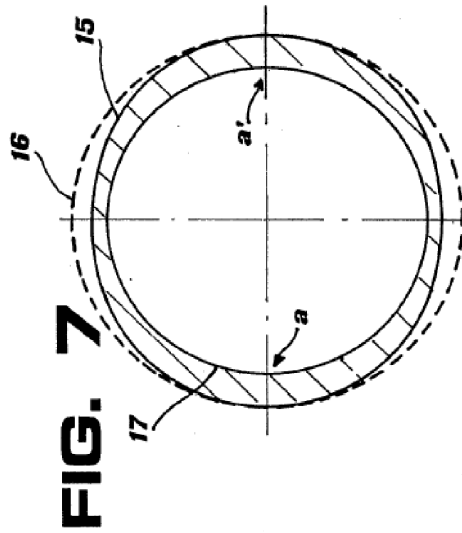
	Thus, Valat discloses that the wall thickness of the elongate body at any point in the lower section varies as a function of the cross-sectional angle of the point relative to the plane of travel. For example, in Figure 3 of Valat, the wall thickness at any point varies because the internal perimeter of the wall is a square with rounded corner. Moreover, Valat discloses that the wall thickness is maximum in the plane of travel of the bicycle. See Valat, Fig. 3. Moreover, it is well known to have bicycle frame elements, i.e., bicycle tube structures, of variable thickness walls to improve stiffness and strength while ensuring lightness. Campagnolo, 1:23-29, 2:32-3:7, 3:17-25. It would have been obvious to a POSITA to have bicycle steerer tubes of variable thickness wall to improve strength of the steerer tube and prevent failure. See Valat, ll. 10-14, 44-51. In particular, Campagnolo teaches a bicycle tube having “two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas <u>a</u> and <u>a'</u> positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known to have the areas <u>a</u> and <u>a'</u> of maximum thickness in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas <u>b</u> and <u>b'</u> of minimum thickness orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses.



A POSITA would have been motivated to modify Valat in view of the teachings of Campagnolo to have the wall thickness of Valat's steerer body at any point in the lower section vary continuously/linearly as a function of the cross-sectional angle of the point relative to the plane of travel. For example, in the Valat embodiment shown in Figure 3, the wall thickness at any point varies because the internal perimeter of the wall is a square with rounded corners. A POSITA would have been motivated to improve the Valat design by having the internal perimeter of the wall be an ellipse, as shown in Campagnolo Figure 6, such that the transition in wall thickness is smooth, continuous, and without any sharp turns/corners which may add stresses. A POSITA would also have known that it would be easier to manufacture a steerer tube with an elliptical inner wall in a portion thereof as compared to a steerer tube with a square inner wall.

Similarly, a POSITA would have known from Campagnolo's Figure 7 that reinforcements could be added to the interior of the lower section (106, 108) of Moechnig's steerer tube body in the plane of travel to improve the strength of the steerer tube in the plane of travel where the stresses are highest. In such a design, the wall thickness of Moechnig's steerer body at any point in the lower section would vary continuously/linearly as a function of the cross-sectional angle of the point relative to the plane of travel. *See* Campagnolo, Fig. 7 (depicted below); Campagnolo, 7:14-23 ("In the embodiment of figure 7 the tube structure according to the invention has a section with a design inverted in respect to that of the embodiment shown in figure 6, in the sense that the said section is outwardly defined by an ellipse 15 (instead of a circle 16) and inwardly defined by a circle 17,

centered in respect of the ellipse 15. While from the structural point of view the differences are negligible, from the point of view of external appearance the two tubes are rather different. Furthermore, in the tube of figure 7, **the areas a and a' of maximum thickness appear quite evident from the outside**, which may in certain cases be helpful for mounting purposes.”).



Accordingly, a POSITA would have been motivated to modify Valat’s steerer tube in view of Campagnolo’s teachings to have an elliptical inner wall (as shown in Campagnolo Figure 6) in the lower section of the tube body to improve the strength of the steerer tube. Alternatively, a POSITA would have been motivated to modify Moechnig’s steerer tube in view of Campagnolo’s teachings to have a reinforced elliptical inner wall (as shown in Campagnolo Figure 7) in the lower section of the tube body to improve the strength of the steerer tube. In the modified Moechnig design, the inner cross sectional contour in the lower section of the tube would continue to be elliptical (as in the original Moechnig design), however the minor diameter would be lower because of the reinforcements added to the tube in the plane of travel. In either modification, a thickness of the wall at any point in the lower section of the steerer tube body of Valat or Moechnig would vary as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel.

