

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

DECLARATION OF ERIC WANG, P.H. D.

INTRODUCTION AND QUALIFICATIONS

1. My name is Eric Wang. I make this Declaration in support of Petitioner SRAM, LLC's ("SRAM") Petition for *Inter Partes* Review of U.S. Patent No. 8,550,223 B2 ("the '223 patent"). 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. I am a tenured Associate Professor of Mechanical Engineering at the University of Nevada, Reno.

3. I earned a B.S. degree in mechanical engineering from the University of California at Berkeley in 1989. I earned an M.S. degree in mechanical engineering from the Massachusetts Institute of Technology in 1991. Lastly, I earned a Ph.D. in mechanical engineering from the University of California at Davis in 1995.

4. I have published over 20 publications on the science of cycling and/or shock absorbers. As part of my Ph.D. dissertation, I personally measured suspension fork stiffness and damping parameters using a servo-hydraulic test machine. For over 20 years, I have been researching the science of cycling. Research topics have included: energy efficiency of suspension systems, loading quantification, tire performance, thermal performance of bicycle helmets, computer simulation of off-road cycling, and ultra-efficient human powered vehicles. I have also conducted research in the design and development of semi-active shock absorbers for

automotive and earthquake isolation systems. These devices include electro-rheological and magneto-rheological dampers.

5. I have owned a variety of mountain, road, touring, and tandem bicycles, as well as unicycles, adaptive tricycles, and handcycles. I have serviced all of the bicycles I've owned, including assembly/disassembly of suspension forks and rear shocks. I have hand-built 2 mountain and 3 road bicycle frames.

6. I have been an avid cyclist for over 35 years. I have ridden several long distance (greater than 1000 miles) bicycle tours. I have ridden over 200 miles in a single day more than 20 times. Similarly, I have ridden over 10,000 miles in a single calendar year multiple times. I am a former holder of a United States Cycling Federation (USCF) category 3 racing license.

7. Based on my education and experience, I am qualified to provide analysis on the subjects set forth in this Declaration. Based on my understanding of who would be considered a person of ordinary skill in the art at the time of the invention (a "POSITA"), I meet those qualifications. In particular, I held a Ph.D. in mechanical engineering at the time of the earliest filing date of the '223 patent (that is, May 9, 2008) and had worked designing and testing bicycle and other vehicle suspensions for more than two decades prior.

8. In reaching the conclusions set forth herein, I examined and analyzed: the '223 patent (Ex. 1001); the '223 patent's prosecution file history (Ex. 1004);

Fox's Initial and Amended Infringement Contentions in a parallel district court case (*see* Exhibits 1012 and 1013); all of the unsealed documents in the parallel district court case; and all of the relevant exhibits to this Petition (Exhibits 1001 to 1015), as well as publicly available articles and documents describing the products accused by Fox as infringing the claims of the '223 patent, including SRAM's website descriptions of those accused products. I additionally relied on my experience, education, and expertise.

RELEVANT LEGAL PRINCIPLES AND BACKGROUND

9. I am not a lawyer, therefore nothing in my Declaration should be interpreted as offering an opinion on the law. However, as a technical expert assisting the Board in evaluating issue of patent invalidity, I have applied legal principles as I understand them.

10. I understand that the claims of a patent set forth the metes and bounds of the claimed invention. I also understand that the meanings of the terms of the claims are presumed to be the meanings that the terms would have had to a POSITA at the time of the invention, that is, as of the May 9, 2008 filing date of the initial patent application for the '223 patent. I also understand that the meaning of a claim term may be understood by reference to intrinsic evidence, to include the claims themselves, the specification of the patent (including its figures), and the prosecution file history as the communications between the patent applicant and the Patent

Office, and, if necessary, extrinsic evidence, such as dictionaries or witness testimony.

11. I further understand that the Board has not yet construed any of the claims of the '223 patent, but that the Board may establish the meaning of certain terms during this proceeding. I also understand that SRAM and Fox have submitted competing interpretations of certain claim terms from the '223 patent in the district court proceeding. Ex. 1016. Although I believe that all of SRAM's proposed constructions are correct and consistent with the perspective of a POSITA reading those claims in view of the patent claims, the patent specification, the patent prosecution file history, and relevant extrinsic evidence, I have applied Fox's proposed constructions for purposes of evaluating validity in the manner set forth below, except for those discussed below. However, even under SRAM's constructions, I still believe that the claims of the '223 patent are invalid as anticipated or obvious, including as set forth below. I have applied these understandings below and reserve the right to modify my analysis to the extent the Board adopts any claim constructions that differ from my understanding as a person of ordinary skill in the art.

12. With respect to the question of patent validity, I understand that a patent is only valid when the invention claimed in the patent is new, useful, and nonobvious in light of the prior art, such that the invention as defined by the patent claims is not

anticipated or rendered obvious by the prior art. I further understand that a patent's claims must meet other statutory requirements, such as written description, enablement, and definiteness.

13. With respect to the term “prior art”, I understand that this term generally refers to the state of technology in the relevant field at the time of the invention and includes such printed materials as patents and publications, as well as evidence of actual uses or sales of a technology within the United States. I also understand that categories of prior art can include, among other things, anything that was patented or described in a printed publication anywhere in the world more than one year before the inventor filed the application for the patent, as well as sales, offers for sale, and uses of the claimed invention prior to the date of that invention.

14. I understand that, under 35 U.S.C. § 102, a claim is “anticipated” by the prior art if each and every limitation of the claim is disclosed and arranged as claimed, expressly or inherently, in a single item of prior art, from which a POSITA could practice the invention without undue experimentation.

15. I also understand that, under 35 U.S.C. § 103, a person cannot obtain a patent on an invention if his invention would have been obvious to a person of ordinary skill in the art at the time the invention was made. A conclusion of obviousness may be founded upon one or more items of prior art. In determining whether prior art references render a claim obvious, courts consider the following

factors: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of skill in the pertinent art, and (4) objective evidence of nonobviousness.

TECHNICAL OVERVIEW

A. General Overview of Suspension Fork Arrangements

16. The '223 patent's specification is fairly straightforward. It is mainly concerned with describing an already well-known bottom out resistance solution that includes a bottom out piston interacting with a bottom out cup.

17. "Single-track" vehicles are so named because they generally leave a single ground track as they move forward, and this group of vehicles typically includes bicycles and motorcycles. A single-track vehicle can encounter many different forces during use – this is especially true for mountain bikes and motorcycles that may encounter particularly challenging terrain and related extreme forces. The terrain may also be considerably varied, which may lead to significant forces encountered by the wheels of a single-track vehicle running over the varied terrain. These encountered forces may lead to a number of undesirable consequences for the rider and vehicle, including: increased stress on the vehicle and rider. These increased forces will be transferred to the rider, possibly decreasing the rider's control of the vehicle. The increased forces may also cause increased wear on the components of the vehicle, leading to other potential problems. These issues

can be made worse if the suspension component runs out of travel, or space to move, resulting in a “bottom out.” A harsh bottom out can transfer excessive energy to the vehicle and rider – a result that is undesirable.

18. Of course, shock absorbers are nothing new. Shock absorbers are intended to absorb shock and vibration energy created by external forces. In my experience, shock absorbers have been used for vehicle suspensions, equipment isolation, building/structure isolation, artificial limbs, door closing mechanisms, and other applications. I note that the ‘223 patent does not limit its claims to any specific vehicle or class of vehicles. The ‘223 patent’s specification does give an example of the supposed invention in the context of a vehicle suspensions (such as a single-track vehicle’s suspension).

19. Typically, shock absorbers are designed to (1) compress to store energy from vibrations or other sources, like an impact, (2) dissipate some of the stored energy through a damper while storing the remainder temporarily in a spring, and (3) release the stored energy by extending the shock absorber (and possibly dissipating additional energy through a damper during extension). Shock absorber designers use the spring and damper together to store and dissipate energy from the shock absorber so that the compression and extension phases of the shock absorber each occur in a controlled manner. Otherwise, the suspension may act as a pogo stick without any means to remove the springiness therefrom.

20. Shock absorbers have two main components to meet the above purposes: (1) a spring (for energy storage) and (2) a damper (for energy dissipation). The shock absorber's spring is used spread out and store the energy intended to be softened or absorbed, such as the forces received by a shock absorber from an impact or an earthquake. As the spring compresses, the energy from the forces is stored, typically over a longer period of time than would occur if the spring was not present. The spring also provides the forces needed to extend the shock absorber after compressing. The damper, on the other hand, dissipates energy from the shock absorber system. This dissipation of energy allows for more controlled compression and extension processes. How the damper dissipates the energy varies for different individual damper designs.

21. Persons of ordinary skill in the art ("POSITAs") would recognize the following green-highlighted damper shown in U.S. Patent No. 6,604,751 to Fox et al. ("*Fox '751*") to be a typical, common damper style often used in older dampers:

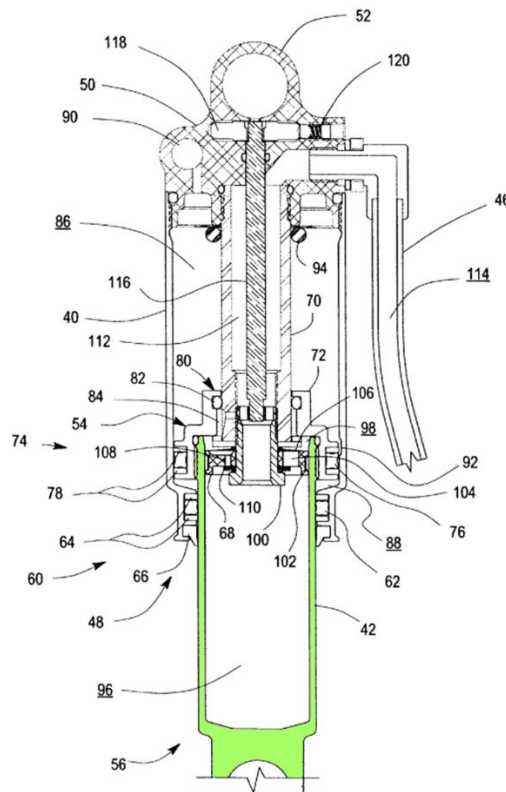


FIG. 3A

Ex. 1009, FIG. 3A.

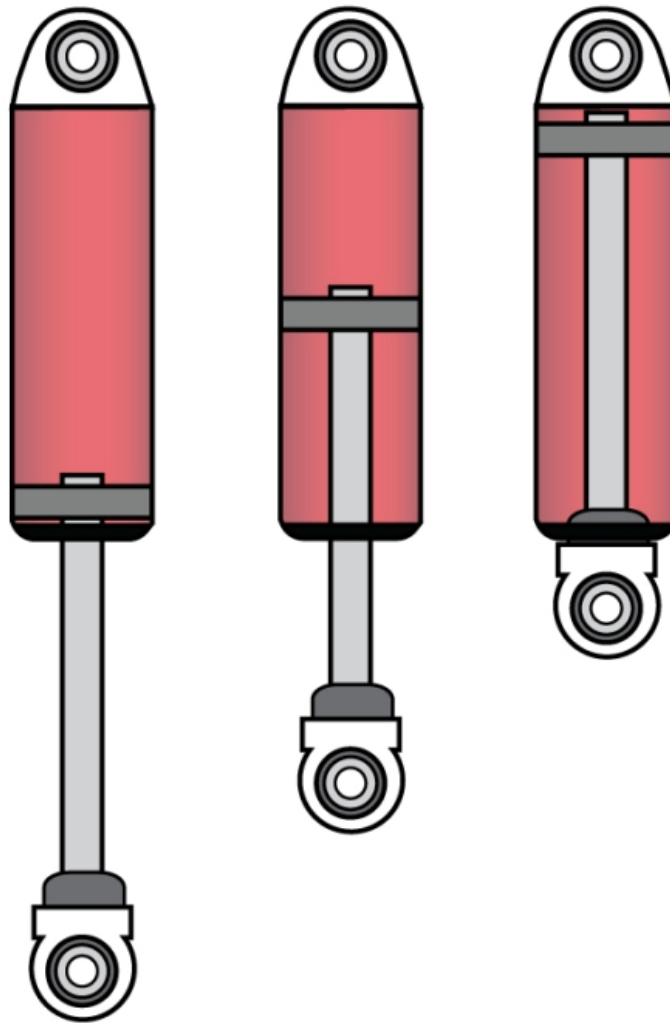
22. POSITAs have, of course, improved traditional dampers like the damper disclosed in *Fox '751* by altering portions of the damper, as well as by altering the connections therebetween. Yet, these known simple and minor variations are what the '223 patent attempts to create an unfounded monopoly around. As shown herein, the recited construction is anticipated by previously undisclosed individual prior art, and certainly would have been very obvious to a POSITA long before 2008, when the provisional application leading to the '223 patent was filed.

II. TECHNICAL OVERVIEW OF PURPORTED INVENTIONS OF THE ‘223 PATENT

23. The ‘223 patent discloses a well-known suspension element (a shock absorber) simply modified with well-known features. The ‘223 patent does discuss purported applications of shock absorbers (such as those intended for bicycles, motorcycles, and similarly wheeled vehicles), but the claims are not limited to any specific application of a shock absorber. As stated above, these well-known features are (a) the use of a “bottom out piston” and related “bottom out cup” and (b) fluid paths allowing for manual adjustment of the damping characteristics of the relevant rear shock absorber. *See, e.g.*, Ex. 1001, 2:21-34, 7:39-9:5 (independent claims 1, 11, 17, and 19).

A. Bottom Out Conditions

24. A shock absorber typically has two main goals: (1) to spread out the forces of impacts on the shock absorber over time to lessen the perceived impact of the forces, and (2) dissipate energy from the system while operating to prevent unwanted, uncontrolled reactions. A shock absorber typically has a first position where the shock absorber is fully extended (left), and a second position where the shock absorber is fully compressed (right) (spring not shown for clarity):



25. The shock absorber is able to compress (from the extended position on the left to the fully-compressed position on the right). This ability to compress while the internal piston travels through a damping fluid is how the damper is able to absorb and soften impacts incident on a typical shock absorber (other damping mechanisms exist but a piston moving through a damping fluid is very common). The shock absorber is intended to operate between these two extreme positions so that the shock absorber may constantly provide its absorption/softening purpose.

26. The rightmost image illustrates a “bottom out” condition, wherein the shock absorber has no more ability to compress. This may be undesirable, at least because any additional force transferred to the shock absorber while in this fully-compressed, bottom out condition will not be cushioned or softened in any way. This may result in the forces that would typically be softened by the shock absorber to be directly communicated to whatever is being protected by the shock absorber. These unaddressed forces may be harsh. Accordingly, POSITAs in the suspension arts have found many ways of increasing the shock absorber’s resistance to fully compressing, allowing for the harshest of bottom out conditions to be avoided.

27. A typical means for adding bottom out resistance to a shock absorber is to increase the shock absorber’s resistance to compression when the shock absorber is almost completely compressed. For example, *Chen* (Ex. 1007) discloses inventions that are designed to greatly increase the force required to further compress *Chen*’s damper as *Chen*’s damper nears full compression: a bottom out piston, a bottom out cup, and related fluid flow paths. *Chen*’s Figures 4 and 5 shows *Chen*’s damper during a compression stroke. The bottom out piston **821** (light orange) is mounted onto the front of *Chen*’s typical piston **81**, and the bottom out piston **821** is sized and shaped to enter into the bottom out cup **84** (pink) near the end of the compression stroke. Once this occurs, the force required to compress will increase, thereby providing bottom out resistance.

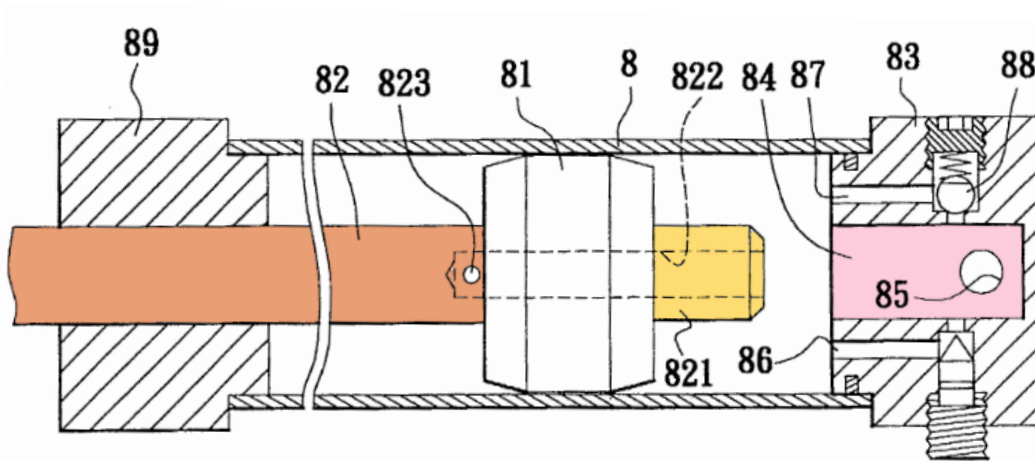


FIG. 4

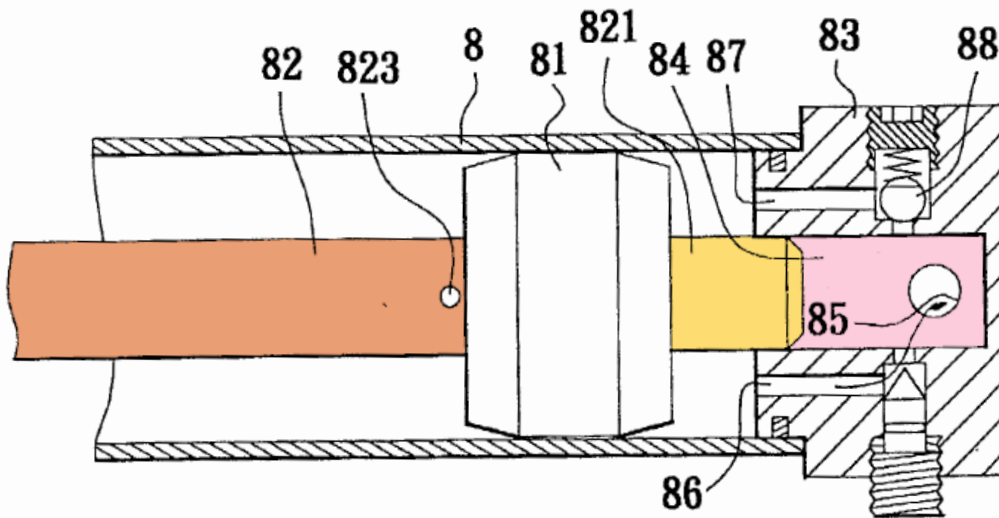


FIG. 5

Ex. 1007, FIGS. 4, 5

28. In this type of bottom out resistance design, additional pistons within the shock absorber's damper may be used. These well-known prior art "bottom out

pistons” may be used to create additional hydraulic resistance during the last portion of the shock absorber’s compression. In *Chen* (Ex. 1007), this additional resistance is referred to as “a buffer effect” and is intended to reduce “noise and damage” potentially caused by a bottom out event. Ex. 1007, Page 6, lines 1-8. Such bottom out pistons are disclosed in numerous prior art publications and prior art uses, explicitly so in *Gartner* (Ex. 1010) and *Chen*, as well as in *Nakaya* (Ex. 1005), each of which is discussed at length in the Grounds presented in this Petition. In each case, the bottom out pistons interact with a “bottom out cup” at the end of the shock absorber’s compression, thereby altering the forces required to compress the shock absorber. This increased effort translates directly to increased bottom out resistance, and is commonplace in the suspension arts, as demonstrated below.

B. The ‘223 Patent Disclosure

29. The disclosure of the ‘223 patent is short, and its concurrent disclosure only includes four figures and less than seven full columns of text, with nearly two of the seven columns devoted to the background and prior art. Although the ‘223 patent incorporates some material by reference, the ‘223 patent’s disclosure about its purported invention is still quite limited. In fact, it only shows a single embodiment of its alleged invention as set forth in the written description and the figures.

30. Critically, the ‘223 patent’s limited disclosure readily admits that the use of a bottom out piston and related bottom out compression volume was well-known in the art. *E.g.*, Ex. 1001, 2:21-34. The ‘223 patent even explains that such a bottom out piston was known by POSITAs to provide “additional damping[] as the shock nears the end of its stroke[,]” with such additional damping provided to “avoid bottom out” of the shock absorber. *Id.*, 1:65-2:9. Such pure bottom out conditions (where the compressions abruptly stops) are undesirable because they transmit the impact force directly without softening, (e.g. in the bicycle context, directly to the vehicle pilot/occupant). The ‘223 patent alleges that it overcomes what it admits as prior art by providing “bottom out damping features [that] can be readily adjusted during a ride or ‘on the fly’ so to state.” *Id.*, 2:25-27. It is this claimed “adjustability,” in combination with the known bottom out protection, that the ‘223 patent purports to have invented.

31. Turning to the figures, the ‘223 patent shows a known bottom out chamber **275** (pink) with related bottom out piston **250** (light orange) in addition to the typical compression portion **222** (light red) of the damper chamber **220** and piston **210** (yellow). These admittedly-known structures (Ex. 1001, 2:21-34) are shown in Figures 2 and 4:

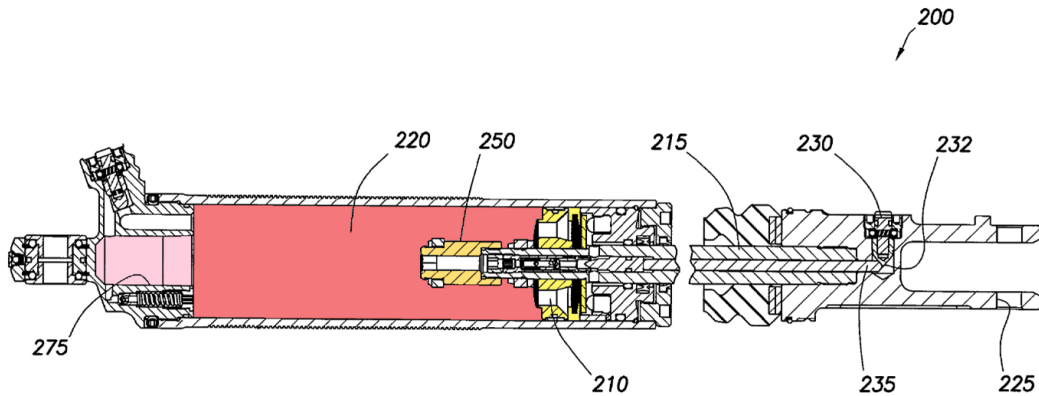


FIG. 2

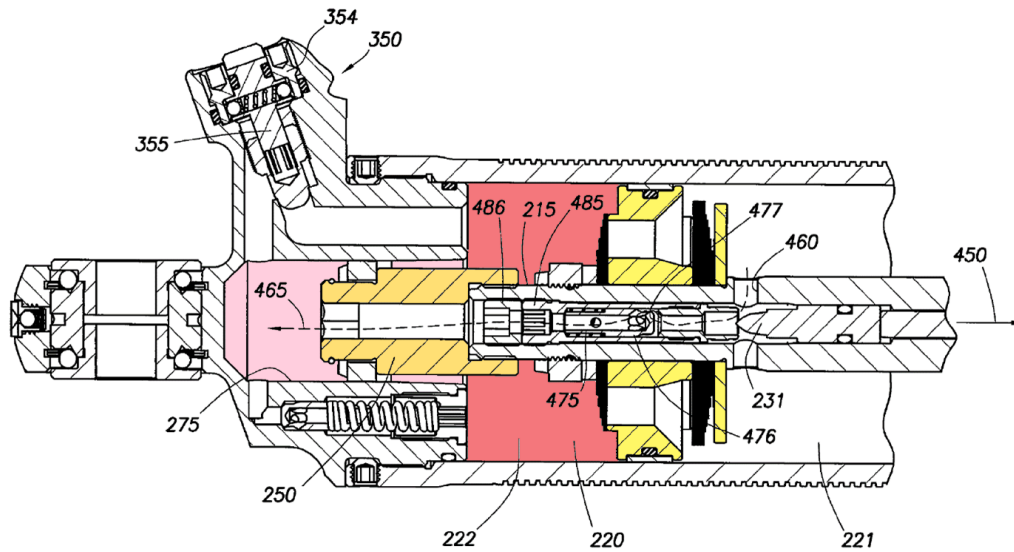


FIG. 4

32. For the “claimed” adjustability, the ‘223 patent scrapes together known and obvious means for adding adjustability in a shock absorber, namely, the use of various fluid flow paths between the various pressure chambers of the shock absorber with a means of adjustment or pressure relief interposed between the chambers. For example, FIG. 3B (colorized) shows two flow paths connecting the bottom out cup 275 (pink) and the compression portion 222 (light red) of the damper chamber 220, a first flow path 301 (dark red) and a second flow path 302 (dark blue).

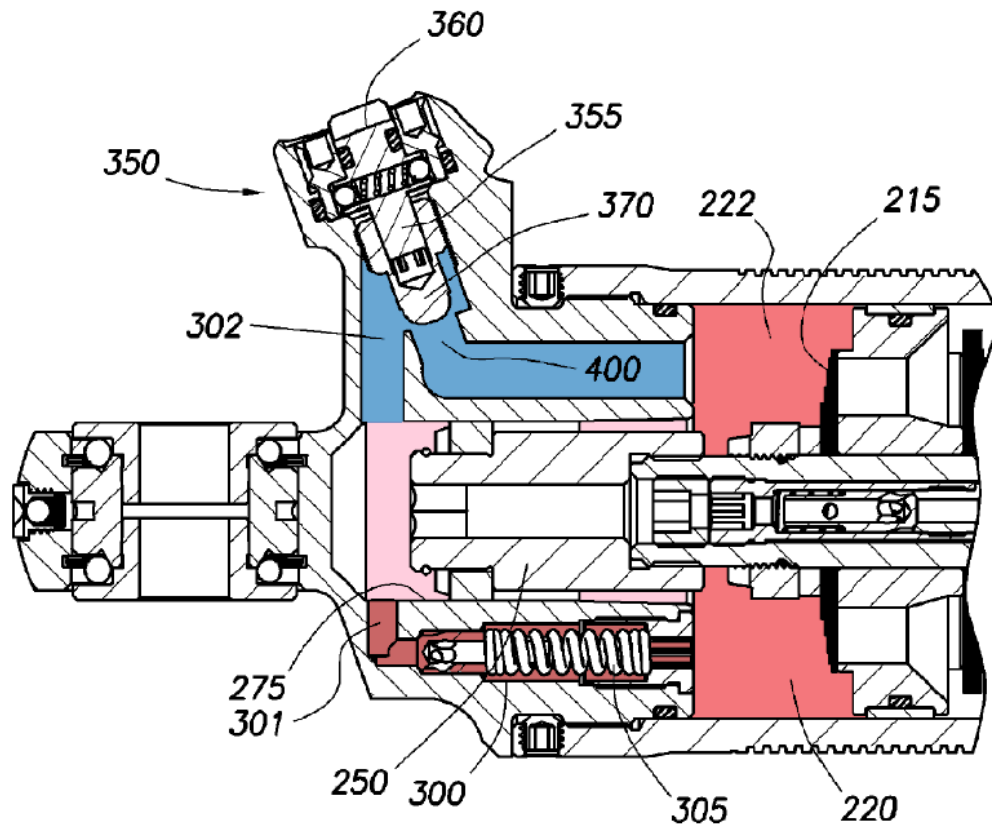
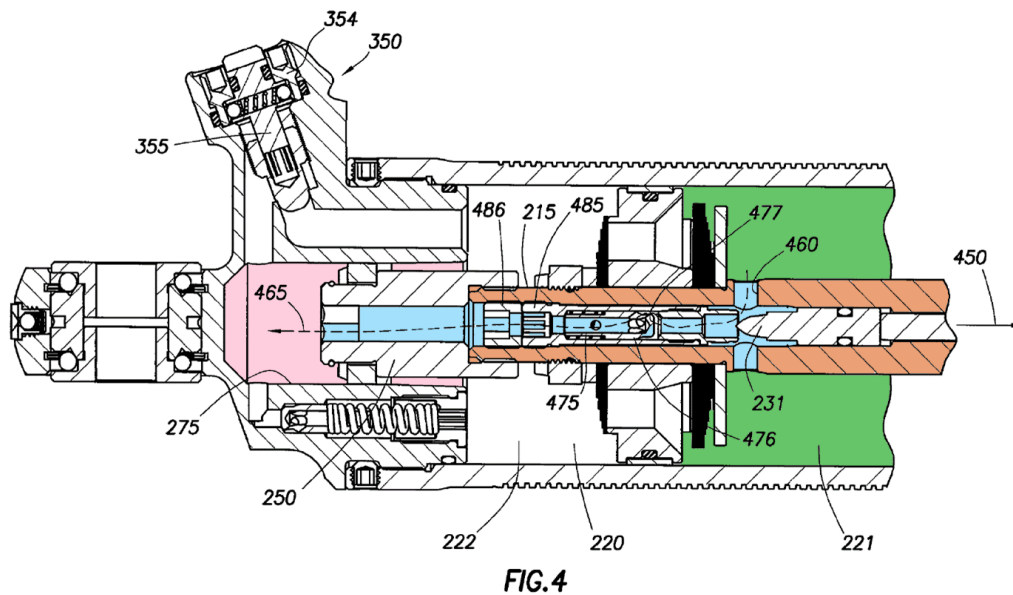


FIG. 3B

33. On one hand, the claimed first flow path **301** would be regulated by a blow-off valve or piston **300**, although this valve is not claimed. On the other hand, the second flow path **302** is regulated by an adjustable valve **350**. As was known to POSITAs before the '223 patent, such an adjustable valve **350** “is operable to provide an easily and readily adjustable damping feature operable with the bottom out chamber **275** and piston **250**.” *Id.*, 4:33-35. This valve **350** may be moved within the path **302** between a fully-open and non-obstructing position and a fully-closed and obstructing position. Ex. 1001, 4:66-5:5, FIGS. 3A (at least partially

open), 3C (closed). Thus, by adjusting the positioning of valve **350** within the flow path **302**, the ability of fluid to flow through the path **302** may be adjusted.

34. In addition, the '223 patent discloses a third, also-known path **465** (light blue) between the bottom out cup **275** (pink) and the rebound portion **221** (dark green) of the pressure vessel chamber **220** through the piston shaft **215** (dark orange):



Ex. 1001, FIG. 4.

35. This shown path **465** (light blue) is also adjustable, which may allow for adjustment of the damping characteristics of the shock, as would have been known to a POSITA before the unsubstantiated “invention” of the ‘223 patent.

36. Accordingly, the ‘223 patent discloses an adjustable bottom out resistance that is essentially the same as what is shown in the prior art, and, therefore, not an “invention” worthy of patenting. Instead, the ‘223 patent describes something

long known in the art: a secondary piston employed to improve bottom out resistance, and a common use of flow paths connecting different pressure regions within the shock absorber with a means of adjusting the ability of fluid to flow therebetween. The known prior art shows that such bottom out cups and the associated adjustment means are an obvious, routine optimization of a given shock absorber, involving nothing more than basic common sense and rudimentary mechanical skill. Indeed, the '223 patent is much like the basic design of any shock absorber in the industry: add bottom out resistance and make the device user-adjustable.

C. Person of Ordinary Skill in the Art

37. I understand that a person of ordinary skill in the art is a hypothetical person presumed to know the relevant prior art.

38. In the context of the '223 patent, a POSITA within the field of the '223 patent around or prior to May of 2008 (when the initial patent application for the '223 patent was filed) would appropriately be described as a person with a degree in Mechanical Engineering and at least three-years' experience in vehicle suspension technology, or a Master's degree in Mechanical Engineering with a concentration in design of vehicle suspension technology and/or shock absorbers.

D. Construction of Terms Used in the Claims and Relevant Prosecution History

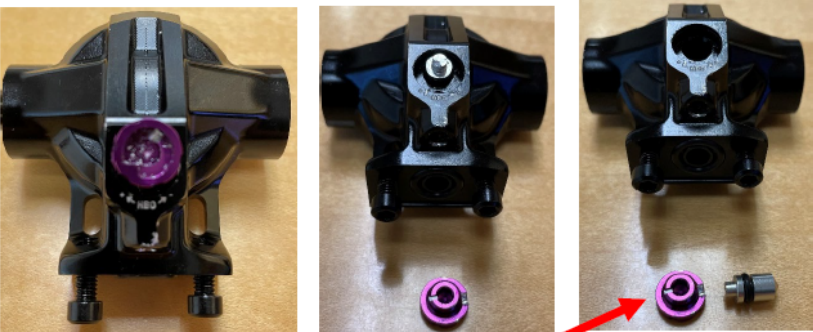
39. As indicated above, for purposes of assessing validity, I have generally applied Fox's proposed constructions, including as set forth in Ex. 1015 and its Initial and Amended Infringement Contentions (Exs. 1012 and 1013).

40. That said, irrespective of whether the Board adopts SRAM's proposed construction, the prior art references cited herein and combinations thereof would have either anticipated or rendered the claims obvious if the claims are broad enough to cover the products Fox accuses of infringement, as set forth in Exs. 1012 and 1013, and the claims as construed by Fox. I disagree with Fox's charting of its claims compared to SRAM's products, but adopt them for purposes of this Declaration.

41. I now discuss several specific claim constrictions for this Petition. First, Fox and I agree that the structures recited in Claim element 1[d] are the same structures recited in Claims 2 and 13. In its pending lawsuit in the District Court of Colorado, Fox made clear claim constructions in its infringement contentions (Exs. 1012, 1013). Specifically, for claims 2 and 13, Fox insists that that the same features called out with regards to Claim element 1[d] of the '223 patent cover these limitations, as shown below:

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 claim 2.</i>

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 claim element 1[d].</i>

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

Ex. 1012, pages 22, 7, 6; Ex. 1013, pages 22, 7, 6. Thus, to show the elements of Claim 13, Fox solely relies on a reference Claim 2, and for Claim 2, Fox relied solely on a reference to Claim element 1[d]. Fox, therefore, admits that the structures that meet the claim limitations of Claim element 1[d] **are the same as** those required to meet Claims 2 and 13. I apply this understanding to the Grounds presented below.

42. Second, I note that Fox may argue that claims 1, 11, and 19 include limitations that require a flow of fluid from the bottom out cup to the compression portion of the damper during a compression stroke. For this to occur, the pressure within the bottom out cup must be higher than the pressure within the compression portion (or in any other section into which the fluid may flow). Both *Nakaya* and *Gartner* show examples where this would be true. *Nakaya* states that the bottom out cup increases pressure within the compression portion, which must occur because mass from the bottom out cup is forced into the compression portion. Ex. 1008,

9:22-30. Similarly, *Gartner* shows such a flow path **454.3**, with the arrows of the flow path traveling from the bottom out cup into the compression chamber. Ex. 1010, FIGS. 12A, 12C. In each case, these references explicitly consider the transfer of fluid from the bottom out cup to the compression portion of the damper.

43. Importantly, any damper that includes the two one-way valves from *Deferme* will provide a fluid flow from the bottom out cup to the compression portion of the damper during a compression stroke, because the increased pressure within the compression portion may be alleviated by fluid flow through *Deferme*'s one-way valve into the rebound portion.

