

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. 9,739,331 B2

Filing Date: August 10, 2015

Issue Date: August 22, 2017

Title: METHOD AND APPARATUS FOR AN ADJUSTABLE DAMPER

Case No. IPR2023-01302

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. 9,739,331 B2 ("the '331 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 several mountain, road, touring, and tandem bicycles, as well as unicycles. 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 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 '331 patent (that is, May 9, 2012) 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 '331 patent (Ex. 1101); the '331 patent's prosecution file history (Ex. 1104); Fox's Initial and Amended Infringement Contentions in a parallel district court case

(see Exhibits 1112 and 1113); all of the unsealed documents in the parallel district court case; and all of the relevant exhibits to this Petition (Exhibits 1101 to 1117), as well as publicly available articles and documents describing the products accused by Fox as infringing the claims of the '331 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, 2012 filing date of the initial patent application for the '331 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 ‘331 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 ‘331 patent in the district court proceeding. Ex. 1115. 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, with one exception.¹ However, even under SRAM’s constructions, I still believe that the claims of the ‘331 patent are invalid as anticipated or obvious, including as set forth below. I have applied these understandings below and reserve

¹ As discussed further herein, I do not consider that the “valve activator” in claim 3 is required to be physically separate from the “manually operable valve” because, during prosecution, the Examiner expressly contemplated that the valve activator could be part of the manually operable valve, which Fox did not contest at the time. *See, e.g.*, Ex. 1004, 88.

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.

16. As stated above, I am not a lawyer. In the context of my expert testimony on behalf of SRAM at the May 26, 2023, preliminary injunction hearing in the related District Court case in the District Court of Colorado, I was asked by counsel for Fox if certain prior art references “teach” pressure equalization between the air inside of the suspension fork and the ambient air outside the fork. I understood these questions by Fox’s counsel to ask whether these prior art references *expressly* use the words “pressure equalization.” Accordingly, because the prior art references in question do not expressly use that specific terminology, I answered “no” to those questions.

17. At the same time, I had also testified at that same hearing that the structures disclosed in these prior art references clearly disclose to a POSITA

apparatuses that achieve pressure equalization through manipulation of their respective related valves that open a hole or passage between the interior and exterior of the relevant suspension forks. Therefore, to the extent that the word “teach” has a broader legal meaning to include any disclosure, whether express, implicit, or inherent, my opinion is that all of the prior art references discussed herein “teach” pressure equalization as claimed in the ‘331 patent, as I discuss further below in greater detail. Indeed, when two differently pressurized bodies of gas are thereafter placed in fluid communication with each other, the two bodies of gases will equalize in pressure, in accordance with fundamental laws of physics, including the second law of thermodynamics.

TECHNICAL OVERVIEW

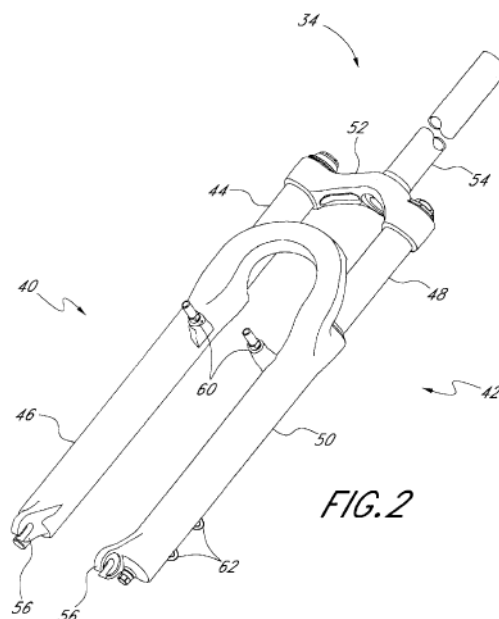
A. General Overview of Suspension Fork Arrangements

18. Bicycles and motorcycles can be classified as “single-track” vehicles because they generally leave a single ground track as they move forward. A number of different forces can act on a single-track vehicle during use, which is especially true in the area of mountain bikes and motorcycles intended to be ridden over rough terrain. The forces associated with the front wheel of a single-track vehicle running into and over rough terrain may have a number of undesirable consequences, including: increased stress on the vehicle and its components; forces being transferred to the rider; decreased control of the cycle for the rider; and other

potential problems.

19. U.S. Patent No. 6,592,136 B2 to Becker (“*Becker*”) is directed to a partial solution to these issues: a front suspension fork. *See* Ex. 1116. *Becker* explains that “[s]uspension fork assemblies are often utilized on off-road bicycles, or mountain bikes, to absorb energy imparted to the front wheel by the terrain on which the bicycle is being ridden.” Ex. 1116, 1:12-15. Further, “[t]he use of a suspension fork allows a rider to traverse rougher terrain, at a greater speed and with less fatigue in comparison to riding a bicycle equipped with a rigid fork.” Ex. 1116, 1:15-18. *Becker* explains that these suspension forks are not limited to bicycles, and “may be configured for use with other vehicles, such as a road bicycle or motorcycle.” Ex. 1116, 21:28-29.

20. For example, Figure 2 of *Becker* shows a typical cycle suspension fork.



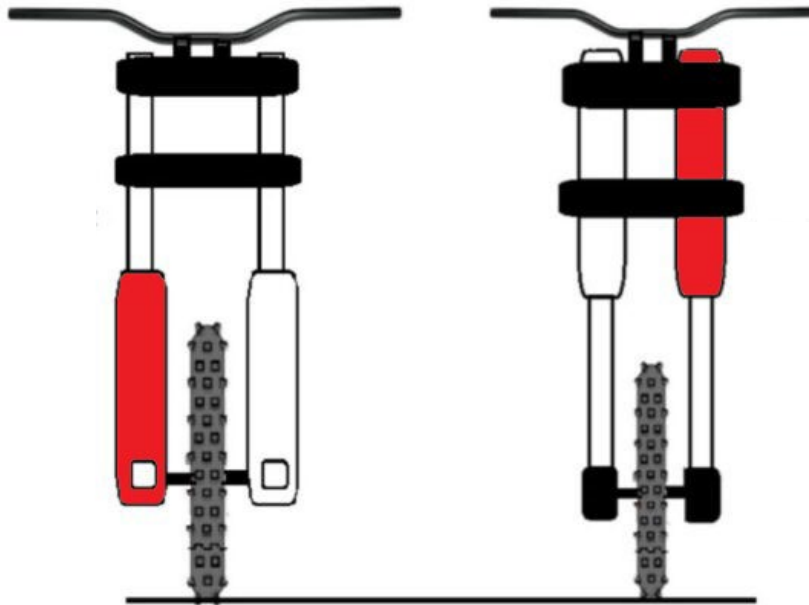
Ex. 1116, FIG. 2.

21. As can be seen in Figure 2, above, the suspension fork **34** includes two lower tubes **46, 50** and two upper tubes **44, 48**. Further, each of the lower tubes **46, 50** are “Outer Tubes” having an internal diameter that is greater than the external diameter of each of the two upper tubes **44, 48**, which tubes may be considered to be “Inner Tubes.” This “Outer” and “Inner” nomenclature may be used to help explain the moving parts of a suspension fork, as nearly all suspension forks have this arrangement of Outer and Inner tubes that move telescopically relative to each other. *See* Ex. 1116, 5:42-55, 6:5-21. In any case, Outer Tubes are tubes that have a greater internal diameter than the external diameter of related Inner Tubes, which relationship allows for the telescopic movement of the Inner Tubes *within* the Outer Tubes.

22. Although nearly all suspension forks for single-track vehicles include both Outer Tubes and Inner Tubes, there is one principal difference between typical suspension forks for bicycles and typical suspension forks for motorcycles: the telescoping legs (having one portion or tube that moves within the other portion or tube) are typically oriented in opposite configurations.

23. In particular, suspension forks intended for use with motorcycles tend to arrange the Outer Tubes *above* the Inner Tubes, while suspension forks intended

for use with bicycles tend to arrange the Outer Tubes *below* the Inner tubes. The following image shows these two arrangements:



24. As can be seen in the image above, the suspension fork on the left arranges the Outer Tubes of the telescoping suspension below the Inner Tubes. This left image therefore shows the arrangement of a typical suspension fork for a bicycle. On the other hand, the suspension fork on the right arranges the Outer Tubes of the telescoping suspension above the Inner Tubes, which is the arrangement typically used in conjunction with a motorcycle. These rules for arrangement are not absolute, but are at least typical.

25. One practical result of these differing arrangements is that components within the two different arrangements of suspension forks tubes tend to be placed within the same portion (be it Inner Tube or Outer Tube) of the suspension fork,

regardless of arrangement. For example, like in *Becker* (Ex. 1116), dampers are typically positioned within an Outer Tube, regardless of arrangement. The red highlighting in the figure above shows on the left side where the damper would be located in a bicycle fork (such as *Becker*) and on the right side where the damper would be located in a motorcycle fork (such as *Bruckbauer*). Figure 1 of *Bruckbauer* shows that the damper **12** is on the upper side of *Bruckbauer's* suspension fork:

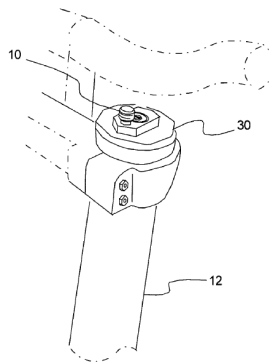


Fig. 1

26. *Bruckbauer's* damper **12** is shown to be at the very top of the suspension fork, with the cap **30** being one end of the Outer Tube.

27. As a result of these arrangements, motorcycle suspension forks, like that in *Bruckbauer*, locate the damper in an Outer Tube on top, while bicycle suspension forks locate the damper in an Outer Tube on the bottom.

B. Known Problems with Air Pressure Building Around Damper

28. It is well-known that suspensions forks tend to be pressure vessels, with internal pressures that typically need to be managed to allow a given suspension fork to perform its intended tasks. During assembly, gases are trapped within a

suspension fork. These gases may exert forces on portions of the suspension fork as the pressures of the gases internal or external to the suspension fork change. For example, *Bruckbauer* states that “[e]xcess trapped gas stiffens the assembly.” Ex. 1106, 1:33. Said another way, when there is a difference in pressure between gas inside the suspension fork and gas external to the suspension fork, there will be forces created by the pressure imbalance. *See, e.g., id.*

29. Solutions like those disclosed in *Bruckbauer* provide “a valve system for purging gases that become trapped within the fork tubes or suspension of a [single-track vehicle’s] fork.” Ex. 1106, 1:10-12. More particularly, solutions like those provided in *Bruckbauer* place the gas within the suspension fork in fluid communication with the external gas (typically ambient air). This communication allows the internal gas pressures within the fork to equalize with the external gas pressure. Sufficient equalizing eliminates internal forces due to a pressure imbalance. Additionally, the process is easy: a rider need only press on *Bruckbauer*’s valve cap **36** to provide this fluid communication.

30. Said another way, the art found a solution to the problem of gas being trapped within a suspension fork long ago—place a closeable hole into the suspension fork where the trapped gas is, and allow it to equalize with ambient air pressure, when needed. Indeed, even before *Bruckbauer* and similar pressure relief valves with biased buttons, the art used screwed in parts or parts with built-in gaps

that could or would be opened up to create the needed fluid communication. *See, e.g.,* Ex. 1106, 1:14-48. In fact, motorcycles had air holes in the outer/larger tubes of suspension forks for many years, as discussed and shown in *Bruckbauer*. POSITA's understood that opening such holes would cause the gas pressure inside of the suspension forks to equalize with ambient pressure. Many of these holes had other purposes for maintaining and adjusting the suspension forks, for example, by allowing the addition of oil or other fluids.

31. In the end, the solutions are as simple as the problems: when you have an issue created by a pressure vessel, allow the pressure vessel to open when needed.

C. Person of Ordinary Skill in the Art

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

33. In the context of the '331 patent, a POSITA within the field of the '331 patent around or prior to May of 2012 (when the initial patent application for the '331 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. The ‘331 Patent and Its Purported “Invention”

34. The ‘331 patent is directed to purported improvements in suspension forks for single-track vehicles (including bicycles, motorcycles, and the like). Specifically, the ‘331 patent discloses a system where a known suspension fork is modified with a known air valve-based pressure relief system, wherein the pressure relief system may be as simple as placing a hole that may be opened and closed into the suspension fork. *See, e.g.*, Ex. 1101, 1:26-30, 4:39-5:13 (claim 1).

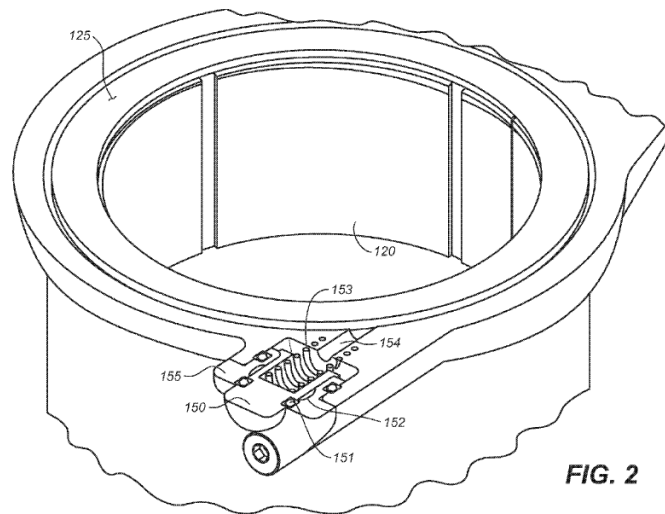
35. On its face, the disclosure of the ‘331 patent appears brief, in that its written description contains four figures and less than four full columns of text, with nearly two of the four columns devoted to the background and prior art. However, the ‘331 patent incorporates by reference twenty-eight (28) different prior art patents and publications, making its total length nearly 1300 pages. Even with that voluminous disclosure, the scope of the ‘331 patent’s disclosure regarding its purported invention is relatively narrow in my opinion. Only a single embodiment of that alleged invention is discussed in the written description and shown in the figures.

36. The ‘331 patent states what a POSITA already knew at that time of the ‘331 patent’s filing, namely that “[a]mbient air pressure at the time of building a suspension fork is sealed inside the fork legs,” and that these sealed pockets of air may cause issues for the suspension fork, such as increased friction of operation.

Ex. 1101, 1:47-54. The ‘331 patent further states what is known to a POSITA, that a pressure imbalance can form within the fork when a fork “built” at a lower elevation is taken to a higher elevation where it is to be ridden. *See, e.g.*, Ex. 1101, 3:36-64.

37. To address this known problem, the ‘331 patent creates a hole in the fork in a manner similar to what had been done previously in the art. Specifically, the ‘331 patent positions a hole or opening, along with a mechanism to open/close that hole (referred to in the ‘331 patent as an “air bleed assembly **300**[.]” somewhere on an Outer Tube (which is the ‘331 patent’s lower fork tube **104**, **118**). Ex. 1101, 4:3-27, FIGS. 2-4. If one were to ignore applicant Fox’s statements of disclaimer in the prosecution history (discussed further below), claim 1 would simply place the air bleed assembly *anywhere* along the length of the Outer Tube—anywhere between the seal at one end and the terminus of the other end, subject to being placed above the internal oil level of the fork so that oil does not leak out. *See* Ex. 1101, 4:39-5:13 (claim 1). The air bleed assembly **300** is connected to a vent hole **154** that extends through the Outer Tube, which vent hole **154** may allow trapped “air pressure [to] by-pass into or out of the fork leg[.]” Ex. 1101, 4:22.

38. The ‘331 patent’s air bleed assembly **300** may include a button **150**, a sealing O-ring **151**, a spring **153**, and a seal bore **155**, arranged as shown in Figure 2, below. Ex. 1101, 4:17-27, FIG. 2.



39. As can be seen in Figure 2, the O-ring **151** is arranged on the button **150**, positioned between the button **150** and a seat of the seal bore **155**. Ex. 1101, FIG. 2. The seal bore **155** serves as a connection point for the air bleed assembly **300** to the suspension fork. The button **150** protrudes from the air bleed assembly **300** to the suspension fork. The button **150** allows a person to depress the button **150**. See Ex. 1101, 4:13-16. The spring **153** “biases the button/valve **150** [and O-ring **151**] toward a closed position[.]” as depicted in Figure 2. Ex. 1101, 4:25-26, FIG. 2. In this position, air may not flow into nor out of the suspension fork. See Ex. 1101, 4:19-24. When the button **150** is depressed, the O-ring **151** is moved into a diametrical recess **152** formed within the seat **155**. Ex. 1101, 4:19-24. In this position, air may flow around, or by-pass, the O-ring **151**, either into or out of the suspension fork. In this way, the air bleed assembly **300** may “allow[] a rider to push a button and let the pressure in the lower leg equalize to ambient pressure[.]” Ex. 1101, 3:65-67.

40. In my opinion, what the '331 patent discloses as its “air bleed assembly” invention is substantively no different than what preceded it in the art and is not an invention worthy of patenting. Rather, the '331 patent describes an apparatus long known in the art: a hole or opening in a suspension fork that can be opened or closed, with the hole placed above the internal oil level of the fork so that oil does not leak out. As shown in the prior art discussed further herein, locating such a hole and valve (or in the '331 patent's words, an “air bleed assembly”) anywhere along the length of a vehicle fork above an internal oil level is an obvious, routine optimization involving nothing more than basic common sense and rudimentary mechanical skill. In any event, although Fox tried to use this location (and an even narrower location) to distinguish cited prior art, this new prior art cited here anticipates and renders obvious this purported “invention” of the '331 patent.

41. The merits of the Grounds presented in the Petition are compelling and clearly evidence the unpatentable nature of the claims of the '331 patent.

42. 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 '331 patent during its prosecution. Said another way, the prior art references were not considered or used by the Examiner during prosecution of the '331 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 ‘331 patent and provide compelling grounds for initiating this request for *inter partes* review.

43. Regarding *Kashima*, *Hoose*, *Ceriani*, *Bruckbauer*, *Huang*, and *Danter*, (the “IPR Prior Art”), the IPR Prior Art’s disclosures are unlike those considered during prosecution. *Kashima* discloses a front suspension fork that has an opening to allow gas to be purged from the lower fork. Ex. 1105, [01]-[05]. *Hoose* discloses “[a] vehicle and vehicle suspension including a number of shock chambers to provide different levels of incrementally increasing shock absorption/cushioning.” Ex. 1108, Abstract. *Ceriani* discloses a front suspension fork that includes a deformable pocket to compensate for displacement due to movement of the damper’s piston. Ex. 1110, Abstract. *Huang* discloses an improved air “inflation valve that automatically releases surplus high-pressure air when an object is excessively inflated via the inflation valve.” Ex. 1109, 1:6–8. *Bruckbauer* discloses an air bleed system that allows air to pass through a front suspension fork (Ex. 1106, Abstract), whereas *Danter* discloses a suspension fork having integrated features for accommodating brake actuating systems, wherein the fork may be cast of metal materials. Ex. 1107, 4:18-20, Abstract. None of the issues or technologies disclosed in the IPR Prior Art were addressed during prosecution.

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

44. As indicated above, for purposes of assessing validity, I have applied Fox's proposed constructions, including as set forth in Ex. 1014 and its Initial and Amended Infringement Contentions (Exs. 1012 and 1013). However, it is my opinion that, for purposes of properly understanding the '331 patent and its scope, the Board should construe the claim term "air bleed assembly" to include the clear and unmistakable disclaimer requiring its location to be "between the fork's lower leg seal and upper bushing," a positional limitation adopted by Patent Owner Fox to distinguish the *Galasso* prior art (Exhibit 1011) after six (6) rejections by the Examiner. Although this location of the "air bleed assembly" is crystal clear from the prosecution of the '331 patent, it is my further opinion that, whether or not such a construction is adopted, the claims of the '331 patent are invalid in view of the prior art irrespective of this positional limitation added in a prosecution history disclaimer.

45. In my view, Fox was only granted the '331 patent because it made a specific, clear, and unmistakable disclaimer during prosecution regarding the location of the air bleed assembly, precluding Fox from now trying to recapture a broader scope. During prosecution, Fox specifically narrowed the scope of claim 1 to argue around prior art, having been rejected six times by the Examiner in view of

the *Galasso* reference, which clearly showed that an air bleed system in a suspension fork existed well before 2012.

46. The public record of the '331 patent shows this clear disclaimer of claim scope. As background, the Examiner repeatedly rejected Fox's claims for an air bleed system associated with a vehicle fork or suspension system, citing the *Galasso* reference either alone or in combination with other prior art. *See* Ex. 1104, 40-44, 83-97, 125-136, 152-153, 176-191, 224-225. Fox argued over and over against the Examiner's six-fold reliance on *Galasso*, but could not convince the Examiner that Fox's structure was patentable. *See id.*, 55-69, 105-116, 157-171.

47. For example, in a final rejection from December 2016, the Examiner rejected prosecution claims 1, 3-6, 8-15, and 18-22 under 35 U.S.C. § 103(a) as being unpatentable over *Galasso et al.* in view of U.S. Patent No. 6,311,961 B1 to *Julia*. Ex. 1104, 179-181. The Examiner extensively analyzed why this prior art rendered Fox's asserted invention obvious, including the fact that the prior art expressly disclosed that a manually operable air bleed valve could be located in the lower fork "without compromising the oil bath in the lower fork." *Id.*, 189.

48. In response to this sixth rejection of its air bleed claims, Fox not only amended claim 1 to add further structure but specifically called out the difference between the prior art and the claimed invention: "In contrast to Galasso, Applicant's features, as recited in newly amended Claim 1, located its air bleed system in a lower

fork, wherein the vent hole is **located between the lower leg seal and the bushing that is attached thereto.**” Ex. 1104, 214 (underlining in original, bold emphasis added). Fox’s disclaimer is fully set forth below:

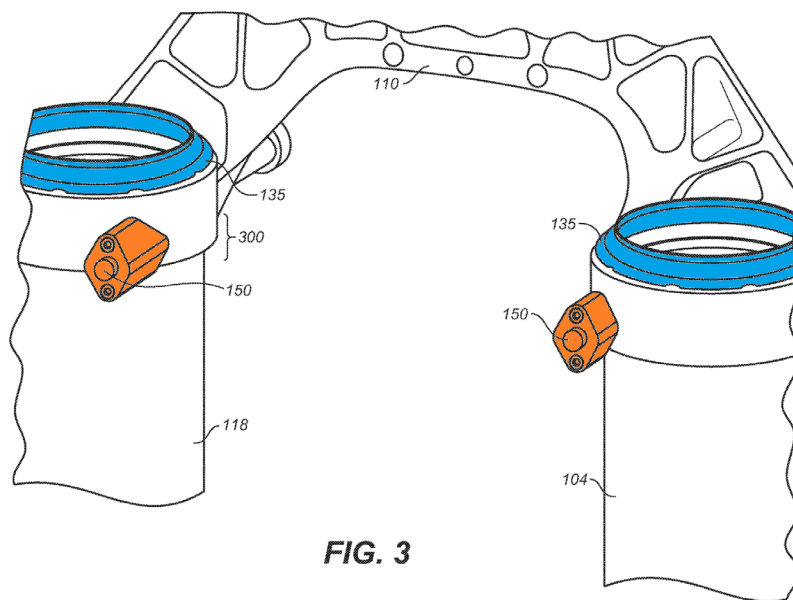
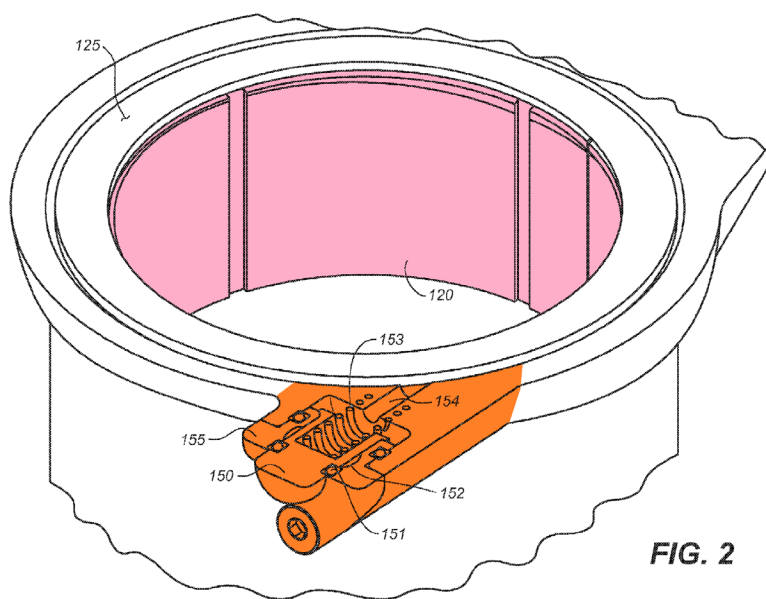
In contrast to Galasso, Applicant’s features, as recited in newly amended Claim 1, locate its air bleed system in a lower fork, wherein the vent hole is located between the lower leg seal and the bushing that is attached thereto. The manually operable valve is also positioned between the lower leg seal and the first end of said lower fork (first end is configured to be coupled to a vehicle wheel). Thus, the air bleed system, including the manually operable valve, is located below the lower leg seal that is attached to the outmost edge of a second end of the lower fork tube, wherein the second end of the lower fork is configured to receive an upper fork telescopically therein. Of note, an oil bath lubrication is located within and at the first end of the lower fork tube, the oil lubrication remaining in such a position, via gravity. Applicant’s specification describes the necessity of such a positioning (Applicant’s specification, paragraph [0021]):

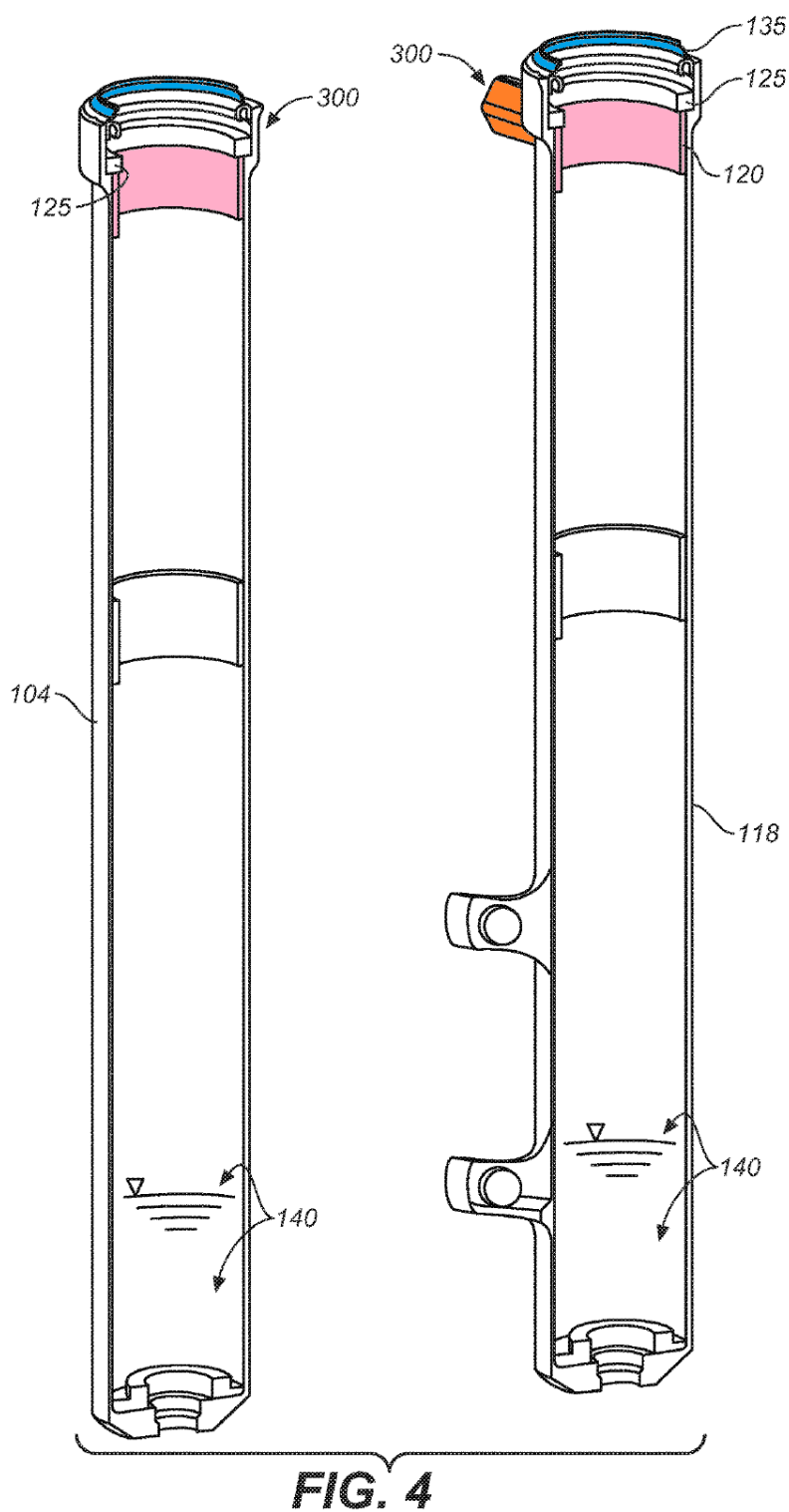
49. Notably, Fox not only used this particular location of the air bleed assembly to distinguish the prior art but to tout the purported advantages of its design, stating that “**due to the positioning of Applicant’s air bleed system being located directly below the lower leg seal**, ... Applicant’s features enable[s] the release of excessive air pressure from the lower fork tube . . . while enabling the oil bath lubrication to remain fairly leveled at the bottom of the lower fork tube, without spraying/leaking out through the open vent hole.” Ex. 1104, 215. Again, the full

statement of Fox’s clear disclaimer with respect to the positioning of its claimed air bleed assembly is recited below:

This pressure and load added to the lower oil control lip of the seal, sealing the gap between the lower fork tube and a telescopically positioned upper fork tube, serves to compromise the seal, and possibly enable the oil lubrication within the lower fork tube to leak/spray out of the damper assembly. However, due to the positioning of Applicant’s air bleed system being located directly below the lower leg seal, within the lower fork tube, wherein the lower fork tube is positioned further away from the frame of the vehicle than the upper fork tube, Applicant’s features enable the release of excessive air pressure from the lower fork tube, thereby reducing the pressure and load being applied to the lower oil control lip of the lower leg seal, while enabling the oil bath lubrication to remain fairly leveled at the bottom of the lower fork tube, without spraying/leaking out through the open vent hole. Applicant’s features allow for the pressure in the lower leg

50. This is consistent with the only embodiment of the “air bleed assembly” shown in the ‘331 patent, as shown in figures 2-4, wherein the air bleed assembly (300) (highlighted in orange) is located between the lower leg seal (135) (highlighted in blue) and the upper bushing (120) (highlighted in pink):





Ex. 1101, FIGS. 2-4.

51. Thus, through its arguments during prosecution of what ultimately

issued as the '331 patent, Fox expressly required that its claimed air bleed assembly be placed in a particular region directly below the lower leg seal and above the upper bushing. *See* Ex. 1004, 214-215. In other words, Fox made clear, public, and binding disclaimers that claim 1 of the '331 patent was distinguished from and had advantages over the prior art by locating the air bleed assembly between the fork's lower leg seal and upper bushing. Accordingly, it is my opinion that the Board should thus construe the "air bleed assembly" of claim 1 to be located "between the fork's lower leg seal and upper bushing."

52. 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, irrespective of the Board's construction of "air bleed assembly."

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

NEW PRIOR ART NOT CONSIDERED IN THE '331 PATENT

54. This Petition relies solely on prior art published more than one year before the earliest possible priority date for the '331 patent, May 9, 2012.

Japanese Patent No. JP1977156051(U) to Kashima (“Kashima”)

55. Japanese Patent No. JP1977156051(U) to Kashima (“Kashima”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been patented on May 21, 1976. Ex. 1105.

56. *Kashima* discloses “[a] hydraulic shock-absorbing front fork for suspension having an inner tube (2) slidably inserted into the hollow space of an outer tube (1)[.]” Ex. 1105, 8 at “2. Utility Model Claims”. The telescoping front fork is intended to be used with a vehicle, such as a motorcycle. Ex. 1105, [01]. A bearing 3, also known as a bushing, is used to position the outer tube 1 relative to the inner tube 2.

Fig. 1

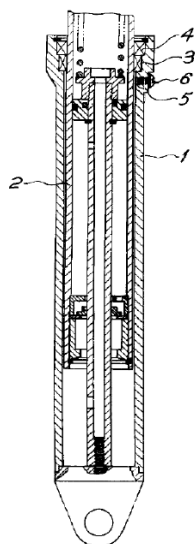
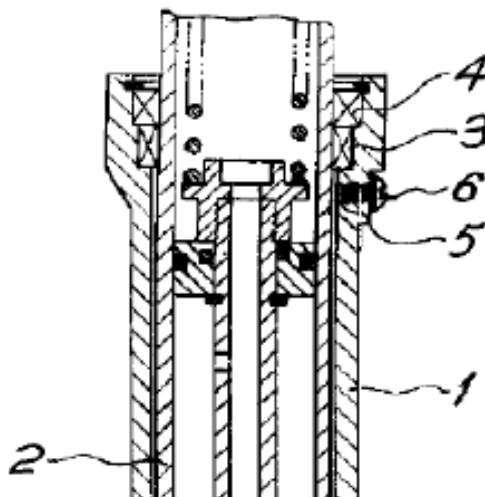
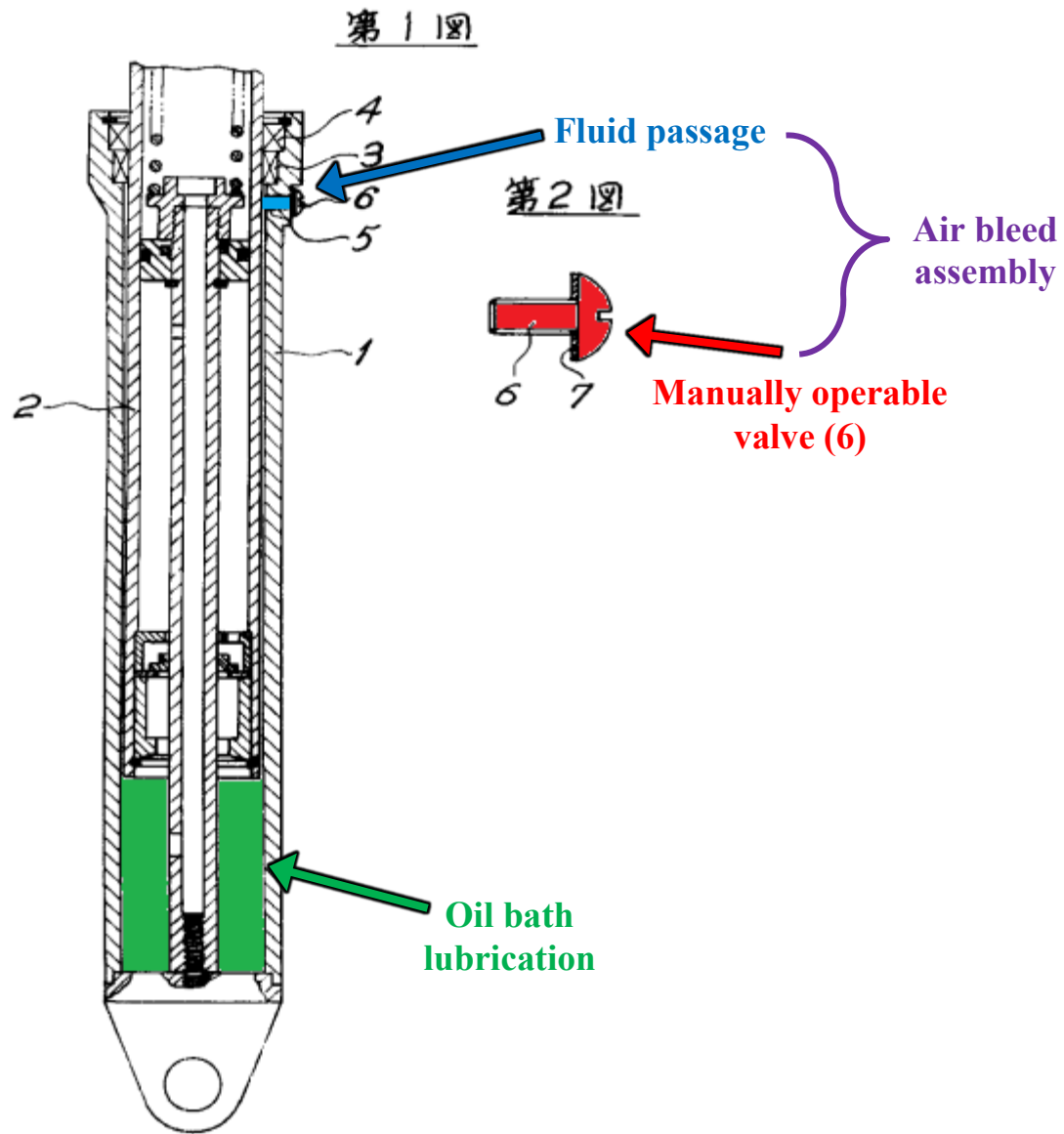


Fig. 1





57. Ex. 1105, FIG. 1. *Kashima* explains that gas within the outer tube 1 may cause increased friction and decreased smoothness during operation when the gas displaces oil between the telescoping outer tube 1 and inner tube 2. Ex. 1105, [02]. *Kashima* addresses this gas-based oil displacement by supplying a threaded

hole **5** near the very top of the outer tube **1**. In this way, when the vehicle suspension is fully assembled, the area between the outer tube **1** and the inner tube **2** may be purged of all gas. Ex. 1105, [03]-[05]. The gas may be purged by filling much of the space between the outer tube **1** and inner tube **2** with oil and then depressing the inner tube **2** into the outer tube **1**. Once oil begins to run from the threaded hole **5**, it may then be capped with a setscrew **6** that carries an oil seal **7**, thereby sealing in the oil within that space.

58. Accordingly, the threaded hole **5** within the outer tube **1** is a passage that allows fluid communication between the interior and exterior of the outer tube **1**. This passage **5** may be opened or closed using the setscrew **6** and oil seal **7**. When the passage **5** is open, the pressure of any gas within the outer tube **1** will necessarily be equalized with the ambient air pressure. Thus, the setscrew **6**, oil seal **7**, and the threaded hole **5** may be considered to be an air bleed assembly (as recited in the ‘331 patent Claims) capable of bleeding gas within the outer tube **1** to the ambient air. This process necessarily equalizes the gas pressures inside and outside of the outer tube **1**.

United States Patent No. 7,231,939 B1 (“Bruckbauer”)

59. U.S. Patent No. 7,231,939 B1 to Bruckbauer (“*Bruckbauer*”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on March 9, 2005 and issued on June 19, 2007. Ex. 1106.

