

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SRAM, LLC,

Petitioner,

v.

FOX Factory, Inc.,

Patent Owner.

U.S. Patent No. 8,550,223 B2

Filing Date: May 11, 2009

Issue Date: October 8, 2013

Title: METHODS AND APPARATUS FOR POSITION SENSITIVE
SUSPENSION DAMPENING

Case No. IPR2024-00216

SECOND DECLARATION OF ERIC WANG, P.H. D.

INTRODUCTION AND QUALIFICATIONS

1. My name is Eric Wang. I make this Reply Declaration in support of Petitioner SRAM, LLC's ("Petitioner") Petition for *Inter Partes* Review of U.S. Patent No. 8,550,223 B2 ("the '223 patent"). This Reply Declaration responds directly to the statements and arguments made in Patent Owner's Response (Paper 15), as well as in Dr. Slocum's Declaration (Ex. 2010). I have personal knowledge of the facts set forth below, and, if called upon as a witness, I could and would testify to such facts under oath.

2. My experience, qualifications, and understandings of the law are contained in my first Declaration in this matter, Exhibit 1002.

3. I have reviewed all of the exhibits and papers in this matter in forming my opinions.

4. It is my opinion that Patent Owner's Response, and the related exhibits, has not presented anything that would cause me to revisit my opinion that the claims of the '223 patent are anticipated and obvious in view of the prior art.

5. Further, nothing in either the Response or Dr. Slocum's Declaration alter my opinion that the '223 patent discloses only well-known devices. In fact, the '223 patent only discloses and claims a combination of well-known damper features as part of a common shock absorber.

I. CLAIM CONSTRUCTION ISSUES

A. “bottom out cup”

6. I understand that Patent Owner applied *different* constructions for the claim term “bottom out cup” for Grounds I-IV and Ground V (Gartner). Response, 8–11. Patent Owner’s new construction is: “a cup-shaped feature configured for providing dampening only at the end portion of a compression stroke”. Response, 8, 10. Patent Owner states that it applied its new construction to only Ground V involving Gartner. Response, 9–11. I disagree with Patent Owner’s construction of “bottom out cup.”

7. The plain and ordinary meaning of “bottom out cup” is not very limited. In particular, “bottom out cup” is a cup-shaped feature that is capable of providing some (or at least participate in) bottom out protection. This term is included in each of independent claims 1, 11, and 19. In reviewing the claims, no wording in any claim requires the bottom out cup to be “at the end of a compression chamber” and no wording in any claim requires the bottom out cup to be “for providing dampening only at the end portion of a compression stroke.” The Board agreed in its Institution Decision. Paper 11, 11. Nothing in the claims require narrowing the meaning of “bottom out cup” beyond what is already stated.

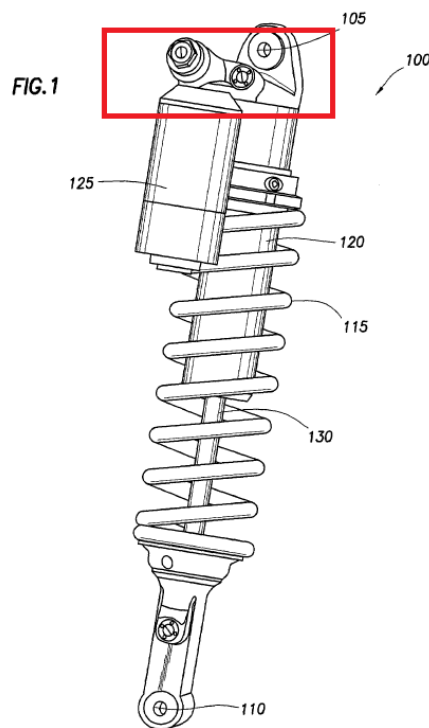
8. I understand that Patent Owner is using this construction to narrow its claims in such a way that the claims will no longer be anticipated by Gartner (Exhibit

1010). However, as the claims would be understood by a POSITA, the term “bottom out cup” would not be limited to only providing damping in one position. The claims do not include any limitations on when damping is provided.

9. Claim 1 states that the “bottom out cup [is] formed at an end of the compression portion.” There is no requirement that the bottom out cup is formed at a lower end. In fact, the ‘223 patent even describes one embodiment where the bottom out cup is at the upper end of the rebound chamber. Ex. 1001, 6:51–7:1. Similarly, there is no requirement that the bottom out cup only provides damping at the end of the compression stroke. The Board agreed in its Institution Decision. *See* Paper 11, 11. I note that Claim 17 has a similar limitation for location, but Claims 11 and 19 do not state any location of the bottom out cup. Accordingly, some of the ‘223 patent claims include a location for the bottom out cup. On the other hand, none of the ‘223 patent’s claims state where, or at what point in the compression stroke, the bottom out cup provides damping. *See* Paper 11, 11.

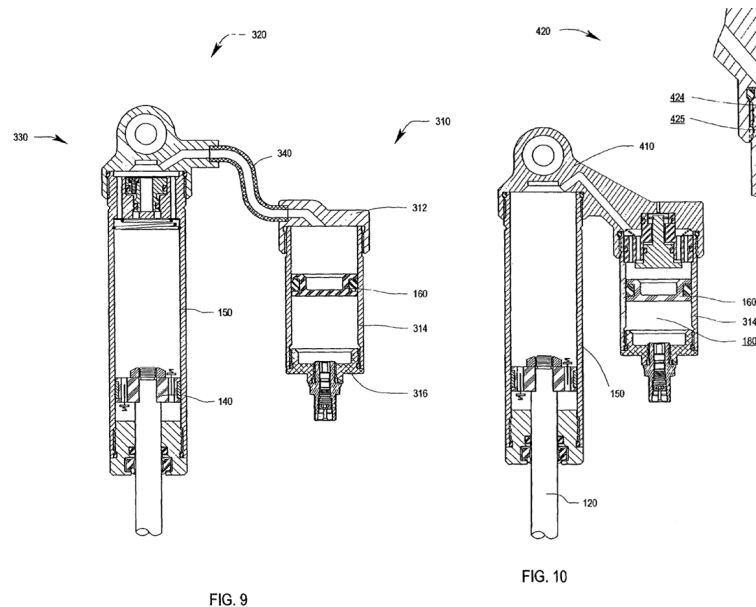
10. Similarly, the ‘223 patent’s specification does not state that the “bottom out cup” needs to be “for providing dampening only at the end portion of a compression stroke.” In fact, it would be technically inaccurate to describe the devices disclosed in the ‘223 patent as only providing damping via the bottom out cup when the shock absorber is at the end of its compression stroke. This is because at least some fluid will enter into and travel through the bottom out cup during all

portions of the compression stroke. This is due to fluid always flowing into the ‘223 patent’s reservoir **125**. Said another way, all embodiments that have a bottom out cup in the compression portion discussed in the ‘223 patent will cause at least some damping via the bottom out cup whenever the shock absorber is compressing. The ‘223 patent’s reservoir **125** is shown in Figure 1:



11. A POSITA would understand from this image that the reservoir **125** is connected to the shock absorber at the end (the top in Figure 1) of the damper’s compression chamber using a fluid path. Although these details are not all included in the ‘223 patent’s specification directly, the specification references and incorporates another patent, U.S. Patent No. 7,374,028 (Ex. 1017), to describe the reservoir **125**. U.S. Patent No. 7,374,028 (Ex. 1017) discloses some purported

improvements to shock absorbers. Ex. 1001 ('223 patent), 3:36–39; Ex. 1017, Abstract. Specifically, Exhibit 1017 shows a reservoir attached to a damper at the very end, or top, of the compression chamber as shown in Figures 9–10, reproduced below:



12. As can be seen in Figures 9-10, the reservoirs are connected to the damper via a fluid flow path at the very end, or top, of the damper chamber. Based on this explanation and example, a POSITA would know that the '223 patent's reservoir is also at the very top, or end, of the damper chamber, which would be above the bottom out cup in the '223 patent. Dr. Slocum stated the same in his deposition. Ex. 1020 (Slocum Depo.), 27:21–32:15.

13. Due to this configuration with the fluid flow path for the reservoir being above the bottom out cup in the '223 patent, whenever the '223 patent's shock

absorber is compressing, oil will always flow into the reservoir **125** to compensate for the volume of shaft entering the damper. In particular, fluid will flow through the bottom out cup during a compression stroke in the ‘223 patent’s shock absorber because it will travel from the damper chamber into the reservoir **125**, using the bottom out cup as a fluid path. Ex. 1020 (Slocum Depo.), 39:25–42:7; *id.*, 44:10–16; 48:6–49:2; 86:11–87:8. Finally, because this fluid flow travels through a restriction, the fluid flow will necessarily produce some additional damping. Patent Owner’s construction is incorrect because each embodiment in the ‘223 patent will produce some additional damping during the entire compression stroke via this flow of fluid through the bottom out cup to the reservoir **125**.

14. I understand Patent Owner’s arguments in support of Patent Owner’s construction of the claim term “bottom out cup” to include two main thrusts: (1) the broadly stated ‘223 patent’s claims read on a broad set of damper features, including cup-shaped features, which is broader than desired by Patent Owner, and (2) the ‘223 patent’s claims are narrowed or limited by an undefined term, “dampening functionality,” that Patent Owner believes should be an explicit limitation in their claims. *See* Response, 9–10. In my opinion, the term “bottom out cup” does have a broad scope because the plain meaning of the term is of broad scope, as it would be understood by a POSITA to mean nothing more than a cup-shaped feature that provides additional damping to reduce bottoming out. Further, I am unsure what

Patent Owner means by “dampening functionality,” but I note that there is no specific application for the damper or shock absorber included in the claims.

15. In the end, Patent Owner provides no evidence or valid argument that the recited “bottom out cup” should be narrowed beyond its plain meaning. Accordingly, my opinion is not swayed, and the term “bottom out cup” should be construed to mean “a cup-shaped feature.” The Board construction is also acceptable.

B. “fluid communication from the cup to the compression portion of the chamber”

16. Patent Owner’s attempts to insert a requirement into the above-referenced limitation that requires some directionality of flow during a compression stroke. *See, e.g.*, Response, 11-12. But, as I describe below, Patent Owner’s attempts are flawed, especially when compared to the language of claim 19.

17. I fully discussed this issue in my first declaration, Exhibit 1002, in paragraphs 93 and 123. I provide the following additional information in response to the arguments in Patent Owner’s Response.

18. Unlike claim 1, which does not include any directionality requirement, claim 19 includes a directional element. Specifically, claim 19 states: “in a compression stroke of the damper, the fluid flows from the bottom out cup to the compression chamber[.]” A POSITA would understand this claim language to mean

that fluid flows from the bottom out cup to the compression chamber during a compression stroke. On the other hand, claim 1's discussion of fluid communication only requires the fluid communication to span from the bottom out cup to the compression chamber. Dr. Slocum even implicitly agreed with me, stating in his Infringement Contentions in the related District Court matter that "fluid communication is made regardless of the direction of the fluid flow." Ex. 1022 (Slocum Infringement Report), ¶143. In stating so, he agreed with my early opinion that the term "fluid communication" is directionless. *Id.* Thus, the experts in this matter agree that "fluid communication" is a directionless term. As a result, when this directionless term spans between two things, it may be said that the directionless fluid communication extends to and from one of the things to the other. This "to" and "from" language, in context, does not indicate that fluid actually flows to the first thing from the second thing. Instead, all that is required is that there is a communication link made between those two things. Ex. 1002, ¶123.

II. Prior Art Grounds

A. Nakaya

19. In my first Declaration (Ex. 1002), I discussed Ground I regarding Nakaya-based anticipation and obviousness grounds in paragraphs 89 to 118, as well as in some others. I provide the following additional information in response to the arguments in Patent Owner's Response. Response, 22–40.

20. First, Patent Owner argues that Nakaya does not disclose a damper. *See, e.g.*, Response, 22–26. However, Nakaya contains damping elements. *See, e.g.*, Ex. 1002, ¶¶53–57, 89–90. Any POSITA would recognize that Nakaya includes both a spring (energy storage) and damper (energy dissipation) elements because it looks like a shock absorber, having a piston in a pressure cylinder that has a means for transferring fluid from one side to the other, thereby causing damping. A POSITA would understand from a visual inspection that Nakaya’s throttle valves/passages **140**, **832**, **4824a**, and **4824b** provide damping. Thus, Nakaya is a shock absorber having a damper because it is designed to provide damping. Perhaps Nakaya does not use the words “damping” or “damper”, but everyone agrees that Nakaya discloses damping.