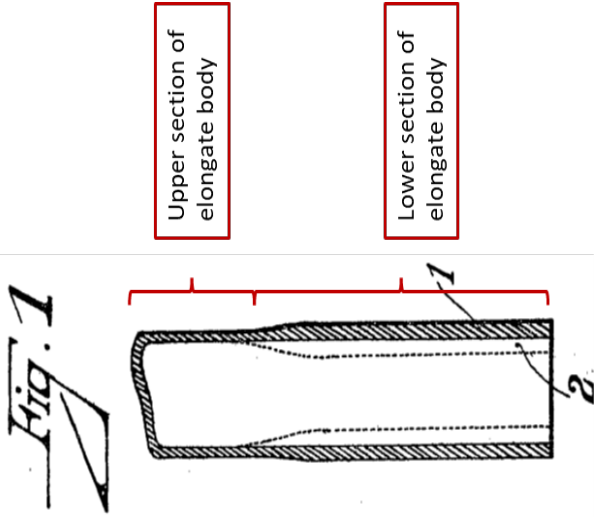
2	The steerer tube of claim 1, wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	Valat discloses that an outer diameter of the lower section of the elongate body of the steerer tube is greater than an outer diameter of the upper section of the body. See Valat, ll. 102-105 (“As shown in Figure 1 for example a tube is chosen of greater external diameter in the part 1 where the reinforcements 2 are to be formed.”); Fig. 1 (showing the lower section of the steerer tube body having a greater outer diameter than an upper section of the body).  Moechnig also discloses that an outer diameter of the lower section of the elongate body of the steerer tube is greater than an outer diameter of the upper section of the body. See Moechnig, Abstract, ¶¶[0010], [0035], Figs. 2 and 3. Specifically, Moechnig discloses that body 100 of steerer tube 30 includes a first or lower radial portion 106 and a radial asymmetric portion 108, which collectively form a “lower section,” and a second or upper radial portion 110 (an “upper section”). Moechnig, ¶[0035]. And as shown in Moechnig’s Figs. 2 and 3, longitudinal and lateral diameters 120, 130 of radial asymmetric portion 108 of steerer tube body 100, as well as longitudinal and lateral diameters of lower radial portion 106, are greater than the diameters of the upper radial portion 110. Accordingly, Moechnig discloses that an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.
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3	The steerer tube of claim 2, wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	Valat discloses that the lower section of the elongate body of the steerer tube has first and second portions, with the first portion adjoining the upper section of the body, and wherein an outer diameter of the first portion of the lower section is greater than an outer diameter of the upper section of the elongate body and less than an outer diameter of the second portion of the lower section. <i>See</i> Valat, Fig. 1 (showing the lower section of the steerer tube body has a first tapered portion, such that an outer diameter of the first portion of the lower section is greater than an outer diameter of the upper section of the elongate body and less than an outer diameter of a second portion of the lower section). Moechnig also discloses that the lower section of the elongate body of the steerer tube has first and second portions, with the first portion adjoining the upper section of the body, and wherein an outer diameter of the first portion of the lower section is greater than an outer diameter of the upper section of the elongate body and less than an outer diameter of the second portion of the lower section. <i>See</i> Moechnig, Figs. 2 and 3 (showing the lower section of the steerer tube body 100 has a first portion (radially asymmetric portion 108), such that an outer diameter of the tapered first portion of the lower section is greater than an outer diameter of the upper section (upper radial portion 110) and less than an outer diameter of a second portion (lower radial portion 106) of the lower section).
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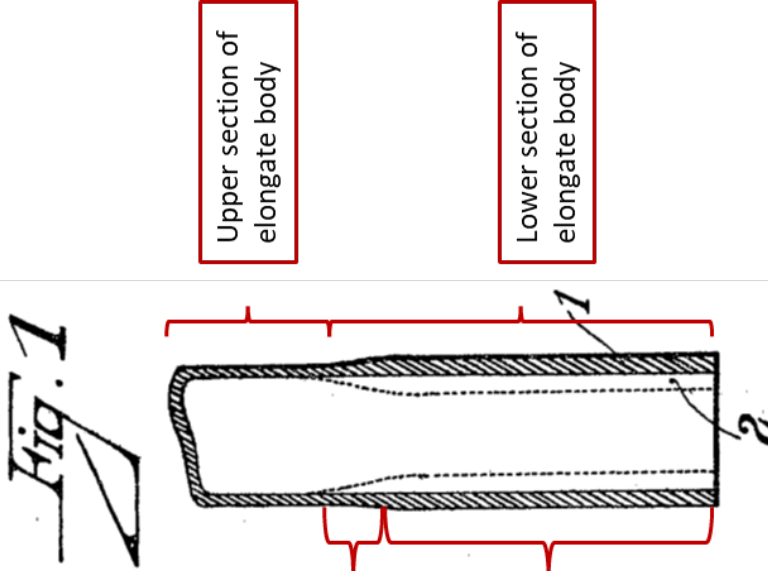
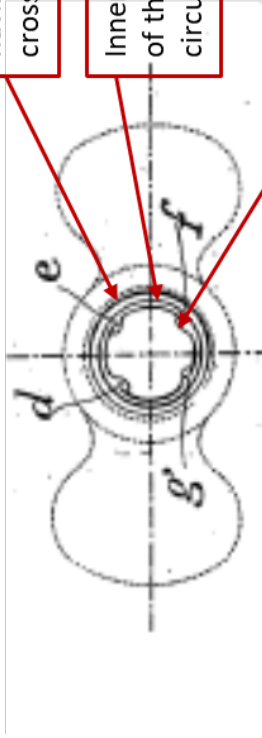
4	The steerer tube of claim 3, wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body.	Valat discloses that the outer diameter of the first portion of the lower section of the elongate body of the steerer tube gradually tapers from the second portion of the lower section to the upper section of the body. See Valat, Fig. 1 (showing that the first portion of the lower section of the steerer tube body is tapered from the second portion of the lower section to the upper section).  Moechnig also discloses that the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body. See Moechnig, Figs. 2 and 3 (showing the lower section of the steerer tube body 100 has a first portion (radially asymmetric portion 108) gradually tapers from the second portion (lower radial portion 106) of the lower section to the upper section (upper radial portion 110)); ¶¶[0035], [0036].
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6	The steerer tube of claim 4, wherein an inner surface of the upper section is circular in cross section.	Valat teaches adding reinforcements to the lower section of the elongate hollow body of the steerer tube. <i>See</i> discussion of claim 1, above. While the reinforcements change the cross-section of the lower section, a POSITA would understand that the inner surface of the upper section is circular in cross section because the upper section has no reinforcements. Additionally, Figure 2 shows that the inner surface of the upper section is circular in cross section, as annotated below.  Outer surface of the steerer tube body having a circular cross-section Inner surface of the upper section of the steerer tube body having a circular cross-section Inner surface of the lower section of the steerer tube body having reinforcements Moechnig also discloses that an inner surface of the upper section is circular in cross section. Specifically, Moechnig teaches that the upper section 110 is “radial” and has a radial diameter 124, which would suggest to one skilled in the art that an inner surface of the upper radial portion 110 is circular in cross section. Moechnig, ¶¶[0035], [0036] [0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”)
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8	The steerer tube of claim 6, wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	Valat in view of Campagnolo discloses that a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95. Specifically, Campagnolo teaches a bicycle tube having “two areas $\underline{a}$ and $\underline{a'}$ of maximum thickness and two areas $\underline{b}$ and $\underline{b'}$ of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas $\underline{a}$ and $\underline{a'}$ positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known that the upper section of Valat’s steerer tube is akin to a conventional bicycle tube, and thus the inner circle 12 in Campagnolo’s Figure 6 defines an inner diameter of the upper section and the outer circle 11 defines an outer diameter of the upper section in Valat’s steerer tube. From Figure 6 in Campagnolo, a POSITA would also have known that a ratio of the inner to outer diameters of Campagnolo’s conventional tube, i.e., upper section of Valat’s steerer tube, is about 0.79. Thus, Campagnolo teaches that a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95. Moreover, a POSITA would have known to keep the thickness of the steerer tube wall low in order to have a lightweight steerer tube and thereby a lighter weight bicycle. Moechnig, ¶[0045] (“Steerer tube 30 includes an optional cavity 206 formed in body 100. Optional cavity 206 can extend a
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		majority of the length of steerer tube 30 and provides a lighter steerer assembly 16. Such a construction forms a steerer tube wall 208 that has a thickness that is selected to withstand the loaded interaction between steerer tube 30 and head tube 28.”); Valat, ll. 10-14 (discussing “a lighter weight machine”). Thus, a POSITA would have known that a ratio of an inner diameter to an outer diameter of the upper section of the steerer tube body in the range of 0.75 to 0.95 is a viable design choice and an obvious-to-try design option to minimize the weight of the steerer tube. Moreover, a POSITA would have known to determine the ratio of an inner diameter to an outer diameter of the upper section of the steerer tube body through routine experimentation to optimize strength of the steerer tube while minimizing weight.
10	The steerer tube of claim 1, wherein an inner surface of the upper section is circular in cross section.	See claim 6.
12	The steerer tube of claim 10, wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

14	The steerer tube of claim 1, wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	Moechnig discloses that the steerer tube is formed from either aluminum or carbon fiber materials and/or composites. Moechnig, ¶[0027] (“Steerer tube 30 and fork crown 32 can be formed of a number of materials such as metal-type materials, such as aluminum, carbon-type materials, such as carbon fiber materials and/or composites, or combinations thereof. Steerer tube 30 may be secured to fork crown 32 or may be formed integrally therewith. Preferably, steerer tube 30 and fork crown 32 are formed of a carbon fiber material as one-piece.”); <i>see also id.</i> at ¶[0003], [0014]. A POSITA would have known that Valat’s steerer tube could have been made of aluminum or carbon fiber reinforced composite as these are commonly used materials for bicycle frames, steerer tubes, and other bicycle parts.
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15	The steerer tube of claim 1, wherein the wall thickness is at a minimum in a plane containing the steering axis and orthogonal to the plane of travel of the bicycle.	Valat in view of Campagnolo discloses that the wall thickness is at a minimum in a plane containing the steering axis and orthogonal to the plane of travel of the bicycle. Specifically, Campagnolo teaches a bicycle tube having “two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas <u>a</u> and <u>a'</u> positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known to have the areas <u>a</u> and <u>a'</u> of maximum thickness in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas <u>b</u> and <u>b'</u> of minimum thickness in a plane containing the steering axis and orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses.
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16	The steerer tube of claim 15 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
17	The steerer tube of claim 16 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

18	The steerer tube of claim 17, wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
20	The steerer tube of claim 18, wherein an inner surface of the upper section is circular in cross section.	See claim 6.

22	The steerer tube of claim 20 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.
24	The steerer tube of claim 15 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.
26	The steerer tube of claim 24 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

27	The steerer tube of claim 15 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
28	The steerer tube of claim 27 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

29	The steerer tube of claim 28 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
31	The steerer tube of claim 15 , wherein the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork.	Valat discloses that the steerer tube is mounted, i.e., joined, to a fork bridge/crown. Valat, 61-63, Fig. 2. Although Valat does not explicitly disclose that the materials of the steerer tube and fork crown are different, a POSITA would have known that steerer tube body may be formed of a material different from the fork crown as a matter of design choice. Moechnig, for example, discloses that “[a]nother aspect of the invention useable with one or more of the features disclosed above includes forming the fork crown and the steerer tube from the same material,” thus implicitly disclosing that the fork crown and steerer tube may also be formed of different materials. Moechnig, ¶[0014]. U.S. Patent No. 7,503,576 to Schroeder (“Schoreder”), for example, teaches molding together a steerer tube and fork crown made of different materials. <i>See, e.g.</i> , Schroeder at Title, 4:22-26 (“It has been discovered, according to the present invention, that if a bicycle fork assembly is comprised of a steering tube made of resin having carbon fiber composites molded into a crown made of aluminum , the bicycle fork will possess a better durability and shock absorbing capabilities.”).