44. Moreover, claim 1 and 11 do not require such a directionality of a flow of fluid, but instead, merely require a fluid communication bridge to extend between the bottom out cup and the compression portion, as discussed below with regards to each of those claims.

45. Third and finally, I note that claims 11 and 12 require that the bottom out piston be configured for “sealingly engaging an interior of the bottom out cup”, or the like. For the purposes of this Petition, SRAM accepts Patent Owner Fox's position that this limitation is met even by bottom out pistons, such as that shown in *Chen* and in SRAM's commercial products, that do not form a seal with the bottom out cup. See Ex. 1012, 30-33; Ex. 1013, 31-34 (Fox accusing SRAM's commercial products having no sealing structure or function of infringement); Ex. 1014, 22-23.

Instead, the bottom out pistons in *Chen* and in SRAM's commercial products merely enter into the bottom out cup without forming a seal, and without the use of traditional sealing elements, like the seals shown in *Nakaya* and *Gartner*.

46. I reserve the right to respond to any other constructions that Patent Owner Fox submits.

NEW PRIOR ART NOT CONSIDERED IN THE ‘223 PATENT

47. The merits of the Grounds presented in the Petition are compelling and clearly evidence the unpatentable nature of the claims of the ‘223 patent.

48. I note that the prior art references I discuss below, whether alone or in combination, did not form the basis for any rejections of the ‘223 patent during its prosecution. Said another way, the prior art references were not considered or used by the Examiner during prosecution of the ‘223 patent, and the positions I present herein are not the same nor substantially the same as those considered during prosecution. My opinion is that these prior art references clearly evidence the unpatentable nature of the claims of the ‘223 patent and provide compelling grounds for initiating this request for *inter partes* review.

49. Further, but for *Gartner* (Exs. 1010, 1011), this Petition relies solely on prior art published more than one year before the earliest possible effective filing date for the ‘223 patent, which is May 9, 2008. *Gartner*, on the other hand, has an effective filing date of February 9, 2007, which date is before the ‘223 patent’s May 9, 2008 effective filing date. I compare the disclosure of *Gartner* and *Gartner*’s provisional application below.

50. Regarding *Chen*, *Fox*, *Nakaya*, *Gartner*, *Kodama*, and *Deferme* (collectively the “IPR Prior Art”), factors 1 and 2 of *Becton Dickinson* clearly favor institution because the IPR Prior Art’s disclosures are unlike those considered during

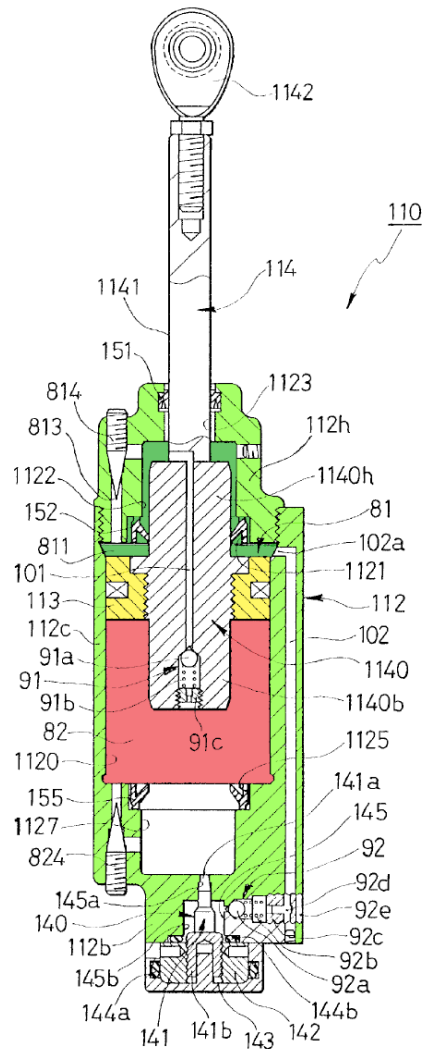
prosecution. *Chen*, *Nakaya*, and *Gartner* each discloses a conventional hydraulic cylinder serving as a damper and having one or more passages extending from a bottom out cup to either a compression portion or a rebound portion of the damper. Ex. 1007 (*Chen*), page 5, lines 5-13, FIGS. 4-6; Ex. 1005 (*Nakaya*), Abstract, 2:38-3:7, FIGS. 7-9, 17-19, Ex. 1010 (*Gartner*), Abstract, 1:37-2:12, FIGS. 12A-12C. *Fox '751* discloses a conventional shock absorber **38** ready for improvement. See Ex. 1009, Abstract, FIGS. 1-6. *Kodama* discloses a conventional shock absorber having a passage through the piston shaft with a one-way check valve that only flows from the rebound chamber to the bottom out cup. Ex. 1006, 3:24-49, FIGS. 1-3. *Deferme* discloses an improved piston for a conventional shock absorber. Ex. 1008, Abstract, 1:13-19, 2:8-21, FIGS. 1-3. None of these specific issues or technologies disclosed in the IPR Prior Art were addressed during prosecution, and, therefore, factors 1 and 2 of *Becton Dickinson* favor institution.

U.S. Patent No. 6,558,430 B1 to Nakaya et al. (“Nakaya”)

51. U.S. Patent No. 6,558,430 B1 to Nakaya et al. (“*Nakaya*”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on November 6, 2000, and issued on May 6, 2003. Ex. 1005.

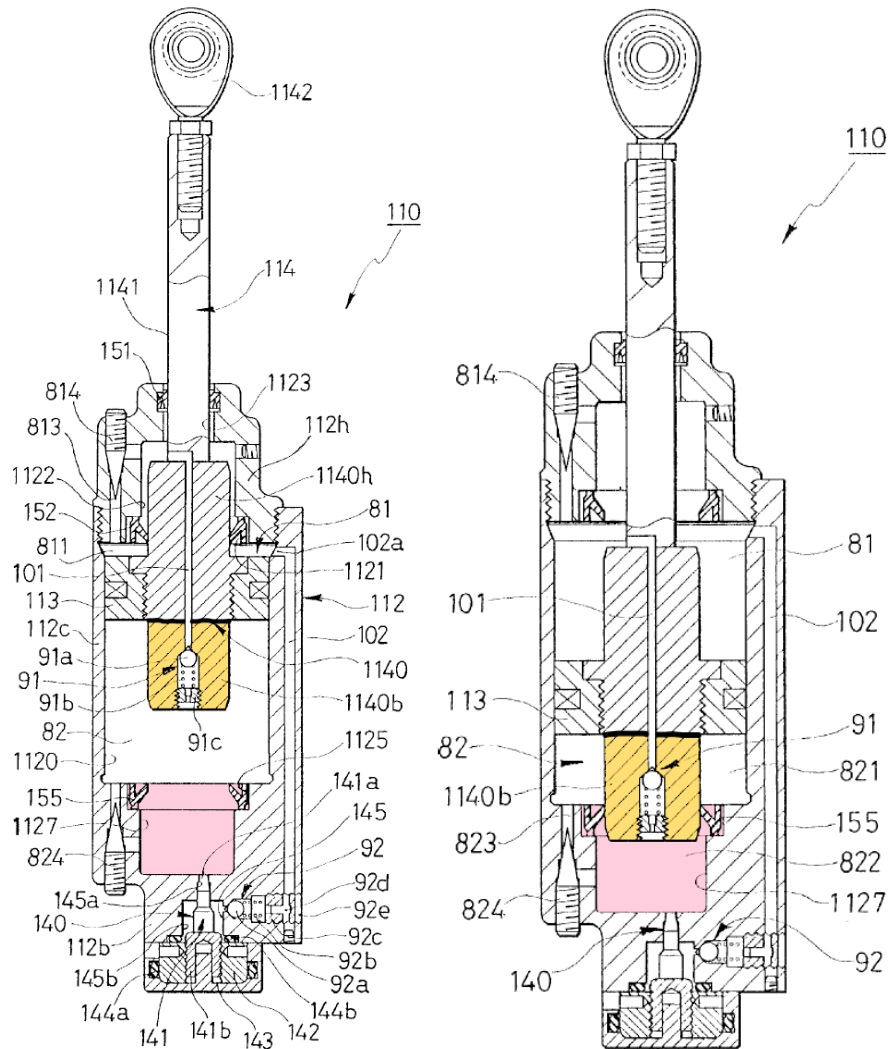
52. *Nakaya* discloses a fluid-based (air being the fluid) damper of a shock absorber **110** to be used in a suspension system. Ex. 1005, Abstract, FIGS. 7-9,

17-19. The damper is formed by a cylindrical body **112** (light green) that is closed on either end by head part **112h** and bottom part **112b** (light green). The volume formed in the damper is divided by a piston **113** (yellow) into a compression portion **82** (light red) and a rebound portion **81** (dark green), as shown in *Nakaya's* Figure 7:



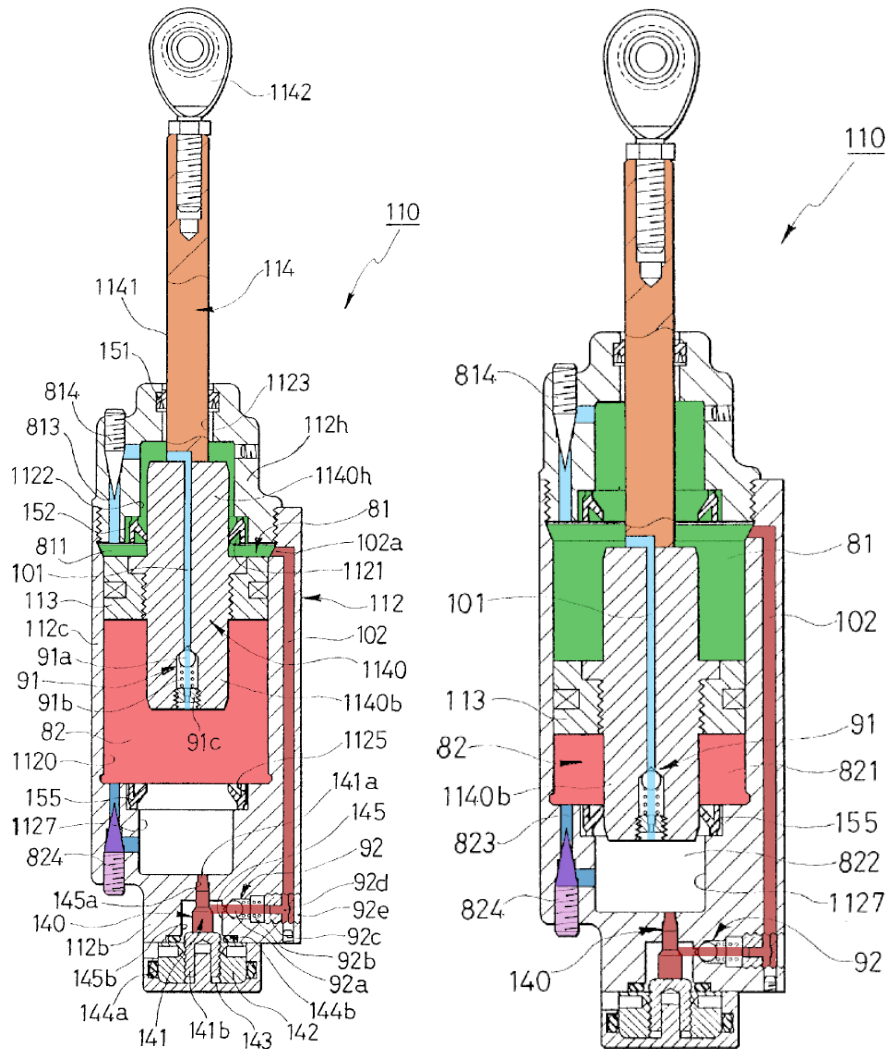
53. *Nakaya* further includes an enlarged-diameter hole **1125** (pink) and a middle sized-diameter hole **1127** (pink), which together are the same as the claimed bottom out cup, and an enlarged-diameter projection **1140b** (light orange), which is

the same as the claimed bottom out piston. As can be seen in *Nakaya's* Figures 7 and 8 below, the enlarged-diameter projection **1140b** is configured to sealingly engage with the enlarged-diameter hole **1125** and the middle sized-diameter hole **1127** during a compression stroke.



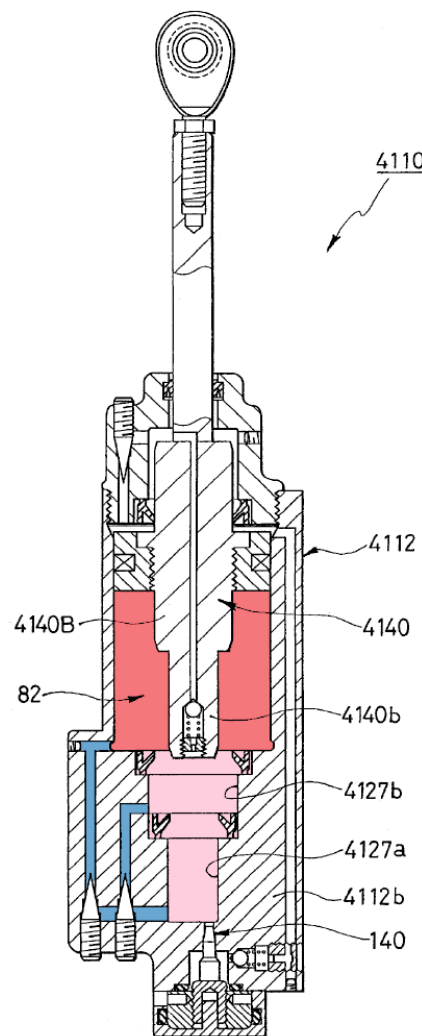
54. *Nakaya* discloses the use of at least three different channels from the bottom out cup, with two extending into the compression portion (light red) and one into the rebound portion (dark green). Of the first two, one **823** (dark blue) is

adjustable via a needle valve **824** (dark purple) that is externally actuated by an adjuster (light purple), and the other **87** (dark red) is regulated by a check ball valve **92**. On the other hand, the final channel **822**, **823** (light blue) penetrates through the piston rod **114** (dark orange). These channels are shown in Figures 7 and 8 below:



55. In addition, *Nakaya* discloses a number of embodiments, wherein the first embodiment (shown in *Nakaya's* Figures 7-9) and the fourth embodiment (shown in *Nakaya's* Figures 17-19) share all features but for those specifically

described with reference to the fourth embodiment. Specifically, the fourth embodiment discloses a bottom out cup composed of both a reduced-diameter recess **4127a** (pink) and an enlarged-diameter recess **4127b** (pink). This bottom out cup is connected to the compression portion **82** (light red) via a set of flow paths (dark blue) that are manually adjustable via screw type needle valves **4824a**, **4824b**. This fourth embodiment is shown in *Nakaya's* Figure 17 below:



56. *Nakaya* explains and shows that, during a compression stroke of the damper, fluid flows from the bottom out cup **1125, 1127** to the compression portion **82**. When the bottom out piston **1140b** enters the bottom out cup **1125, 1127** and seals with the bottom out cup seal **155**, pressure within the bottom out cup **1125, 1127** and the compression portion **82** will begin to rise as the device compresses further. During the time that the check valve **92** is closed, fluid (air) will move from the region of higher pressure to the region of lower pressure via passage **823** (when valve **824** is not in the closed position). Which region (bottom out cup **1125, 1127** or the compression portion **82**) is of higher pressure depends on which region is reducing in volume faster. *Nakaya*, however, contemplates a situation wherein the bottom out cup **1125, 1127** has a more rapidly increasing pressure, and in this context, the fluid (air) will flow from the bottom out cup **1125, 1127** to the compression portion **82**. Ex. 1005, 9:22-30 (explaining that the fluid flows from the bottom out cup to the compression portion), FIGS. 7, 8.

57. Further, whether or not the fluid flows into the compression portion **82** from the bottom out cup **1125, 1127**, or vice versa, depends on a design choice for the relative geometries of this region. A POSITA would have been motivated to try a plurality of different geometries to produce dampers having slightly different force vs. displacement and/or force vs. velocity curves during a compression stroke. In other words, how the device affects bottom out resistance can be adjusted by

adjusting the relative sizes/geometries of the bottom out cup **1125, 1127** and the compression portion **822**, and it would be a matter of mere design choice on which geometries to use. In any event, a POSITA would understand that *Nakaya* expressly discusses an embodiment wherein the fluid flows into the compression portion **82** from the bottom out cup **1125, 1127** during a compression stroke. *Id.*

U.S. Patent No. 5,405,407 to Kodama et al. (“Kodama”)

58. U.S. Patent No. 5,405,407 to Kodama et al. (“Kodama”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on January 14, 1993, and issued on April 11, 1995. Ex. 1012.

59. *Kodama* discloses a fluid-based (air being the fluid) damper of a shock absorber to be used in a suspension system. Ex. 1006, 1:1-3:21, FIGS. 1-3. The damper is formed by a cylinder **4** (light green) that is closed on either end by a head cover **12** and a rod cover **14** (light green). The volume formed in the damper is divided by a piston **16** (yellow) into a compression portion **24** (light red) and a rebound portion **26** (dark green), as shown in *Kodama*’s Figures 2 and 3.

60. *Kodama* includes an adjustable path (throttle valve **30**) (light blue) through a piston shaft/rod **18** (dark orange). Ex. 1006, FIGS. 2, 3. The path is adjustable via the needle valve **32** (dark purple) that may be adjusted using the adjusting screw **34** (light purple). Ex. 1006, 2:48-56, FIGS 2, 3.

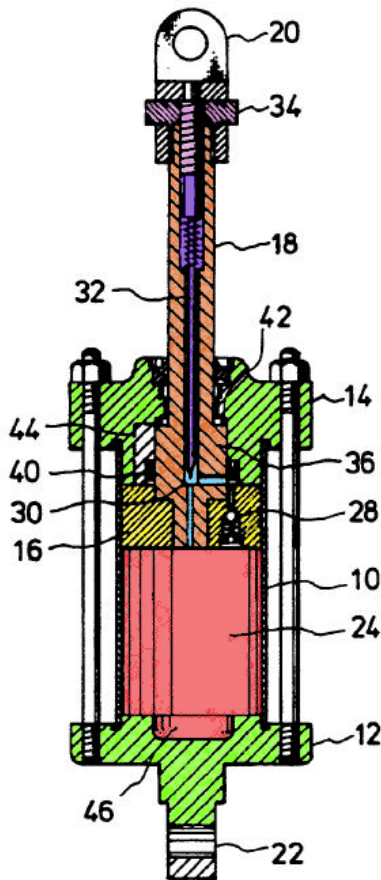


FIG. 2

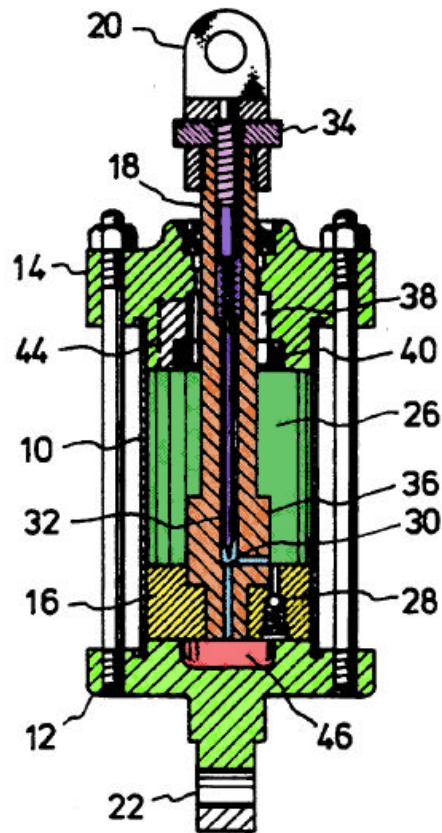


FIG. 3

UK Patent Application No. GB2377254A to Chen (“Chen”)

61. The provisional patent application for what became the ‘223 patent was filed on May 9, 2008. UK Patent Application No. GB2377254A to Chen (“Chen”) is prior art under pre-AIA 35 U.S.C. § 102(b), having published on January 8, 2003. Ex. 1007, page 1.

62. *Chen* discloses a conventional suspension damper. Ex. 1007, page 5, lines 1-6, FIGS. 4-6. The damper is formed by a hydraulic cylinder **8** (light green) that is closed on either end by caps **83**, **89** (light green). The volume formed in the damper is divided by a piston **81** (yellow) into a compression portion (light red) and a rebound portion (dark green), as shown in *Chen*'s Figure 4:

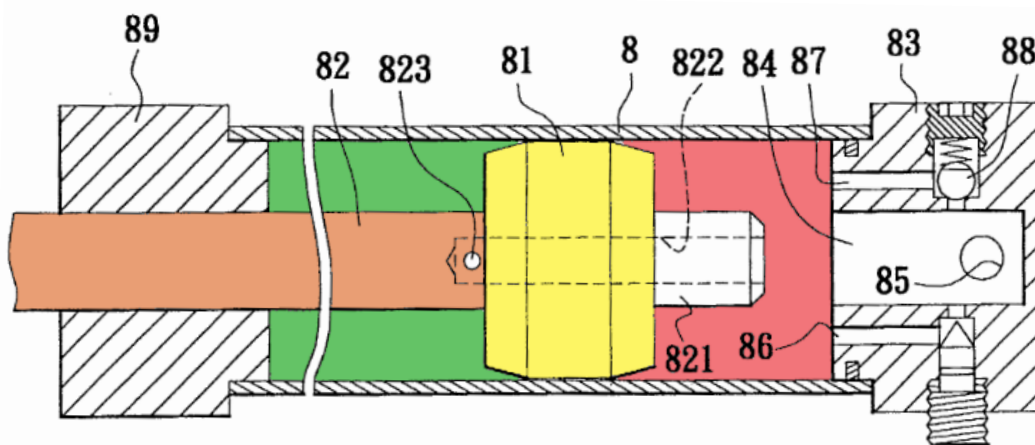


FIG. 4

63. *Chen* further includes an accommodating cavity **84** (pink), which is the same as the claimed bottom out cup, and a projecting post **821** (light orange), which is the same as the claimed bottom out piston. As can be seen in *Chen*'s Figures 4 and 5 below, the projecting post **821** is configured to sealingly engage with the accommodating cavity **84** during a compression stroke.

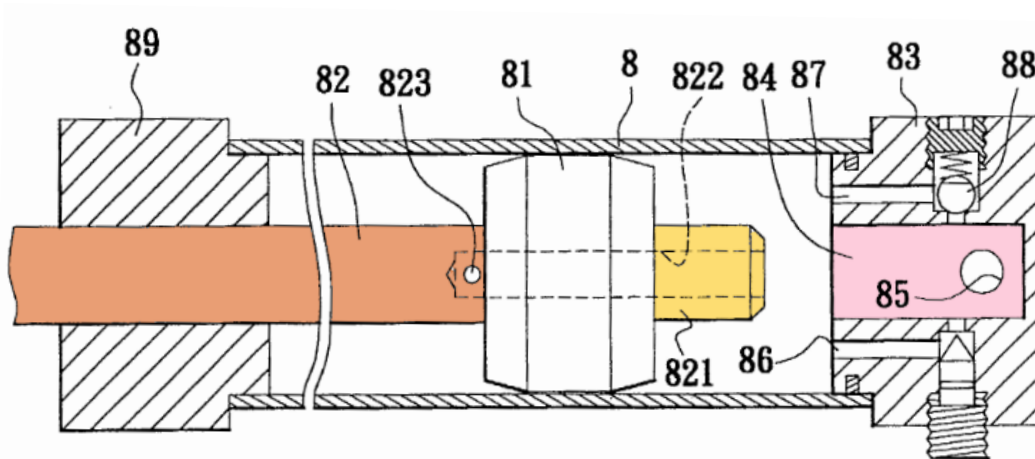


FIG. 4

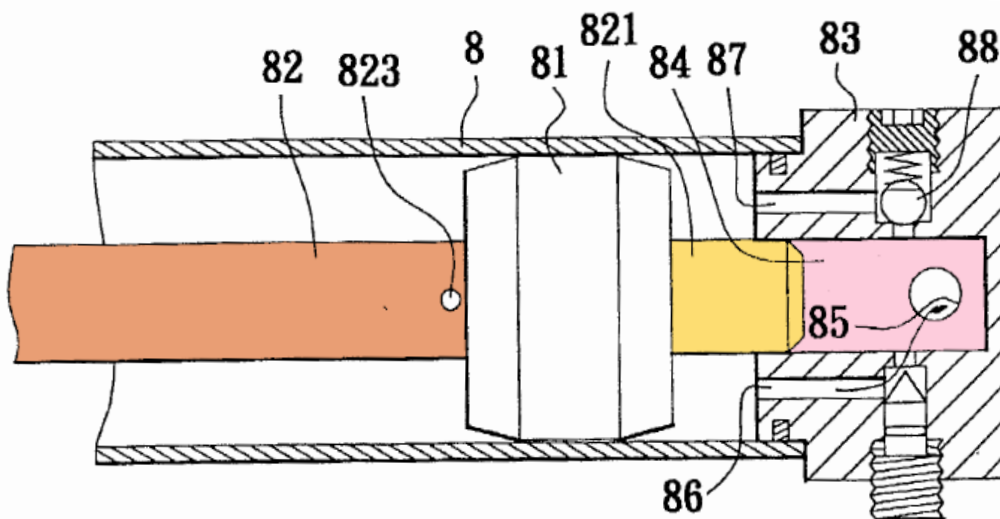


FIG. 5

64. Finally, *Chen* discloses the use of three different channels from the bottom out cup, with two extending into the compression portion (light red) and one

into the rebound portion (dark green). Of the first two, one **86** (dark blue) is adjustable via a needle valve (dark purple) that is externally actuated by an adjuster (light purple), and the other **87** (dark red) is regulated by a check ball valve **88**. On the other hand, the final channel **822**, **823** (light blue) penetrates through the piston shaft **82** (dark orange). These features are shown in Figures 4, 5, and 5 below:

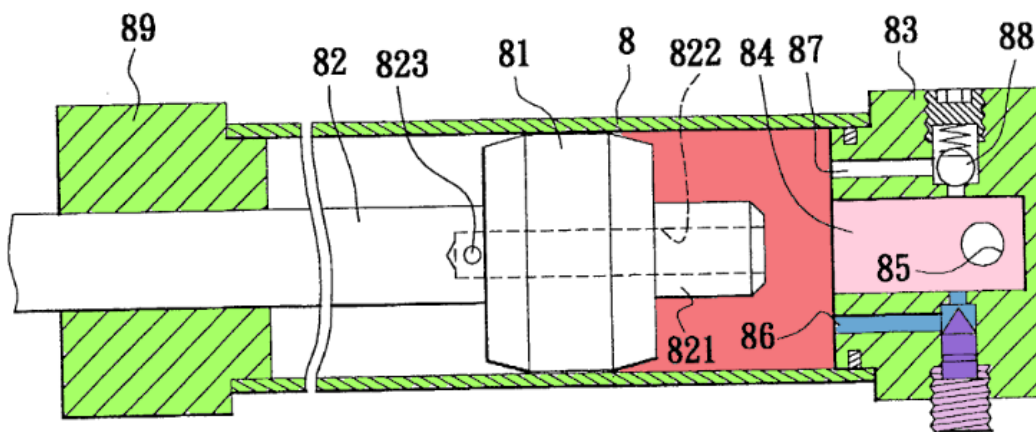


FIG. 4

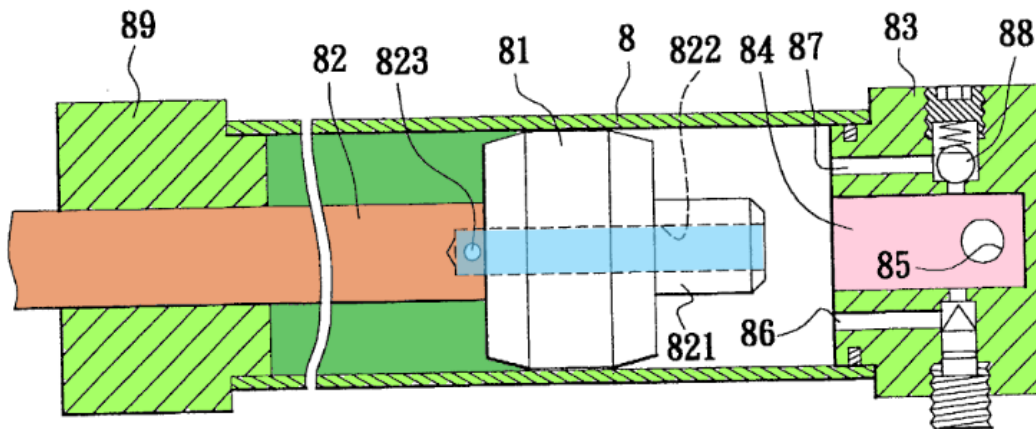


FIG. 4

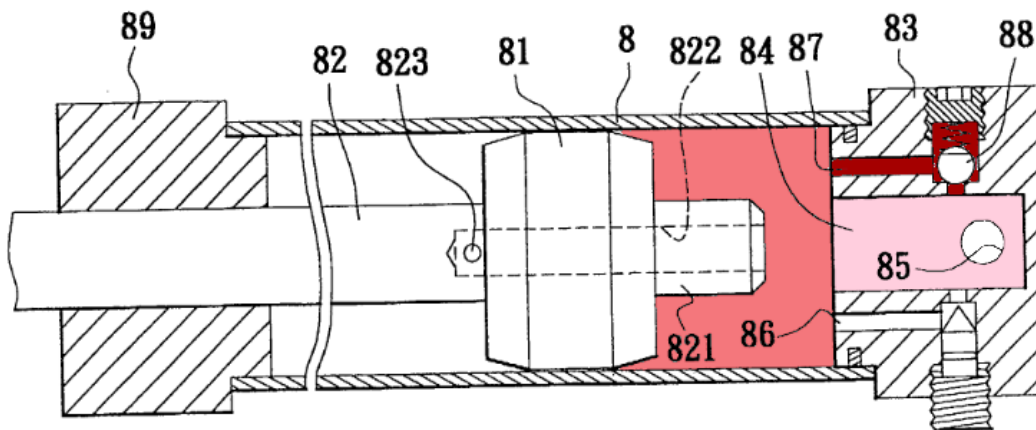


FIG. 4

U.S. Patent Application Publication No. 2006/0283676 A1 to Deferme (“Deferme”)

65. U.S. Patent Application Publication No. 2006/0283676 A1 to Deferme (“Deferme”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on June 21, 2006, and published on December 21, 2006. Ex. 1008.

66. *Deferme* discloses the use of an adjustable piston (yellow) that allows fluid to flow therethrough in both the compression and rebound directions of travel. Ex. 1008, Abstract, ¶[0016], ¶¶[0020]-[0021], FIGS. 1-3. The adjustment may be made by altering either of two one-way valves **72, 102** that extend through the piston, one operating during a compression and the other operating during rebound. *Id.* The valves **72, 102** operate by having shims that are flexible in only one direction, such that fluid is only allowed to pass thereby in that one direction when sufficient pressure is exerted on the valve to cause the bending, which then opens a fluid flow path. Valve **72** allows fluid to bypass the piston during compression of the related damper. The amount of pressure required to bend the shims may be adjusted by swapping out the shims with others having different stiffness values. This ability to adjust provides tunability for the compression and rebound characteristics. *Id.*

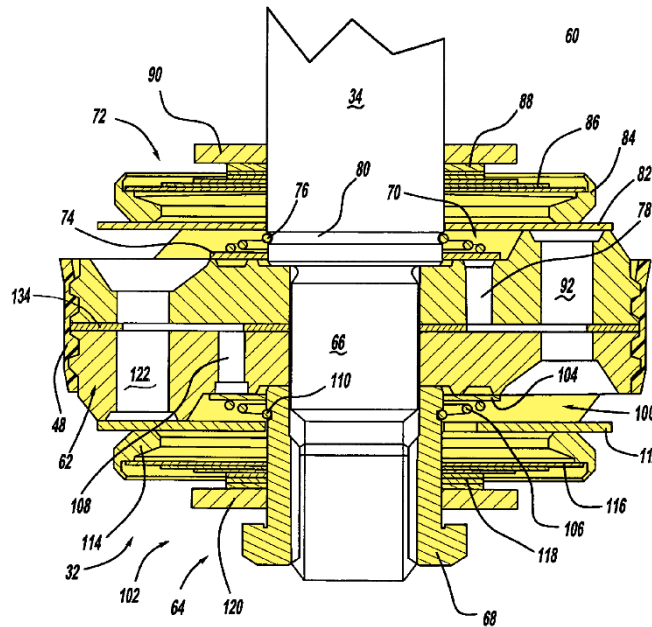


FIG - 3

U.S. Patent No. 6,604,751 to Fox (“Fox ‘751”)

67. U.S. Patent No. 6,604,751 to Fox (“Fox ‘751”) is prior art under pre-AIA 35 U.S.C. § 102(b), having filed on January 9, 2002, and issued on August 12, 2003. Ex. 1009, page 1.

68. Fox ‘751 discloses a conventional suspension damper for a shock absorber 38 having an overall structure similar to that recited in the Challenged Claims. Fox ‘751 discloses “[a] dampener [sic] including a valve movable between an open position and a closed position to selectively alter the compression damping rate of the shock absorber.” Ex. 1009, Abstract. Fox ‘751 further discloses “acceleration sensitive damping arrangements suitable for use in vehicle dampeners [sic] (e.g., shock absorbers, struts, front forks).” The damper (volume within the

shock body **42**, light green) of *Fox '751's* shock absorber **38** includes a piston **68** that divides an interior volume into a compression portion **96** and a rebound portion **98**. Fluid is able to travel between the compression portion **96** and the rebound portion **98** using passages **104, 108** through the piston **68**. The passages **104, 108** include a means for restricting the flow of fluid between the compression portion **96** and the rebound portion **98**, the degree of restriction being adjustable by changing the shim stacks **106, 110**. Ex. 1009, Abstract, 6:34-7:15.

69. *Fox '751's* shock absorber **38** is otherwise ripe for improvement, having no specialized bottom out resistance beyond the simple bottom out bumper **94**.

