

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FOX FACTORY, INC.,

Petitioner,

v.

SRAM, LLC,

Patent Owner.

Case IPR2024-00492

Patent No. 7,147,207

PETITIONER'S REPLY

TABLE OF CONTENTS

I.	PRELIMINARY STATEMENT	1
II.	PETITIONER’S EXPERT IS A PERSON OF ORDINARY SKILL IN THE ART	3
III.	CLAIM CONSTRUCTION	4
IV.	THE CHALLENGED CLAIMS ARE ANTICIPATED BY FOX BECAUSE FOX DISCLOSES AN “ADJUSTER ASSEMBLY” TO CUSTOMIZE THE DAMPING CHARACTERISTICS OF THE OPEN POSITION WITHOUT AFFECTING THE CLOSED POSITION	4
A.	Fox Discloses a “Valve Actuating Assembly” with an Open Position and a Closed Position, Wherein the Damping Characteristics of the Open Position Can Be Adjusted Independently of the Closed Position	4
B.	Fox Discloses an “Adjuster Assembly” that Only Partially Overlaps with the “Valve Actuating Assembly” and Therefore Meets the Requirements of Claim 1	6
C.	The ’207 Patent Does Not Mention or Disparage Fox, nor Does It Narrow the Scope of the Claimed Invention.....	9
V.	THE CHALLENGED CLAIMS OF THE ’207 PATENT ARE OBVIOUS BASED ON FOX IN VIEW OF JP’279 AND NAGAI BECAUSE THE COMBINATION PROVIDES THE CLAIMED “ADJUSTER ASSEMBLY” AND THERE IS SUFFICIENT MOTIVATION TO COMBINE.....	10
A.	The Combination of Fox, JP’279, and Nagai Provides a Separate “Adjuster Assembly” for Fine-Tuning the Damping Characteristics of Fox’s Open Position	11
B.	The “Adjuster Assembly” of Fox, JP’279, and Nagai Fine-Tunes the Damping Characteristics of Fox’s Open Position Without Affecting the Closed Position	13

C.	There Is Sufficient Motivation to Combine Fox, JP’279, and Nagai, and a Reasonable Expectation of Success for the Combination	14
VI.	THE CHALLENGED CLAIMS OF THE ’207 PATENT ARE OBVIOUS BASED ON YI IN VIEW OF JP’279 AND NAGAI BECAUSE THE PROPOSED COMBINATION PROVIDES THE CLAIMED “ADJUSTER ASSEMBLY” AND THERE IS SUFFICIENT MOTIVATION FOR THE COMBINATION	20
A.	The Combination of Yi, JP’279, and Nagai Provides an “Adjuster Assembly” for Fine-Tuning the Damping Characteristics of Yi’s Second Compression Damping Position and Without Affecting the First and Third Positions	20
B.	There Is Sufficient Motivation to Combine Yi, JP’279, and Nagai, and Reasonable Expectation of Success for the Combination.....	23

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP</i> , 616 F.3d 1249 (Fed. Cir. 2010)	7, 8
<i>Google LLC v. EcoFactor, Inc.</i> , 92 F.4th 1049 (Fed. Cir. 2024)	7, 8
<i>Intel Corp. v. Qualcomm Inc.</i> , 21 F.4th 784 (Fed. Cir. 2021)	24
<i>In re Keller</i> , 642 F.2d 413 (CCPA 1981)	19
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007)	19, 24, 25
<i>In re Mouttet</i> , 686 F.3d 1322 (Fed. Cir. 2012)	19
<i>Poly-America, L.P. v. API Industries, Inc.</i> , 839 F.3d 1131 (Fed. Cir. 2016)	9, 10
<i>Thorner v. Sony Comput. Ent. Am. LLC</i> , 669 F.3d 1362 (Fed. Cir. 2012)	9

I. PRELIMINARY STATEMENT

Patent Owner's Response is rife with strawman arguments that do not address the merits of Petitioner's unpatentability grounds. Patent Owner repeatedly misinterprets and/or disregards Petitioner's arguments and prior-art disclosures, and instead challenges the unpatentability grounds based on theories that are not raised in, or are inconsistent with, the Petition.

The purported crux of the claimed invention is an "adjuster assembly" that allows adjustment of the damping characteristics of one position of a "valve actuating assembly" without affecting another position. Ex. 2016, ¶¶29-30; Paper 16 ("POR"), 3-4; Ex. 1001, 1:7-13. But prior art identified in the Petition already teaches this. Fox, for instance, discloses a "valve actuating assembly" having two compression damping positions—open and closed—and an "adjuster assembly" that adjusts the damping characteristics of the open position without affecting the closed position. Paper 1 ("Pet."), 14-16, 18-19. Patent Owner's own expert, Dr. Parnell, admitted during deposition that Fox discloses varying the damping characteristics of the open setting by rotating cam surface 56 using lever 60. Ex. 1018, 75:13-76:1. And Patent Owner does not dispute that in Fox, adjustment of the damping characteristics of the open position is independent of the closed position. *See* POR, 18-23.