21. More particularly, Nakaya provides damping when the working fluid, air, is forced through Nakaya’s various restrictive components, like the throttle passage **823** and constant throttle valve **140** in the embodiment of Figures 7 to 9 (“Nakaya’s First Embodiment”) and the two paths around Nakaya’s throttle valves **4824a**, **4824b** in the embodiment of Figures 17 to 19 (“Nakaya’s Fourth Embodiment”). Dr. Slocum even admitted that forcing a fluid through a restriction will cause a sheering, which will result in damping. Ex. 1020, 44:17–45:11. And Patent Owner similarly admitted that Nakaya produces “damping due to the use of metered orifices for air flow.” Response, 15. Dr. Slocum apparently agreed with

Patent Owner's statement that Nakaya produces damping, as he noted in his declaration that "throttling of the air [in Nakaya] will inherently produce some minimal damping, which is required to prevent unwanted oscillations of the prosthetic limb[.]" Ex. 2010 (Slocum), ¶43. *See also* Ex. 1020, 92:1–107:8 (Nakaya forces fluid through a restriction, which causes damping). Moreover, I note that Dr. Slocum called Nakaya's device a damper during his deposition. Ex. 1020, 93:25–95:10. Neither Dr. Slocum nor Patent Owner provides any documents or analysis to explain as to why this damping amount is purportedly "minimal." Further, neither Dr. Slocum nor Patent Owner provides any documents or analysis to explain as to why the damping produced by Nakaya's device is insufficient for Nakaya to be a "damper."

22. A POSITA would know that many shock absorbers include air springs along with dampers. A POSITA would also know that many dampers use air as the damping fluid. One of the most common air-based dampers are those used to softly close doors, which most people are very familiar with. Another example of an air-based damper is U.S. Patent No. 5,775,677 ("Englund"), which discloses a shock absorber for a bicycle that includes both an air spring and an air damper. Ex. 1018. I understand that Englund was issued back in 1998, which indicates that "an air or gas sprung shock absorber which utilizes a pressurized gas for damping the compression and rebound stroke" has been known for more than two decades. *Id.*,

1:11–15. Further, Englund shows that a POSITA would be well-versed with this concept of “an air or gas sprung shock absorber which utilizes a pressurized gas for damping the compression and rebound stroke[.]” *Id.* Further, I am familiar with the commercial product from Cane Creek that practiced the Englund patent (Ex. 1018), which was known as the AD-10 and AD-12. This shock absorber was used as a rear shock for bicycles for many years. It is my understanding that it was quite popular because it was relatively lightweight and robust. Below is an image of the AD-10:



23. Patent Owner argues that an air-based damper is not sufficient for bicycles. Response, 25–26. But this is simply not true. In fact, air-based dampers are sufficient not only for bicycles, but POSITA’s have also used many different air-based damper systems for other vehicles, like automobiles. *See, e.g.*, Ex. 1018, Abstract, 2:9-18 (discussing Ex. 1021); Ex. 1021 (U.S. Patent No. 5,163,697), 3:44–46 (damping with a fluid 70 that may be a gas). Dr. Slocum even agreed in his deposition that POSITAs have used air-based dampers. Ex. 1020, 117:3–5; *id.*, 125:15–20.

24. I note that Patent Owner does not argue, or even indicate in the Response and to the Board, that the terms “damper” and “shock absorber” have special definitions or a clear disavowal of scope in the ‘223 patent’s specification. *See* Response, 7–12 (no discussion in Claim Construction Section); *id.*, 22–26 (same in Nakaya Section). Further, it is my opinion that the ‘223 patent does not include any disclaimer or disavowal of claim scope regarding these broad terms.

25. No terms or phrases in the ‘223 patent’s claims require narrowing “damper” and “shock absorber” to any minimum level of damping provided by the damper. *See* Ex. 1020, 107:9–14. This is especially true since the ‘223 patent’s specification does not indicate the level or amount of damping that must be provided by a device for that device to be considered a damper, and the claims do not require any specific use, nor do they associate the damper with any specific application, such

as a bicycle or an automobile. Thus, all applications for a shock absorber are applicable, regardless of the level of damping required by the shock absorber's particular application. I note further that Patent Owner and Dr. Slocum do not discuss or explain a basis for any minimum level or amount of damping for the claims that is tethered to the '223 patent or to the knowledge of a POSITA, which tells a POSITA that they have no basis for attempting to narrow these terms to provide a minimum amount of damping. *See* Ex. 1020, 106:7–111:11. Nevertheless, Patent Owner proclaims, without any support, that Nakaya is not a damper, but then, confusingly, Patent Owner also admits that Nakaya necessarily provides damping. *See* Response, 13, 15; Ex. 1020, 90:22–91:13, 93:25–95:10, 105:9–106:2.

26. In my opinion, the plain and ordinary meaning of a “damper” is most accurately described as being a device that provides damping. While a shock absorber primarily provides damping, it also can provide energy storage (typically in the form of a spring). Ex. 1020, 97:13–98:4. Therefore, for this matter, the damper of a shock absorber is simply a device that provides damping in a system and has both damping and energy storage (i.e., a spring). Without a doubt, Nakaya meets this definition where air is used as both the energy storage mechanism and the damping fluid.

27. Patent Owner cites to extrinsic evidence—to Dr. Slocum and Dr. Wesling—in support of narrowing the meaning of “damper”. Response, 24–25. The claims and the specification do not narrow the term “damper” in a way that might exclude a damper for a prosthetic limb. No application is claimed, nor any specifics on the level/amount of damping. Patent Owner’s poor construction of “damper” requires that damping be the primary purpose of the device to meet this limitation. *See, e.g.*, Response, 12–13, 22–26. Although Dr. Slocum reiterated this idea throughout his deposition, this idea is plainly false. Ex. 1020, 90:22–91:13, 99:11–101:7, 129: 8–130:18. Again, neither the claims nor the specification requires a narrowing of the term “damper” to exclude a damper for a prosthetic limb, as discussed above. The claims also do not state what kind of shock absorber or damper is claimed, nor do they even state a specific application for the intended use of the shock absorber, such as a shock absorber for a particular vehicle or other shock absorbing duty, as discussed above. Nevertheless, if the intended use of being a “shock absorber” were limiting in some way (in my opinion it is not), Nakaya functions as a shock absorber by absorbing the shocks related to the swinging of a prosthetic knee while walking.