FOX '751's Figure 3A

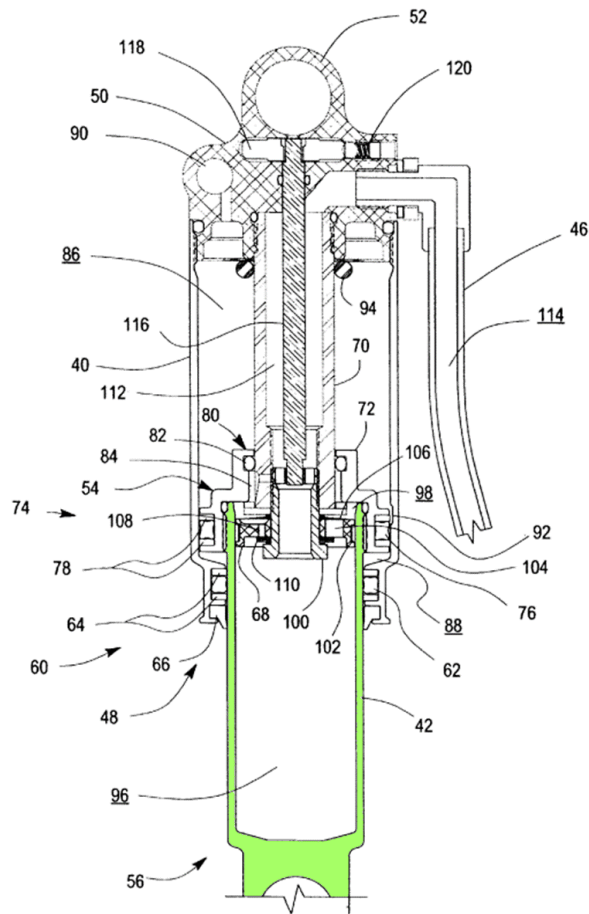


FIG. 3A

U.S. Patent No. 8,162,112 B2 to Gartner et al. (“Gartner”)

70. U.S. Patent No. 8,162,112 B2 to Gartner et al. (“Gartner”) is prior art under pre-AIA 35 U.S.C. § 102(e), having been filed on February 11, 2008, and related to U.S. Provisional Patent Application No. 60/889,050, filed on February 9, 2007. Ex. 1010, page 1. The disclosure of U.S. Provisional Patent Application No. 60/889,050 supports an earliest prior art date of *Gartner* for this Petition of February

9, 2007. Ex. 1010. For example, Figures 12A-12C of *Gartner*, relied on in this Petition, are nearly identical to Figures 12A-12C in U.S. Provisional Patent Application No. 60/889,050. *Compare* Ex. 1010, FIGS. 12A-12C, *with* Ex. 1011, FIGS. 12A-12C. However, I understand that *Gartner* is 102(e) prior art based on its filing date alone.

71. *Gartner* discloses a damper to be used in a shock absorber **420**, the damper having both bottom out resistance facilitated by “multiple fluid flowpaths during compression[.]” Ex. 1010, Abstract. The damper is formed within the volume of the cylinder **26** (light green) that is capped on one end by an end cap **26.2** (light green). A piston **22** (yellow) divided this volume into a compression portion **26.5** (dark green) and a rebound portion **26.4** (light red). *See* Ex. 1010, 3:54-4:4, 9:33-48, FIGS. 1, 7, 12A-12C.

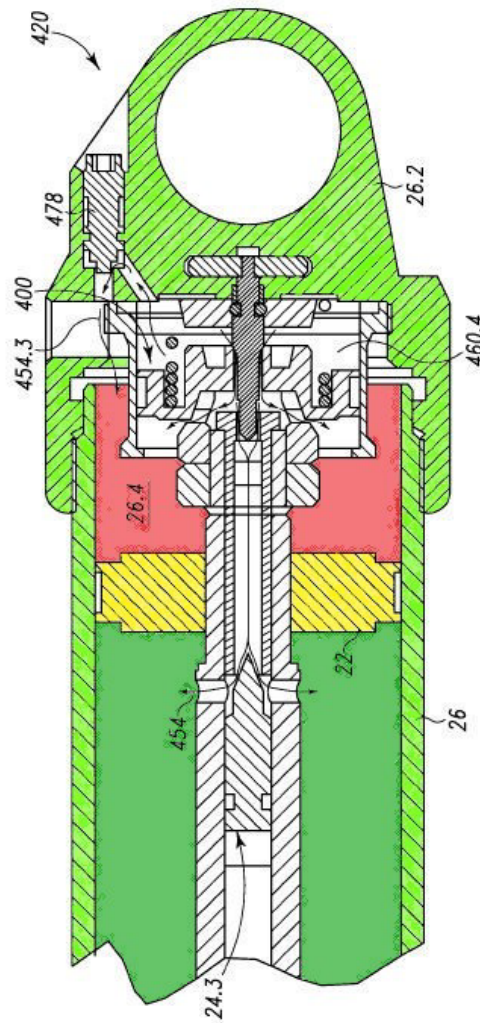


Fig. 12A

72. *Gartner* further includes an additional compression volume **460.4** (pink), which is the same as the claimed bottom out cup. As can be seen in Figure 12A below, *Gartner* discloses the use of an auxiliary path **454.3** from the bottom out cup **460.4**, extending into the compression portion (light red) and. The auxiliary path **454.3** (dark blue) is adjustable via a screw type needle valve **478** (needle (dark purple), screw (light purple)) that is externally actuated. These features are shown in Figure 12A below:

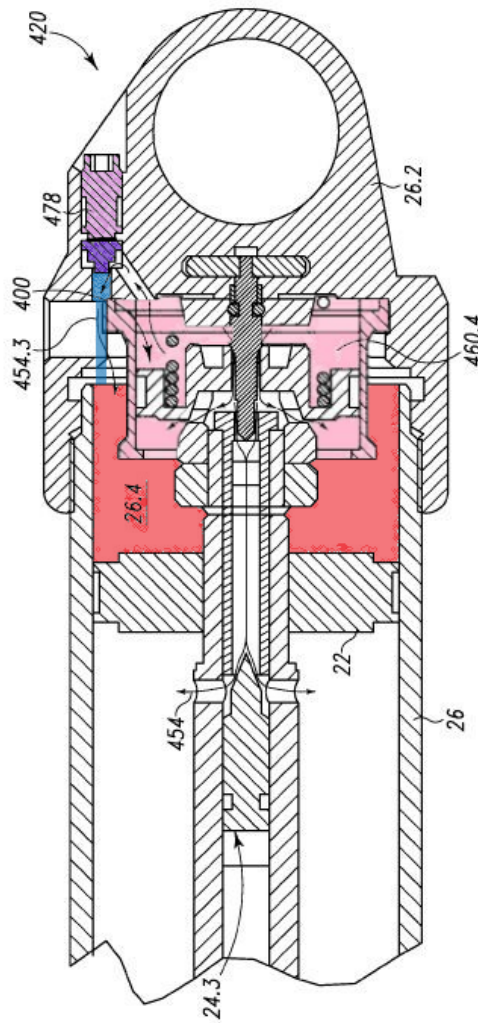


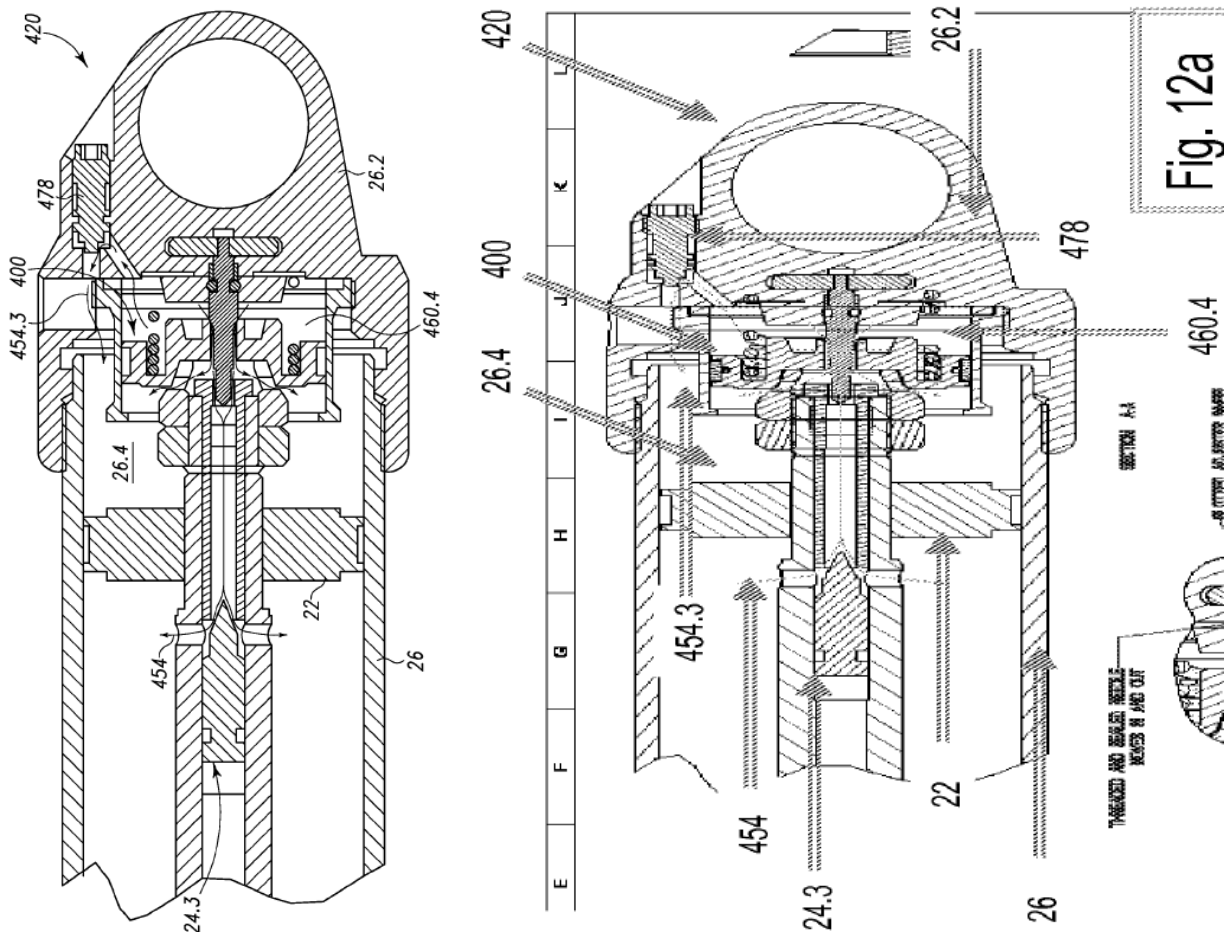
Fig. 12A

73. *Gartner's* provisional application (Ex. 1011) includes sufficient written disclosure to support *Gartner's* earlier effective filing date being the same as that of the provisional, which is February 9, 2007. Specifically, *Gartner* (Ex. 1010) and *Gartner's* provisional (Ex. 1011) include nearly the same disclosure for the embodiment I rely upon in this declaration, and SRAM relied upon in the Petition.

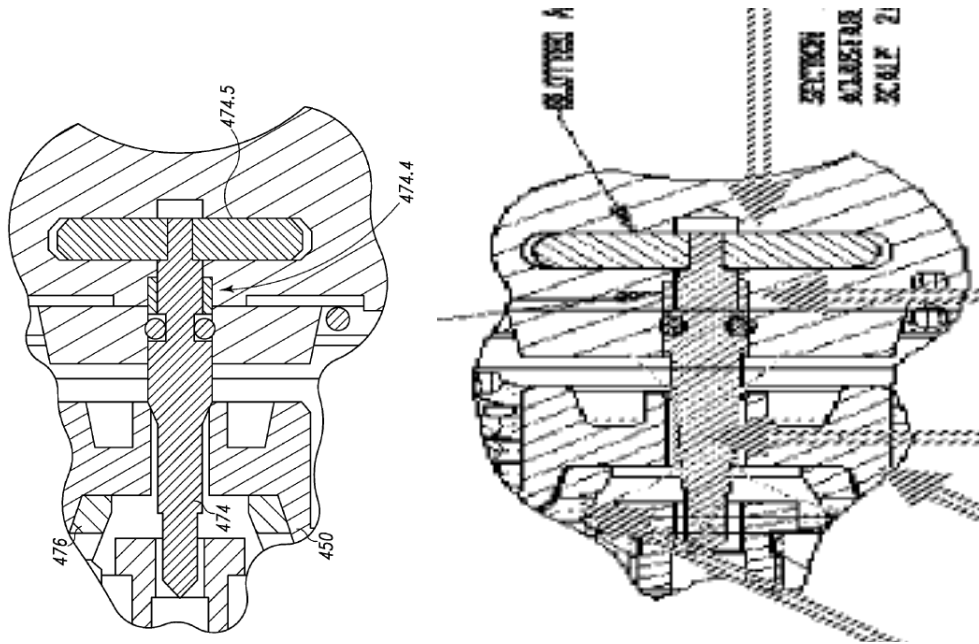
74. Although the figures have been reformatted somewhat, it is clear that the same basic figures were used for Figures 12A through 12C in both *Gartner* and

Gartner's provisional. Below, I reproduce each of these three figures in turn, with the corresponding figures placed next to each other. *Gartner's* figures are on the left, and *Gartner's* provisional's figures are on the right. This simple comparisons illustrates that the figures in each of *Gartner* and *Gartner's* provisional provide the same disclosure and that any differences are immaterial.

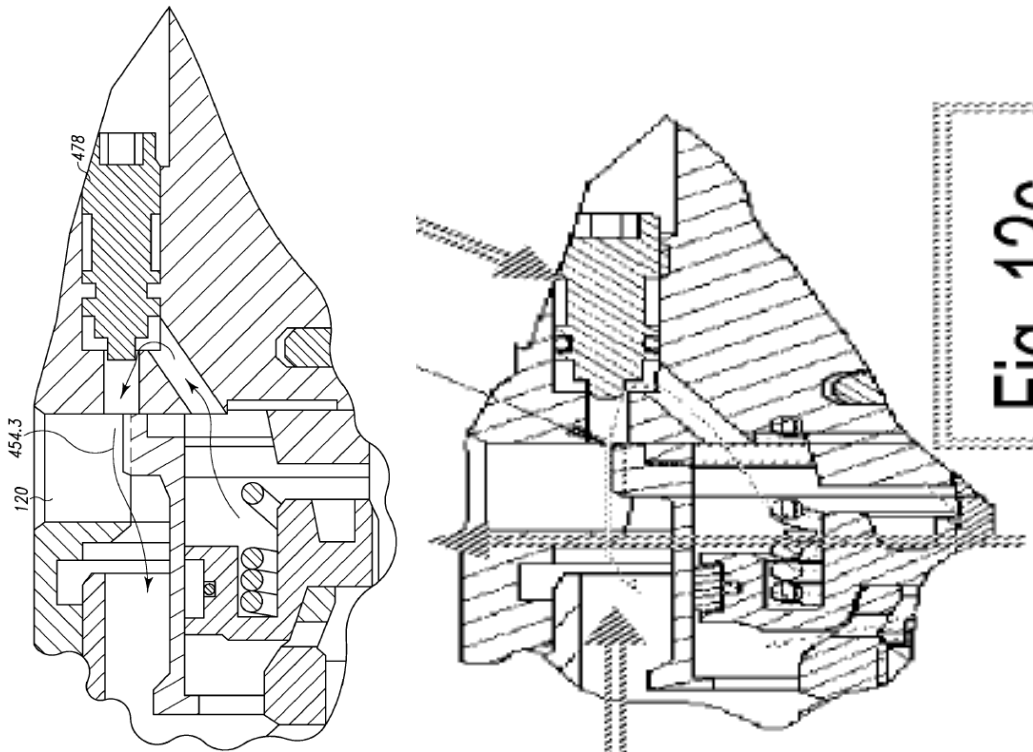
Figures 12A



Figures 12B



Figures 12C



75. In addition, the written description regarding this embodiment in *Gartner* and *Gartner's* provisional are nearly identical, as shown below, where I list *Gartner's* relevant disclosure first, followed by *Gartner's* provisional. I have reviewed these statements, and they are substantively and materially identical for all issues and limitations related to the Petition and this Declaration.

pension.

FIGS. 12a, 12b, and 12c are cutaway views of a shock absorber 420 according to another embodiment of the present invention. Shock absorber 420 is the same as shock absorber 20 220 as previously described, except for the changes which are shown and described herein. Shock absorber 420 includes means for externally adjusting the second flow path as is shown and will be described.

Shock absorber 420 includes one or more features for 25 externally adjusting the damping characteristics of second internal shock absorber 400. In one embodiment, shock absorber 400 includes two features for externally adjusting the damping of the second compression characteristic (i.e., when the internal shock absorber 400 is active). However, 30 some embodiments include only one of these features to be described.

Shock absorber 400 includes an auxiliary compression flowpath 454.3 that is externally adjustable. As best seen in FIGS. 12a and 12c, auxiliary path 454.3 includes a first pas- 35 sageway in end cap 26.2 interconnecting compression volume 460.4 with an adjustment screw 478. The external end of screw 478 is sealed from the fluid environment, and includes an adjustment feature such as an internal hex head or external hex head. The other end of screw 478 is in fluid communica- 40 tion with the first passageway previously described, and also with a second passageway that is in fluid communication with compression volume 26.4. Screw 478 is threadably received within end cap 26.2. As the screw is turned along the threads, a nose of screw 478 projects more or less into the second flow 45 passage, and thereby forms more or less of a restriction to flow. Adjustment of screw 478 results in a fixed-characteristic fluid bypass.

In some embodiments, shock absorber 420 includes a second external adjustment feature, as best seen in FIGS. 12a and 50 12b. Metering needle 474 is threadably received within end cap 26.2. One end of the body of needle 474 projects into a slotted adjuster wheel 474.5. Adjuster wheel 474.5 is externally accessible and turnable by a person's hand. Turning of wheel 474.5 results in axial movement of needle 474 relative 55 to end cap 26.2. By this axial movement of needle 474, the metering portions of the shaft are displaced, with a subsequent change in the displacement characteristics of shock absorber 420. Referring to FIG. 9, the second compression characteristic of shock 420 can be moved laterally along the 60 displacement axis.

5 FIGS. 12a, 12b, and 12c are cutaway views of a shock absorber 420 according to another embodiment of the present invention. Shock absorber 420 is the same as shock absorber 220 as previously described, except for the changes which are shown and described herein.

 Shock absorber 420 includes one or more features for externally adjusting the damping characteristics of second internal shock absorber 400. In one embodiment, shock absorber 400 includes two features for externally adjusting the damping of the second compression characteristic (i.e., when the internal shock absorber 400 is active). However, some embodiments include only one of these features to be described.

15 Shock absorber 400 includes an auxiliary compression flowpath 454.3 that is externally adjustable. As best seen in FIGS. 12a and 12c, auxiliary path 454.3 includes a first passageway in end cap 26.2 interconnecting compression volume 460.4 with an adjustment screw 478. The external end of screw 478 is sealed from the fluid environment, and includes an adjustment feature such as an internal hex head or external hex head. The other end of screw 478 is in fluid communication with the first passageway previously described, and also with a second passageway that is in fluid communication with compression volume 26.4. Screw 478 is threadably received within end cap 26.2. As the screw is turned along the threads, a nose of screw 478 projects more or less into the second flow passage, and thereby forms more or less of a restriction to flow. Adjustment of screw 478 results in a fixed-characteristic fluid bypass.

 In some embodiments, shock absorber 420 includes a second external adjustment feature, as best seen in FIGS. 12a and 12b. Metering needle 474 is threadably received within end cap 26.2. One end of the body of needle 474 projects into a slotted adjuster wheel 474.5. Adjuster wheel 474.5 is externally accessible and turnable by a person's hand. Turning of wheel 474.5 results in axial movement of needle 474 relative to end cap 26.2. By this axial movement of needle 474, the metering portions of the shaft are displaced, with a subsequent change in the displacement characteristics of shock absorber 420. Referring to FIG. 9, the second compression characteristic of shock 420 can be moved laterally along the displacement axis.

76. Accordingly, the *Gartner* provisional (Ex. 1011) supports a February 9, 2007 effective filing date for *Gartner* (Ex. 1010).

Motivation to Combine

1. *Nakaya* and *Kodama*

77. If, in the unlikely event, the Board does not find that *Nakaya* anticipates or alone renders obvious each of the Challenged Claims, combining *Nakaya* and *Kodama* is straightforward: a POSITA would modify *Nakaya*'s piston shaft/rod **114** and passage **101** to incorporate *Kodama*'s adjustable path system (including *Kodama*'s throttle valve **30**, needle valve **32**, and adjusting screw **34**).

78. A POSITA would have been motivated to modify *Nakaya* to have this means for adjusting the flow of fluid through *Nakaya*'s piston at least because such adjustment would allow for a more versatile device having a range of damping and spring values. Moreover, such a modification would have been predictable at least because the process of modifying *Nakaya* would have been simple to a POSITA, and the combined *Nakaya/Kodama* device would be reasonably expected to function to provide an adjustable fluid flow through *Nakaya*'s piston shaft/rod **114**. After all, *Nakaya* includes a similar structure to allow such a fluid flow. A POSITA would have understood that this simple substitution would have been predicted to work as intended and that the results of the modification/substitution would have been

predictable. Further, this modification would have merely been the application of a known technique (the use of a piston shaft flow path) to a known device (*Nakaya's* damper) that was ready for improvement, and the result would have been predictable, as discussed above. *Kodama* would be used in the same way in the combination of *Nakaya/Kodama* as it is used in *Kodama*, and a POSITA would expect success from adding *Kodama's* adjustable path system (including *Kodama's* throttle valve **30**, needle valve **32**, and adjusting screw **34**) within *Nakaya's* piston shaft/rod **114**.

2. *Chen and Deferme*

79. If, in the unlikely event, the Board does not find that *Chen* anticipates or alone renders obvious each of the Challenged Claims, combining *Chen* and *Deferme* is straightforward: a POSITA would modify *Chen's* piston **11** to incorporate *Deferme's* adjustable piston system or substitute *Chen's* piston **81** for *Deferme's* piston **32**.

80. A POSITA would have been motivated to modify *Chen* to have *Deferme's* means for adjusting the flow of fluid through *Chen's* piston **11** at least because such adjustment would allow for a more versatile device having a range of damping and spring values. Moreover, such a modification would have been predictable at least because the process of modifying *Chen* would have been simple to a POSITA, and the combined *Chen/Deferme* device would be reasonably expected

to function to allow an adjustable fluid flow through *Chen's* piston **11**. Such adjustable pistons are commonplace in dampers. A POSITA would have understood that this simple substitution would have been predicted to work as intended and that the results of the modification/substitution would have been predictable. Further, this modification would have merely been the application of a known technique (the use of an adjustable piston like *Deferme's*) to a known device (*Chen's* piston **11**) that was ready for improvement, and the result would have been predictable, as discussed above. *Deferme* would be used in the same way in the combination of *Chen/Deferme* as it is used in *Deferme*, and a POSITA would expect success from adding *Deferme's* adjustable piston system to *Chen's* piston **11**.

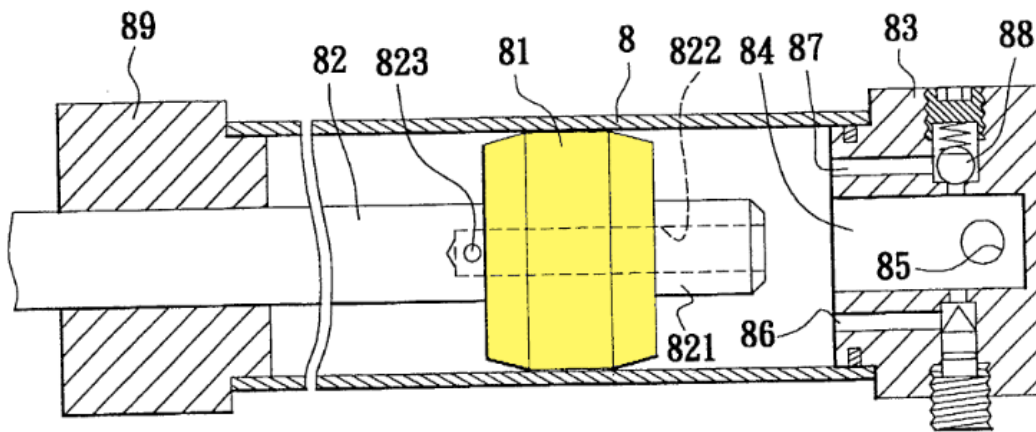


FIG. 4

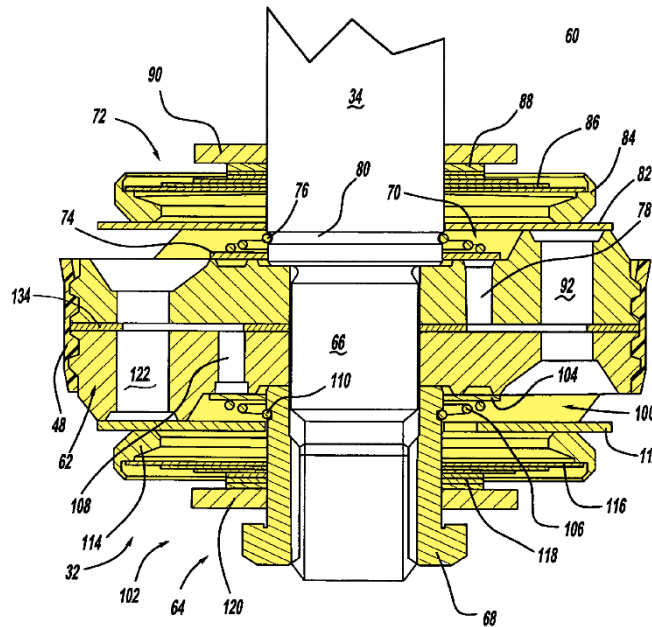


FIG - 3

3. *Fox '751 and Chen*

81. Combining *Fox '751* and *Chen* is straightforward: a POSITA would modify *Fox*'s typical damper to include *Chen*'s bottom out control system including *Chen*'s bottom out cup **84**; bottom out piston **821**; two side passageways **86**, **87**, and piston shaft passageway **822**, **823**.

82. *Fox '751* discloses a simple shock absorber **38** shown in Figure 3A including a damper (volume within the shock body **42**, light green) that is ripe for improvement:

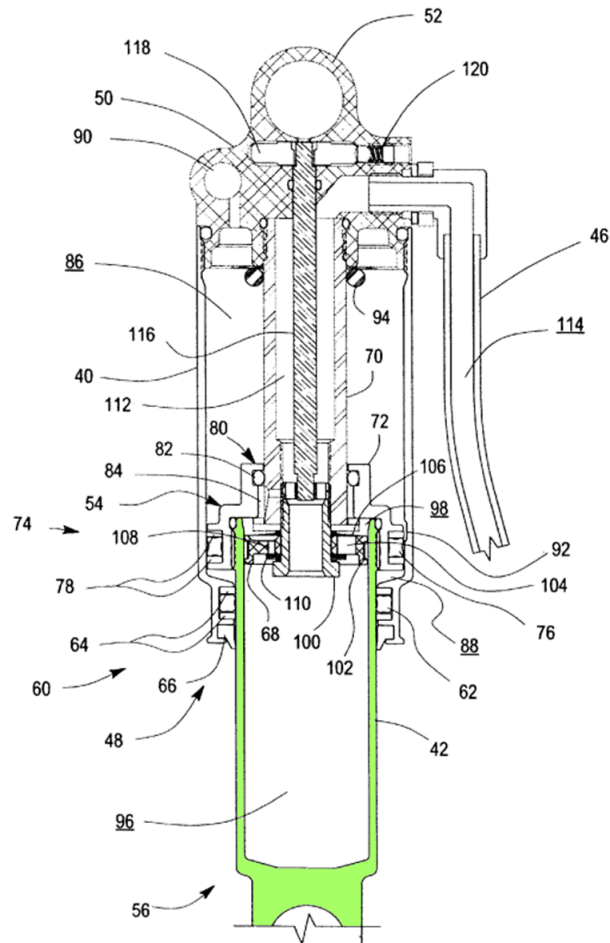


FIG. 3A

83. Ex. 1009, FIG. 3A. *Fox '751's* damper (volume within the shock body **42**, light green) does not include any form of specialized bottom out resistance beyond the simple bottom out bumper **94**.

84. Such bottom out resistance may be provided by *Chen's* bottom out cup system. Specifically, *Chen's* bottom out cup **84** may be directly added into *Fox '751's* damper (volume within the shock body **42**, light green). In addition, to get the most out of the bottom out system, *Chen* may be modified to include *Chen's*

three passageways from the bottom out cup: two passageways **86, 87** from the bottom out cup **84** to the compression portion of the damper and one passageway **822, 823** from the bottom out cup **84** to the rebound portion.

85. The combination of *Fox '751* and *Chen* would merely be the combination of known prior art elements (*Fox '751*'s typical shock absorber **38** and *Chen*'s known bottom out cup system) according to known methods (*Chen*'s bottom out cup system may be directly integrated into *Fox '751*'s damper (volume within the shock body **42**)). The combination of *Fox '751* and *Chen* would merely be a simple substitution of one known element (*Chen*'s known bottom out cup system) for another (*Fox '751*'s plain and relatively featureless damper (volume within the shock body, **42**)). A POSITA would expect the combination to yield and obtain easily predictable results (that *Chen*'s bottom out cup system would allow for adjustable bottom out resistance in *Fox '751*'s damper (volume within the shock body **42**)), at least because each element in the combination is being incorporated and used as intended. In addition, mechanical arts like those discussed in *Chen* and *Fox '751* have previously been found to be predictable.

4. *Chen* or *Fox '751/Chen* and *Nakaya* and/or *Kodama*

86. Combining *Nakaya* and/or *Kodama* with either of *Chen* or *Fox '751* is straightforward: a POSITA would modify *Chen*'s or *Fox '751/Chen*'s piston shaft/rod to incorporate *Nakaya*'s adjustable path system (including *Nakaya*'s

passage **101**, throttle passage **813**, and adjustment screw **814**) and/or *Kodama's* adjustable path system (including *Kodama's* throttle valve **30**, needle valve **32**, and adjusting screw **34**).

87. A POSITA would have been motivated to modify *Chen* or *Fox '751/Chen* to have this means for adjusting the flow of fluid through the relevant reference's piston at least because such adjustment would allow for a more versatile device having a range of damping and spring values. Moreover, such a modification would have been predictable at least because the process of modifying *Chen* or *Fox '751/Chen* would have been simple to a POSITA, and the combined device with *Nakaya* and/or *Kodama* would be reasonably expected to function to allow an adjustable fluid flow through the relevant reference's piston shaft/rod. After all, *Chen* and *Fox '751/Chen* each include a similar structure to allow such a fluid flow.

88. A POSITA would have understood that this simple substitution would have been predicted to work as intended and that the results of the modification/substitution would have been predictable. Further, this modification would have merely been the application of a known technique (the use of a flow path through a piston shaft) to a known device (*Chen's* or *Fox '751/Chen's* damper) that was ready for improvement, and the results would have been predictable, as discussed above. *Nakaya* and/or *Kodama* would be used in the same way in the combination of *Chen* or *Fox '751/Chen* with *Nakaya* and/or *Kodama* as it is used in

Nakaya or *Kodama*, respectively. A POSITA would expect success from adding *Nakaya*'s passage **101**, throttle passage **813**, and adjustment screw **814**) and/or *Kodama*'s adjustable path system (including *Kodama*'s throttle valve **30**, needle valve **32**, and adjusting screw **34**) within *Chen*'s or *Fox '751/Chen*'s piston shaft/rod.

CLAIM-BY-CLAIM EXPLANATION OF WHY THE CLAIMS OF THE '223 PATENT ARE INVALID IN VIEW OF NEWLY CITED PRIOR ART REFERENCES

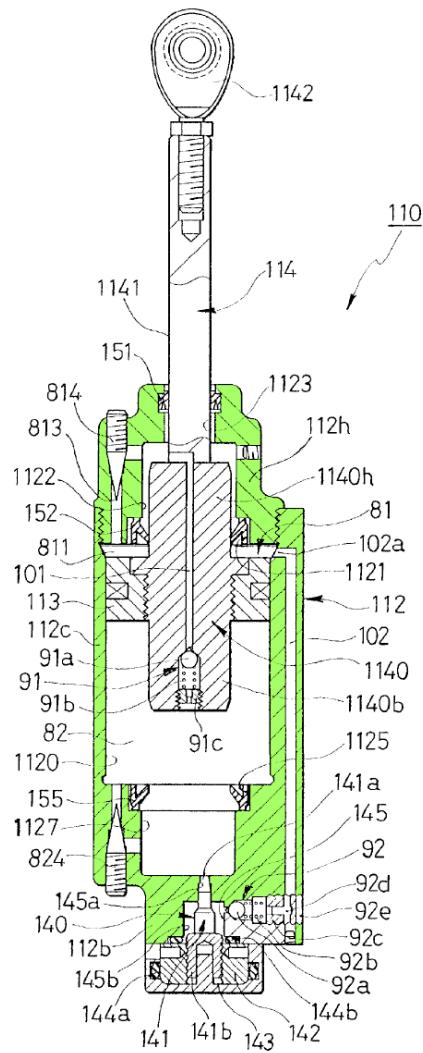
Ground I: Claims 1 through 9, 11 through 15, and 19 are Anticipated by *Nakaya*, or Rendered Obvious Under 35 U.S.C. § 103 by *Nakaya*, or Rendered Obvious by *Nakaya* in view of *Kodama*.

1. Independent Claim 1

(a) Claim 1[pre]

Claim Language
A damper for a shock absorber comprising:

89. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a damper (the portions of the shock absorber **110** that provide damping, including at least the cylindrical body **112** that is closed on either end by head part **112h** and bottom part **112b** (light green)) for a shock absorber **110**. Ex. 1005, FIG. 7.

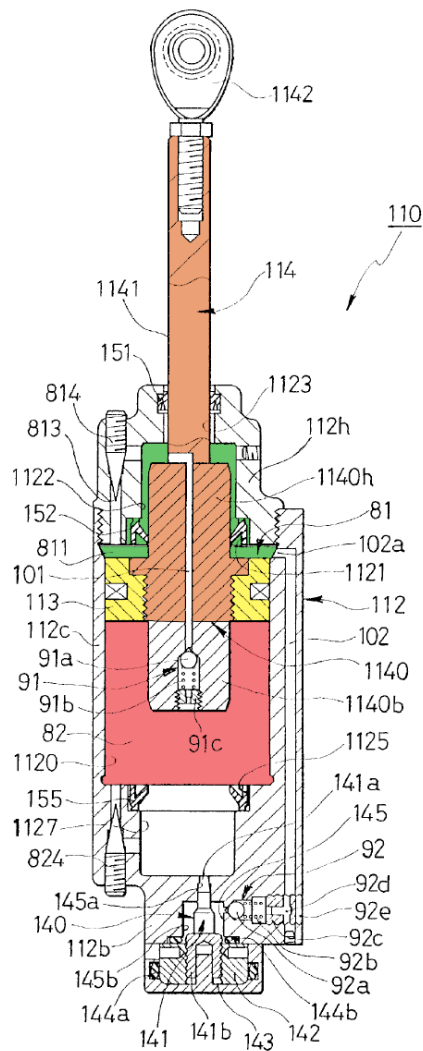


(b) Claim 1[a]

Claim Language
a damper chamber divided by a piston and shaft into a compression and rebound portions;

90. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a damper chamber **81**, **82** that is divided by a piston **113** (yellow) and a

piston shaft/rod **114** (dark orange) into a compression portion **82** (light red) and a rebound portion **81** (dark green). Ex. 1005, FIG. 7.

