

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FOX Factory, Inc.,

Petitioner,

v.

SRAM, LLC,

Patent Owner.

U.S. Patent No. 10,328,993 B2

Filing Date: December 30, 2014

Issue Date: June 25, 2019

Title: BICYCLE STEERER TUBE WITH VARIANT STIFFNESS

Case No. IPR2024-00491

PATENT OWNER PRELIMINARY RESPONSE

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Ex. 2001	Order Denying Fox Factory, Inc.’s Motion to Transfer to the Northern District of California and Order to Show Cause as to Why Sanctions Are Not Appropriate, dated March 6, 2024, <i>SRAM, LLC v. FOX Factory, Inc.</i> , Case No. 1:23-cv-00492-SCJ (United States District Court – N.D. Georgia)
Ex. 2002	Thomson Reuters’ Westlaw Litigation Analytics Report (United States District Court – N.D. Georgia)
Ex. 2003	LexisNexis Analytics (United States District Court – N.D. Georgia)
Ex. 2004	United States Department of Justice District Court Caseload Statistics
Ex. 2005	Scheduling Order, dated May 31, 2023, <i>SRAM, LLC v. FOX Factory, Inc.</i> , Case No. 1:23-cv-00492-SCJ (United States District Court – N.D. Georgia)
Ex. 2006	Fox Factory, Inc.’s Brief in Opposition to SRAM’s Motion to Stay, dated Jan. 8, 2024, <i>FOX Factory, Inc. v. SRAM, LLC</i> , Case No. 1:23-cv-00313-RM-KAS (United States District Court – D. Colorado)
Ex. 2007	Fox Factory, Inc.’s Preliminary Invalidity Contentions, dated June 16, 2023 (including Exhibits 4 and 5), <i>SRAM, LLC v. FOX Factory, Inc.</i> , Case No. 1:23-cv-00492-SCJ (United States District Court – N.D. Georgia)
Ex. 2008	Website capture for Santa Cruz NOMAD bicycle featuring RockShox Zeb fork
Ex. 2009	Declaration of Michael Durbin

I. INTRODUCTION

Patent Owner SRAM, LLC (“Patent Owner”) and Petitioner FOX Factory, Inc. (“Petitioner”) are currently in the midst of discovery in parallel litigation in the United States District Court for the Northern District of Georgia – *SRAM, LLC v. FOX Factory, Inc.*, No. 1:23-cv-00492-SCJ – involving the instant patent, U.S. Patent No. 10,328,993 B2 (“the ‘993 Patent”).¹ Now that the Georgia Court has denied Petitioner’s meritless motion to transfer (*see* Ex. 2001 (Order Denying Fox Factory, Inc.’s Motion to Transfer to the Northern District of California and Order to Show Cause as to Why Sanctions Are Not Appropriate)), this Georgia case is continuing full steam ahead, with only two months left for discovery, and is reasonably expected to go to trial by the early summer of 2025, before any final written decision in this matter.

¹ Patent Owner asserts infringement of a second patent, U.S. Patent No. 7,147,207 B2, by Petitioner in that same Georgia litigation. Petitioner has simultaneously filed a parallel petition for *inter partes* review of the ‘207 Patent in Case No. IPR2024-00492.

The Board should deny this Petition on its face for lack of reasonable likelihood of success on the merits because the prior art grounds cobbled together here with improper hindsight are *technically and legally deficient* and fail to disclose or suggest every limitation of independent claims 1, 61, and 64, not to mention the other forty-two (42) challenged dependent claims (collectively, the “Challenged Claims”).

Further, the Board should exercise its discretion to deny institution of this Petition under 35 U.S.C. 314(a) in view of the parallel Georgia case involving the very same patent claims and parties. Petitioner fails to inform the Board that the Georgia case was only delayed based on Petitioner’s factual misrepresentations, for which Petitioner is now facing an Order to Show Cause why sanctions should not be issued. *See, infra*, Section III(A). All six *Fintiv* factors support denial of institution, including the fact that the Georgia case is expected to go to trial in early summer of 2025, before any expected final written decision date in this matter. Moreover, the prior art grounds relied upon here are wholly duplicative of Petitioner’s preliminary invalidity contentions in the Georgia case, which will be resolved before a final written decision here. *See* Ex. 2007 (Petitioner’s Preliminary Invalidity Contentions). Finally, Petitioner has submitted no stipulation at all to eliminate concerns about duplication between the Board and the District Court, nor has Petitioner presented compelling merits to avoid a *Fintiv* denial. *See* Director Vidal’s

Fintiv Memorandum (issued June 21, 2022), at 3, 4, 7 (noting that discretionary denial in view of a parallel litigation may be avoided by either a *Sotera* stipulation or compelling merits).

For at least these reasons and those set forth below, the Board should deny institution of this Petition.

II. THE ASSERTED PRIOR ART GROUNDS ARE NOT REASONABLY LIKELY TO SUCCEED ON THE MERITS.

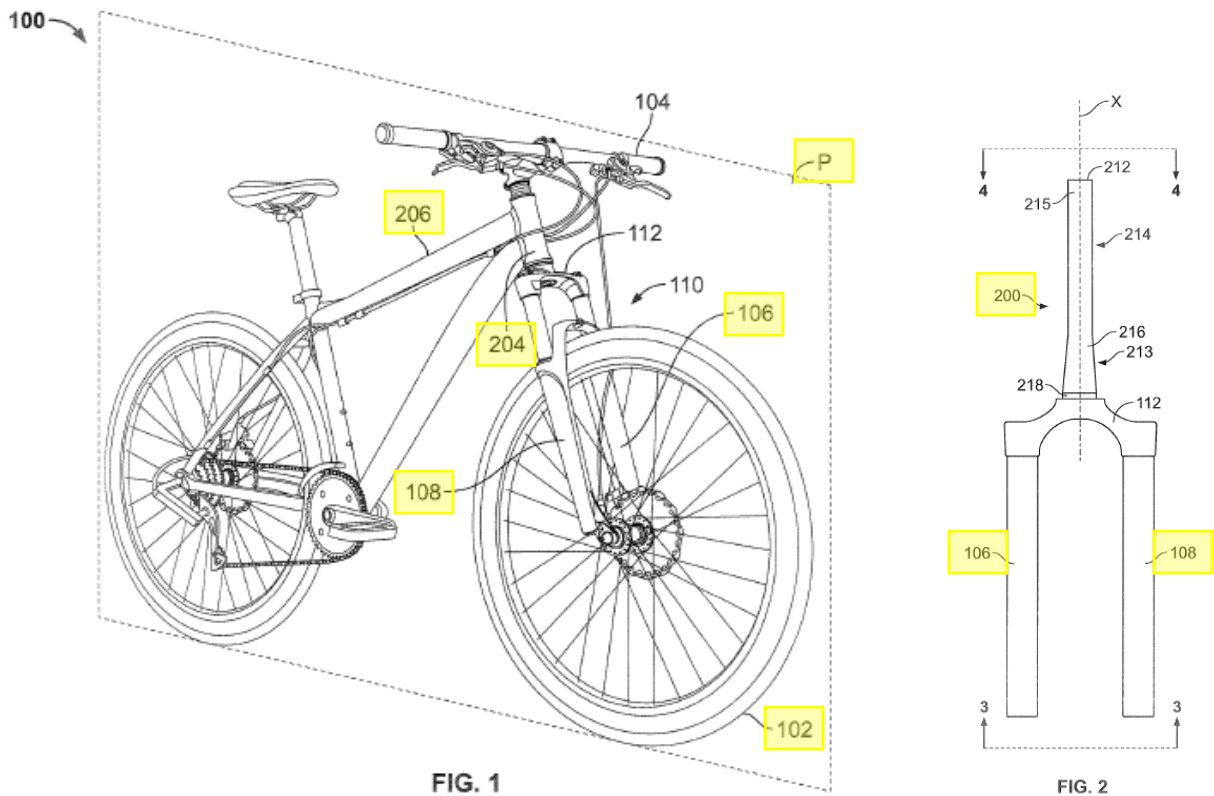
A. Relevant Technical Background

1. Overview of the ‘993 Patent Invention

The invention of the ‘993 Patent is focused on a critical part of the bicycle – the steerer tube – which has functions and characteristics uniquely distinguished from other parts of the bicycle.