Unable to dispute prior-art disclosures that undercut the core of the claimed invention, Patent Owner mainly argues that Fox does not disclose an “adjuster assembly” that is distinct from the “valve actuating assembly.” POR, 18-32. But the intrinsic record of the ’207 patent and Federal Circuit precedent permit partial overlap between those claim elements (explained below), and therefore Fox anticipates the Challenged Claims. Pet., 16-17.

Similarly, for the two obviousness grounds based on Fox and Yi, respectively, Patent Owner incorrectly argues that neither combination provides an independent “adjuster assembly” that adjusts the damping characteristics of one position without affecting another position. POR, 32-36, 46-48. But the Petition clearly identifies a distinct “adjuster assembly” based on JP’279 and Nagai for both obviousness grounds, which Patent Owner disregards. Pet., 48-49, 82-83. Patent Owner also misrepresents the Petition by arguing that JP’279’s tapered surface is applied to the *entire* device of Fox and Yi, and therefore, that the damping characteristics of all positions of Fox’s and Yi’s “valve actuating assembly” are supposedly altered when one of the positions is adjusted. POR, 34-36, 47-48. That is incorrect. The Petition unambiguously states that JP’279’s tapered surface is applied to only *one of the cam surfaces* of Fox’s and Yi’s respective camshafts, and therefore, that the damping characteristic of only the position corresponding to the tapered cam surface would be adjusted when the camshaft is displaced axially. Pet., 49-51, 84-86. Patent

Owner's lack-of-motivation arguments are likewise meritless and fail to properly address the Petition, the prior-art disclosures, and relevant Federal Circuit precedent.

II. PETITIONER'S EXPERT IS A PERSON OF ORDINARY SKILL IN THE ART

Patent Owner's expert, Dr. Parnell, states in his declaration that a POSITA is "a person with a degree in Mechanical Engineering and approximately three years' experience in vehicle suspension technology, or a Master's degree or higher in Mechanical Engineering." Ex. 2016, ¶48. Because Petitioner's expert, Dr. Slocum, received a Master's degree from MIT in 1983 and a Ph.D. from MIT in 1985, Petitioner's expert meets Patent Owner's expert's definition of a POSITA. Ex. 1003, ¶4. Dr. Slocum also meets Petitioner's definition of a POSITA. *Id.*, ¶¶23-24.

Patent Owner, however, deviates from its own expert's definition of a POSITA and argues that one of ordinary skill must have "a Master's degree or higher in Mechanical Engineering with experience in design of vehicle components or like technology." *Compare* POR, 17, *with* Ex. 2016, ¶48. Regardless, Petitioner's expert meets Patent Owner's definition because he has extensive experience in the design of components that are technologically related to vehicle suspensions and other vehicular components. *See* Ex. 2019, 207:1-208:19, 213:15-221:6, 238:13-245:5. Patent Owner's expert's CV does not show that he has any specific experience with the design of vehicle suspensions or other components. Ex. 2016, Appendix A. At

most, he meets Patent Owner’s definition of POSITA based on his experience in similar technology. Ex. 1018, 28:8-29:23.

III. CLAIM CONSTRUCTION

The District Court found that the limitation “adjusting the damping characteristics corresponding to at least one of the positions of the valve actuating assembly independently of the damping characteristics corresponding to another position of the valve actuating assembly” of claim 1 should be given its plain and ordinary meaning. Ex. 1023, 14. This is consistent with the Petition’s application of plain and ordinary meaning for all claim terms. Pet., 8.

IV. THE CHALLENGED CLAIMS ARE ANTICIPATED BY FOX BECAUSE FOX DISCLOSES AN “ADJUSTER ASSEMBLY” TO CUSTOMIZE THE DAMPING CHARACTERISTICS OF THE OPEN POSITION WITHOUT AFFECTING THE CLOSED POSITION

A. Fox Discloses a “Valve Actuating Assembly” with an Open Position and a Closed Position, Wherein the Damping Characteristics of the Open Position Can Be Adjusted Independently of the Closed Position

Fox discloses a “valve actuating assembly” comprising actuator arrangement 54 (i.e., camshaft 58 and lever 60) and shaft 34. Pet., 13-14. Fox’s “valve actuating assembly” has two compression damping positions: an open position corresponding to cam surface 56 and a closed position corresponding to the non-recessed portion of the camshaft. Pet., 14-16; Ex. 1017 (Suppl. Decl.), ¶11. The two different positions of Fox’s “valve actuating assembly” yield two different damping settings based on the amount of contact pressure on restriction component 44 (the “valve

mechanism”) by shaft 34. Ex. 1005, 7:8-11, 7:28-41, 7:61-8:2, 9:59-10:14, 11:10-40; Pet., 14-16; Ex. 1017, ¶11.