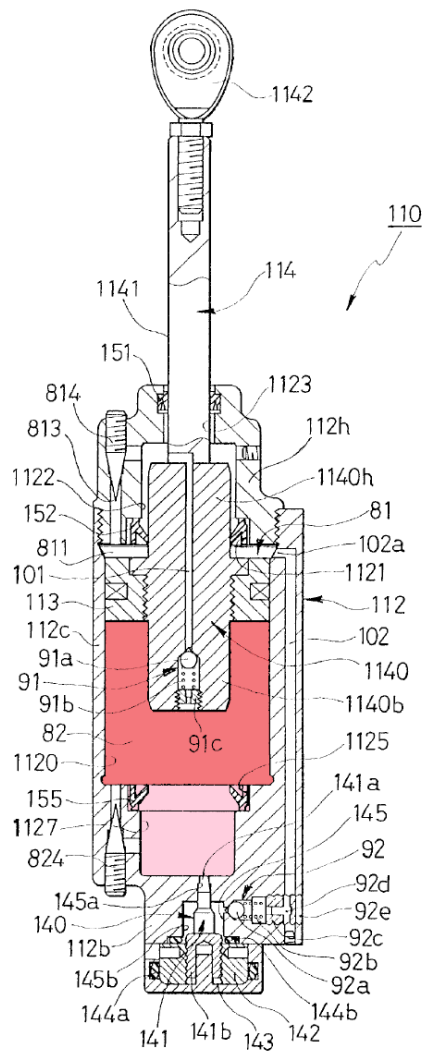


(c) Claims 1[b]

Claim Language
a bottom out cup formed at an end of the compression portion; and

91. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a bottom out cup (the volume within the enlarged-diameter hole **1125** and

the middle-sized diameter hole **1127**) (pink) formed at the end of the compression portion **82** (light red). Ex. 1005, FIG. 7.

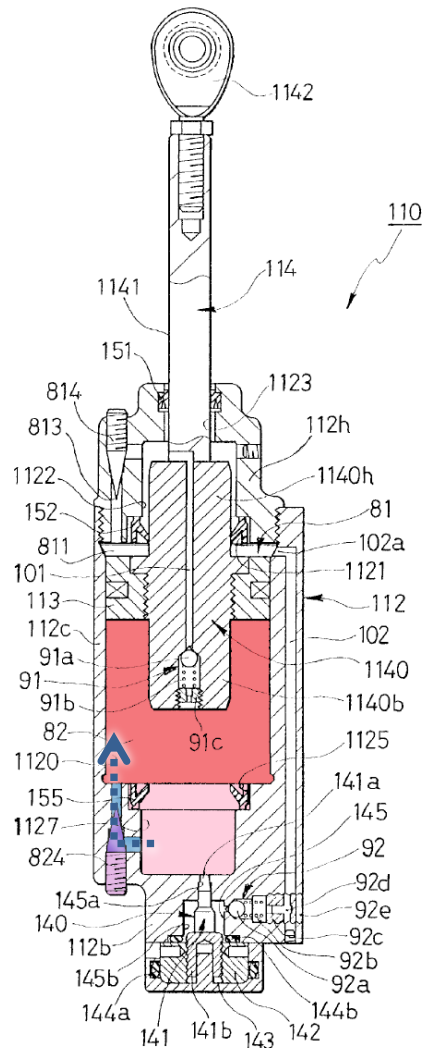


(d) Claim 1[c]

Claim Language

a fluid flow path formed in the bottom out cup for providing fluid communication from the cup to the compression portion of the chamber during a compression stroke of the damper;

92. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a fluid flow path (including the throttle passage **823**) (dark blue) formed in the bottom out cup **1125, 1127**) for providing fluid communication from the cup to the compression portion **82** (light red) of the chamber **81, 82** during a compression stroke of the damper. Ex. 1005, 9:22-30 (explaining that the fluid flows from the bottom out cup to the compression portion), FIGS. 7, 8.



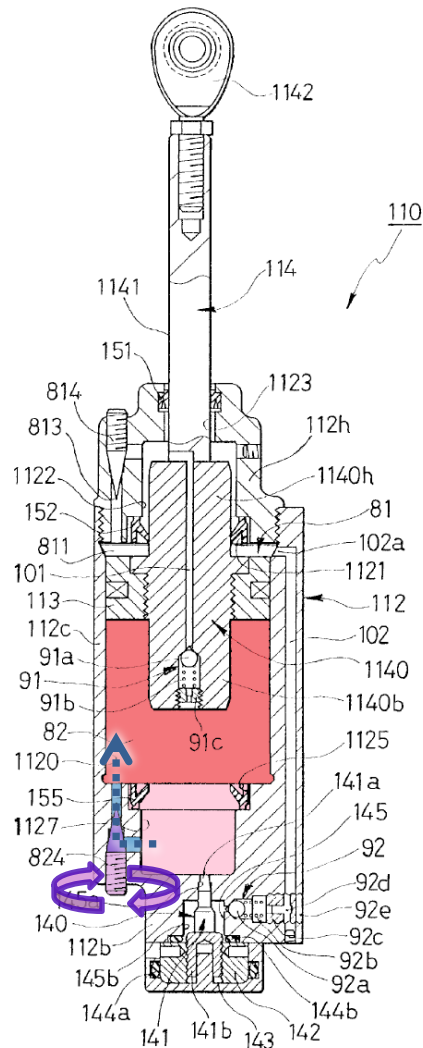
93. I note that claim 1 does not require a directionality of a flow of fluid, although it does describe such directionality as being from the bottom out cup to the compression portion in at least some embodiments. Instead, claim 1 merely requires a fluid communication bridge to extend between the bottom out cup and the compression portion. Here, there is clearly such a flow path providing fluid communication: throttle passage **823** having the screw type needle valve **824**. Ex. 1005, FIG. 7.

(e) Claim 1[d]

Claim Language
wherein the capacity of the fluid flow path is adjustable.

94. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes that the capacity of the fluid flow path (including the throttle passage **823**) (dark blue) is adjustable via the screw type needle valve **824** (needle (dark purple) and screw (light purple)). The valve restricts the fluid flow when present in the fluid flow path (including the throttle passage **823**) (dark blue). Further, *Nakaya* also discloses that the screw type needle valve **824** is manually adjustable and accessible externally of the damper, and can be adjusted between a closed position and a plurality of open positions (the screw may be adjusted to an effectively infinite number of positions between open and closed). Ex. 1005, FIG. 7. To the extent that

Nakaya does not explicitly disclose a closed position, such a feature would have been obvious to a POSITA using the same equipment featured in *Nakaya*. In particular, a POSITA would have been motivated to provide a closed position to allow for a greater range of damping characteristic for the shock absorber **110**. Moreover, *Kodama* discloses a needle valve (*Kodama's* throttle valve **130**) that includes a closed position. Ex. 1006, 4:58-5:2.



2. Dependent Claims 2-4

Claim Language
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 damper of claim 2, wherein the adjustable valve is manually adjustable and accessible externally of the damper.
The damper of claim 3, wherein the adjustable valve can be adjusted between a closed position and a plurality of open positions.

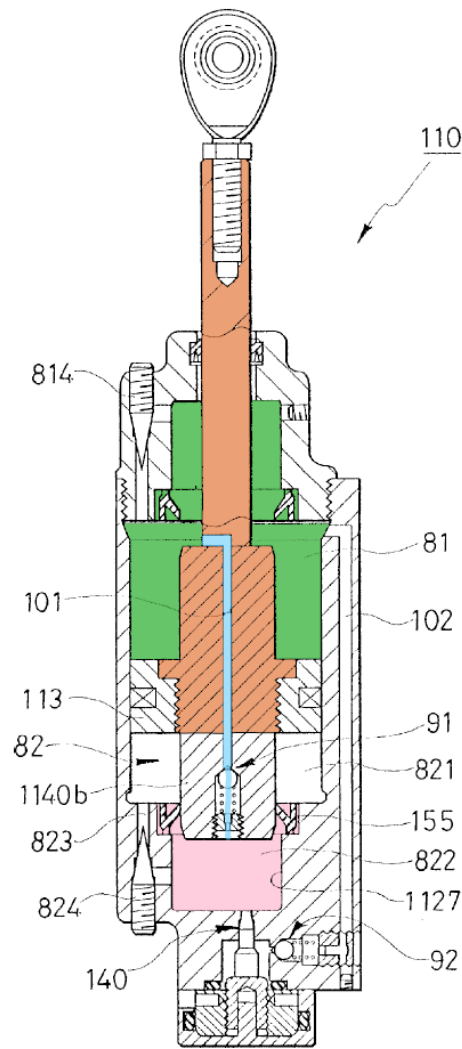
95. *Nakaya* discloses each and every element of these limitations. In particular, in my opinion, Claims 2-4 describe the same structure in nearly the same way, and accordingly, are each met by *Nakaya*'s screw type needle valve **824** and related flow path (including the throttle passage **823**).

3. Dependent Claim 5

Claim Language
The damper of claim 1, further including a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.

96. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes the damper of claim 1. Further, *Nakaya* discloses a fluid path **101** (light blue) between the cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the rebound portion **81** (dark green) of

the chamber **81**, **82**. The path **101** (light blue) is formed in the piston shaft/rod **114** (dark orange). Ex. 1005, FIG. 8.

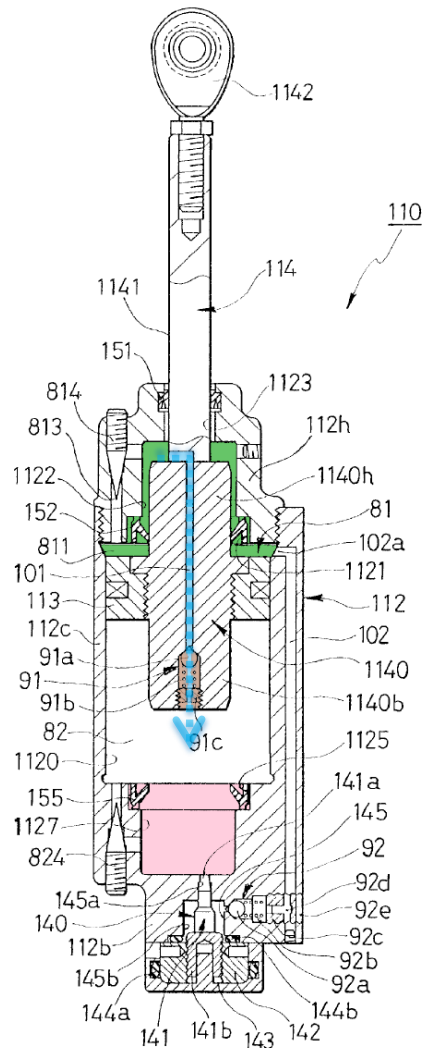


4. Dependent Claim 6

Claim Language

The damper of claim 5, wherein the path between the cup and rebound portion is adjustable with a check valve to permit flow of fluid in a single direction between the cup and the rebound portion.

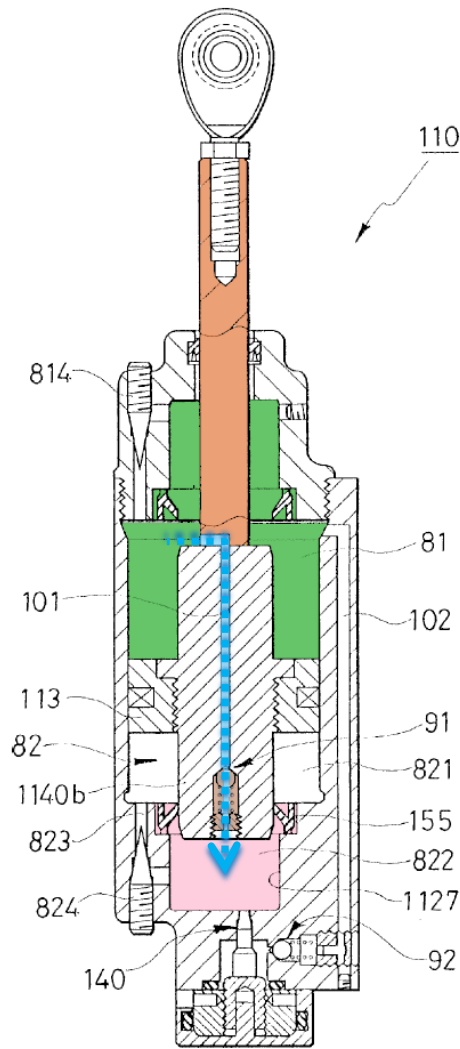
97. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes the damper of claim 5. Further, *Nakaya* discloses that the fluid path **101** (light blue) between the cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the rebound portion **81** (dark green) is adjustable with a check valve **91** (light brown) to permit flow of fluid in a single direction between the cup and the rebound portion. Ex. 1005, FIG. 7.



5. Dependent Claim 7

Claim Language
The damper of claim 6, wherein the check valve is arranged in the path to permit fluid communication between the rebound portion and the cup during a rebound stroke of the shaft.

98. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes the damper of claim 6. Further, *Nakaya* discloses that the check valve **91** (light brown) is arranged in the fluid path **101** (light blue) between the cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the rebound portion **81** (dark green) to permit fluid communication between the cup and the rebound portion **81** (dark green) during a rebound stroke of the shaft **114** (dark orange). Ex. 1005, FIG. 8.



6. Dependent Claim 8

Claim Language

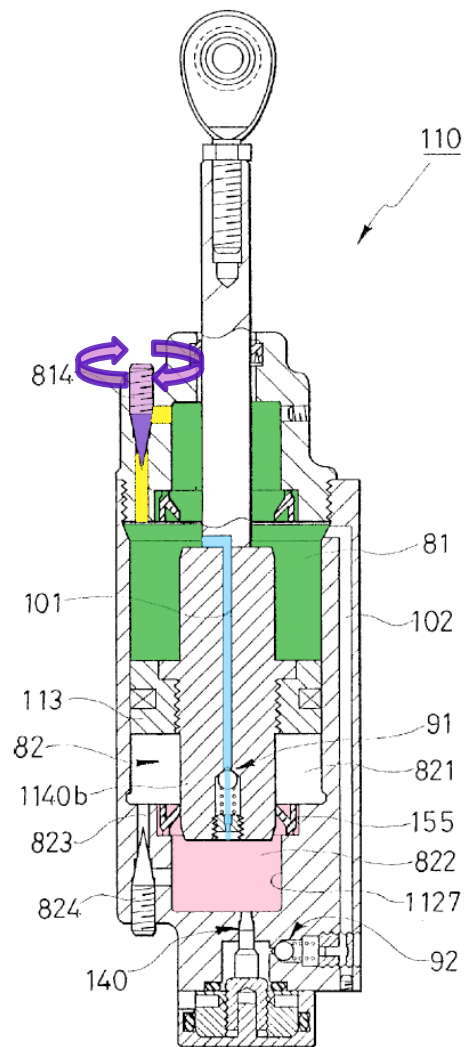
The damper of claim 7, wherein the volume of fluid traveling through the fluid path is user-adjustable.

99. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes the damper of claim 7. Further, *Nakaya* does not explicitly state that the volume of fluid traveling through the fluid path **101** (light blue) is user-adjustable.

However, the amount of fluid traveling through the fluid path **101** (light blue) is adjustable via the cushion adjustment screw **814** (light purple). This is true whenever the top out piston **1140h** is sealed by the top out cup's seal **152**. Ex. 1005, FIG. 8.

100. This is because there are two regions of pressurized fluid within the rebound portion **81** (dark green): the top out cup (the volume within the enlarged-diameter hole **1122** and the middle-sized diameter hole **1121**) and the rebound portion **811**. During a rebound stroke when the top out piston **1140h** is sealed by the top out cup's seal **152**, the cushion adjustment screw type needle valve **814** (needle (dark purple), screw (light purple)) will change the resistance of fluid flowing into the first passage **101** (light blue). Thus, although the volume of the first passage **101** (light blue) is not explicitly adjustable, the amount of fluid being sent through the first passage **101** (light blue) is adjustable by varying the amount of obstruction caused by the screw type needle valve **814** in the throttle passage **813** (yellow). Ex. 1005, FIG. 8.

Nakaya's Figure 8



101. Alternatively, it would have been obvious to a POSITA to modify *Nakaya* to include *Kodama*'s adjustable flow path including *Kodama*'s throttle valve **30** (light blue), needle valve **32** (dark purple), and adjusting screw **34** (light purple), for the reasons discussed above. Ex. 1006, 1:22-56, FIGS. 2, 3.

Kodama's Figures 2 and 3

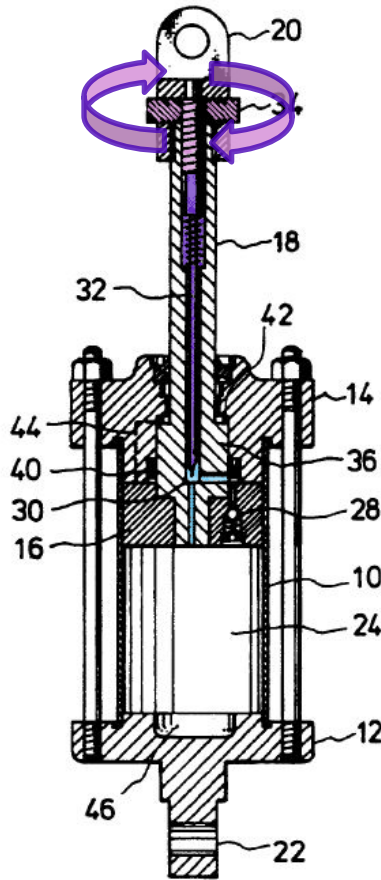


FIG. 2

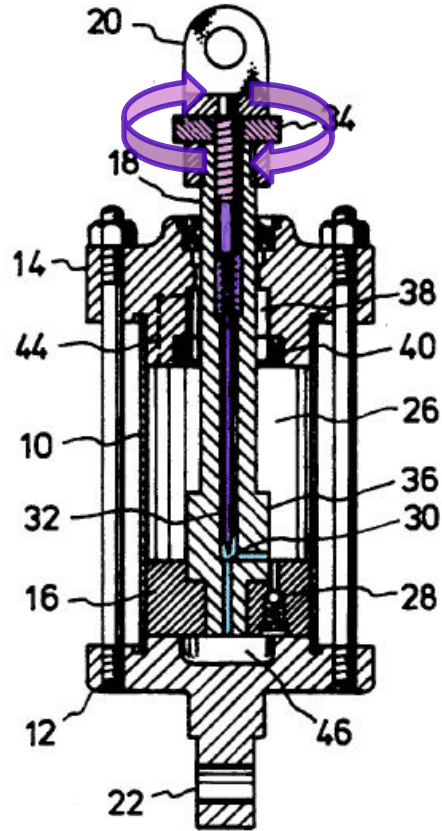


FIG. 3

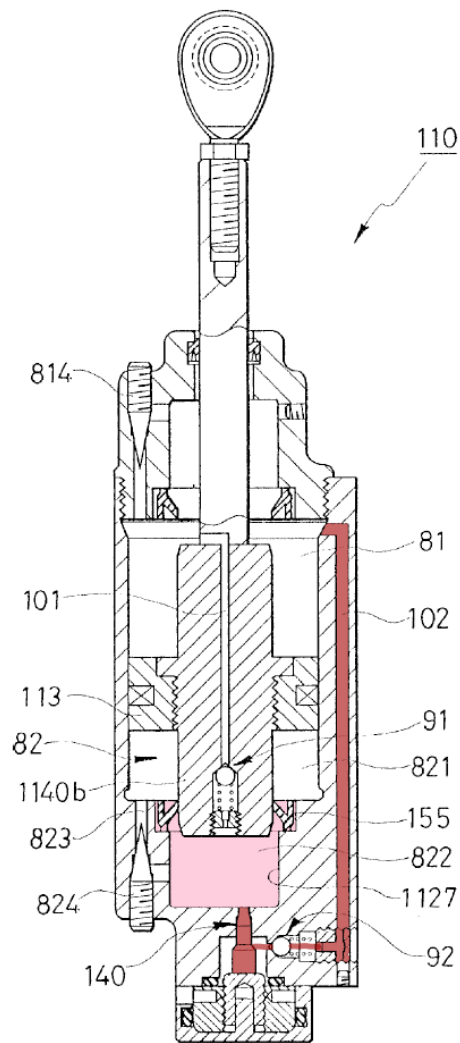
7. Dependent Claim 9

Claim Language
The damper of claim 1, further including a second fluid flow path within the bottom out cup.

102. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes the damper of claim 1. Further, *Nakaya* discloses a second fluid path **140**,

102 (dark red) within the bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink). Ex. 1005, FIG. 8.

Nakaya's Figure 8



8. Independent Claim 11

(a) Claim 11[pre]

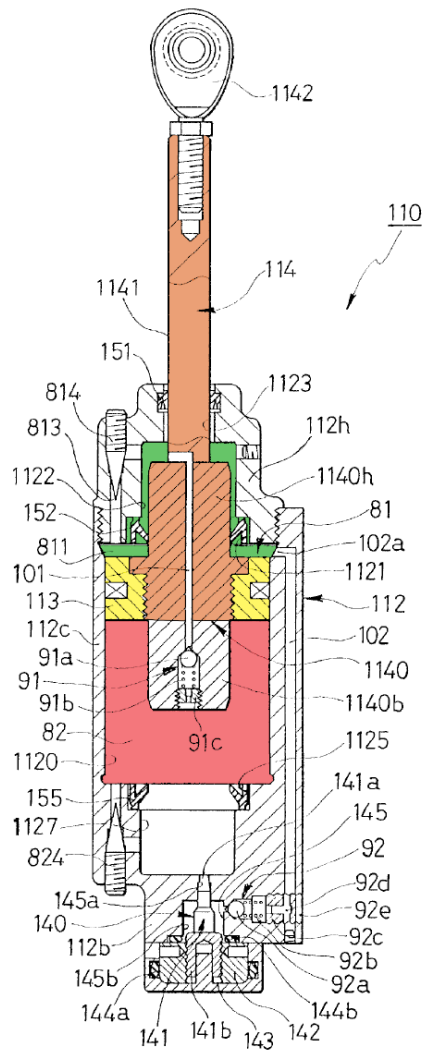
Claim Language
A fluid damper comprising:

103. *Nakaya* discloses each and every element of this limitation as shown in Claim element 1[pre], above.

(b) Claim 11[a]

Claim Language
a damper chamber divided by a piston mounted on a movable rod, into a primary compression and a primary rebound chamber;

104. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a damper chamber **81, 82** that is divided by a piston **113** (yellow) mounted on a piston shaft/rod **114** (dark orange) that is moveable. The division results in a primary compression chamber **82** (light red) and a primary rebound chamber **81** (dark green). Ex. 1005, FIG. 7.

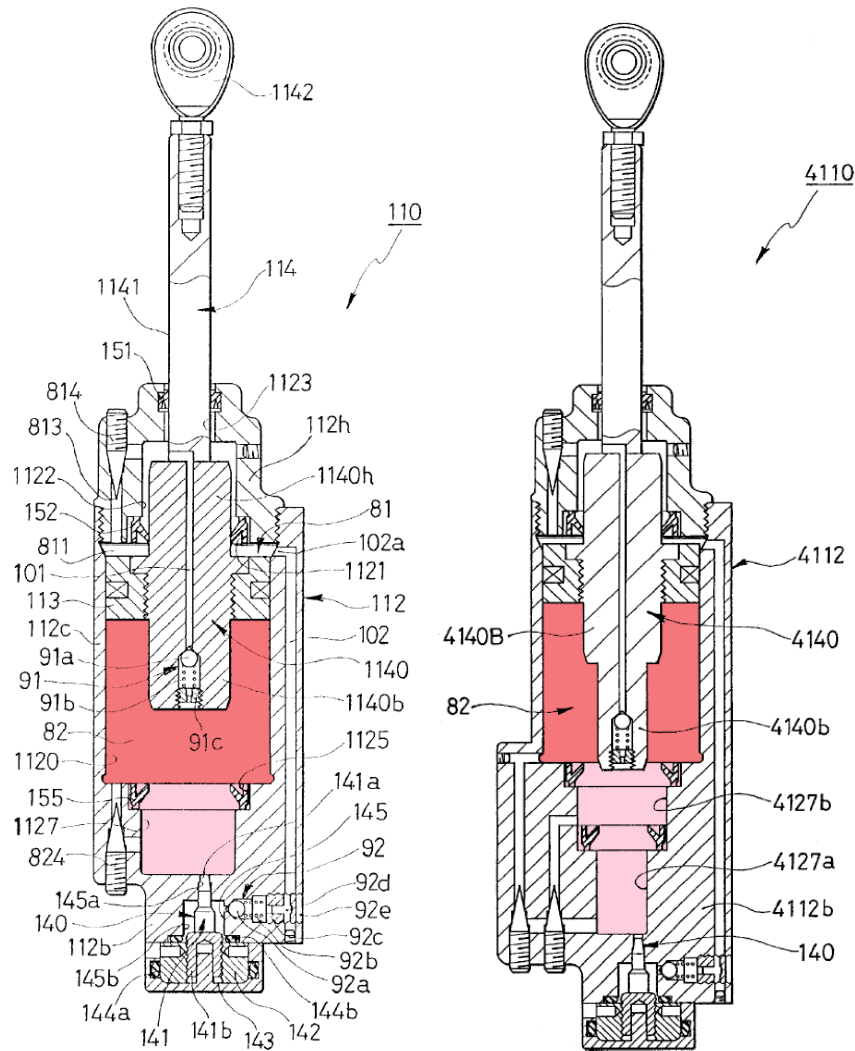


(c) Claim 11[b]

Claim Language
a bottom out cup in fluid communication with the damper chamber;

105. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) formed to be in fluid communication with the primary compression chamber **82** (light red) of the damper chamber **81**, **82**.

Nakaya's fourth embodiment also discloses a bottom out cup (the volume within **4127b** and **4127a**) (pink) formed to be in fluid communication with the primary compression chamber **82** (light red) of the damper chamber **81**, **82**. Ex. 1005, FIGS. 7, 17.



(d) Claim 11[c]-11[d]

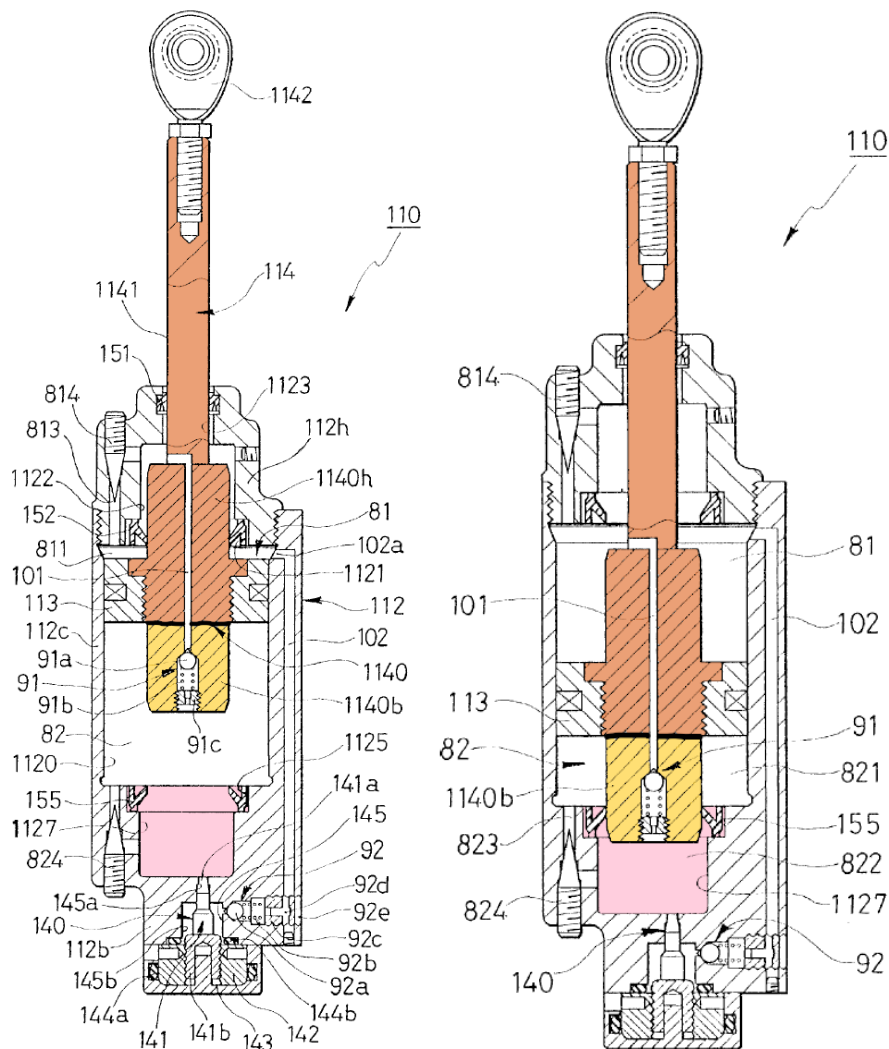
Claim Language

a bottom out piston formed on the movable rod for sealingly engaging an interior

Claim Language
of the bottom out cup,
the damper including a first position in which the bottom out piston is not housed in the bottom out cup and a second position in which the bottom out piston is housed therein; and

106. *Nakaya* discloses each and every element of these limitations. *Nakaya* includes a bottom out piston **1140b** (light orange) formed on the movable piston shaft/rod **114** (dark orange) for sealingly engaging an interior of the bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) via a seal member **155**. *Nakaya*'s Figure 8 shows the bottom out piston **1140b** (light orange) engaged with the seal member **155** of the bottom out cup. *Nakaya*'s Figure 7 (left) discloses a first position in which the bottom out piston **1140b** (light orange) is not housed in the bottom out cup (pink) and Figure 8 discloses a second position in which the bottom out piston **1140b** (light orange) is housed therein. Ex. 1005, FIGs. 7, 8.

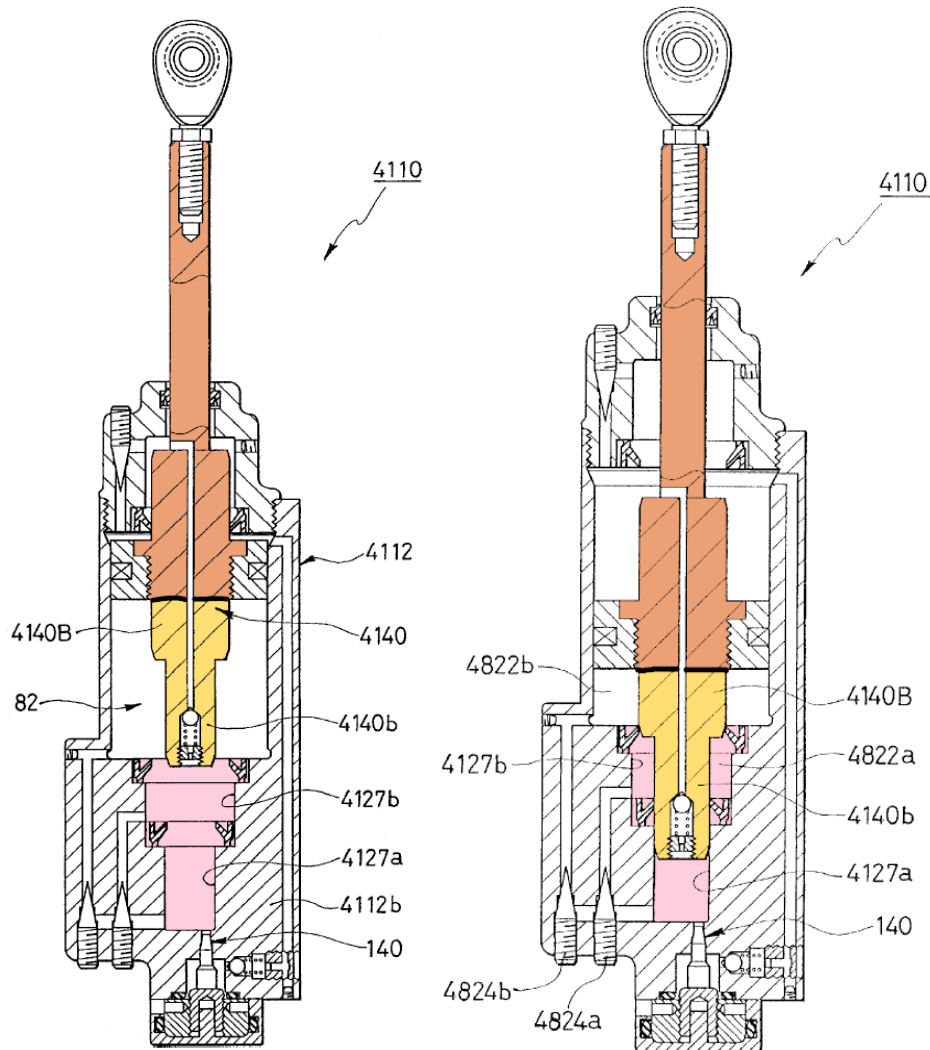
Nakaya's Figures 7 and 8



107. Further, *Nakaya's* fourth embodiment discloses a bottom out piston **4140** (light orange) formed on the movable piston shaft/rod (dark orange) for sealingly engaging an interior of the bottom out cup (the volume within **4127b** and **4127a**) (pink) via two seal members. *Nakaya's* Figure 19 below (right) shows the bottom out piston **4140** (light orange) engaged with the seal members of the bottom out cup (pink). *Nakaya's* Figure 17 (left) discloses a first position in which the

bottom out piston **4140** (light orange) is not housed in the bottom out cup **4127a**, **4127b** and Figure 19 discloses a second position in which the bottom out piston **4140** (light orange) is housed therein. Ex. 1005, FIGS. 17, 19.