Conventional bicycles are steered with a rider-operated handlebar linked to the front wheels, such that turning the handlebar results in a turn of the wheel. That critical and essential link between the handlebar and wheel is achieved through the steerer tube, which connects the bicycle fork to the bicycle frame and thereby permits the rider to steer the bicycle to the right or left, as desired. Ex. 1001 (‘993 Patent), 1:6-32. Notably, the steerer tube rotates relative to the bicycle frame to assist in this direction change and, therefore, experiences significantly different torsional and fore-and-aft forces compared to the primarily vertical forces impacting

the bicycle frame caused by the rider's weight, as discussed further below. As shown in Figures 1 and 2 of the '993 Patent, reproduced below, a bicycle frame **206** includes a head tube **204** that is configured to accept the addition of a steerer tube **200** therein, which in turn connects to the fork tubes **106**, **108** and front wheel **102**, all in the bicycle's plane of travel **P** (as highlighted below):



Prior to the invention of the '993 Patent, conventional steerer tubes were circularly cylindrical with uniform wall thickness, which had significant performance drawbacks in strength, stability, comfort, and steering:

Many conventional steerer tubes are circularly cylindrical.

A perfectly cylindrically circular steerer tube, having a uniform wall thickness, will exhibit a uniform stiffness longitudinally, or fore-and-aft and in alignment with plane of travel P, and laterally, or side-to-side and perpendicular to plane of travel P and axis X. But uniformly thick and stiff steerer tubes do not take into account the differences in loads on the steerer tube and stability, comfort and steering requirements.

Ex. 1001 ('993 Patent), 1:34-42.

To overcome these problems, the '993 Patent discloses steering tubes that have greater wall thickness in one direction, while having a lesser wall thickness in a perpendicular direction. The '993 Patent explains:

Steerer tubes according to the invention have a large stiffness and strength in the fore and aft plane of travel of the bicycle. But since side bending stiffness isn't as critical due to lighter side loads, the wall thickness outside of the plane of travel may be reduced. This permits a lighter weight steerer tube that nonetheless meets all loading requirements.

Id., 2:4-9. Thus, the '993 Patent orients the steerer tube so that the greater wall thickness is aligned with the direction of the bicycle's travel. The resulting steering

tubes have an increased stiffness in the fore-and-aft direction, again aligned with the direction of the bicycle's travel.

The '993 Patent creates these benefits by forming a portion of the interior cross-sectional shape of the steerer tube with an elliptical shape. As shown in Figure 3 of the '993 Patent (steerer tube wall colorized in yellow), this asymmetric shaping, coupled with a circular outer cross-sectional shape, results in the wall thickness of the tubing being at a maximum in one direction (fore-and-aft, shown by the plane of travel **P** below), while at a minimum in the perpendicular direction (side-to-side). *Id.*, 7:57-65.

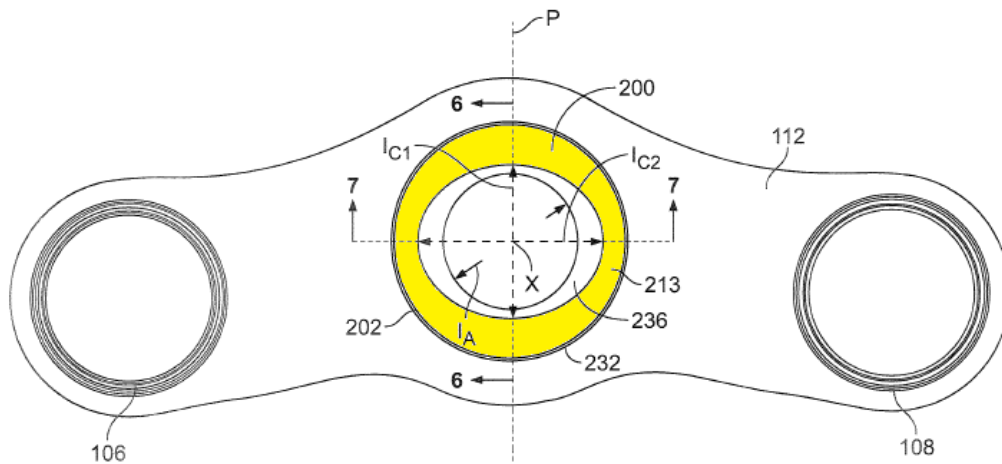


FIG. 3

This critical distinguishing element is found in each of the Independent Claims 1, 61, and 64, recited as:

the body [of the bicycle steerer tube] 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.

Id., 8:15-19 (claim 1), 12:9-13 (claim 61), 12:39-43 (claim 64).

Increased stiffness is not the only benefit. By orienting the steerer tube so that the maximum wall thickness is aligned with the fore-and-aft direction of travel for the bicycle, the weight of the overall steerer tube can also be reduced for a given fore-and-aft strength, a significant benefit in the bicycle space where riders are always looking for weight advantages. *Id.*, 2:4-9. Additionally, as shown in various embodiments and claims of the '993 Patent, the steerer tube can vary in its internal wall thickness throughout the length of the steerer tube, reducing overall weight while simultaneously increasing strength and stiffness of the steerer tube in the direction of the bicycle's plane of travel. Moreover, the circular outer cross-sectional shape assists with the fork's integration into a bicycle frame by allowing the use of typical, circular bearings at the attachment points to the bicycle frame. *Id.*, 1:22-26, FIGS. 1, 3-4. Such a structural arrangement never existed before the advent of the inventions of the '993 Patent and is not found in the prior art.

2. Critical Distinctions Between the Bicycle Steerer Tube and the Bicycle Frame

The '993 Patent distinguishes the bicycle frame **206** from the steerer tube **200** and fork **110** because these portions of the bicycle have completely different design considerations. Specifically, as noted in the prior art, the bicycle frame **206** must manage the rider's weight as a primary consideration. Ex. 1006 (German Patent Application No. DE19629740A1 to Denk ("Denk")), Col. 2. On the other hand, the steerer tube **200** and fork **110** are oriented in nearly a perpendicular direction to the plane of the bicycle frame, as shown in Figure 1, above. Thus, weight concerns differ due to the differing forces incident on the bicycle frame compared to those action on the bicycle steerer tube and fork. *E.g.*, Ex. 1006 (Denk), Col. 2 (discussing differences between vertical forces on bicycle frame caused by rider weight compared to forces associated with forward movement, such as "negotiating a curve" and "straight-ahead travel"); Ex. 1008 (U.S. Patent Application Publication No. 2010/0259028 A1 to Moechnig ("Moechnig")), [0005] (noting that "[d]uring riding, although the front wheel can be subjected to loading in a variety of radial directions, these loading [sic] are commonly directed in a longitudinal and a lateral direction.")

Further, the bicycle fork **110** is designed to rotate around an axis **X** that is concentric with the head tube **204**. The bicycle frame **206**, however, travels in what

the '993 patent refers to as a plane of travel **P**, which is illustrated in Figure 1 above. The fork **110** serves as a pivot point for the bicycle frame **206**, allowing a rider of the bicycle frame **206** to turn left or right by manipulating a rider-operated handlebar **104**. Twisting the handlebar **104** of the fork **110** around the steering axis **X** causes the fork **110** to rotate around the same steering axis **X**, in turn rotating the wheel **102** out of the plane of travel **P**. When the wheel is out of the plane of travel **P**, the travel direction is altered, the plane **P** shifts, and the frame **206** is brought into a new direction of travel. Ex. 1001 ('993 Patent), 1:8-31.