33	The steerer tube of claim 15 , wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	See claim 14.
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34	The steerer tube of claim 15, wherein an inner surface of the wall within the lower section of the body is formed as an ellipse in cross section, a major diameter of the ellipse formed to be perpendicular to the plane of travel, a minor diameter of the ellipse formed to be in the plane of travel of the bicycle.	Valat teaches adding reinforcements to the lower section of the elongate hollow body of the steerer tube. <i>See</i> discussion of claim 1, above. Campagnolo further teaches bicycle frame tubes having a section outwardly defined by a circle and inwardly defined by an ellipse. Campagnolo, 3:17-25 (“[T]he present invention relates to a tube structure for bicycle or motorcycle frames, formed by a metallic tube having a section outwardly defined by a circle and inwardly defined by an ellipse (or oval/curve) with the focuses onto a diameter of said circle, and by a lining of fibers incorporated in resin, said lining being applied inside said metal tube and having a section outwardly defined by the said ellipse (or oval/curve) and inwardly defined by a second ellipse with the focuses aligned with those of the first ellipse.”); 5:3-5 (“As shown in figure 1 of the drawing, the tube 2 has its straight cross section outwardly defined by a circle C and inwardly defined by an ellipse E centered within the circle C.”). Based on the teachings of Campagnolo, and as discussed above, a POSITA would have known and understood that the steerer tube of Valat would have modified to have an inner elliptical cross section (as in Campagnolo) in the lower section where reinforcements are added. A POSITA would also have known to form the major diameter of the ellipse perpendicular to the plane of travel and a minor diameter of the ellipse to be in the plane of travel, so that the areas a and a' of maximum thickness are in the plane of travel of the bicycle (and the areas b and b' of minimum thickness are orthogonal to the plane of travel), because the stresses on the steerer tube are maximum in the plane of travel. Similarly, Moechnig (modified in view of Campagnolo’s Figure 7 to add reinforcements to the interior of the lower section (106, 108) of Moechnig’s steerer tube body in the plane of travel (see claim 1)) would also have an inner surface of the wall within the lower section of the body be formed as an ellipse in cross section, a major diameter of the ellipse formed to be perpendicular to the plane of travel, a minor diameter of the ellipse formed to be in the plane of travel of the bicycle.
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35	The steerer tube of claim 34 , wherein outer surfaces of the upper and lower sections of the body are circular in cross section.	See claim 1c.
36	The steerer tube of claim 35 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.

37	The steerer tube of claim 36, wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.
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38	The steerer tube of claim 37 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
40	The steerer tube of claim 38 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.

42	The steerer tube of claim 40 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.
44	The steerer tube of claim 34 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.
46	The steerer tube of claim 44 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

47	The steerer tube of claim 34 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
48	The steerer tube of claim 47 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

49	The steerer tube of claim 48 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
51	The steerer tube of claim 34 , wherein the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork.	See claim 31.

53	The steerer tube of claim 34, wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	See claim 14.
56	The steerer tube of claim 34, wherein the minor diameter decreases as a function of proximity to the upper section of the body.	Valat (modified in view of Campagnolo) and further in view of Moechnig discloses that the minor diameter (longitudinal diameter 120) decreases as a function of proximity to the upper section of the body (upper radial portion 110). Moechnig, Fig. 2 (showing longitudinal diameter 120 decreasing along the radially asymmetrical portion 108 as a function of proximity to the radial upper portion 110); ¶[0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”).

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57	The steerer tube of claim 34, wherein a ratio of the major diameter to the minor diameter taken at a lower end of the lower section is within the range of 1.05 to 1.3, inclusive.	Moechnig teaches that the widest major diameter (lateral diameter 130), i.e., the major diameter in lower end of the lower section (106, 108) is 1.559 in, and that the smallest minor diameter (lateral diameter 120), which is not less than radial diameter 124 of the upper portion 110, is 1.125 in. Moechnig, ¶[0040] (“[E]ach cross-section 141 [of oblong portion 108] includes a lateral diameter 130 that is larger than a longitudinal diameter 120. Preferably, longitudinal diameter 120 is not less than a diameter associated with upper radial portion 110. Although upper radial portion 110 could be provided in any of a number of sizes, upper radial portion 110 preferably has a diameter of about 1.125 inches or about 28.6 mm. Similarly, although lateral diameter 130 tapers from lower radial portion 106 to upper radial portion 110, and could be provided in a number of sizes, at it’s widest portion, lateral diameter 130 is approximately 1.559 inches or 39.6 mm[.]”). Therefore, a POSITA would have known that the widest minor diameter (longitudinal diameter 120) in the lower end of the lower section (106, 108) is greater than 1.125 in. but less than 1.559 in. Accordingly, a POSITA would have easily known that a ratio of the major diameter to the minor diameter could be in the range of 1.05 and 1.3. Moreover, Campagnolo discloses that a ratio of the major diameter to the minor diameter in the inner elliptical portion is within the range of 1.05 to 1.3. Campagnolo, Fig. 6 (showing a ratio of 1.22 (major diameter 5.5 cm ÷ minor diameter 4.5 cm). Accordingly, a POSITA would have known that the elliptical inner section at the widest part (i.e., lower end) of the lower portion of Moechnig’s steerer tube body (or Valat’s steerer tube body modified in view of Campagnolo and Moechnig) could also have a ratio of the major diameter to the minor diameter equal to 1.22, i.e., in the range of 1.05 to 1.3. Moreover, a POSITA would have known to determine the ratio of the major diameter to the minor diameter through routine experimentation to optimize strength of the steerer tube while minimizing weight.
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58	The steerer tube of claim 57, wherein the ratio is within the range of 1.10 to 1.25, inclusive.	Campagnolo discloses that a ratio of the major diameter to the minor diameter in the inner elliptical portion is within the range of 1.10 to 1.25. Campagnolo, Fig. 6 (showing a ratio of 1.22 (major diameter 5.5 cm ÷ minor diameter 4.5 cm). Accordingly, a POSITA would have known that the elliptical inner section of the lower portion of Moechnig's steerer tube body (or Valat's steerer tube body modified in view of Campagnolo and Moechnig) could also have a ratio of the major diameter to the minor diameter equal to 1.22, i.e., in the range of 1.10 to 1.25. Moreover, a POSITA would have known to determine the ratio of the major diameter to the minor diameter through routine experimentation to optimize strength of the steerer tube while minimizing weight.
59	The steerer tube of claim 34, wherein the major diameter of the lower section tapers from the second portion of the lower section to the first portion of the lower section.	Moechnig discloses that the major diameter (lateral diameter 130) decreases, i.e., tapers, from the second portion of the lower section (106) to the first portion of the lower section (108) as a function of proximity to the upper section of the body (upper radial portion 110). Moechnig, Fig. 3 (showing lateral diameter 130 decreasing along the radially asymmetrical portion 108 as a function of proximity to the radial upper portion 110); ¶[0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”). Accordingly, a POSITA would have known that Valat's steerer tube (in view of Moechnig) would also have a major diameter of the lower section taper from the second portion of the lower section to the first portion of the lower section.

60	The steerer tube of claim 34, wherein a ratio of the major diameter to the minor diameter decreases as a function of proximity to the upper section of the body.	Moechnig discloses that a ratio of the major diameter to the minor diameter decreases as a function of proximity to the upper section of the body. Specifically, Moechnig discloses that steerer tube “body 100 includes a lateral diameter, indicated by arrow 130, that transitions from first radial portion 106 to upper radial portion 110. . . . Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.” Moechnig, ¶[0038]. Lateral diameter 130 is the “major diameter” of the radially asymmetric (oblong) portion 108, and longitudinal diameter 120 is the “minor diameter” of portion 108. <i>See id.</i> at Fig. 4, ¶¶[0036], [0038], [0040]. Moechnig further discloses that the upper radial portion 110 has a circular cross section having a radial diameter 124, which is about 1.125 inches. Moechnig, ¶¶[0035], [0036], [0038], [0040]. Thus, the ratio of the major diameter to the minor diameter at the uppermost end of radially asymmetrical portion 108 (before transitioning to radial upper portion 110) is approximately 1. And as discussed with respect to claims 57 and 58, a POSITA would have known that the lower portion of radially asymmetric section 108 of Valat’s steerer tube body (in view of Moechnig) could have a ratio of the major diameter to the minor diameter equal to 1.22. <i>Id.</i> at ¶[0040]. A POSITA would thus have known from this disclosure of Moechnig that a ratio of the major diameter to the minor diameter decreases (ratio decreasing from 1.22 to 1) as a function of proximity to the upper section of the body.
61	A steerer tube for a bicycle, the steerer tube comprising: an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	See claim element 1[pre]. See claim element 1a.

	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section,	See claim element 1b.
	and an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body, and	See claim 2.

	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	See claim element 1d.
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62	The steerer tube of claim 61, wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.
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63	The steerer tube of claim 62, wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body.	See claim 4.
64	A steerer tube for a bicycle, the steerer tube comprising: an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	See claim element 1[pre]. See claim element 1a.

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	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section, and	See claim element 1b.
	the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork, and	Valat discloses that the steerer tube is mounted, i.e., joined, to a fork bridge/crown. Valat, 61-63, Fig. 2. Although Valat does not explicitly disclose that the materials of the steerer tube and fork crown are different, a POSITA would have known that steerer tube body may be formed of a material different from the fork crown as a matter of design choice. Moechnig, for example, discloses that “[a]nother aspect of the invention useable with one or more of the features disclosed above includes forming the fork crown and the steerer tube from the same material,” thus implicitly disclosing that the fork crown and steerer tube may also be formed of different materials. Moechnig, ¶[0014]. U.S. Patent No. 7,503,576 to Schroeder (“Schroeder”), for example, teaches molding together a steerer tube and fork crown made of different materials. <i>See, e.g.</i>, Schroeder at Title, 4:22-26 (“It has been discovered, according to the present invention, that if a bicycle fork assembly is comprised of a steering tube made of resin having carbon fiber composites molded into a crown made of aluminum, the bicycle fork will possess a better durability and shock absorbing capabilities.”).