Nakaya's Figures 17 and 19



(e) Claim 11[e]

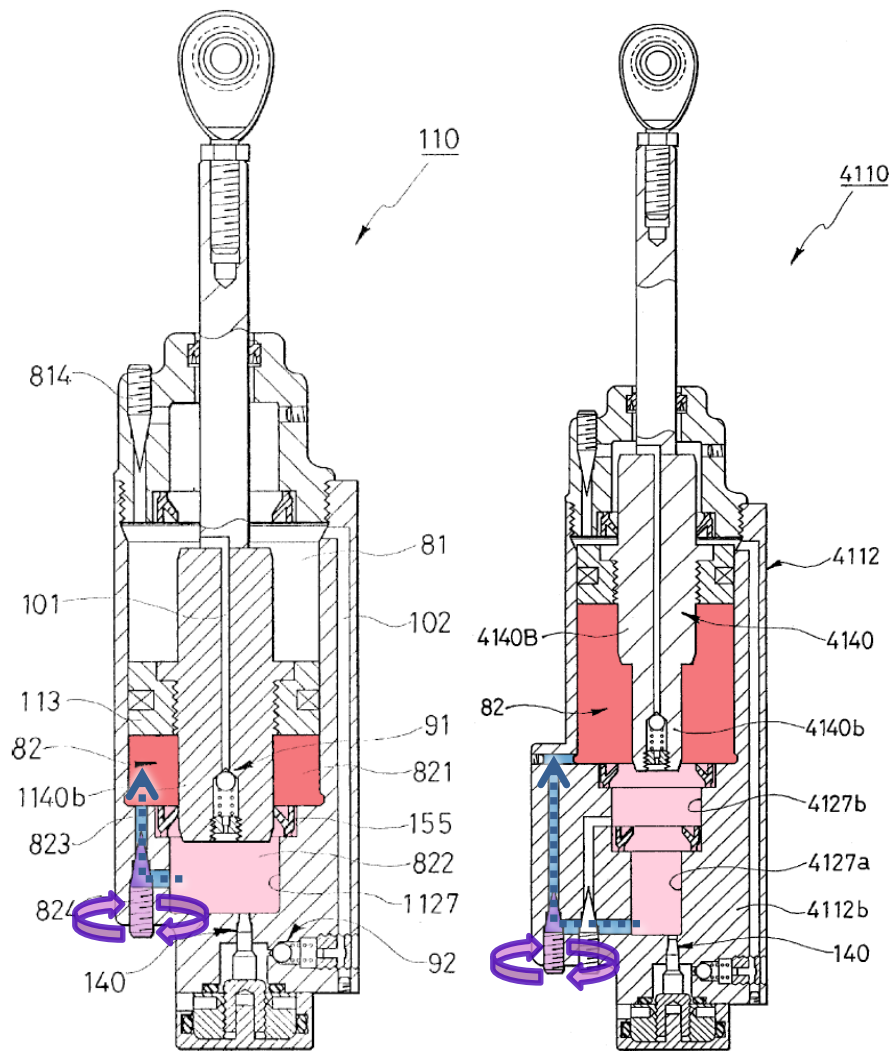
Claim Language

an adjustable fluid flow path formed in the cup, the flow path providing fluid

Claim Language

communication between the cup and the primary compression chamber in a compression stroke of the damper.
--

108. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes (left) a fluid flow path (including the throttle passage **823**) (dark blue) formed in the bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) for providing fluid communication from the cup to the primary compression chamber **82** (light red) during a compression stroke of the damper. Ex. 1005, 9:22-30 (explaining that the fluid flows from the bottom out cup to the compression portion), FIGS. 7, 8. The path is adjustable via the screw type needle valve **824** (needle (dark purple) and screw (light purple)). *Nakaya*'s fourth embodiment also includes (right) a fluid flow path (dark blue) formed in the bottom out cup (the volume within **4127b** and **4127a**) (pink) for providing fluid communication from the cup to the primary compression chamber **82** (light red) during a compression stroke of the damper. The path is adjustable via the screw type needle valves **4824a**, **4824b** (needle (dark purple) and screw (light purple)). Ex. 1005, FIGS. 8, 17.

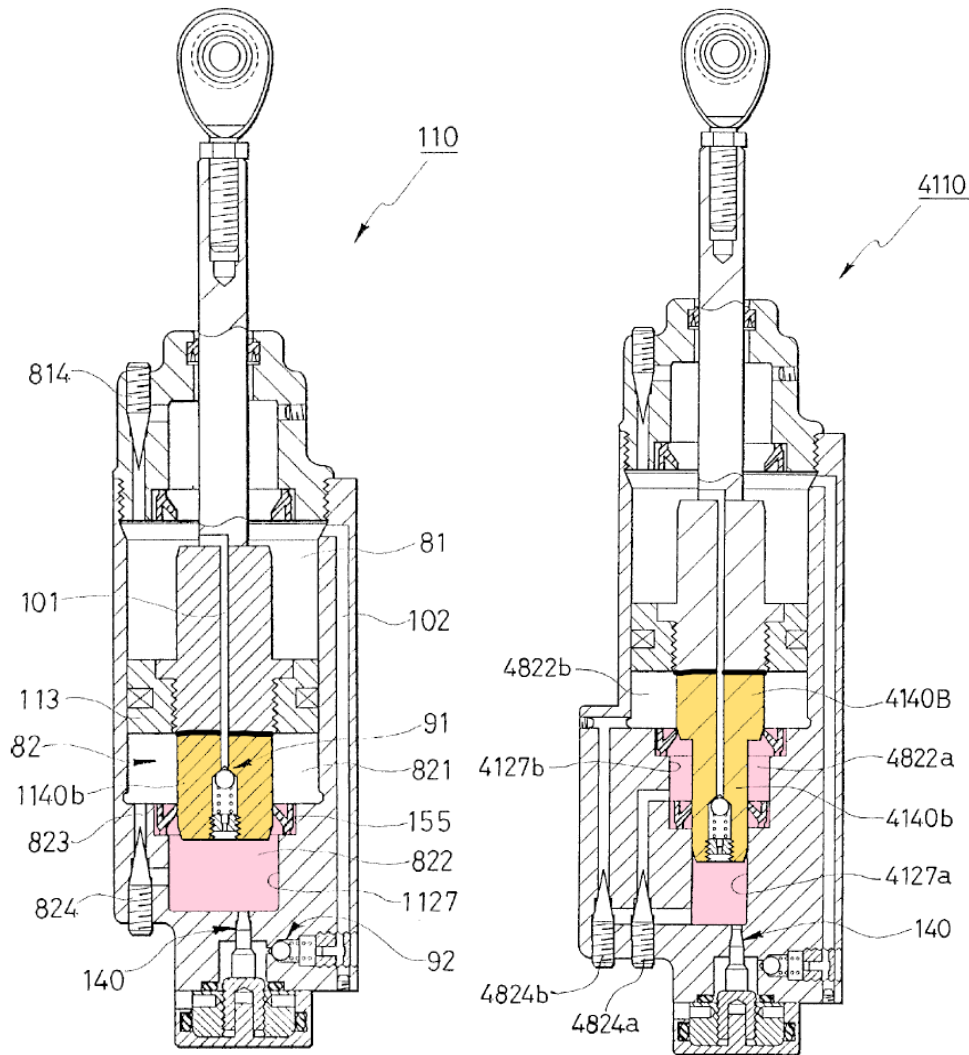


109. I again note that claim 11 does not require a directionality of a flow of fluid, although it does describe such directionality as being from the bottom out cup to the compression portion in at least some embodiments. Instead, claim 11 merely requires a fluid communication between the bottom out cup and the compression portion. Here, there is clearly such a flow path providing fluid communication: throttle passage **823** having the screw type needle valve **824** (or valves **4824a**, **4824b**).

9. Dependent Claim 12

Claim Language
The damper of claim 11, wherein in the second position the bottom out piston is sealingly engaged within the bottom out cup.

110. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes (right) the damper of claim 11. Further, *Nakaya* includes that the bottom out piston **1140b** (light orange) engages with the seal member **155** of the bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) in the second position. *Nakaya's* fourth embodiment further discloses (left) that the bottom out piston **4140** (light orange) engages with the seal member of the bottom out cup (the volume within **4127b** and **4127a**) (pink) in the second position. Ex. 1005, FIGS. 8, 19.

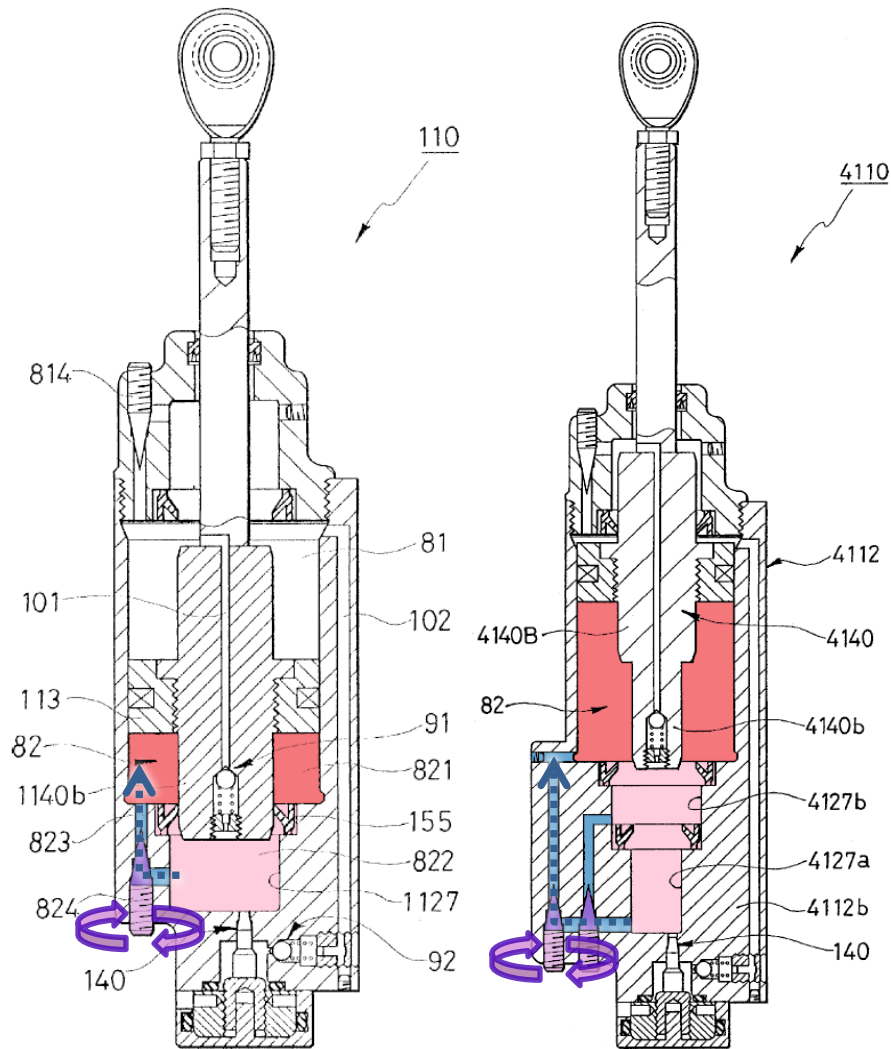


10. Dependent Claims 13-15

Claim Language
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 damper of claim 13, further including an externally accessible adjuster connected to a valve disposed in the flow path.
The damper of claim 14, wherein the externally accessible adjuster is manually adjustable.

111. *Nakaya* discloses each and every element of these limitations. *Nakaya* includes the damper of claim 12. *Nakaya* also includes a fluid flow path (including the throttle passage **823**) (dark blue) formed between the bottom out cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the primary compression chamber **82** (light red) during a compression stroke of the damper. The path is adjustable via the screw type needle valve (needle (dark purple) and screw (light purple)). *Nakaya's* screw type needle valve (dark purple) is disposed in the flow path and actuated by a manually adjustable and externally accessible adjuster (light purple). Ex. 1005, FIGS. 8, 17.

112. *Nakaya's* fourth embodiment further includes a second fluid flow path (dark blue) formed between the bottom out cup (the volume within **4127b** and **4127a**) (pink) and the primary compression chamber **82** (light red) during a compression stroke of the damper. The path is adjustable via the screw type needle valves **4824a**, **4824b** (needle (dark purple) and screw (light purple)). *Nakaya's* fourth embodiment's screw type needle valves (dark purple) are disposed in the flow path and actuated by a manually adjustable and externally accessible adjusters (light purple). Ex. 1005, FIGS. 8, 17.



11. Independent Claim 19

(a) Claim 19 ``` [pre] ```

Claim Language

A damper for a shock absorber comprising:

113. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a damper for a shock absorber.

(b) Claim 19[a]

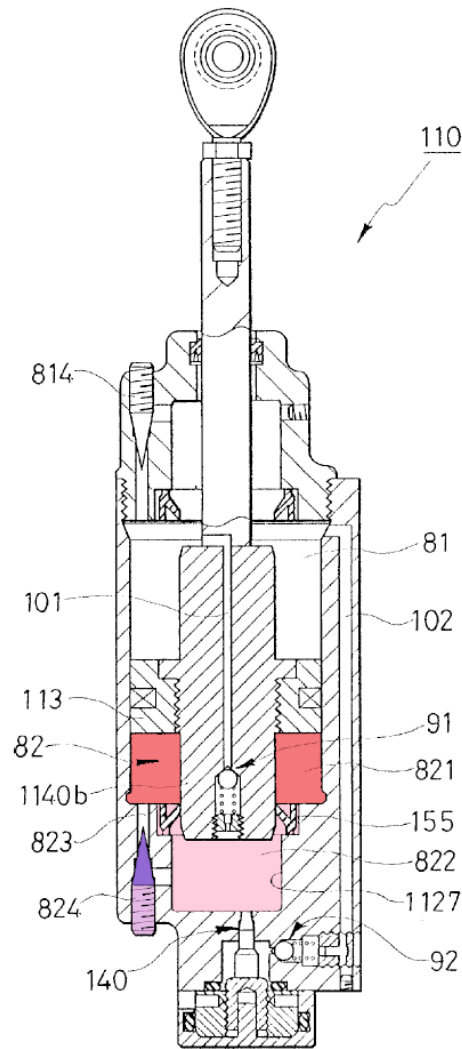
Claim Language
a fluid;

114. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a fluid, such as air. Ex. 1005, 1:14-30, 6:15-23.

(c) Claim 19[b]-19[d]

Claim Language
a compression chamber;
a bottom out cup;
a valve wherein;

115. *Nakaya* discloses each and every element of these limitations. *Nakaya* includes a compression chamber **82** (light red), a bottom out cup (the volume enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink), and a screw type needle valve (needle (dark purple) and screw (light purple)). Ex. 1005, FIG. 8.

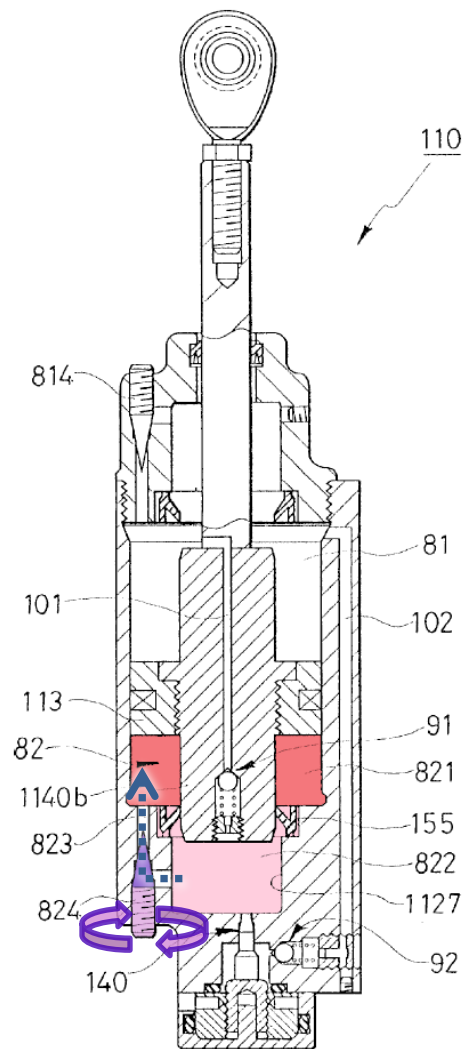


(d) Claim 19[e]

Claim Language
in a compression stroke of the damper, the fluid flows from the bottom out cup to the compression chamber at a first rate with the valve in a first position and at a second rate with the valve in a second position where the first rate is greater than the second rate and the valve includes an adjuster accessible from an exterior of the shock absorber.

116. *Nakaya* discloses each and every element of this limitation. *Nakaya* includes that, during a compression stroke, the fluid flows from the bottom out cup

(the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) to the compression camber **82** (light red) at a first rate with the screw type needle valve **824** in a first position and at a second rate with the screw type needle valve in a second position. Ex. 1005, 9:22-30 (explaining that the fluid flows from the bottom out cup to the compression portion), FIGS. 7, 8. The first rate is greater than the second rate. This claims term is just a facially complicated way for Fox to claim a simple adjustment of the valve. Further, *Nakaya* includes that the screw type needle valve **824** (needle (dark purple)) includes an adjuster (screw (light purple)) that is accessible from the exterior of the shock absorber **110**. Ex. 1005, FIG. 8.



117. As discussed above, *Nakaya* explains and shows that, during a compression stroke of the damper, fluid flows from the bottom out cup **1125, 1127** to the compression portion **822**. When the bottom out piston **1140b** enters the bottom out cup **1125, 1127** and seals with the bottom out cup seal **155**, pressure within the bottom out cup **1125, 1127** and the compression portion **82** will begin to rise as the device compresses further. During the time that the check valve **92** is closed, fluid (air) will move from the region of higher pressure to the region of lower

pressure via passage **823** (when valve **824** is not in the closed position). Which region (bottom out cup **1125**, **1127** or the compression portion **822**) is of higher pressure depends on which region is reducing in volume faster. *Nakaya*, however, contemplates a situation wherein the bottom out cup **1125**, **1127** has a more rapidly increasing pressure, and in this context, the fluid (air) will flow from the bottom out cup **1125**, **1127** to the compression portion **822**. Ex. 1005, 9:22-30 (explaining that the fluid flows from the bottom out cup to the compression portion), FIGS. 7, 8.

118. Further, whether or not the fluid flows into the compression portion **82** from the bottom out cup **1125**, **1127**, or vice versa, depends on a design choice for the relative geometries of this region. A POSITA would have been motivated to try a plurality different geometries to produce dampers having slightly different force vs. displacement and/or force vs. velocity curves during a compression stroke. In other words, how the device affects bottom out resistance can be adjusted by adjusting the relative sizes/geometries of the bottom out cup **1125**, **1127** and the compression portion **822**, and it would be a matter of mere design choice on which geometries to use. In any event, a POSITA would understand that *Nakaya* expressly discusses an embodiment wherein the fluid flows into the compression portion **82** from the bottom out cup **1125**, **1127** during a compression stroke. *Id.*

Ground II: Claims 1-5, 9, 11-15, and 19 are Anticipated by *Chen*, Rendered Obvious by *Chen*, or Rendered Obvious by *Chen* in view of *Deferme*.

1. Independent Claim 1

(a) Claim 1[pre]

Claim Language
A damper for a shock absorber comprising:

119. *Chen* discloses each and every element of this limitation. In particular, *Chen's* Figure 4 shows a damper (volume within hydraulic cylinder **8**, and related caps **83**, **89** (light green)) for a shock absorber. Ex. 1007, page 5, lines 2-26, FIG. 4.

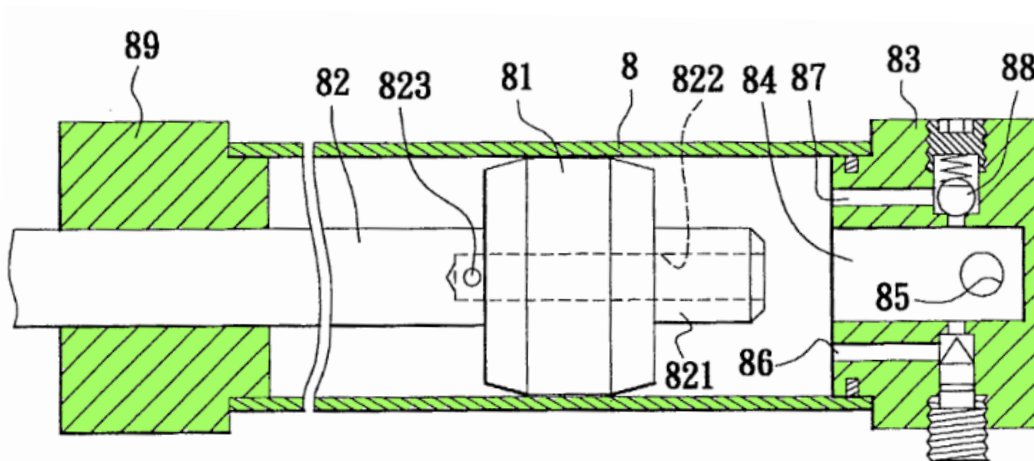


FIG. 4

(b) Claim 1[a]

Claim Language
a damper chamber divided by a piston and shaft into a compression and rebound portions;

120. *Chen* discloses each and every element of this limitation. *Chen* includes a damper chamber (the volume enclosed by the hydraulic cylinder **8** and the caps **83**, **89**) that is divided by a piston **81** (yellow) and a piston shaft/rod **82** (dark orange) into a compression portion (light red) and a rebound portion (dark green). Ex. 1007, page 5, lines 5-13, FIG. 4.

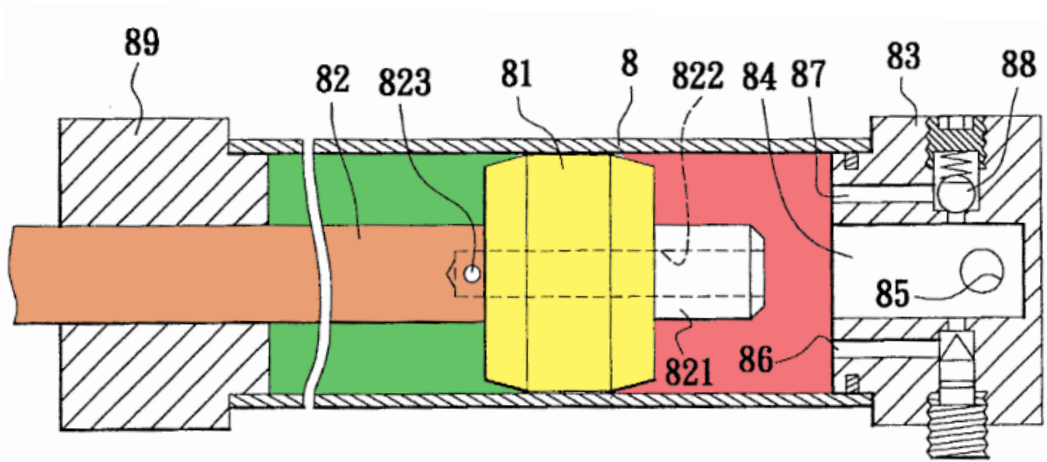


FIG. 4

(c) Claim 1[b]

Claim Language
a bottom out cup formed at an end of the compression portion; and

121. *Chen* discloses each and every element of this limitation. *Chen* includes a bottom out cup **84** (pink) formed at the end of the compression portion (light red). Ex. 1007, page 5, lines 5-13, FIG. 4.

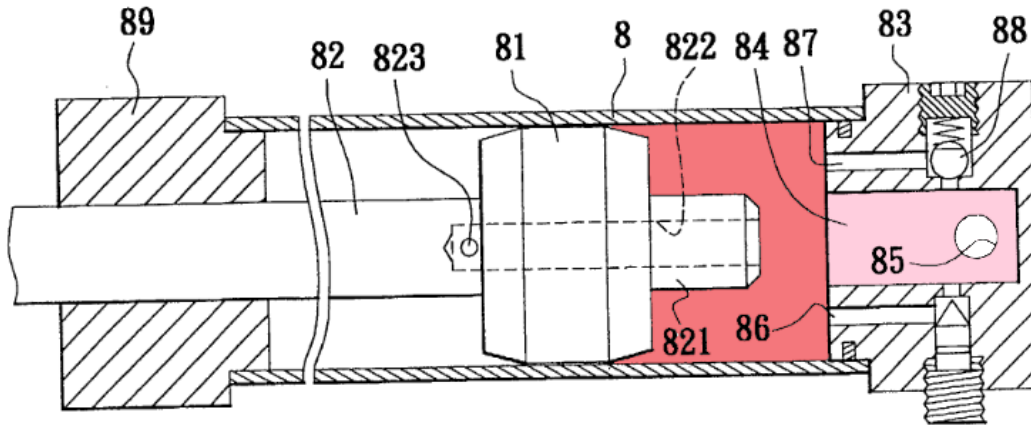


FIG. 4

(d) Claim 1[c]

Claim Language
a fluid flow path formed in the bottom out cup for providing fluid communication from the cup to the compression portion of the chamber during a compression stroke of the damper;

122. *Chen* discloses each and every element of this limitation. *Chen* includes a fluid flow path **86** (dark blue) formed in the bottom out cup **84** (pink) for providing fluid communication from the cup to the compression portion (light red) of the chamber (the volume enclosed by the hydraulic cylinder **8** and the caps **83**, **89**) during a compression stroke of the damper **8**. Ex. 1007, FIG. 4.

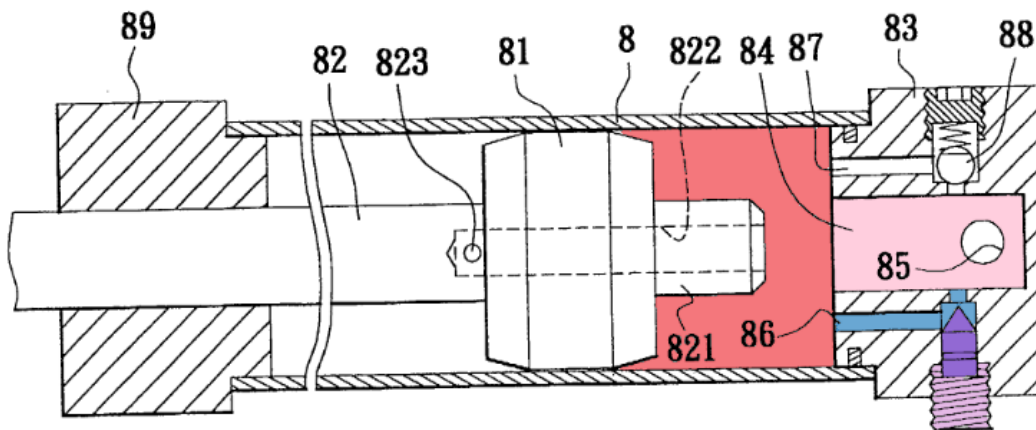
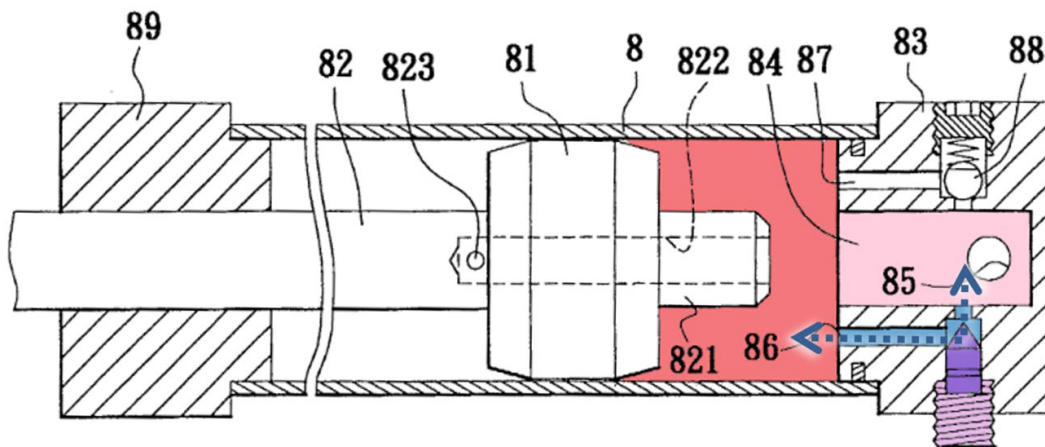


FIG. 4

123. I note that the term “for providing fluid communication from the cup to the compression portion of the chamber” does not indicate a specific direction of a flow, but rather that fluid communication spans between the compression portion and the bottom out cup. This is similar to a statement that a communications wire extends “from one building to the next.” This communication wire will have two-way communication available, but the physical wire may be described as extending

“from Building A to Building B.” On the other hand, it’s also reasonable to describe the same wire as extending “from Building B to Building A.” The language quoted above does not suggest a specific direction of the fluid flow between the bottom out cup and the compression portion. Rather, it requires that there is a path that spans the distance between the bottom out cup and the compression portion that allows for fluid to flow during the compression stroke.

124. Alternatively, it would have been obvious to a POSITA to substitute *Chen*’s simple piston **81** with *Deferme*’s adjustable piston in order to provide additional means of adjustment to the damping characteristics of *Chen*’s damper. The resulting combination would also allow for fluid to travel in any direction through the fluid flow path **86** during a compression stroke.



(e) Claim 1[d]

Claim Language
wherein the capacity of the fluid flow path is adjustable.

125. *Chen* discloses each and every element of this limitation. *Chen* shows that the capacity of the fluid flow path **86** (dark blue) is adjustable via the adjustable screw type needle valve (dark purple). The valve (dark purple) restricts the fluid flow when present in the fluid flow path **86**. Further, *Chen*'s screw type needle valve (dark purple) is manually adjustable between a plurality of open positions (the screw may be adjusted to an effectively infinite number of positions between open and closed) and a closed position, and is accessible externally of the damper via an external screw (light purple). Ex. 1007, page 5, lines 5-13, FIG. 4. To the extent that *Chen* does not explicitly disclose a closed position, such a feature would have been obvious to a POSITA using the same equipment featured in *Chen*. In particular, a POSITA would have been motivated to provide a closed position to allow for a greater range of damping characteristic for the damper. Moreover, *Kodama* discloses a needle valve (*Kodama*'s throttle valve **130**) that includes a closed position. Ex. 1006, 4:58-5:2.

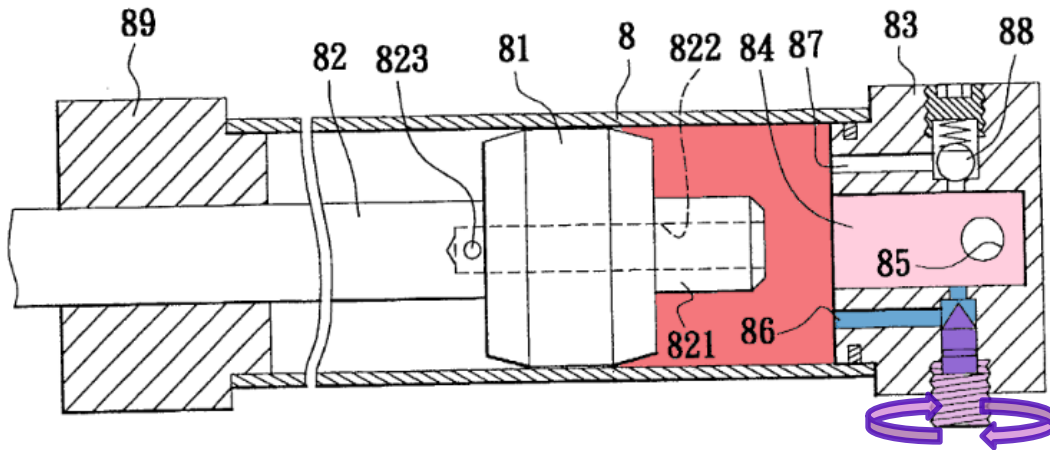


FIG. 4

2. Dependent Claims 2-4

Claim Language
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 damper of claim 2, wherein the adjustable valve is manually adjustable and accessible externally of the damper.
The damper of claim 3, wherein the adjustable valve can be adjusted between a closed position and a plurality of open positions.

126. *Chen* discloses each and every element of these limitations as shown in Claim element 1[d]. In particular, Claims 2-4 describe the same structure in nearly the same way, and accordingly, are each met by *Chen's* screw type needle valve (dark purple) and related flow path **86** (dark blue).

3. Dependent Claim 5

Claim Language
The damper of claim 1, further including a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.

127. *Chen* discloses each and every element of this limitation. *Chen* includes the damper of Claim 1. *Chen* also includes a fluid path (including the internal hole **822** and the related vent **823** (light blue)) between the cup **84** (pink) and the rebound portion (dark green) of the chamber (the volume enclosed by the hydraulic cylinder **8** and the caps **83**, **89** (light green)). Further, the path is formed in the piston shaft/rod **82** (dark orange). Ex. 1007, page 5, lines 5-13, FIGS. 4, 6.

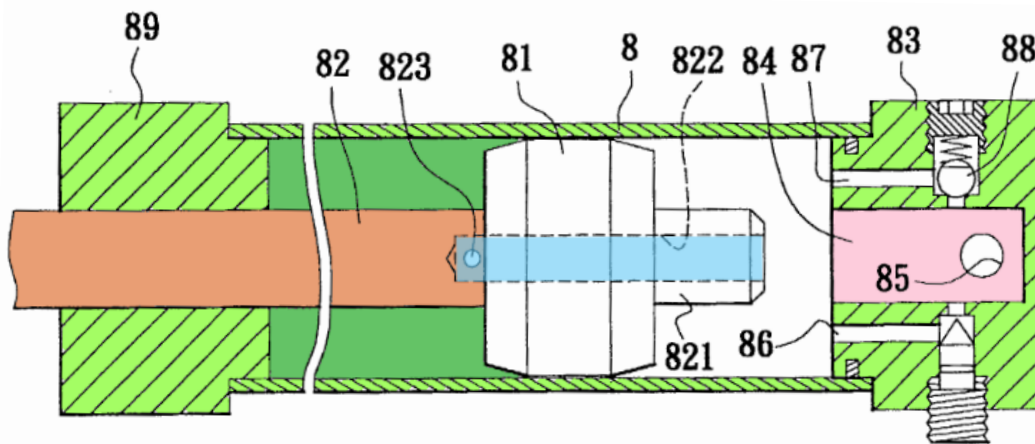


FIG. 4

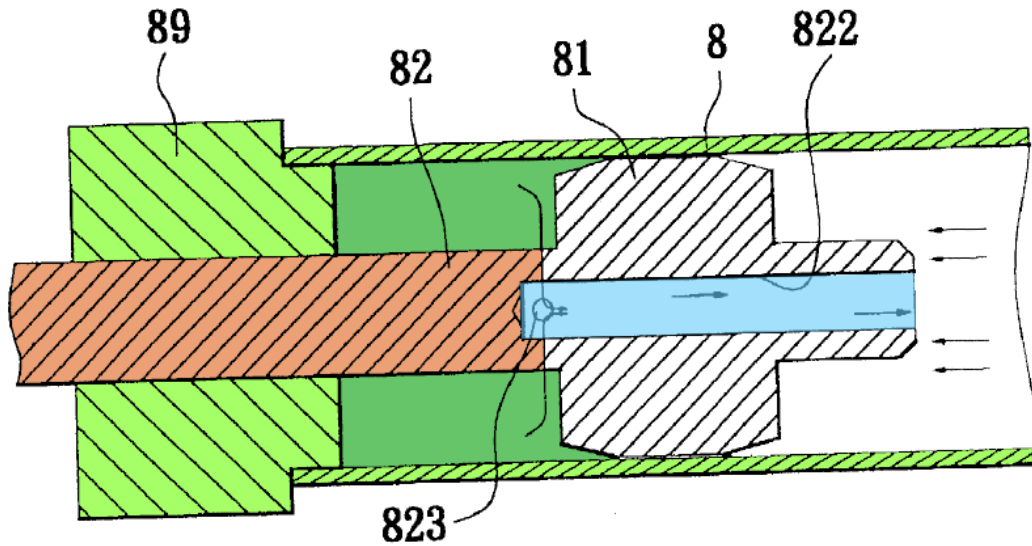


FIG. 6

4. Dependent Claim 9

Claim Language
The damper of claim 1, further including a second fluid flow path within the bottom out cup.

128. *Chen* discloses each and every element of this limitation. *Chen* includes the damper of claim 1. *Chen* also includes a second fluid path **87** (dark red) from the bottom out cup **84** (pink) to the compression portion (light red). Ex. 1007, page 5, lines 1-26, FIG. 4.