As a result of these differences, bicycle frames and bicycle steerer tubes/forks are designed separately, and nearly always by unrelated parties, especially for offroad bicycles. *See, e.g.*, Ex. 2008 (showing NOMAD bicycle frame designed by Santa Cruz featuring a RockShox Zeb fork, two unrelated companies). In other words, a bicycle steerer tube and fork have different considerations compared to the bicycle frame as a whole because they are subjected to significantly different forces during use. For example, bicycle frames are primarily concerned with loads and related forces that occur in the vertical (up-to-down) direction, while bicycle steerer tubes and forks are primarily concerned with loads and related forces in the fore-and-aft direction (and to some extent, the side-to-side direction). This is because gravity is the main force at issue for a bicycle frame (which force acts in the up-to-down direction), whereas the velocity of the bicycle and its related momentum are

the main factors at issue for a bicycle steerer tube and fork (which forces act in the fore-and-aft direction), along with torque forces around the steering axis for steering inputs.

Prior to the advent of the inventions of the '993 Patent, bicycle fork designers concerned their designs with two overarching considerations: (1) flexibility in the fore-and-aft direction provided shock absorption and compliance that would improve the rider's comfort while the bicycle frame rode over rough terrain, and (2) stiffness in the side-to-side direction provided increased responsiveness of the fork to torque inputs by the rider at the handlebar, resulting in improved steering ability for the rider (Ex. 1008 (Moechnig), [0009], [0049], [0050]).

The '993 Patent, however, improves bicycle steerer tube technology by bucking convention, and increasing the stiffness of the steerer tube and fork in the fore-and-aft direction, while also simultaneously accomplishing another goal, namely, the reduction of weight. Ex. 1001 ('993 patent), 2:4-9; 7:57-65. The '993 Patent thus uniquely discloses both strengthening the steerer tube in the fore-and-aft direction and reducing its overall weight, as shown in a variety of different embodiments throughout the patent. *Id.*; *see also id.*, FIGS. 2, 12, 13, 19, 25, 31.

The Petition ignores these considerations, and instead, generalizes the '993 Patent's disclosure to support its unreasonable prior art combinations. The Petition muddies the technical waters, pulling unrelated statements from the prior art

in an attempt to cobble together the elements of the ‘993 Patent. But the inventions of the ‘993 Patent provide clear advantages over the art, along with elements not disclosed anywhere in the art, in part due to the ‘993 patent’s unconventional construction that goes against all that came before it.

3. Claim Construction

Patent Owner agrees that the ‘993 Patent’s claim terms require no special claim construction for purposes of denying this Petition.

4. Level of Person of Ordinary Skill in the Art

Patent Owner believes a person of ordinary skill in the art (“POSITA”) here is more appropriately connected to, and considers the particularities of, vehicle component and like design. Specifically, one of ordinary skill in the art at the time of the ‘993 Patent may include a person with a degree in Mechanical Engineering and approximately three years’ experience in vehicle component design and like technology, or a Master’s degree or higher in Mechanical Engineering with experience in design of vehicle components or like technology. Petitioner’s generalist expert does not appear to meet these requirements.

B. Grounds 1 and 2 Asserted Against the Corresponding Challenged Claims Are Legally and Technically Deficient.

The ‘993 Patent has three (3) independent claims – claims 1, 61, and 64. Petitioner asserts that claims 1 and 61 are rendered obvious by Denk in view of

Moechnig (Ground 1) and claim 64 is rendered obvious by Denk in view of Moechnig and U.S. Patent No. 7,503,576 to Schroeder (“Schroeder”) (Ground 2). Petitioner also challenges forty-two (42) dependent claims of the ‘993 Patent under these two Grounds.²

As discussed below, neither the Independent Claims (claims 1, 61, and 64) nor the other 45 challenged dependent claims of the ‘993 Patent are rendered obvious by the asserted Denk-based grounds. Accordingly, Petitioner fails to show a reasonable likelihood of success with respect to at least one claim of the ‘993 Patent, and the Board should deny the Petition.

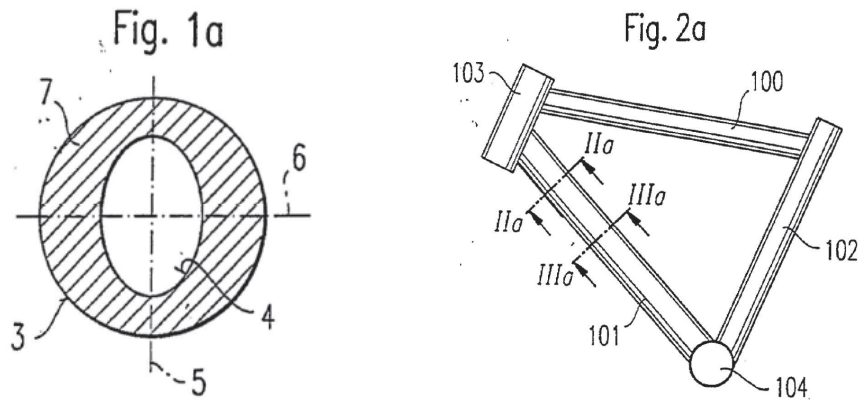
1. Denk, Alone or in Combination, Fails to Disclose or Suggest a Bicycle Steerer Tube With a Varying Wall Thickness Being at a Maximum in the Bicycle’s Plane of Travel, as Claimed in Independent Claims 1, 61, and 64 and the Challenged Dependent Claims.

The ‘993 Patent claims are all directed to a “steerer tube for a bicycle,” namely a hollow body or tube arranged around the steering axis located in the plane of the

² Petitioner identifies the Group 1 Challenged Claims as claims 1-4, 6, 8, 10, 12, 14-18, 20, 22, 24, 26-29, 33-38, 40, 42, 44, 46-49, 53, 56-63 and the Group 2 Challenged Claims as claims 31, 51, and 64. Petition (Paper 1) at 2.

bicycle's travel, with an upper section adapted to be joined to a bicycle handlebar and a lower section adapted to be joined to the crown of a bicycle front fork. Ex. 1001 ('993 patent), 8:5-19 (claim 1); 11:45-12:13 (claim 61); 12:26-43 (claim 64). Moreover, each Independent Claim (and therefore each dependent claim) requires that the steerer tube's lower section has a varying wall thickness that is at a maximum in the bicycle's plane of travel. *Id.*

Denk does not disclose or suggest such a claimed "steerer tube for a bicycle." Instead, Denk discloses improvements to be made to a typical *bicycle frame*. Ex. 1006 (Denk), FIGS. 2a, 2b, and 2c. Specifically, Denk discloses reinforced tubing to replace "lightweight components for bicycle frames." *Id.*, Col. 1. A bicycle frame is illustrated in Denk's Figure 2a, shown below, with one example of Denk's tubing shown in Figure 1a:



Id., Fig. 2a. Nowhere does Denk disclose or suggest that its lightweight tubing would be used as a substitute for the bicycle's steerer tube connected between the

bicycle handlebars and front fork (not shown as part of Denk's bicycle frame), which steerer tube experiences an entirely different set of forces compared to the bicycle frame itself.

Denk highlights those differences in discussing how the bicycle frame experiences forces from the rider in the vertical plane of the frame (designated by numeral **6** in Fig. 1a above), rather than the plane of travel of the bicycle itself:

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.

Id., Col. 2 (emphasis added). Denk provides no disclosure or suggestions about how to design a bicycle steerer tube with forces acting in the plane of the bicycle's travel as opposed to the construction of bicycle frame components experiencing vertical forces as contemplated by Denk.