60. *Bruckbauer* discloses an air bleed assembly as disclosed in the ‘331 patent. In particular, *Bruckbauer* “relates to a valve system for purging gases that become trapped within the fork tubes or suspension of a motorcycle’s fork.” Ex. 1106, 1:10–12. *Bruckbauer* discloses that “[e]xcessive trapped gas stiffens [a given fork] assembly.” Ex. 1106, 1:33. To alleviate this issue, *Bruckbauer* provides “a bleed button, or pressure relief valve” extending through the body of an outer fork leg, as shown below:

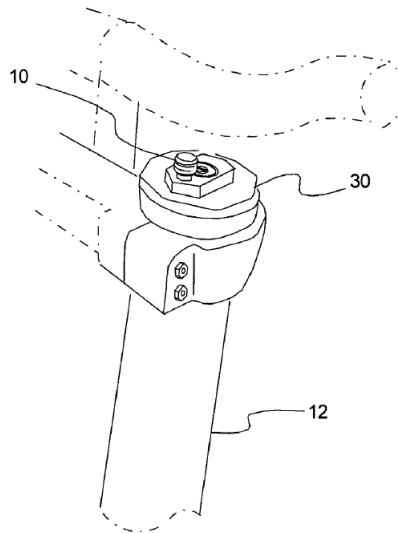
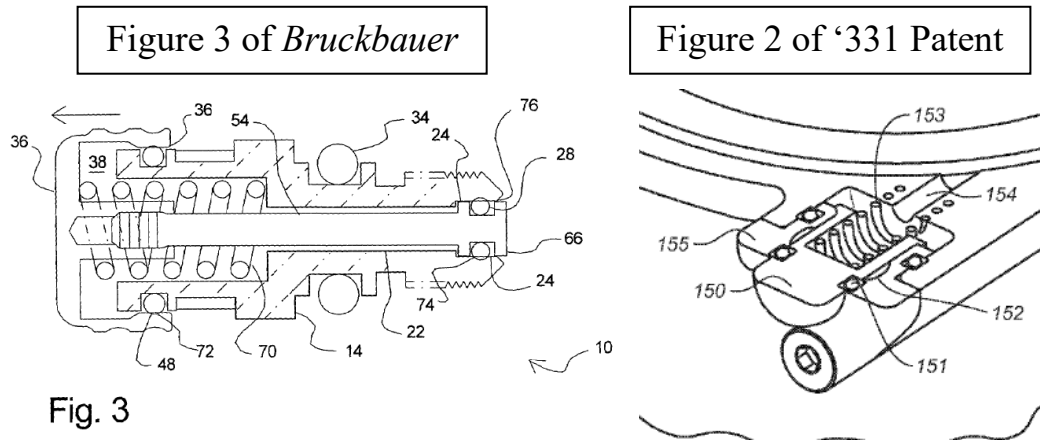


Fig. 1

Ex. 1106, 2:24-34, FIG. 1.

61. The button’s (*Bruckbauer*’s valve cap **36**) “functions include opening or closing access to an air escape passage through the air passage inside the valve body” using, in part, an O-ring **28** carried by a connecting shaft **54**. Ex. 1106, 2:38-40. This opening and closing may “allow[] any buildup of excess pressure to be relieved by the user ... in order to restore the dampener’s design characteristics.”

Ex. 1106, 4:25-28. A spring **70** biases the pressure relief valve **10** toward the closed position. The overall structure of *Bruckbauer's* pressure relief valve **10** is the same as the '331 patent's air bleed assembly **300**:



Compare Ex. 1106, FIG. 3, with Ex. 1001, FIG. 2.

European Patent Application Publication No. EP0979772A2 (“Danter”)

62. *Danter* was filed as European Patent Application No. 99102394.6 on February 8, 1999 and published on February 16, 2000. Ex. 1107. It is therefore pre-AIA 35 U.S.C. § 102(b) prior art to the '331 patent.

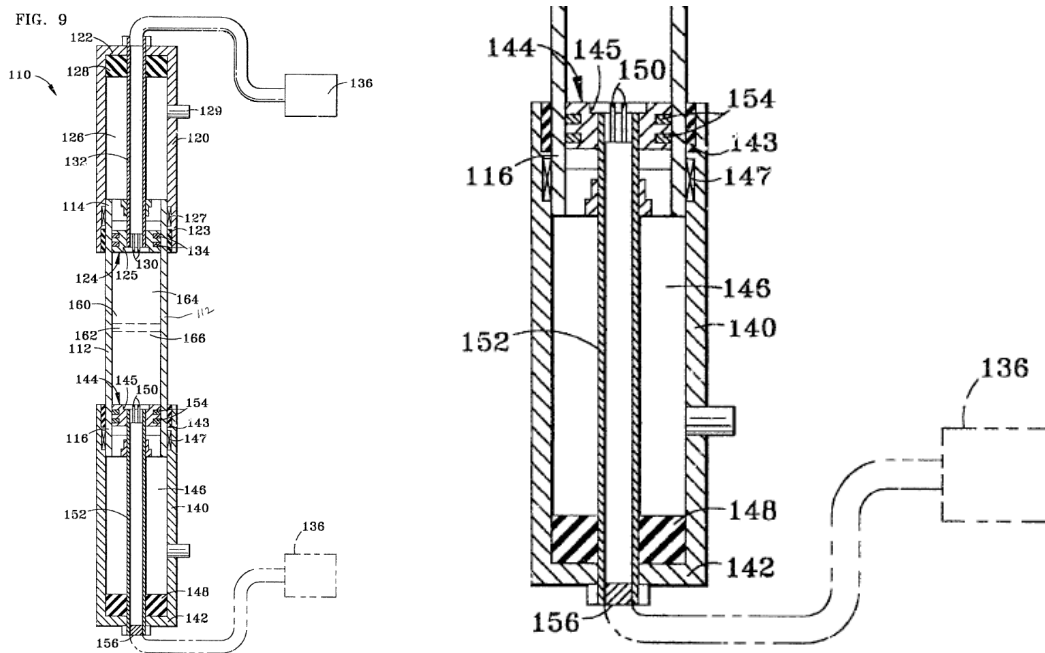
63. *Danter* discloses the use of an aluminum casting process for making portions of a fork tube. *See, e.g.*, Ex. 1107, [0011], [0018]. *Danter* states that POSITAs preferred such a casting process. Ex. 1107, [0011], [0018]. Further, *Danter* discloses that the casting process may include the formation of features formed on and attached to the cast fork tubes. *See, e.g.*, Ex. 1107, FIGS. 8-14;

[0013], [0015], [0017]. Casting using a die is very well-known and widely utilized in manufacturing bicycle and motorcycle forks, including suspension forks.

United States Patent No. 6,371,263 B1 (“Hoose”)

64. United States Patent No. 6,371,263 B1 to Hoose (“*Hoose*”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on October 20, 1999 and issued on April 16, 2002. Ex. 1108.

65. *Hoose* discloses “a two-wheeled vehicle suspension having two shock absorbing systems independently operable between a two-wheeled vehicle’s frame and wheel.” Ex. 1108, 1:13-15. The two-wheeled vehicle may be at least a bicycle or a motorcycle, and may be used for either a front suspension fork or a rear suspension. Ex. 1108, 3:12-20. *Hoose*’s Figure 9 provides some details of an embodiment of *Hoose*’s suspension fork **110**:



Ex. 1108, FIG. 9.

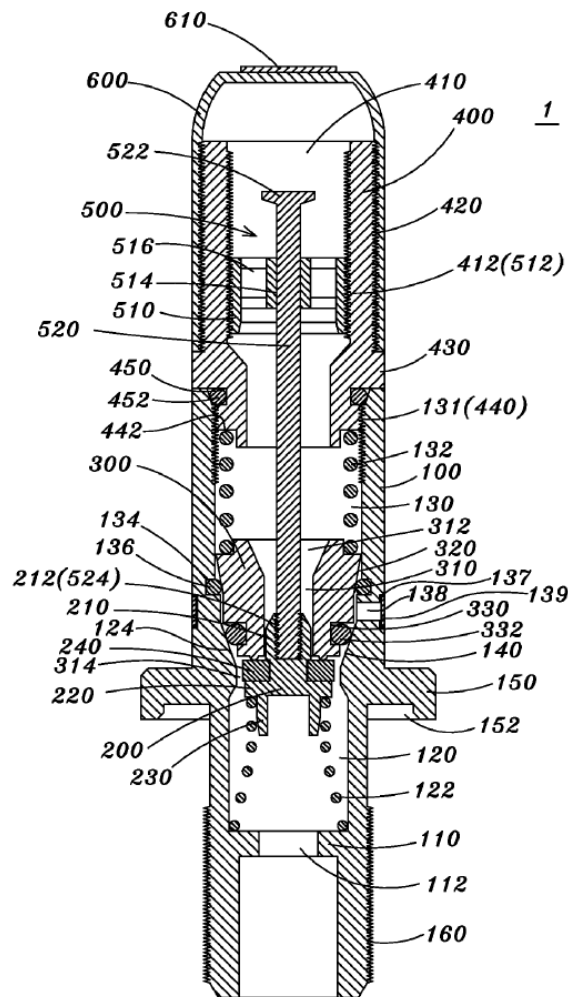
66. As can be seen above in Figure 9, *Hoose's* suspension fork **110** includes a shock tube **112** that is an upper fork to the housing **140**, which is a lower fork. The upper tube **112** moves telescopically within the lower fork **140**. Ex. 1108, 5:63-6:10. A seal **143** is located at one end of the lower fork **140**, adjacent to a bearing **147**, which bearing **147** is a bushing. Ex. 1108, 5:63-6:10. A valve **129** may be used to pressurize or depressurize the shock chamber **146** created between the inner upper fork **112** and the outer lower fork **140**. Ex. 1108, 6:21-25. Along with a gas for pressurization, *Hoose's* shock chamber **146** may include an oil bath. Additionally, a stem portion **152** that extends through the shock chamber **146** may be filled with an oil. Ex. 1108, 6:21-25, 6:51-7:4. When *Hoose's* valve **129** is opened, the shock

chamber **146** will be in fluid communication with the ambient air, and the gas pressure within the shock chamber **146** will equalize with the ambient air pressure.

United States Patent No. 7,624,752 B2 (“Huang”)

67. United States Patent No. 7,624,752 B2 to Huang (“*Huang*”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on November 22, 2006, and issued on December 1, 2009. Ex. 1109.

68. *Huang* discloses an air valve **1** having components that “automatically releases surplus high-pressure air when an object is excessively inflated via the inflation valve.” Ex. 1109, 1:12–19. The valve **1** includes a first valve body **200** holding an airtight washer **240** that seals against a seat of a second valve body **300**. Ex. 1109, 1:59-69, FIGS. 2, 3A. A central pin **520** is connected at one end to the second valve body **300** and at the other end to a diametrically expanded head portion **522**, which portion is a button that may actuate the valve **1**. Ex. 1109, 6:10-17, FIGS. 2, 3A.



United States Patent No. 4,145,067 (“Ceriani”)

69. United States Patent No. 4,145,067 to Ceriani (“*Ceriani*”) is prior art under pre-AIA 35 U.S.C. § 102(b), having been filed on July 1, 1976 and issued on March 20, 1979. Ex. 1110.

70. *Ceriani* discloses the fork recited in the claims of the ‘331 patent. In particular, *Ceriani* relates to an “improved suspension system ... of a fork for a

motor vehicle, such as a motorcycle as shown in FIG. 5[,]” which is shown below.

Ex. 1110, 1:66-68.

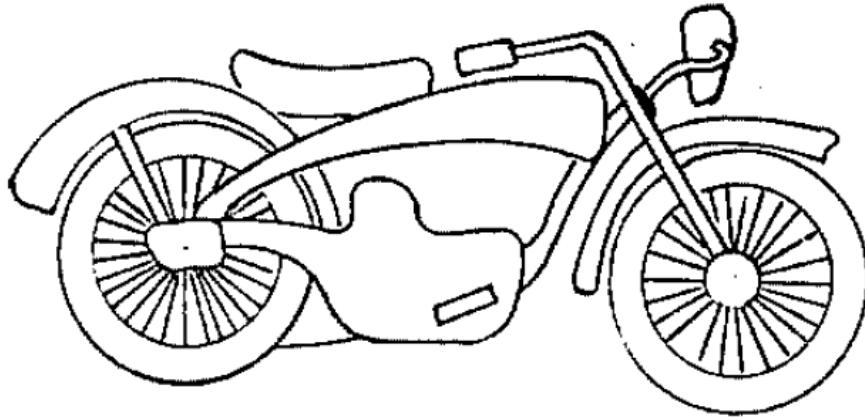


FIG. 5

Ex. 1110, FIG. 5.

71. *Ceriani's* suspension fork includes two tubular outer bodies **4** (blue in the figures below) that may slide telescopically with two tubular inner bodies **3** (pink), which inner bodies **3** are positioned above the outer bodies **4**, as shown in Figures 1 and 2, below. A sleeve **8** (purple) provides a seal between the outer bodies **4** and inner bodies **3**.

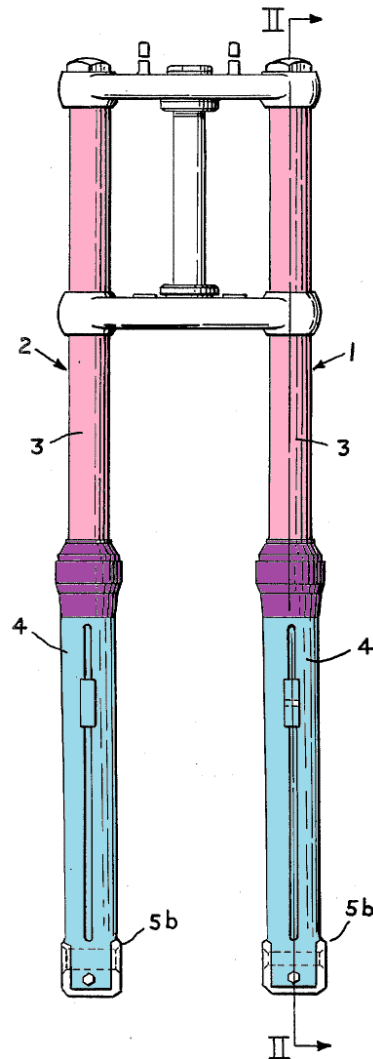


FIG. 1

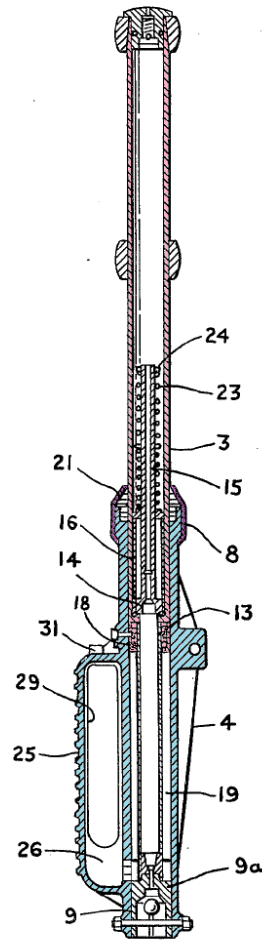


FIG. 2

72. *Ceriani's* Figure 3 provides a closer look at the area around the lower leg seal **8**. In particular, *Ceriani* further includes a ring **7** and another seal **6**, each formed adjacent to the lower leg seal **8** at the second end **5a** of each outer body **4**. A POSITA would understand that the ring **7** may serve as a bushing to maintain the positioning of the outer bodies **4** and inner bodies **3** during telescopic movement.

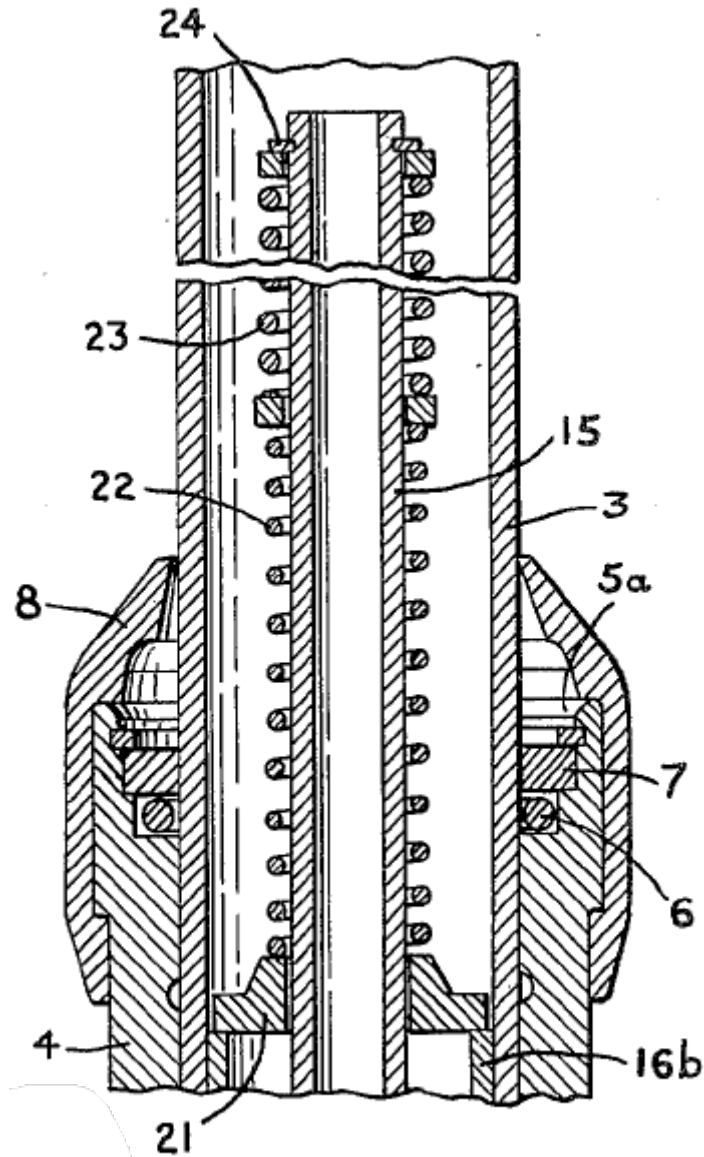


FIG. 3

73. *Ceriani's* Figure 4 provides a closer look at *Ceriani's* damper system. Specifically, a piston **16a** incorporated into the inner body **3** "is movable axially in a cylindrical annular chamber or piston chamber **19** formed by the tubular outer body **4** and by the tube **13** therein." Ex. 1110, 2:31-37. The piston chamber **19** is in fluid

communication with an expansion chamber **26** that includes a pocket **29**, which pocket **29** may be “filled with fluid under pressure (for example, air, inert gases and the like).” Ex. 1110, 3:3-6. The piston chamber **19** is filled with an oil when fully assembled and before the pocket **29** is filled with a pressurized fluid. Ex. 1110, 3:13-17.

74. A screw (red arrow) may be used to fill the piston chamber **19** with oil, and to allow any gas within the piston chamber **19** be in fluid communication with the ambient air, thereby acting as an air bleed assembly. Thus, whenever the fork is assembled, and the screw (red arrow) is sufficiently loosened, any gas pressure within the piston chamber **19** will be equalized with the ambient air pressure.



FIG. 4

75. In addition, *Ceriani* includes an alternate air bleed assembly including a fluid passage **30** that connects and adjustable pressure relief valve **35** and a pressure

regulating valve **31** to the pocket **29**. These valves **35, 31** allow the pocket **29** to be filled to a desired pressure and to provide pressure relief at a pressure value set by the user. Ex. 1110, 3:9-13, 3:61-4:7.

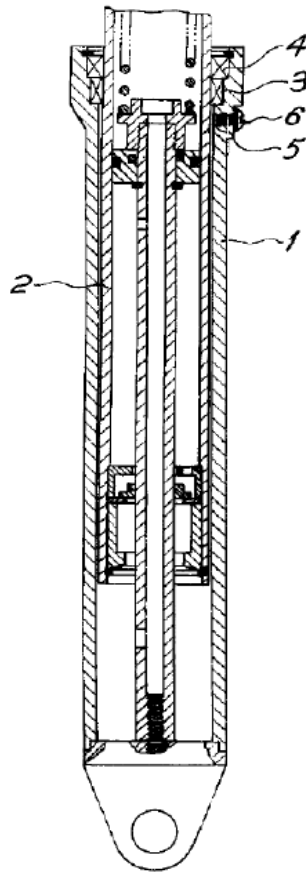
Motivation to Combine

1. *Kashima* and *Bruckbauer*

76. Combining *Kashima* and *Bruckbauer* is straightforward: a POSITA would modify *Kashima*'s typical suspension fork to substitute *Bruckbauer*'s pressure relief system for *Kashima*'s setscrew **6** and oil seal **7**.

77. As discussed above, *Kashima* discloses a typical suspension fork embodiment shown in Figure 1, wherein *Kashima*'s suspension fork includes lower tubes **1** and upper tubes **2**:

Fig. 1



Ex. 1105, FIG. 1.

78. Gas within *Kashima's* outer tube **1** may be purged by filling the outer tube **1** mostly with oil and then depressing the inner tube **2** into the outer tube **1**. Once oil begins to run from the threaded hole **5**, it may then be capped with a setscrew **6** that carries an oil seal **7**, thereby sealing in the oil within that space.

Ex. 1105, FIG. 1.

79. The same functionality may be provided by *Bruckbauer's* pressure relief valve **10**. In fact, *Bruckbauer's* pressure relief valve **10** may be directly screwed into *Kashima's* threaded hole **5**, as *Bruckbauer* is intended to replace prior

art screws that were previously used for purging fluids through holes in suspension forks. Ex. 1106, 1:38-47, 2:14-20. The advantages of such a substitution are centered around the convenience of a push-button device that requires no tools, as well as *Bruckbauer's* pressure relief valve's **10** ability to remain free of contamination during use. See Ex. 1106, 1:38-47, 2:14-20.

80. When substituted into *Kashima's* threaded hole **5**, *Bruckbauer's* pressure relief valve **10** allows the user to equalize any pressure built up between the outer tube **1** and the inner tube **2** during assembly or maintenance by merely pressing *Bruckbauer's* cap **36**.

81. Accordingly, the combination of *Kashima* and *Bruckbauer* would merely be the combination of known prior art elements (*Kashima's* typical vehicle suspension fork and *Bruckbauer's* known pressure relief valve **10**) according to known methods (*Bruckbauer's* known pressure relief valve **10** may directly screw into *Kashima's* threaded hole **5**). Further, the combination of *Kashima* and *Bruckbauer* would merely be a simple substitution of one known element (*Bruckbauer's* known pressure relief valve **10**) for another (*Kashima's* setscrew **6** and oil seal **7**). In each of these two cases, a POSITA would expect the combination to yield and obtain easily predictable results (that *Bruckbauer's* pressure relief valve **10** would allow for push-button opening and closing of the threaded hole **5**), at least

because each element in the combination is being incorporated and used as intended.

Ex. 1106, FIG. 1.

2. *Kashima* or *Kashima/Bruckbauer* in view of *Danter*

82. The combination relied upon in this Petition—*Kashima* and *Danter* (and optionally *Bruckbauer*)—is straightforward: a POSITA would modify *Kashima*'s typical lower fork **1** to incorporate *Danter*'s method of forming “leg portions of the front suspension fork member” using a “cast[ing process] from a suitable metal such as steel or aluminum alloy[.]” Ex. 1107, 4:18-20. A POSITA would have been motivated to improve *Kashima* (or *Kashima* in view of *Bruckbauer*) by using *Danter*'s casting process at least because casting was a common and known technique; forks were known devices; and it was predictable that fork legs could be made via casting. Further, it would have been obvious to try casting *Kashima*'s lower fork **1**. Finally, a POSITA would have been motivated to use die-casting to benefit from the reliability and low-costs associated with such methods.

3. *Hoose* and *Huang*

83. Combining *Hoose* and *Huang* is straightforward: a POSITA would modify *Hoose* to substitute and improve *Hoose*'s air valve **129** with *Huang*'s air valve **1**. Ex. 1109, FIGS. 2, 3A. A POSITA would have been motivated to make this simple substitution at least because *Huang*'s valve **1** is well-known, relatively

inexpensive, and easily operated with manual inputs. Ex. 1109. And the simple substitution of known elements would have been predictable, as it would have only required screwing in the body of *Huang's* valve **1** into the existing die-cast feature of *Hoose*. Further, a POSITA would have been motivated to improve *Hoose* by using *Huang's* air valve **1** at least because *Huang's* air valve **1** would allow for more convenient air insertion into *Hoose*, when needed.

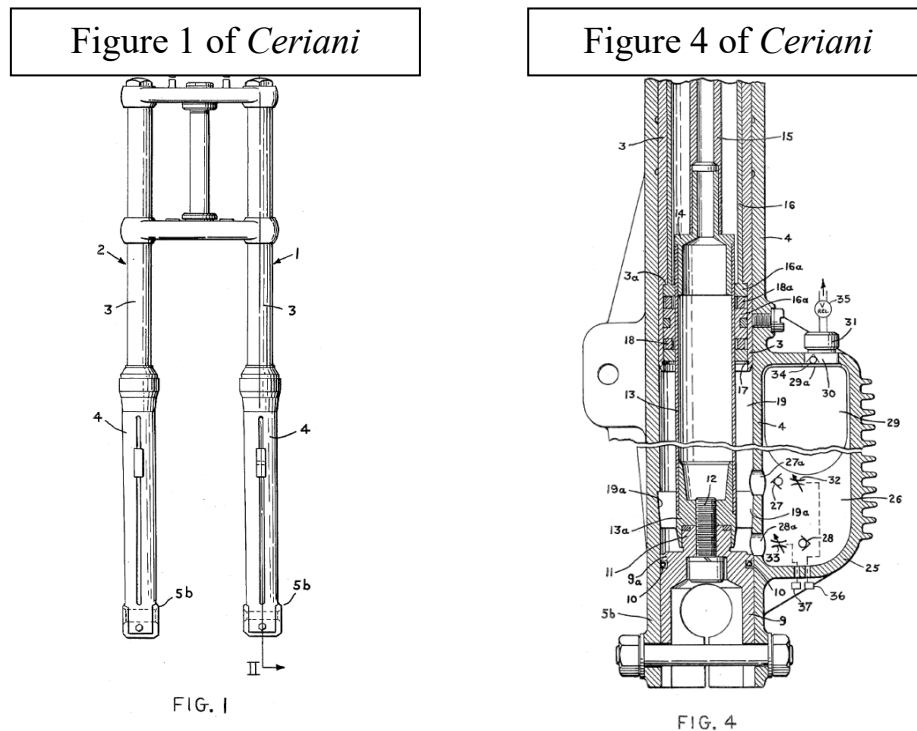
4. *Hoose/Huang* in view of *Danter*

84. The combination relied upon in this Petition—*Hoose* in view of *Huang* and *Danter*—is straightforward: a POSITA would modify *Hoose's* typical lower fork **140** to incorporate *Danter's* method of forming “leg portions of the front suspension fork member” using a “cast[ing process] from a suitable metal such as steel or aluminum alloy[.]” Ex. 1107, 4:18-20. A POSITA would have been motivated to improve *Hoose* in view of *Huang* by using *Danter's* casting process at least because casting was a common and known technique; forks were known devices; and it was predictable that fork legs could be made via casting. Further, it would have been obvious to try casting *Hoose's* lower fork **140**. Finally, a POSITA would have been motivated to use die-casting to benefit from the reliability and low-costs associated with such methods.

5. *Ceriani and Bruckbauer*

85. Combining *Ceriani* and *Bruckbauer* is straightforward: a POSITA would modify *Ceriani*'s typical suspension fork to incorporate *Bruckbauer*'s pressure relief system at a point along the length of the lower fork **4** of *Ceriani*'s suspension fork.

86. As discussed above, *Ceriani* discloses a typical suspension fork embodiment shown in Figures 1 and 4, wherein the suspension fork includes right and left lower tubes **4** and right and left upper tubes **3**:



Ex. 1110, FIGS. 1, 4.

87. As can be seen in its figures, *Ceriani*'s suspension fork construction sets the lower tubes **4** as the outer tubes and the upper tubes **3** as the inner tubes of

the telescoping suspension fork. *See, e.g.*, Ex. 1110, 1:65–2:4, FIGS. 1, 3, 4. *Ceriani's* damper assembly includes a piston **16a**, a piston chamber **19**, a pair of one-way valves **27**, **28**, and a pocket **29** that may provide a deformable source of rebound pressure. Each of these damper components are formed in the lower tubes **4** of the suspension fork **34**, which tubes are outer tubes. *See, e.g.*, Ex. 1110, 2:34-3:17, FIGS. 1, 3, 4.

88. *Ceriani* includes two separate spaces that may include a source of gas pressure relevant here: any gas within the piston chamber **19** (red highlight) and the compressible fluid within the pocket **29** (purple highlight).

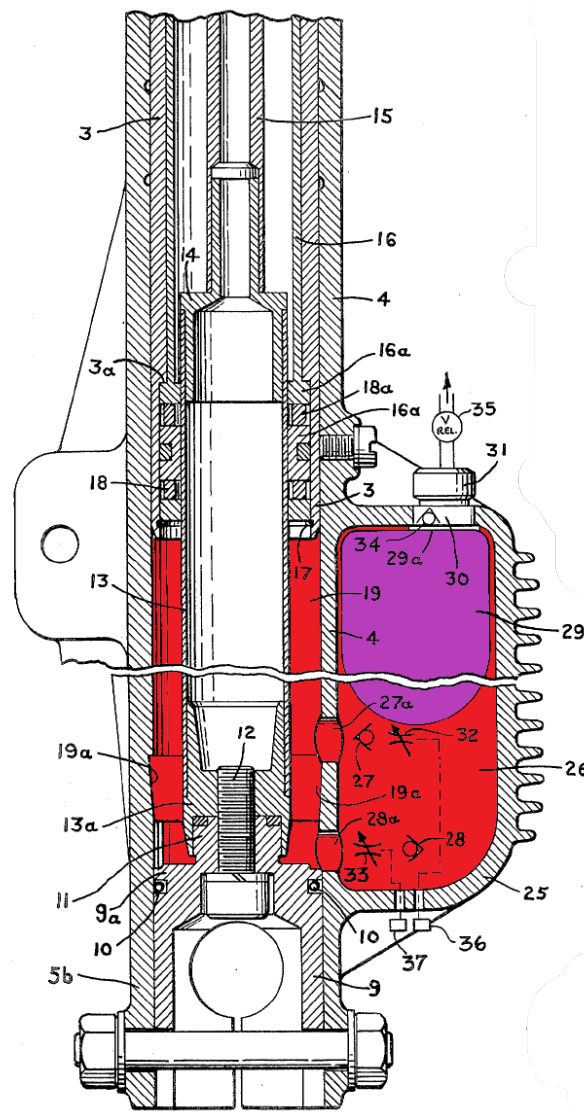


FIG. 4

Ex. 1110, FIG. 4.

89. A POSITA would have been motivated to add *Bruckbauer's* pressure relief system to a portion of *Ceriani's* lower tubes 4 at two different points to reach these two areas of known, trapped gases: (1) at the screw to vent the piston chamber 19, 19a and (2) at the valves 31, 35 to vent the pocket 29. By adding a means for

manual venting of these regions of pressure, pressure of any gas trapped within the the piston chamber **19**, **19a** or the pocket **29** may be equalized with ambient pressure.

90. For the substitution of *Ceriani's* screw with *Bruckbauer's* push-button pressure relief valve **10**, *Bruckbauer* explains that its push-button pressure relief valve **10** “can be used in place of the pressure relief plug or screw” that is often found in forks. In fact, *Bruckbauer's* push-button pressure relief valve **10** could be incorporated by merely screwing it into the threads already provided for the screw. Such a substitution would allow for the purging of any air left within the piston chamber **19** when the shock is being filled with oil, and would allow for an internal gas to be equalized with the ambient air pressure when the fork is being maintained. For example, pressure within the piston chamber **19** may be equalized before the air is purged from the piston chamber **19** via the pocket **29**.

91. Similarly, the substitution of *Ceriani's* valves **31**, **35** with *Bruckbauer's* push-button pressure relief valve **10** would be equally trivial. In this case, *Bruckbauer's* push-button pressure relief valve **10** could be directly screwed into the passage **30**, or a portion thereof, to facilitate manual and on-the-fly adjustments of the gas pressure within the pocket **29**. Further, the gas within the pocket **29** may be equalized with the ambient air pressure before the fork is broken down for maintenance. Such an equalization is necessary to safely, and cleanly, disassemble the suspension fork. For at least the reasons discussed above, a POSITA would have

been motivated to substitute (A) *Ceriani's* screw and (B) *Ceriani's* valves **31, 35** with *Bruckbauer's* push-button pressure relief valve **10**.

6. *Ceriani* (or *Ceriani* and *Bruckbauer*) in view of *Danter*

92. The combination relied upon in this Petition— *Ceriani* (alone or in view of *Bruckbauer*) and *Danter*—is straightforward: a POSITA would modify *Ceriani's* typical lower fork **4** to incorporate *Danter's* method of forming “leg portions of the front suspension fork member” using a “cast[ing process] from a suitable metal such as steel or aluminum alloy[.]” Ex. 1107, 4:18-20. A POSITA would have been motivated to improve *Ceriani* (alone or in view of *Bruckbauer*) by using *Danter's* casting process at least because casting was a common and known technique; forks were known devices; and it was predictable that fork legs could be made via casting. Further, it would have been obvious to try casting *Ceriani's* lower fork **4**. Finally, a POSITA would have been motivated to use die-casting to benefit from the reliability and low-costs associated with such methods.

**CLAIM-BY-CLAIM EXPLANATION OF WHY THE CLAIMS OF THE ‘331
PATENT ARE INVALID IN VIEW OF NEWLY CITED PRIOR ART
REFERENCES**

**Ground I: Claims 1 Through 3 and 5 are Anticipated under 35 U.S.C. § 102 by
Japanese Patent No. JP S52-156051(U) to *Kashima***

Invalidity of Independent Claim 1

- Claim 1[pre]

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

93. *Kashima* discloses each and every element of this preamble. *Kashima* includes a lower fork **1** (orange arrow) including an air bleed assembly (purple). In particular, *Kashima* discloses an outer tube **1** including a threaded hole **5** formed therein, as well as a setscrew **6** with an oil seal **7** for closing the threaded hole **5**. Ex. 1105, FIG. 1.