28. Further, the Response argues that: “If Nakaya’s apparatus was a ‘damper,’ then the user would strain to walk and would feel like they were walking or running in loose sand, which is not the intended function of a prosthetic limb.”

Response, 25. The Response cites to Dr. Slocum's Declaration (Ex. 2010) at paragraph 59, which states the same. I disagree with Patent Owner and Dr. Slocum because a prosthetic knee typically contains a damper to slow the swing of the lower leg as the knee reaches full extension or flexion, as is shown in Nakaya. Said another way, a prosthetic knee typically includes both bottom out and top out protections, so that the swing speed of the lower leg is arrested before maximum extension or flexion is reached. Without this bottom and top out protection, the prosthetic knee would reach a hard bottom out or a hard top out, which would make every step uncomfortable for the user.

29. Further, the arresting of the swing is desirably produced via damping, as opposed to using only an air spring to prevent bottom out. This is because the user of the prosthetic knee does not want the lower leg to rebound from either the bottom out or top out condition like a pogo stick. While tendons and ligaments are fairly good at storing energy (e.g., a kangaroo's locomotive method), muscles are very poor at storing energy (which is why weightlifting is so hard). Unlike the ankle, the knee has very little natural energy storage and undamped motion at the knee's end range of motion would result in very unnatural gait. In Nakaya, much of the kinetic energy is dissipated as the knee approaches full extension or full flexion via Nakaya's damping elements. Thus, damping in Nakaya is by design, intending to assist in a smooth walking motion. *See, e.g.,* Ex. 1005, 2:24–27, 3:63–4:5.

30. Next, Patent Owner argues that Nakaya fails to disclose fluid communication from the bottom out cup to the compression portion. Response, 27–33. I discussed this issue in paragraphs 44, 93, and 116 of my first Declaration (Ex. 1002). I provide the following additional information in response to the arguments in Patent Owner’s Response.

31. As an initial matter, the language-at-issue in claim 1 of the ‘223 patent does not require a specific direction of flow, as discussed at length in Section I(B), above.

32. As explained in the Petition, Nakaya’s First Embodiment provides that the air in the bottom out cup moves into the compression portion, which increases the pressure within the compression portion. Petition, 31–32. Because air moves from regions of higher pressure to regions of lower pressure, a fact that the parties have agreed upon, a POSITA would understand that Nakaya could be built to move air from the bottom out cup to the compression chamber, or vice versa. As I stated in my first Declaration, the direction “depends on which region is reducing in volume faster.” Ex. 1002, ¶¶56–57; *see also* Ex. 2010, ¶91. But I also restate here that the specific construction disclosed in Nakaya’s First Embodiment, Nakaya has the bottom out cup **1125, 1127** increasing in pressure at a faster rate than the compression portion **82/821**, and, as a result, air will move from the bottom out cup **1125, 1127** to the compression portion **82/821**. Ex. 1002, ¶¶56–57.

33. Patent Owner attempts to argue that the above is not true, but it is wrong. *See* Response, 28–29 (discussing Nakaya’s Figure 8). To support its argument, Patent Owner relies on Dr. Slocum’s opinion, but Dr. Slocum does not provide any support or explanation as to why his interpretation of Nakaya’s written description and figures is correct. *See id*; Ex. 2010, ¶66. For example, Dr. Slocum provides no support or explanation for his statement that “The flow from chamber **821** must now all effectively go through throttle passage **823** in order to flow into chamber **822**, and that flow through throttle passage **823** combines with some flow being pushed forward by the end of projection **1140b**.” Ex. 2010, ¶66. To the contrary, a POSITA would understand that, although what Dr. Slocum’s states may be true in other embodiments of Nakaya, depending on the sizing/configuration of the various features, Nakaya states, in column 9 at lines 24 to 29, that air will be forced into the chamber **821** from the bottom out cup **822**. Dr. Slocum’s red arrows in the figures on page 28 of the Response are incorrect and without support in Nakaya.

34. Dr. Slocum provides a sliver of an explanation in Paragraphs 72–77 of his Declaration. Here, Dr. Slocum attempts to explain away Nakaya’s statements that the pressure increases in the compression portion. Ex. 2010, ¶¶72–77. But this thread of an explanation is really not a considered an opinion because Dr. Slocum still does not provide any understandable rationale explaining why Nakaya

intentionally includes these statements about the pressure increasing. *See id.* If the fluid in Nakaya were incompressible (i.e. oil), then Dr. Slocum's explanation could make some sense. However, since Nakaya uses air as the working fluid, Dr. Slocum is incorrect in asserting that increasing pressure in chamber **821** means that air is exiting that region. This is because, as explained above and in my first Declaration, air will flow from a region of greater pressure to a region of lesser pressure, regardless of whether the pressure in the region of lesser pressure is increasing or not. Thus, a POSITA would understand that Nakaya discloses, through its figures and its written description, that air is flowing from the bottom out cup **1125, 1127** (region **822**) to the compression portion **82/821** for at least some amount of time in the specific embodiment included in the written description.

35. On pages 33 to 40 of the Response, Patent Owner argues that the fluid flow paths of claims 11 and 13 cannot be (1) the same path in a prior art reference or (2) two distinct paths that have some overlap. For the reasons discussed below, I disagree. I provide the following additional information in response to the arguments in Patent Owner's Response.

36. As an initial matter, it is my opinion that claim 13 is invalid for indefiniteness because it is not possible to determine if "the fluid flow path" in the phrase "wherein the capacity of the fluid flow path is adjustable" refers to the fluid flow path of claim 11 or the fluid flow path recited earlier in claim 13.