Specifically for a bicycle frame, Denk is concerned with rider weight because the rider, who sits on top of the bicycle frame, is identified as the greatest stress to that bicycle frame. *Id.* Denk explains that all forces in other directions, such as in the direction of travel, "are lower than the forces occurring in the *vertical direction*." *Id.*, Col. 2. Denk focuses on its desire for strength in the vertical direction:

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.

Id., Col. 2.

On the other hand, the ‘993 Patent is concerned with and recognized the importance of having a steerer tube having a maximum stiffness in the direction of travel for the related bicycle. The ‘993 Patent explains in its background that the “plane of travel P ... is aligned with the running direction of the bicycle.” Ex. 1001 (‘993 Patent), 1:10-11. The ‘993 Patent’s specification makes clear that the fore-and-aft direction is what is key:

Steerer tubes according to the invention have a large stiffness and strength ***in the fore and aft plane of travel of the bicycle***. But since side bending stiffness isn’t as critical due to lighter side loads, the wall thickness outside of the plane of travel may be reduced. This permits a lighter

weight steerer tube that nonetheless meets all loading requirements.

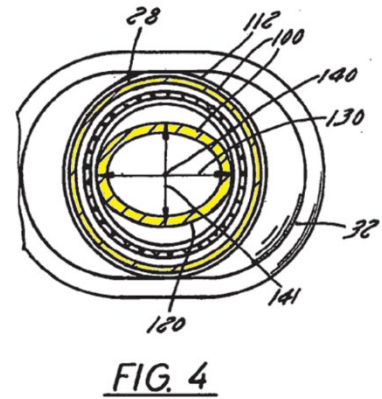
Id., 2:4-9 (emphasis added). The ‘993 Patent summarizes this same understanding:

In summary, steerer tube embodiments have been illustrated and described which have lower sections, or portions of same, with a wall thickness in the plane of travel that is greater than the wall thickness outside of the plane of travel, and *which therefore exhibit a greater stiffness fore and aft than they do side-to-side.*

Id., 7:57-62.

In short, Denk does not disclose or suggest that its bicycle frame tube could be used as a steerer tube and oriented to have maximum stiffness in the bicycle’s plane of travel because Denk is focused on an entirely different set of rider weight forces compared to the torsional and fore-aft forces acting on a steerer tube. Ignoring these indisputable facts about Denk, Petitioner conclusorily alleges a POSITA would take Denk’s bicycle frame tube and combine it with Moechnig (Ex. 1008), which discloses a steerer tube but was already considered during the prosecution of the ‘993 Patent and overcome. *See, e.g.*, Ex. 1002 (‘993 Patent File History) at 185-187 (response to office action applying Moechnig); *id.* at 210-218 (office action applying Moechnig). Moechnig does not come close to filling in this critical missing element from Denk.

Moechnig itself is directed to an entirely different tubing structure. For example, Moechnig does not disclose a varying wall thickness for the interior or exterior of the steerer tube. See, e.g., Ex. 1008 (Moechnig), FIGS. 4-6 (showing equal wall thicknesses). An annotated version of Moechnig's Figure 4 is shown here, with the yellow highlights showing the constant wall thickness. *Id.*, FIG. 4.



In fact, Moechnig is built with the opposite goal in mind compared to the '993 Patent's claimed structure, in that *Moechnig aims to decrease fore-aft stiffness* as opposed to increasing that fore-aft stiffness as shown in the '993 Patent (*i.e.*, increasing strength and rigidity of the steerer tube in the bicycle's plane of travel). Moechnig explains that an "increase in the fore and aft rigidity of the steerer assembly detrimentally affects the fore and aft stiffness performance of the steering assembly by communicating greater amounts of the fore and aft directed loading of the front wheel to the rider." *Id.*, [0009]. Therefore, *Moechnig seeks to have a less rigid fore-aft construction for the steerer tube* (*i.e.*, in the plane of the bicycle's travel) and a more rigid lateral steerer tube:

Decreasing the fore-aft stiffness of the steerer assembly
16 provides two distinct advantages as compared to prior

art steerer tube assemblies. A first advantage is a decrease in the amount of force that is transmitted to the rider therein increasing the comfort level associated with the use of bicycle **10**. A second advantage is the distribution of the load associated with testing and/or frontal impacts over a greater duration of an impact or deflection event. The increased compliance of steerer assembly **16** to fore and aft loading reduces the peak load that must be accommodated by steerer assembly **16** and the other structural members of the fork and bicycle assembly. Accordingly, steerer assembly **16** can be constructed in a lightweight manner capable of withstanding the fore and aft impact loading as compared to heavier steerer assemblies or constructed to provide greater fore and aft impact performance as compared to steerer assemblies of comparable weight. ...

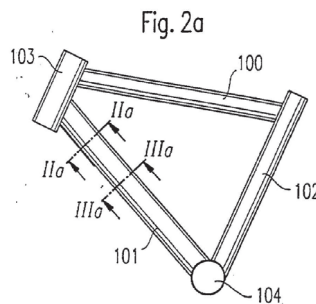
With respect to lateral [i.e., side-to-side] stiffness performance, the lateral stiffness performance of a bicycle steerer assembly can be correlated to the steering responsiveness. That is, rather than deflecting or rotating when subjected to a steering instruction input, most riders prefer a more rigid lateral interaction with the steerer assembly.

Id., [0049]-[0050] (bold and italics emphasis added).

In other words, the proffered art of Moechnig (already considered and overcome during the '993 Patent's prosecution) does not provide a motivation for using a steerer tube with a Denk-like construction unless oriented in the opposite direction compared to the '993 Patent claimed invention, which would completely undermine the goals and achievements of the '993 Patent.³

2. The Proffered Motivations to Combine Denk with Moechnig Based on Alleged Strength and Weight Considerations Are Deficient.

As stated above, the Petition incorrectly conflates a bicycle frame with a steerer tube and a fork. A bicycle fork is not the same as a bicycle frame, the latter of which is shown in Denk:



³ The Schroeder reference adds nothing in this regard either, itself only being offered for Independent Claim 64's additional limitation that the steerer tube and fork crown are made of different materials. *See* Petition (Paper 1) at 46-47.

Ex. 1005 (Denk), Fig. 2a.

Denk shows only a bicycle frame with no fork whatsoever. As a result, Denk omits a steerer tube, providing no suggestion that Denk's tubing would be suitable for a steerer tube of a bicycle fork. Accordingly, the Petition's suggestion that the tubes of Denk would add mechanical strength when used as a steerer tube (*e.g.*, Petition (Paper 1) at 13-14) is based only on hindsight and makes no sense when combined with Moechnig, which teaches strength in directions opposite to those claimed in the '993 Patent.

Further, the Petition argues that Denk is lower weight than a typical piece of tubing. *E.g.*, Petition (Paper 1) at 13-14. However, this is, at best, speculation, without knowing the particulars about what tubing that would be replaced. Denk's tubing, with *excess material* in certain places, may be heavier than a standard tube with equal wall thickness and a circular profile. The Petition's statement is without any basis, and accordingly, cannot support a finding of obviousness.

Moreover, the Petition ignores the express teachings of Moechnig that the steerer tube should be more rigid in the lateral direction rather than the fore-aft direction (*i.e.*, the bicycle's plane of travel). Petitioner's picking and choosing from these different references, misconstruing the teachings of both Denk and Moechnig, is a clear case of hindsight bias.

Accordingly, no prior art reference discloses or suggests orienting a bicycle steerer tube with a varying wall thickness to have its maximum stiffness, and therefore maximum thickness, in the bicycle's plane of travel. Instead, the prior art teaches the opposite orientation. Ex. 1008 (Moechnig), [0009], [0049]-[0050]. Without the '993 Patent's claims as a roadmap, a person skilled in the art would have had no reason to modify Denk in view of Moechnig to orient the maximum thickness of the steerer tube wall in the direction of the bicycle's path of travel.