In the open position, a user can further adjust the contact point of shaft 34 with rotary cam surface 56, thereby altering the force applied to restriction component 44 and fluid flow through port 42. Pet., 18-19; Ex. 1017, ¶12. More specifically, because cam surface 56 has variable radii, different contact points of shaft end 34.4 with cam surface 56 will axially displace shaft 34 by different amounts, thereby varying the amount of fluid flowing through port 42 and adjusting the compression damping characteristics accordingly. Ex. 1017, ¶12; *see also* Ex. 2019, 89:14-90:12 (Camshaft 58 and lever 60 of Fox is “sufficient” to adjust the damping characteristics of Fox’s open position “just the way the second embodiment of the ’207 patent doesn’t need a separate knob. You can just get the resolution -- intermediary positions of shaft 34, given that camshaft shape 56, for example.”). Because Fox’s open and closed positions correspond to different camshaft surfaces—i.e., the open position corresponds to the rotary cam surface 56 and the closed position corresponds to the camshaft surface having constant radius—varying the contact point of shaft 34 with cam surface 56 in the open position does not affect the damping characteristics of the closed position. Ex. 1017, ¶12; Pet., 18-19.

Thus, contrary to Patent Owner's arguments, in Fox the damping characteristics of *only* the open position can be customized by the cam/lever arrangement.

B. Fox Discloses an “Adjuster Assembly” that Only Partially Overlaps with the “Valve Actuating Assembly” and Therefore Meets the Requirements of Claim 1

Patent Owner is incorrect that Fox's “valve actuating assembly” and the “adjuster assembly” are the “same structure” or that they “complete[ly] overlap.” *See* POR, 18-19, 21. Fox discloses a “valve actuating assembly” that includes camshaft 58, lever 60, and shaft 34. Ex. 1003, ¶49; Pet., 13-14. And Fox discloses an “adjuster assembly” that includes camshaft 58 and lever 60. Ex. 1003, ¶¶53-55; Pet., 16-19. Fox's “adjuster assembly” does *not* include shaft 34, and therefore, there is only partial overlap between Fox's “valve actuating assembly” and “adjuster assembly.” Such partial overlap between the “valve actuating assembly” and the “adjuster assembly” is supported by at least the embodiment of the '207 patent shown in Figures 7a-7c. Pet., 16-17.

Patent Owner admits that “the ‘207 Patent states that the ‘valve actuating assembly’ may be integrated with the ‘adjuster assembly,’” and that those claimed features “overlap in physical extent” as shown in Figures 7a-7c. POR, 20. Patent Owner nevertheless argues that although these claimed features “may be integrally formed,” there has to be “something additional specific to the ‘adjuster assembly,’”

such as threads 84, 86 in the embodiment shown in Figures 7a-7c of the '207 patent. POR, 20-22. Patent Owner, however, does not cite any legal authority for its contention that the “adjuster assembly” must contain additional feature(s), nor is Petitioner aware of any. The specification of the '207 patent does not state that the “adjuster assembly” must have more structure than the “valve actuating assembly.” Ex. 1017, ¶¶9-10. Nor does the prosecution history impose any such requirement. *Id.* Moreover, since Fox’s “valve actuating assembly” includes an extra component (i.e., shaft 34), the condition of incomplete overlap set by Patent Owner is met. *Id.*

Patent Owner relies on *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1253-55 (Fed. Cir. 2010), to argue that the “adjuster assembly” and the “valve actuating assembly” are presumed to be separate structures. POR, 19, 22-23. But Patent Owner’s reliance on *Becton* is misplaced because the presumption of structural distinctness is rebuttable. *See Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1058-59 (Fed. Cir. 2024). Here, the presumption that the separately recited “adjuster assembly” and “valve actuating assembly” are distinct features is rebutted because the specification permits partial structural overlap between these features. *See* Ex. 1001, 5:48-6:9, claim 6 (“[T]he adjuster assembly is formed integrally with the selector [lever and camshaft] of the valve actuating assembly”).

More specifically, in *Becton*, “[t]he specification ... confirm[ed] that the spring means [was] a separate element from the hinged arm.” 616 F.3d at 1254. But

here, the intrinsic record allows at least partial overlap between the “adjuster assembly” and the “valve actuating assembly.” Moreover, as the Federal Circuit explained in *Google*, *Becton* and similar cases “do not create a *per se* rule that separately listed claim elements are distinct components, regardless of the intrinsic record.” *Google*, 92 F.4th at 1058-59. Where, as here, the “specification contains no restrictive language and does not explicitly require that the claim [elements] be separate” and “the specification contemplates an embodiment in which” there is overlap between the claimed features, the claims must be interpreted broadly to include that embodiment. *Id.*

Patent Owner’s reliance on the prosecution history is of no avail. *See* POR, 30-32. Although the prior-art reference asserted by the Examiner, Wicker, included a separate “valve actuating assembly” and “adjuster assembly,” nowhere did Patent Owner (or the Examiner) argue during prosecution that those claimed features are always separate and without any physical overlap. *See id.*

Nothing in the claim language, the specification, or the prosecution history requires the claimed “adjuster assembly” and “valve actuating assembly” to be completely separate. Therefore, Fox’s “valve actuating assembly” (actuator arrangement 54 and shaft 34) and “adjuster assembly” (actuator arrangement 54) meet the limitations of claim 1 of the ’207 patent.