37. Further, Patent Owner has repeatedly accused the same path as infringing claims 11 and 13 in the related District Court case. This can be seen in Exhibits 1012 and 1013 where Patent Owner argued that the fluid flow path of claim 13 is the same fluid flow path in claims 1, 2, and 11. Patent Owner apparently recognizes its inconsistency on this matter and attempts to explain away this issue in the Response's Footnote 6. Response, 34. Nevertheless, its infringement contentions very clearly show that Patent Owner has accused the exact same structure as infringing claims 1, 2, 11, and 13. This can be seen below in Patent Owner's infringement analysis for claim 13, which references its contentions for claim 2:

Claim	U.S. Patent No. 8,850,223	RockShox Super Deluxe Coil Ultimate
13	The damper of claim 12, further including a fluid flow path formed between the cup and the primary compression chamber; wherein the capacity of the fluid flow path is adjustable.	The RockShox Super Deluxe Coil Ultimate has the damper of claim 12, which further includes a fluid flow path formed between the cup and the primary compression chamber, and wherein the capacity of the fluid flow path is adjustable. <i>See supra</i> claim 2.

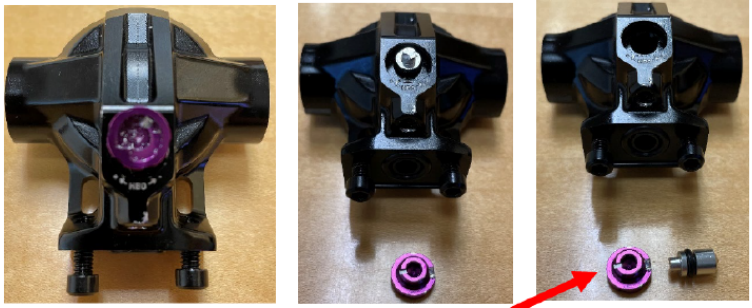
Ex. 1013, 35.

38. Below is Patent Owner's infringement analysis for claim 2 referencing its contentions for claim 1:

Claim	U.S. Patent No. 8,850,223	RockShox Super Deluxe Coil Ultimate
2	The damper of claim 1, wherein the capacity of the flow path is adjustable with an adjustable valve, the valve restricting the fluid flow.	The RockShox Super Deluxe Coil Ultimate has the damper of claim 1, wherein the capacity of the flow path is adjustable with an adjustable valve, with the valve restricting the fluid flow. <i>See supra</i> claim element 1[d].

Id., 20.

39. Claim element 1[d] shows only a single flow path:

Claim	U.S. Patent No. 8,850,223	RockShox Super Deluxe Coil Ultimate
1[d]	wherein the capacity of the fluid flow path is adjustable.	In the RockShox Super Deluxe Coil Ultimate, the capacity of the fluid flow path is adjustable.  Adjustable valve to adjust capacity of fluid flow path

Id., 19.

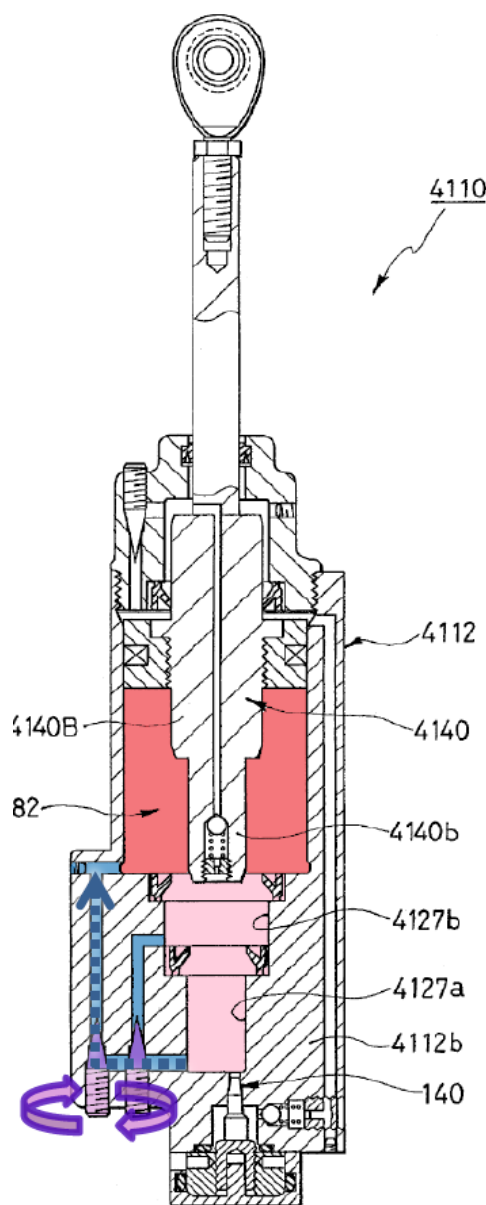
40. Finally, claim element 11[d] also refers to claim element 1[d]:

Claim	U.S. Patent No. 8,850,223	RockShox Super Deluxe Coil Ultimate
11[d]	an adjustable fluid flow path formed in the cup, the flow path providing fluid communication between the cup and the primary compression chamber in a compression stroke of the damper.	The RockShox Super Deluxe Coil Ultimate has an adjustable fluid flow path formed in the cup, wherein the flow path provides fluid communication between the cup and the primary compression chamber in a compression stroke of the damper. <i>See supra</i> claim elements 1[c], 1[d].

Id., 33.