Fig. 1

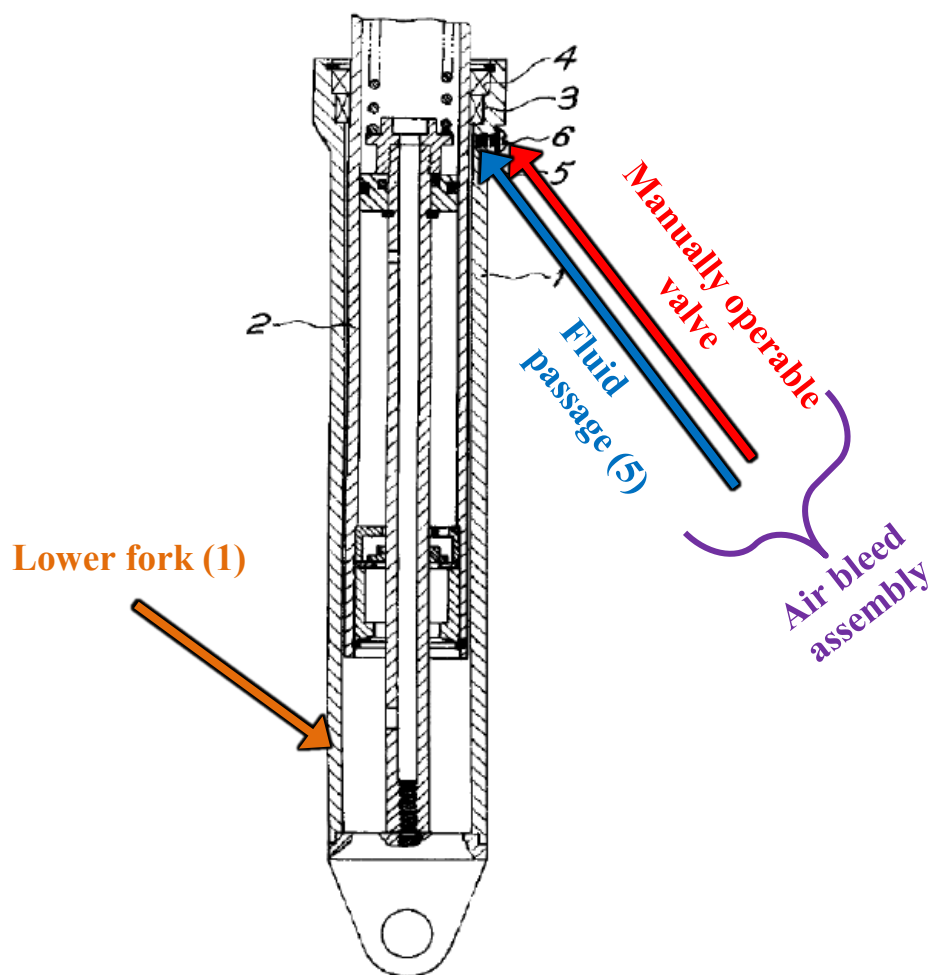
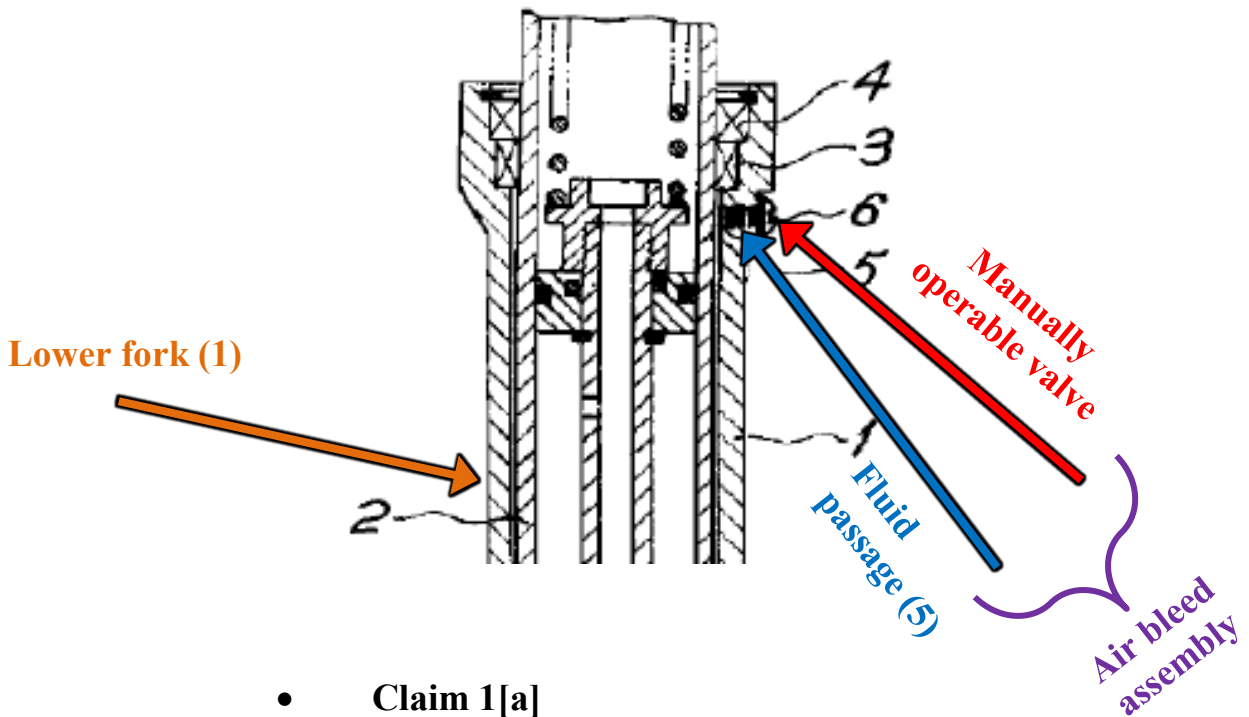


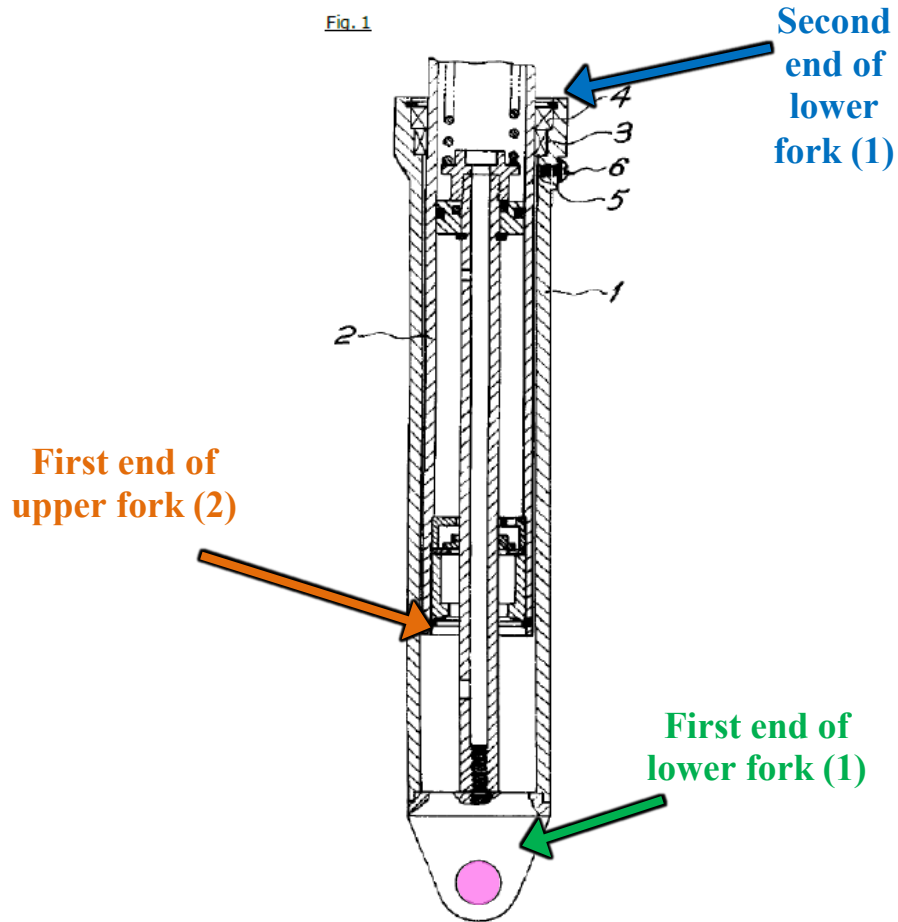
Fig. 1



Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

94. *Kashima* discloses each and every element of this limitation. *Kashima* includes a lower fork **1** configured to have a first end (green arrow) coupled to a vehicle wheel, and a second end (blue arrow) configured to be telescopically engaged with a first end (orange arrow) of an upper fork **2**. *Kashima*'s first end of

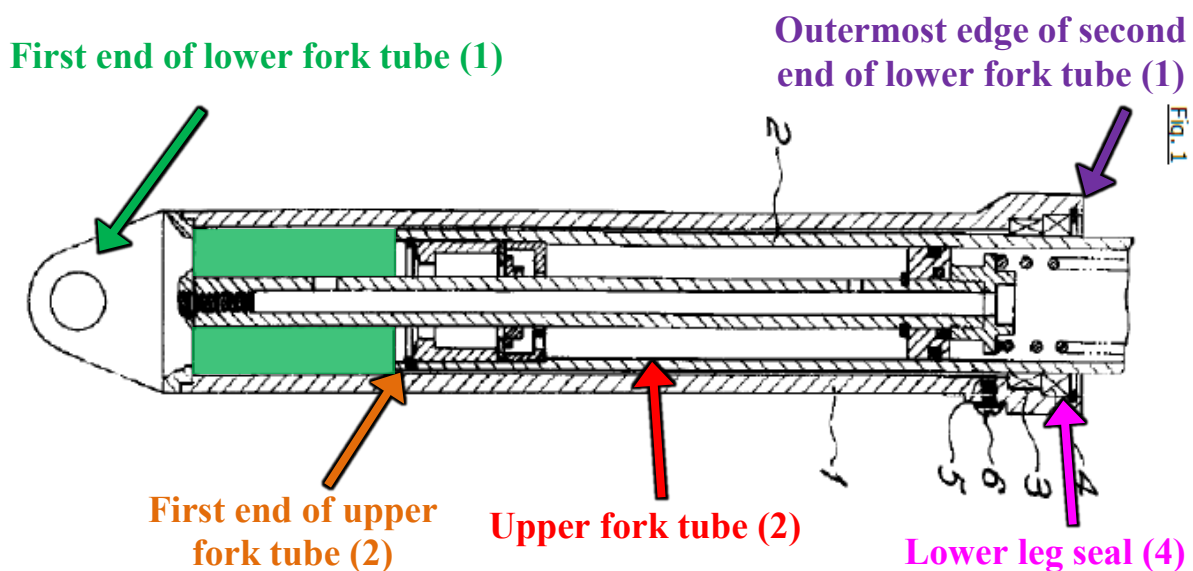
the lower fork **1** includes a hole (pink highlight) intended to facilitate attachment of an axle and a related wheel to the lower fork **1**. Ex. 1105, FIG. 1.



- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

95. *Kashima* discloses each and every element of this limitation. *Kashima* includes a lower leg seal 4 (pink arrow) located at an outermost edge of the second end (purple arrow) of the lower fork tube 1, the lower leg seal 4 configured for sealing closed a gap disposed between the upper fork tube 2 (red arrow) and the lower fork tube 1 when the lower fork 1 is telescopically engaged with the first end (orange arrow) of the upper fork 2, thereby preventing an oil bath lubrication occupying an area (green highlight) within the lower fork tube 1 at a first end (green arrow) of the lower fork tube 1 from leaking therefrom. *See, e.g.*, Ex. 1105, [01], [04]. *Kashima* further explains that the area (green highlight) within the lower tube 1 is to be filled with oil. *See, e.g.*, Ex. 1105, [01], [04], FIG. 1.

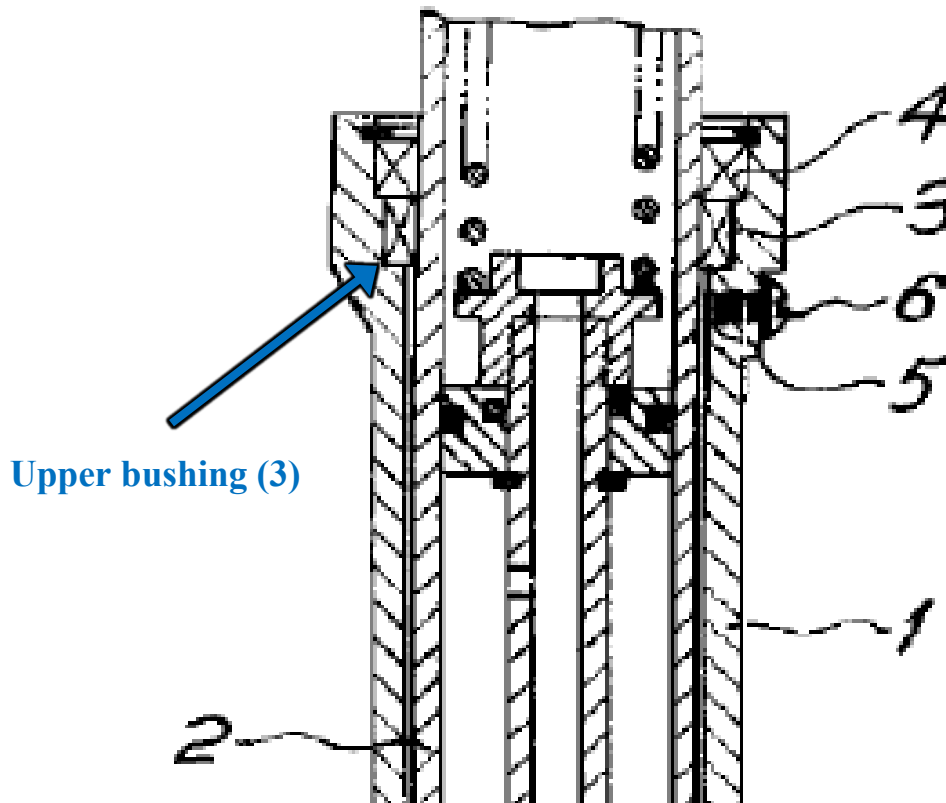


- **Claim 1[c]**

Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

96. *Kashima* discloses each and every element of this limitation. *Kashima* includes an upper bushing **3** (blue arrow) attached to and positioned adjacent to the lower leg seal **4**. In particular, *Kashima's* bearing **3** would be considered by a POSITA to be a bushing. Ex. 1105, FIG. 1.

Fig. 1

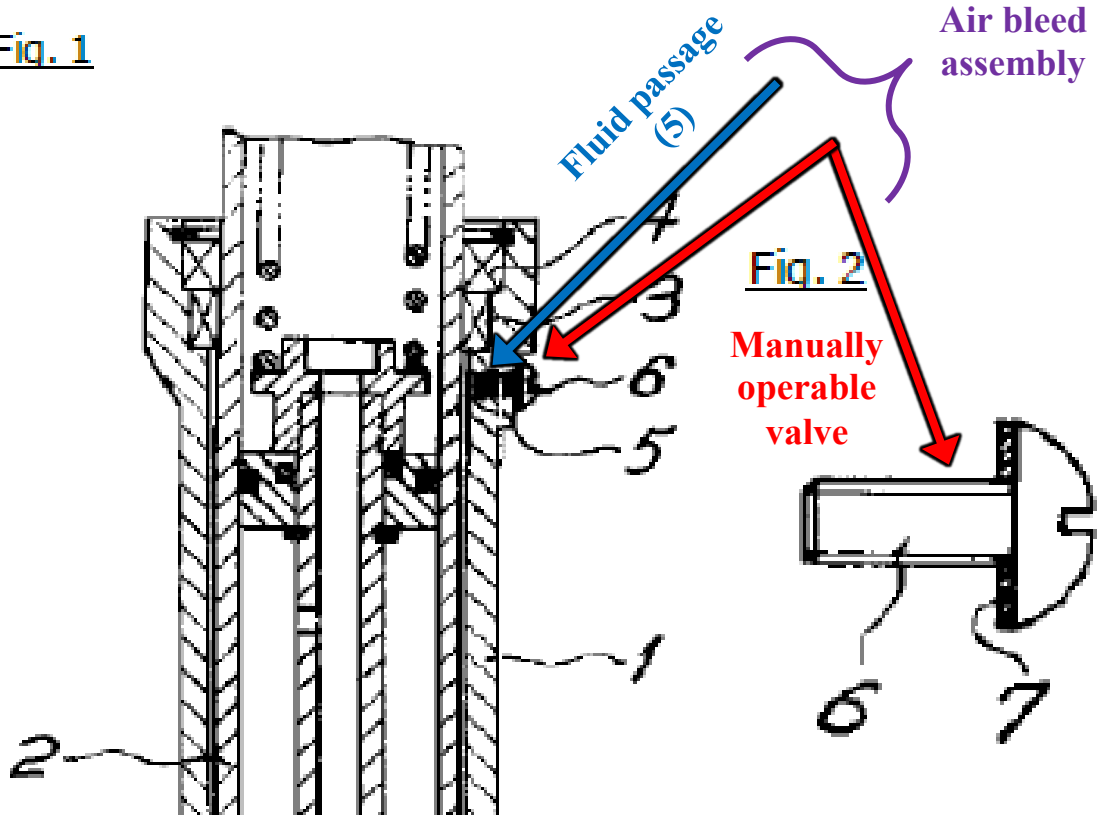


- **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

97. *Kashima* discloses each and every element of this limitation. *Kashima* includes an air bleed assembly **5, 6, 7** (purple bracket) disposed on the lower fork tube **1** that is configured for equalizing ambient pressure within the lower fork **1**. When *Kashima*'s manually operable valve **6, 7** is removed or sufficiently loosened, the air pressure within the lower fork **1** equalizes with the ambient air pressure. In particular, this equalization would occur during setup and maintenance of *Kashima*'s suspension fork because these periods always include gas within the lower fork **1**. Ex. 1105, FIGS. 1, 2.

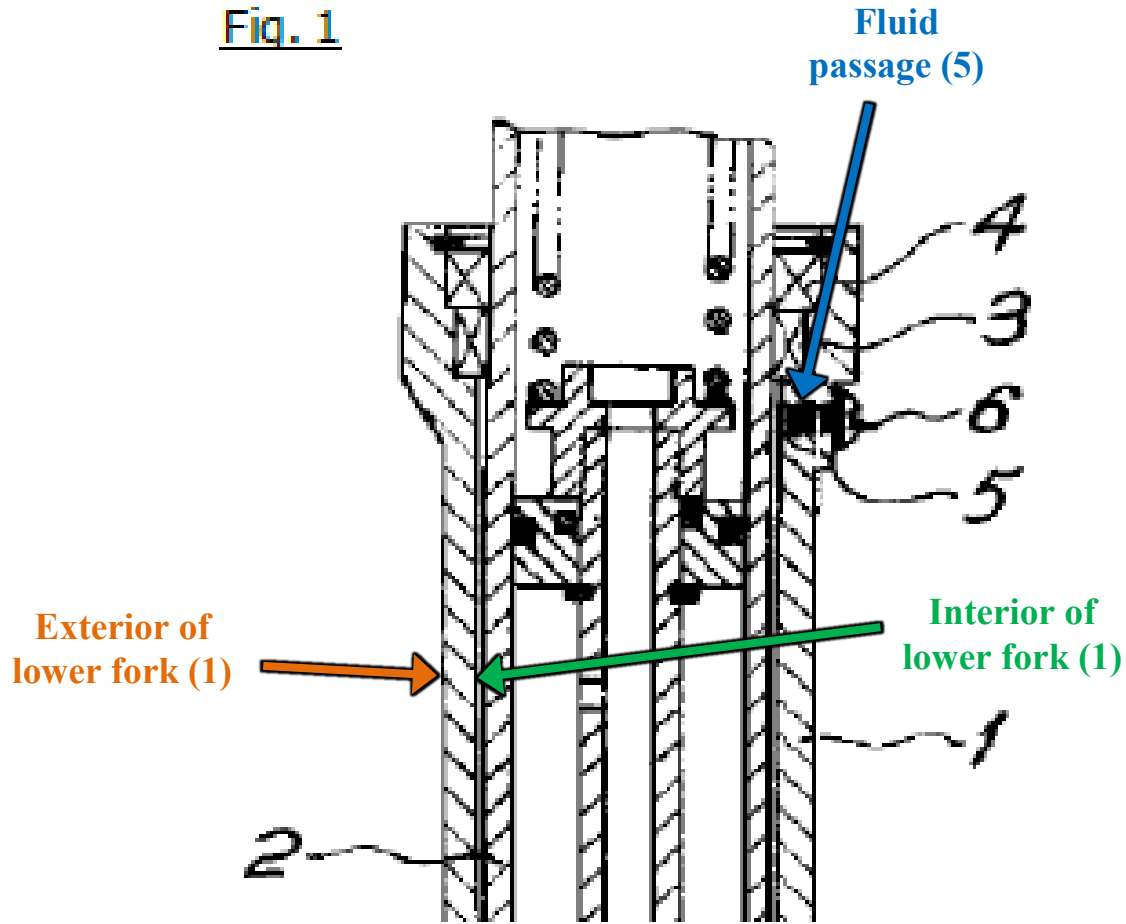
Fig. 1



• Claim 1[e]

Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

98. *Kashima* discloses each and every element of this limitation. *Kashima* includes a fluid passage **5** (blue arrow) disposed between an interior (green arrow) and an exterior (orange arrow) of the lower fork **1**. Ex. 1105, FIG. 1.

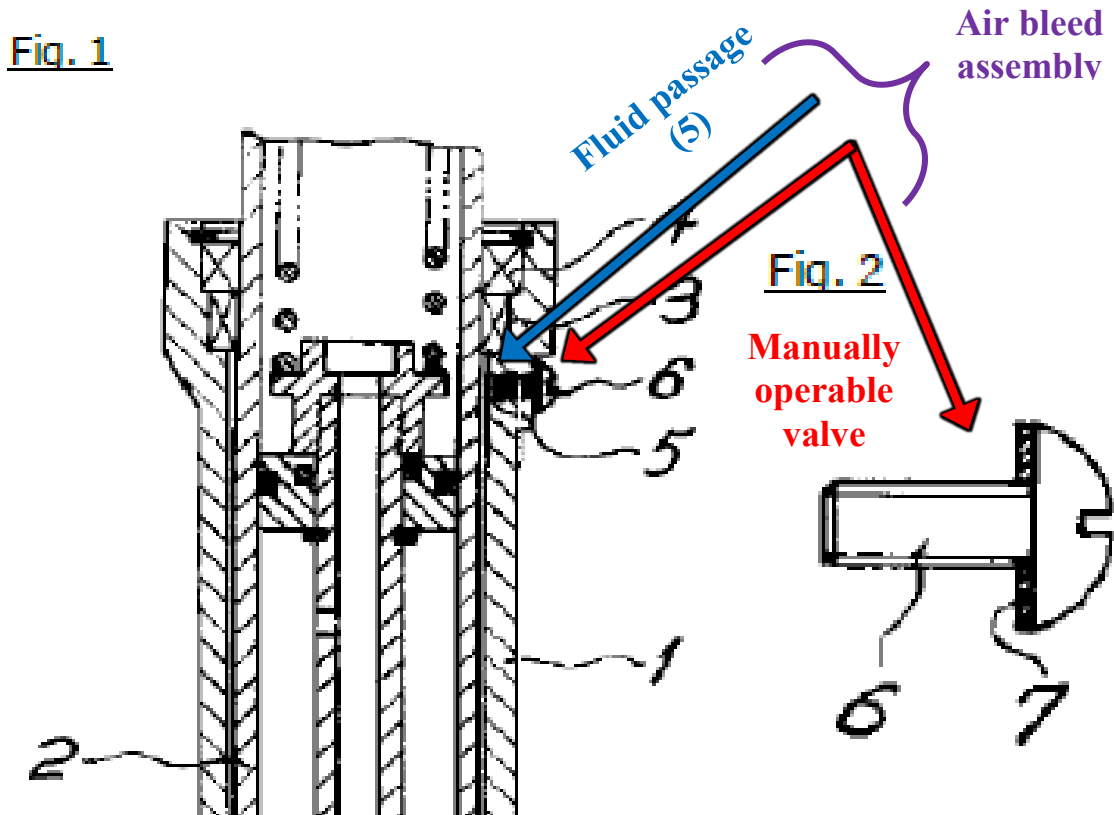


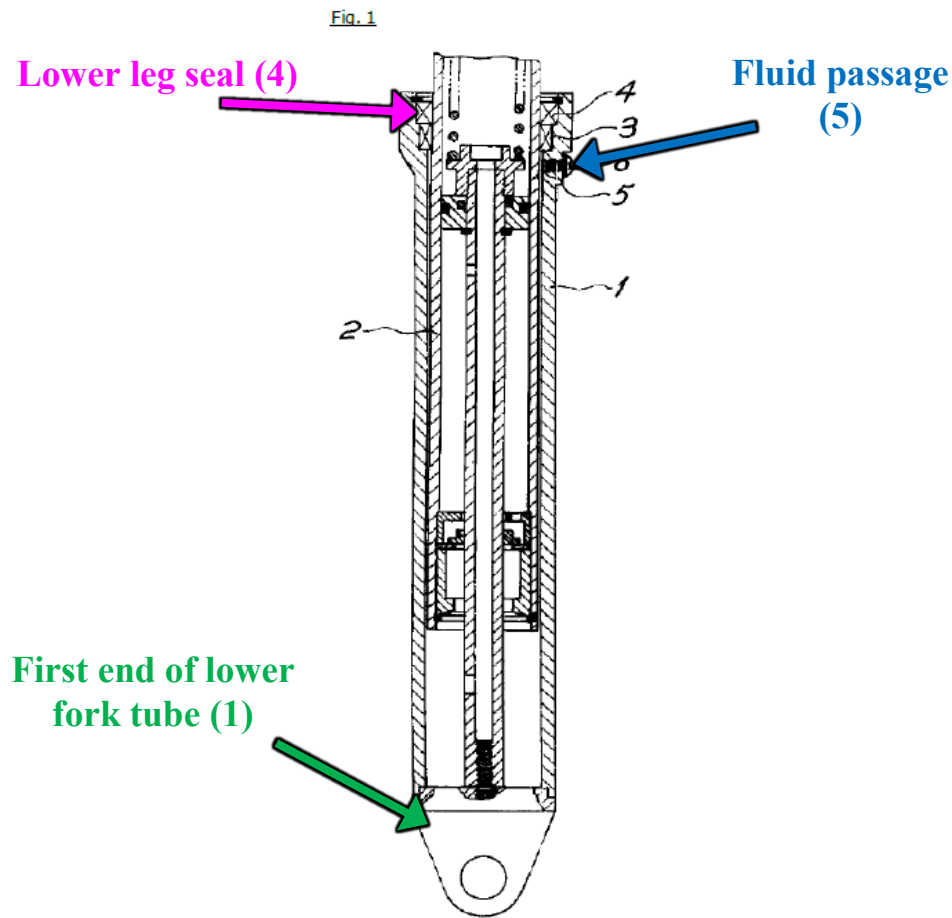
• **Claim 1[f]**

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

99. *Kashima* discloses each and every element of this limitation. *Kashima* includes a manually operable valve 6, 7 (red arrow) located in the lower fork 1 and

coupled to the fluid passage 5 (blue arrow). *Kashima's* manually operable valve 6, 7 has a first position substantially closing the fluid passage 5 and a second position allowing a fluid to flow between the interior and the exterior. Further, *Kashima* discloses the manually operable valve 6, 7 may be used to manually remove air from *Kashima's* lower fork 1. See, e.g., Ex. 1105, [01], [04], FIG. 1. *Kashima's* manually operable valve is disposed within a threaded hole 5 between the lower leg seal 4 and the first end of the lower fork 1. See, e.g., Ex. 1105, [01], [04], FIGS. 1, 2.





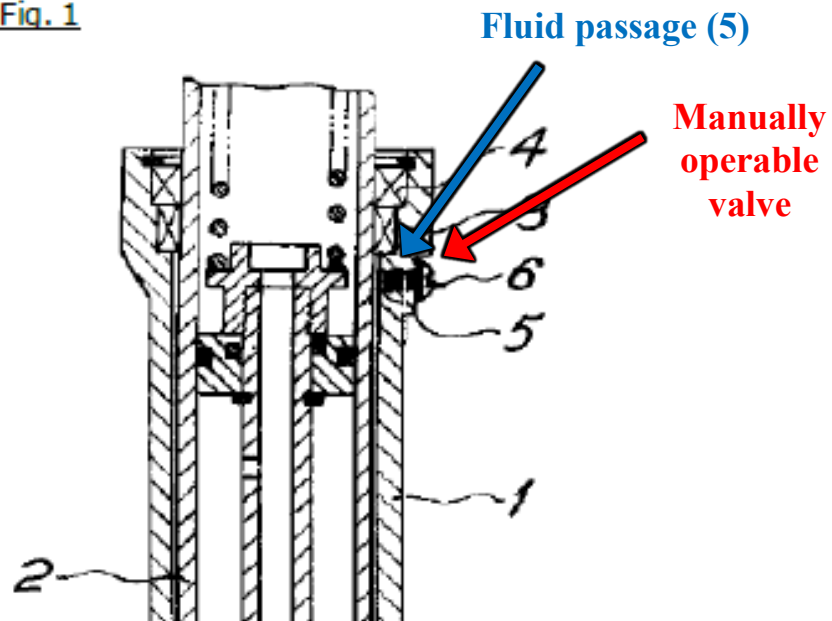
Ex. 1105, FIGS. 1, 2.

- **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

100. *Kashima* discloses each and every element of this limitation. *Kashima* includes a fluid passage **5** (blue arrow) and a manually operable valve **6, 7** (red arrow), which are located at a distance from an oil bath lubrication within the lower fork **1**. This positioning of the valve **6, 7** results in a configuration wherein, when the manually operable valve **6, 7** is in the second position, most, if not all of the oil bath lubrication remains within the lower fork **1** because the valve is near the top of the lower fork **1** and can be closed once oil begins to leak. Ex. 1105, [04]. Further, any air within the lower fork **1** will be equalized to ambient pressure when the valve **6, 7** is opened, while the vast majority of the oil will remain in the oil bath lubrication space within the lower fork **1**. In particular, the condition of having a distance between the oil bath lubrication to the fluid passage **5** occurs at least during setup and maintenance of *Kashima's* suspension fork because these periods always include at least some gas within the lower fork **1**. Ex. 1105, FIG. 1.

Fig. 1



Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

101. *Kashima* discloses each and every element of this limitation. *Kashima* includes the lower fork 1 and air bleed assembly combination of claim 1. *Kashima* further includes air flowing through the fluid passage 5, at least when the user allows air to enter into the fork 1 via the valve 6, 7. In particular, a gas may flow through the fluid passage 5 during setup and maintenance of *Kashima's* suspension fork because these periods always include gas within the lower fork 1. Ex. 1105, FIG. 1.

Invalidity of Dependent Claim 3

- **Claim 3[pre]**

Claim Element	Claim Language
3[pre]	The lower fork and air bleed assembly combination of claim 1, said air bleed assembly further comprising:

102. My opinions with respect to this claim element 3[pre] are the same as set forth for claim element 1[pre] above.

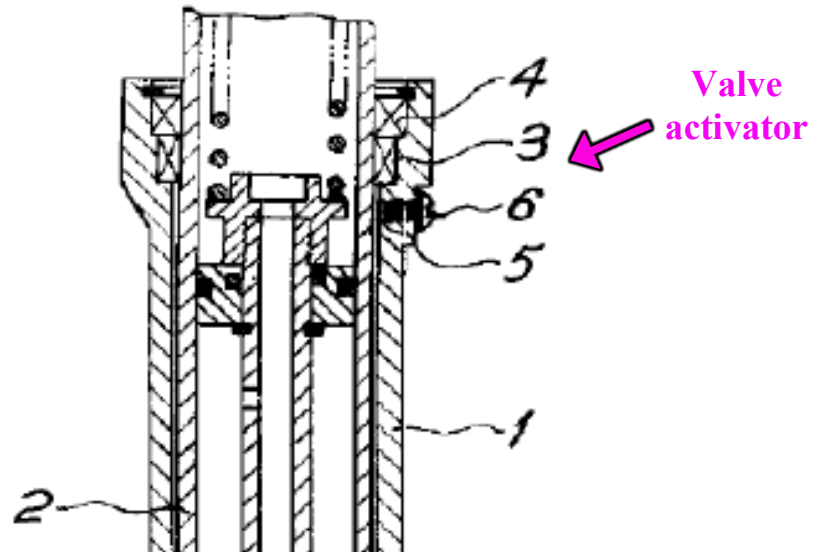
- **Claim 3[a]**

Claim Element	Claim Language
3[a]	a valve activator coupled with said manually operable valve, said valve activator comprising:

103. *Kashima* discloses each and every element of this limitation. *Kashima* includes a valve activator (pink arrow) coupled with the manually operable valve **6**, **7**. The valve activator is the portion of **6** for communicating force from a manual input to the threads of **6**. In particular, *Kashima* includes an internal valley within the semi-domed head portions of the setscrew **6**, which internal valley may be used for communicating force from a manual input to the threaded portions of the setscrew **6** and thereby causing the oil seal **7** of the manually operable valve **6**, **7** to

press into the lower fork **1**. Ex. 1105, FIGS. 1, 2. Alternatively, the threads of the setscrew **6** can be considered the valve activator, as identified by the Examiner during the prosecution of the '331 patent. Ex. 1104, 88 (identifying *Galasso's* (Ex. 1112) threads of 214, 314, 414, or pin of Schrader-type 470 as the valve activator).

Fig. 1



- **Claim 3[b]**

Claim Element	Claim Language
3[b]	an activation position placing said manually operable valve into said first position; and

104. *Kashima* discloses each and every element of this limitation. *Kashima* includes a valve activator (discussed above in claim 3(a)) that includes an activation

position where the manually operable valve **6, 7** is in an open position.² In particular, the valve activator is in an open position when the setscrew **6** is sufficiently loosened.

Ex. 1105, FIGS. 1, 2.

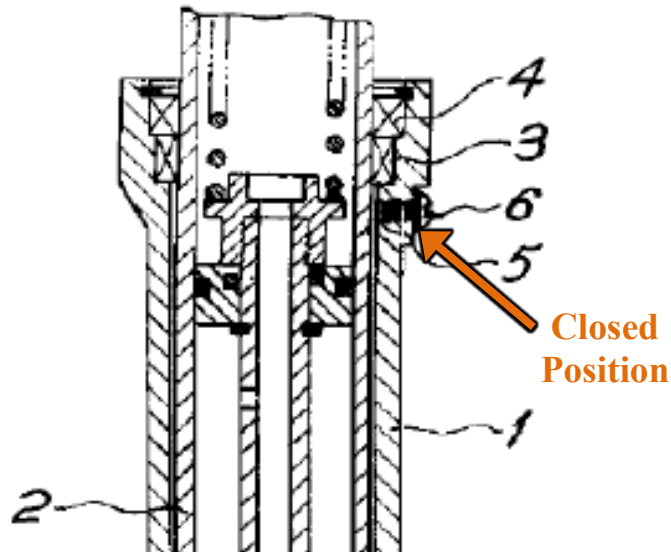
- **Claim 3[c]**

Claim Element	Claim Language
3[c]	a deactivation position placing said manually operable valve into said second position, and whereupon when in said activation position, the trapped air pressure in said lower fork is equalized with the local ambient air pressure.

² Additionally, in claims 1 and 3 of the ‘331 patent, the term “activation position” conflates the first and second positions between, in that claim 1 requires the first position to be the closed position, whereas claim 3 requires that the activation position be both the first (closed) position and an open position where fluid may flow around the valve. As a result, claim 3 is irreconcilably indefinite. Because this indefiniteness issue cannot be addressed here, I have Fox’s mapping and proposed rewriting of the claims. Ex. 1113, 35-37; Ex. 1114, 37-39; Ex. 1115, 4-6.

105. *Kashima* discloses each and every element of this limitation. *Kashima* includes a valve activator that includes a deactivation position where the manually operable valve 6, 7 is in a closed position (orange arrow), as shown in *Kashima*'s FIG. 1. In particular, the valve activator is in a closed position (orange arrow) when the setscrew 6 is sufficiently tightened into the threaded hole 5. Ex. 1105, FIG. 1.

Fig. 1



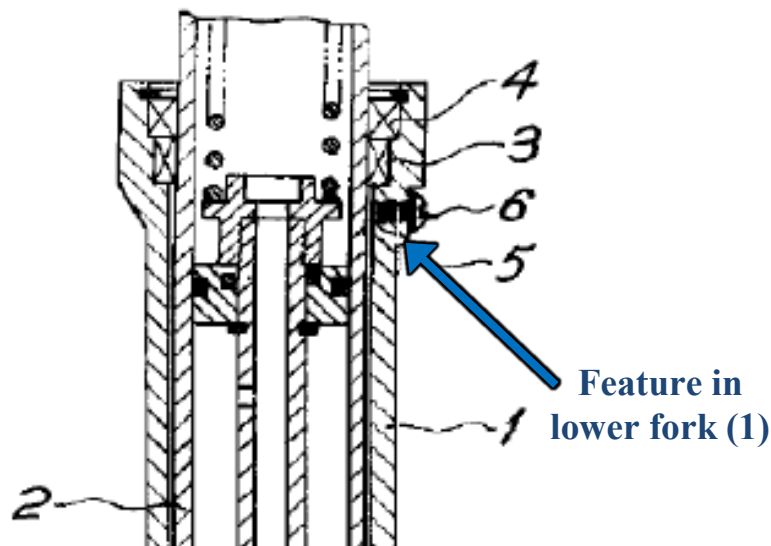
Invalidity of Dependent Claim 5

Claim Element	Claim Language
5	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator is located on a die-cast feature of said lower fork.

106. *Kashima* discloses each and every element of this limitation. *Kashima* includes the lower fork and air bleed assembly combination of claim 3. Further,

Kashima includes a manually operable valve **6, 7** fixed into a passage **5** through the body of *Kashima*'s lower fork **1**, which passage **5** is formed on a die-cast feature (blue arrow) in *Kashima*'s lower fork **1**. Ex. 1105, FIG. 1. In any case, the structures of *Kashima*'s lower fork **1** do not differ from those made by die-casting. See Ex. 1105, FIG. 1.

Fig. 1



Ground II: Claims 1 through 8 are Rendered Obvious by *Kashima* in view of *Bruckbauer*, and Further in view of *Danter*

Invalidity of Independent Claim 1

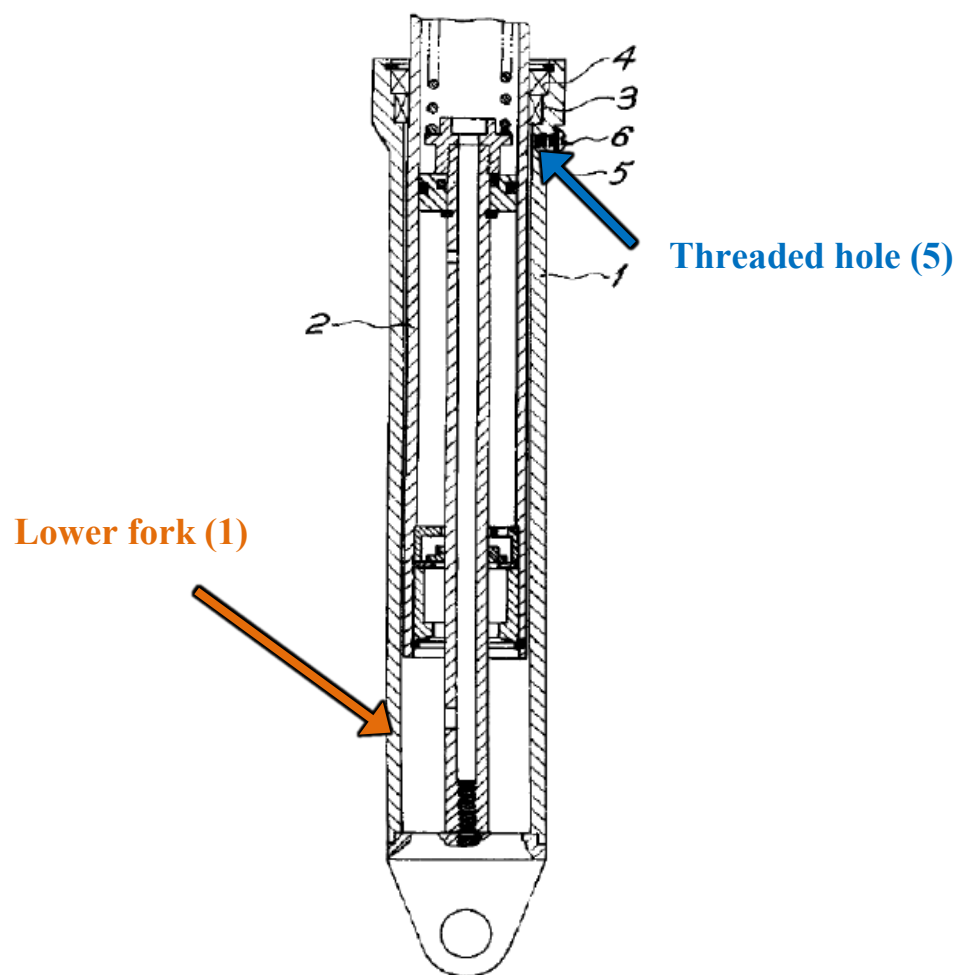
107. *Kashima* discloses all of the elements of Claim 1 in the combination of *Kashima* and *Bruckbauer*, except that *Kashima*'s setscrew **6** and oil seal **7** are substituted with *Bruckbauer*'s pressure relief valve **10**. Ex. 1105, FIG. 1.

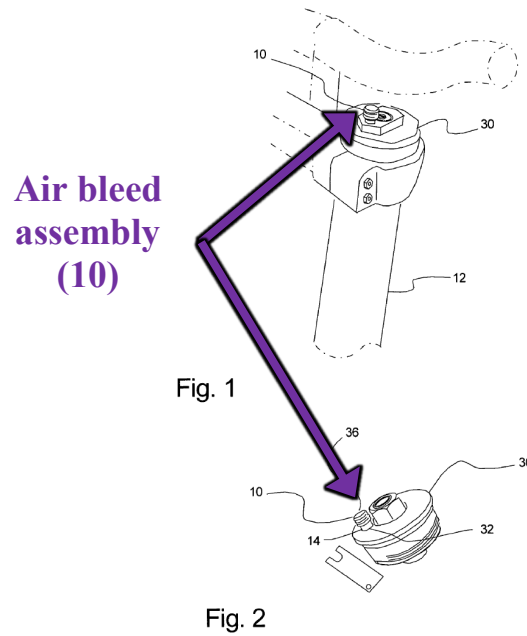
• **Claim 1[pre]**

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

108. *Kashima* in view of *Bruckbauer* discloses each and every element of this preamble. *Kashima* discloses a lower fork **1**, and *Bruckbauer* discloses an air bleed assembly **10** (with *Kashima*'s threaded hole **5**). Ex. 1105, FIG. 1; Ex. 1106, FIGS. 1-4.

Fig. 1





- **Claim 1[a]**

Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

109. *Kashima* discloses each and every element of this limitation, as discussed above.

- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

110. *Kashima* discloses each and every element of this limitation, as discussed above.