C. The '207 Patent Does Not Mention or Disparage Fox, nor Does It Narrow the Scope of the Claimed Invention

A patentee “is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.” *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012). There is no such redefinition or disavowal here. Patent Owner incorrectly asserts that the '207 patent limits the scope of the claimed invention by criticizing prior art like Fox and praising the claimed invention. *See* POR, 24-27. But nowhere does the '207 patent's specification identify Fox, nor does it discuss or disparage the mechanism of Fox. Ex. 1017, ¶13. In fact, the background art discussed in the '207 patent is very different from Fox because Fox's camshaft 58 includes a rotary cam surface 56, which allows customization of Fox's open compression damping position. *Id.*; *see also* Ex. 1001, 1:30-43. Nowhere does the background section describe a rotary cam surface that allows customization of damping characteristics. *See* Ex. 1001, 1:30-43. And nowhere did Petitioner's expert agree that Fox is the same as the prior art discussed in the background of the '207 patent. *Contra* POR, 23.

Patent Owner's reliance on *Poly-America, L.P. v. API Industries, Inc.*, 839 F.3d 1131, 1135-37 (Fed. Cir. 2016), is misplaced. POR, 24-25. As the Federal Circuit explained in *Poly-America*, “the standard for disavowal [of claim scope] is exacting, requiring clear and unequivocal evidence that the claimed invention

includes or does not include a particular feature. Ambiguous language cannot support disavowal.” 839 F.3d at 1136 (internal citations omitted). Here, there is no clear and unequivocal evidence that the inventors meant to exclude overlapping features from the claim scope. In fact, if such disavowal were found, dependent claim 6, which recites that the “valve actuating assembly” and “adjuster assembly” are formed integrally, would be rendered meaningless.

V. THE CHALLENGED CLAIMS OF THE '207 PATENT ARE OBVIOUS BASED ON FOX IN VIEW OF JP'279 AND NAGAI BECAUSE THE COMBINATION PROVIDES THE CLAIMED “ADJUSTER ASSEMBLY” AND THERE IS SUFFICIENT MOTIVATION TO COMBINE

The Board’s Institution Decision properly concluded that Petitioner’s proposed combination of Fox, JP’279, and Nagai “teaches or suggests the limitations of claim 1 and that one of ordinary skill in the art would have combined Fox, JP’279, and Nagai *in the manner asserted* with a reasonable expectation of success.” Paper 11 (“Decision”), 24 (emphasis added). Further, the Board correctly found that “[b]ecause Petitioner identifies asserted benefits from the references, Petitioner does not appear to be using hindsight.” *Id.*, 25. Patent Owner has failed to refute the Board’s preliminary findings. Instead, Patent Owner creates strawman arguments that mischaracterize the obviousness ground presented in the Petition.

A. The Combination of Fox, JP'279, and Nagai Provides a Separate “Adjuster Assembly” for Fine-Tuning the Damping Characteristics of Fox’s Open Position

Patent Owner mischaracterizes the Petition by arguing that Petitioner’s “purported combination remains merely a lever/cam and adjuster rod system because there [are] no means for independent adjustment [of any position].” POR, 33-34; Ex. 2016, ¶¶77. To the contrary, the Petition clearly described that Fox’s cam surface 56 (which corresponds to the open position) would have been modified to include (1) JP’279’s tapered surface 44 and (2) a means for displacing Fox’s camshaft 58 along its longitudinal axis to vary the point of contact of Fox’s shaft 34 with tapered surface 44, and thereby adjusting the damping characteristics of the open position. Pet., 38, 40, 48, 50-51; Ex. 1003, ¶¶91-98. This allows a user to rotate Fox’s lever 60 to an open position, and then allows the user to fine-tune the damping characteristics in that open position by axially displacing camshaft 58 along its longitudinal axis using the “adjuster assembly.” Pet., 40, 50-51; Ex. 1017, ¶15. This proposed combination differs from prior art considered and overcome during prosecution, and Patent Owner incorrectly claims that Petitioner’s expert agreed with their characterization of the prior art. *See* POR, 34.

More specifically, the Petition clearly discussed “a mechanism for axially displacing slider 43 [tapered surface 44], [using] gear 49 and feed axle 50,” as taught by JP’279. Pet., 48; Ex. 1003, ¶92. The Petition additionally explained that a

POSITA would have been motivated to use a simplified mechanism such as Nagai's stopper bolt 141 in place of JP'279's gear 49 and feed axle 50 to axially displace Fox's camshaft 58 (modified to have JP'279's tapered surface 44):

A skilled artisan would also have readily known how to implement a manual or motorized mechanism to axially move Fox's camshaft 58 (modified to have JP'279's tapered surface 44) along the camshaft's longitudinal axis. *See* Ex. 1007, 5-6. In particular, a POSITA would have known to implement a mechanism such as Nagai's stopper bolt 141 threaded into Fox's camshaft housing to axially displace Fox's camshaft 58, which would be similar to JP'279's "adjuster assembly" (i.e., feed axle 50 engaged with slider 43). A POSITA would have been motivated to use Nagai's stopper bolt 141 to axially move camshaft 58 to simplify and combine implementations of the elements of JP'279's "adjuster assembly" and Nagai's limiting mechanism into Fox's suspension system to improve the compression damping adjustment mechanism of Fox.