	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	See claim element 1d.
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Exhibit

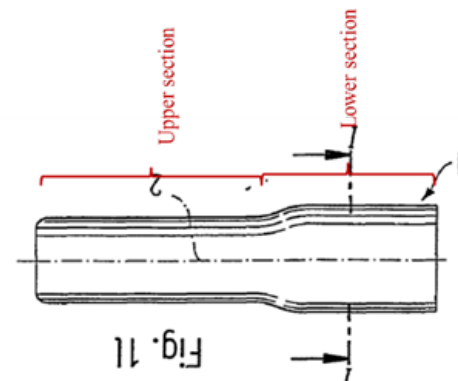
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Exhibit 2 – Invalidity of U.S. Patent No. 10,328,993

Claim No.	'993 Patent	Denk in View of One or More of Moechnig, Schroeder, and Campagnolo Renders the Claims Obvious
1[pre]	A steerer tube for a bicycle, the steerer tube comprising:	Denk discloses “lightweight component for bicycles” which are “suitable for practically all tubular components, i.e., top tube, down tube, seat tube, head tube, fork tubes, fork tubes, rear wheel stay, seat posts, handlebars, handlebar stem, and the like.” Denk, col. 4. Thus, a POSITA would have known and understood that Denk’s “lightweight” tubular component could have been used as a steerer tube for a bicycle to improve strength and/or rigidity in certain areas of the steerer tube while maintaining low weight. <i>See also</i> Denk, col. 1 (“One particularly important field of application of lightweight components is bicycle construction, and here in particular the construction of mountain bikes. The invention is therefore preferably described using the example of bicycle construction. . . . Bicycles, in particular bicycles that are used in sports, are allowed to have only a relatively low total weight, since a high weight adversely affects the riding characteristics. Apart from this, stringent requirements with regard to strength and rigidity are imposed on the components used in the bicycle sector, since on the one hand high rigidity is necessary in certain areas of the structure in the interest of rider safety, and on the other hand, in particular for bicycles that are used off-road, high impact loads may occur which result in stringent requirements for strength.”). Moechnig also discloses a steerer tube for a bicycle. Moechnig at Title, Abstract, ¶[0001].

1a	an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	Denk discloses a tubular body with a defined outer cross-sectional contour and a defined inner cross-sectional contour, which would suggest to a POSITA that the steerer tube has an elongate hollow body. Denk, Abstract (“The invention provides a lightweight component which, at least in part, has an essentially tubular body with a defined outer cross-sectional contour and a defined inner cross-sectional contour.”). Although Denk does not explicit disclose that the elongate hollow body of the steering tube is arranged around a steering axis located in a vertical plane of travel of the bicycle, a POSITA would also have known that Denk’s hollow steerer tube body is arranged around a steering axis located in a vertical plane of travel of the bicycle, as shown by Moechnig (discussed below), to steer the bicycle around the plane of travel. Indeed, the ’993 patent discloses in the “Background of the Invention Section,” which is admitted prior art, that in a “conventional bicycle (a mountain bike [as] shown at 100 in FIG. 1)” a steerer tube 200 “is disposed along . . . steering axis X,” which “is within the plane of travel P” of the bicycle. ’933 patent. 1:8-22. Thus, the requirement that the steerer tube be “arranged around a steering axis located in a vertical plane of travel of the bicycle” is inherently disclosed by Denk and is also admitted as prior art in the ’993 patent. Moreover, Moechnig also discloses a steerer tube having an elongate body arranged around a steering axis located in a vertical plane of travel of the bicycle. <i>See</i> Moechnig, Figs. 2 and 3 (showing steerer tube 30 having an elongate body 110 arranged around longitudinal axis 140), ¶[0035] (“Radially asymmetric portion 114 tapers inward relative to a longitudinal axis 140, indicated by the intersection of longitudinal and lateral diameters 120, 130 as shown in FIG. 4, of body 100 as it extends from lower radial portion 106 toward upper radial portion 110.”), ¶[0027] (“[H]andlebar 18 is attached to bicycle 10 such that rotation of handlebar 18 rotates fork crown 32 about a longitudinal axis of steerer tube 30 and/or head tube 28.”). Moechnig also discloses that body 100 may be hollow. Moechnig, Fig. 4 (showing body 100 being hollow); ¶[0045] (“Steerer tube 30 includes an optional cavity 206 formed in body 100. Optional cavity 206 can extend a majority of the length of steerer tube 30 and provides a lighter steerer assembly 16. Such a construction forms a steerer tube wall 208 that has a thickness that is selected to withstand the loaded interaction between steerer tube 30 and head tube 28.”). Moreover, a POSITA would have understood that the steerer tube is hollow because a solid (non-hollow) tube would have increased the weight of the steering assembly and the bicycle as a whole, which is undesirable. <i>See</i> Denk, Title, Abstract, col. 1 (discussing a “light weight component”).
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1b	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section,	Denk discloses that the elongate hollow body has an upper section and a lower section, which are joined. <i>See</i> Denk, Fig. 11 (annotated below).  Although Denk does not explicitly disclose that a segment of the upper section is adapted to be joined to a bicycle handlebar and a segment of the lower section is adapted to be joined to a crown of a front wheel fork, a POSITA would have known that a top portion of the steerer tube is attached to a handlebar and a bottom portion is attached to the crown of a suspension fork. Indeed, the '993 patent discloses in the "Background of the Invention Section," which is admitted prior art, that "handlebar 104 is affixed in some fashion (as by a star nut, not shown) to an upper end 212 of the steerer tube, and permits the rider to impart torque to the steerer tube 200, the fork 110 and the front wheel 102, which in response rotate around the steering axis X as a unit." '993 patent, 1:26-31. Thus, the requirement that a segment of the upper section of the steerer tube is adapted to be attached to the handlebar and a segment of the lower section is adapted to be joined to a crown of a front wheel fork is inherently disclosed by Denk and is also admitted as prior art in the '993 patent. Moreover, Moechnig discloses that body 100 of steerer tube 30 includes a first or lower radial portion 106 and a radial asymmetric portion 108, which collectively form a "lower section," and a second or upper radial portion 110 (an "upper section"). Moechnig, ¶[0035]. The "upper section" and "lower section" of body 100 are joined. <i>See id.</i> at Figs. 2 and 3. The "upper section" of body
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	100 is adapted to be joined to a bicycle handlebar. <i>See id.</i> at ¶[0003] (“A stem and handlebar are commonly engaged with the steerer tube . . .”), ¶[0026] (“Handlebars 18 are connected to a stem or steerer tube 30 that passes through head tube 28 and is rotationally supported thereby. A fork crown 32 extends in a downward direction relative to head tube 28 and is constructed to form or support a pair of forks, fork blades or fork legs 34 that generally flank a front wheel assembly 36. Handlebar 18 may include a stem that is constructed to slidably engage an interior cavity of steerer tube 30.”). The “lower section” of body 100 is adapted to be joined to a crown of a front wheel fork of the bicycle. Moechnig, Figs. 2 and 3; ¶[0002], [0027] (“Steerer tube 30 may be secured to fork crown 32 or may be formed integrally therewith.”). Accordingly, a POSITA would have known that a segment of the upper section of Denk’s steerer tube is adapted to be joined to a bicycle handlebar, a segment of the lower section of Denk’s steerer tube is adapted to be joined to a crown of a front wheel fork of the bicycle, as shown in Moechnig.
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1c	outer surfaces of the upper and lower sections of the body being circular in cross section, and	Denk discloses that the outer surfaces of the upper and the lower sections of the elongate body are circular in cross section. Denk, col. 3 (“The invention may be implemented using different cross-sectional shapes of the outer cross section and of the inner cross section. A circular ring-shaped outer cross-sectional contour is to be preferred for visual and possibly also technical reasons, resulting in a lightweight component in which the different wall thickness distribution is defined by the inner cross-sectional contour. Since for such a tube the distribution of the wall cross section is not visible from the outside, markings or the like are preferably applied here during manufacture to ensure the correct installation position of the tube.”); Figs. 4a-4c (depicted below, showing a method of manufacturing a tubular body with a circular outer cross-sectional contour and an elliptical inner cross-sectional contour); col. 13 (“A first method for manufacturing the lightweight component according to the invention is now described with reference to Figs. 4a through 4c. The starting point of this method is a tube piece 150 that is cylindrical overall, and that has a circular outer cross-sectional contour 151 and a circular inner cross-sectional contour 152. In a first method step, the tube is deformed by forces that are directed through the center line, along a plane 155 that intersects the midpoint of the outer and the inner cross-sectional circle. . . . The pressing operation is controlled in such a way that an elliptical outer cross-sectional contour 156 and an elliptical inner cross-sectional contour 157 are formed, as is apparent in the illustration according to Fig. 4b. As shown in Fig. 4c, the outer cross section 156 is subsequently shaped into a circular outer cross-sectional contour 158, using a machining process. The elliptical inner cross-sectional contour 157 is thereby retained.”). Thus, a POSITA would have known and understood Denk’s steerer tube body to have outer surfaces that are circular in cross section throughout the tube length.
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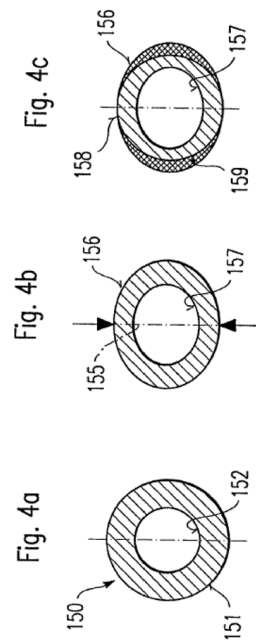
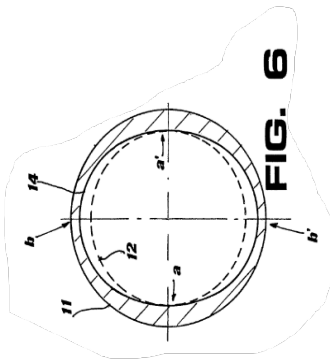