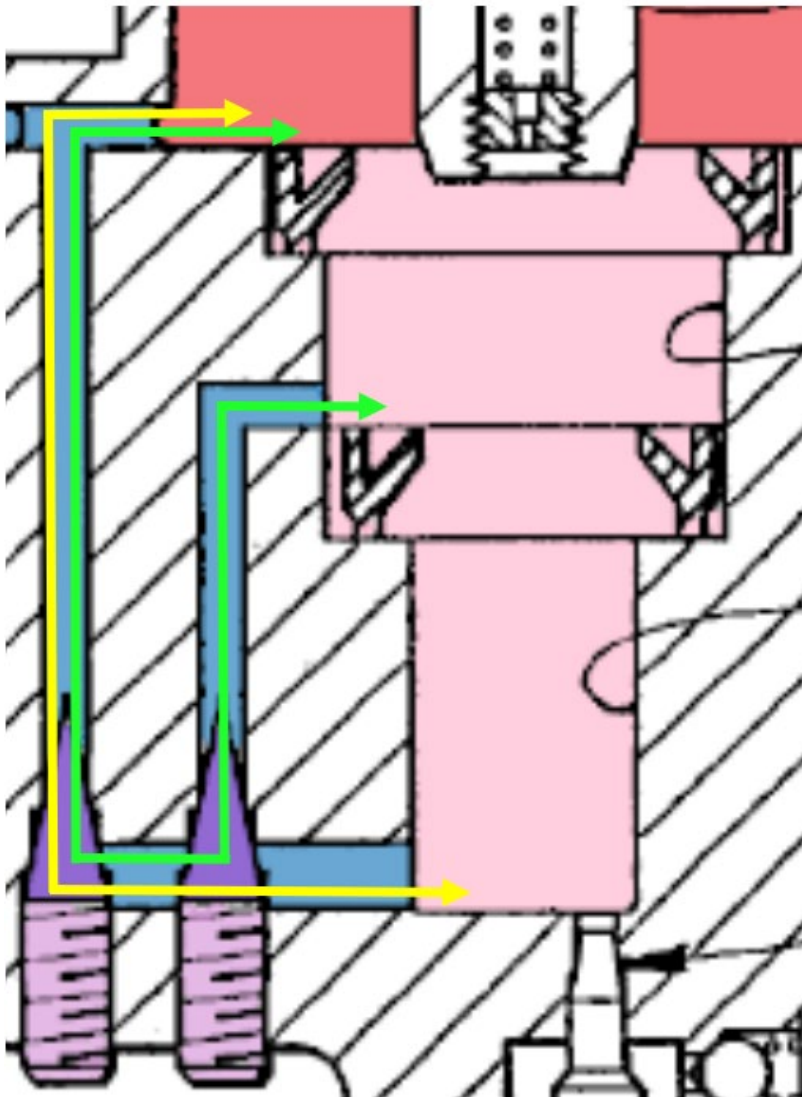
41. I note that Patent Owner presented the same arguments in Exhibit 1012 at pages 34, 19, 18, and 32, respectively. It is clear that Patent Owner's prior position in the District Court proceeding is consistent with Petitioner's position here, but now Patent Owners apparently has changed their construction from what was asserted in the District Court.

42. Nonetheless, as shown in the Petition, Nakaya's Fourth Embodiment includes two fluid flow paths extending from the bottom out cup (the volume within **4127b** and **4127a**) (pink) to the primary compression chamber **82** (light red) during a compression stroke of the damper, as shown in the following annotated version of Nakaya's Figure 17:



Petition, 49.

43. As shown in the magnified image below, Nakaya's Fourth Embodiment includes two fluid flow paths, one shown with a green arrow and another shown with a yellow arrow:



44. As depicted in the image, the fluid flow path following the yellow arrow is different than the fluid flow path following the green arrow. Although these paths clearly follow some of the same portions of Nakaya, they are different paths. Accordingly, the Petition clearly shows that Nakaya has two fluid flow paths from the bottom out cup to Nakaya's compression portion 82. *Id.*

45. Patent Owner argues that these two paths are not actually two paths because they share some portions along their extents. Response, 39–40. Yet neither the claims nor Patent Owner provide a reason to narrow the claims to exclude different paths that have some extent of overlap. The claim language places no constraint on the extent of the fluid flow paths, and a POSITA would understand that it is possible, and sometimes expected or desirable, for two paths to cross, or share a portion, but still remain two separate paths. In fact, even the two paths in the ‘223 patent share the same headspace above the bottom out cup. Patent Owner has made no redefinition or any disavowal of claim scope for these terms. Moreover, the specification contains no restrictive language and does not explicitly require that the fluid flow paths be wholly separate. In any event, the plain and ordinary understanding of two paths would allow for some overlap. I note that the ‘223 patent’s claims continue to read properly even when the different paths in claims 11 and 13 cover overlapping paths (save the indefiniteness issues I mentioned above, which are not based on this specific issue).

46. I note that in the related District Court case, Dr. Slocum accused the exact same path in his Expert Report on Infringement. Specifically, Dr. Slocum accused the same path in SRAM’s accused shock absorbers. Ex. 1022, ¶¶141–143. Specifically, Dr. Slocum accuses the bottom out cup of having a first path during compression, and then he states that the second path is the same as the first during

extension. Accordingly, Dr. Slocum directly accuses the exact same structure in SRAM's accused products as being both paths of claims 1, 2, 11, and 13. *Id.* Of course, because it is the same path, Dr. Slocum's "two" paths overlap completely.

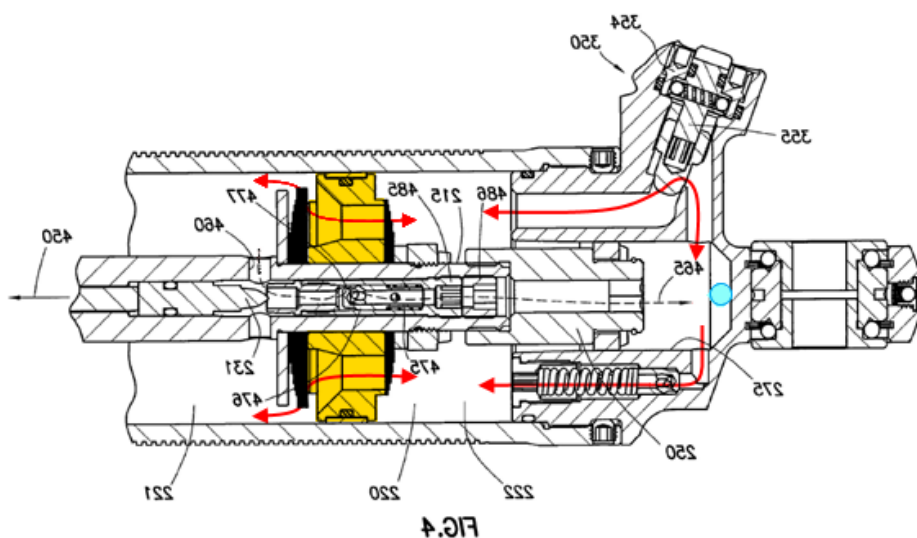
47. Accordingly, the fluid flow paths may overlap, and Nakaya clearly anticipates claim 13.

B. Chen-Based Grounds

48. In my first Declaration (Ex. 1002), I discussed Grounds II-IV regarding Chen-based obviousness grounds in paragraphs 119 to 176, as well as in some others. I provide the following additional information in response to the arguments in Patent Owner's Response. Response, 41–58.