Ex. 1003, ¶¶97; Pet., 38-40, 50-51.

Thus, the Petition explained that Fox modified to have JP'279's tapered surface 44 and Nagai's stopper bolt 141 has a distinct mechanism to finely adjust the damping characteristics of Fox's open compression damping position. Ex. 1003, ¶¶97-98; Ex. 1017, ¶17. Patent Owner and its expert completely disregard these explanations by erroneously arguing that the combination of Fox, JP'279, and Nagai remains a cam/lever and adjuster rod arrangement as in Fox and has no adjustment

means for fine-tuning the compression damping characteristics of Fox's open position.

B. The “Adjuster Assembly” of Fox, JP’279, and Nagai Fine-Tunes the Damping Characteristics of Fox’s Open Position Without Affecting the Closed Position

Patent Owner further misrepresents the Petition by arguing that JP’279’s tapered surface 44 is applied “over the entire device [of Fox], and not limited to one position of the valve actuating assembly.” POR, 34 (emphasis omitted). To the contrary, the Petition stated that JP’279’s tapered surface 44 would have been added to Fox’s cam surface 56, not the “entire device” or over the entire circumference of Fox’s camshaft 58. Pet., 38, 49; *see also* Ex. 1003, ¶93 (“A POSITA would have known they would achieve fine-tuning adjustment by adding the tapered surface 44 of JP’279’s ‘adjuster assembly’ to Fox’s *cam surface 56*[.]” (emphasis added). Nowhere did the Petition state that tapered surface 44 is added to the entire camshaft 58, i.e., both the recessed cam surface 56 corresponding to the open position and the non-recessed surface corresponding to the closed position. Although the cam models in Petitioner’s expert’s declaration “are drawn as continuous curved surfaces” for illustration purposes, Petitioner’s expert made it clear that the illustrated “eccentric cylinder cam” has “three different cam radii regions,” and “[e]ither of these cam surfaces may also be tapered in accordance with JP’279 such that cam action (displacement of the rod end contacting the cam) may occur by rotation and/or axial

motion of the camshaft[.]” Ex. 1003, ¶¶94-96 (emphasis added). Petitioner’s expert further explained that the illustrated cam “could have more pronounced flat regions at specific rotation angles,” which a POSITA would recognize as the non-recessed portion of Fox’s camshaft 58. *Id.*, ¶96; Ex. 1017, ¶20.

Moreover, because JP’279’s tapered surface is added to only the recessed cam surface 56 and the non-recessed surface remains flat (without a taper), axial displacement of Fox’s camshaft 58 using Nagai’s adjustment means would *only* adjust the damping characteristics of the open position and not affect the closed position. Ex. 1017, ¶20. Patent Owner’s contrary assertion that the combination of Fox, JP’279, and Nagai would adjust “all positions” is based on Patent Owner’s made-up theory that JP’279’s tapered surface 44 is added to Fox’s entire camshaft and is incorrect.

C. There Is Sufficient Motivation to Combine Fox, JP’279, and Nagai, and a Reasonable Expectation of Success for the Combination

A POSITA would have understood from Fox’s disclosure that switching between the open and the closed compression damping positions would provide a coarse adjustment of compression damping characteristics. *Id.*, ¶21. A POSITA would have further understood that additional adjustments within the open position—i.e., adjustments using JP’279’s tapered surface 44 on Fox’s cam surface 56 and Nagai’s means for axially displacing Fox’s camshaft—would fine-tune the

compression damping characteristics within the open position. *Id.* A POSITA would have been motivated to fine-tune the compression damping characteristics to account for the terrain, rider's weight, etc. *Id.*; Pet., 36-38 (citing Ex. 1003, ¶¶76-78).

Petitioner's obviousness combination is not based on hindsight because the prior art describes the benefits of finely adjusting damping characteristics. *Contra* POR, 43-46. For example, Fox teaches that "on a factory-produced full-suspension mountain bicycle, the ideal damping force requirements or profiles can vary depending on (among other things) factors such as rider weight, rider skill, the particular terrain conditions, and the like.... [I]t would be desirable to provide a shock absorber with easily-adjustable [rebound damping] and/or [compression damping] characteristics or values[.]" Ex. 1005, 1:52-67. While Fox only teaches the benefits of customizing compression damping using easily-adjustable means, and does not specifically mention fine adjustments or fine-tuning, such fine-tuning of compression/rebound damping characteristics was known before the '207 patent application. For example, U.S. Patent No. 4,488,704 to Wicker (Ex. 2015), which was asserted during prosecution, taught coarse and *fine-tuning* of damping characteristics. Ex. 1004, PDF pp. 8-9, 30-31 (Patent Owner admitting that Wicker discloses fine-tuning of compression damping); *see also id.*, PDF pp. 86-87; Pet., 7-8. Thus, a POSITA would have readily understood and appreciated the benefits of

finely adjusting/fine-tuning compression damping characteristics beyond that possible with Fox's system alone. Pet., 37-38 (citing Ex. 1003, ¶91).