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1d	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	Denk, alone or in combination with Campagnolo, discloses that the elongate tube body is formed by a wall, and a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle. Specifically, Denk discloses that “[t]he wall thickness of the component in the region of the tubular body is not constant along its cross section, and the inner cross-sectional contour and the outer cross sectional contour of the component are designed in such a way that the change in the wall thickness along the cross section takes place essentially continually.” Denk, Abstract. In particular, Denk teaches that an inner surface of the upper section may be circular in cross section as shown in Fig. 1a, an inner surface of the lower section may be elliptical in cross section as shown in Fig. 1b, and the elliptical inner contour of the lower section may transition gradually into the circular cross section of the upper section. Denk, col. 8 (“Within the scope of the invention, it is likewise possible to change the cross-sectional shape along the tube length. For example, the cross-sectional shape in one region of the tube may correspond to the cross-sectional shape according to Fig. 1a, and in one region may correspond to the cross-sectional shape according to Fig. 1b. In addition, in particular for the exemplary embodiments according to Fig. 1a it is possible for the elliptical inner cross-sectional contour to continually transition into a circular inner cross-sectional contour in a certain area of the tube, for example in a middle area or in an end area.”); Figs. 1a and 1b (depicted below). Thus, in Denk’s steerer tube have an elliptical inner cross-sectional contour in the lower section, a POSITA would understand that the wall thickness of the tubular body at any point in the lower section varies as a function of the cross-sectional angle of the point relative to the plane of travel. For example, in Figures 1a and 4c of Denk, the wall thickness at any point varies because the internal perimeter of the wall is elliptical. Moreover, it is well known to have bicycle frame elements, i.e., bicycle tube structures, of variable thickness walls to improve stiffness and strength while ensuring lightness. Campagnolo, 1:23-29, 2:32-3:7, 3:17-25. It would have been obvious to a POSITA to have bicycle steerer tubes of variable thickness wall to improve strength of the steerer tube and prevent failure. <i>See</i> Denk, col. 2. For example, Campagnolo teaches a bicycle tube having “two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in
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two areas a and a' positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known to have the areas a and a' of maximum thickness in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas b and b' of minimum thickness orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses.



Similarly, for Denk’s steerer tube, a POSITA would have known to put the areas of maximum wall thickness (resulting from the elliptical inner contour and circular outer contour) in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas of minimum thickness orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses. Indeed, Denk teaches that “the approach according to the invention has the significant advantage that the profile of the wall thickness over the cross section may be optimally adapted to the actual requirements with regard to strength and rigidity. A **consideration of the load on a bicycle frame, for example, shows that particularly high loads occur in the vertical plane of the frame, since the weight of the rider acts essentially in the vertical direction, and the impact loads acting on the front and rear wheel likewise essentially occur within a vertical plane. . . .** The design according to the invention now allows the cross section of the tubular portion of the lightweight component to be designed in such a way that the force absorption capability of the components of a bicycle frame in the vertical frame direction is greater than in an arbitrary orientation perpendicular to this plane. As a result, for the same overall strength and rigidity, the weight may be reduced, or for the same weight, the strength and rigidity may be significantly increased in the load direction specified by the design.”).

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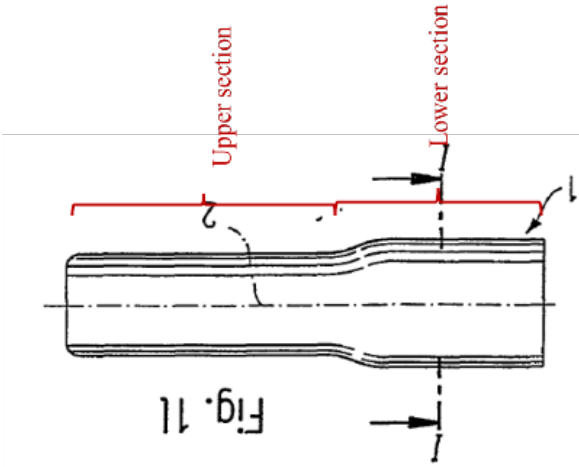
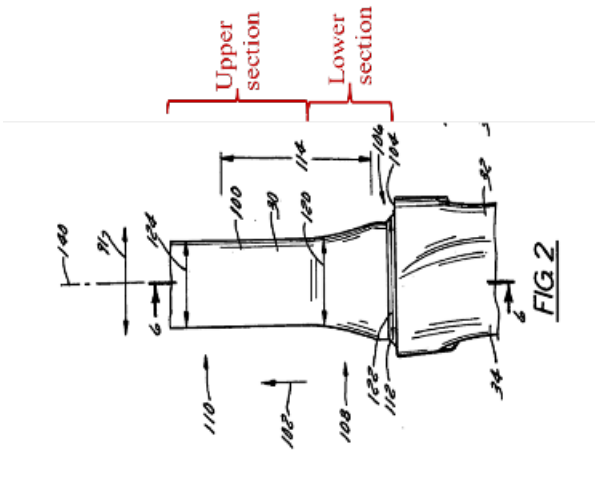
2	The steerer tube of claim 1, wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	Denk discloses that an outer diameter of the lower section of the elongate body of the steerer tube is greater than an outer diameter of the upper section of the body. See Denk, Fig. 11, col. 8 (“[W]ithin the scope of the invention it is also possible for adjacent cross sections to have a different design. Here as well, according to the invention an approach is used in which the change in the cross sections in the longitudinal direction takes place continually. Thus, for example, for the frame tube of a bicycle, the end areas of the tube may be designed with larger cross-sectional wall thicknesses than the middle tubes.”). This is further illustrated in Denk’s Figure 11 (annotated below to show that the tube has upper and lower sections, wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body).  Fig. 11 Upper section Lower section Denk  Upper section Lower section FIG 2 Moechnig Moechnig also discloses that an outer diameter of the lower section of the elongate body of the steerer tube is greater than an outer diameter of the upper section of the body. See Moechnig, Abstract, ¶¶[0010], [0035], Figs. 2 and 3. Specifically, Moechnig discloses that body 100 of steerer tube 30 includes a lower radial portion 106 and a radial asymmetric (oblong) portion 108, which
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		collectively form a “lower section,” and an upper radial portion 110 (an “upper section”). Moechnig, ¶[0035]. Lateral diameter 130 is the “major diameter” of the radially asymmetric portion 108, and longitudinal diameter 120 is the “minor diameter” of portion 108. <i>See id.</i> at Fig. 4, ¶[0036], [0038], [0040]. And as shown in Moechnig’s Figs. 2 and 3, longitudinal and lateral diameters 120, 130 of radial asymmetric portion 108 of steerer tube body 100, as well as the radial diameter 124 of lower radial portion 106, are greater than the radial diameter 122 of the upper radial portion 110. Accordingly, Moechnig discloses that an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.
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3	The steerer tube of claim 2, wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	Moechnig discloses that the lower section of the elongate body of the steerer tube has first and second portions, with the first portion adjoining the upper section of the body, and wherein an outer diameter of the first portion of the lower section is greater than an outer diameter of the upper section of the elongate body and less than an outer diameter of the second portion of the lower section. <i>See</i> Moechnig, Figs. 2 and 3 (showing the lower section of the steerer tube body 100 has a tapered first portion (radially asymmetric portion 108), such that an outer diameter of the first portion of the lower section is greater than an outer diameter of the upper section (upper radial portion 110) and less than an outer diameter of a second portion of the lower section (lower radial portion 106)). Denk's steerer tube body also has an upper section and a lower section, wherein an outer diameter of the lower section is greater than an outer diameter of the upper section. Specifically, Denk discloses that "within the scope of the invention it is also possible for adjacent cross sections to have a different design. Here as well, according to the invention an approach is used in which the change in the cross sections in the longitudinal direction takes place continually. Thus, for example, for the frame tube of a bicycle, the end areas of the tube may be designed with larger cross-sectional wall thicknesses than the middle tubes." Denk, col. 8. This is further illustrated in Denk's Figure 11 (annotated below to show that the tube has upper and lower sections, and the lower section further has first and second portions). As illustrated in Denk's Figure 11, the outer diameter of a first portion of the tube's lower section changes gradually, i.e., it tapers, from a second portion of the lower section to the upper section of the tube. As a result, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.
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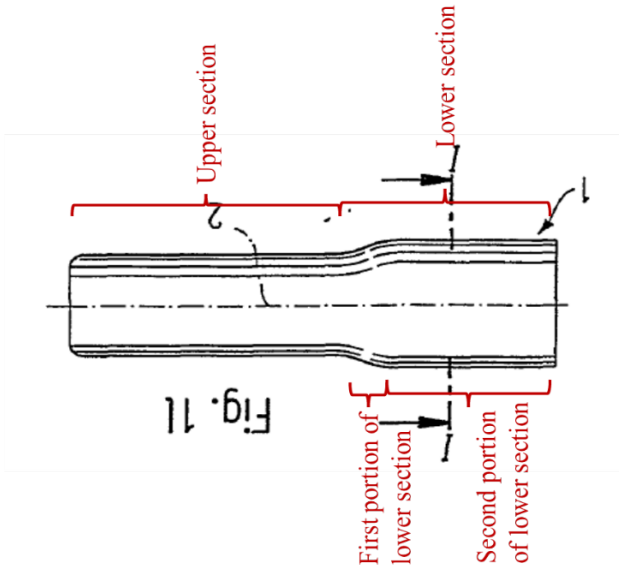
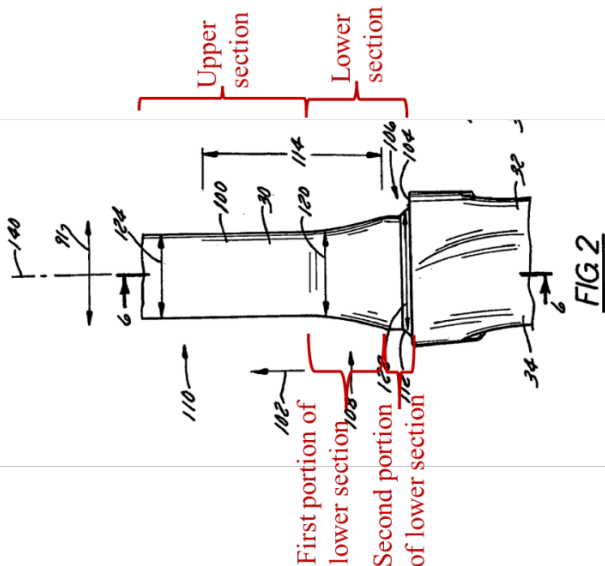
	 Denk	
	 Moechnig	