- **Claim 1[c]**

Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

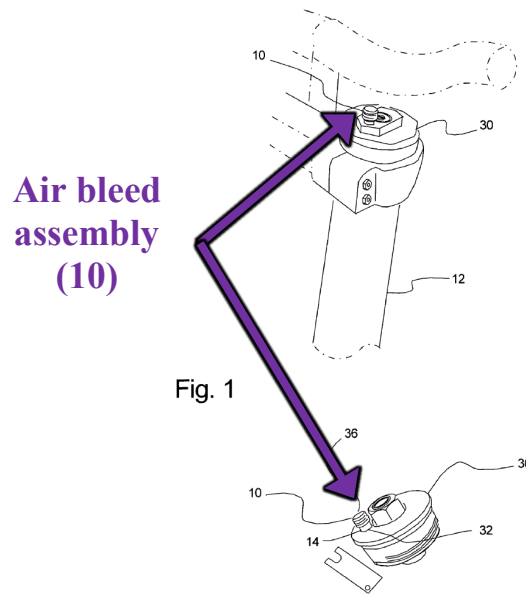
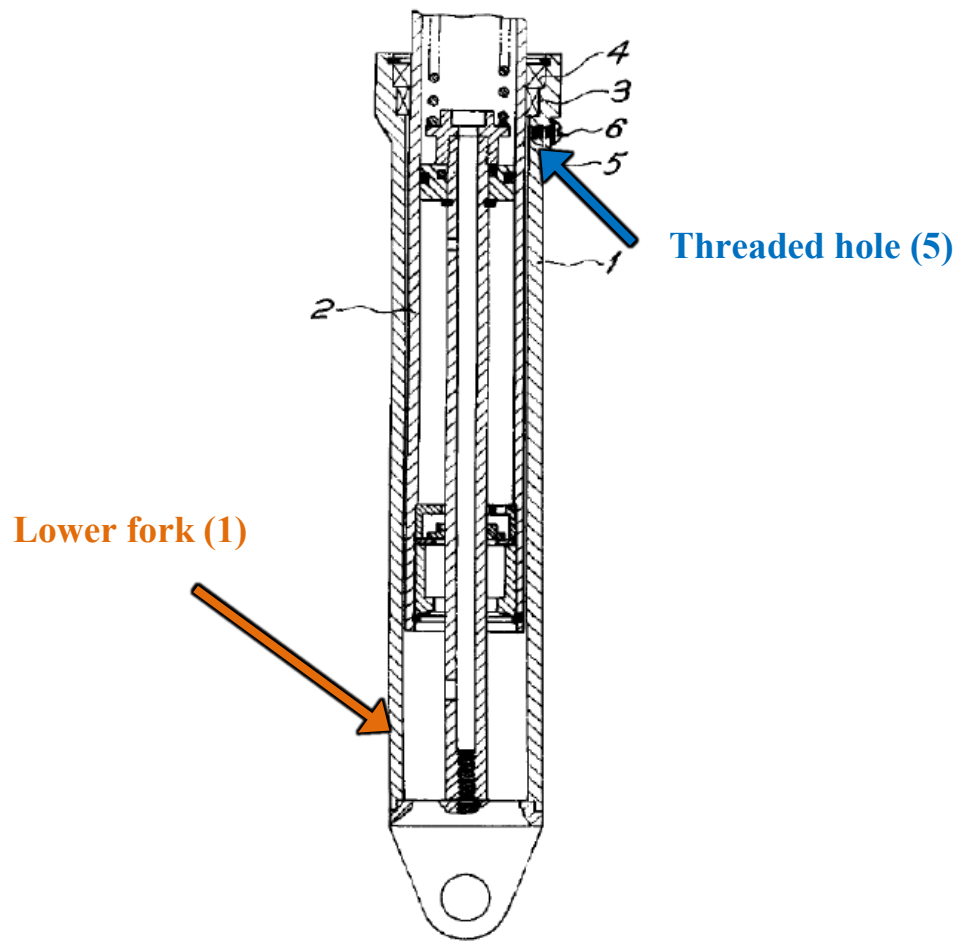
111. *Kashima* discloses each and every element of this limitation, as discussed above.

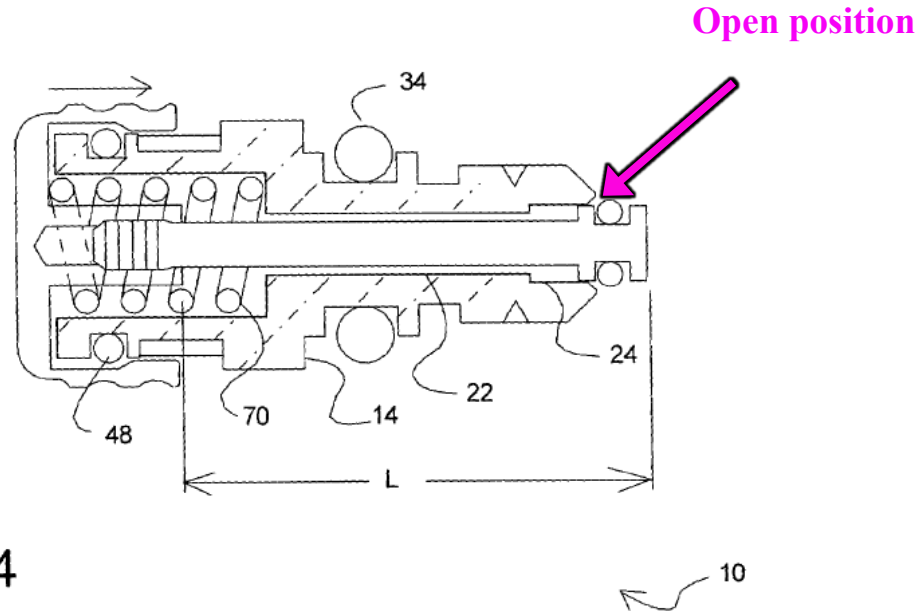
• **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

112. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Kashima* in view of *Bruckbauer* includes *Bruckbauer*'s pressure relief valve **10** and *Kashima*'s threaded hole **5** as an air bleed assembly (purple arrow) disposed on *Kashima*'s lower fork tube **1** at *Kashima*'s threaded hole **5**. This air bleed assembly is configured for equalizing ambient pressure within the lower fork **1**. When *Bruckbauer*'s valve cap **36** is depressed, gas may travel through *Bruckbauer*'s pressure relief valve **10** while it is in an open position (pink arrow), as illustrated in Figure 4, and the air pressure within the lower fork **1** will equalize with the ambient air pressure. Ex. 1105, FIG. 1; Ex. 1106, FIGS. 1, 2, 4.

Fig. 1





- **Claim 1[e]**

Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

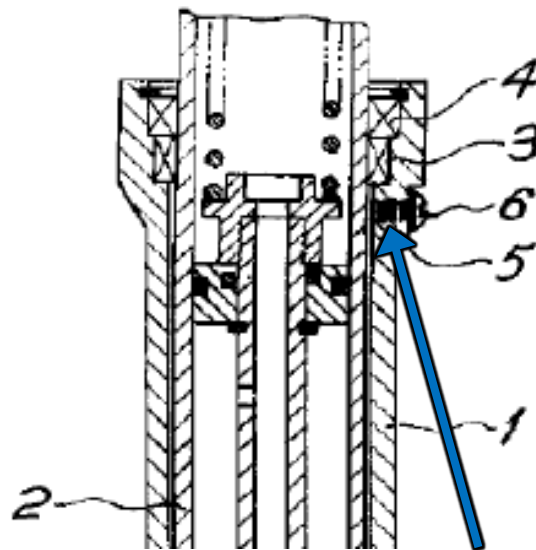
113. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation, as discussed above.

• **Claim 1[f]**

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

114. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer*'s manually operable valve **54, 36, 14, 70** (red arrow) located in *Kashima*'s lower fork **1** is coupled to *Kashima*'s fluid passage **5** (blue arrow). *Bruckbauer*'s manually operable valve **54, 36, 14, 70** has a first position substantially closing the fluid passage (orange arrow, *Bruckbauer*'s Figure 3) and a second position (pink arrow, above, *Bruckbauer*'s Figure 4) allowing a fluid to flow between the interior and the exterior of *Kashima*'s lower fork **1**. Ex. 1105, FIG. 1; Ex. 1106, FIGS. 1-4.

Fig. 1



**Manually
operable valve
(54, 36, 14, 70)**

Fluid passage (5)

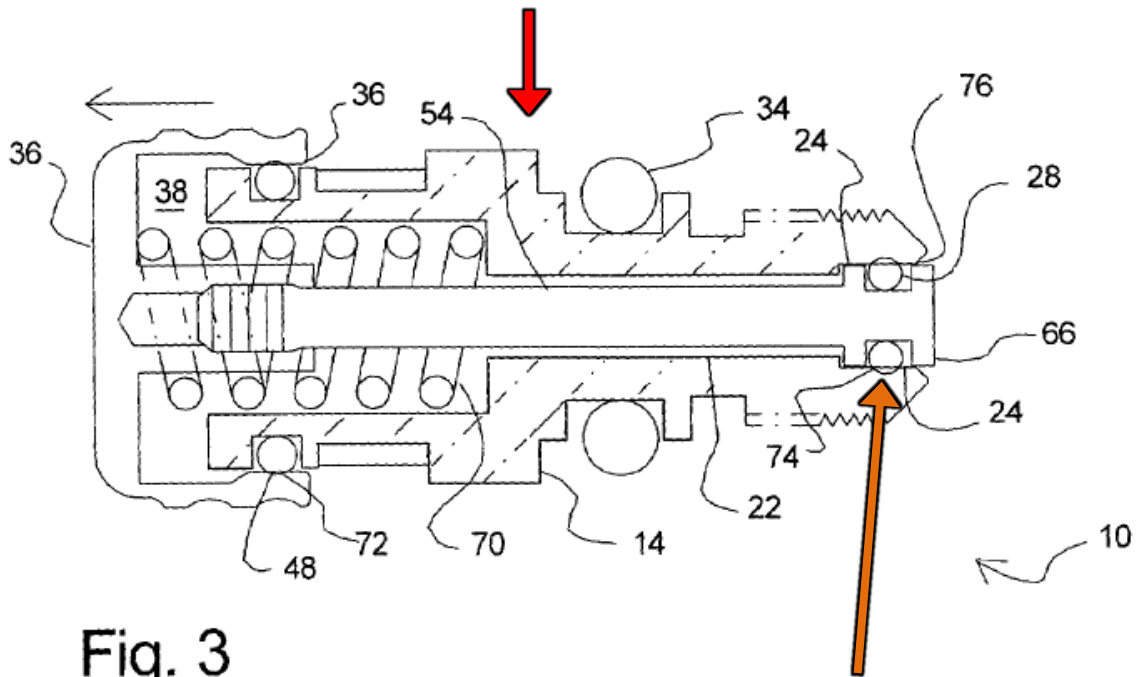


Fig. 3

**Closed
Position**

- **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

115. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Kashima*'s fluid passage **5** and *Bruckbauer*'s manually operable valve **54, 36, 14, 70** are located at a distance from an oil bath lubrication within the lower fork **1**. This positioning of the valve results in a configuration wherein when the manually operable valve is in the second position (open position), most, if not all of the oil bath lubrication remains within the lower fork **1** because the valve is positioned near the top of the lower fork **1** and can be closed once oil begins to leak. *See* Ex. 1105, [04], FIG. 1. Further, any gas within the lower fork **1** will be equalized with ambient air pressure when the valve is opened, while the oil will remain in the oil bath lubrication space within the lower fork **1**. Ex. 1105, FIG. 1.

Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

116. *Kashima* discloses each and every element of this limitation, as discussed above.

Invalidity of Dependent Claim 3

- **Claim 3[pre]**

Claim Element	Claim Language
3[pre]	The lower fork and air bleed assembly combination of claim 1, said air bleed assembly further comprising:

117. *Kashima* discloses each and every element of this preamble, as discussed above.

- **Claim 3[a]**

Claim Element	Claim Language
3[a]	a valve activator coupled with said manually operable valve, said valve activator comprising:

118. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Kashima* in view of *Bruckbauer* includes *Bruckbauer's* valve activator **54, 36** (pink arrow) coupled with *Bruckbauer's* manually operable valve **54, 36, 14, 70**. Ex. 1106, FIGS. 3-4.

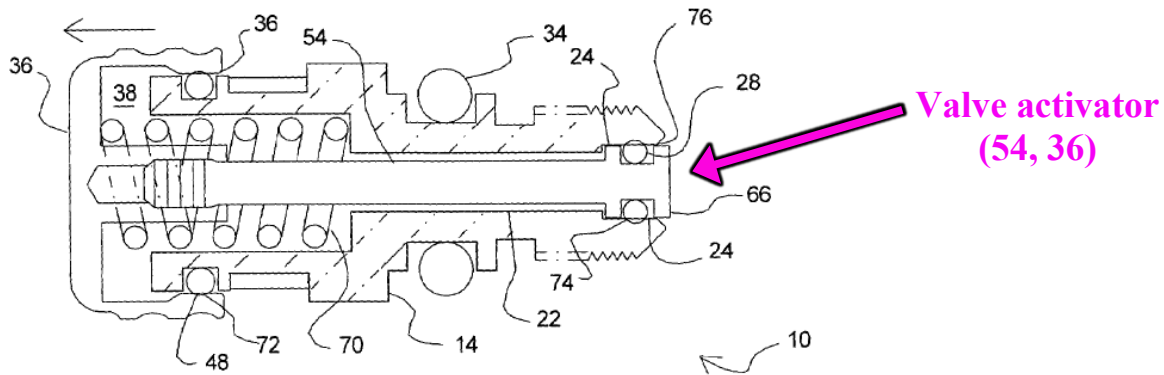


Fig. 3

- **Claim 3[b]**

Claim Element	Claim Language
3[b]	an activation position placing said manually operable valve into said first position; and

119. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer's* valve activator **54, 36** includes an activation position where the manually operable valve **54, 36, 14, 70** is in an open position (orange arrow). For example, *Kashima* in view of *Bruckbauer's* valve cap **36**, connecting

shaft **54**, and hollow body **14** include a spaced-apart relationship where a gas may travel through the manually operable valve. Ex. 1106, 5:3-9, FIG. 4.

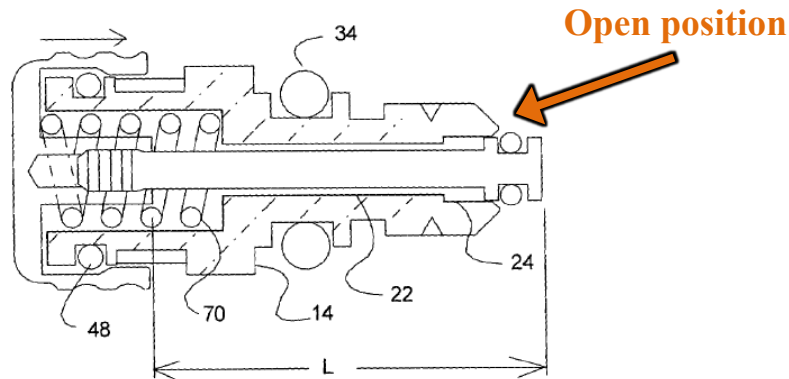


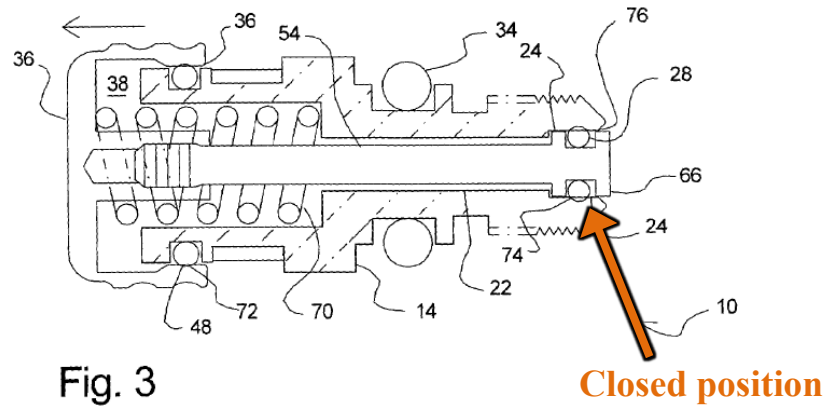
Fig. 4

10

- **Claim 3[c]**

Claim Element	Claim Language
3[c]	a deactivation position placing said manually operable valve into said second position, and whereupon when in said activation position, the trapped air pressure in said lower fork is equalized with the local ambient air pressure.

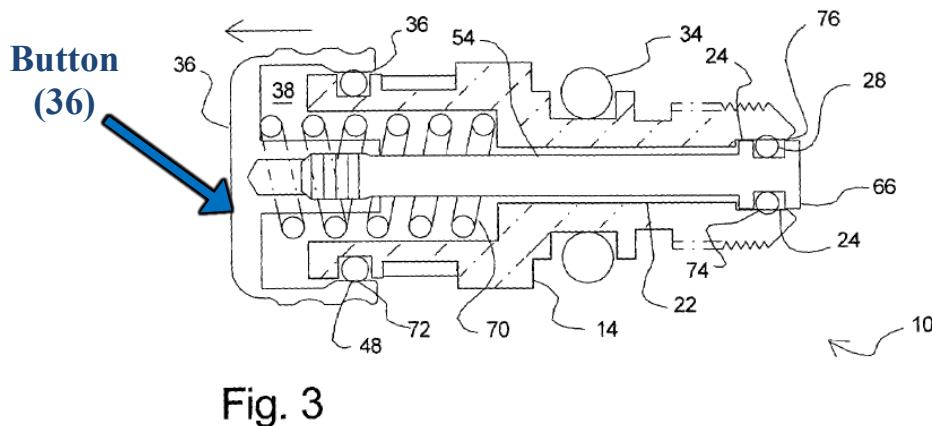
120. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer*'s valve activator **54, 36** includes a deactivation position where the manually operable valve **54, 36, 14, 70** is in a closed position (orange arrow). For example, *Kashima* in view of *Bruckbauer*'s valve cap **36**, connecting shaft **54**, and hollow body **14** include a biased position where a gas may not travel through the manually operable valve. Ex. 1106, 5:23-28, FIG. 3.



Invalidity of Dependent Claim 4

Claim Element	Claim Language
4	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator comprises: a button to select said activation position and said deactivation position.

121. *Kashima* in view of *Bruckbauer* discloses each and every element of this claim. *Bruckbauer*'s valve activator 54, 36 includes a button 36 (blue arrow) to select the activation position and the deactivation position. Ex. 1106, 5:3-28, FIG. 3.



Invalidity of Dependent Claim 5

Claim Element	Claim Language
5	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator is located on a die-cast feature of said lower fork.

122. *Kashima* in view of *Bruckbauer* discloses each and every element of this Claim. *Bruckbauer* discloses a manually operable valve **54, 36, 14, 70** fixed into a passage **5** through the body of *Kashima*'s lower fork **1**, which passage **5** would be formed on a die-cast feature of *Kashima*'s lower fork **1**. Ex. 1106, 5:3-28. In any case, the structures of *Kashima*'s lower fork **1** do not differ from those made by die-casting.

123. Further, it would have been obvious to a POSITA to modify *Kashima* (or *Kashima* in view of *Bruckbauer*) to form *Kashima*'s lower fork **1** using a die-cast procedure disclosed in *Danter*, as discussed above.

Invalidity of Dependent Claim 6

• **Claim 6[pre]**

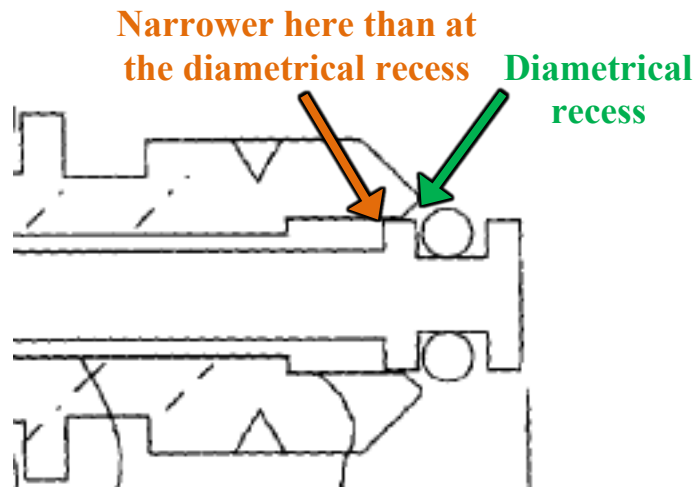
Claim Element	Claim Language
6[pre]	The lower fork and air bleed assembly combination of claim 5, further comprising:

124. *Kashima* in view of *Bruckbauer* discloses each and every element of this preamble. *Kashima* includes a lower fork **1** and *Bruckbauer* includes an air bleed assembly **10** (in addition to *Kashima*'s related fluid passage **5**).

- **Claim 6[a]**

Claim Element	Claim Language
6[a]	a diametrical recess; and

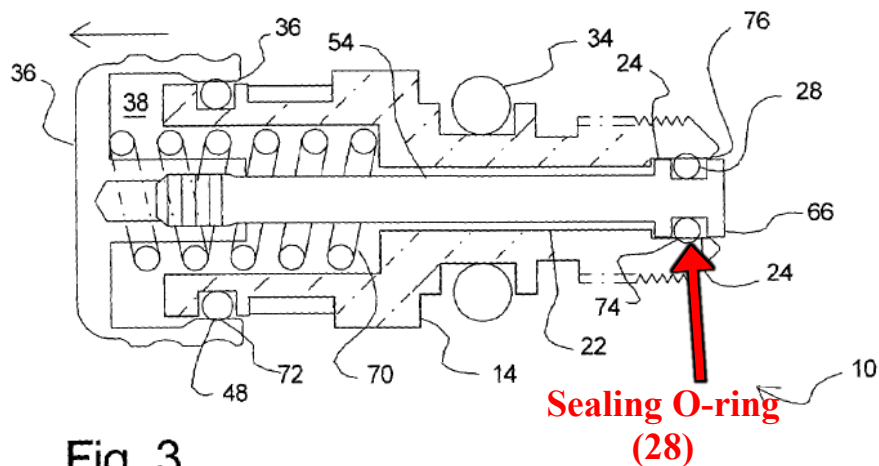
125. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a diametrical recess (green arrow), in that the inner bore diameter is larger at the green arrow than at the orange arrow. Ex. 1106, FIG. 4.



- **Claim 6[b]**

Claim Element	Claim Language
6[b]	a sealing o-ring comprising:

126. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow). Ex. 1106, FIG. 3.



- **Claim 6[c]**

Claim Element	Claim Language
6[c]	a sealed position; and

127. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow) having a sealed position. Ex. 1106, FIG. 3.

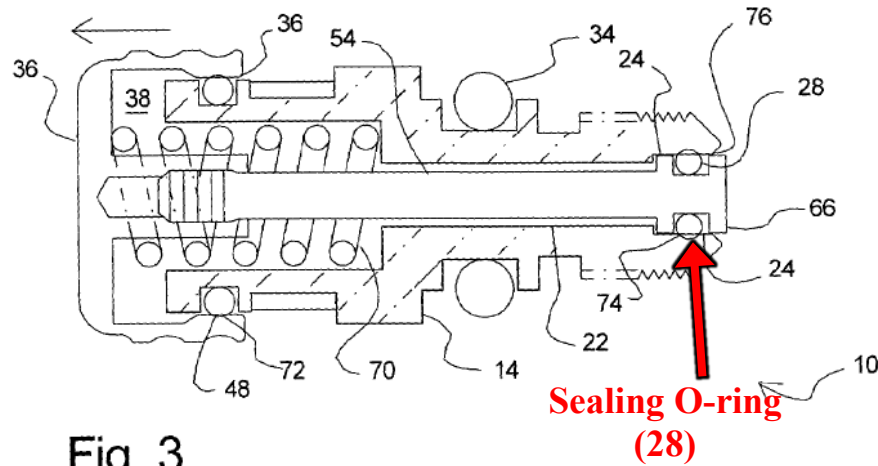


Fig. 3

- Claim 6[d]

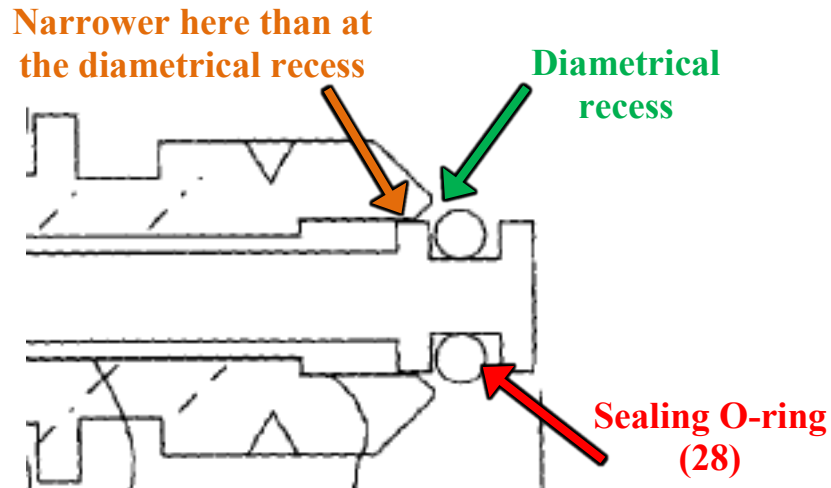
Claim Element	Claim Language
6[d]	an unsealed position,

128. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow, above) having an unsealed position. Ex. 1106, FIG. 4.

• **Claim 6[e]**

Claim Element	Claim Language
6[e]	wherein said sealed position seals between said die-cast feature and said lower fork, whereupon when said valve activator is moved from said activation position to said deactivation position, said sealing o-ring moves into said diametrical recess, thereby attaining said unsealed position and letting air pressure by-pass into or out of said lower fork via a vent hole.

129. *Kashima* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow) having a sealed position and an unsealed position wherein the sealed position seals against air leaks from *Kashima*'s lower fork **1** through the die-cast feature, whereupon when *Bruckbauer*'s valve activator **54, 36** is moved from the activation position to the deactivation position, the sealing O-ring **28** moves further into the diametrical recess (green arrow), thereby attaining the unsealed position and letting air pressure by-pass into or out of *Kashima*'s lower fork **1** via the vent hole **5**. Ex. 1106, FIGS. 3, 4.



Invalidity of Dependent Claim 7

Claim Element	Claim Language
7	The lower fork and air bleed assembly combination of claim 3, wherein said manually operable valve comprises: a spring coupled with said valve activator, whereupon when said valve activator is moved into said deactivation position, said spring biases said valve activator toward said first position.

130. *Kashima* in view of *Bruckbauer* discloses each and every element of this claim. *Bruckbauer*'s manually operable valve **54, 36, 14, 70** includes a spring **70** (orange arrow) coupled to the valve activator **54, 36** (pink arrow), which spring **70** biases the valve activator **54, 36** toward the first (closed) position. Ex. 1106, 5:23-46, FIG. 4.

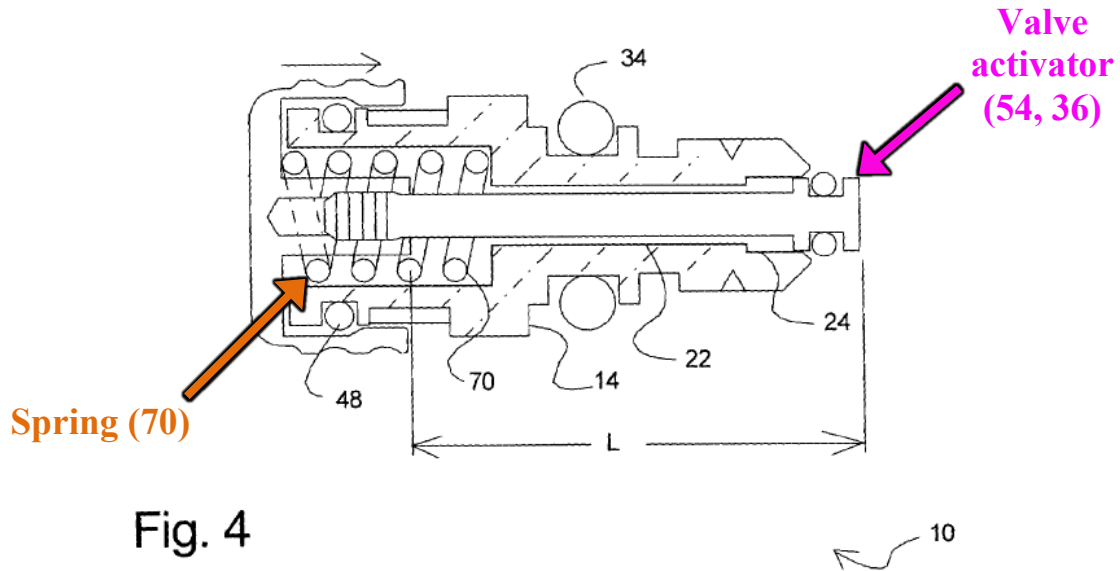


Fig. 4

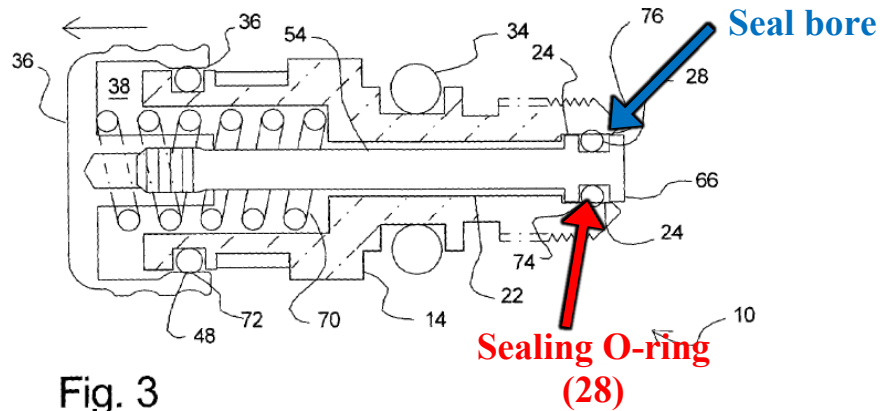
Invalidity of Dependent Claim 8

Claim Element	Claim Language
8	The lower fork and air bleed assembly combination of claim 7, wherein said second position comprises: a sealing engagement between said sealing o-ring and a seal bore, wherein when in said sealing engagement, said trapped air pressure does not by-pass into or out of said lower fork.

131. *Kashima* in view of *Bruckbauer* discloses each and every element of this claim. *Bruckbauer's* manually operable valve **54, 36, 14, 70** has a second position having a sealing engagement between the sealing O-ring **28** (red arrow) and a seal bore (blue arrow), wherein when in the sealing engagement, trapped air pressure does not bypass into or out of *Kashima's* lower fork **1**. In particular, air flow through the manually operable valve **54, 36, 14, 70** may be sealed by squeezing the internal O-ring **28** into the entrance of the aperture at the end of the hollow body

14 when the valve cap **36** is moved into the closed position, thereby preventing entry of dirt, water, or other foreign substances from entering *Kashima's* lower fork **1**.

Ex. 1106, 5:23-46, FIG. 3.



Ground III: Claims 1 and 2 Are Anticipated under 35 U.S.C. § 102 by *Hoose*

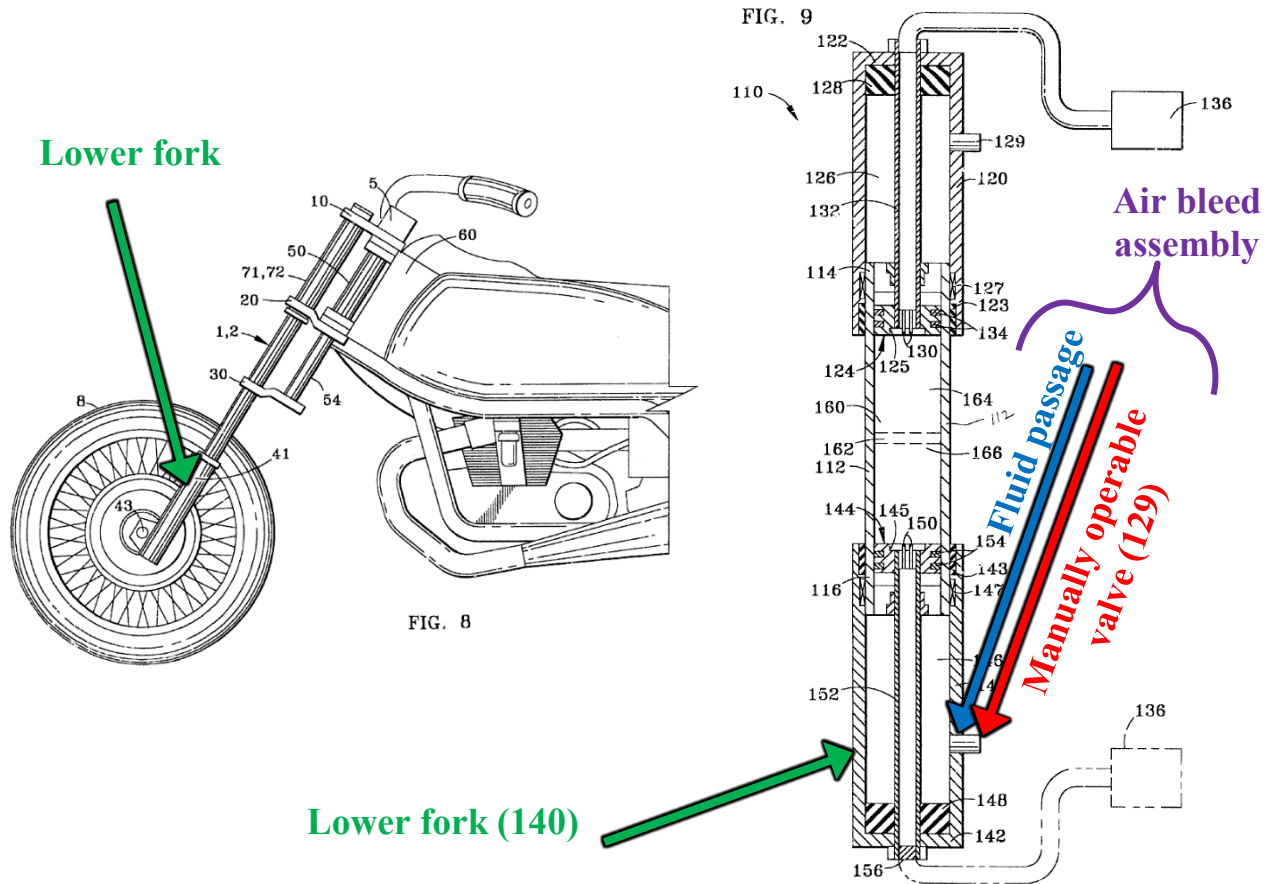
Invalidity of Independent Claim 1

• **Claim 1[pre]**

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

132. *Hoose* discloses each and every element of this preamble. *Hoose* discloses a lower fork **140** (green arrows) including an air bleed assembly (purple).

Ex. 1108, FIGS. 8, 9.

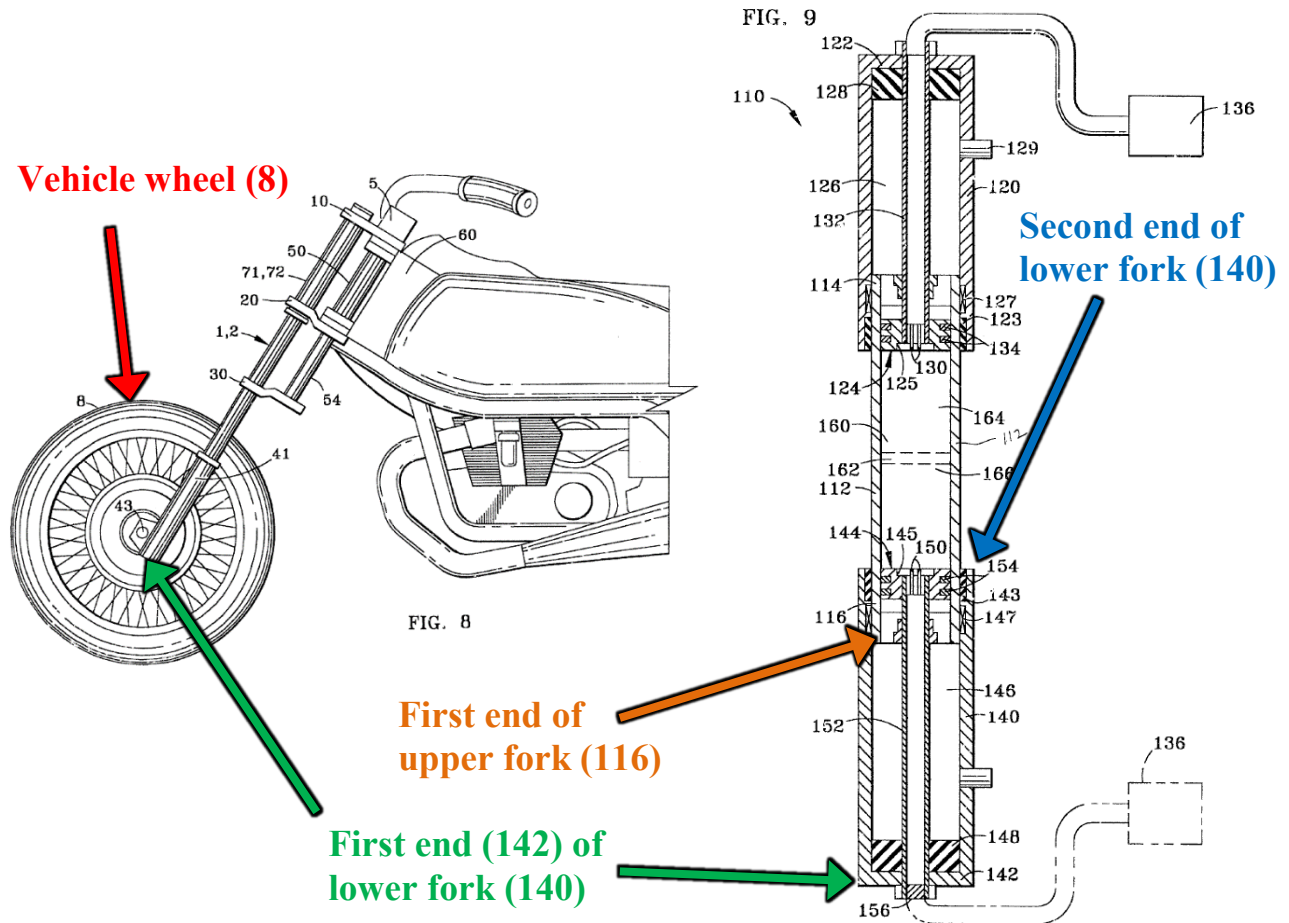


• Claim 1[a]

Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

133. *Hoose* discloses each and every element of this limitation. *Hoose* discloses a lower fork **140** configured to have a first end **142** (green arrows) coupled to a vehicle wheel **8** (red arrow), and a second end (blue arrow) configured to be

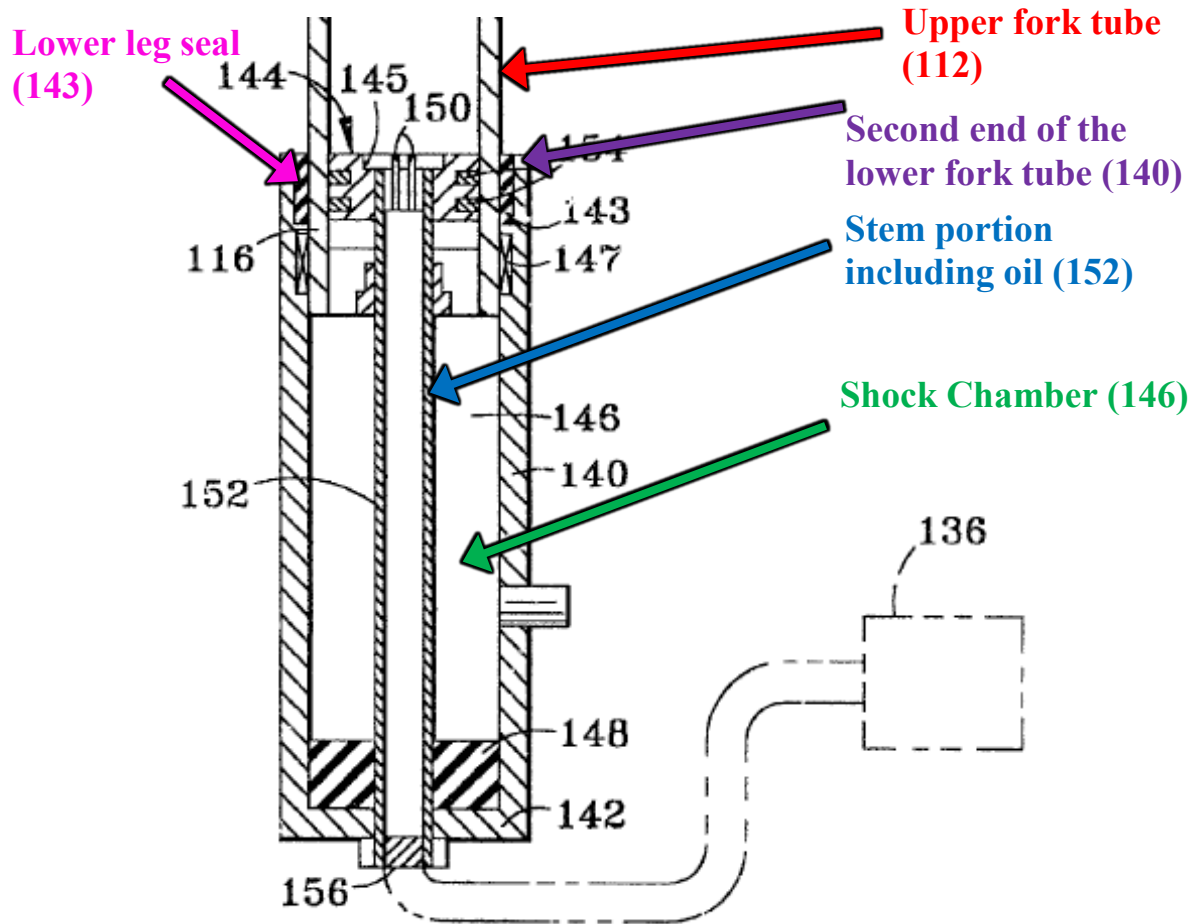
telescopically engaged with a first end **116** (orange arrow) of an upper fork **112**. Ex. 1108, FIGS. 8, 9.



- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

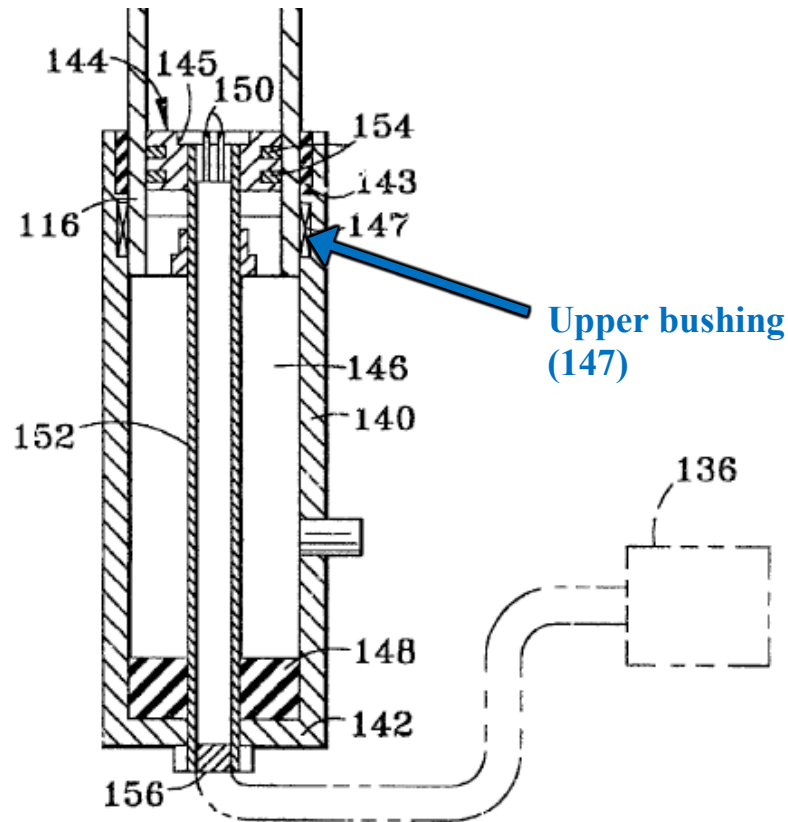
134. *Hoose* discloses each and every element of this limitation. *Hoose* discloses a lower leg seal **143** (pink arrow) located at an outermost edge of the second end (purple arrow) of the lower fork tube **140**, the lower leg seal **143** configured for sealing closed a gap disposed between the upper fork tube **112** (red arrow) and the lower fork tube **140** when the lower fork **140** is telescopically engaged with the first end **116** of the upper fork **112** (red arrow), thereby preventing an oil bath lubrication occupying an area within the lower fork tube **140** at a first end **142** of the lower fork tube **140** from leaking from the lower fork **140**. *Hoose* further explains that the stem portion **152** (blue arrow) and shock chamber **146** (green arrow) may be filled with oil. Ex. 1108, 6:21-25, 6:51-7:4, FIG. 9.



• **Claim 1[c]**

Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

135. *Hoose* discloses each and every element of this limitation. *Hoose* discloses an upper bushing **147** (blue arrow) attached to and positioned adjacent to the lower leg seal **143**. Ex. 1108, FIG. 9.

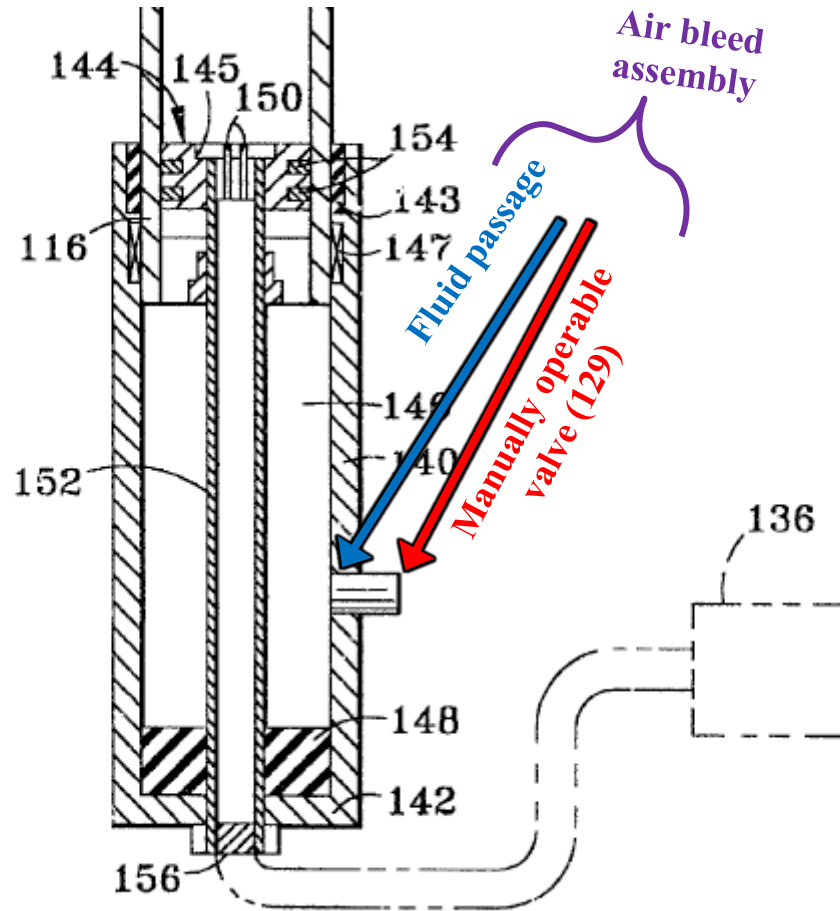


- **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

136. *Hoose* discloses each and every element of this limitation. *Hoose* discloses an air bleed assembly (purple) disposed on the lower fork tube **140** that is configured for equalizing ambient pressure within the lower fork **140**. When

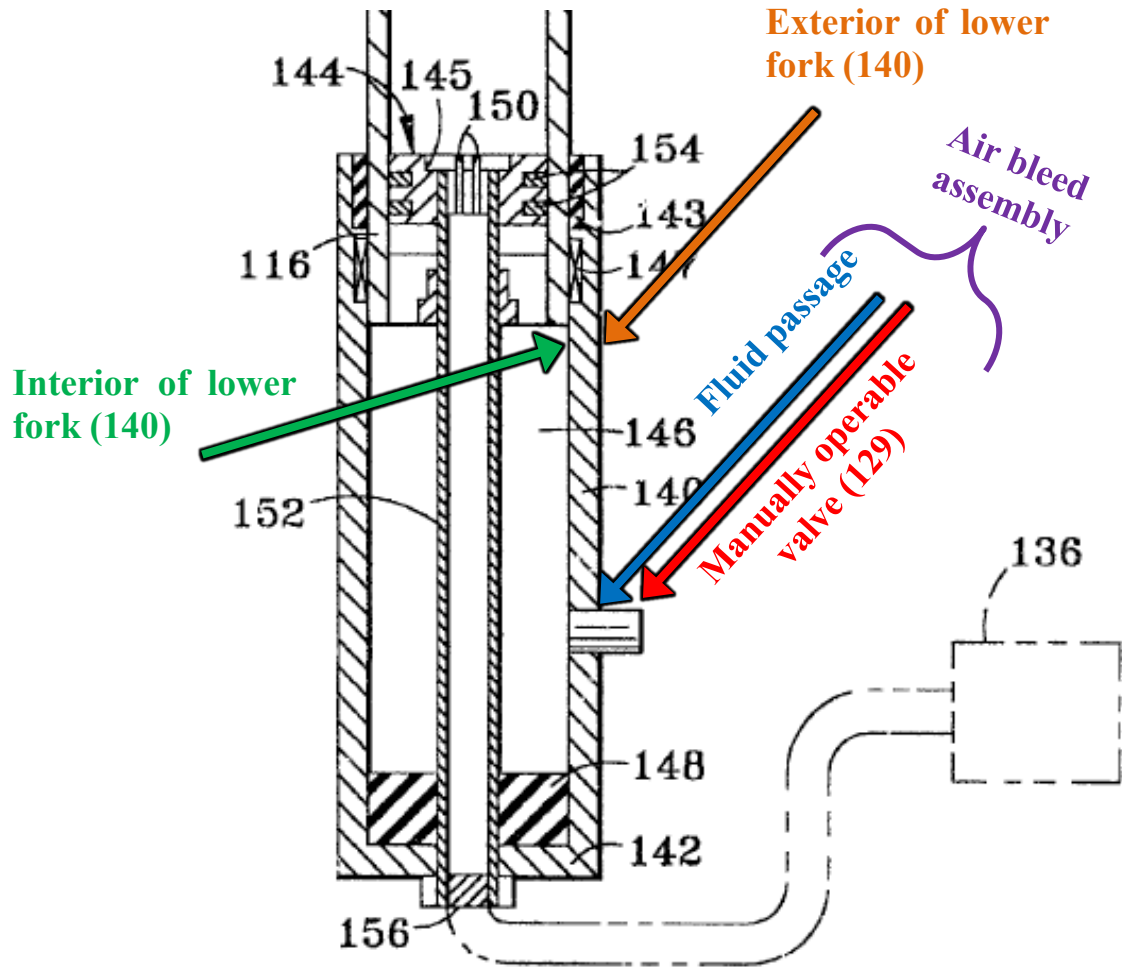
Hoose's valve **129** (red arrow) is open, air pressure with the lower fork **140** equalizes with the ambient air pressure. Ex. 1108, FIG. 9.



• Claim 1[e]

Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

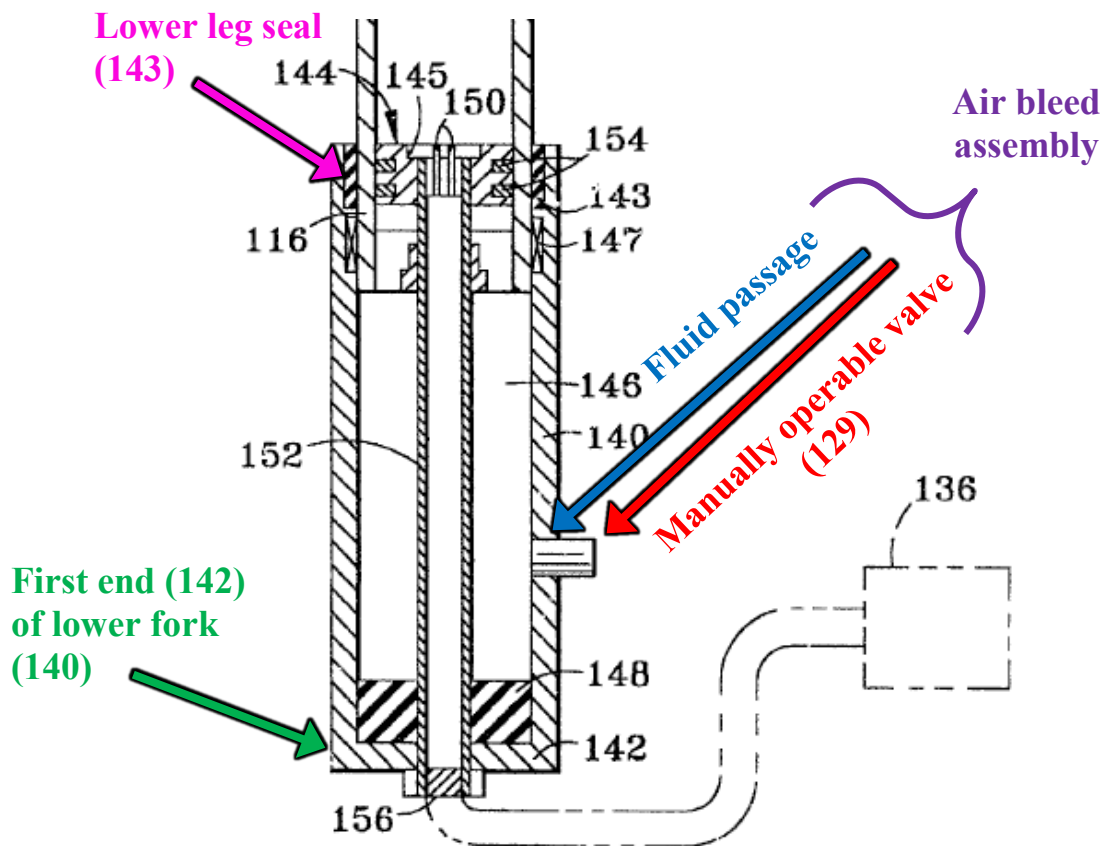
137. *Hoose* discloses each and every element of this limitation. *Hoose* discloses a fluid passage (blue arrow) disposed between an interior (green arrow) of the lower fork **140** and an exterior (orange arrow) of the lower fork **140**. *Hoose's* fluid passage is the passage for accommodating the illustrated manually operable valve (red arrow). Ex. 1108, FIG. 9.



• Claim 1[f]

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

138. *Hoose* discloses each and every element of this limitation. *Hoose* discloses a manually operable valve **129** (red arrow) located in the lower fork **140** and coupled to the fluid passage (blue arrow). *Hoose*'s manually operable valve **129** has a first position substantially closing the fluid passage (when sealed) and a second position allowing a fluid to flow between the interior and the exterior (when open). For example, *Hoose* discloses that the manually operable valve **129** may be used to manually pressurize *Hoose*'s shock chamber **126**. *Hoose*'s valve **129** is disposed between the lower leg seal **143** and the first end **142** of the lower fork **140**. Ex. 1108, FIG. 9.

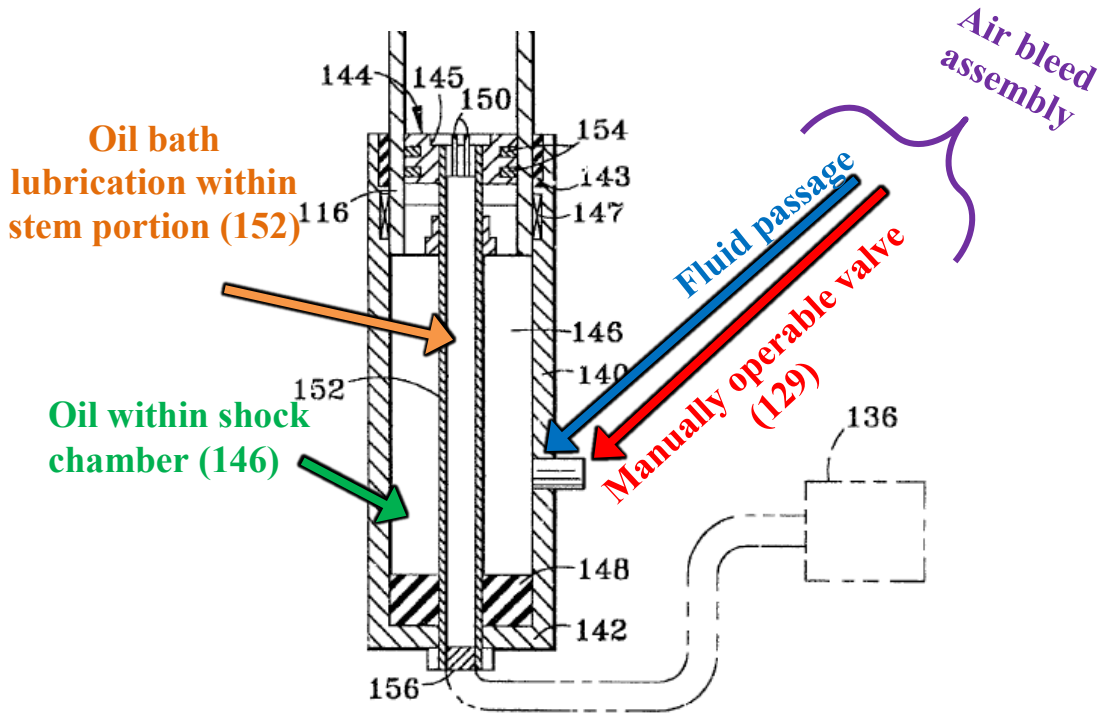


- **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

139. *Hoose* discloses each and every element of this limitation. *Hoose's* fluid passage (blue arrow) and manually operable valve **129** (red arrow) are located at a distance from an oil bath lubrication (oil within the stem portion **152** or within the chamber **146**) (orange and green arrows) within the lower fork **140**. Ex. 1108, 6:21-25, 6:51-7:4. This positioning of the valve **129** results in a configuration wherein when the manually operable valve **129** is in the second position (open position), most, if not all of the oil bath lubrication within: (A) the stem portion **152** remains within the lower fork **140** because the valve **129** is isolated from the oil via the walls of the stem portion **152** and (B) the shock chamber **146** remains within the lower fork **140** because the level of oil is low enough relative to the level of the valve **129**, and the valve **129** can be closed were any oil to leak. Further, any air within the shock chamber **146** of the lower fork **140** will be equalized to ambient pressure

when the valve **129** is opened, while the oil will remain in the oil bath lubrication space within the stem portion **152** (orange arrow) and within the chamber **146**. Ex. 1108, FIG. 9.



Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

140. *Hoose* discloses each and every element of this limitation. *Hoose* includes the lower fork **140** and air bleed assembly combination of claim 1. *Hoose* further includes air flowing through the fluid passage (for valve **129**), at least when the user allows air to enter into the lower fork **140** via the valve **129**. In particular,

a gas may flow through the fluid passage during setup and maintenance of *Hoose's* suspension fork or whenever a user needs to remove air pressure from the shock chamber **146**. Ex. 1105, FIG. 1. In such a case, this gas equalization will occur if the valve is open for a sufficient amount of time.

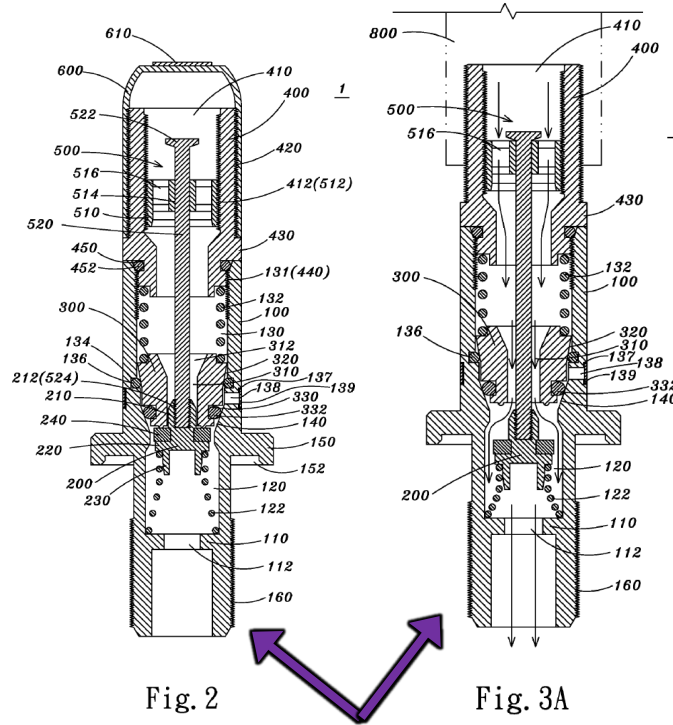
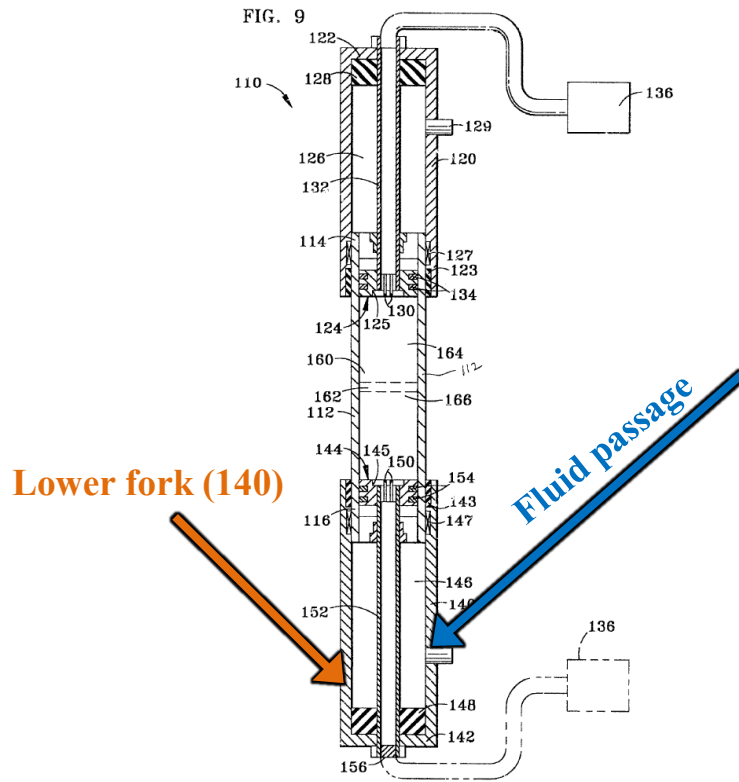
**Ground IV: Claims 1 Through 8 Are Rendered Obvious Under 35 U.S.C. § 103
by *Hoose* in view of *Huang*, and Further in view of *Danter***

Invalidity of Independent Claim 1

• **Claim 1[pre]**

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

141. *Hoose* in view of *Huang* discloses each and every element of this preamble. *Hoose* discloses a lower fork **140** (orange arrow), and *Huang* discloses an air bleed assembly **1** (purple) (with *Hoose*'s fluid passage (blue arrow)). Ex. 1108, FIG. 9; Ex. 1109, FIGS. 2, 3A.



Air bleed assembly (1)

- **Claim 1[a]**

Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

142. *Hoose* discloses each and every element of this limitation, as discussed above.

- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

143. *Hoose* discloses each and every element of this limitation, as discussed above.

- **Claim 1[c]**

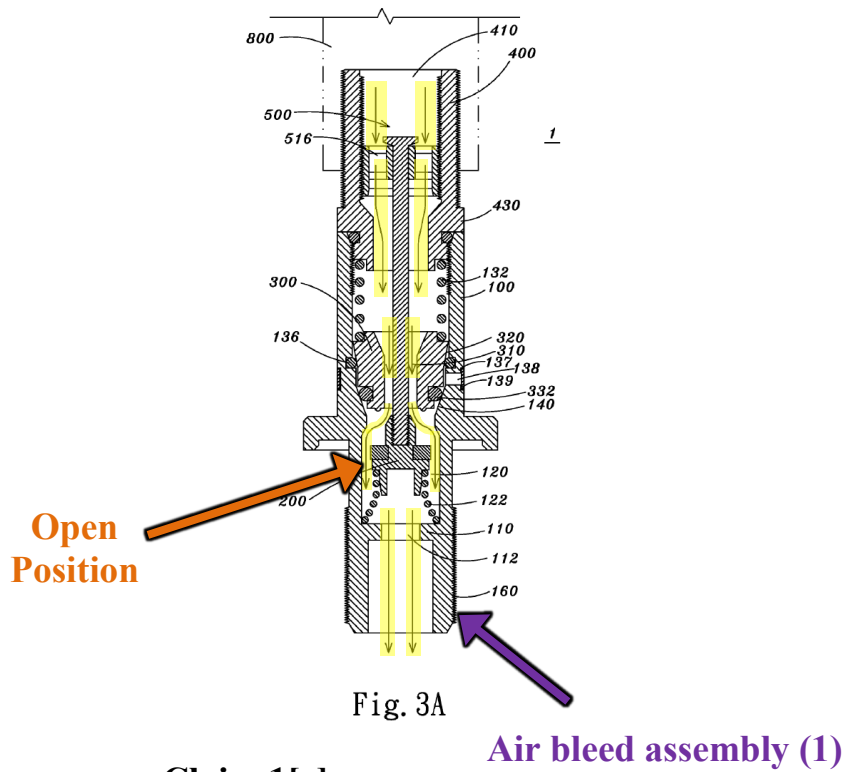
Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

144. *Hoose* discloses each and every element of this limitation, as discussed above.

- **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

145. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes *Huang*'s air bleed assembly **1** (purple) disposed on *Hoose*'s lower fork tube **140** at *Hoose*'s valve **129**. This air bleed assembly **1** is configured for equalizing ambient pressure within the lower fork **140**. When *Huang*'s valve **1** is open, as shown in *Huang*'s Figure 3A, the air pressure with the fork **140** equalizes with the ambient air pressure.



- Claim 1[e]

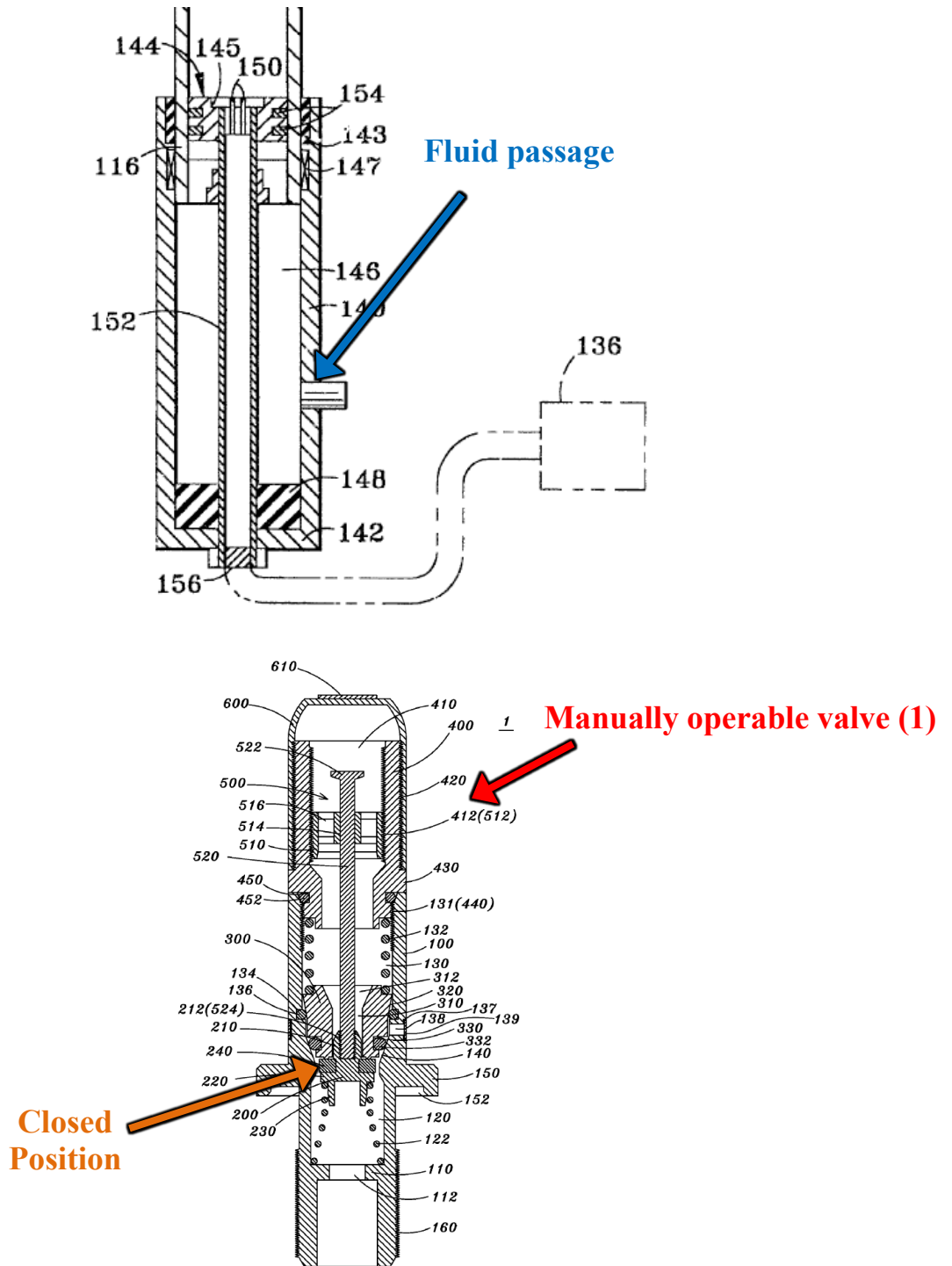
Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

146. *Hoose* in view of *Huang* discloses each and every element of this limitation, as discussed above.

- **Claim 1[f]**

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

147. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Huang*'s manually operable valve **1** (red arrow) located in *Hoose*'s lower fork **140** is coupled to *Hoose*'s fluid passage (blue arrow). *Huang*'s manually operable valve **1** has a first position substantially closing the fluid passage (*see Huang*'s Figure 2, below) and a second position allowing a fluid to flow between the interior and the exterior (*see Huang*'s Figure 3A, above).



• **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

148. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose*'s fluid passage and *Huang*'s manually operable valve **1** are located at a distance from an oil bath lubrication (oil within the stem portion **152** or within the chamber **146**) within the lower fork **140**. This positioning of the valve **1** results in a configuration wherein when *Huang*'s manually operable valve **1** is in the second position (open position), most, if not all of the oil bath lubrication within: (A) the stem portion **152** remains within the lower fork **140** because *Huang*'s valve **1** is isolated from the oil via the walls of the stem portion **152** and (B) the shock chamber **146** remains within the lower fork **140** because the level of oil is low enough relative to the level of *Huang*'s valve **1**, and *Huang*'s valve **1** can be closed were any oil to leak. Further, any air within the shock chamber **146** of the lower fork **140** will be equalized to ambient pressure when *Huang*'s valve **1** is opened, while the oil will

remain in the oil bath lubrication space within the stem portion **152** (orange arrow) and within the chamber **146**.

Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

149. *Hoose* discloses each and every element of this claim, as discussed above.

Invalidity of Dependent Claim 3

- **Claim 3[pre]**

Claim Element	Claim Language
3[pre]	The lower fork and air bleed assembly combination of claim 1, said air bleed assembly further comprising:

150. *Hoose* in view of *Huang* discloses each and every element of this preamble, as discussed above.

- **Claim 3[a]**

Claim Element	Claim Language
3[a]	a valve activator coupled with said manually operable valve, said valve activator comprising:

151. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes a valve activator **520, 522** (pink arrows) coupled with the manually operable valve **1** (and *Hoose*'s related fluid passage). Ex. 1109, FIGS. 2, 3A.

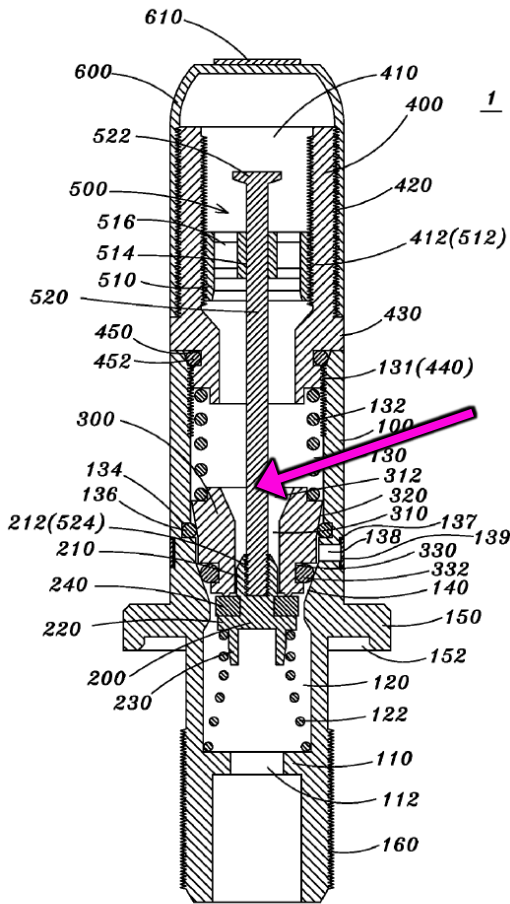


Fig. 2

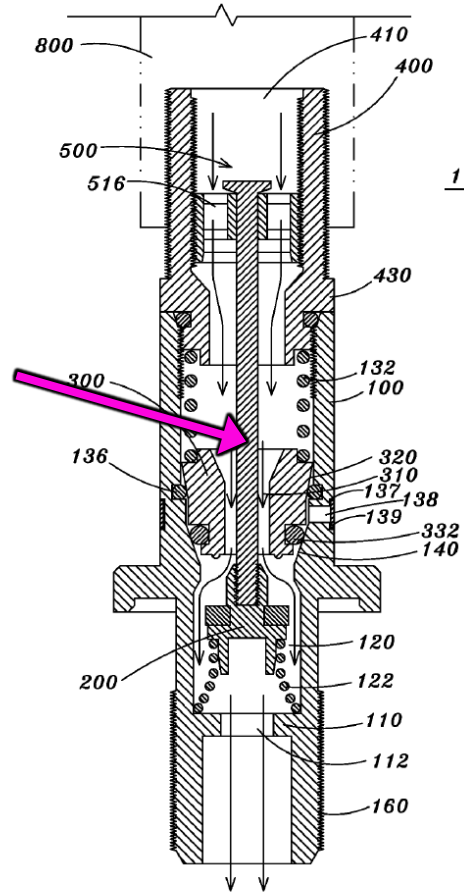


Fig. 3A

- **Claim 3[b]**

Claim Element	Claim Language
3[b]	an activation position placing said manually operable valve into said first position; and

152. *Hoose* in view of *Huang* include each and every element of this limitation. *Hoose* in view of *Huang*'s valve activator **520, 522** includes an activation position where *Huang*'s manually operable valve **1** is in an open position. In

particular, the central pin **520** may be pushed downward (as shown by the yellow arrows), thereby allowing a gas to pass through *Huang's* valve **1**. Ex. 1109, FIGS. 2, 3A.

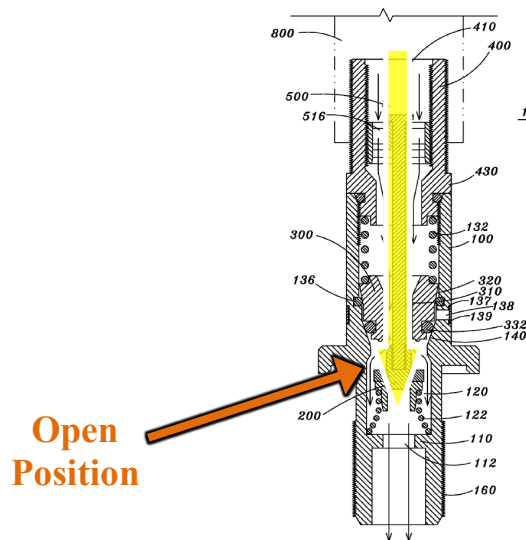


Fig. 3A

- **Claim 3[c]**

Claim Element	Claim Language
3[c]	a deactivation position placing said manually operable valve into said second position, and whereupon when in said activation position, the trapped air pressure in said lower fork is equalized with the local ambient air pressure.

153. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang's* valve activator **520**, **522** includes a deactivation position where *Huang's* manually operable valve **1** is in a closed

position (orange arrow), as shown below in *Huang's* Figure 2. Ex. 1109, FIGS 2, 3A.

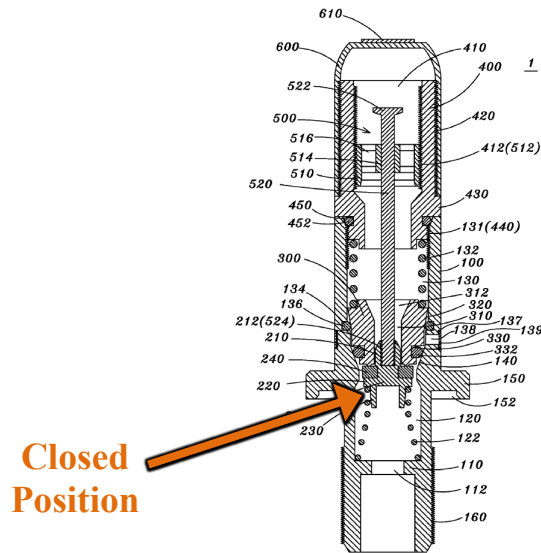


Fig. 2

Invalidity of Dependent Claim 4

Claim Element	Claim Language
4	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator comprises: a button to select said activation position and said deactivation position.

154. *Hoose* in view of *Huang* discloses each and every element of this claim. *Huang* includes a button **522** (blue arrows) to select the activation position and the deactivation position. Ex. 1109, FIGS 2, 3A.