49. Here, Chen in view of Deferme and Fox '751 in view of Chen each disclose the same structure recited in the '223 patent's written description and claims. Because these each disclose the same structure, each combination would perform the same functions as the devices disclosed and claims in the '223 patent.

50. Specifically, Figure 4 of the '223 patent shows that the overall damper includes multiple flow paths, shown below in red, and a path to the reservoir **125**, shown below at the light blue circle:



Ex. 1001, FIG. 4 (annotated and rotated about vertical axis); Ex. 1020, 87:9–89:2.

51. The combination of Chen and Deferme would have the same flow paths, with Deferme's piston replacing Chen's piston (yellow highlights):

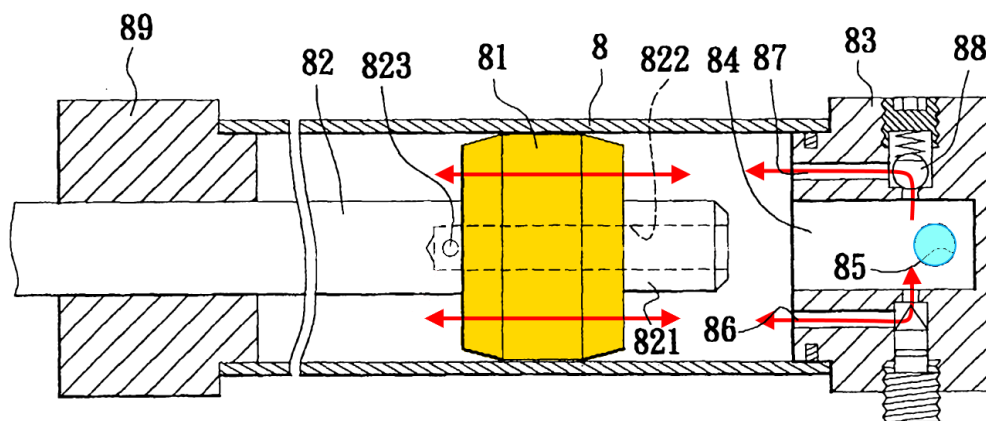


FIG. 4
PRIOR ART

Ex. 1007, FIG. 4 (annotated).

52. Likewise, the combination of Fox '751 and Chen would also have the same flow paths, with Fox '751's piston replacing Chen's piston (yellow highlights):

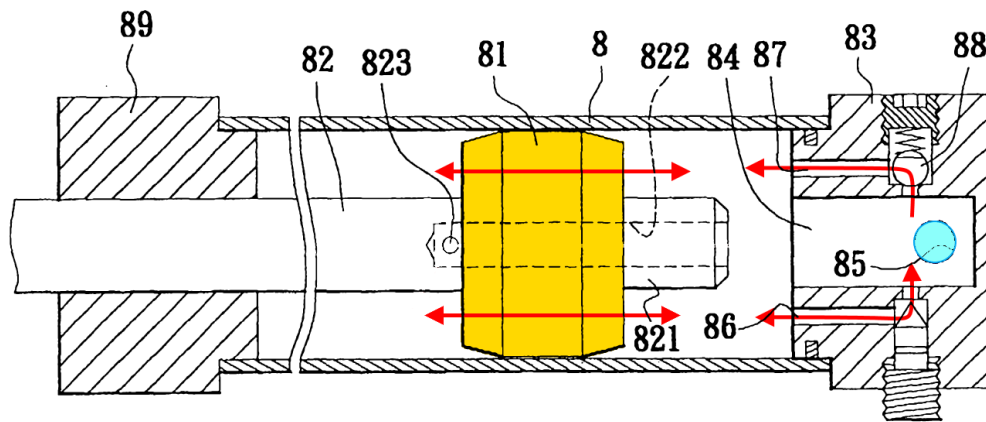


FIG. 4
PRIOR ART

Id.

53. As indicated above, each of these combinations is a device that has the same structure and flow paths as those shown in the '223 patent, and this shared structure is solely responsible for the direction of flow through the paths during a compression stroke. Accordingly, each of the combinations shown in Grounds II, III, and IV are devices that meet the functional limitations requiring a fluid to flow from the bottom out cup to the compression portion. As I explained in my first declaration, "whether or not the fluid flows into the compression portion from the bottom out cup 84, or vice versa, depends on a design choice for the relative

geometries of this region.” Ex. 1002, ¶144. Because the flow of fluid into the compression portion is dependent on various design choices related to geometries of this region, a POSITA would have been motivated to try different relative geometries to adjust the resultant bottom out resistance for different applications. *Id.* Therefore, even if the combination of either Chen in view of Deferme or Fox ‘751 in view of Chen did not show that the fluid would flow from the bottom out cup to the compression portion, which I believe they both do, such a construction would have been obvious to a POSITA, and a POSITA would have been motivated to try such a combination and the results would have been predictable. *Id.*, ¶¶80, 85, 87–88, 144.

54. Patent Owner also argues that Chen’s bottom out piston **821** is not formed on the piston rod **82**. Response, 52–53. This argument is flat out wrong because Chen’s Figure 4 clearly shows that the bottom out piston **821** is formed on piston rod **82**. The fact that Chen’s bottom out piston **821** appears to be the same diameter as the piston rod **82** is not relevant because nothing in the ‘223 patent (claims, specification, prosecution history, etc.) narrows the phrase “formed on” in claim 11 to exclude indirect connections, or the bottom out piston being a part of the piston that is “formed on” the piston rod. Resultingly, a POSITA would understand that “formed on” may include intervening structures or connections made through

other parts. This appears to be another of Patent Owner's woefully misguided attempts to narrow the claims around the prior art.

55. In addition to the above for Chen-based grounds, Dr. Slocum also stated that there is no requirement that the fluid flow path of claim 13 be present during a compression stroke. Ex. 1022, ¶146.

C. Gartner

56. In my first Declaration (Ex. 1002), I discussed Ground V regarding Gartner-based anticipation grounds in paragraphs 177 to 190, as well as in some others. I provide the following additional information in response to the arguments in Patent Owner's Response. Response, 58–60.

57. As discussed above in Section I(A), Patent Owner and Dr. Slocum have applied a new and unsupported construction to the term “bottom out cup” to Gartner. Response, 58–60.