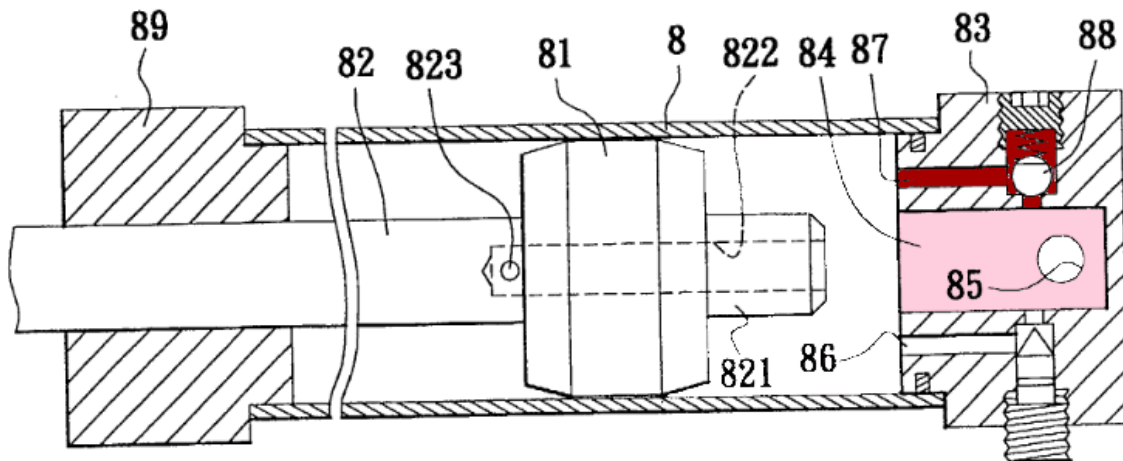


FIG. 4

5. Independent Claim 11

(a) Claim 11[pre]

Claim Language
A fluid damper comprising:

129. *Chen* discloses each and every element of this limitation as shown in Claim element 1[pre], above.

(b) Claim 11[a]

Claim Language
a damper chamber divided by a piston mounted on a movable rod, into a primary compression and a primary rebound chamber;

130. *Chen* discloses each and every element of this limitation. *Chen* includes a damper chamber (the volume enclosed by the hydraulic cylinder **8** and the caps **83**, **89**) that is divided by a piston **81** (yellow) mounted on a piston shaft/rod **82** (dark orange) that is moveable. The division results in a primary compression chamber (light red) and a primary rebound chamber (dark green). Ex. 1007, page 5, lines 1-26, FIG. 4.

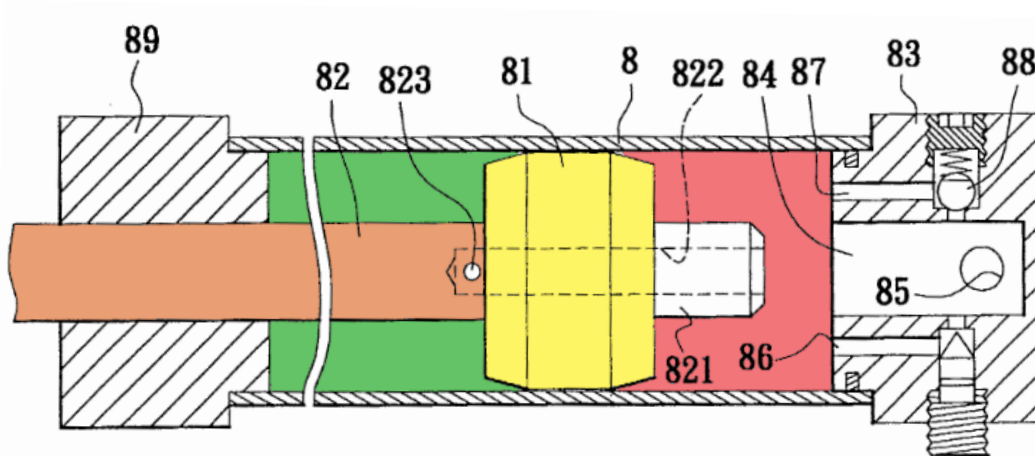


FIG. 4

(c) Claim 11[b]

Claim Language
a bottom out cup in fluid communication with the damper chamber;

131. *Chen* discloses each and every element of this limitation. *Chen* includes a bottom out cup **84** (pink) formed to be in fluid communication with the primary

compression chamber (light red) of the damper chamber (the volume enclosed by the hydraulic cylinder **8** and the caps **83**, **89**). Ex. 1007, page 5, lines 1-26, FIG. 4.

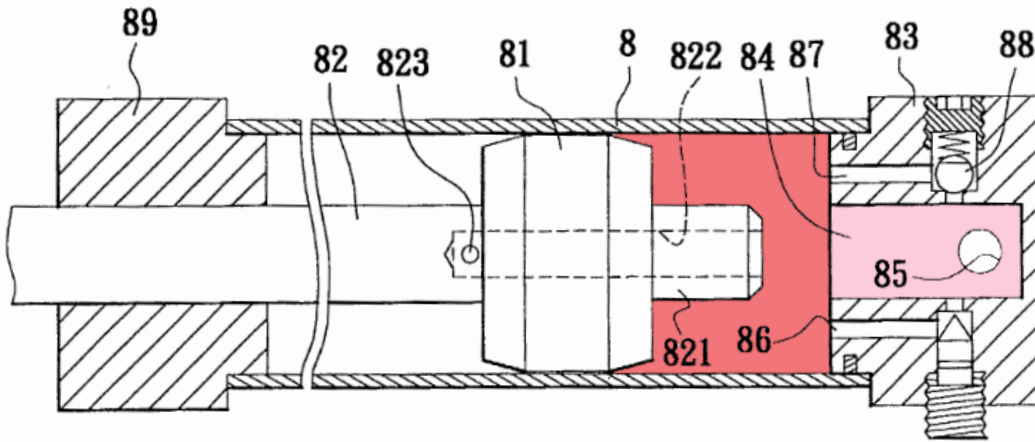


FIG. 4

(d) Claim 11[c]-11[d]

Claim Language
a bottom out piston formed on the movable rod for sealingly engaging an interior of the bottom out cup,
the damper including a first position in which the bottom out piston is not housed in the bottom out cup and a second position in which the bottom out piston is housed therein; and

132. *Chen* discloses each and every element of these limitations. *Chen* includes a bottom out piston **821** (light orange) formed on the movable piston shaft/rod **82** (dark orange) for sealingly engaging an interior of the bottom out cup

84 (pink). *Chen* also shows the bottom out piston **821** sealingly engaging with an interior of the bottom out cup **84**. *Chen* includes a first position (shown in *Chen's* Figure 4) in which the bottom out piston **821** is not housed in the bottom out cup **84** and a second position (shown in *Chen's* Figure 5) in which the bottom out piston **821** is housed therein. Ex. 1007, page 5, lines 1-26, FIGS. 4, 5.

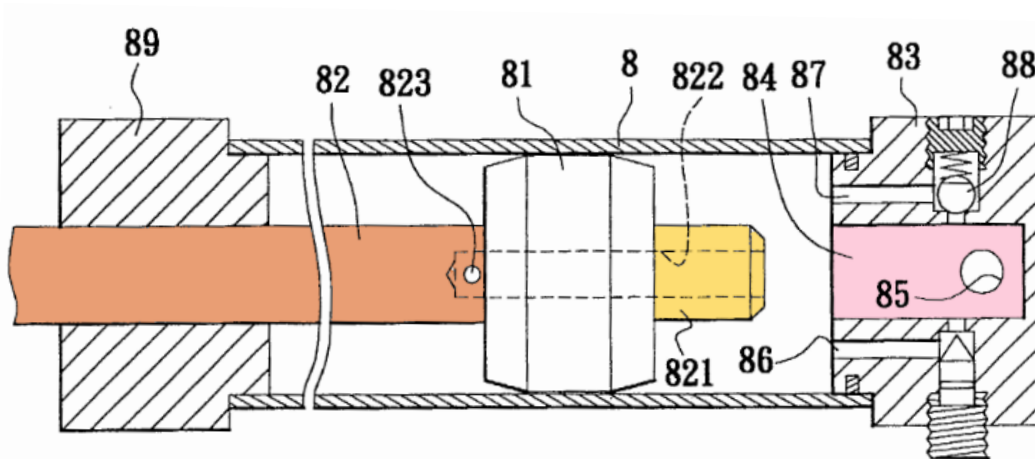


FIG. 4

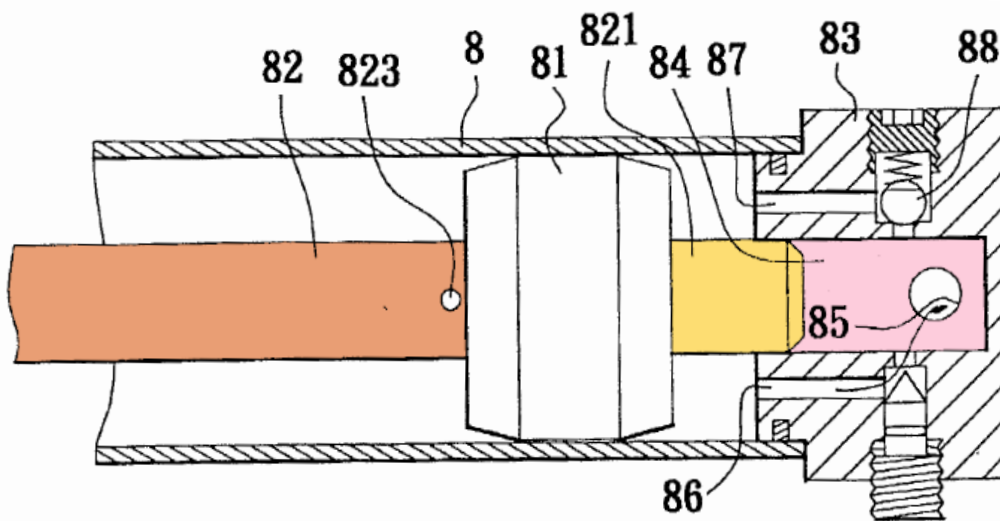


FIG. 5

(e) Claim 11[e]

Claim Language
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.

133. *Chen* discloses each and every element of this limitation. *Chen* includes a fluid flow path **86** (dark blue) formed from the bottom out cup **84** (pink) for providing fluid communication between the cup **84** and the primary compression chamber (light red) during a compression stroke of the damper. The path is adjustable via the screw type needle valve (dark purple). Ex. 1007, page 5, lines 1-26, FIG. 4.

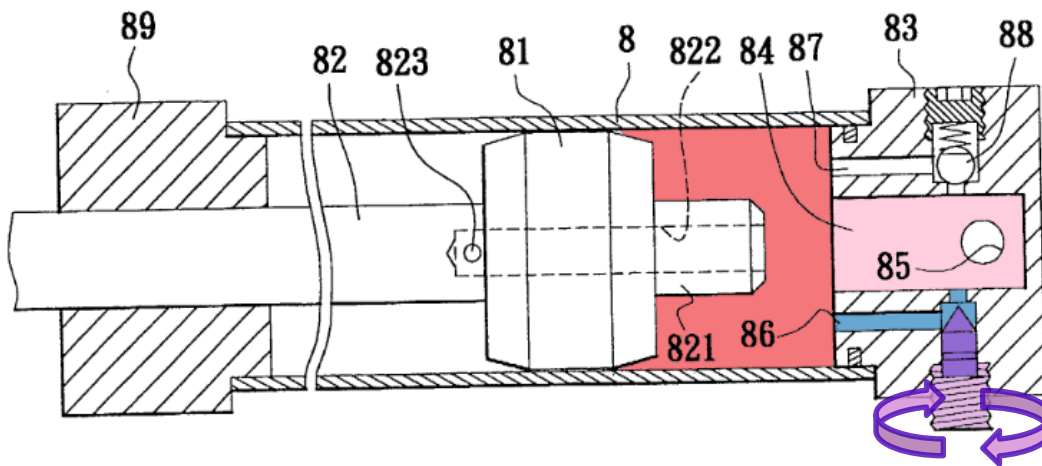


FIG. 4

134. Similar to claim 1, I note that the term “providing fluid communication between the cup and the primary compression chamber” does not indicate a specific direction of a flow, but rather that fluid communication spans between the compression portion and the bottom out cup. This is again similar to a statement that a communications wire extends between one building and the next. This communication wire will have two-way communication available, but the physical wire may be described as extending “between Building A and Building B.” The language quoted above does not suggest a specific direction of the fluid flow between the bottom out cup and the compression portion. Rather, it requires that there is a path that spans the distance between the bottom out cup and the compression portion that allows for fluid to flow during the compression stroke.

135. Alternatively, it would have been obvious to a POSITA to substitute *Chen’s* simple piston **81** with *Deferme’s* adjustable piston in order to provide additional means of adjustment to the damping characteristics of *Chen’s* damper. The resulting combination would also allow for fluid to travel in any direction through the fluid flow path **86** during a compression stroke.

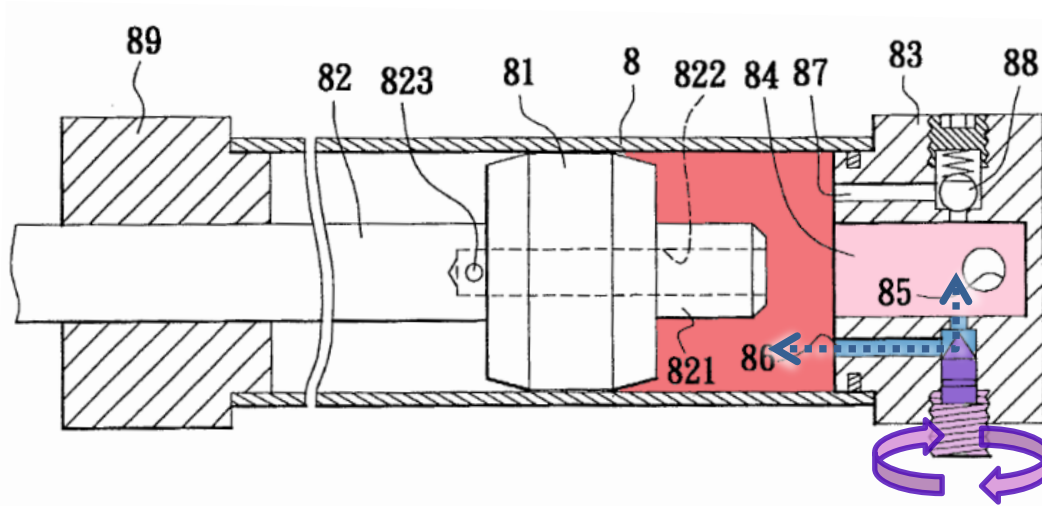


FIG. 4

6. Dependent Claim 12

Claim Language
The damper of claim 11, wherein in the second position the bottom out piston is sealingly engaged within the bottom out cup.

136. *Chen* discloses each and every element of this limitation. *Chen* includes the damper of claim 11. *Chen's* bottom out piston **821** (light orange) sealingly engages with the bottom out cup **84** (pink) in the second position. Ex. 1007, page 5, lines 1-26, FIG. 5.

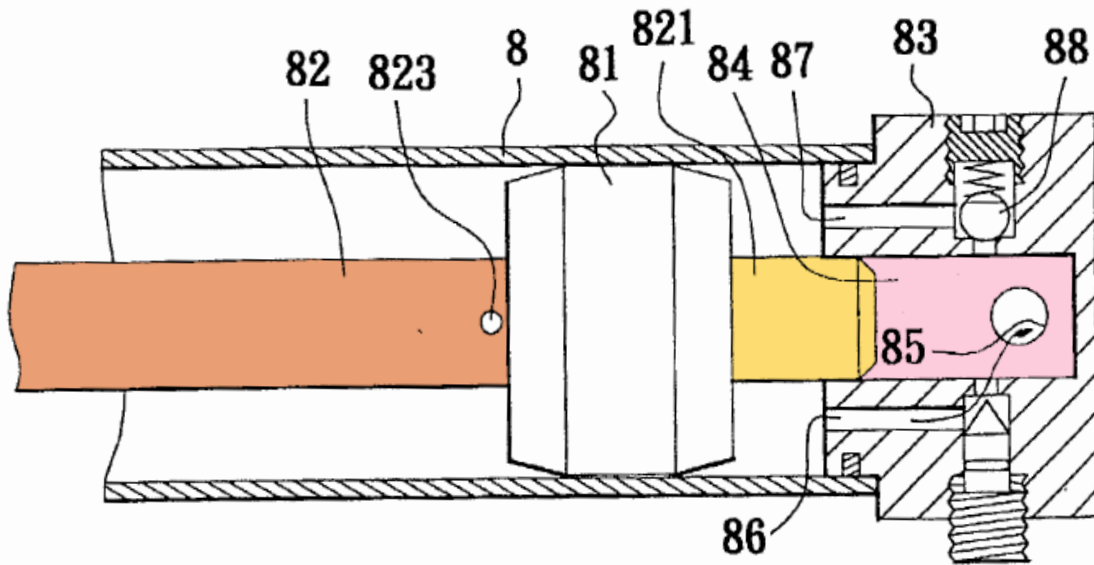


FIG. 5

7. Dependent Claims 13-15

Claim Language
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 damper of claim 13, further including an externally accessible adjuster connected to a valve disposed in the flow path.
The damper of claim 14, wherein the externally accessible adjuster is manually adjustable.

137. *Chen* discloses each and every element of these limitations. *Chen* includes the damper of claim 12. *Chen* also includes a fluid flow path **86** (dark blue)

formed between the bottom out cup **84** (pink) and the primary compression chamber (light red) during a compression stroke of the damper. The path is adjustable via the screw type needle valve (dark purple). *Chen* 's screw type needle valve (dark purple) is disposed in the flow path **86** and actuated by a manually adjustable and externally accessible adjuster (light purple). Ex. 1007, page 5, lines 1-26, FIG. 4.

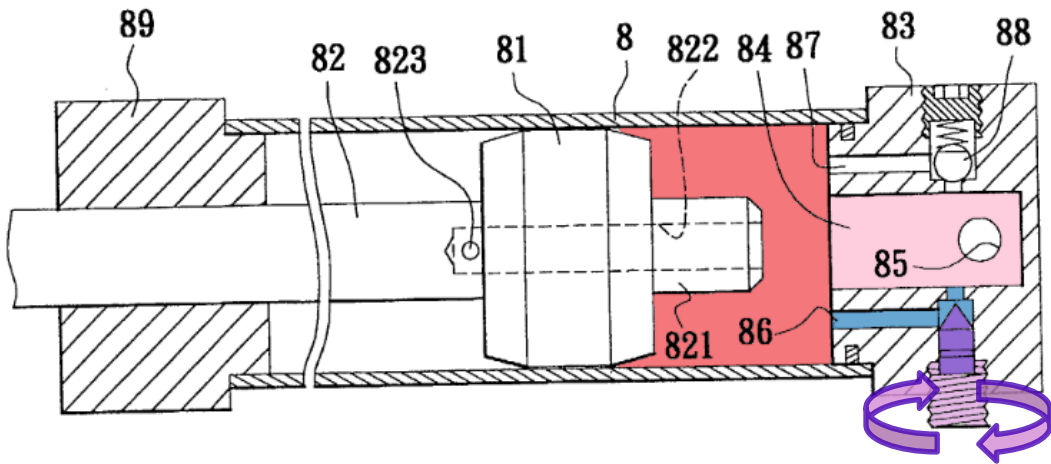


FIG. 4

8. Independent Claim 19

(a) Claim 19[pre]

Claim Language
A damper for a shock absorber comprising:

138. *Chen* discloses each and every element of this limitation as shown in Claim element 1[pre], above.

(b) Claim 19[a]

Claim Language
a fluid;

139. *Chen* discloses each and every element of this limitation. *Chen* includes a fluid such as oil. Ex. 1007, page 5, lines 2-13.

(c) Claim 19[b]-19[d]

Claim Language
a compression chamber;
a bottom out cup;
a valve wherein;

140. *Chen* discloses each and every element of these limitations. *Chen* includes a compression chamber (light red), a bottom out cup **84** (pink), and a valve (dark purple). Ex. 1007, page 5, lines 2-13, FIG. 4.

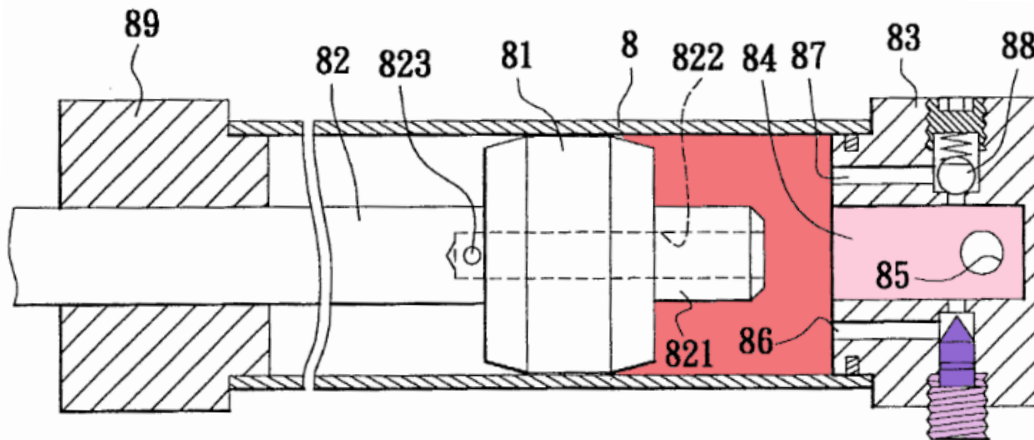


FIG. 4

(d) Claim 19[e]

Claim Language
in a compression stroke of the damper, the fluid flows from the bottom out cup to the compression chamber at a first rate with the valve in a first position and at a second rate with the valve in a second position where the first rate is greater than the second rate and the valve includes an adjuster accessible from an exterior of the shock absorber.

141. *Chen* discloses each and every element of this limitation. *Chen* shows that, during a compression stroke of the damper, the fluid flows between the bottom out cup **84** (pink) and the compression chamber (light red) at a first rate with the screw type needle valve (dark purple) in a first position and at a second rate with the screw type needle valve in a second position. The first rate is greater than the second rate. Again, this claims term is just a facially complicated way for Fox to claim a

simple adjustment of the valve. Further, *Chen's* screw type needle valve (dark purple) includes an adjuster (light purple) that is accessible from the exterior of the shock absorber. Ex. 1007, page 5, lines 2-13, FIG. 4.

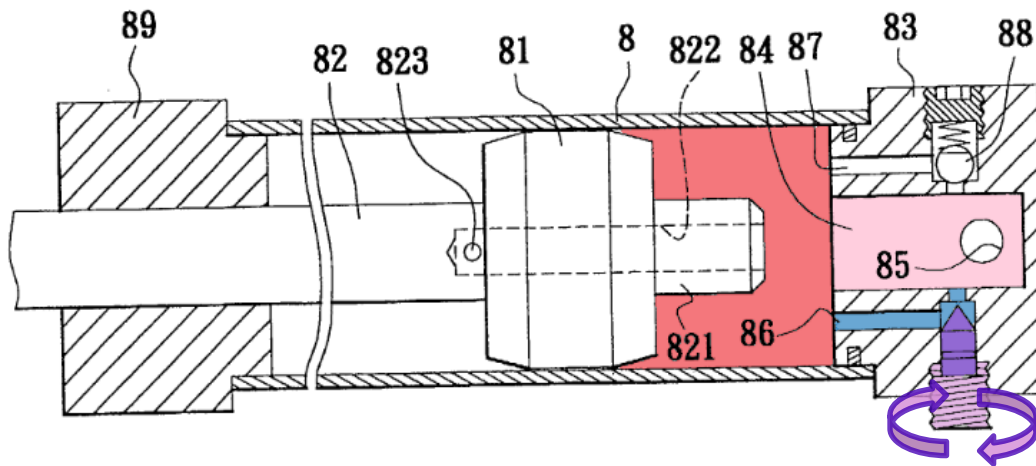


FIG. 4

142. Further, it would have been obvious to a POSITA to substitute *Chen's* simple piston **81** with *Deferme's* adjustable piston in order to provide additional means of adjustment to the damping characteristics of *Chen's* damper. The resulting combination would also allow for fluid to travel in any direction through the fluid flow path **86** during a compression stroke.

143. When the bottom out piston **821** enters the bottom out cup **84**, pressure within the bottom out cup **84** and the compression portion will begin to rise as the device compresses further. *Deferme's* valve **72** will allow fluid to flow from the

compression portion (light red) to the rebound portion, and, in this context, there would be a period of time when the fluid (oil) will flow from the bottom out cup **84** to the compression portion.

144. Further, 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. A POSITA would have been motivated to try a plurality of different geometries to produce dampers having slightly different force vs. displacement and/or force vs. velocity curves during a compression stroke. In other words, how the device affects bottom out resistance can be adjusted by adjusting the relative sizes/geometries of the bottom out cup **84** and the compression portion, and it would be a matter of mere design choice on which geometries to use. In any event, a POSITA would understand that *Chen* in view of *Deferme* discloses the same structures discloses and claimed in the '223 patent, and as a result, a POSITA would know that some embodiments of the *Chen/Deferme* combination will operate such that the fluid flows into the compression portion from the bottom out cup **84** during a compression stroke.

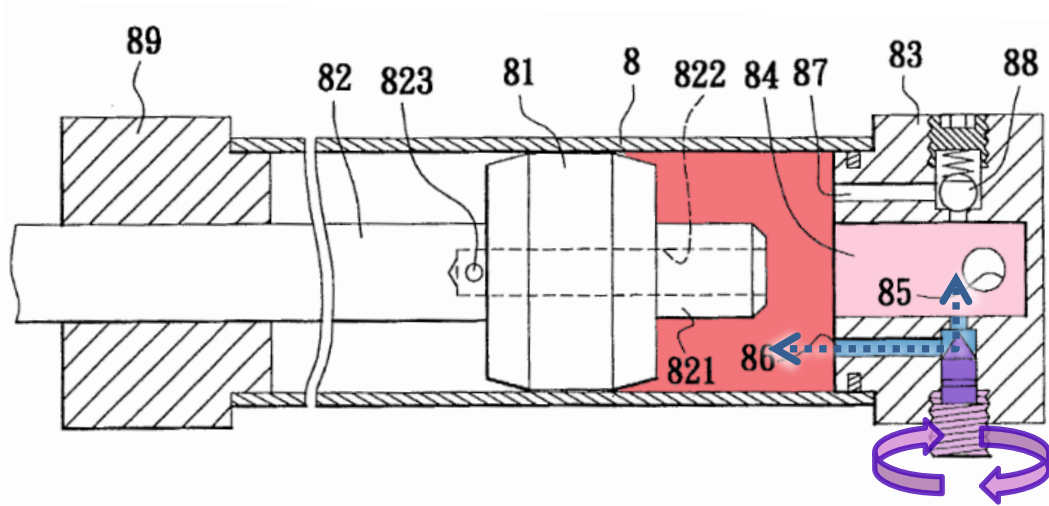


FIG. 4

Ground III: Claims 1 through 5, 9, 11 through 15, and 19 are Rendered Obvious by *Fox '751* in view of *Chen*.

1. Independent Claim 1

(a) Claim 1[pre]

Claim Language
A damper for a shock absorber comprising:

145. *Fox '751* discloses each and every element of this limitation. *Fox '751* includes a damper (volume within shock body **42**, light green) for a shock absorber **38**. Ex. 1009, FIG. 3A.

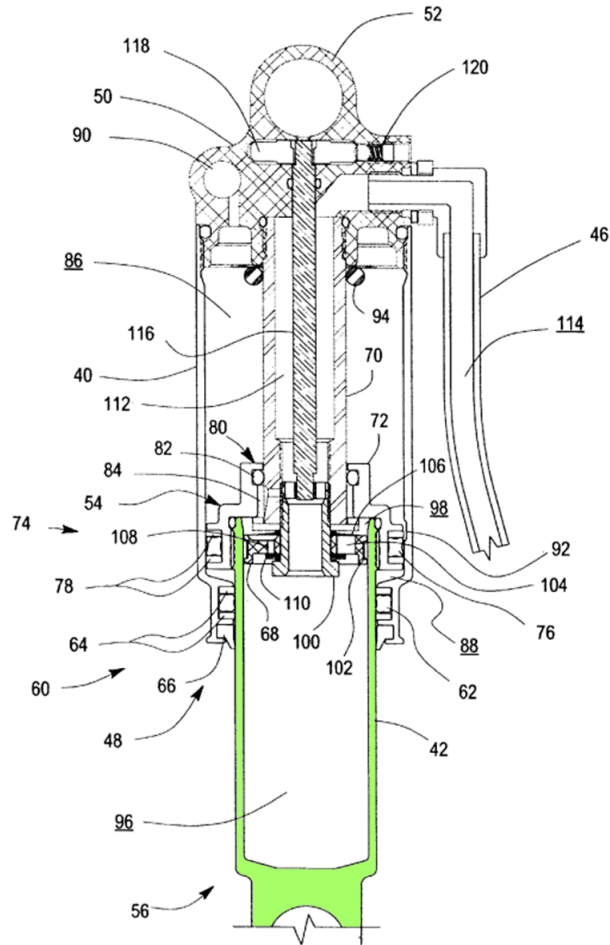


FIG. 3A

(b) Claim 1[a]

Claim Language
a damper chamber divided by a piston and shaft into a compression and rebound portions;

146. *Fox '751* discloses each and every element of this limitation. *Fox '751* includes a damper chamber (volume within shock body **42**, light green) that is divided by a piston **68** (yellow) and a piston shaft/rod **70** (dark orange) into a

FIG. 3A.

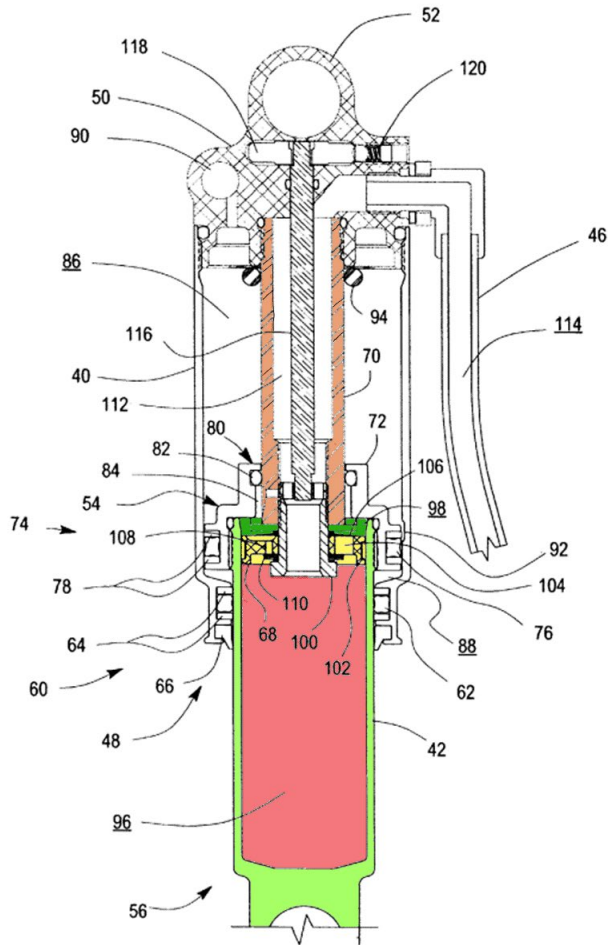


FIG. 3A

(c) Claim 1[b]

Claim Language
a bottom out cup formed at an end of the compression portion; and

147. *Fox '751* in view of *Chen* (“*Fox '751/Chen*”) discloses each and every element of this limitation. *Chen* includes a bottom out cup **84** (pink) formed at the end of *Chen*’s compression portion (light red). Ex. 1007, page 5, lines 5-13, FIG. 4.

Chen’s Figure 4

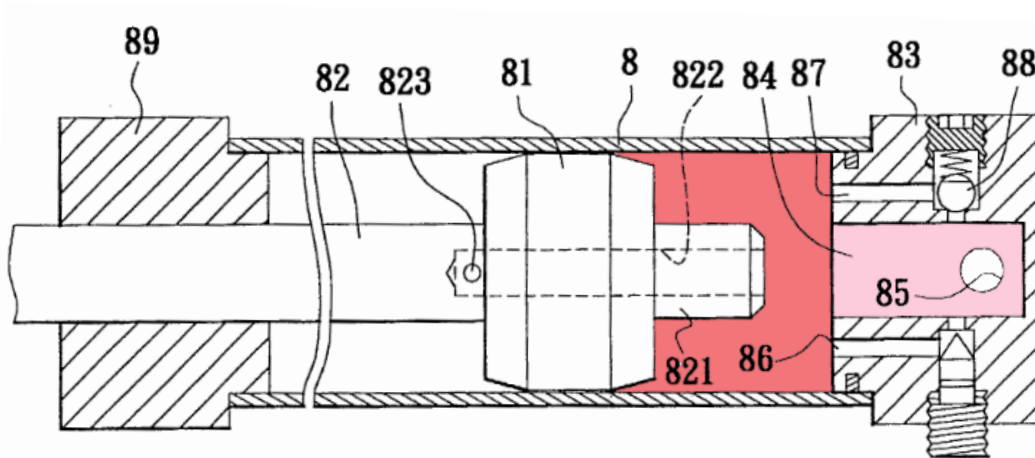


FIG. 4

(d) Claim 1[c]

Claim Language
a fluid flow path formed in the bottom out cup for providing fluid communication from the cup to the compression portion of the chamber during a compression stroke of the damper;

148. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen*’s Claim element 1[c], above.

Chen's Figure 4

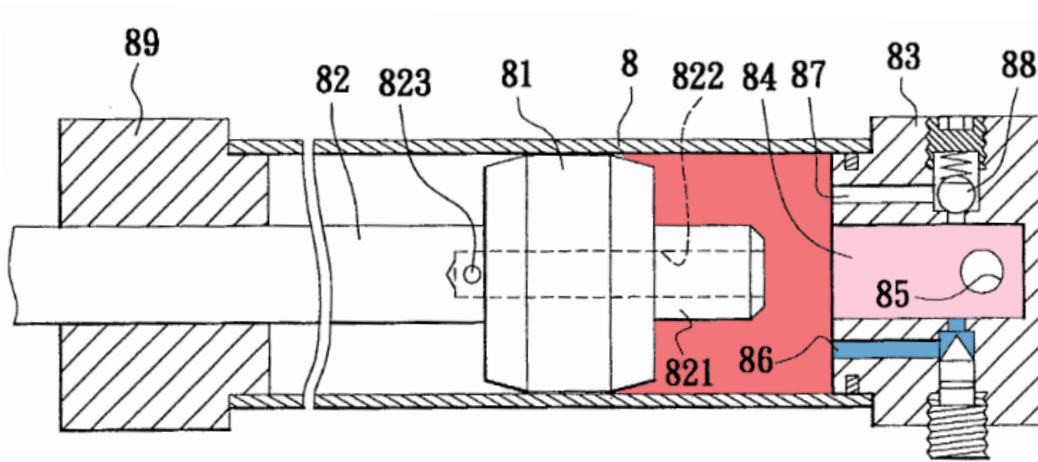


FIG. 4

(e) Claim 1[d]

Claim Language
wherein the capacity of the fluid flow path is adjustable.

149. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen's* Claim element 1[d], above.