Relatedly, JP'279 discusses capabilities of "fine adjustment" of rebound and compression damping characteristics. Ex. 1007, 6. Patent Owner argues that JP'279's tapered surface 45, which is used for rebound damping adjustments, "provides 'fine adjustment amounts' relative to surface [44] because of the lesser slope." POR, 38 (citation omitted). That is incorrect. As Petitioner's expert explains, "the relative adjustment [between the two tapered surfaces] is different because of the two surfaces having a different slope," that "*even just one of those surfaces provides fine adjustment capability over having no wedge,*" and JP'279 is "teaching two of them with different slopes, because[] ... depending on whether you are controlling the compression or rebound valving actions, they may ... requir[e] different levels of adjustment, and you can get that by having the two slopes driven by one screw." Ex. 2019, 161:11-162:4 (emphasis added); *id.*, 163:22-165:10 (Petitioner's expert testifying that compression and rebound damping "are both being fine-adjusted [in JP'279]. One is not done relative to the other.... [Y]ou're adjusting one finely to do one thing and at the same time you're adjusting another one to do something finely."); *id.*, 235:17-237:13.

While it is correct that Fox's cam surface 56 and JP'279's tapered surfaces are each capable of adjusting damping characteristics within the open position, JP'279's

tapered surface configuration allows for fine adjustments (i.e., fine resolution control) as compared to the rotary cam of Fox. Ex. 1017, ¶22. As Petitioner's expert testified, adding JP'279's tapered surface 44 to Fox's cam surface 56 provides "even without the gear an increase in resolution." Ex. 2019, 129:2-130:12, 150:15-151:25 ("I'm adding that tapered surface to my cam to increase the resolution ability of the cam."), 156:5-24 (JP'279's screw-based mechanism for axially moving the tapered surface provides "even finer resolution" than just the tapered surface); *see also id.*, 132:23-133:10, 146:23-147:25. Fine resolution is achieved because the "adjuster assembly" in the Fox, JP'279, and Nagai combination would adjust the damping characteristics in a linear manner (as opposed to the non-linear adjustment with Fox's rotary cam surface). Ex. 1017, ¶22. That is, the "adjuster assembly" in the proposed combination would allow adjustments with finer resolution than is possible by just directly rotating lever 60. *Id.* That is why a POSITA would have been motivated to modify Fox to have JP'279's tapered surface and Nagai's simplified adjustment means to achieve fine adjustment of compression damping.

Moreover, the combination of Fox, JP'279, and Nagai would have been simple, cost-effective, and would have yielded predictable results. Ex. 1017, ¶24; Ex. 2019, 199:15-201:14. The tapering process through machining (e.g., CNC machining) would have been simple to a POSITA at the time the '207 patent was filed. Ex. 1017, ¶24. Mechanisms for displacing a camshaft along its longitudinal

axis were also well known, as exemplified by JP'279 and Nagai. Similarly, tapered cams (also known as barrel cams or conical cams) have been known and routinely used since well before the filing of the '207 patent. *See, e.g.*, Ex. 1019, Figs. 5-7, 4:23-55 (describing a tapered cam in the shape of a “cone frustum” that utilizes axial movement to alter the point of contact between the cam and a rocker); Ex. 1020, 202-03, 216 (describing the ease of making a cam with a tapered surface and the associated benefits of such for an engine); Ex. 1021, 107 (using a tapered cam to finely adjust rotational position of a disc); Ex. 1022, 2:31-36 (disclosing “a tapered cam 6” for an electrical plug, “which, in addition to rotating, is also free to move longitudinally within the ground connector in order to compensate for any dimensional variations, of either the plug 1 or the socket into which the plug 1 is inserted”); Ex. 1017, ¶19; Ex. 2019, 228:15-234:25 (Petitioner’s expert testifying that tapered cams have been known “[a]t least a hundred years. Probably 200 years or more.”). Thus, contrary to Patent Owner’s assertion, adding a taper to Fox’s rotary cam surface and means for moving the camshaft axially to fine-tune compression damping is not based on hindsight because the prior art teaches these mechanisms.

Relatedly, Patent Owner’s argument that a POSITA would not have known whether the modified “adjuster assembly” would have fitted within Fox’s eyelet is meritless because it improperly requires physical incorporation of the references. *See* POR, 43. “The test for obviousness is not whether the features of a secondary

reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see also In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012). Here, a POSITA would have known that the combination of Fox, JP’279, and Nagai would have improved compression damping performance, and thus a POSITA would have been motivated to make the combination. Ex. 1017, ¶21. Moreover, a POSITA would have reasonably expected success in combining Fox, JP’279, and Nagai because they teach common mechanical concepts and techniques (e.g., cams, gears, feed axles, etc.), and a POSITA would have expected the combination of these known prior-art elements to yield the predictable result of fine adjustment of compression damping. Ex. 1017, ¶25; *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” (citation omitted)).