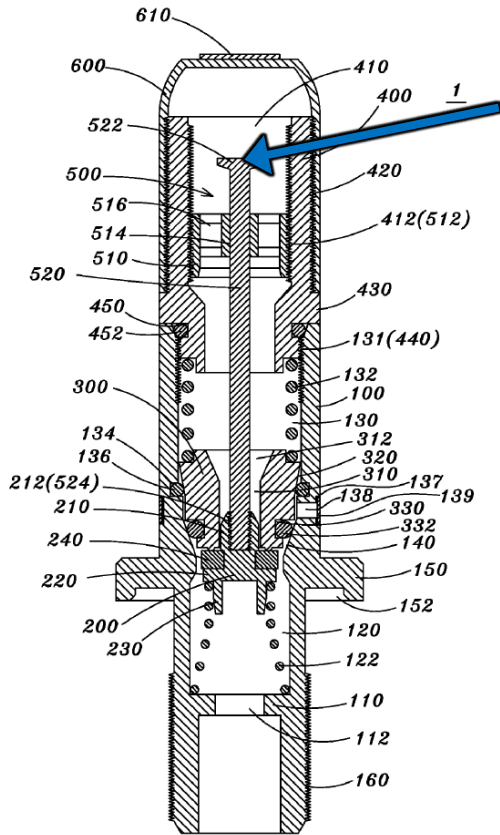


Fig. 2

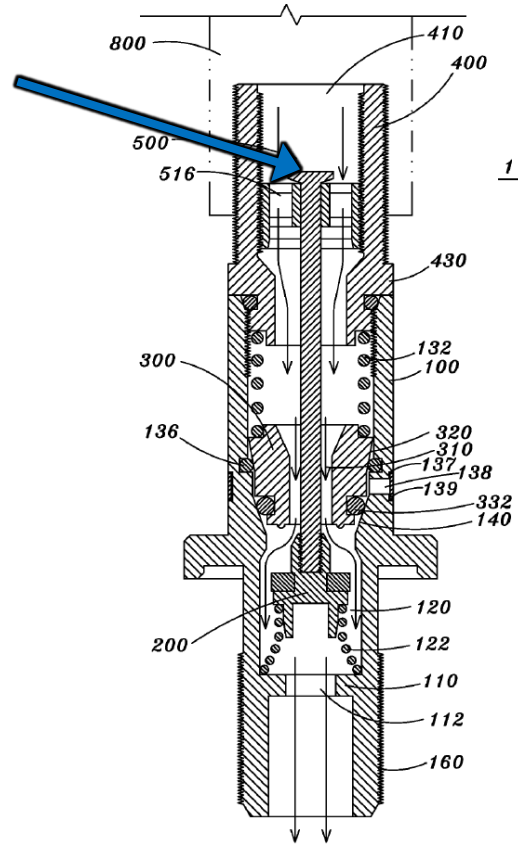


Fig. 3A

Invalidity of Dependent Claim 5

Claim Element	Claim Language
5	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator is located on a die-cast feature of said lower fork.

155. *Hoose* in view of *Huang* discloses each and every element of this claim. *Hoose* in view of *Huang* has *Huang*'s manually operable valve **1** fixed into the passage at *Hoose*'s valve **129** through *Hoose*'s lower fork **140**, which passage would

be formed on a die-cast feature of *Hoose's* lower fork **140**. Ex. 1108, FIG.9; Ex. 1109, FIGS. 2, 3A. In any case, the structures of *Hoose's* lower fork **140** do not differ from those made by die-casting.

156. Further, it would have been obvious to a POSITA to modify *Hoose* in view of *Huang* to form *Hoose's* lower fork **140** using a die-cast procedure disclosed in *Danter*, as discussed above.

Invalidity of Dependent Claim 6

• **Claim 6[pre]**

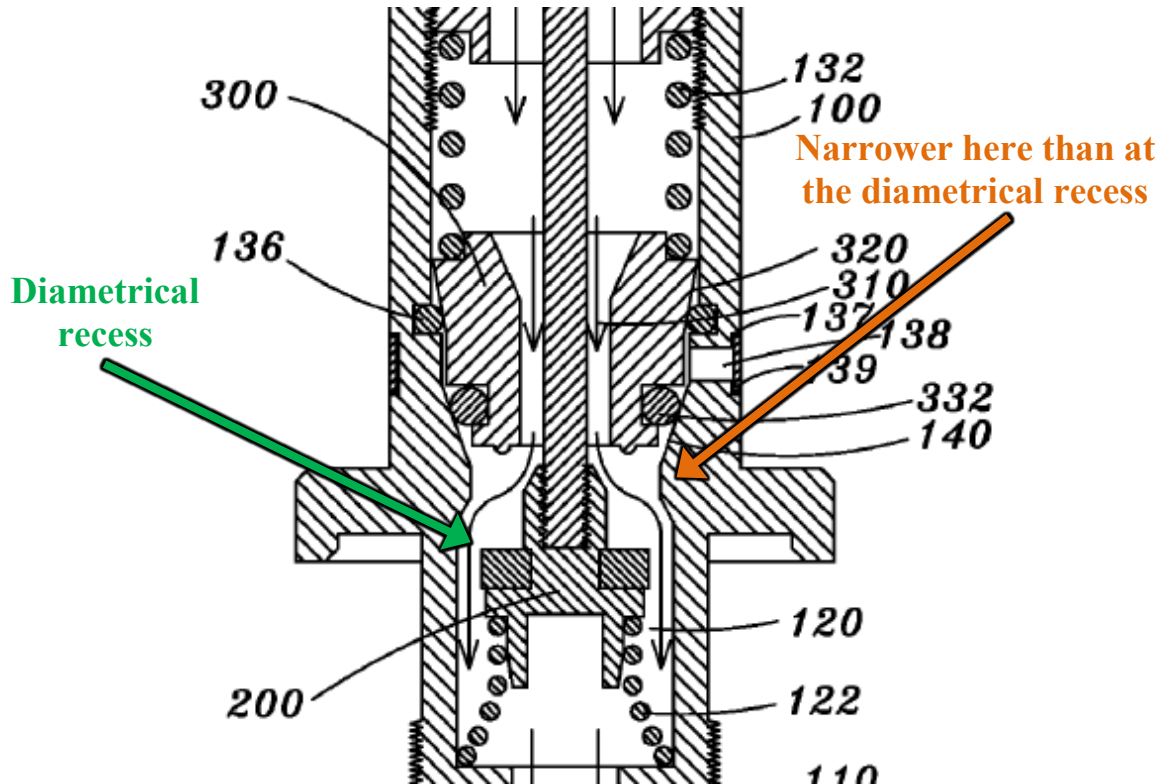
Claim Element	Claim Language
6[pre]	The lower fork and air bleed assembly combination of claim 5, further comprising:

157. *Hoose* in view of *Huang* discloses each and every element of this preamble. *Hoose* in view of *Huang* includes *Hoose's* lower fork **140** and *Huang's* air bleed assembly **1** (in addition to *Hoose's* fluid passage). Ex. 1108, FIG. 9; Ex. 1109, FIGS. 2, 3A.

• **Claim 6[a]**

Claim Element	Claim Language
6[a]	a diametrical recess; and

158. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes a diametrical recess (green arrow). In particular, *Huang* shows that the inner bore diameter is larger at the green arrow than at the orange arrow. Ex. 1109, FIGS. 2, 3A



- Claim 6[b]

Claim Element	Claim Language
6[b]	a sealing o-ring comprising:

159. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes a sealing O-ring **240** (red arrow). In

particular, *Huang* includes an airtight washer **240** that is positioned around the first valve body **200** in the first chamber **120**. Ex. 1109, 4:38-48, FIG. 2

160. To the extent that an airtight washer is not an O-ring, even though it is a circular sealing element, a POSITA would have been motivated to substitute a typical O-ring for *Huang*'s airtight washer **240** at least because O-rings and airtight washers are both circular sealing elements known to be substitutable for each other, each providing the same sealing function. In fact, a POSITA would be familiar with a wide array of circular sealing elements because such seals are used throughout vehicle suspensions, which tend to be pressure vessels in need of considerable sealing from gas and debris ingress/egress. A POSITA would have been motivated to provide this substitution at least because the substitution would have been expected to yield predictable results. Further, for at the foregoing reasons, it would have been obvious to try this substitution. The resulting combination would be *Hoose*'s lower fork **140** in combination with *Huang*'s valve **1** having an O-ring replacing *Huang*'s airtight washer **240**.

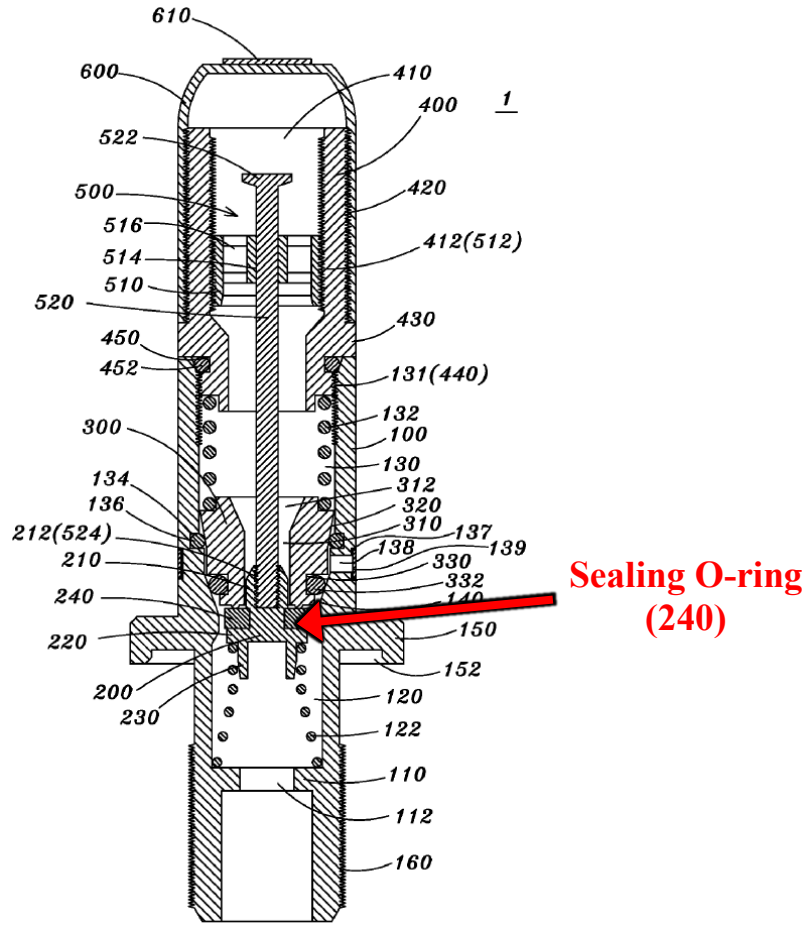


Fig. 2

- **Claim 6[c]**

Claim Element	Claim Language
6[c]	a sealed position; and

161. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes an airtight washer **240** (red arrow) (or

an O-ring, as discussed above) having a sealed position, as shown in *Huang*'s Figure

2. Ex. 1109, FIG. 2.

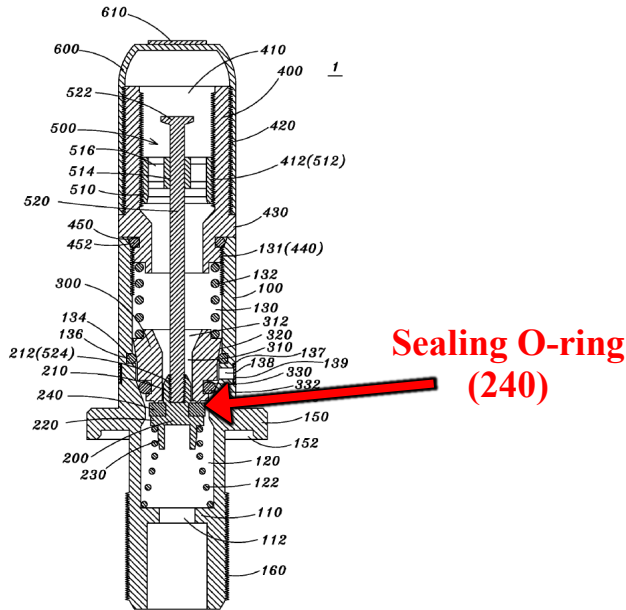


Fig. 2

- **Claim 6[d]**

Claim Element	Claim Language
6[d]	an unsealed position,

162. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes an airtight washer **240** (red arrow) (or an O-ring, as discussed above) having an unsealed position, as shown in *Huang*'s Figure 3A. Ex. 1109, FIG. 3A.

• **Claim 6[e]**

Claim Element	Claim Language
6[e]	wherein said sealed position seals between said die-cast feature and said lower fork, whereupon when said valve activator is moved from said activation position to said deactivation position, said sealing o-ring moves into said diametrical recess, thereby attaining said unsealed position and letting air pressure by-pass into or out of said lower fork via a vent hole.

163. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Hoose* in view of *Huang* includes an airtight washer **240** (red arrow) (or an O-ring, as discussed above) having sealed and unsealed positions where the sealed position seals against air leaks from *Hoose*'s lower fork **140** through the die-cast feature. Further, when *Huang*'s valve activator **520, 522** is moved from the activation position to the deactivation position, the airtight washer **240** moves further into the diametrical recess (green arrows), thereby attaining the unsealed position and letting air pressure by-pass into or out of *Hoose*'s lower fork **140** via *Hoose*'s vent hole. Ex. 1108, FIG. 9; Ex. 1109, FIGS. 2, 3A.

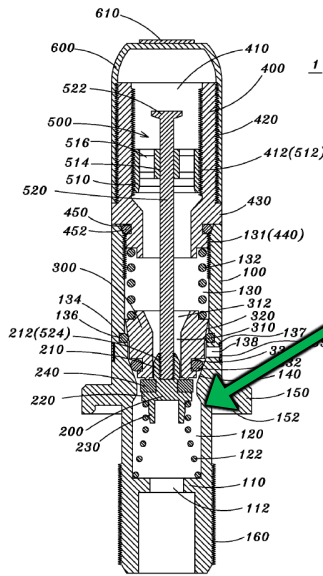


Fig. 2

**Diametrical
recess**

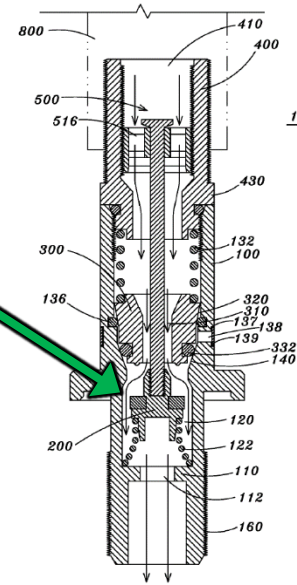


Fig. 3A

Invalidity of Dependent Claim 7

Claim Element	Claim Language
7	The lower fork and air bleed assembly combination of claim 3, wherein said manually operable valve comprises: a spring coupled with said valve activator, whereupon when said valve activator is moved into said deactivation position, said spring biases said valve activator toward said first position.

164. *Hoose* in view of *Huang* discloses each and every element of this claim. *Hoose* in view of *Huang*'s manually operable valve 1 (and the related fluid passage) includes a spring 122 (orange arrow) coupled to the valve activator 520, 522 (pink arrow), whereupon when the valve activator 520, 522 is moved into the deactivation position, discussed above, the spring 122 biases the valve activator 520, 522 toward the first (closed) position. Ex. 1109, FIGS. 2, 3A.

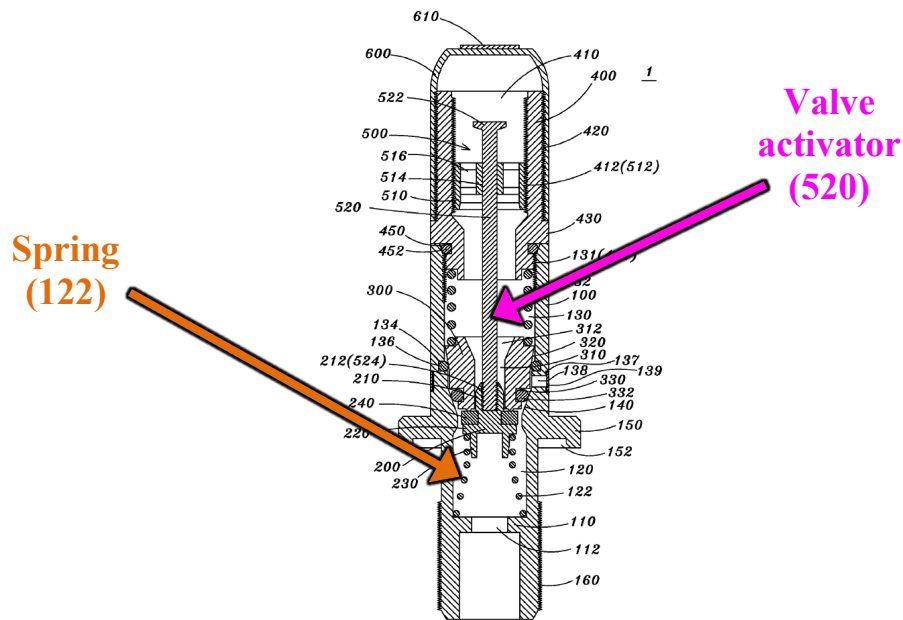
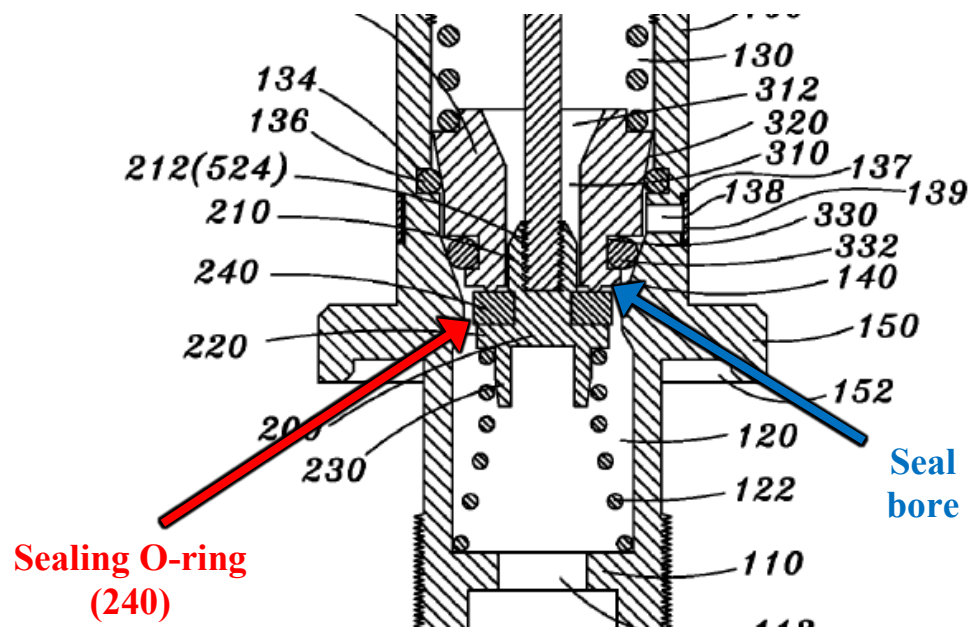


Fig. 2

Invalidity of Dependent Claim 8

Claim Element	Claim Language
8	The lower fork and air bleed assembly combination of claim 7, wherein said second position comprises: a sealing engagement between said sealing o-ring and a seal bore, wherein when in said sealing engagement, said trapped air pressure does not by-pass into or out of said lower fork.

165. *Hoose* in view of *Huang* discloses each and every element of this limitation. *Huang*'s manually operable valve **1** has a second position, discussed above, having a sealing engagement, as shown in Figure 2 below, wherein when in the sealing engagement, trapped air pressure does not bypass into or out of *Hoose*'s lower fork **140**. Ex. 1108, FIG. 9; Ex. 1109, FIG. 2.



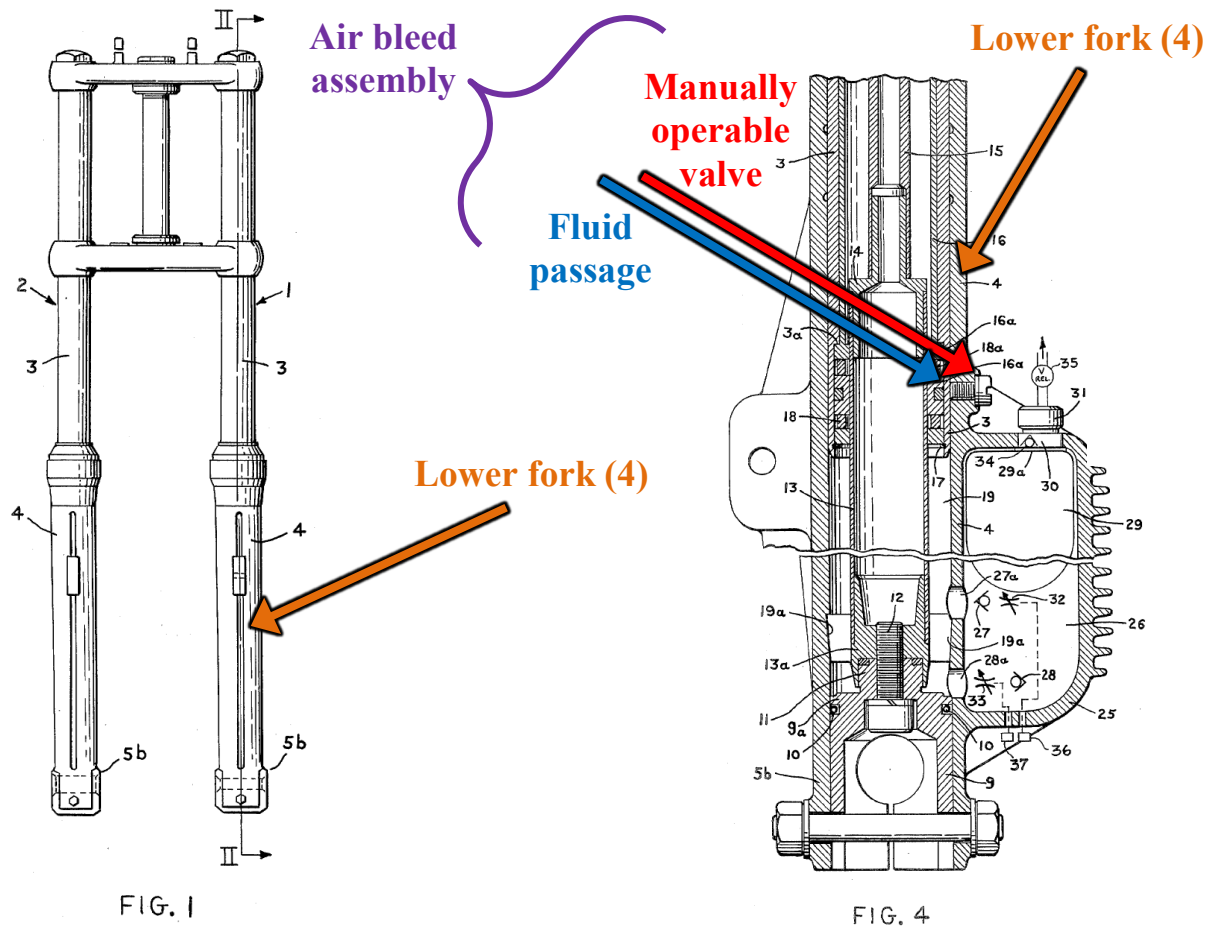
Ground V: Claims 1 Through 3 and 5 Are Anticipated by *Ceriani*

Invalidity of Independent Claim 1

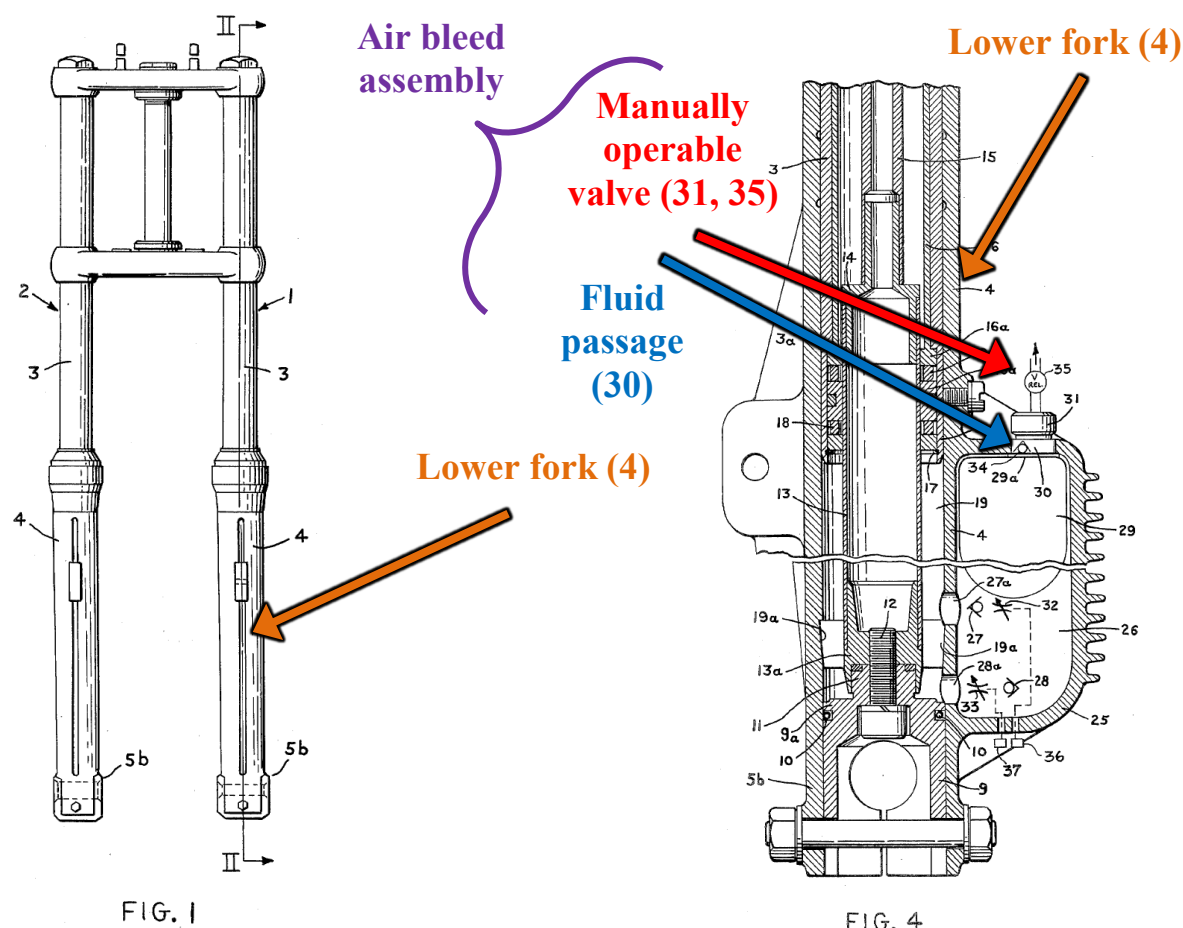
• **Claim 1[pre]**

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

166. *Ceriani* discloses each and every element of this preamble. In particular, *Ceriani*'s Figure 5 shows “two equal arms of a fork for a motor vehicle, such as a motorcycle[.]” Ex. 1110, 1:67-68, FIG. 5. Figures 1 and 4 of *Ceriani* show a lower fork 4 (orange arrow) including a pair of air bleed assemblies (purple bracket). Ex. 1110, FIGS. 4, 5. The first of the pair is shown below:



167. In addition, the following may be *Ceriani's* air bleed assembly 30, 31, 35 (purple bracket). Ex. 1110, 3:9-13, 3:61-4:7.

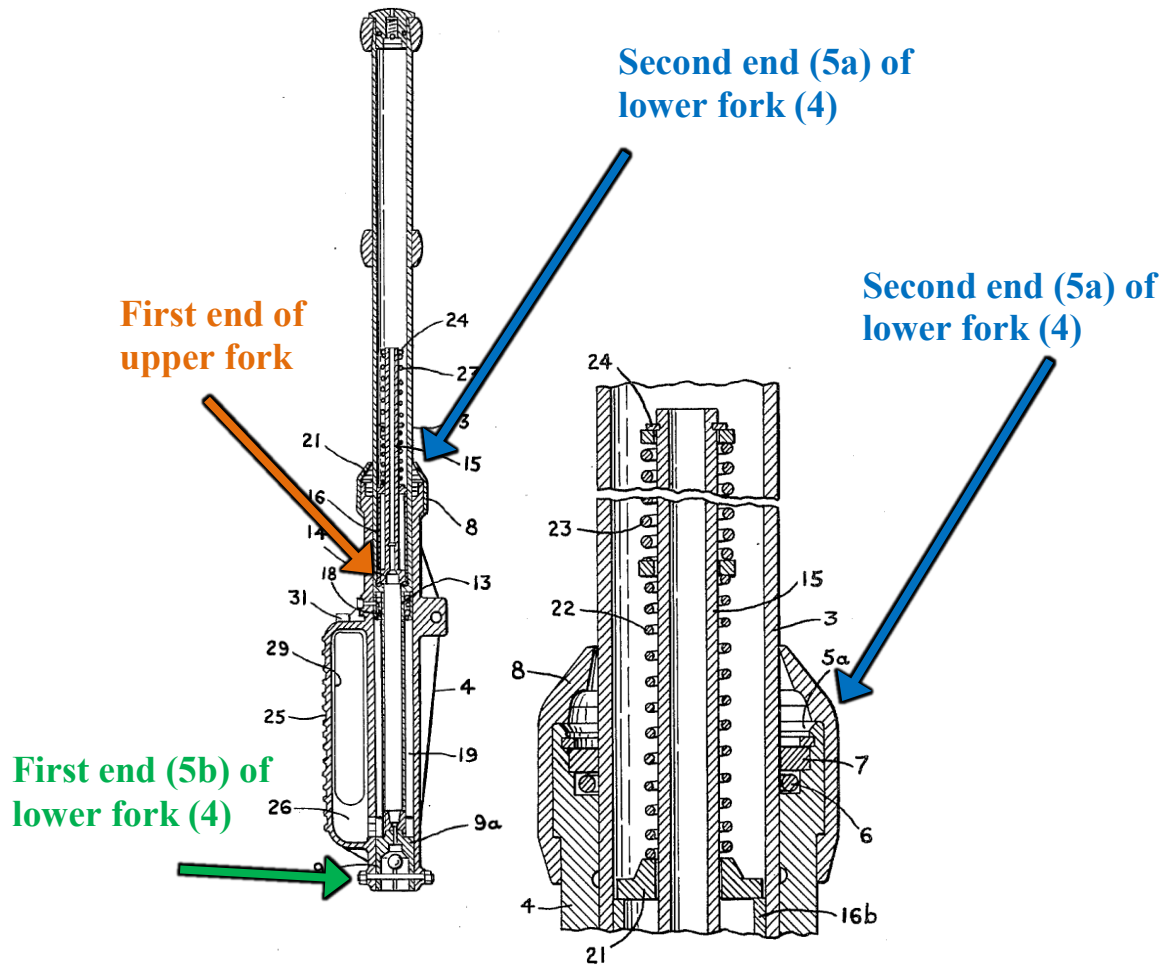


- **Claim 1[a]**

Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

168. *Ceriani* discloses each and every element of this limitation. *Ceriani* includes a lower fork **4** configured to have a first end **5b** (green arrow) coupled to a vehicle wheel, and a second end **5a** (blue arrow) configured to be telescopically

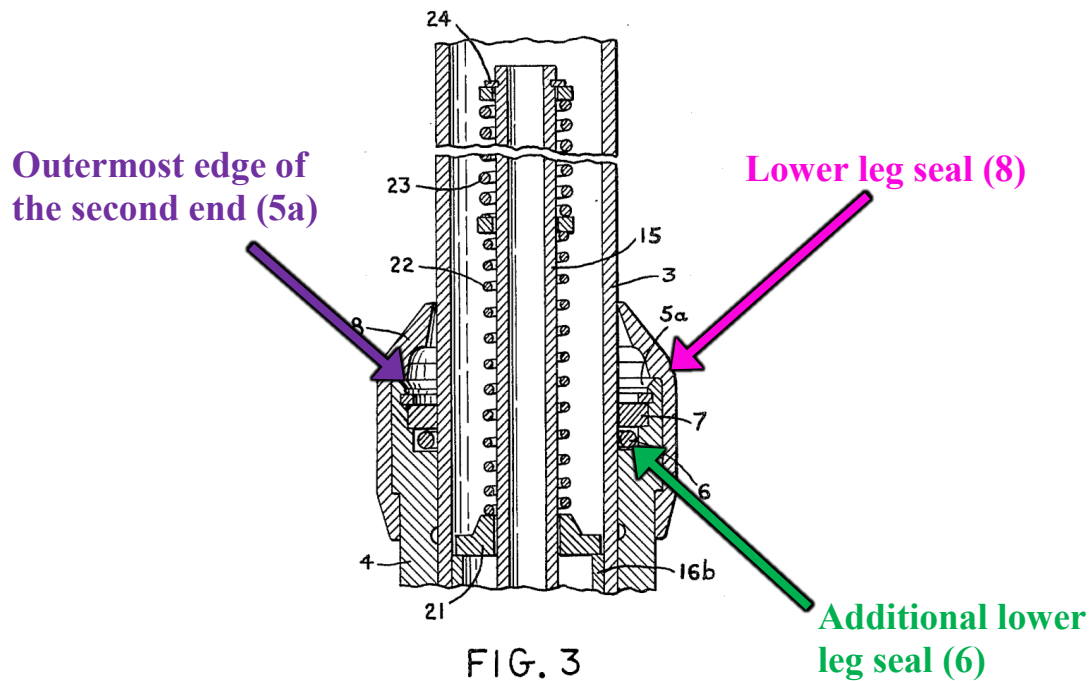
engaged with a first end (orange arrow) of an upper fork **3**. Ex. 1110, 2:5-16,
FIGS. 3-4.



- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

169. *Ceriani* discloses each and every element of this limitation. *Ceriani* includes a lower leg seal **8** (pink arrow, below) located at an outermost edge of the second end **5a** (purple arrow, below) of the lower fork tube **4**, the lower leg seal **8** configured for sealing closed a gap disposed between the upper fork tube **3** and the lower fork tube **4** when the lower fork **4** is telescopically engaged with the first end (orange arrow, above) of the upper fork **3**, thereby preventing an oil bath lubrication occupying an area within the lower fork tube **4** at a first end **5b** of the lower fork tube **4** from leaking from the lower fork **4**. *Ceriani* explains that the piston chamber **19**, **19a** within the lower end of the lower fork tube **4** includes oil. *See, e.g.*, Ex. 1110, 3:13-17, FIGS. 3-4.



170. In addition, the lower leg seal may be *Ceriani's* annular gasket **6** (green arrow, above), which also seals between the upper fork tube **3** and the lower fork tube **4**. Ex. 1110, FIGS. 3-4.

- **Claim 1[c]**

Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

171. *Ceriani* discloses each and every element of this limitation. *Ceriani* includes an upper bushing **7** (blue arrow) attached to and positioned adjacent to the lower leg seal **8** (or **6**) (pink (or orange) arrow). In particular, *Ceriani* discloses a

ring 7 that, along with the lower leg seal 8 (or 6), “protects body 3 at the joint at end 5a.” Ex. 1110, 2:9-10, FIGS. 3-4.

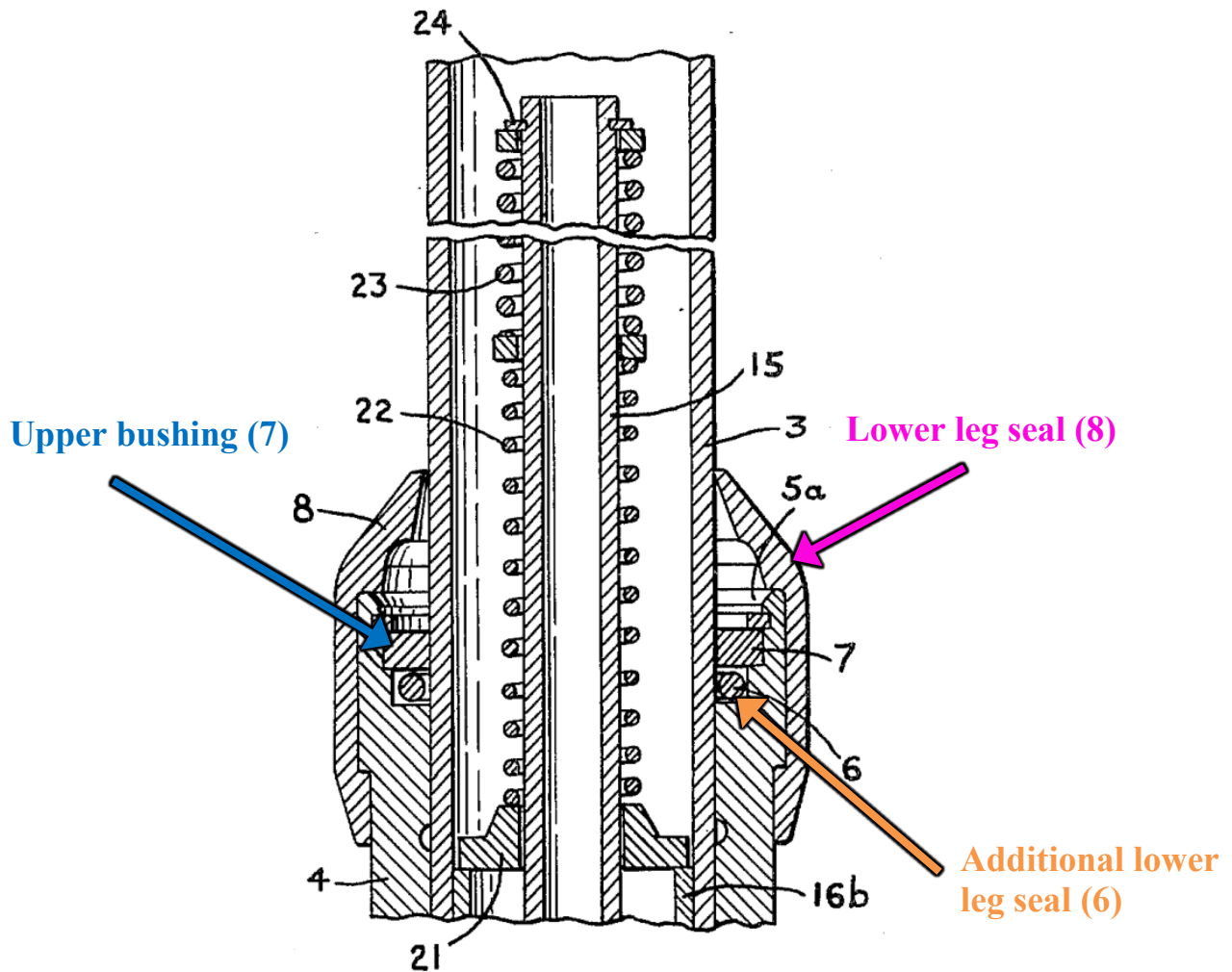
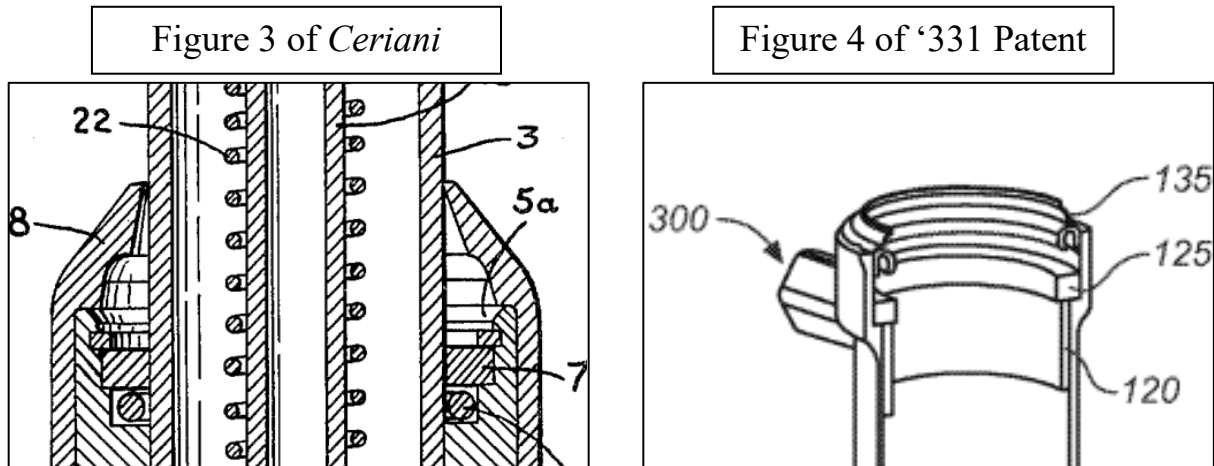


FIG. 3

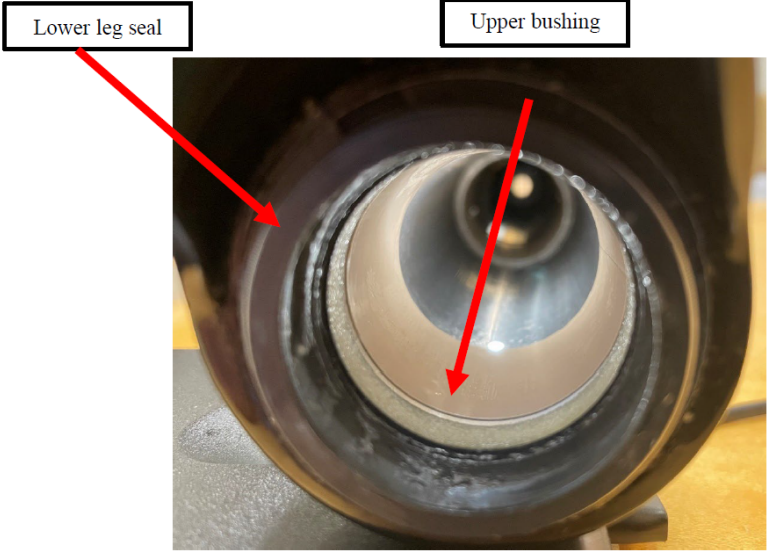
172. Although *Ceriani's* ring 7 does not directly touch the lower leg seals 8, *Ceriani's* configuration of the seal 8 and bushing 7 is the same as the only configuration disclosed in the '331 patent, as can be seen in a comparison between Figure 3 of *Ceriani* (on the left, below) and Figure 4 of the '331 patent (on the right,

below). In each case, the bushing **7** does not directly touch the seal **8**, and further, the '331 patent even includes a foam ring **125** interposed between the seal **135** and the bushing **120**.