Chen's Figure 4

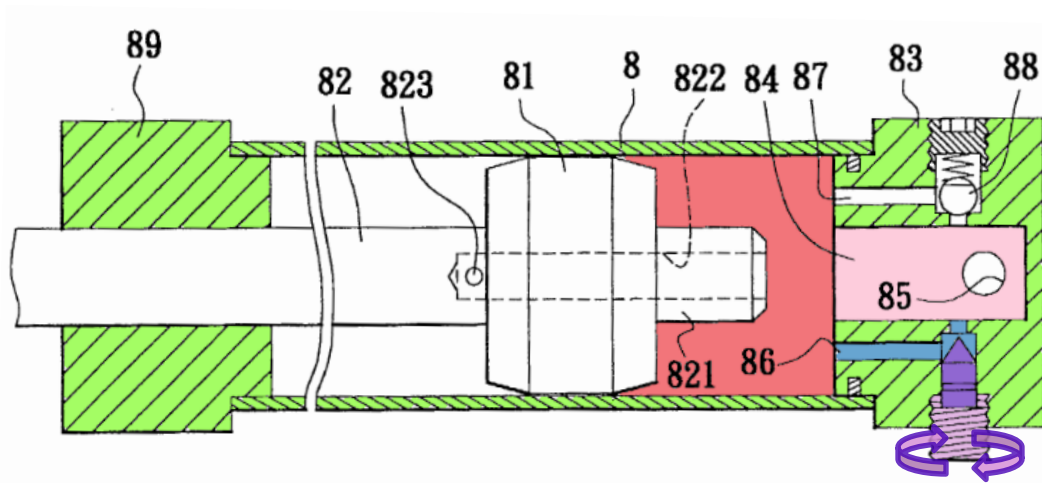


FIG. 4

2. Dependent Claims 2-4

Claim Language
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 damper of claim 2, wherein the adjustable valve is manually adjustable and accessible externally of the damper.
The damper of claim 3, wherein the adjustable valve can be adjusted between a closed position and a plurality of open positions.

150. *Fox '751/Chen* discloses each and every element of these limitations as shown in *Chen's* Claims 2-4, above.

3. Dependent Claim 5

Claim Language
The damper of claim 1, further including a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.

151. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen's* Claim 5, above.

Chen's Figures 4 and 6

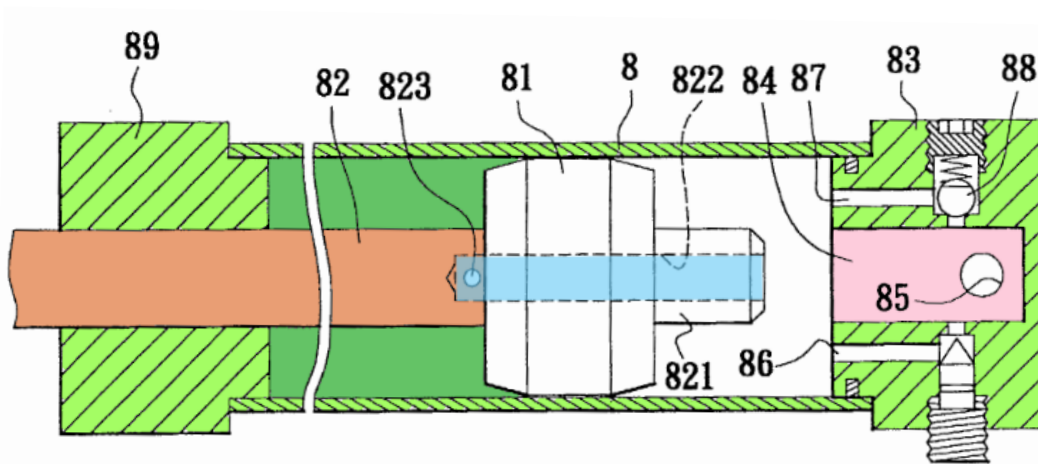


FIG. 4

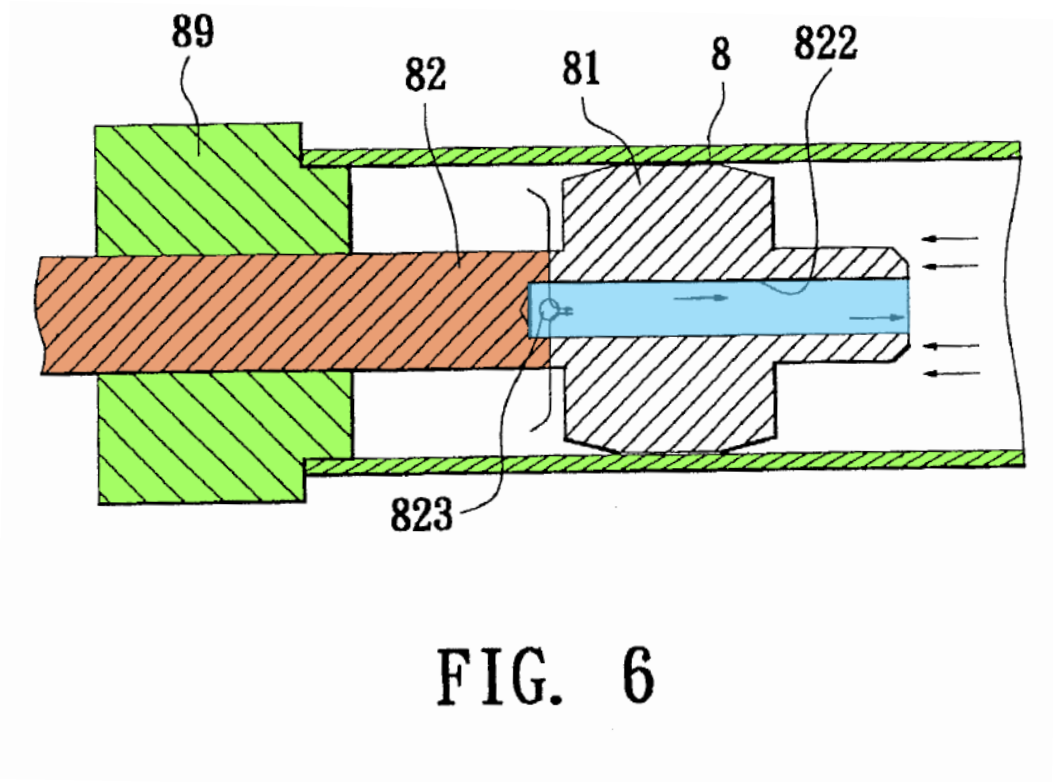


FIG. 6

4. Dependent Claim 9

Claim Language
The damper of claim 1, further including a second fluid flow path within the bottom out cup.

152. *Fox '751/Chen* discloses each and every element of this limitation. *Fox '751/Chen* includes the damper of Claim 1. Further, *Chen* also includes a second fluid path **87** (dark red) within the bottom out cup **84** (pink). Ex. 1007, page 5, lines 1-26, FIG. 4.

Chen's Figure 4

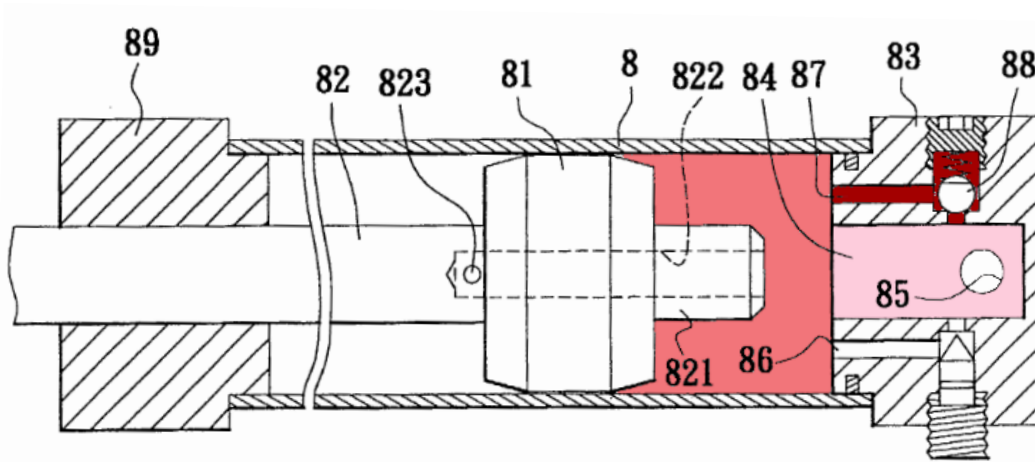


FIG. 4

5. Independent Claim 11

(a) Claim 11[pre]

Claim Language
A fluid damper comprising:

153. *Fox '751* discloses each and every element of this limitation as shown in *Fox '751/Chen's* Claim element 1[pre], above.

Fox 751's Figure 3A

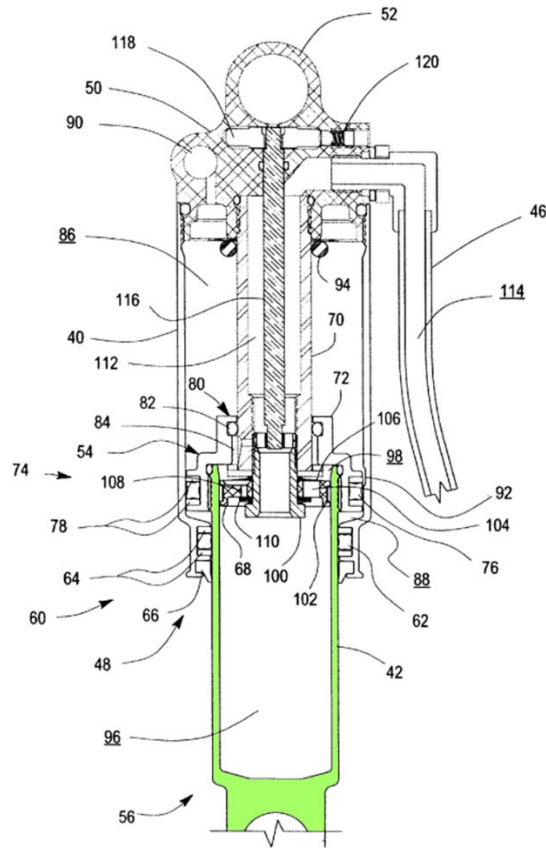


FIG. 3A

(b) Claim 11[a]

Claim Language
a damper chamber divided by a piston mounted on a movable rod, into a primary compression and a primary rebound chamber;

154. *Fox '751* discloses each and every element of this limitation. *Fox '751* includes a damper chamber (volume within shock body **42**, light green) that is divided by a piston **68** (yellow) mounted on a piston shaft/rod **70** (dark orange) into

a primary compression chamber **96** (light red) and a primary rebound chamber **98** (dark green). Ex. 1009, FIG. 3A.

Fox 751's Figure 3A

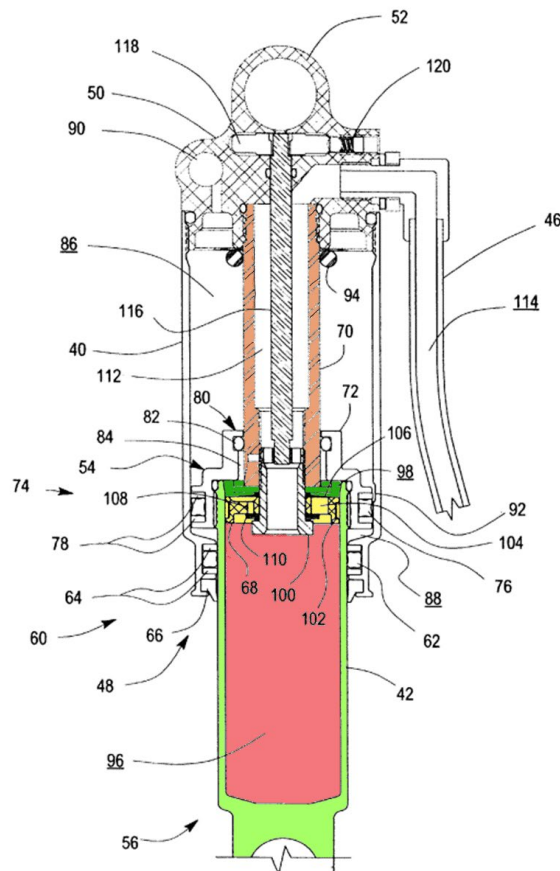


FIG. 3A

(c) Claim 11[b]

Claim Language

a bottom out cup in fluid communication with the damper chamber;

155. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen's* Claim element 11[b], above.

Chen's Figure 4

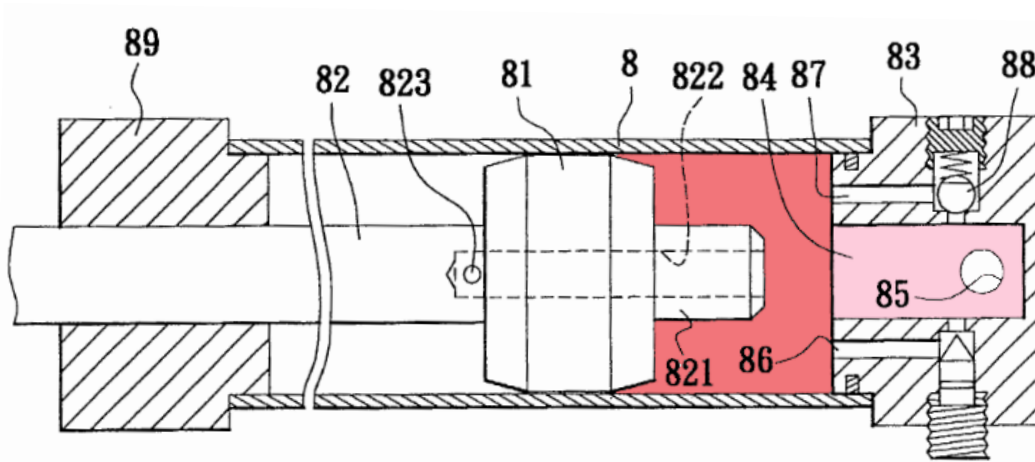


FIG. 4

(d) Claims 11[c]-11[d]

Claim Language
a bottom out piston formed on the movable rod for sealingly engaging an interior of the bottom out cup,
the damper including a first position in which the bottom out piston is not housed in the bottom out cup and a second position in which the bottom out piston is housed therein; and

156. *Fox '751/Chen* discloses each and every element of these limitations as shown in *Chen's* Claim elements 11[c]-11[d], above.

Chen's Figures 4 and 5

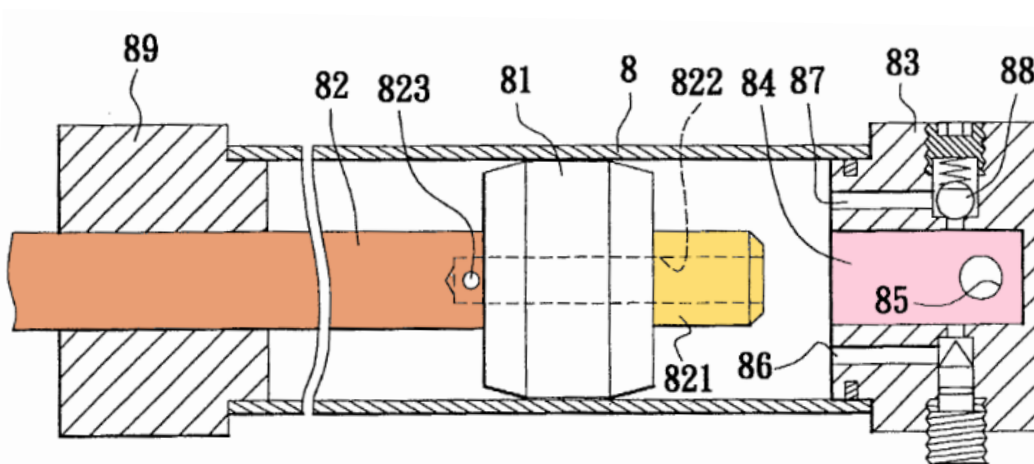


FIG. 4

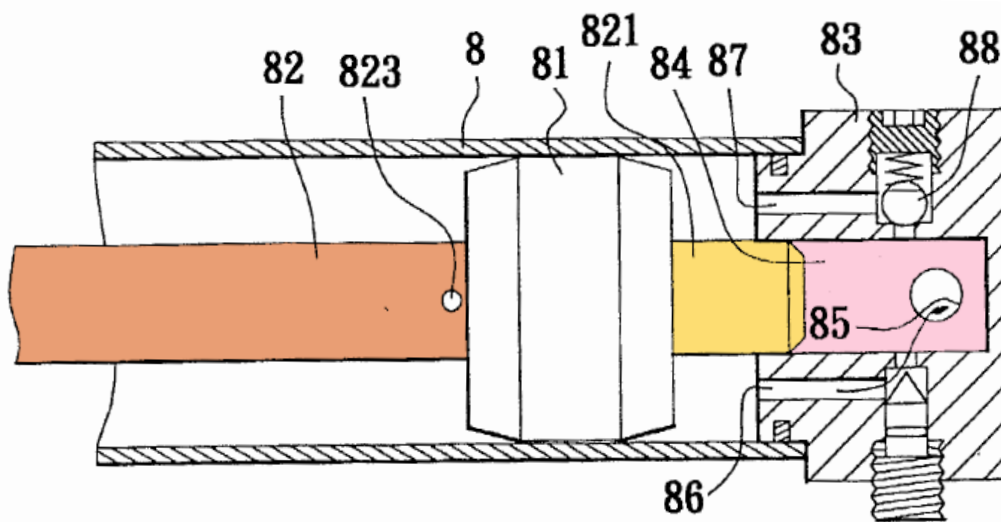


FIG. 5

(e) Claim 11[e]

Claim Language
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.

157. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen's* Claim element 11[e], above.

Chen's Figure 4

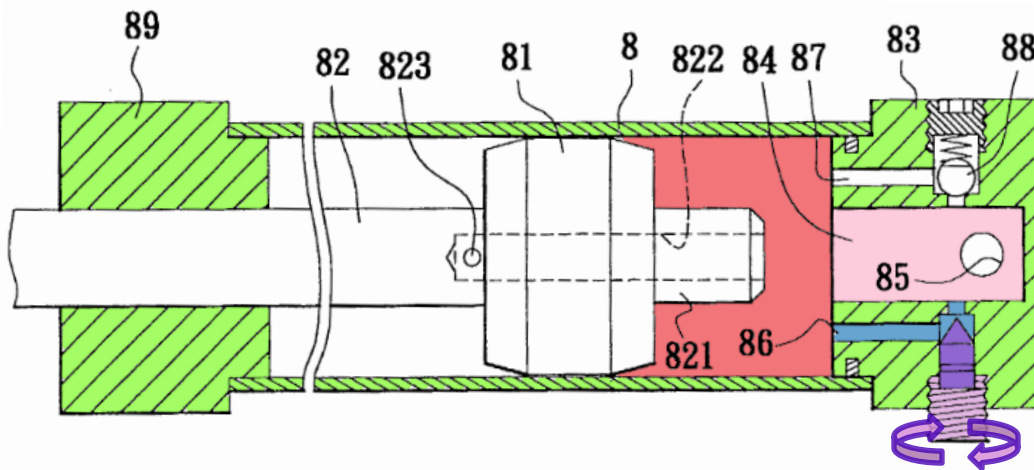


FIG. 4

6. Dependent Claim 12

Claim Language
The damper of claim 11, wherein in the second position the bottom out piston is sealingly engaged within the bottom out cup.

158. *Fox '751/Chen* discloses each and every element of this limitation as shown in *Chen's* Claim 12, above.

Chen's Figure 5

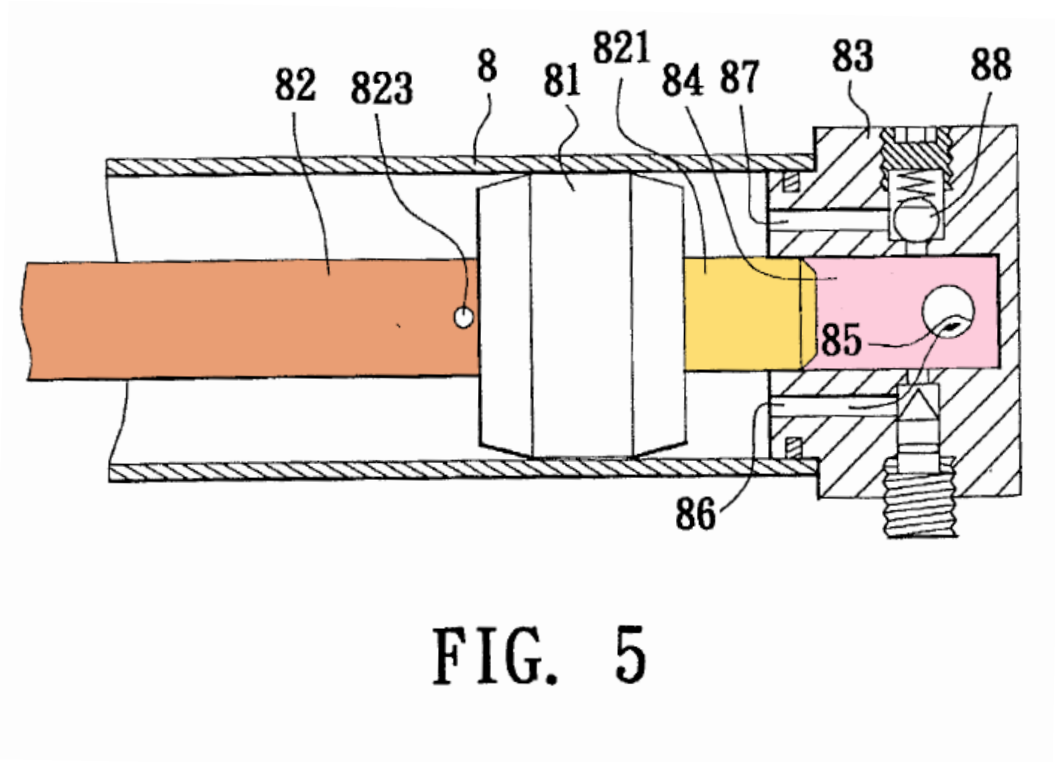


FIG. 5

7. Dependent Claims 13-15

Claim Language
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 damper of claim 13, further including an externally accessible adjuster connected to a valve disposed in the flow path.
The damper of claim 14, wherein the externally accessible adjuster is manually adjustable.

159. *Fox '751/Chen* discloses each and every element of these limitations as shown in *Chen's* Claims 13-15, above.

Chen's Figure 4

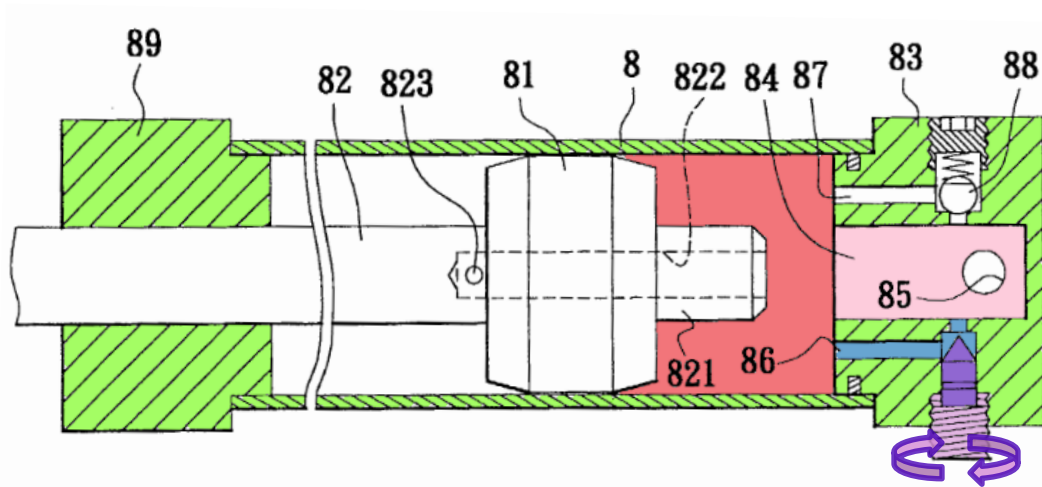


FIG. 4

8. Independent Claim 19

(a) Claim 19[pre]

Claim Language
A damper for a shock absorber comprising:

160. *Fox '751* discloses each and every element of this limitation as shown in Claim element 1[pre], above.

(b) Claim 19[a]

Claim Language
a fluid;

161. *Fox '751* discloses each and every element of this limitation. *Fox '751* includes a fluid, such as oil. Ex. 1009, 6:26-34, 11:42-53, 16:25-32.

(c) Claims 19[b]-19[d]

Claim Language
a compression chamber;
a bottom out cup;
a valve wherein;

162. *Fox '751/Chen* discloses each and every element of these limitations. *Fox '751* includes a compression chamber **96** (light red). Ex. 1009, FIG. 3A.

Fox 751's Figure 3A

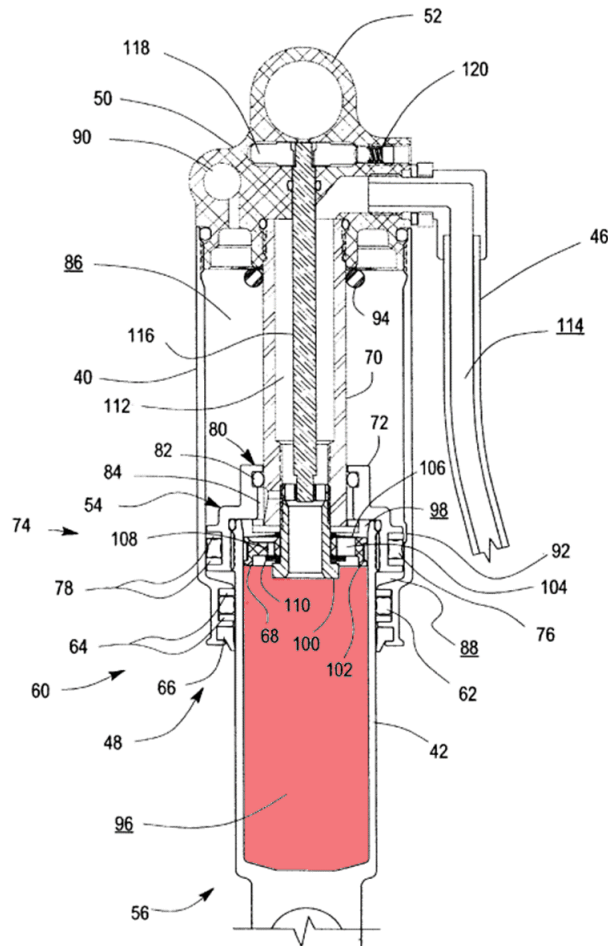


FIG. 3A

163. Further, *Fox '751/Chen* includes a compression chamber (light red), bottom out cup **84** (pink), and a screw type needle valve (needle (dark purple) and screw (light purple)). Ex. 1007, page 5, lines 2-13, FIG. 4.

Chen's Figure 4

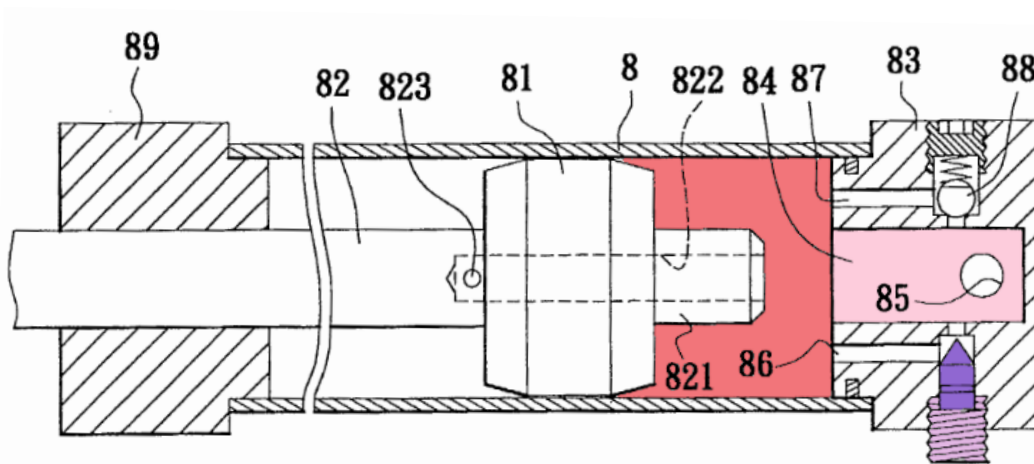


FIG. 4

(d) Claim 19[e]

Claim Language
in a compression stroke of the damper, the fluid flows from the bottom out cup to the compression chamber at a first rate with the valve in a first position and at a second rate with the valve in a second position where the first rate is greater than the second rate and the valve includes an adjuster accessible from an exterior of the shock absorber.

164. *Fox '751/Chen* discloses each and every element of this limitation. *Fox '751/Chen* would provide that, during a compression stroke of the damper, the fluid flows from the bottom out cup **84** (pink) to the compression chamber (light red) at a first rate with the screw type needle valve (needle (dark purple) and screw (light purple)) in a first position and at a second rate with the screw type needle valve

(needle (dark purple) and screw (light purple)) in a second position. The first rate is greater than the second rate. Again, this claims term is just a facially complicated way for Fox to claim a simple adjustment of the valve. Further, *Chen's* screw type needle valve (needle (dark purple) and screw (light purple)) includes an adjuster (light purple) that is accessible from the exterior of the shock absorber (the hydraulic cylinder **8**). Ex. 1007, page 5, lines 2-13, FIG. 4.

Chen's Figure 4

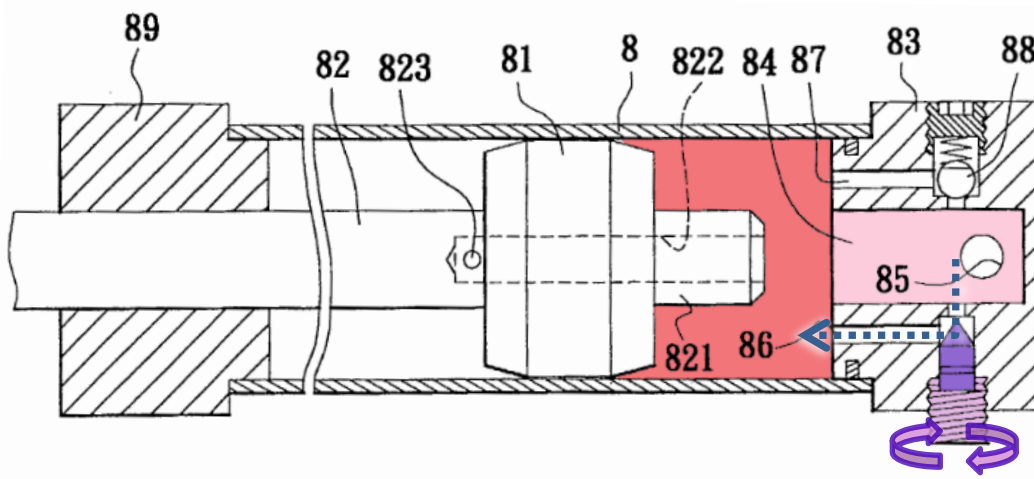


FIG. 4

165. *Fox '751's* piston having shims would allow for fluid to travel in any direction through the fluid flow path **86** during a compression stroke.

166. When the bottom out piston **821** enters the bottom out cup **84**, pressure within the bottom out cup **84** and the compression portion will begin to rise as the

device compresses further. *Fox 751*'s fluid passages **104** will allow fluid to flow from the compression portion **96** to the rebound portion **98**, and, in this context, there would be a period of time when the fluid (oil) will flow from the bottom out cup **84** to the compression portion.

167. Further, 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. A POSITA would have been motivated to try a plurality of different geometries to produce dampers having slightly different force vs. displacement and/or force vs. velocity curves during a compression stroke. In other words, how the device affects bottom out resistance can be adjusted by adjusting the relative sizes/geometries of the bottom out cup **84** and the compression portion, and it would be a matter of mere design choice on which geometries to use. In any event, a POSITA would understand that *Fox '751* in view of *Chen* discloses the same structures disclosed and claimed in the '223 patent, and as a result, a POSITA would know that some embodiments of the *Fox '751/Chen* combination will operate such that the fluid flows into the compression portion from the bottom out cup **84** during a compression stroke.

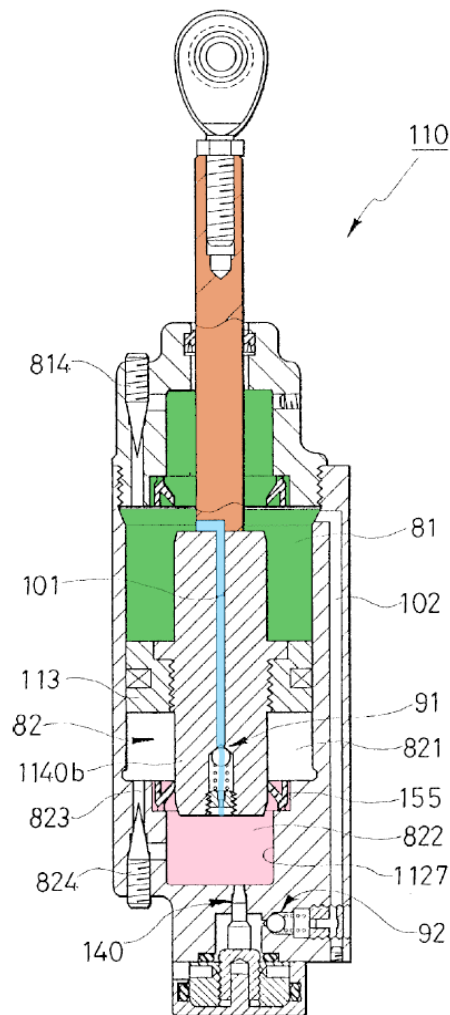
Ground IV: Claim 5-9 are Rendered Obvious by *Chen* (or *Chen* in view of *Deferme*) or *Fox '751/Chen* further in view of *Nakaya* and/or *Kodama*.

1. Dependent Claim 5

Claim Language
The damper of claim 1, further including a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.

168. Each of *Chen* and *Fox '751/Chen* in view of *Nakaya* discloses each and every element of this limitation. As discussed above, *Nakaya* includes a fluid path **101** (light blue) between a bottom out cup **1125, 1127** (pink) and a rebound portion **81** (dark green) that is formed in the piston shaft/rod **114** (dark orange). Ex. 1005, FIG. 8.

Nakaya's Figure 8



169. Alternatively, each of *Chen* and *Fox '751/Chen* in view of *Kodama* discloses each and every element of this limitation. As discussed above, *Kodama* includes an adjustable flow path including *Kodama's* throttle valve **30** (light blue), needle valve **32** (dark purple), and adjusting screw **34** (light purple). Ex. 1006, FIGS. 2, 3.