58. Per the Board's construction, the bottom out cup **260, 460** (pink) is a cup-shaped feature configured for providing damping. *See also* Ex. 1010 (Gartner), Abstract, 1:15–33, 9:33–48; Ex. 1002 (Wang Dec.), ¶¶179–180, 188–190. Also, Gartner's bottom out cup **260, 460** (pink) is formed at the end of compression portion **26.4** (light red) and provides additional damping to reduce bottoming out:

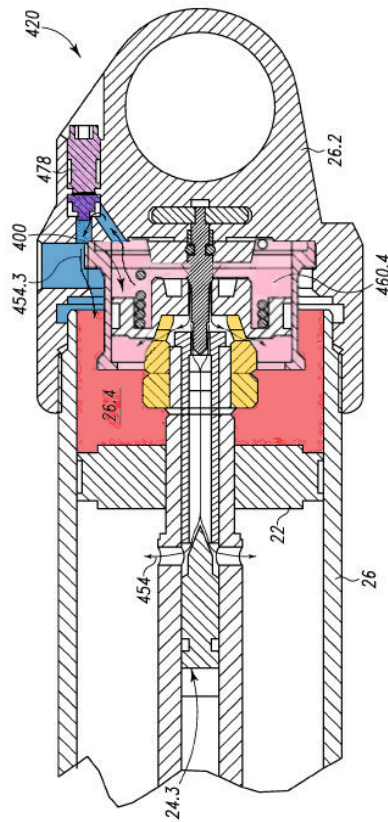


Fig. 12A

Ex. 1010, FIG. 12A (annotated); *see also* Petition, 108–110.

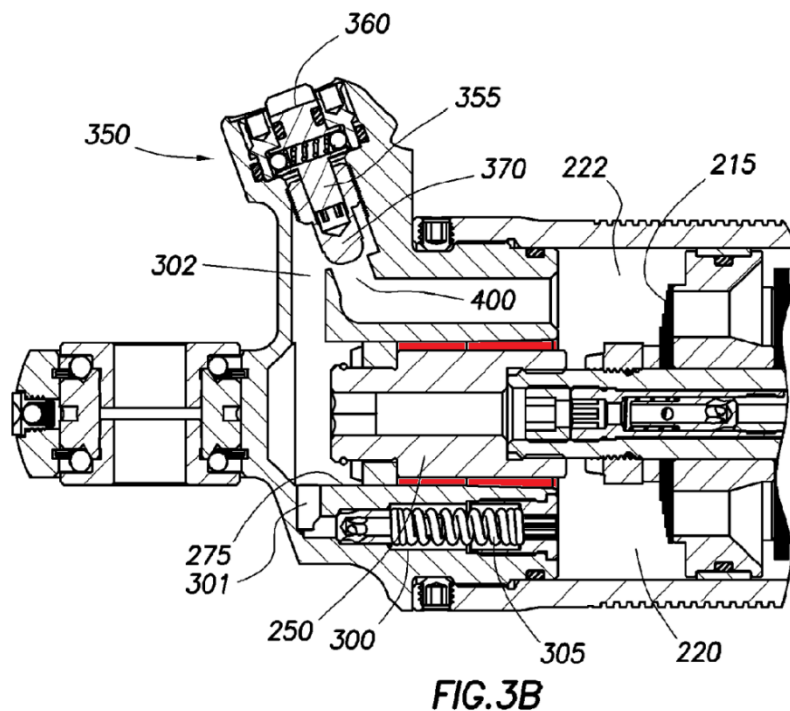
59. Nevertheless, like the ‘223 patent, the bottom out cup will provide some level of damping anytime fluid flows through it, which will occur to some extent during the entire compression stroke when fluid moves into the reservoir on the left side of Gartner’s Figure 12A. Accordingly, per the Board’s and Patent Owner’s constructions, Gartner discloses a bottom out cup.

60. As stated in the Petition, Gartner’s bottom out cup **260**, **460** (pink, above) is formed at the end of compression chamber is **26.4**. Petition, 108–109. Gartner’s region **460.4** is a compression area for Gartner’s bottom out cup **260**, **460**

(pink, above). This region **460.4** is exactly the same as the compression region of the bottom out cup in Figure 4 of the '223 patent. In each case, this is a cup-shaped feature that provides damping and bottom out protection to an overall shock absorber. Patent Owner's suggestion that the compression portion for the overall damper is element **460.4** is a misstatement of Ground V. The overall damper has a damper chamber **26**, with a piston **22**. The bottom out cup **260, 460** is located within the overall damper's damper chamber **26**. *See, e.g.*, Figure 12A. Further, a POSITA would not consider the fact that Gartner does not use the words "bottom out cup" to be wholly irrelevant. A POSITA has sufficient knowledge to determine if something is a damper from a purely visual inspection. All that is needed for this form of damper is a pressure vessel and an orifice to force a fluid through. Moreover, a POSITA would understand that Gartner shows the same structure and function as the '223 patent's bottom out cup, as described above and in paragraphs 179 and 180 of my first Declaration (Exhibit 1002).

61. Finally, I note that Gartner's bottom out cup **260, 460** (pink, above) is activated, or produces substantial damping, when the end of Gartner's piston rod contacts Gartner's bottom out piston within Gartner's bottom out cup **260, 460** (pink, above). This is the same as the bottom out piston entering the bottom out cup in the '223 patent.

62. Further, Patent Owner argues that there is a rebound chamber of Gartner's second internal shock absorber 400. *See* Response, 59–60. While this may be true, the same structure exists in the '223 patent. In particular, when the '223 patent begins to rebound, moving from a position like that shown in Figure 3C to a position like that shown in Figure 3A, the area within the bottom out cup **275** around the bottom out piston **250** is a rebound chamber. This rebound chamber is colored red in this annotated version of Figure 3A:



Ex. 1001, FIG. 3B (annotated).

63. Thus, it is my opinion that the distinctions Patent Owner attempts to draw between the structure of the '223 patent and Gartner are false and misleading.

Instead, Gartner and the '223 patent describe nearly the exact same structure with minor difference that are unrelated to the claims discussed in Ground V.

III. CONCLUSION

64. For the foregoing reasons, it is my opinion that claims 1-9, 11-15, and 19 of the '223 Patent are unpatentable.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: November 21, 2024

A handwritten signature in black ink, appearing to read 'Eric Wang', is written over a horizontal line.

Eric Wang, Ph.D.