Ex. 1110, FIG. 3; EX. 1101, FIG. 4.

173. Furthermore, Fox has already conceded that *Ceriani*'s configuration of the seal **8** and bushing **7** meets this limitation. In particular, Fox accused a lower leg seal that does not directly touch the bushing as meeting this limitation in its infringement contentions against SRAM in the District Court.

Claim	U.S. Patent No. 9,739,331	Rockshox Lyrik Ultimate
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and	The Rockshox Lyrik Ultimate has an upper bushing attached to and positioned adjacent to said lower leg seal. 

174. Accordingly, adopting Fox’s own mapping of its claim, *Ceriani* clearly discloses this claim limitation. Ex. 1110, FIG. 3; Ex. 1101, FIG. 4; Ex. 1113, 19; Ex. 1114, 21.³

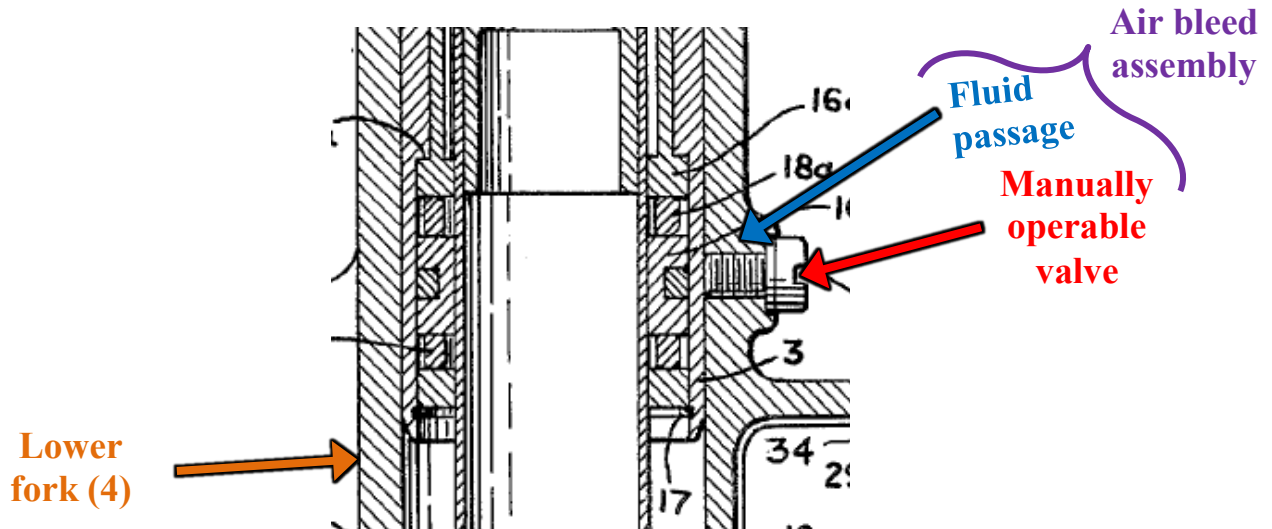
³ Similarly, Fox has contended below that the “attached to” limitation generally means “in contact with” and appears to contend that this would include contact through other members. Ex. 1115, 7. Although SRAM disagrees with this construction as opposite the plain meaning of the term, Fox’s construction renders the claim invalid in view of *Ceriani*.

- **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

175. *Ceriani* discloses each and every element of this limitation as interpreted by Fox. *Ceriani* includes an air bleed assembly (purple) disposed on the lower fork tube **4** that is configured for equalizing internal pressure within the lower fork **4** with ambient pressure. When *Ceriani*'s screw is removed, the air pressure within the lower fork **4** equalizes with the ambient air pressure. Ex. 1110, FIG. 4.⁴

⁴ As set forth above, Fox limited the position of the "air bleed assembly" to a location between the fork's lower leg seal and upper bushing. However, in the District Court, Fox contends that no such disclaimer took place. Ex. 1115, 7. If Fox's position were adopted, *Ceriani* anticipates. Alternatively, if the Board recognizes this disclaimer, *Ceriani* still renders this limitation obvious, wherein locating the air bleed assembly anywhere along the length of the fork tube is simply a matter of engineering choice and mechanical skill, such that it would have been obvious to a POSITA to modify *Ceriani* in this regard.



176. Additionally, *Ceriani's* air bleed assembly (purple bracket) may be *Ceriani's* pressure relief valve **35** and pressure regulating valve **31** (the claimed manually operable valve), and passage **30**. Through these valves **35**, **31** and passage **30**, any pressurized fluid, such as air, within the chamber **29** may be equalized with ambient pressure. See Ex. 1110, 3:9-13, 3:61-4:7, FIG. 4.

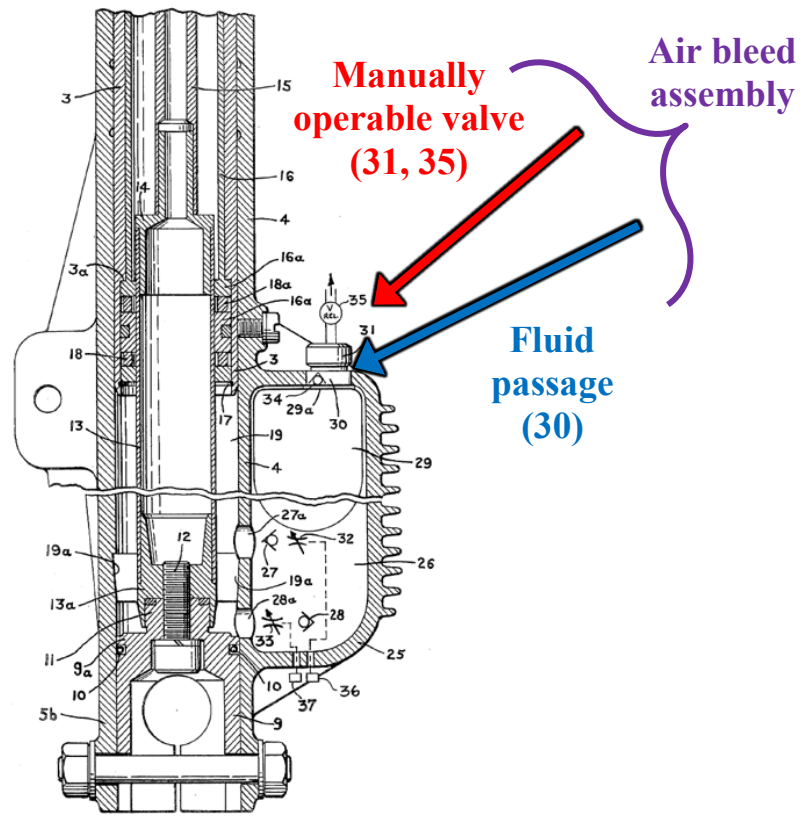
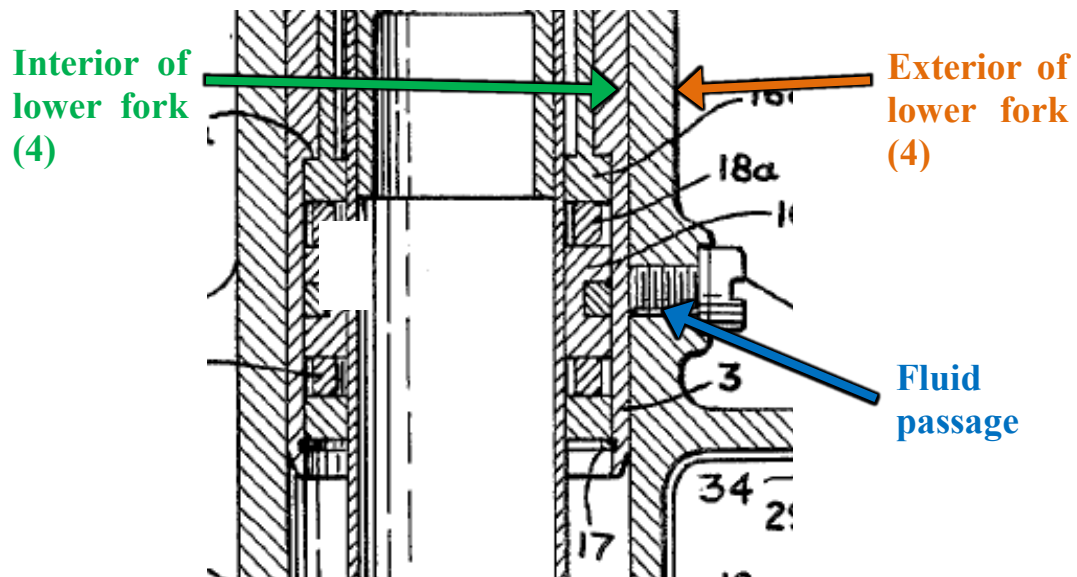


FIG. 4

- **Claim 1[e]**

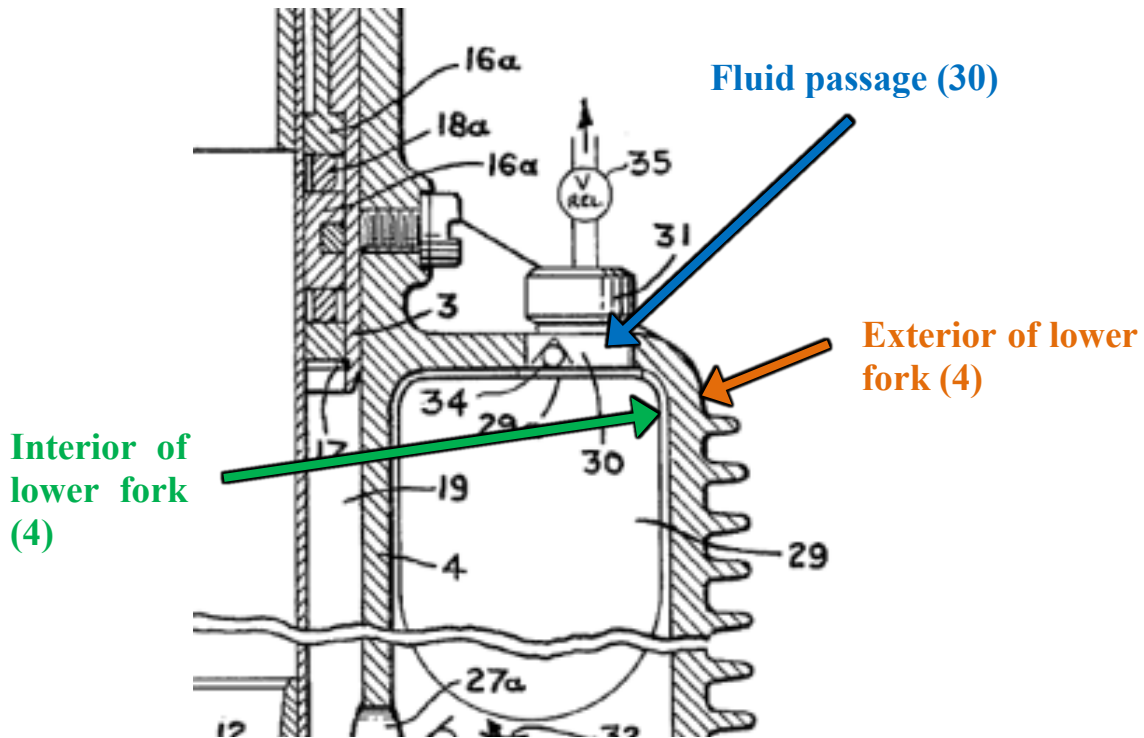
Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

177. *Ceriani* discloses each and every element of this limitation. *Ceriani* includes a fluid passage (blue arrow) disposed between an interior (green arrow) and an exterior (orange arrow) of the lower fork 4. *Ceriani*'s fluid passage is the passage for accommodating the illustrated screw. Ex. 1110, FIG. 4.



178. Additionally, *Ceriani* includes a fluid passage 30 (blue arrow) disposed between an interior (green arrow) and an exterior (orange arrow) of the lower fork 4.

Ex. 1110, FIG. 4.



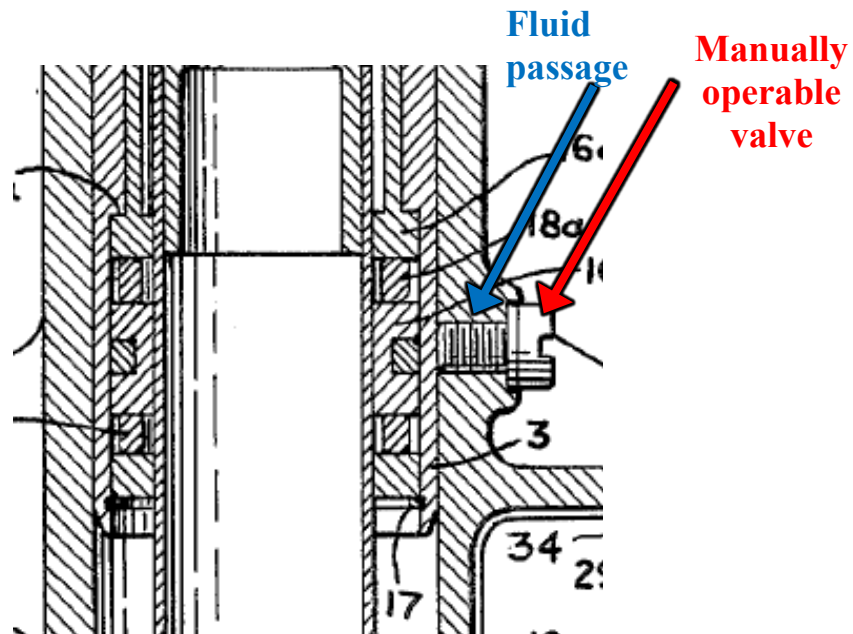
• Claim 1[f]

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

179. *Ceriani* discloses each and every element of this limitation. *Ceriani*'s manually operable valve (portions of screw) (red arrow) is located in the lower fork 4 and coupled to the fluid passage (blue arrow). *Ceriani*'s screw has a first position substantially closing the fluid passage (when sealed) and a second position allowing

a fluid to flow between the interior and the exterior (when sufficiently unscrewed or absent). *Ceriani's* manually operable valve is disposed between the lower leg seal **8** and/or **6** (orange arrow) and the first end **5b** (green arrow) of the lower fork **4**.

Ex. 1110, FIGS. 2, 4.



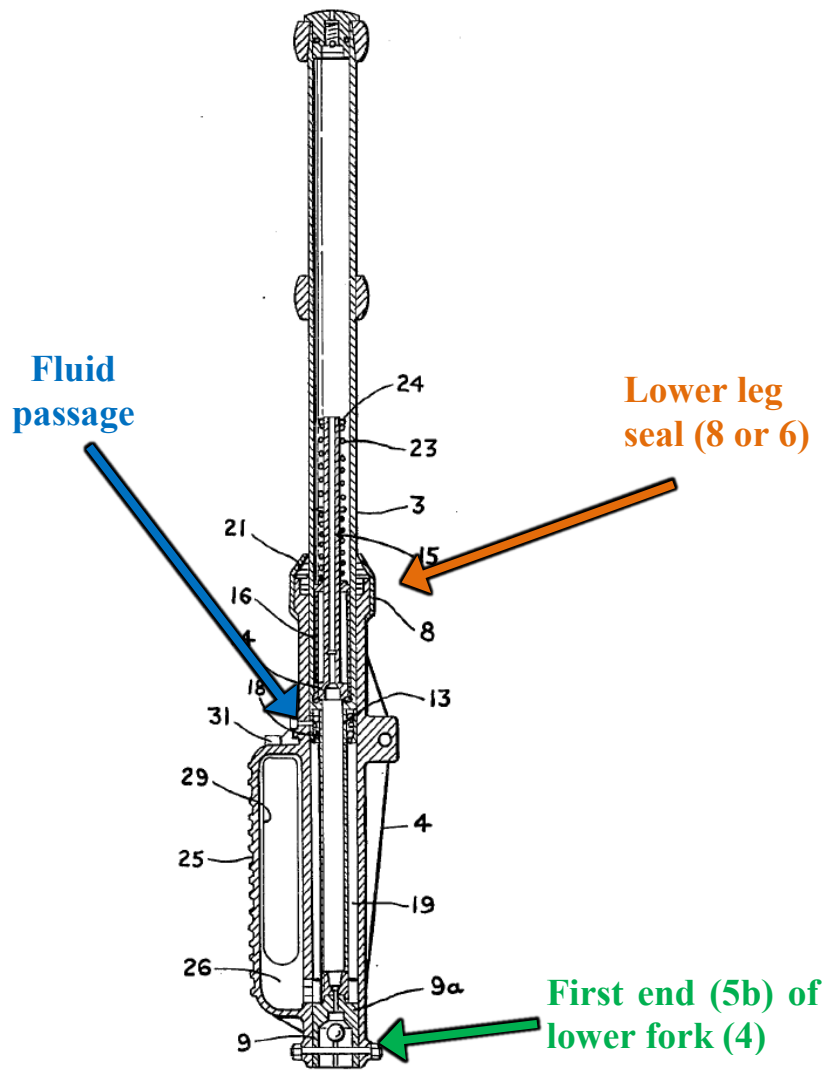
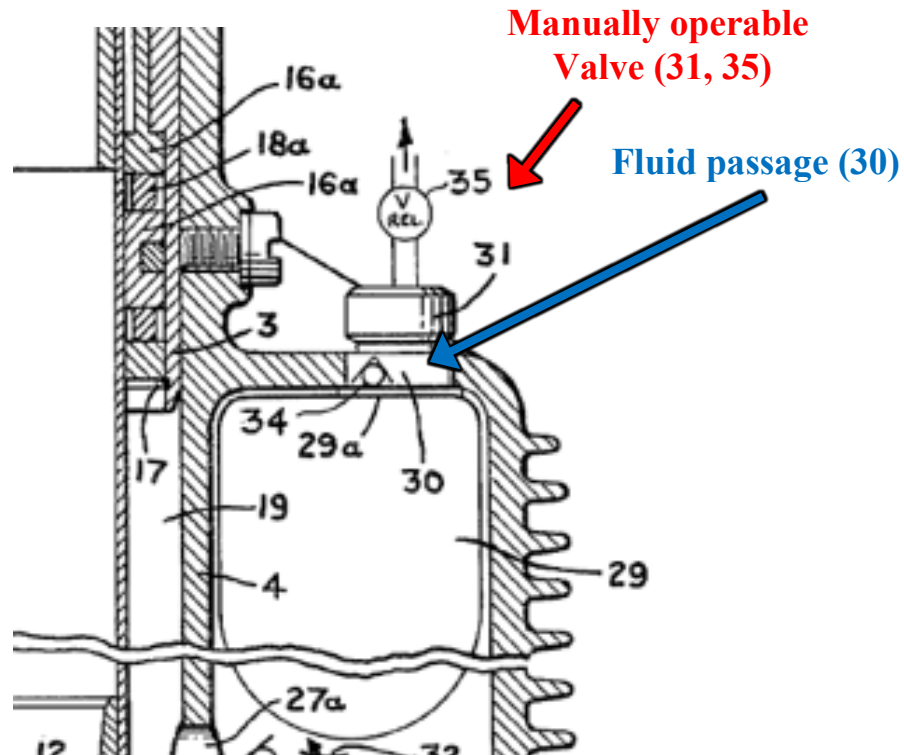


FIG. 2

180. Additionally, *Ceriani's* other manually operable valve **35**, **31** (red arrow, below) is located in the lower fork **4** and coupled to the fluid passage **30** (blue arrow, below). *Ceriani's* valve **31**, **35** has a first position substantially closing the fluid passage **30** (when sealed) and a second position allowing a fluid to flow between the interior and the exterior (when unsealed). Ex. 1110, 3:3-17, 3:61-4:13,

FIGS. 2, 4. *Ceriani's* other manually operable valve **35**, **31** is disposed between the lower leg seal **8** (and/or **6**) (orange arrow, above) and the first end **5b** of the lower fork **4** (green arrow, above). Ex. 1110, FIGS. 2, 4.



- **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

181. *Ceriani* includes each and every element of this limitation. *Ceriani's* fluid passage (blue arrow) and manually operable valve (portions of screw) (red arrow) are located at a distance from an oil bath lubrication (within areas **19** and **19a**) (orange arrows) within the lower fork **4** such that when the screw is removed or loosened, most, if not all of the oil bath lubrication (within **19**, **19a**) remains within the lower fork **4**. Due to the placement of the screw, most if not all of the oil will stay within the lower fork **4**, especially if the pocket **29** is vented in advance, as would be the case during any maintenance or before the pocket **29** is charged with pressurized fluid. Further, any air within the oil bath space (**19**, **19a**) will be equalized to ambient pressure when the screw is removed, while the oil will remain in the oil bath lubrication (**19**, **19a**). Ex. 1110, FIG. 4.

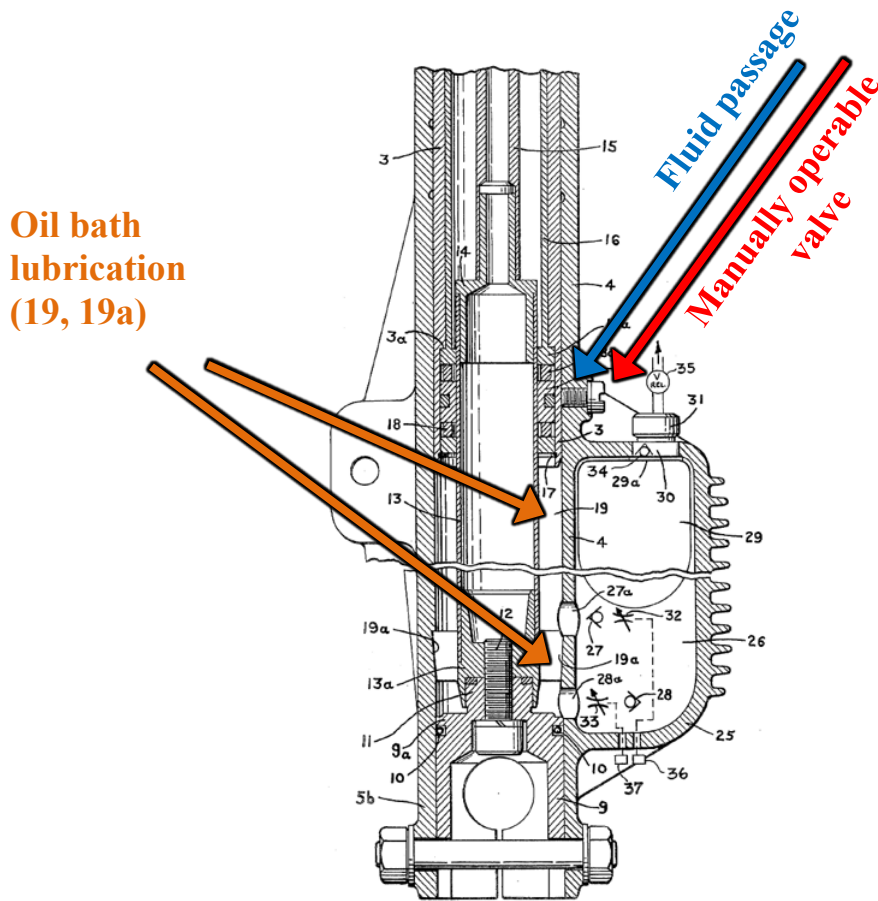


FIG. 4

182. Additionally, *Ceriani's* other manually operable valve **31**, **35** (red arrow) and fluid passage **30** (blue arrow) are located at a distance from an oil bath lubrication (within areas **19** and **19a**) (orange arrows) within the lower fork **4** such that when the valves **31**, **35** are opened, all of the oil bath lubrication (within **19**, **19a**) remains within the lower fork **4**, due at least to the pocket **29** preventing any oil from exiting the passage **30**. Further, any air within the pocket **29** will be equalized to ambient pressure when the valves **31**, **35** are opened. Ex. 1110, FIG. 4.

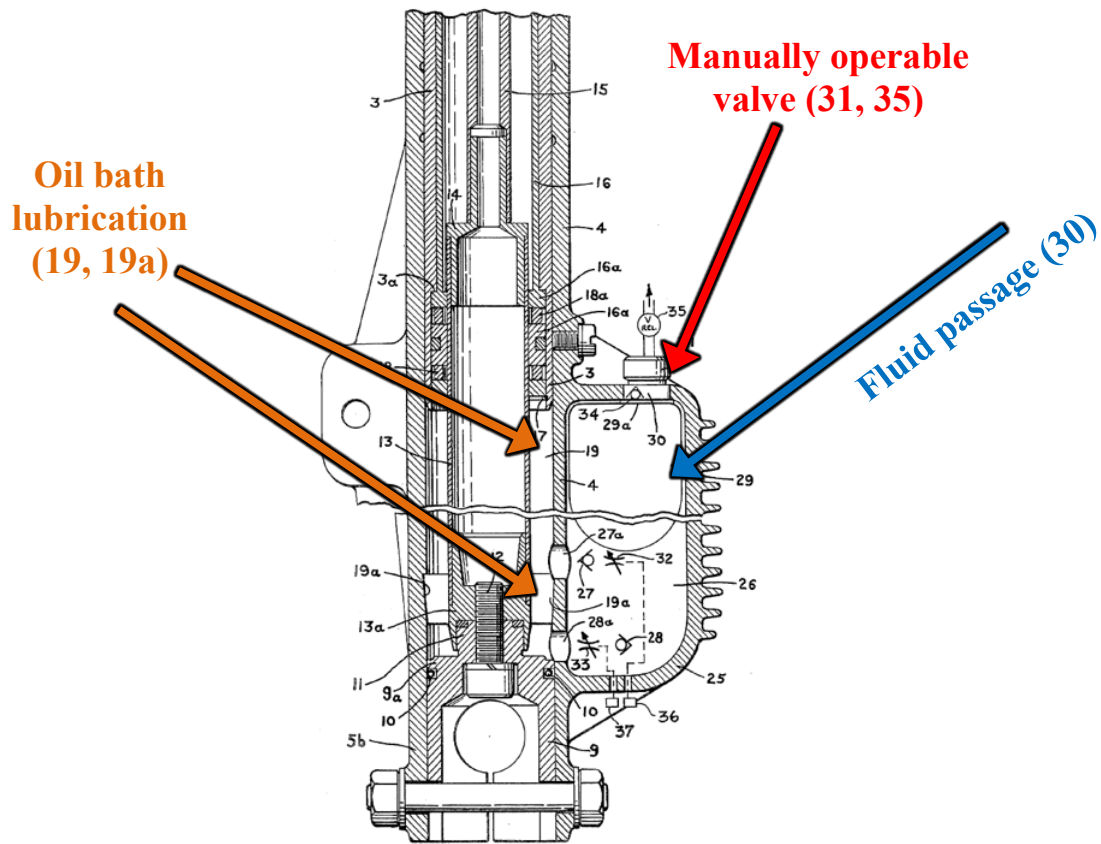


FIG. 4

Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

183. *Ceriani* includes each and every element of this claim. In addition to disclosing all of the limitations of claim 1, *Ceriani* further includes a gas flowing through the fluid passage, at least when the user allows any gas with the piston chamber 19, 19a to flow via the screw and related screw hole. In particular,

Ceriani's screw will allow any gas to equalize with ambient air pressure before the piston chamber **19, 19a** when the piston chamber **19, 19a** is not completely filled with oil, which would occur when the fork is assembled or whenever routine maintenance is performed. Ex. 1110, FIG. 4.

184. In addition, *Ceriani* further includes a gas flowing through the fluid passage **30**, at least when the user configures any gas with the piston chamber **19, 19a** to flow via the screw and related screw hole. In particular, *Ceriani's* manually operable valve **31, 35** will allow any gas pressure within the pocket **29** to equalize with ambient air pressure. Ex. 1110, FIG. 4.

Invalidity of Dependent Claim 3

• **Claim 3[pre]**

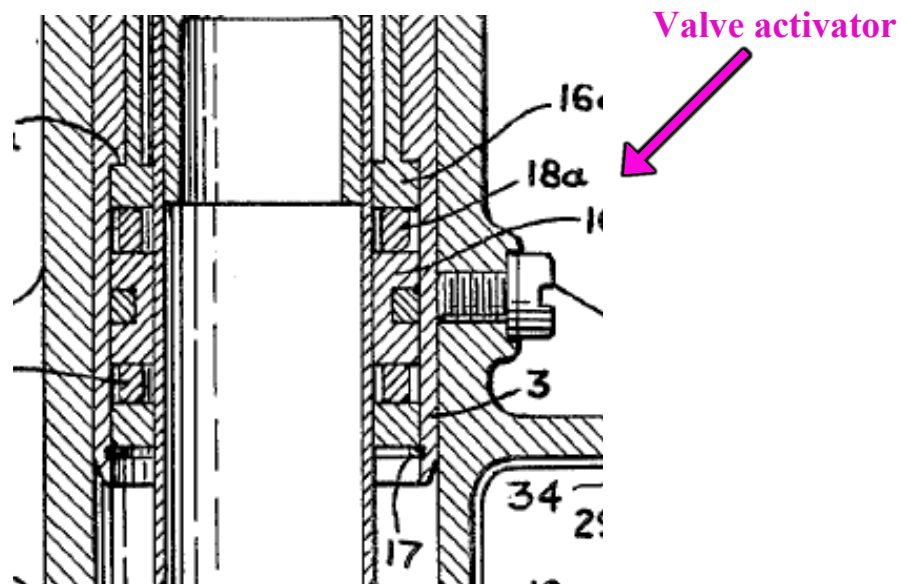
Claim Element	Claim Language
3[pre]	The lower fork and air bleed assembly combination of claim 1, said air bleed assembly further comprising:

185. *Ceriani* discloses each and every element of this preamble, as discussed above.

- **Claim 3[a]**

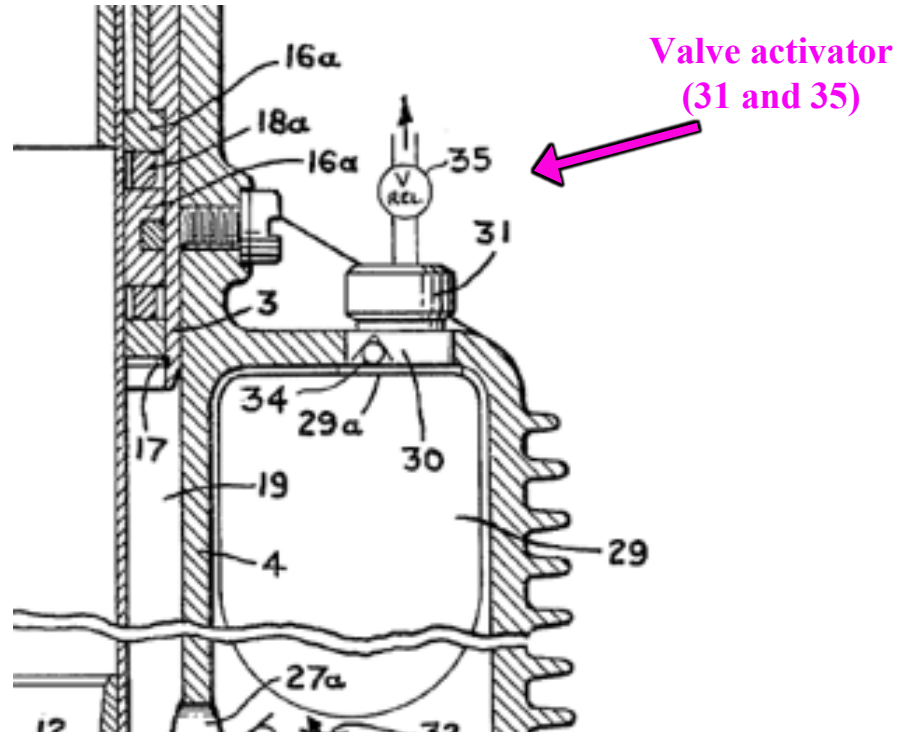
Claim Element	Claim Language
3[a]	a valve activator coupled with said manually operable valve, said valve activator comprising:

186. *Ceriani* includes each and every element of this limitation. *Ceriani* includes a valve activator (portions of screw for communicating force from a manual input to the threads of the screw) (pink arrow) coupled with the manually operable valve (portions of screw). Ex. 1110, FIG. 4. Alternatively, the threads of *Ceriani*'s screw can be considered the valve activator, as identified by the Examiner during the prosecution of the '331 patent.



187. Additionally, *Ceriani* includes a valve activator (portions of **31**, **35**) (pink arrow) coupled with the manually operable valve **31**, **35**. *Ceriani* explains that

at least the pressure relief valve **35** may be manually operated. Ex. 1110, 3:66-4:2, FIG. 4.



- **Claim 3[b]**

Claim Element	Claim Language
3[b]	an activation position placing said manually operable valve into said first position; and

188. *Ceriani* includes each and every element of this limitation. *Ceriani's* valve activator (discussed above in claim 3(a)) includes an activation position where the manually operable valve is in an open position (when the screw is removed or sufficiently loosened). See Ex. 1110, FIG. 4.

189. Additionally, *Ceriani's* valve activator **31, 35** (pink arrow) includes an activation position where the manually operable valve **31, 35** is in an open position (when the valves are open). *See* Ex. 1110, FIG. 4, 3:9-13, 3:61-4:2. The valves **31, 35** may be selectively opened or closed to retain fluid or allow it to pass.

• **Claim 3[c]**

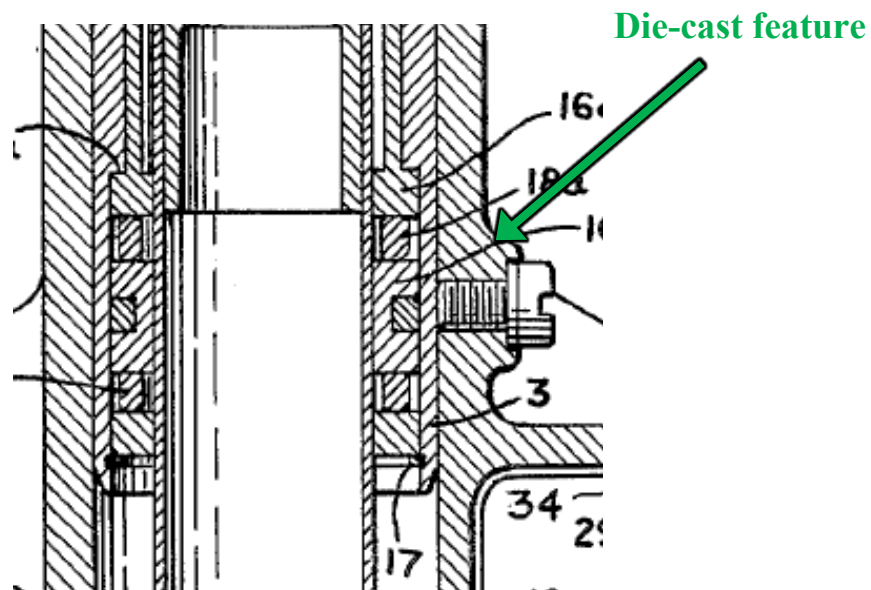
Claim Element	Claim Language
3[c]	a deactivation position placing said manually operable valve into said second position, and whereupon when in said activation position, the trapped air pressure in said lower fork is equalized with the local ambient air pressure.

190. *Ceriani* includes each and every element of this limitation. *Ceriani's* valve activator includes a deactivation position where the manually operable valve is in a closed position, as shown in FIG. 4. When the screw is open, any internal air pressure may equalize with ambient pressure. *See* Ex. 1110, FIG. 4.