Kodama's Figures 2 and 3

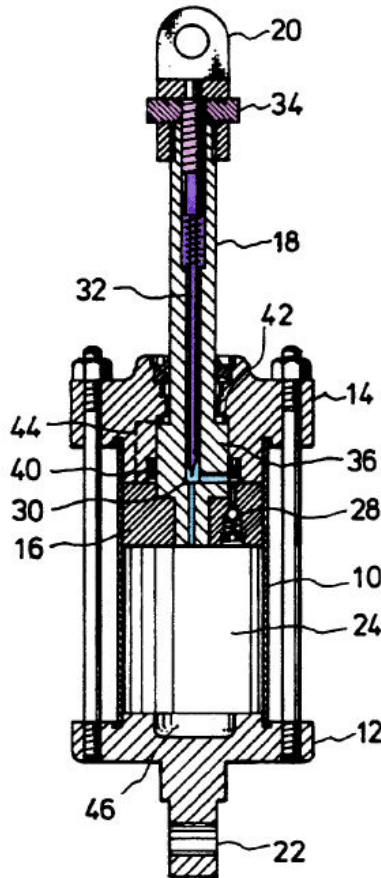


FIG. 2

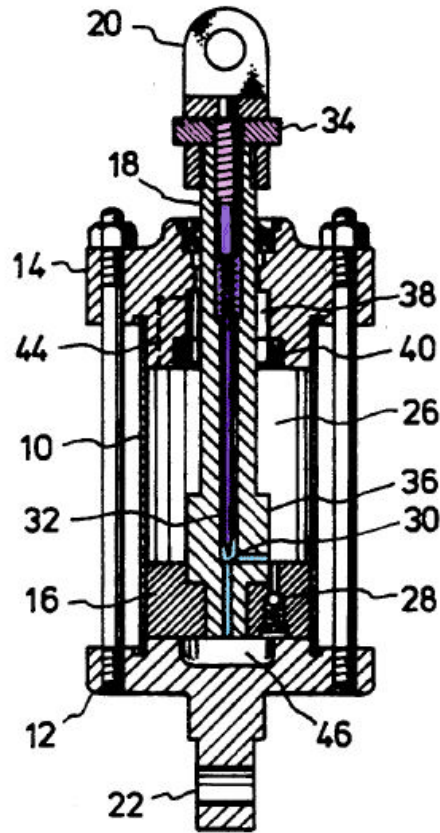


FIG. 3

2. Dependent Claim 6

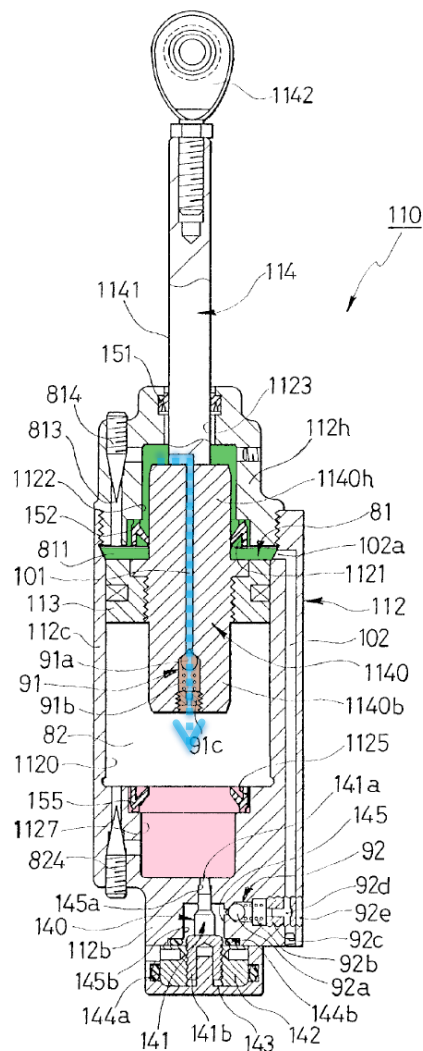
Claim Language
The damper of claim 5, wherein the path between the cup and rebound portion is adjustable with a check valve to permit flow of fluid in a single direction between the cup and the rebound portion.

170. Each of *Chen* and *Fox '751/Chen* in view of *Nakaya* discloses each and every element of this limitation. As discussed above, *Nakaya* includes that the fluid

path (the first passage **101**) (light blue) between the cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the rebound portion **81** (dark green) is adjustable with a check valve **91** (light brown) to permit flow of fluid in a single direction between the cup and the rebound portion.

Ex. 1005, FIG. 7.

Nakaya's Figure 7

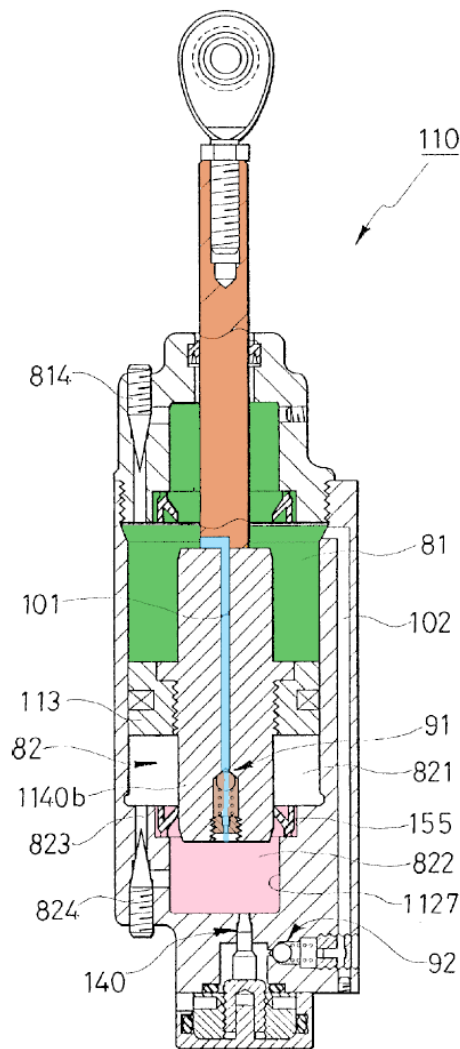


3. Dependent Claim 7

Claim Language
The damper of claim 6, wherein the check valve is arranged in the path to permit fluid communication between the rebound portion and the cup during a rebound stroke of the shaft.

171. Each of *Chen* and *Fox '751/Chen* in view of *Nakaya* discloses each and every element of this limitation. As discussed above, *Nakaya* includes that the check valve **91** (light brown) is arranged in the fluid path **101** (light blue) between the cup (the volume within the enlarged-diameter hole **1125** and the middle-sized diameter hole **1127**) (pink) and the rebound portion **81** (dark green) to permit fluid communication between the cup and the rebound portion **81** (dark green) during a rebound stroke of the shaft **114** (dark orange). Ex. 1005, FIG. 8.

Nakaya's Figure 8



4. Dependent Claim 8

Claim Language

The damper of claim 7, wherein the volume of fluid traveling through the fluid path is user-adjustable.

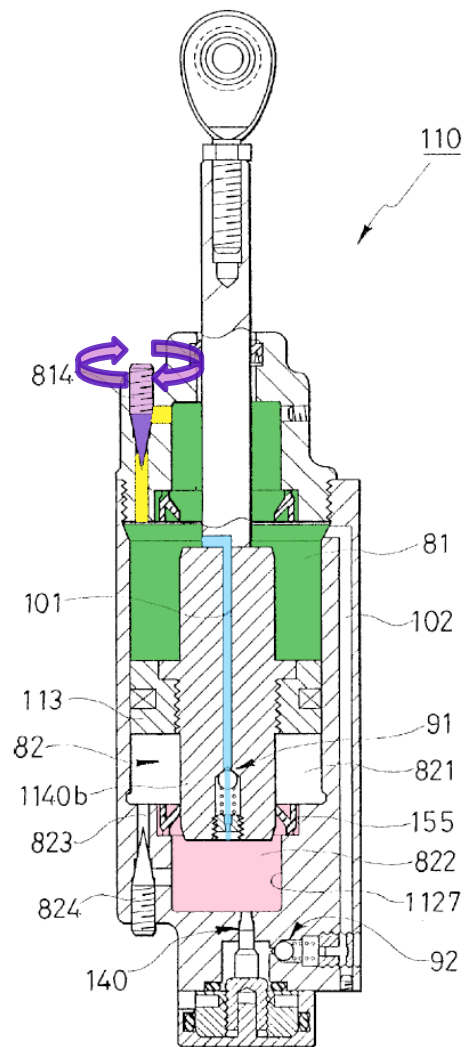
172. Each of *Chen* and *Fox '751/Chen* in view of *Nakaya* discloses each and every element of this limitation. Further, *Nakaya* does not explicitly state that the

volume of fluid traveling through the fluid path **101** (light blue) is user-adjustable. However, the amount of fluid traveling through the fluid path **101** (light blue) is adjustable via the cushion adjustment screw **814** (light purple). This is true whenever the top out piston **1140h** is sealed by the top out cup's seal **152**. Ex. 1005, FIG. 8.

173. This is because there are two regions of pressurized fluid within the rebound portion **81** (dark green): the top out cup (the volume within the enlarged-diameter hole **1122** and the middle-sized diameter hole **1121**) and the rebound portion **811**. During a rebound stroke when the top out piston **1140h** is sealed by the top out cup's seal **152**, the cushion adjustment screw type needle valve **814** (needle (dark purple), screw (light purple)) will change the resistance of fluid flowing into the first passage **101** (light blue).

174. Thus, although the volume of the first passage **101** (light blue) is not explicitly adjustable, the amount of fluid being sent through the first passage **101** (light blue) is adjustable by varying the amount of obstruction caused by the screw type needle valve **814** in the throttle passage **813** (yellow). Ex. 1005, FIG. 8.

Nakaya's Figure 8



175. Alternatively, it would have been obvious to a POSITA to modify *Nakaya* to include *Kodama*'s adjustable flow path including *Kodama*'s throttle valve **30** (light blue), needle valve **32** (dark purple), and adjusting screw **34** (light purple). Ex. 1006, FIGS. 2, 3.

Kodama's Figures 2 and 3

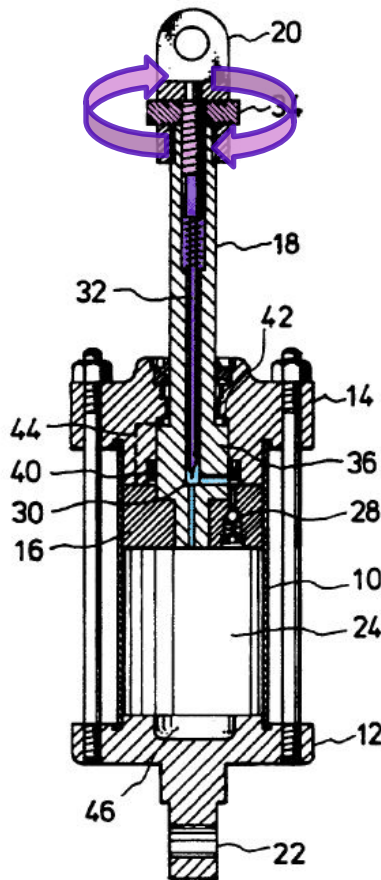


FIG. 2

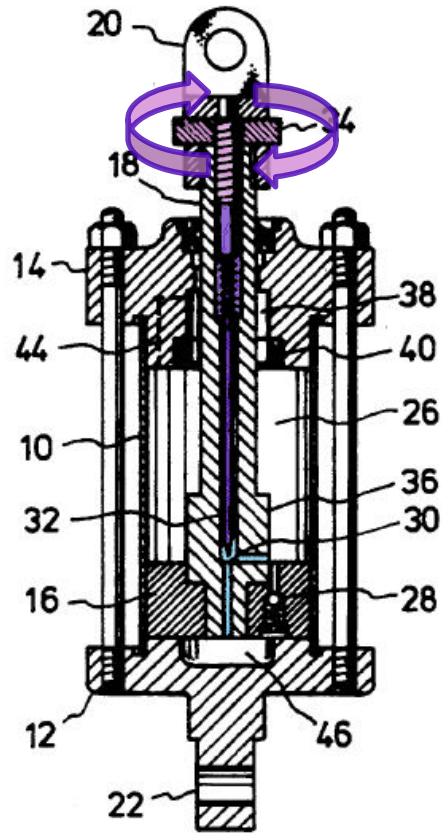


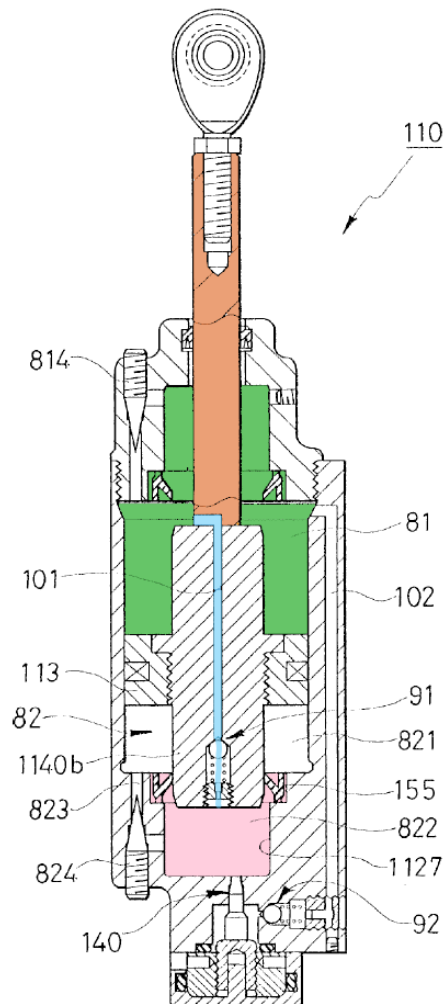
FIG. 3

5. Dependent Claim 9

Claim Language
The damper of claim 1, further including a second fluid flow path within the bottom out cup.

176. Each of *Chen* and *Fox* '751/*Chen* in view of *Nakaya* discloses each and every element of this limitation. *Nakaya* includes a second flow path **101** (light blue) through the piston shaft/rod (dark orange). Ex. 1005, FIG. 8.

Nakaya's Figure 8



Ground V: Claims 1-5, 9, and 19 are Anticipated by *Gartner* or Rendered Obvious by *Gartner* in view of *Nakaya*.

1. Independent Claim 1

(a) Claim 1[pre]

Claim Language
A damper for a shock absorber comprising:

177. *Gartner* discloses each and every element of this limitation, “[a] damper for a shock absorber comprising.” *Gartner* includes a damper (light green) for a shock absorber **420**. Ex. 1010, 9:40-48, FIG. 12A.

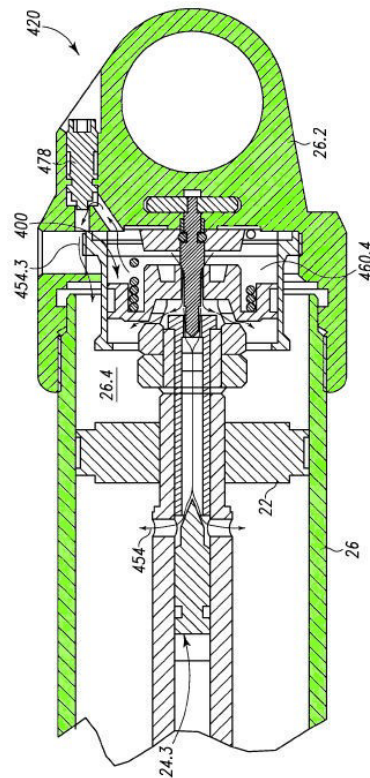


Fig. 12A

(b) Claim 1[a]

Claim Language
a damper chamber divided by a piston and shaft into a compression and rebound portions;

178. *Gartner* discloses each and every element of this limitation, “a damper chamber divided by a piston and shaft into a compression and rebound portions.” *Gartner* includes a damper chamber (the volume enclosed by the main cylinder **26**, light green) that is divided by a piston **22** (yellow) and a piston shaft/rod **24** (dark orange) into a compression portion **26.4** (light red) and a rebound portion (dark green). Ex. 1010, FIG. 12A.

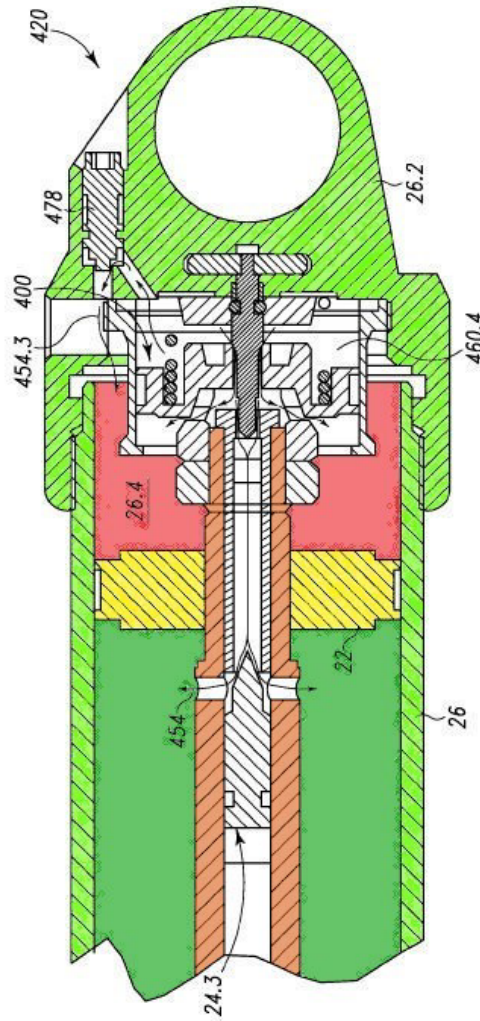


Fig. 12A

(c) Claim 1[b]

Claim Language
a bottom out cup formed at an end of the compression portion; and

179. *Gartner* discloses each and every element of this limitation, “a bottom out cup formed at an end of the compression portion.” *Gartner* includes a bottom

out cup **260**, **460** (pink) formed at the end of the compression portion **26.4** (light red). Ex. 1010, FIG. 12A.

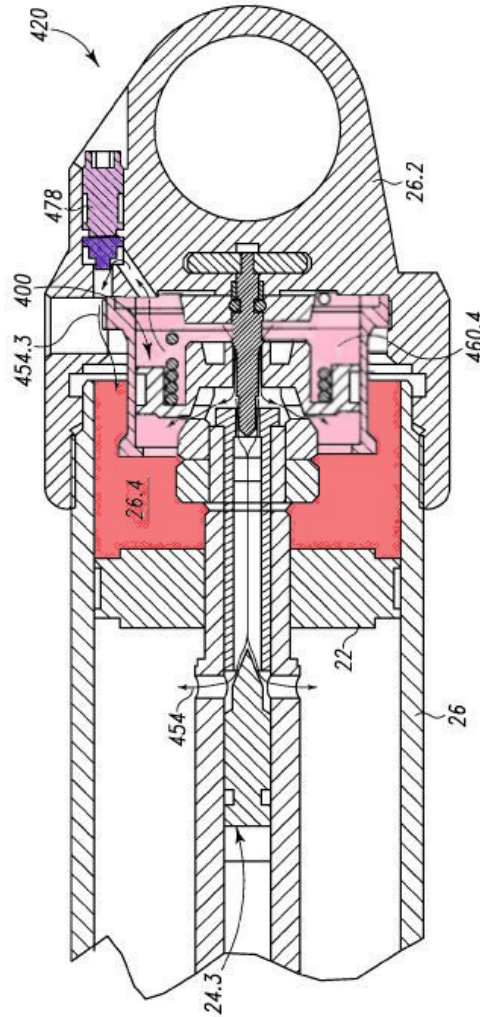


Fig. 12A

(d) Claim 1[c]

Claim Language
a fluid flow path formed in the bottom out cup for providing fluid communication from the cup to the compression portion of the chamber during a compression stroke of the damper;

180. *Gartner* discloses each and every element of this limitation, “a fluid flow path formed in the bottom out cup for providing fluid communication from the cup to the compression portion of the chamber during a compression stroke of the damper.” *Gartner* includes a fluid flow path **454.3** (dark blue with black arrows) from the bottom out cup **260, 460** (pink) for providing fluid communication from the cup to the compression portion (light red) of the chamber during a compression stroke of the damper. Ex. 1010, 9:18-48. The black arrows illustrating the fluid flow path **454.3** show that fluid will flow from the bottom out cup **260, 460** to the compression portion (light red) during a compression stroke. Ex. 1010, FIG. 12A. And again, I note that although this claim element does not require any directionality of fluid flow, as discussed above, fluid does flow from the cup **260, 460** to the compression portion, as indicated by the illustrated fluid flow path **453.3**.

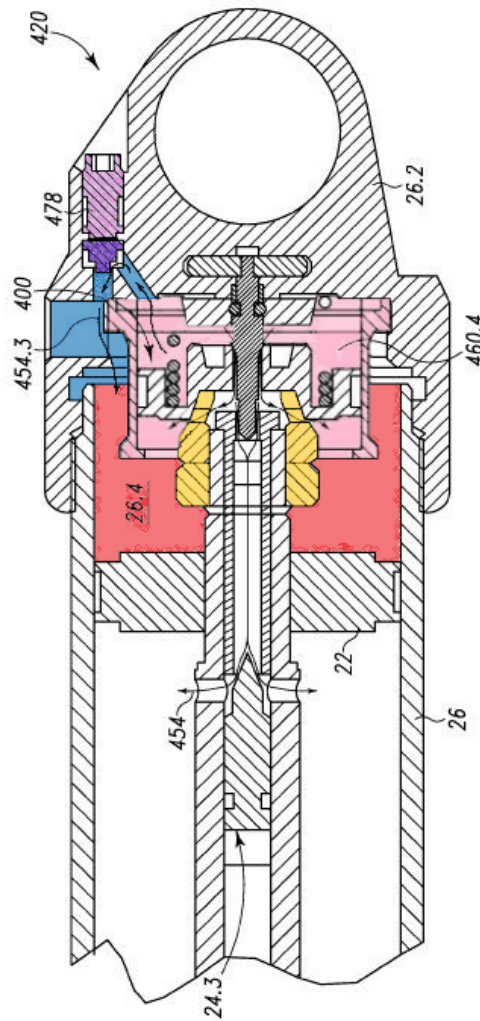


Fig. 12A

(e) Claim 1[d]

Claim Language
wherein the capacity of the fluid flow path is adjustable.

181. *Gartner* discloses each and every element of this limitation, “wherein the capacity of the fluid flow path is adjustable.” *Gartner* shows that the capacity of the fluid flow path **454.3** (dark blue with black arrows) is adjustable via the

adjustable screw type needle valve **478** (needle (dark purple) and screw (light purple)). The valve (dark purple) restricts the fluid flow when present in the fluid flow path **454.3**. Ex. 1010, 9:33-48. Further, *Gartner's* screw type needle valve (dark purple) is manually adjustable between a plurality of open positions (the screw may be adjusted to an effectively infinite number of positions between open and closed) and a closed position, and is accessible externally of the damper via an external screw (light purple). Ex. 1010, 9:33-48, FIG. 12A.

182. To the extent that *Gartner* does not explicitly disclose a closed position, such a feature would have been obvious to a POSITA using the same equipment featured in *Gartner*. In particular, a POSITA would have been motivated to provide a closed position to allow for a greater range of damping characteristic for the damper. Moreover, *Kodama* discloses a needle valve (*Kodama's* throttle valve **130**) that includes a closed position. Ex. 1006, 4:58-5:2.

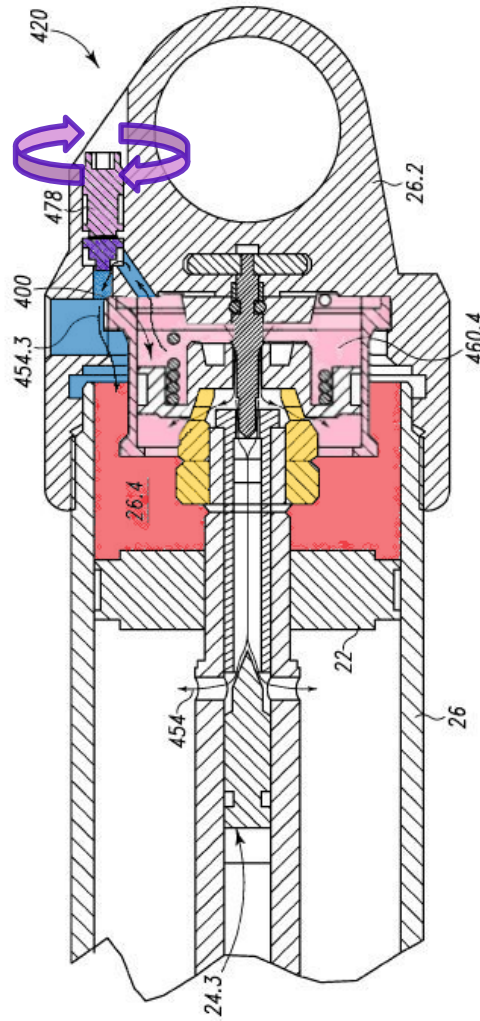


Fig. 12A

2. Dependent Claims 2-4

Claim Language
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 damper of claim 2, wherein the adjustable valve is manually adjustable and accessible externally of the damper.
The damper of claim 3, wherein the adjustable valve can be adjusted between a closed position and a plurality of open positions.

183. *Gartner* discloses each and every element of these limitations, 2, “the capacity of the flow path is adjustable with an adjustable valve, the valve restricting the fluid flow,” 3, “the adjustable valve is manually adjustable and accessible externally of the damper,” and 4, “the adjustable valve can be adjusted between a closed position and a plurality of open positions,” as shown in Claim element 1[d]. In particular, Claims 2-4 describe the same structure in nearly the same way, and accordingly, are each met by *Gartner*’s screw type needle valve **478** (needle (dark purple) and screw (light purple)) and related flow path **454.3** (dark blue).

3. Dependent Claim 5

Claim Language
The damper of claim 1, further including a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.

184. *Gartner* discloses each and every element of this limitation, “a fluid path between the cup and the rebound portion of the chamber, the path formed in the shaft.” *Gartner* includes the damper of Claim 1. *Gartner* also includes a fluid path **454** (light blue with black arrows) between the cup **260**, **460** (pink) and the rebound portion (dark green) of the chamber (the volume enclosed by the main cylinder **26** (light green)). Further, the path is formed in the piston shaft/rod **82** (dark orange). Ex. 1010, FIG. 12A.

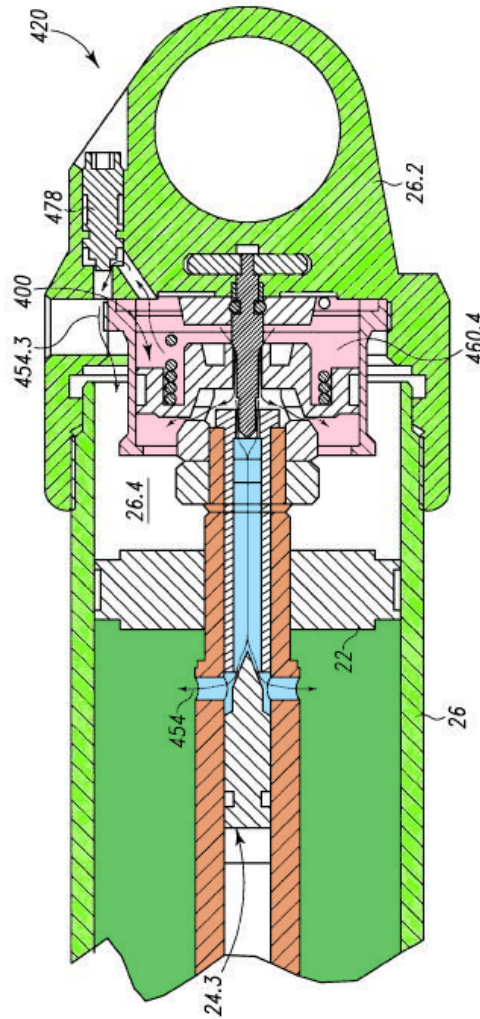


Fig. 12A

4. Dependent Claim 9

Claim Language
The damper of claim 1, further including a second fluid flow path within the bottom out cup.

185. *Gartner* discloses each and every element of this limitation, “a second fluid flow path within the bottom out cup.” *Gartner* includes a second flow path

454 (light blue with black arrows) through the piston shaft/rod (dark orange). Ex.
1010, FIG. 12A.

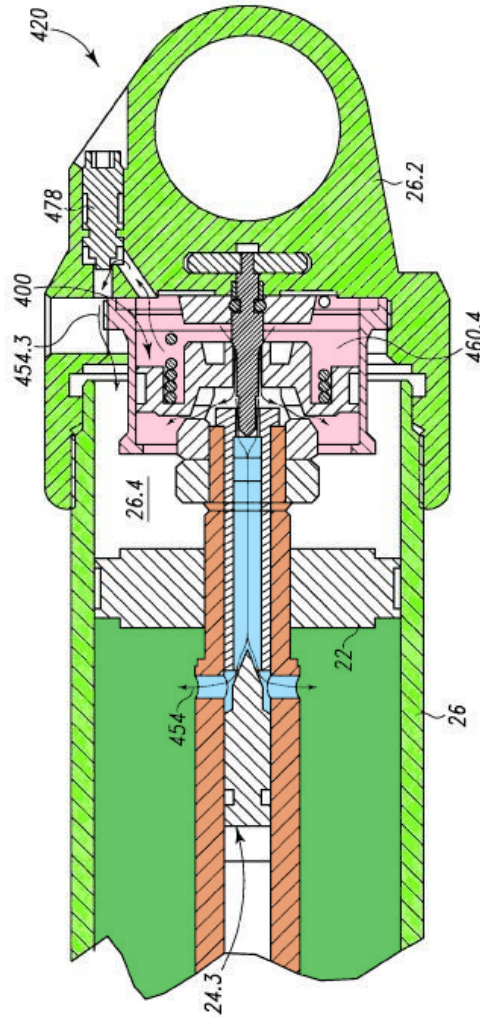


Fig. 12A

5. Independent Claim 19

(a) Claim 19[pre]

Claim Language
A damper for a shock absorber comprising:

186. *Gartner* discloses each and every element of this limitation. *Gartner* includes a damper (light green) for a shock absorber **420**. Ex. 1010, 9:40-48, FIG. 12A.

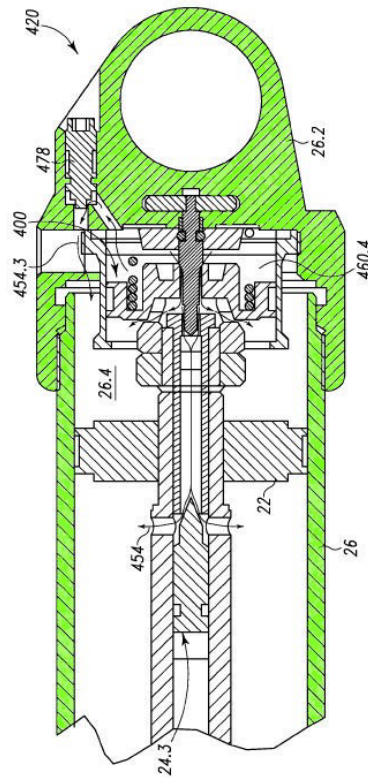


Fig. 12A

(b) Claim 19[a]

Claim Language
a fluid;

187. *Gartner* discloses each and every element of this limitation. *Gartner* includes a hydraulic fluid. Ex 1010, 3:63-4:4.

(c) Claim 19[b]-19[d]

Claim Language
a compression chamber;
a bottom out cup;
a valve wherein;

188. *Gartner* discloses each and every element of these limitations. *Gartner* includes a compression chamber **26.4** (light red), a bottom out cup **260**, **460** (pink), and a screw type needle valve **478** (needle (dark purple) and screw (light purple)).

Ex. 1010, FIG. 12A.

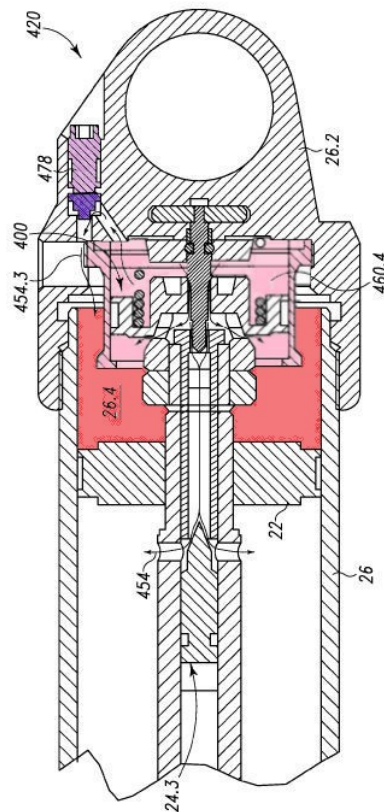


Fig. 12A

(d) Claim 19[e]

Claim Language
in a compression stroke of the damper, the fluid flows from the bottom out cup to the compression chamber at a first rate with the valve in a first position and at a second rate with the valve in a second position where the first rate is greater than the second rate and the valve includes an adjuster accessible from an exterior of the shock absorber.

189. *Gartner* discloses each and every element of this limitation. *Gartner* includes that, during a compression stroke, the fluid flows from the bottom out cup **260, 460** (pink) to the compression chamber **26.4** (light red) at a first rate with the screw type valve **478** (needle (dark purple) and screw (light purple)) in a first position and at a second rate with the screw type valve in a second position. The first rate is greater than the second rate. Ex. 1010, 9:33-48. Again, this claims term is just a facially complicated way for Fox to claim a simple adjustment of the valve. Further, *Gartner* provides that the screw type valve **478** (needle (dark purple) and screw (light purple)) is accessible from the exterior of the shock absorber. Ex. 1010, 9:33-48, FIG. 12A.

190. Further, as I discussed above, *Gartner* includes a fluid flow path **454.3** (dark blue with black arrows) from the bottom out cup **260, 460** (pink) for providing fluid communication from the cup to the compression portion (light red) of the chamber during a compression stroke of the damper. Ex. 1010, 9:18-48. The black

arrows illustrating the fluid flow path **454.3** show that fluid will flow from the bottom out cup **260, 460** to the compression portion (light red) during a compression stroke. Ex. 1010, FIG. 12A.

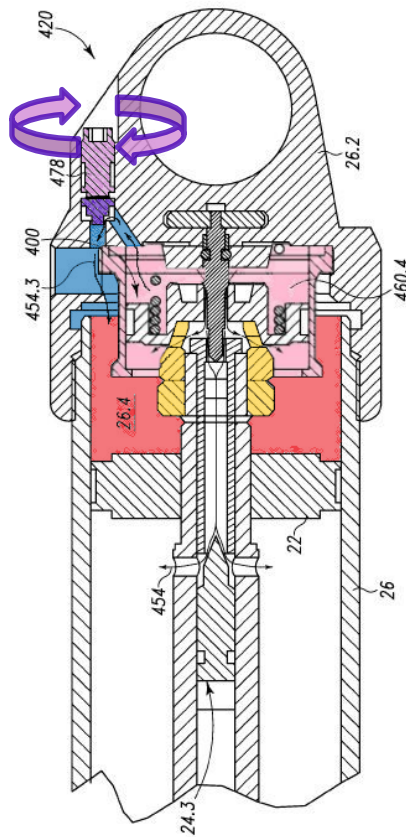


Fig. 12A

III. CONCLUSION

191. 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 29, 2023



Eric Wang, Ph.D.

4891-5495-6177