"The inventor's own path itself never leads to a conclusion of obviousness; that is hindsight." *Millennium Pharms., Inc. v. Sandoz Inc.*, 862 F.3d 1356, 1367 (Fed. Cir. 2017) (quoting *Otsuka Pharm. Co. v. Sandoz, Inc.*, 678 F.3d 1280, 1296 (Fed. Cir. 2012)). "What matters is the path that the person of ordinary skill in the art would have followed, as evidenced by the pertinent prior art," (*id.*) and here that path is not present in the prior art.

C. Grounds 3 and 4 Asserted Against the Corresponding Challenged Claims Are Also Legally and Technically Deficient.

As discussed below, the Independent Claims are not rendered obvious by the asserted prior art grounds including Valat. The Valat-based grounds suffer from the same issues regarding the orientation of the maximum thickness of the walls of the body of the steerer tube as the Denk-based grounds, but also include additional issues with the disclosures of Valat and the motivations to make the purported

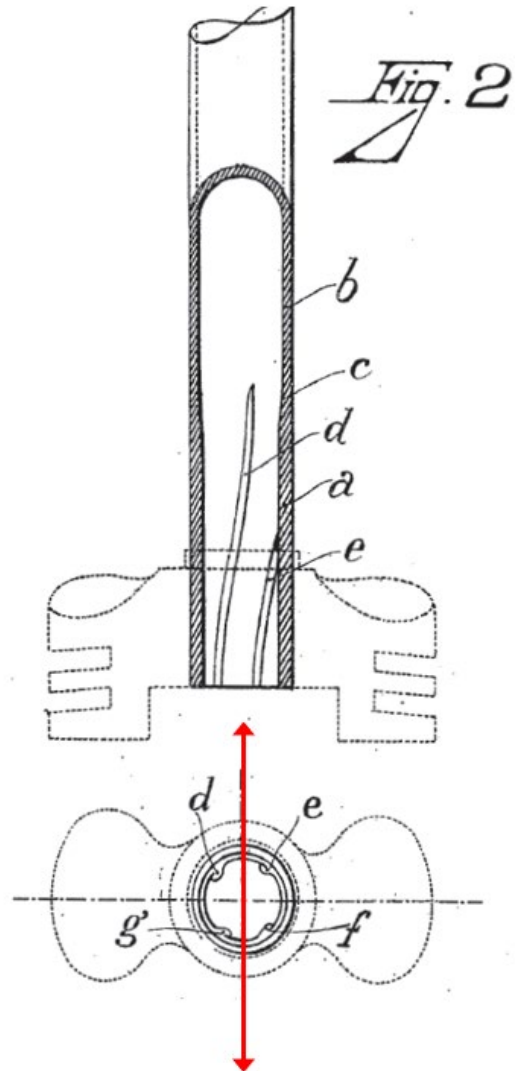
combinations. Accordingly, Petitioner again fails to show a reasonable likelihood of success with respect to at least one claim of the '993 Patent, and the Board should deny the Petition.

1. Valat, Alone or in Combination, Fails to Disclose or Suggest a Bicycle Steerer Tube With a Varying Wall Thickness Being at a Maximum in the Bicycle's Plane of Travel, as Claimed in Independent Claims 1, 61, and 64 and the Challenged Dependent Claims.

Great Britain Patent No. 287,452 to Valat ("Valat") (Ex. 1007) does not render the Challenged Claims obvious in combination with Denk, Moechnig, and/or Schroeder.

To start, Valat does not disclose or suggest a steerer tube having a "body formed by a wall ... the wall thickness being at a maximum in the plane of travel of the bicycle" as claimed in the Independent Claims. Instead, Valat simply discloses a steerer tube having ribs ("d," "e," "f," and "g") formed on the interior in a helical pattern. Ex. 1007 (Valat), FIG. 2 (annotated).

As can be seen in this annotated figure, the wall of the steerer tube is relatively thin in the direction of the bicycle's travel (shown in red) and certainly not at a maximum wall thickness as required by the Independent



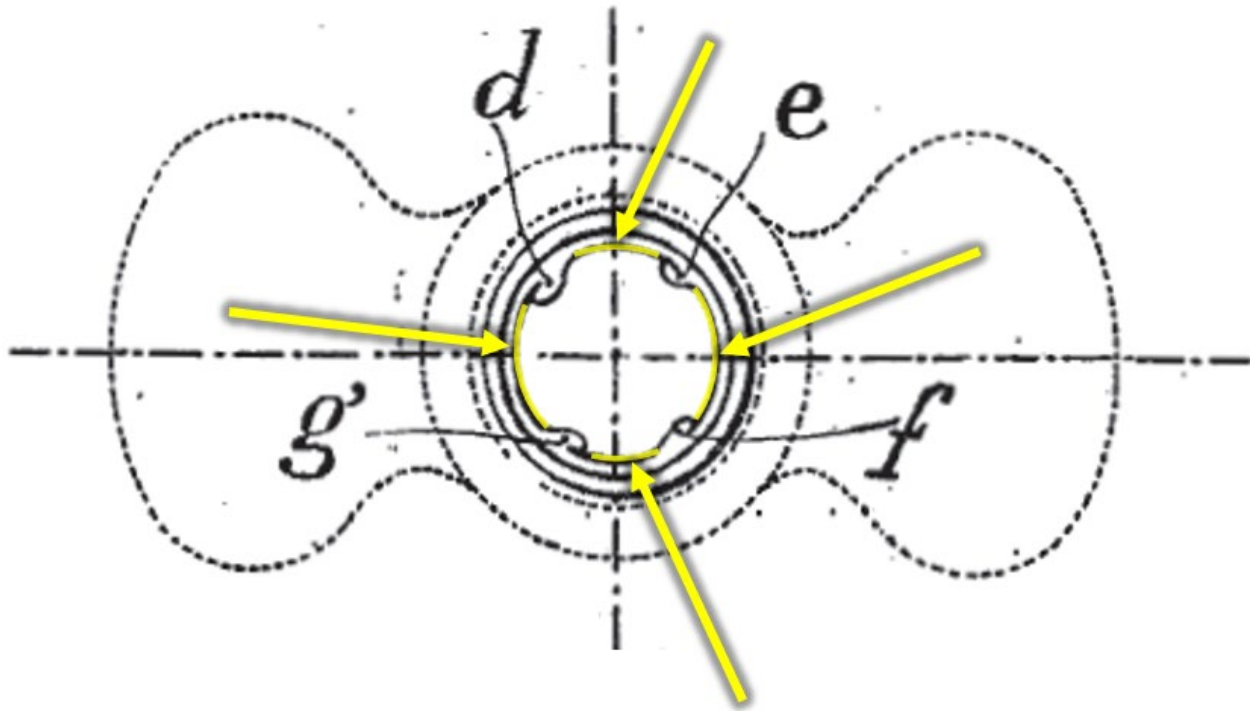
Claims. Accordingly, Valat fails to disclose or suggest a maximum wall thickness in the plane of the bicycle's travel.

Petitioner recognizes this inherent flaw in Valat and therefore resorts to combining it with Denk and Moechnig, in an unsuccessful attempt to meet this critical claim limitation. *See* Petition (Paper 1) at 68. However, as discussed above in Sections II(B)(1) and II(B)(2), both Denk and Moechnig fail to suggest this orientation of the wall thicknesses of the fork. Further, as discussed above, Moechnig teaches away from such an orientation. Accordingly, no cited reference (or combination thereof) discloses or suggests this maximum wall limitation for the bicycle's plane of travel, and the Independent Claims are clearly not rendered obvious in view of the proposed Valat combinations.

2. Valat, Alone or in Combination, Fails to Disclose or Suggest a Bicycle Steerer Tube With a Wall Thickness Varying With Cross-Sectional Angle, as Claimed in Independent Claims 1, 61, and 64 and the Challenged Dependent Claims.