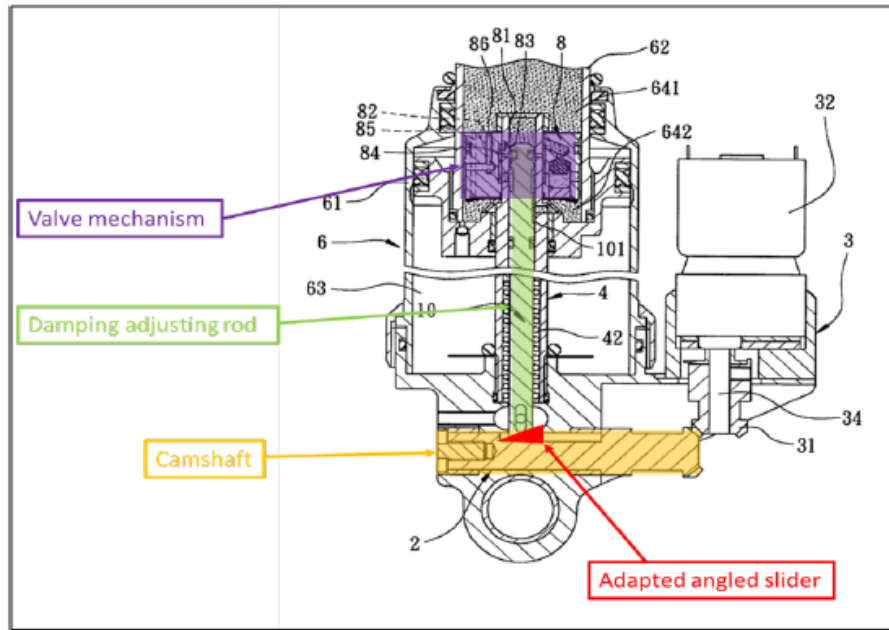
VI. THE CHALLENGED CLAIMS OF THE '207 PATENT ARE OBVIOUS BASED ON YI IN VIEW OF JP'279 AND NAGAI BECAUSE THE PROPOSED COMBINATION PROVIDES THE CLAIMED "ADJUSTER ASSEMBLY" AND THERE IS SUFFICIENT MOTIVATION FOR THE COMBINATION

Similar to Ground II, Patent Owner asserts that the proposed combination of Yi, JP'279, and Nagai in Ground III does not include the claimed "adjuster assembly," and that there is no motivation or reasonable expectation of success for this combination. But the Board properly concluded that Petitioner's proposed combination of Yi, JP'279, and Nagai "teaches or suggests the limitations of claim 1 and that one of ordinary skill in the art would have combined Yi, JP'279, and Nagai *in the manner asserted* with a reasonable expectation of success." Decision, 30 (emphasis added). Patent Owner has not refuted the Board's preliminary findings. Instead, Patent Owner mischaracterizes the record by suggesting that Petitioner's expert agreed that Yi only discloses what was disparaged in the '207 patent's specification and that the addition of JP'279 and/or Nagai does not provide the claimed "adjuster assembly." *See* POR, 46-49. Patent Owner is wrong for the reasons stated below.

A. The Combination of Yi, JP'279, and Nagai Provides an "Adjuster Assembly" for Fine-Tuning the Damping Characteristics of Yi's Second Compression Damping Position and Without Affecting the First and Third Positions

Yi's camshaft 2 is rotatable between at least three compression damping positions corresponding to low-velocity (first), medium-velocity (second), and high-

velocity (third) flows. Pet., 78-82; Ex. 1003, ¶131. As the Petition explained, a POSITA would have been motivated to add JP'279's tapered surface 44 to the cam surface of Yi's camshaft 2 that corresponds to the medium-velocity compression setting to allow fine-tuning of damping characteristics of that setting beyond what is possible in Yi's shock absorber. Pet., 82-86; Ex. 1003, ¶¶132, 134. The Petition also discussed a mechanism for axially displacing Yi's camshaft 2 (modified to have JP'279's tapered surface 44) using gear 49 and feed axle 50 as taught by JP'279, or by using a simplified mechanism such as Nagai's stopper bolt 141. Pet., 84-85; Ex. 1003, ¶¶133-134. This would allow a user to select the medium-velocity compression damping setting (using lever 201 of Yi's "valve actuating assembly"), then further allow the user to fine-tune the medium-velocity damping characteristics by axially displacing camshaft 2 along its longitudinal axis (using the "adjuster assembly" means of JP'279 or Nagai). Pet., 82-86. Thus, Patent Owner's arguments that JP'279's tapered surface is added to the "entire surface" of Yi's camshaft 2, and that the combination does not provide an independent means for axially displacing camshaft 2, are incorrect and disregard the clear explanations in the Petition. *See* POR, 47-48.