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4	The steerer tube of claim 3, wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body.	Denk discloses that the outer diameter of the first portion of the lower section of the tube body gradually tapers from the second portion of the lower section to the upper section of the body. <i>See</i> Denk, Fig. 11 (showing that the first portion of the lower section of the tube body tapers gradually from the second portion of the lower section to the upper section). Moechnig also discloses that the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body. <i>See</i> Moechnig, Figs. 2 and 3 (showing the lower section of the steerer tube body 100 has a first portion (radially asymmetric portion 108) which gradually tapers from the second portion (lower radial portion 106) of the lower section to the upper section (upper radial portion 110)); ¶¶[0035], [0036].
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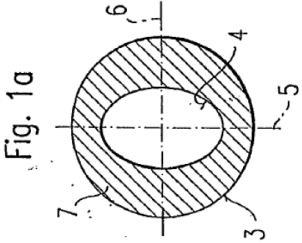
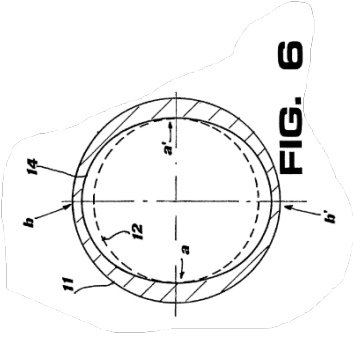
6	The steerer tube of claim 4, wherein an inner surface of the upper section is circular in cross section.	Denk and Moechnig, alone or in combination, discloses a steerer tube having a circular inner cross section in the upper section of the tube. Moechnig discloses that an inner surface of the upper section is circular in cross section. Specifically, Moechnig teaches that the upper section 110 is “radial” and has a radial diameter 124, which would suggest to one skilled in the art that an inner surface of the upper radial portion 110 is circular in cross section, while the inner surface of the radially asymmetrical portion 108 is elliptical in cross section, and that the elliptical inner cross section (of the lower section) gradually transitions into a circular inner cross section (in the upper section). Moechnig, ¶¶[0035], [0036] [0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”) Denk discloses that “[w]ithin the scope of the invention, it is likewise possible to change the cross-sectional shape along the tube length. For example, the cross-sectional shape in one region of the tube may correspond to the cross-sectional shape according to Fig. 1a, and in one region may correspond to the cross-sectional shape according to Fig. 1b. In addition, in particular for the exemplary embodiments according to Fig. 1a it is possible for the elliptical inner cross-sectional contour to continually transition into a circular inner cross-sectional contour in a certain area of the tube, for example in a middle area or in an end area.”); Figs. 1a and 1b (depicted below). Thus, Denk teaches that an inner surface of the upper section may be circular in cross section as shown in Fig. 1b, an inner surface of the lower section may be elliptical in cross section as shown in Fig. 1a, and the elliptical inner contour of the lower section may transition gradually into the circular cross section of the upper section as taught by Moechnig. Fig. 1a Fig. 1b
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8	The steerer tube of claim 6, wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	Campagnolo teaches a bicycle tube having “two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas <u>a</u> and <u>a'</u> positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known that the upper section of Denk or Moechnig’s steerer tube is akin to a conventional bicycle tube, and thus the inner circle 12 in Campagnolo’s Figure 6 defines an inner diameter of the upper section and the outer circle 11 defines an outer diameter of the upper section in Denk/Moechnig steerer tube. From Figure 6 in Campagnolo, a POSITA would also have known that a ratio of the inner to outer diameters of Campagnolo’s conventional tube, i.e., a ratio of the inner to outer diameters of the upper section of Denk/Moechnig steerer tube, is about 0.79. Thus, Campagnolo teaches that a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95. Moreover, a POSITA would have known to keep the thickness of the steerer tube wall low in order to have a lightweight steerer tube and thereby a lighter weight bicycle. Moechnig, ¶[0045] (“Steerer tube 30 includes an optional cavity 206 formed in body 100. Optional cavity 206 can extend a majority of the length of steerer tube 30 and provides a lighter steerer assembly 16. Such a construction forms a steerer tube wall 208 that has a thickness that is selected to withstand the loaded interaction between steerer tube 30 and head tube 28.”); Denk (discussing “lightweight component” in Title, Abstract, and throughout the specification). Thus, a POSITA would have known that a ratio of an inner diameter to an outer diameter of the upper section of the steerer tube
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		body in the range of 0.75 to 0.95 is a viable design choice and an obvious-to-try design option to minimize the weight of the steerer tube. Moreover, a POSITA would have known to determine the ratio of an inner diameter to an outer diameter of the upper section of the steerer tube body through routine experimentation to optimize strength and rigidity of the steerer tube while maintaining light weight.
10	The steerer tube of claim 1, wherein an inner surface of the upper section is circular in cross section.	See claim 6.
12	The steerer tube of claim 10, wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