Valat also does not disclose or suggest a steerer tube having a “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” as recited in each of the Independent Claims. Rather, Valat discloses a body having portions of the wall that are unvarying in thickness as a function of the cross-

sectional angle of the point relative to the plane of travel. These unvarying sections are shown in the annotated Figure 2 of Valat, below:



Further, each of the other three embodiments of the ribs shown in Figures 3, 4, and 5 of Valat (which do not disclose any specific plane of travel) also show interiors with portions unvarying in thickness, *i.e.*, sections that do not vary in wall thickness relative to the cross-sectional angle of the point relative to the plane of travel because *adjacent points have the same wall thickness*.

Petitioner argues that because “Valat discloses that reinforcements are provided in lower part *a*[,] ... the wall thickness at any point in the lower section of the body—lower part *a* and taper *c*—depends on whether the point is in a region with reinforcement.” Petition (Paper 1) at 65. However, Petitioner’s view of this

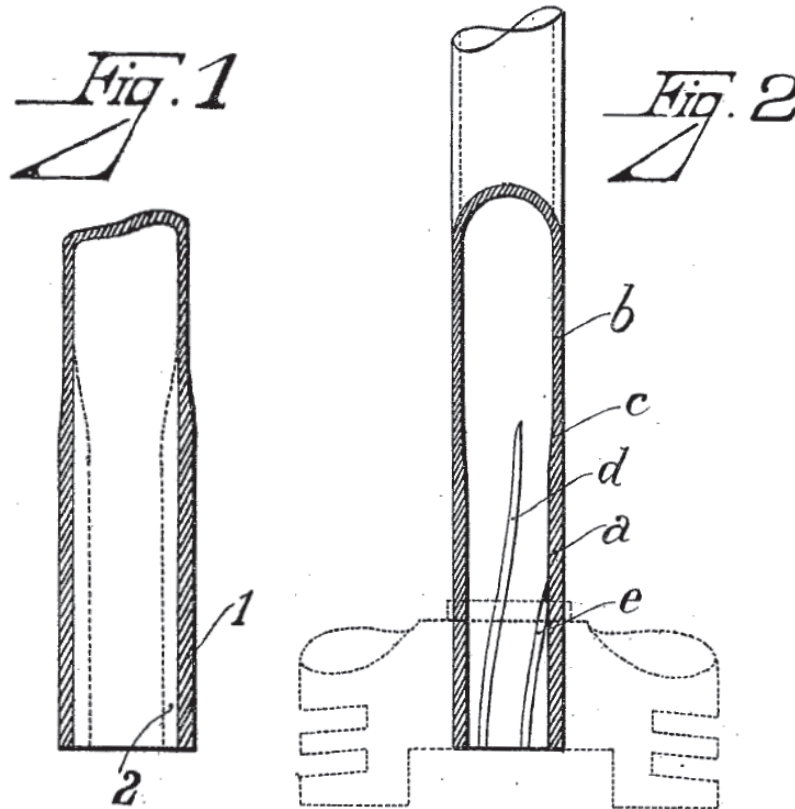
limitation is entirely too broad, as it would capture any shape, even a circle. The ‘993 Patent makes clear that the term “body formed by a wall, a thickness of the wall at any point in the lower section of the body varying as a function of the cross-sectional angle of the point relative to the plane of travel” includes a continuously varying interior surface that is elliptical. *See, e.g.*, Ex. 1001 (‘993 Patent), FIGS. 3, 6-10, 13-17, 19-23, 25-29, 31-36, 6:15-19, 1:60-2:10, 6:59-64. On the other hand, the ‘993 Patent clearly excludes circular interior shapes, but Petitioner’s understanding would capture such a shape because a circular interior shape would have a wall thickness that depends on cross-sectional angle, although the function describing the dependency would be a constant for wall thickness. Accordingly, Valat fails to disclose this required limitation for all Challenged Claims.

3. Valat, Alone or in Combination, Fails to Disclose or Suggest a Bicycle Steerer Tube Having Upper and Lower Sections That Are Circular in Diameter, as Claimed in Independent Claim 1 and Its Challenged Dependent Claims.

Moreover, Valat does not disclose or suggest a steerer tube having “outer surfaces of the upper and lower sections of the body being circular in cross section” as claimed in Independent Claim 1 and the 59 claims dependent on it. Rather, Valat is silent regarding the shape of the outer diameter in its sections “a” and “b.”

As an initial matter, Valat does not disclose different “configurations” in Figures 1 and 2. Instead, Valat explains that Figure 1 is an example of a tube before

a swaging process is performed, whereas Figure 2 shows the resultant tube after swaging. Specifically, “Figure 1 shows an axial section of the tube *before* the reinforcements are formed and showing two of them in dotted lines,” as reproduced below (Ex. 1007 (Valat), 1:58-60 (emphasis added)):



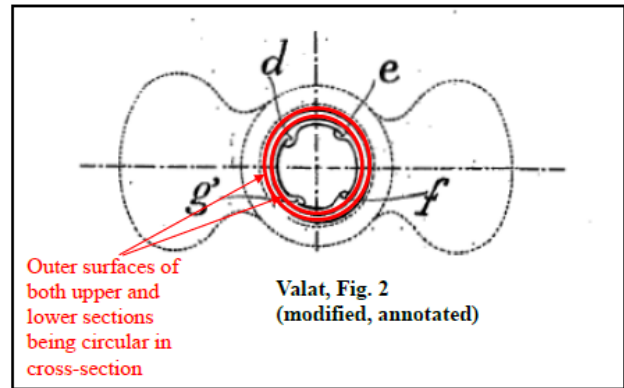
Further, Valat explains immediately after that “Figure 2 shows the finished tube mounted on a fork bridge, with helical reinforcements of long pitch,” as reproduced above. *Id.*, 1:61-63.

Valat continues to explain that all embodiments of Valat’s steering tubes have a constant external diameter along its length:

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 .

Id., 1:70-77. The internal diameter, however, does vary. *Id.*, FIG. 2, 1:70-77, 1:86-90. The tube shown in Figure 1 starts with an external diameter that is greater in section “a,” but the subsequent swaging process results in an internal diameter that is tapered and formed to have helical ribs. *Id.*, 1:97 to 2:4. This is because the swaging process will squeeze in the extra material on the exterior of the tube shown in FIG. 1 around a mandrel placed inside of the tube during the swaging, the mandrel having an exterior shape that mimics the opposite of desired helical rib pattern. *See id.* As the tube is pressed inwards, the material will form into the mandrel, leaving behind a tube having an exterior diameter that is constant, and an interior with shaped ribs.

Accordingly, both Petition and Petitioner's expert do not appear to appreciate the full disclosure of Valat, and instead, pick and choose from Valat's figures without appreciating what Valat actually discloses. Petition (Paper 1) at 49-50, 61-63; Ex. 1003 (Slocum Declaration), ¶¶49, 181. Petitioner goes as far as annotating a figure in Valat (shown to the right) to conjure these non-existent diameters out of pure imagination. See Petition (Paper 1) at 63.



There is no support for these annotations whatsoever, especially in view of the clear statements in Valat that the tube has a constant diameter and is formed by swaging. Petitioner's expert argues further that, because the tube is stated as having a diameter, it must be circular. Ex. 1003 (Slocum Declaration), ¶182. This statement is self-serving and without support, especially in view of Petitioner's (and its generalist expert's) clear misunderstanding of Valat's disclosure. Petitioner provides no other basis for suggesting that Valat discloses or suggests this limitation. Further, Dr. Slocum even admits that the definition of "diameter" is broader than just having applicability to circles. *Id.* Further, the term "diameter" is applicable to any chord that passes through the center of a body having any cross-sectional shape. Dr. Slocum's limited definition of the term "diameter" is without support and

amounts to nothing more than his own, unsupported *ipse dixit*. Accordingly, because Valat fails to disclose or suggest (and because Petitioner's understanding of Valat is demonstrably false), the Valat-based grounds fail to render Independent Claim 1 (and its dependent claims) obvious.