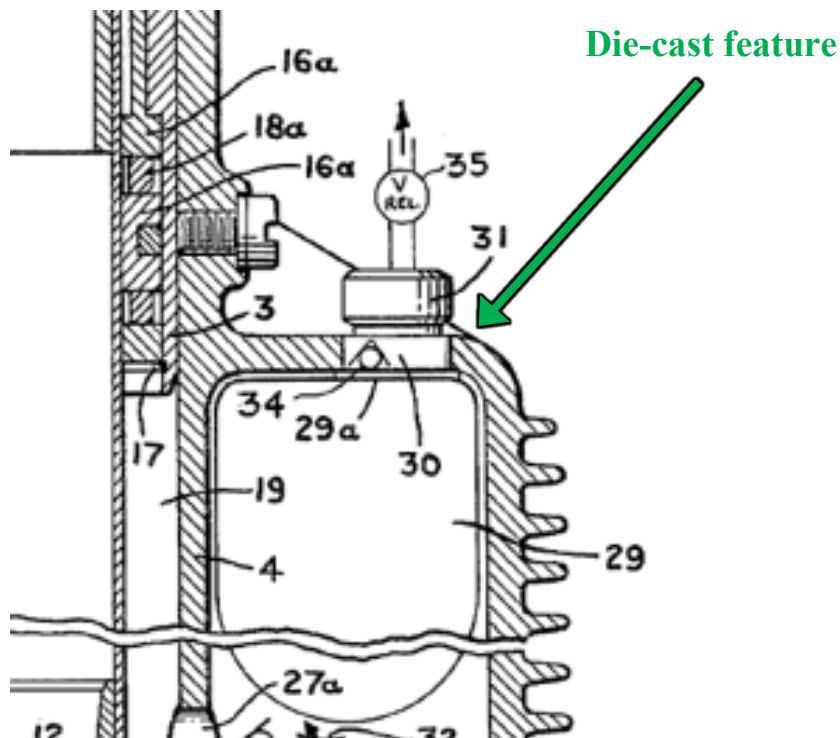
191. Additionally, *Ceriani's* valve activator (portions of **31, 35**) includes a deactivation position where the manually operable valve **31, 35** (red arrow) is in a closed position, as shown in FIG. 4. *See* Ex. 1110, FIG. 4, 3:9-13, 3:61-4:2. The valves **31, 35** may be selectively opened or closed to allow fluid to pass or to retain fluid. *Id.* When either valve **31, 35** is open, any internal air pressure may equalize with ambient pressure. *See* Ex. 1110, FIG. 4.

Invalidity of Dependent Claim 5

192. *Ceriani* includes each and every element of this claim. In addition to meeting all of the limitations of claim 3, *Ceriani* includes a manually operable valve (portions of screw) fixed into a passage through the body of the lower fork **4**, and *Ceriani* discloses that the valve activator is located on a die-cast feature (green arrow) of the lower fork **4**. Ex. 1110, FIG. 4.



193. Additionally, *Ceriani* includes a manually operable valve **31**, **35** fixed into a passage **30** through the body of the lower fork **4**, and *Ceriani* discloses that the valve activator (portions of **31**, **35**) is located on a die-cast feature (green arrow) of the lower fork **4**.



194. In any case, the structures of *Ceriani's* lower fork **1** do not differ from those made by die-casting.

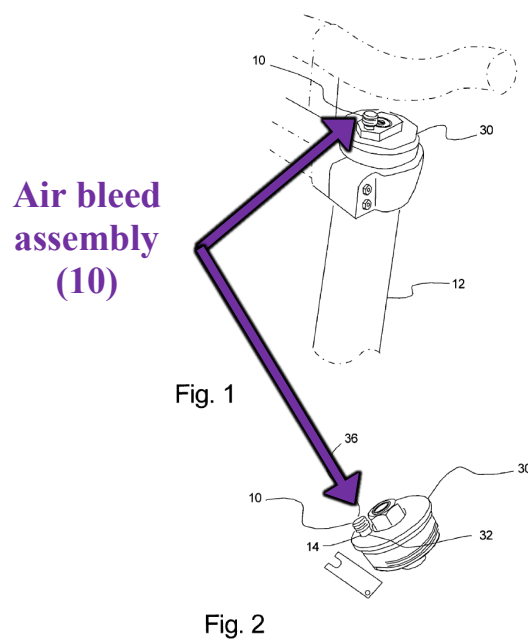
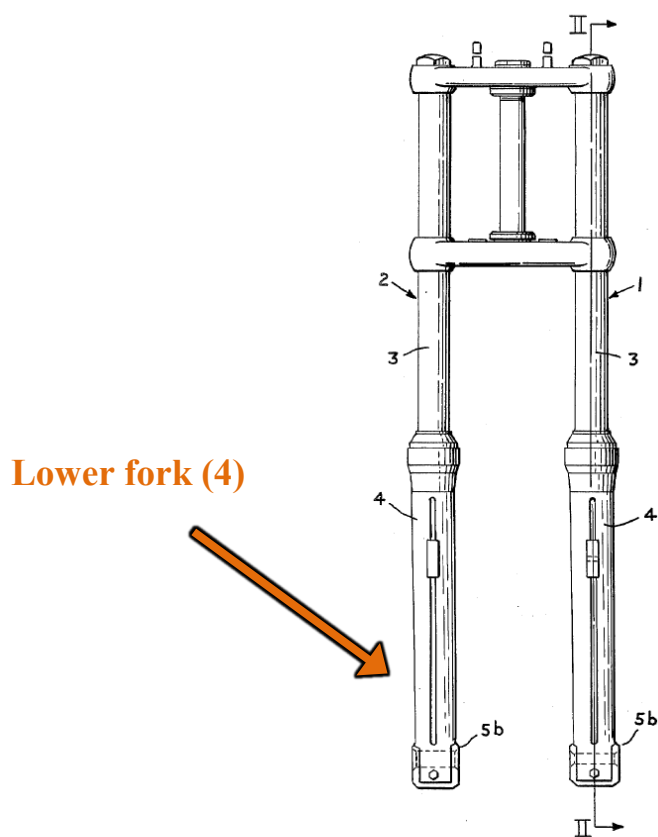
**Ground VI: Claims 1 Through 8 Are Rendered Obvious Under 35 U.S.C. § 103
by *Ceriani* in view of *Bruckbauer* and/or *Danter***

Invalidity of Independent Claim 1

• **Claim 1[pre]**

Claim Element	Claim Language
1[pre]	A lower fork and air bleed assembly combination comprising:

195. *Ceriani* in view of *Bruckbauer* discloses each and every element of this preamble. *Ceriani* discloses a lower fork **4**, and *Bruckbauer* discloses an air bleed assembly **10**. Ex. 1110, FIG. 1; Ex. 1106, FIGS. 1-2.



- **Claim 1[a]**

Claim Element	Claim Language
1[a]	a lower fork, said lower fork configured to have a first end coupled to a vehicle wheel, and a second end configured to be telescopically engaged with a first end of an upper fork, said lower fork further comprising:

196. *Ceriani* discloses each and every element of this limitation, as discussed above.

- **Claim 1[b]**

Claim Element	Claim Language
1[b]	a lower leg seal located at an outermost edge of said second end of said lower fork tube, said lower leg seal configured for sealing closed a gap disposed between said upper fork tube and said lower fork tube when said lower fork is telescopically engaged with said first end of said upper fork, thereby preventing an oil bath lubrication occupying an area within said lower fork tube at a first end of said lower fork tube from leaking from said lower fork; and

197. *Ceriani* discloses each and every element of this limitation, as discussed above.

- **Claim 1[c]**

Claim Element	Claim Language
1[c]	an upper bushing attached to and positioned adjacent to said lower leg seal; and

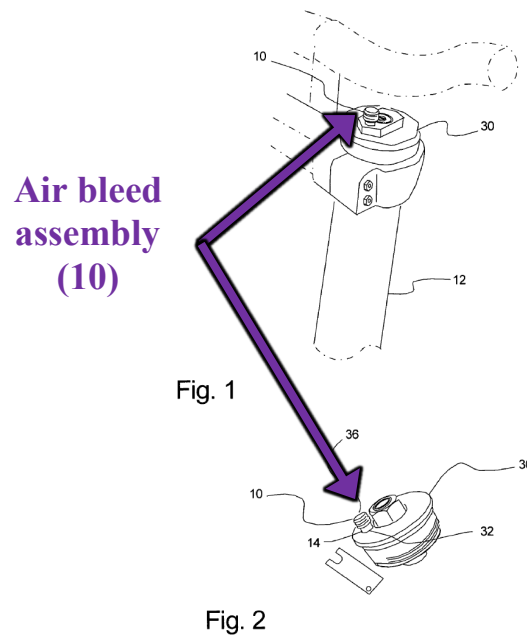
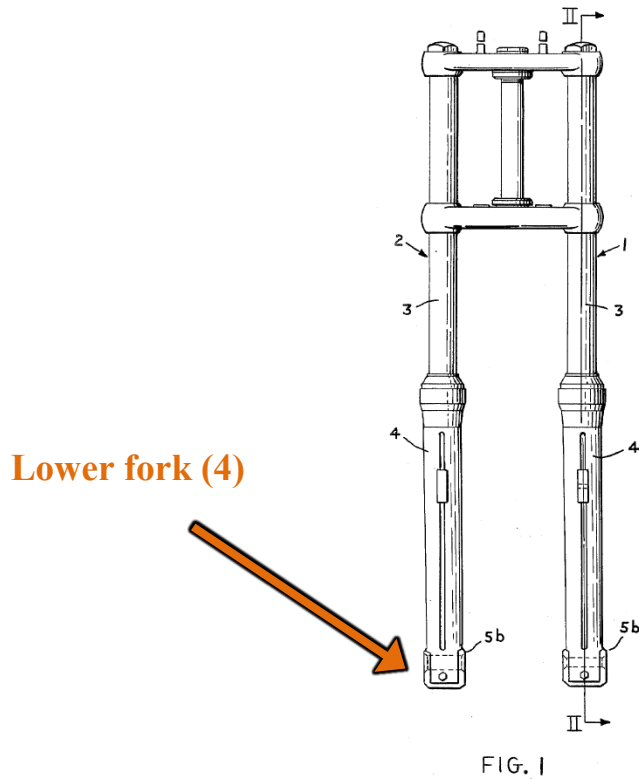
198. *Ceriani* discloses each and every element of this limitation, as discussed above.

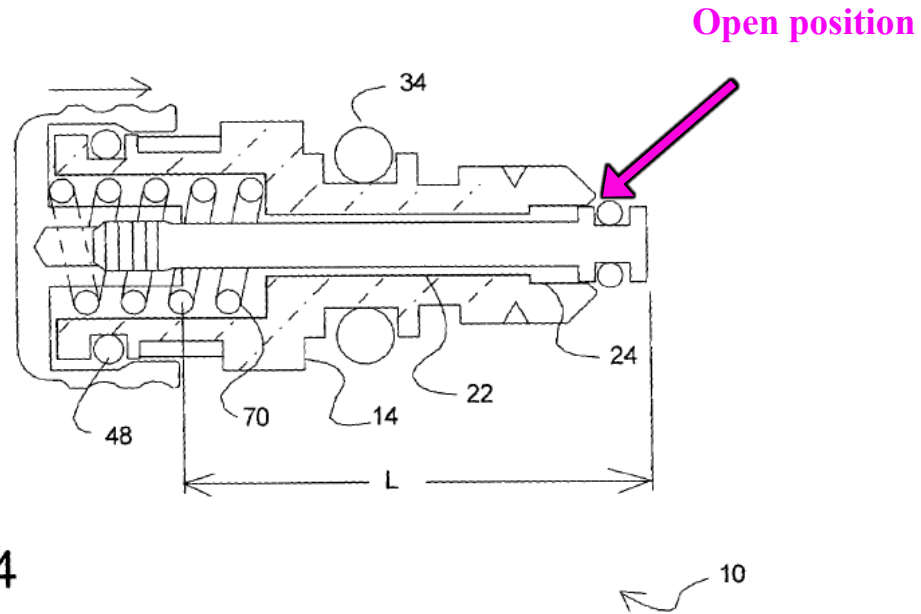
- **Claim 1[d]**

Claim Element	Claim Language
1[d]	an air bleed assembly disposed on said lower fork tube, said air bleed assembly configured for equalizing ambient pressure within said lower fork, said air bleed assembly comprising:

199. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Ceriani* in view of *Bruckbauer* includes *Bruckbauer's* pressure relief valve **10** and either (A) *Ceriani's* threaded hole or (B) *Ceriani's* passage **30** as an air bleed assembly (purple arrows) disposed on *Ceriani's* lower fork tube **4** at either (A) *Ceriani's* threaded hole or (B) *Ceriani's* passage **30**. This air bleed assembly is configured for equalizing ambient pressure within the lower fork **4**. When *Bruckbauer's* valve cap **36** is depressed, gas may travel through *Bruckbauer's* pressure relief valve **10** while it is in an open position (pink arrow), as illustrated in

Figure 4, and the air pressure within the fork 4 will equalize with the ambient air pressure. Ex. 1110, FIG. 1; Ex. 1106, FIGS. 1, 2, 4.





- Claim 1[e]

Claim Element	Claim Language
1[e]	a fluid passage disposed between an interior of said lower fork and an exterior of said lower fork; and

200. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation, as discussed above.

• **Claim 1[f]**

Claim Element	Claim Language
1[f]	a manually operable valve located in said lower fork and coupled to said fluid passage, said manually operable valve having a first position substantially closing said fluid passage and a second position allowing a fluid to flow between said interior and said exterior, said manually operable valve disposed between said lower leg seal and said first end of said lower fork, and

201. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer*'s manually operable valve **10** (purple arrows) located in *Ceriani*'s lower fork **4** is coupled to either (A) *Ceriani*'s threaded hole or (B) *Ceriani*'s passage **30** (blue arrows). *Bruckbauer*'s manually operable valve **10** has a first position substantially closing the fluid passage (orange arrow, *Bruckbauer*'s Figure 3) and a second position allowing a fluid to flow between the interior and the exterior (pink arrow, above, *Bruckbauer*'s Figure 4). Ex. 1110, FIGS. 1-4; Ex. 1106, FIGS 1-4.

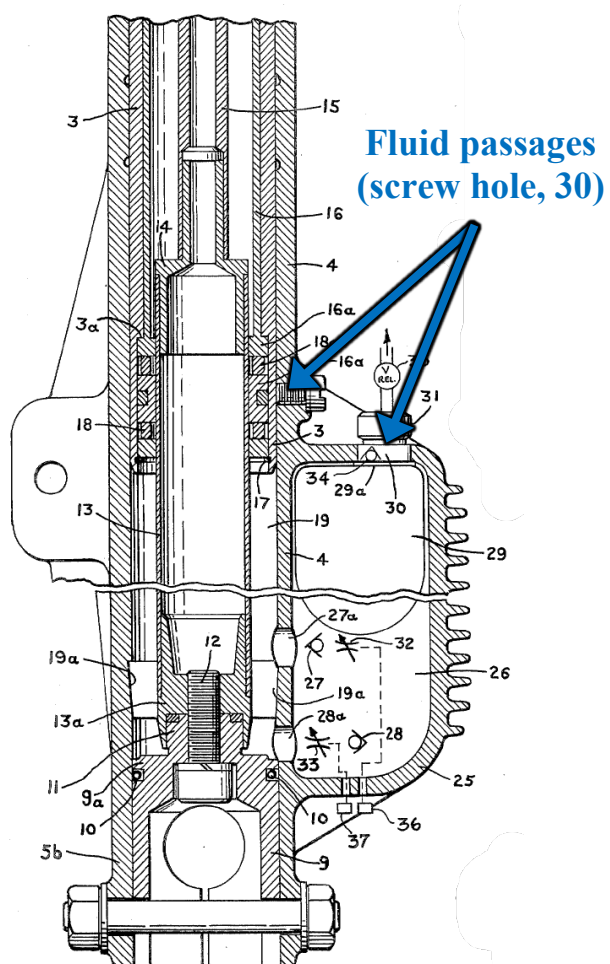


FIG. 4

Air bleed
assembly
(10)

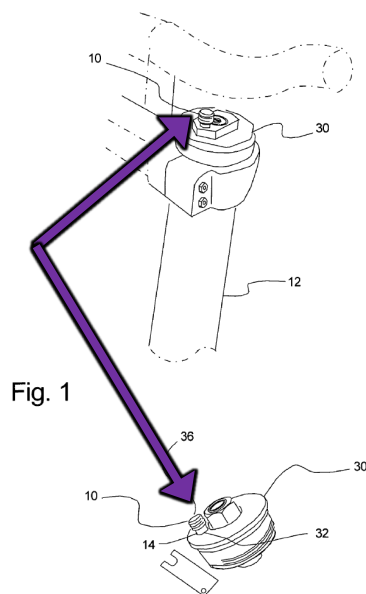


Fig. 1

Fig. 2

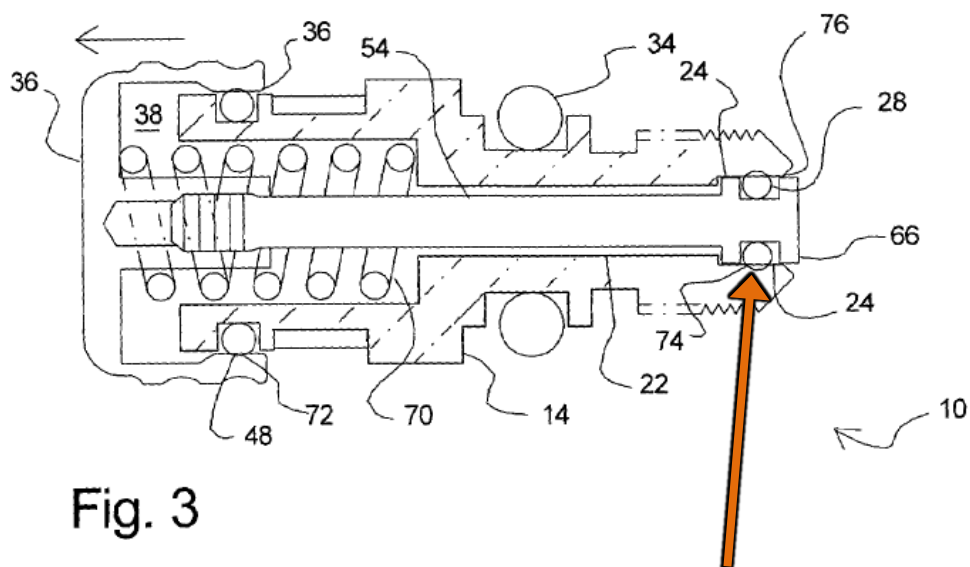


Fig. 3

Closed
Position

• **Claim 1[g]**

Claim Element	Claim Language
1[g]	wherein said fluid passage and said manually operable valve are located at a distance from an oil bath lubrication within said lower fork, such that when said manually operable valve is in said second position, most, if not all of said oil bath lubrication remains within said lower fork and such that when trapped air pressure inside said lower fork, that is higher than a local ambient air pressure outside of said suspension fork or shock absorber, is relieved most, of said oil bath lubrication that is within said lower fork remains within said lower fork.

202. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. Either (A) *Ceriani*'s threaded hole or (B) *Ceriani*'s passage **30** and *Bruckbauer*'s manually operable valve **10** are located at a distance from an oil bath lubrication within the lower fork **1**. This positioning of *Bruckbauer*'s valve **10** results in a configuration wherein when *Bruckbauer*'s manually operable valve **10** is in the second position (open position), most, if not all of the oil bath lubrication remains within *Ceriani*'s lower fork **1** because *Bruckbauer*'s valve **10** is near the top of *Ceriani*'s lower fork **1** and can be closed once oil begins to leak. Ex. 1110, FIGS. 1-4; Ex. 1106, FIGS. 1-2. Specifically, when *Bruckbauer*'s pressure relief valve **10** is placed into *Ceriani*'s threaded hole, the oil level will be below the threaded hole until either a sufficient amount of oil has been added or the oil is forced out of the piston chamber **19** via compression of the fork or otherwise. Additionally, when

Bruckbauer's pressure relief valve **10** is placed into *Ceriani's* passage **30**, oil may not leak therefrom because oil is prohibited from passing through the membrane that forms the pocket **29**.

203. Further, any air within the lower fork **1** will be equalized to ambient pressure when the valve **10** is opened, while the oil will remain in the oil bath lubrication space within the lower fork **1**. Ex. 1110, FIGS. 1-4; Ex. 1106, FIGS. 1-4.

Invalidity of Dependent Claim 2

Claim Element	Claim Language
2	The lower fork and air bleed assembly combination of claim 1, wherein said fluid comprises: a gas.

204. *Ceriani* discloses each and every element of this limitation, as discussed above.

Invalidity of Dependent Claim 3

• **Claim 3[pre]**

Claim Element	Claim Language
3[pre]	The lower fork and air bleed assembly combination of claim 1, said air bleed assembly further comprising:

205. *Ceriani* discloses each and every element of this preamble, as discussed above.

• **Claim 3[a]**

Claim Element	Claim Language
3[a]	a valve activator coupled with said manually operable valve, said valve activator comprising:

206. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a valve activator **54, 36** (pink arrow) coupled with *Bruckbauer*'s manually operable valve **54, 36, 14, 70**. For example, *Ceriani* in view of *Bruckbauer* includes a valve cap **36** and connecting shaft **54** coupled with *Bruckbauer*'s manually operable valve **54, 36, 14, 70**. Ex. 1106, 5:3-15, FIG. 3.

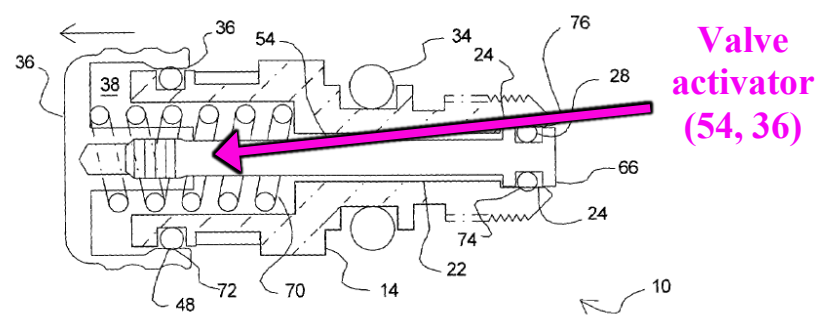


Fig. 3

- **Claim 3[b]**

Claim Element	Claim Language
3[b]	an activation position placing said manually operable valve into said first position; and

207. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer*'s valve activator **54, 36** includes an activation position where the manually operable valve **54, 36, 14, 70** is in an open⁵ position (orange arrow). For example, *Ceriani* in view of *Bruckbauer*'s valve cap **36**, connecting shaft **54**, and hollow body **14** include a spaced-apart relationship where a gas may travel through the air bleed assembly **10**. Ex. 1106, 5:3–9; FIG. 4.

⁵ I note that the term “activation position” conflates the first and second positions between claims 1 and 3 of the ‘331 Patent and is therefore indefinite.

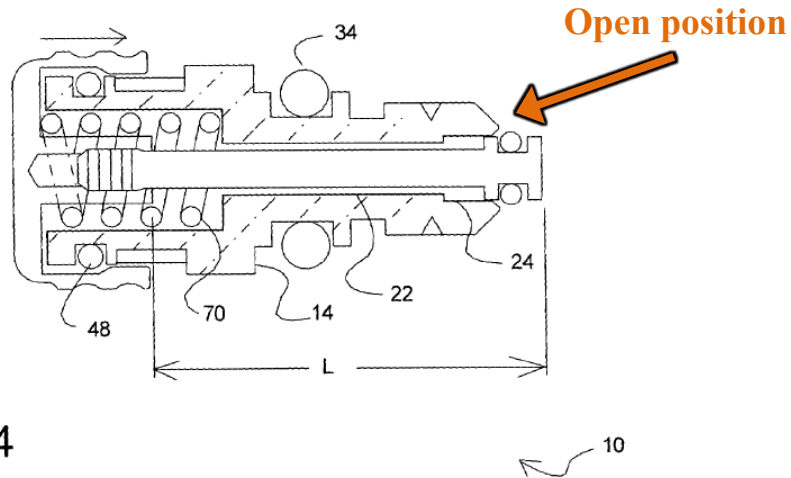
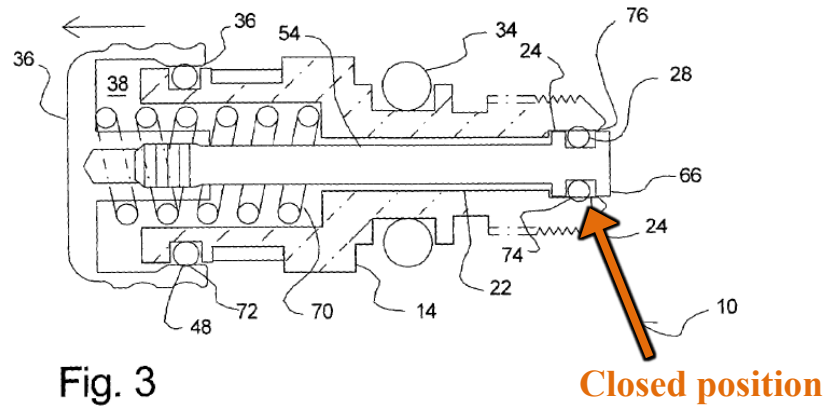


Fig. 4

- **Claim 3[c]**

Claim Element	Claim Language
3[c]	a deactivation position placing said manually operable valve into said second position, and whereupon when in said activation position, the trapped air pressure in said lower fork is equalized with the local ambient air pressure.

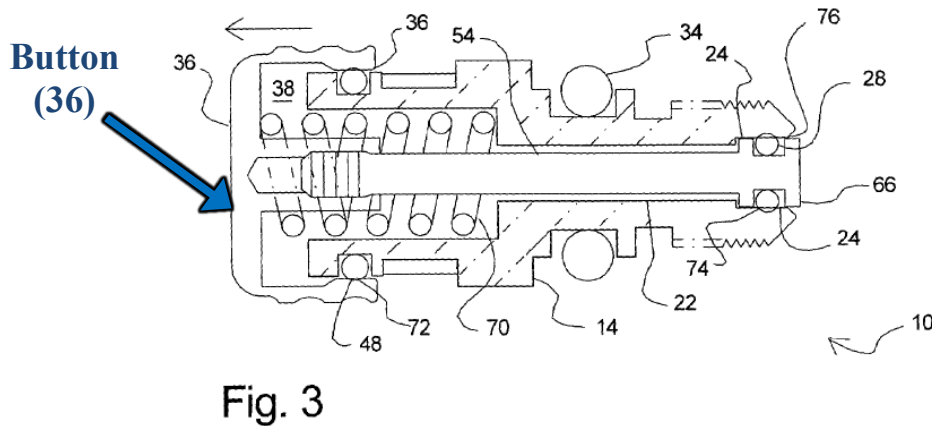
208. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer's* valve activator **54, 36** includes a deactivation position where the manually operable valve **54, 36, 14, 70** is in a closed position (orange arrow). For example, *Ceriani* in view of *Bruckbauer's* valve cap **36**, connecting shaft **54**, and hollow body **14** include a biased position where a gas may not travel through the air bleed assembly **10**. Ex. 1106, 5:23-28; FIG. 3.



Invalidity of Dependent Claim 4

Claim Element	Claim Language
4	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator comprises: a button to select said activation position and said deactivation position.

209. *Ceriani* in view of *Bruckbauer* discloses each and every element of this Claim. *Bruckbauer's* valve activator 54, 36 includes a button 36 (blue arrow) to select the activation position and the deactivation position. Ex. 1106, 5:3-28, FIG. 3.



Invalidity of Dependent Claim 5

Claim Element	Claim Language
5	The lower fork and air bleed assembly combination of claim 3, wherein said valve activator is located on a die-cast feature of said lower fork.

210. *Ceriani* in view of *Bruckbauer* discloses each and every element of this claim. *Ceriani* in view of *Bruckbauer* has *Bruckbauer's* manually operable valve **10** fixed into the passage at *either Ceriani's* screw hole or at *Ceriani's* passage **30**. Both of these passages would be formed on a die-cast feature of *Ceriani's* lower **4**. Ex. 1110, FIGS. 3-4; Ex. 1106, FIGS. 1-4. In any case, the structures of *Hoose's* lower fork **140** do not differ from those made by die-casting.

211. Further, it would have been obvious to a POSITA to modify *Ceriani* (alone or in view of *Bruckbauer*) to form *Ceriani's* lower fork **4** using a die-cast procedure disclosed in *Danter*, as discussed above..

Invalidity of Dependent Claim 6

• **Claim 6[pre]**

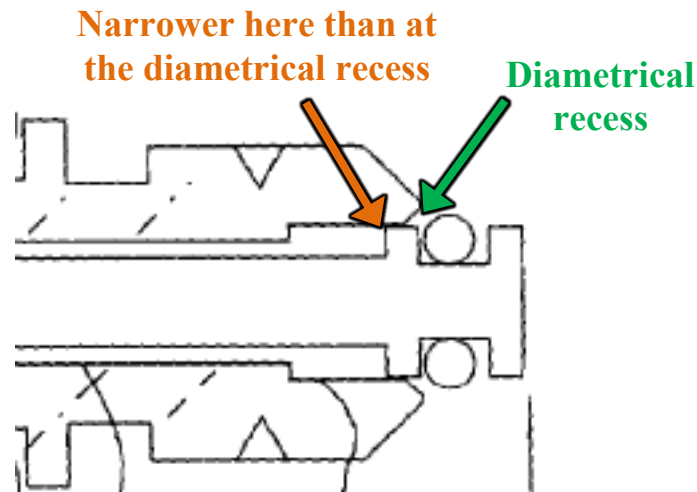
Claim Element	Claim Language
6[pre]	The lower fork and air bleed assembly combination of claim 5, further comprising:

212. *Ceriani* in view of *Bruckbauer* discloses each and every element of this preamble. *Ceriani* includes the lower fork **4**, and *Bruckbauer* includes air bleed assembly **10** (in addition to the relevant fluid passage).

- **Claim 6[a]**

Claim Element	Claim Language
6[a]	a diametrical recess; and

213. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a diametrical recess (green arrow), in that the inner bore diameter is larger at the green arrow than at the orange arrow. Ex. 1106, FIG. 4.



• **Claim 6[b]**

Claim Element	Claim Language
6[b]	a sealing o-ring comprising:

214. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow). Ex. 1106, FIG. 3.

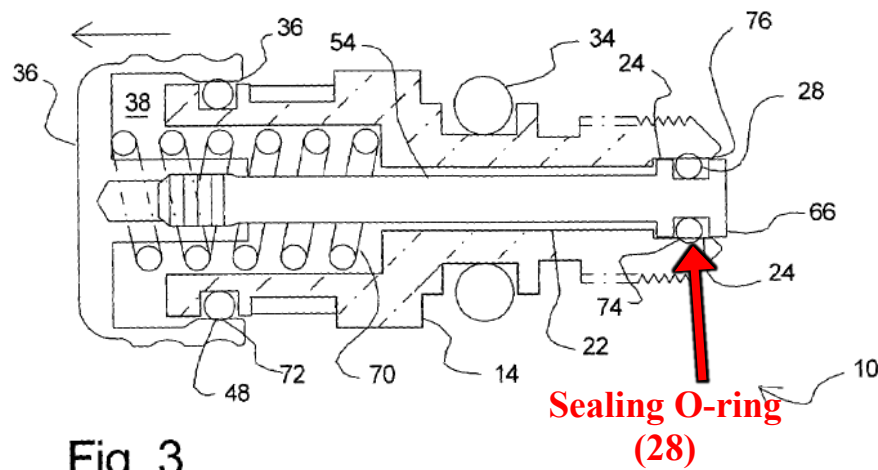
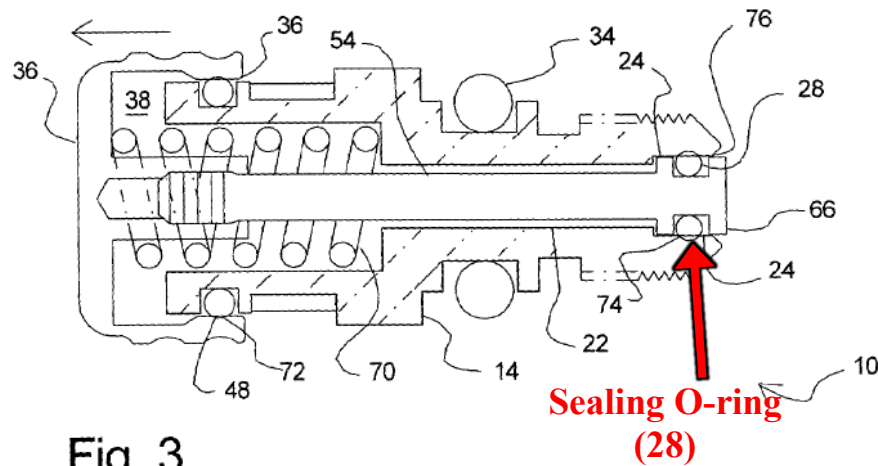


Fig. 3

• **Claim 6[c]**

Claim Element	Claim Language
6[c]	a sealed position; and

215. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow) having a sealed position. Ex. 1106, FIG. 3.



- **Claim 6[d]**

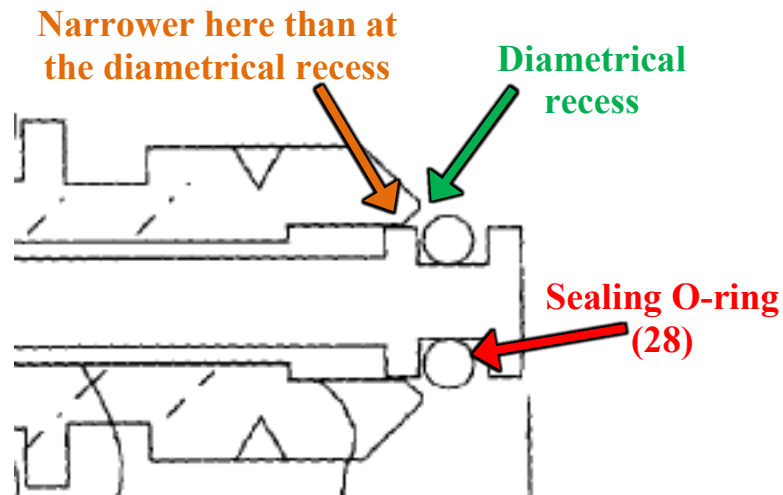
Claim Element	Claim Language
6[d]	an unsealed position,

216. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow, above) having an unsealed position. Ex. 1106, FIG. 4.

- **Claim 6[e]**

Claim Element	Claim Language
6[e]	wherein said sealed position seals between said die-cast feature and said lower fork, whereupon when said valve activator is moved from said activation position to said deactivation position, said sealing o-ring moves into said diametrical recess, thereby attaining said unsealed position and letting air pressure by-pass into or out of said lower fork via a vent hole.

217. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer* includes a sealing O-ring **28** (red arrow) having a sealed position and an unsealed position wherein the sealed position seals against air leaks from *Ceriani*'s lower fork **4** through the die-cast feature, whereupon when *Bruckbauer*'s valve activator **54, 36** is moved from the activation position to the deactivation position, the sealing O-ring **28** moves further into the diametrical recess (green arrow), thereby attaining the unsealed position and letting air pressure bypass into or out of *Ceriani*'s lower fork **4** via *Ceriani*'s vent hole. Ex. 1106, FIGS. 3, 4.

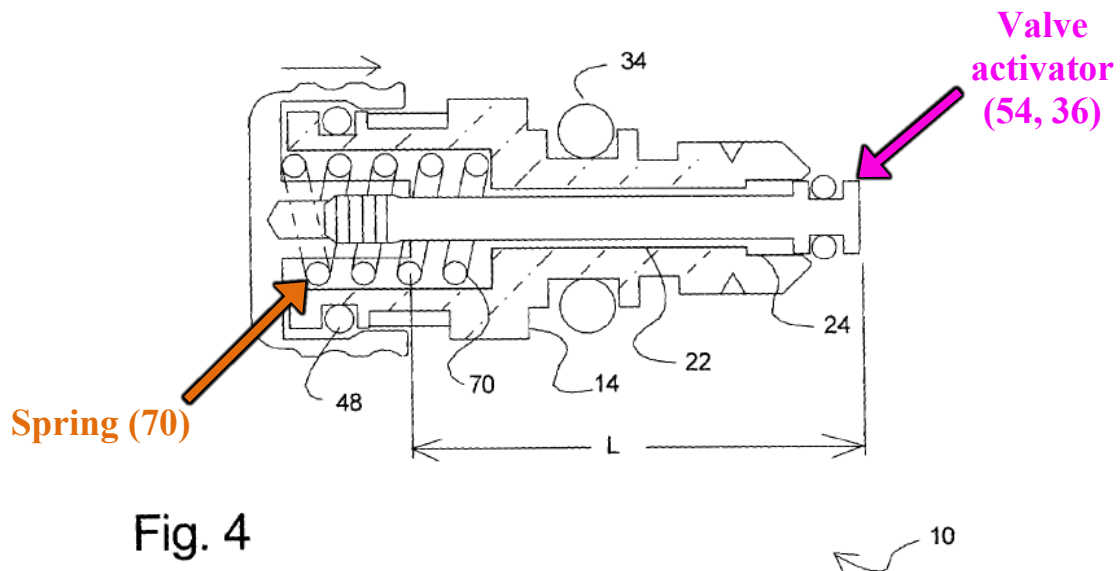


Invalidity of Dependent Claim 7

Claim Element	Claim Language
7	The lower fork and air bleed assembly combination of claim 3, wherein said manually operable valve comprises: a spring coupled with said valve activator, whereupon when said valve activator is

Claim Element	Claim Language
	moved into said deactivation position, said spring biases said valve activator toward said first position.

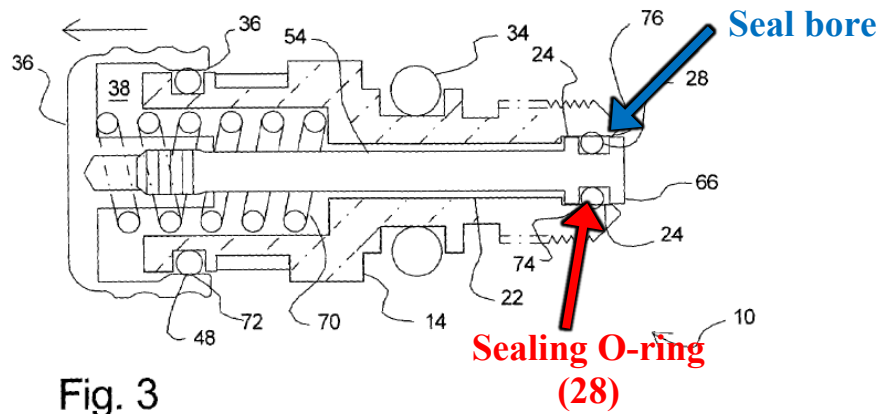
218. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer's* manually operable valve **54, 36, 14, 70** includes a spring **70** (orange arrow) coupled to the valve activator **54, 36** (pink arrow), which spring **70** biases the valve activator **54, 36** toward the first (closed) position. Ex. 1106, 5:23-46, FIG. 4.



Invalidity of Dependent Claim 8

Claim Element	Claim Language
8	The lower fork and air bleed assembly combination of claim 7, wherein said second position comprises: a sealing engagement between said sealing o-ring and a seal bore, wherein when in said sealing engagement, said trapped air pressure does not by-pass into or out of said lower fork.

219. *Ceriani* in view of *Bruckbauer* discloses each and every element of this limitation. *Bruckbauer*'s manually operable valve **54, 36, 14, 70** has a second position having a sealing engagement between the sealing O-ring **28** (red arrow) and a seal bore (blue arrow), wherein when in the sealing engagement, trapped air pressure does not bypass into or out of *Ceriani*'s lower fork **4**. In particular, air flow through the manually operable valve **54, 36, 14, 70** may be sealed by squeezing the internal O-ring **28** into the entrance of the aperture at the end of the hollow body **14** when the valve cap **36** is moved into the closed position, thereby preventing entry of dirt, water, or other foreign substances from entering the lower fork **4**. Ex. 1106, 5:23-46, FIG. 3.



II. CONCLUSION

220. For the foregoing reasons, it is my opinion that claims 1–8 of the ‘331 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: August 10, 2023

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

Eric Wang, Ph.D.