14	The steerer tube of claim 1, wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	Denk discloses that “[t]he material of the tubular component is advantageously selected corresponding to the given requirements. It is particularly preferred to use an alloy that contains aluminum; in particular the elasticity behavior, i.e., the modulus of elasticity, should thus also be taken into account in selecting the alloy components. In addition to or instead of aluminum as an alloy component, other materials having good lightweight component properties, in particular titanium and the like, may also be used. It is also possible to manufacture the lightweight component according to the invention from plastic or a material containing plastic. If an essentially homogeneous plastic is used, the lightweight component may then also be manufactured using an injection molding process or the like. If an inhomogeneous material is used, for example an additional reinforcement with carbon fibers, glass fibers, or the like, the shaping methods that are customary in this field are used for the manufacture.” Denk, col. 5. Thus, Denk teaches that the tube body may be formed of aluminum alloy, titanium, or carbon fiber reinforced composite. Moechnig further discloses that the steerer tube is formed from either aluminum or carbon fiber materials and/or composites. Moechnig, ¶[0027] (“Steerer tube 30 and fork crown 32 can be formed of a number of materials such as metal-type materials, such as aluminum, carbon-type materials, such as carbon fiber materials and/or composites, or combinations thereof. Steerer tube 30 may be secured to fork crown 32 or may be formed integrally therewith. Preferably, steerer tube 30 and fork crown 32 are formed of a carbon fiber material as one-piece.”); <i>see also id.</i> at ¶[0003], [0014].
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15	The steerer tube of claim 1, wherein the wall thickness is at a minimum in a plane containing the steering axis and orthogonal to the plane of travel of the bicycle.	Denk and Campagnolo, alone and in combination, discloses that the wall thickness is at a minimum in a plane containing the steering axis and orthogonal to the plane of travel of the bicycle. Denk discloses that “[t]he exemplary embodiment according to Fig. 1a shows a cross section 2 of a tube having a circular outer cross-sectional contour 3 and an elliptical inner cross-sectional contour 4 that is arranged symmetrically with respect to a center line or center plane 5.” Denk, col. 6. Denk further explains that “the optimal rigidity vector is perpendicular to the plane of symmetry 5,” i.e., in the areas of maximum wall thickness. <i>Id.</i> Similarly, Campagnolo teaches a bicycle tube having “two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas <u>a</u> and <u>a'</u> positioned symmetrically.” Campagnolo, 7:2-9, Fig. 6 (depicted below). A POSITA would have known to have the areas of maximum thickness in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas of minimum thickness in a plane containing the steering axis and orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses.  Fig. 1a Denk  FIG. 6 Campagnolo
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16	The steerer tube of claim 15 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
17	The steerer tube of claim 16 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

18	The steerer tube of claim 17 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
20	The steerer tube of claim 18 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.

22	The steerer tube of claim 20 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.
24	The steerer tube of claim 15 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.
26	The steerer tube of claim 24 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

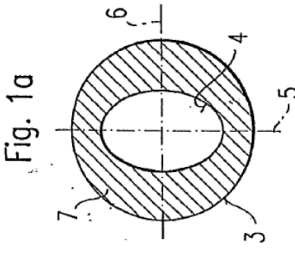
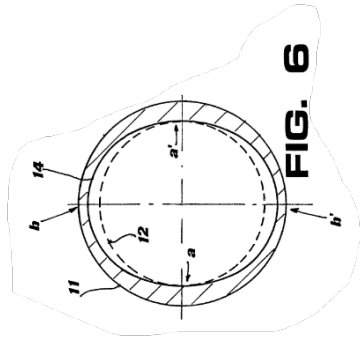
27	The steerer tube of claim 15 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
28	The steerer tube of claim 27 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

29	The steerer tube of claim 28 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
31	The steerer tube of claim 15 , wherein the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork.	Moechnig discloses that “[a]nother aspect of the invention useable with one or more of the features disclosed above includes forming the fork crown and the steerer tube from the same material,” thus implicitly disclosing that the fork crown and steerer tube may also be formed of different materials. Moechnig, ¶[0014]. U.S. Patent No. 7,503,576 to Schroeder (“Schoreder”), for example, teaches molding together a steerer tube and fork crown made of different materials. <i>See, e.g.</i>, Schroeder at Title, 4:22-26 (“It has been discovered, according to the present invention, that if a bicycle fork assembly is comprised of a steering tube made of resin having carbon fiber composites molded into a crown made of aluminum, the bicycle fork will possess[] durability and shock absorbing capabilities.”). Thus, a POSITA would have known that a segment of the lower section of Denk’s steerer tube body would be mounted, i.e., joined, to a fork bridge/crown, and that a POSITA would have been motivated to form the steerer tube of a material different from the fork crown to improve durability and shock absorbing capabilities as taught by Schroeder.

33	The steerer tube of claim 15, wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	See claim 14.
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34	The steerer tube of claim 15, wherein an inner surface of the wall within the lower section of the body is formed as an ellipse in cross section, a major diameter of the ellipse formed to be perpendicular to the plane of travel, a minor diameter of the ellipse coinciding with the areas of maximum thickness in the plane of travel, and in combination, disclose that an inner surface of the wall within the lower section of the steerer tube body is formed as an ellipse in cross section, a major diameter of the ellipse formed to be perpendicular to the plane of travel, a minor diameter of the ellipse formed to be in the plane of travel of the bicycle.	Denk and Campagnolo, alone and in combination, disclose that an inner surface of the wall within the lower section of the steerer tube body is formed as an ellipse in cross section, a major diameter of the ellipse formed to be perpendicular to the plane of travel, a minor diameter of the ellipse formed to be in the plane of travel of the bicycle. As explained with reference to claim 1, in Denk's steerer tube, "a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel." Denk further discloses that "[t]he exemplary embodiment according to Fig. 1a shows a cross section 2 of a tube having a circular outer cross-sectional contour 3 and an elliptical inner cross-sectional contour 4 that is arranged symmetrically with respect to a center line or center plane 5." Denk, col. 6. Denk further explains that "the optimal rigidity vector is perpendicular to the plane of symmetry 5," i.e., in the areas of maximum wall thickness. <i>Id.</i> That is, the variation in the wall thickness in the lower section of Denk's steerer tube is achieved by having an elliptical inner cross-sectional contour. Similarly, Campagnolo teaches a bicycle tube having "two areas <u>a</u> and <u>a'</u> of maximum thickness and two areas <u>b</u> and <u>b'</u> of minimum thickness of the tube wall, these two areas being connected by arcs of an ellipse 14, centered within the circle 11 which outwardly defines the section. Also in this case, the reference 12 indicates the circle which inwardly defines the section of a corresponding conventional tube. It is evident that the structure will be apt to stand higher stresses in two areas <u>a</u> and <u>a'</u> positioned symmetrically." Campagnolo, 7:2-9, Fig. 6 (depicted below). That is, the variation in the wall thickness in a portion of Campagnolo's tube is also achieved by having an elliptical inner cross-sectional contour in that portion. Moreover, a POSITA would have known to have the areas of maximum thickness in the plane of travel of the bicycle because the stresses on the steerer tube are maximum in the plane of travel, and to have the areas of minimum thickness in a plane orthogonal to the plane of travel to improve lightness of the steerer tube in areas of lesser stresses. Thus, when the inner cross section of the lower section of the tube is elliptical, a minor diameter of the ellipse will coincide with the areas of maximum thickness along the plane of travel of the bicycle, a major diameter of the ellipse will coincide with the areas of minimum thickness along a plane orthogonal to the plane of travel. <i>See, e.g.,</i> Denk, Fig. 1a and Campagnolo, Fig. 6 (both showing a minor diameter of the ellipse coinciding
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		with the areas of maximum thickness, and a major diameter of the ellipse coinciding with the areas of minimum thickness).	 	Denk Campagnolo
35	The steerer tube of claim 34, wherein outer surfaces of the upper and lower sections of the body are circular in cross section.	See claim 1 c.		

36	The steerer tube of claim 35 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
37	The steerer tube of claim 36 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

38	The steerer tube of claim 37 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
40	The steerer tube of claim 38 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.

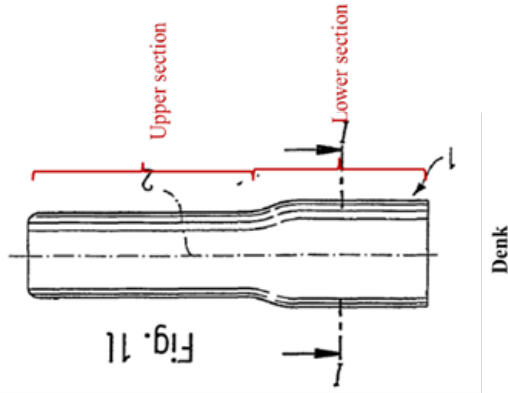
42	The steerer tube of claim 40 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.
44	The steerer tube of claim 34 , wherein an inner surface of the upper section is circular in cross section.	See claim 6.
46	The steerer tube of claim 44 , wherein a ratio of an inner diameter of the upper section of the body to an outer diameter of the upper section of the body is within the range of 0.75 to 0.95, inclusive.	See claim 8.

47	The steerer tube of claim 34 , wherein an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body.	See claim 2.
48	The steerer tube of claim 47 , wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.

49	The steerer tube of claim 48 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section of the body to the upper section of the body.	See claim 4.
51	The steerer tube of claim 34 , wherein the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork.	See claim 31.