4. A Person of Ordinary Skill in the Art Would Not Have Been Motivated to Exchange Valat's Internal Ribs with Denk's Internal Elliptical Shape.

Valat discloses a means for reinforcing the lower portion of a steerer tube against shear forces in any direction by including helical ribs within the tube. Ex. 1007 (Valat), 1:35-51. This is the entire purpose of Valat – it provides no other advancements beyond the prior art. The Petition summarily suggests replacing Valat's ribs with Denk's cross-sectional shape. Petition (Paper 1) at 52-54. This is a total hindsight combination, premised on Fox's misunderstanding that Valat's Figure 1 discloses an embodiment of Valat's invention, where Figure 1 is actually an intermediate step in the method of making Valat's invention, which is actually shown in Figure 2.

In any case, a POSITA would not remove Valat's ribs because Valat's ribs are the sole inventive purpose of Valat. Valat explains:

According to the present invention the tubes are provided with solid internal ribs or reinforcements by the swaging process so that a continuous external surface is produced,

and such reinforcements preferably follow helices of log pitch. They may be provided over the whole length of the tube, or confined to those parts which are subjected to shear when in use.

Ex. 1007 (Valat), 1:35-43.

The Board has recognized that where “the basic principle of operation of [a primary reference] would be so changed and the modifications would be so substantial” as to completely rework the primary reference’s operation, the proposed grounds would not render the claims at issue obvious. *Ex Parte Andre Buerk*, Appeal No. 2015-003685, 2017 WL 3620340, at *8 (PTAB Aug. 18, 2017). *See also, e.g., Samsung Elecs. Co., Ltd. v. Mojo Mobility Inc.*, Case No. IPR2023-01092, 2024 WL 85041, at *13 (PTAB Jan. 8, 2024); *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959), *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984). Removing Valat’s ribs would do just that – change the entire principle of operation with the most substantial changes possible. The disclosure of Valat is vitiated by these proposed grounds. Further, Valat was concerned with shearing across the entire lower portion. The helical ribs do not favor one direction from another, and Valat explains further:

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 of the fork bridge. It is frequently in this region that fractures

commence, which are rapidly transferred into complete failures.

Ex. 1007 (Valat), 1:44-51; *see also, e.g., id.*, 1:35-43. In other words, Valat is concerned with shear forces in any direction for this lower region, and accordingly, would not adopt a design that includes weakness in some directions. Such a change would defeat the purposes of Valat. Accordingly, because there would be no motivation to combine Valat and Denk (or any other reference), the Independent Claims are not obvious, and the Petition should be denied.

III. THE BOARD SHOULD EXERCISE ITS DISCRETION UNDER 35 U.S.C. § 314(a) TO DENY INSTITUTION.

Petitioner's strategic entanglement of all six factors under *Apple v. Fintiv*, Case No. IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*") — essentially creating one mosh-pit *Fintiv* argument — exposes Petitioner's implicit recognition that it lacks supportable arguments with respect to each enumerated factor. Petitioner's heavy reliance on *Fintiv* Factor 1 (and related Factors 2 and 3) is now clearly misplaced, as the underlying federal court litigation has proceeded apace and is expected to conclude months in advance of any final written decision by the Board, even assuming institution. Petitioner's concessions on *Fintiv* Factors 4 and 5 (relating to the overlap in parties and arguments in the underlying litigation)

and conclusory statement on *Fintiv* Factor 6 reinforce the appropriateness of the Board's discretionary denial under *Fintiv*.

A. Factor 1 Favors Denial: In the Parallel Georgia Case, the Court Lifted Its Stay on March 6, 2024, Discovery Is Scheduled to End in Two Months, and Trial Is Expected in the Early Summer of 2025.

Petitioner focuses much of its argument against discretionary denial on the Georgia District Court's temporary stay of proceedings pending adjudication of Petitioner's Motion to Transfer Venue ("Motion to Transfer"). That stay is now lifted and discovery is proceeding apace, with trial anticipated in the early summer of 2025.

What Petitioner conveniently omits in its discussion is the frivolous and misleading nature of its Motion to Transfer, *ab initio*. See Ex. 2001 (Order Denying Fox Factory, Inc.'s Motion to Transfer to the Northern District of California and Order to Show Cause as to Why Sanctions Are Not Appropriate). Specifically, as the Court ultimately recognized, Petitioner's Motion to Transfer the underlying litigation was based on factual misrepresentations regarding the location of its principal place of business as set forth in its initial Motion to Transfer and *maintained* in its Reply in Support of its Motion to Transfer, even after Patent Owner exhaustively set forth clearly contradictory, publicly available evidence. See *id.* at 7-15, 23-25. Recognizing Petitioner's misleading and false statements, the Court denied the Motion to Transfer and simultaneously issued a Show Cause Order

demanding that Petitioner explain why sanctions should not be issued for its wrongful conduct. *See id.* at 24 (“FOX’s silence and its selective speech leads the Court to conclude that FOX originally misrepresented the location of its principal place of business. To the extent that is so, the Court will not let such conduct stand unsanctioned.”) (footnote omitted).

As the direct cause of this unnecessary stay of proceedings (wasting nearly a year⁴ of Patent Owner’s time to pursue its claims), Petitioner should not be rewarded for its dilatory actions, nor should Patent Owner be forced to succumb to the same. Further, since the Court’s lifting of the clearly unwarranted stay on March 6, 2024, the Georgia case has been full steam ahead, as detailed further below. Moreover, it is doubtful that the Court will grant another stay to Petitioner in light of its previous misgivings, even if this proceeding is instituted, nor has Petitioner filed a Motion to Stay in light of the instant Petition.

⁴ Petitioner filed its misleading Motion to Transfer on April 3, 2023, and the District Court denied the Motion to Transfer on March 6, 2024. Ex. 2001 (Order Denying Fox Factory, Inc.’s Motion to Transfer to the Northern District of California and Order to Show Cause as to Why Sanctions Are Not Appropriate).

This factor therefore strongly weighs in favor of denial.

B. Factor 2 Favors Denial: The Parallel Georgia Case Is Proceeding Towards Trial.

While a trial date has not yet been set (again in part due to Fox’s dilatory actions), trial is expected in the underlying Georgia case by the early summer of 2025 based on the Court’s docket.

Petitioner’s statistics regarding “time to trial” are inaccurate insofar as they apparently only include *two* data points. Contrary to Fox’s data of a purported 7-year median time to trial based on this incredibly limited data, 56% of all patent disputes⁵ in the Northern District of Georgia receive a jury verdict between 842 to 1,287 days (between 2.5 to 3.5 years), with a median “time to outcome” for a jury trial of 974 days (roughly 2 years and 8 months). Ex. 2002 (Thomson Reuters’ Westlaw Litigation Analytics Report for United States District Court, N.D. Georgia).

Given the minimal data points with respect to patent cases in the Northern District of Georgia, Patent Owner also provides the Board with general Northern

⁵ The Westlaw analytics system produces 9 patent case data points. Ex. 2002 (Thomson Reuters’ Westlaw Litigation Analytics Report for United States District Court, N.D. Georgia).

District of Georgia statistics, further illustrating Petitioner's inaccuracies. According to LexisNexis, out of the 642 cases that reached trial from January 1, 2009 to May 2, 2024, the median time to trial was 870 days (about 2 years and 4 months). Ex. 2003 at 5 (LexisNexis Analytics for United States District Court, N.D. Georgia). According to the United States Department of Justice, the average time from filing to trial in the Northern District of Georgia in 2023 was 31 months (a little over 2.5 years). Ex. 2004 at 93 (United States Department of Justice District Court Caseload Statistics).