Ex. 1003, ¶134 (showing JP’279’s tapered surface added to Yi’s camshaft 2 at the cam surface corresponding to the medium-velocity (second) compression damping position).

Moreover, because the tapered surface is added to only the cam surface corresponding to the second position (and the cam surfaces corresponding to the first and third positions remain level), axial displacement of camshaft 2 along its longitudinal axis does not affect the damping characteristics of the low-velocity (first) and high-velocity (third) compression damping positions. Ex. 1017, ¶26. Thus, Patent Owner’s argument that the proposed combination of Yi, JP’279, and Nagai would change damping characteristics in all positions is based on mischaracterizations of the Petition and is incorrect. *See id.*, ¶¶26-27.

B. There Is Sufficient Motivation to Combine Yi, JP’279, and Nagai, and Reasonable Expectation of Success for the Combination

A POSITA would have understood from the disclosure of Yi that rotating between the three compression damping positions would provide a coarse adjustment of compression damping characteristics. *Id.*, ¶29. A POSITA would have further understood that additional adjustments within the second position—i.e., by adding JP’279 tapered surface 44 on Yi’s cam surface corresponding to the second position and using Nagai’s adjustment means to axially move Yi’s camshaft 2—would fine-tune the compression damping characteristics within the second position. *Id.*; Ex. 2019, 194:2-195:13 (Petitioner’s expert testifying that adding a taper to Yi’s camshaft would provide “fine resolution”). Such fine-tuning of damping characteristics was well known when the ’207 patent application was filed. *See supra* Section V.C (discussing how JP’279 and Wicker discuss fine-tuning of damping characteristics). Therefore, a POSITA would have been motivated to fine-tune the compression damping characteristics within the second position to account for the terrain, rider’s weight, etc., and thereby improve the Yi shock absorber. Ex. 1017, ¶29.

Patent Owner’s argument that a POSITA would not have been motivated to modify Yi in view of JP’279 and Nagai because Yi itself could have been redesigned or resized to provide a finer level of adjustment is incorrect. POR, 50. To establish obviousness, “[i]t’s not necessary to show that a combination is ‘the *best* option,

only that it be a *suitable* option.” *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021) (citation omitted); *see also KSR*, 550 U.S. at 417. Because a POSITA would have reasonably expected the combination of Yi, JP’279, and Nagai to provide “a *suitable* option” for fine adjustments of compression damping, a POSITA would have been motivated to make the combination. *Intel*, 21 F.4th at 800 (citation omitted).

Moreover, the proposed combination of Yi, JP’279, and Nagai would have been simple, cost-effective, and would have yielded predictable results. Ex. 1017, ¶30. The tapering process through machining (e.g., CNC machining) would have been simple to a POSITA when the ’207 patent was filed. *Id.*, ¶24. Furthermore, adding a taper to a portion of Yi’s cam is not based on hindsight because tapered cams were known and were routinely used well before the filing of the ’207 patent. *See supra* Section V.C (discussing prior art and Petitioner’s expert’s testimony that tapered cams were known long before the filing of the ’207 patent). Means for axially displacing a camshaft were also known, as shown by JP’279 and Nagai. Thus, Patent Owner’s assertions that an inclined plane on a portion of a camshaft, or mechanisms for moving a camshaft axially, were unknown is contradicted by prior-art disclosures. *See* POR, 51.

Relatedly, Patent Owner’s argument that a POSITA would not have known whether the “adjuster assembly” of JP’279 and Nagai would have fitted within Yi’s

eyelet is meritless because it improperly requires bodily incorporation of the references. As the Supreme Court explained in *KSR*, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” 550 U.S. at 421. Here, a POSITA would have known that the combination of Yi, JP’279, and Nagai would have improved compression damping performance. Ex. 1017, ¶29. Thus, a POSITA would have been motivated to make the combination through general knowledge and “ordinary creativity,” and would have reasonably expected the combination to yield the predictable result of fine adjustment of compression damping. *See KSR*, 550 U.S. at 421; Ex. 1017, ¶30.

Date: January 23, 2025

Respectfully submitted,

/Arpita Bhattacharyya/
Arpita Bhattacharyya, Reg. No. 63,681
Counsel for Petitioner

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

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the foregoing **Petitioner's Reply** contains 5,567 words, excluding the parts exempted under 37 C.F.R. § 42.24(c), as measured by the word-processing system used to prepare this paper.

/Arpita Bhattacharyya/
Arpita Bhattacharyya, Reg. No. 63,681
Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing **Petitioner's Reply** was served electronically via email on January 23, 2025, in its entirety on the following:

Michael J. Hickey
Michael H. Durbin
Richard B. Walsh, Jr.
LEWIS RICE LLC
600 Washington Avenue, Suite 2500
St. Louis, Missouri 63101
mhickey@lewisrice.com
mdurbin@lewisrice.com
rwalsh@lewisrice.com

Patent Owner has consented to service by email.

Dated: January 23, 2025

/William Esper/
William Esper
Legal Assistant and PTAB Coordinator
Finnegan, Henderson, Farabow,
Garrett & Dunner LLP