53	The steerer tube of claim 34, wherein the body is formed from a material selected from the group consisting of steel, carbon fiber reinforced composite, aluminum, titanium and magnesium.	See claim 14.
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56	The steerer tube of claim 34, wherein the minor diameter decreases as a function of proximity to the upper section of the body.	As discussed with respect to claim 1, Denk discloses that the tube body has an upper section and a lower section, which are joined by a gradually tapering neck region, as shown in Denk's Figure 11 (annotated below).  Although Denk does not explicitly disclose that a minor diameter of the elliptical inner contour of the lower section of the tube decreases as a function of proximity to the upper section of the body, a POSITA would have known and understood that both the major and the minor diameters in the tapering neck region of the tube body decrease as a function of proximity to the upper section of the body. Indeed, Moechnig explicitly teaches that the minor diameter (longitudinal diameter 120) decreases as a function of proximity to the upper section of the body (upper radial portion 110). Moechnig, Fig. 2 (showing longitudinal diameter 120 decreasing along the radially asymmetrical portion 108 as a function of proximity to the radial upper portion 110); ¶[0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”).
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57	The steerer tube of claim 34, wherein a ratio of the major diameter to the minor diameter taken at a lower end of the lower section is within the range of 1.05 to 1.3, inclusive.	Moechnig teaches that the widest major diameter (lateral diameter 130), i.e., the major diameter in the lower end of the lower section (106, 108) is 1.559 inches, and that the smallest minor diameter (lateral diameter 120), which is not less than radial diameter 124 of the upper portion 110, is 1.125 inches. Moechnig, ¶[0040] (“[E]ach cross-section 141 [of oblong portion 108] includes a lateral diameter 130 that is larger than a longitudinal diameter 120. Preferably, longitudinal diameter 120 is not less than a diameter associated with upper radial portion 110. Although upper radial portion 110 could be provided in any of a number of sizes, upper radial portion 110 preferably has a diameter of about 1.125 inches or about 28.6 mm. Similarly, although lateral diameter 130 tapers from lower radial portion 106 to upper radial portion 110, and could be provided in a number of sizes, at it’s widest portion, lateral diameter 130 is approximately 1.559 inches or 39.6 mm[.]”). Therefore, a POSITA would have known that the widest minor diameter (longitudinal diameter 120) in lower end of the lower section (106, 108) is greater than 1.125 inches but less than 1.559 inches. Accordingly, a POSITA would have easily known that a ratio of the major diameter to the minor diameter in Denk’s steerer tube (in view of Moechnig) would be in the range of 1.05 and 1.3. Moreover, Campagnolo discloses that a ratio of the major diameter to the minor diameter in the inner elliptical portion is within the range of 1.05 to 1.3. Campagnolo, Fig. 6 (showing a ratio of 1.22 (major diameter 5.5 cm ÷ minor diameter 4.5 cm). Accordingly, a POSITA would have known that the elliptical inner section at the widest part (i.e., lower end) of the lower portion of Denk or Moechnig’s steerer tube body could also have a ratio of the major diameter to the minor diameter equal to 1.22, i.e., in the range of 1.05 to 1.3. Moreover, a POSITA would have known to determine the ratio of the major diameter to the minor diameter through routine experimentation to optimize strength and rigidity of the steerer tube while minimizing weight.
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58	The steerer tube of claim 57, wherein the ratio is within the range of 1.10 to 1.25, inclusive.	Campagnolo discloses that a ratio of the major diameter to the minor diameter in the inner elliptical portion is within the range of 1.10 to 1.25. See Campagnolo, Fig. 6 (showing a ratio of 1.22 (major diameter 5.5 cm ÷ minor diameter 4.5 cm). Accordingly, a POSITA would have known that the elliptical inner section of the lower portion of Denk or Moechnig's steerer tube body could also have a ratio of the major diameter to the minor diameter equal to 1.22, i.e., in the range of 1.10 to 1.25. Moreover, a POSITA would have known to determine the ratio of the major diameter to the minor diameter through routine experimentation to optimize strength and rigidity of the steerer tube while minimizing weight.
59	The steerer tube of claim 34, wherein the major diameter of the lower section tapers from the second portion of the lower section to the first portion of the lower section.	Moechnig discloses that the major diameter (lateral diameter 130) decreases, i.e., tapers, from the second portion of the lower section (106) to the first portion of the lower section (108) as a function of proximity to the upper section of the body (upper radial portion 110). Moechnig, Fig. 3 (showing lateral diameter 130 decreasing along the radially asymmetrical portion 108 as a function of proximity to the radial upper portion 110); ¶[0038] (“Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.”). Accordingly, a POSITA would have known that Denk's steerer tube (in view of Moechnig) would also have a major diameter of the lower section taper from the second portion of the lower section to the first portion of the lower section.

60	The steerer tube of claim 34, wherein a ratio of the major diameter to the minor diameter decreases as a function of proximity to the upper section of the body.	Moechnig discloses that a ratio of the major diameter to the minor diameter decreases as a function of proximity to the upper section of the body. Specifically, Moechnig discloses that steerer tube “body 100 includes a lateral diameter, indicated by arrow 130, that transitions from first radial portion 106 to upper radial portion 110. . . . Both longitudinal and lateral diameters 120, 130 transition from lower radial portion 106 to upper radial portion 110.” Moechnig, ¶[0038]. Lateral diameter 130 is the “major diameter” of the radially asymmetric (oblong) portion 108, and longitudinal diameter 120 is the “minor diameter” of portion 108. <i>See id.</i> at Fig. 4, ¶¶[0036], [0038], [0040]. Moechnig further discloses that the upper radial portion 110 has a circular cross section having a radial diameter 124, which is about 1.125 inches. Moechnig, ¶¶[0035], [0036], [0038], [0040]. Thus, the ratio of the major diameter to the minor diameter at the uppermost end of radially asymmetrical portion 108 (before transitioning to radial upper portion 110) is approximately 1. And as discussed with respect to claims 57 and 58, a POSITA would have known that the lower portion of radially asymmetric section 108 of Denk’s steerer tube body (in view of Moechnig) could have a ratio of the major diameter to the minor diameter equal to 1.22. <i>Id.</i> at ¶[0040]. A POSITA would thus have known from this disclosure of Moechnig that a ratio of the major diameter to the minor diameter decreases (ratio decreasing from 1.22 to 1) as a function of proximity to the upper section of the body.
61	A steerer tube for a bicycle, the steerer tube comprising: an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	See claim element 1[pre]. See claim element 1a.

	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section,	See claim element 1b.
	and an outer diameter of the lower section of the body is greater than an outer diameter of the upper section of the body, and	See claim 2.

	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	See claim element 1d.
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62	The steerer tube of claim 61, wherein the lower section of the body has first and second portions, the first portion adjoining the upper section of the body, an outer diameter of the first portion of the lower section being greater than an outer diameter of the upper section and less than an outer diameter of the second portion of the lower section.	See claim 3.
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63	The steerer tube of claim 62 , wherein the outer diameter of the first portion of the lower section gradually tapers from the second portion of the lower section to the upper section of the body.	See claim 4.
64	A steerer tube for a bicycle, the steerer tube comprising: an elongate hollow body arranged around a steering axis located in a vertical plane of travel of the bicycle,	See claim element 1[pre].
		See claim element 1a.

	the body having upper and lower sections, a segment of the upper section adapted to be joined to a bicycle handlebar, a segment of the lower section adapted to be joined to a crown of a front wheel fork of the bicycle, the lower section joined to the upper section, and	See claim element 1b.
	the segment of the lower section of the body is joined to the crown of the front wheel fork, the body formed of a material different from the crown of the front wheel fork, and	Moechnig discloses that “[a]nother aspect of the invention useable with one or more of the features disclosed above includes forming the fork crown and the steerer tube from the same material,” thus implicitly disclosing that the fork crown and steerer tube may also be formed of different materials. Moechnig, ¶[0014]. U.S. Patent No. 7,503,576 to Schroeder (“Schroeder”), for example, teaches molding together a steerer tube and fork crown made of different materials. <i>See, e.g.</i>, Schroeder at Title, 4:22-26 (“It has been discovered, according to the present invention, that if a bicycle fork assembly is comprised of a steering tube made of resin having carbon fiber composites molded into a crown made of aluminum, the bicycle fork will possess[] durability and shock absorbing capabilities.”). Thus, a POSITA would have known that a segment of the lower section of Denk’s steerer tube body would be mounted, i.e., joined, to a fork bridge/crown, and that a POSITA would have been motivated to form the steerer tube of a material different from the fork crown to improve durability and shock absorbing capabilities as taught by Schroeder.

	the body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel, the wall thickness being at a maximum in the plane of travel of the bicycle.	See claim element 1d.
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