Here, the parallel District Court case has been on-going for greater than 1 year and 3 months. Therefore, under a more accurate representation of the time to trial statistics for the Northern District of Georgia, the Parties expect a jury trial in the early summer of 2025, prior to any final written decision, even assuming a Final Written Decision from the Board. Additionally, the Court's Scheduling Order put the parallel Georgia case on a 4-month discovery track, beginning at the time it ruled on Petitioner's faulty Motion to Transfer. *See* Ex. 2005 (Scheduling Order, dated May 31, 2023, *SRAM, LLC v. Fox Factory, Inc.*, Case No. 1:23-cv-00492-SCJ). Thus, merely two months are left for discovery.

This factor therefore favors denial.

C. Factor 3 Favors Denial: The Parties Have Invested Significant Time and Resources in the Parallel Georgia Case.

Petitioner summarily states that “the parties and the district court have made very little progress and investment in the case,” yet Petitioner has now produced over 5,500 pages worth of documents. Indeed, well over 6,000 pages of documents have been exchanged between the parties, preliminary infringement contentions, responses thereto, and preliminary invalidity contentions have all been served, and multiple sets of Interrogatories and Requests for Production have been served by Patent Owner and Petitioner. This is not “very little progress and investment,” as Petitioner avers. Patent Owner and Petitioner have taken full advantage of their right and opportunity to pursue discovery.

Moreover, apparently at odds with its argument in the United States District Court for the District of Colorado and in relation to a separate *inter partes* review proceeding between these same parties, Petitioner filed the instant *inter partes* review Petition on the day of its statutory deadline (nearly eight months after it served Patent Owner with its Preliminary Invalidity Contentions in the District Court case). *See* Ex. 2006 at 3 (Fox’s Brief in Opposition to SRAM’s Motion to Stay) (citing 35 U.S.C. § 315(b) and criticizing the “delayed filing [of] its IPR petitions until the end of the statutory one-year statutory [sic] deadline to file them”); *see also Snap, Inc. v. SRK Technology LLC*, Case No. IPR2020-00820, Paper 15 at 11 (PTAB

Oct. 21, 2020) (precedential) (citing *Fintiv*, at 11-12) (noting that the third *Fintiv* factor “provides that a petitioner’s diligence or delay in filing a petition may be relevant.”); *Bentley Motors Ltd. v. Jaguar Land Rover Ltd.*, Case No. IPR2019-01539, Paper 9 at 13-15 (PTAB Mar. 10, 2020) (non-precedential) (exercising discretion to deny institution of review in part because “Petitioner filed th[e] petition ... just one week before the statutory deadline.”).

Although the Court has not issued orders related to the patent at issue in the petition, any failure to progress towards such an order is due to Petitioner’s now-denied, baseless Motion to Transfer that forced Patent Owner and the Court to focus significant time and resources on respectively briefing and considering a motion wholly lacking in legal and factual support. *See* Ex. 2001 (Order Denying Fox Factory, Inc.’s Motion to Transfer to the Northern District of California and Order to Show Cause as to Why Sanctions Are Not Appropriate). Petitioner’s actions wasted nearly a *year*. Patent Owner should not be penalized for any delays directly attributable to Petitioner’s potentially sanctionable conduct (currently under review for sanctions by the Court at this time), and further argues that, if the Board considers the progress in the Court case to be minimal, it should not be weighed against Patent Owner for policy reasons, including insofar as it would encourage and incentivize Petitioner’s dilatory actions.

Accordingly, this factor also weighs in favor of denial.

D. Factor 4 Favors Denial: Petitioner Conceded That the Issues Raised in the Petition and in the Parallel Georgia Case Significantly Overlap.

Petitioner conceded, as it must, that there is significant overlap between the prior art and arguments asserted in the District Court case and its *Inter Partes* Review Petition. *See* Petition (Paper 1) at 101; *see also* Ex. 2007 (Petitioner’s Preliminary Invalidity Contentions presenting nearly the exact same grounds as here, including the same prior art references). Importantly, Petitioner has *not* stipulated that it will not pursue in the Georgia case the same grounds asserted in the petition or any grounds that could have reasonably been raised in the petition, which would “mitigate[] any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *See Sotera Wireless, Inc. v. Masimo Corp.*, Case No. IPR2020-01019, Paper 12 at 18-19 (PTAB Dec. 1, 2020) (precedential).

This factor therefore strongly weighs in favor of denial.

E. Factor 5 Favors Denial: Petitioner Conceded That the Parties Are the Same in This Proceeding and the Parallel Georgia Case.

Similarly, Petitioner conceded, as it must, that the parties are the same in both these proceedings and in the Georgia case. *See* Petition (Paper 1) at 101. This factor therefore strongly weighs in favor of denial.

F. Factor 6 Does Not Outweigh the Denial of Institution Counseled by Factors 1-5, Wherein Fox's Arguments Lack Merit and Have Already Been Disavowed by the Examiner.

In each Ground, Petitioner supplies prior art that lacks critical portions of the Independent Claims as discussed above at length. First, all Grounds fail to disclose or suggest a steerer tube having a varying wall thickness being at a maximum in the bicycle's plane of travel. This limitation is entirely lacking in the prior art, and Petitioner supplies no legally and technically sound reasoning for a person of ordinary skill in the art to do so. In fact, one of Petitioner's prior art references, Moechnig, expressly teaches away from doing so. As a result, Petitioner's only motivations to combine amount to an impermissible hindsight reconstruction of the claims, solely for Petitioner's benefit in this matter. This is not enough to support a reasonable likelihood of success with respect to at least one claim of the '993 Patent.

But the Petition has additional failures. For the Denk-based Grounds (Ground 1 and 2), Petitioner fails to show that Denk is pertinent to the unique and changing forces and stresses applicable to steering tubes, especially considering Denk's self-stated applicability to only bicycle frames. For the Valat-based Grounds (Grounds 3 and 4), Valat fails to disclose or suggest steerer tubes that (1) include a body with a wall thickness that varies in cross-sectional angle; or (2) are circular in exterior cross-sectional shape in their upper and lower sections, as required by the first sixty (60) claims of the '993 Patent.

None of the prior art references, or their combinations, provides any of the missing limitations or motivations to combine. As a result, this Petition provides only weak grounds that lack many essential limitations of the Independent Claims and are cobbled together in a desperate attempt to avoid repercussions for Petitioner's unfair and unauthorized infringement of the '993 Patent's claims.

In other words, the Petition does not present "compelling, meritorious challenges" to avoid denial of institution under *Fintiv* Factor 6 and the challenges are so technically and legally deficient that the Petition does not "plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence." *Fintiv* Memorandum, at 4.

In conclusion, the Board should deny institution under § 314(a) in view of the *Fintiv* Factors 1-5 weighing in favor of denial and the Petition's lack of "compelling unpatentability challenges".

IV. CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Patent Owner certifies that this Patent Owner Preliminary Response complies with 37 C.F.R. § 42.24(d). As calculated by the "Word Count" feature of Microsoft Word 2016, the Patent Owner Preliminary Response contains 8,460 words, excluding the words contained in the following: Table of Contents, Table of Authorities, Table of Exhibits, Certificate Under 37 C.F.R. § 42.24(d), and Certificate of Service.

V. CONCLUSION

Petitioner has failed to meet its burden of showing why *inter partes* review should be instituted. The asserted grounds in this Petition are mostly duplicates of those in the related district court litigation, and most importantly, are legally and technically deficient, such that they cannot avoid denial of institution under § 314(a). The Board should therefore deny institution of *inter partes* review.

Respectfully submitted,

LEWIS RICE LLC

Dated: May 13, 2024

By: /s/ Michael J. Hickey

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Attorneys for Patent Owner SRAM,
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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing Patent Owner's Preliminary Response and Exhibits 2001 through 2009 were served by email at the following address of record for the Petitioner's Counsel on May 13, 2024:

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