

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO**

Civil Action No. 1:23-cv-00313-RM-KAS

FOX FACTORY, INC.,

Plaintiff,

v.

SRAM, LLC,

Defendant.

**EXPERT REPORT OF ALEXANDER SLOCUM, PH.D. REGARDING
INFRINGEMENT OF FOX FACTORY, INC.'S U.S. PATENT NOS. 9,739,331 AND
8,550,223**

compression dampening will happen from the cup through the orifice port (referred to by SRAM as the “Hydraulic Bottom Out port where the Hydraulic Bottom Out Adjuster lives.” (see excerpt below)).

140. The embodiment of Figure 3A teaches: “The bottom out piston includes a piston ring or dynamic seal 251 for axially slidable engagement with an inner diameter of the bottom out cup 275” (3:51-54). The element 251 is shown as a rectangle in the inner diameter of the cup 275, and to a POSITA this indicates that the bottom out piston 250 should be able to freely slide without noticeable friction felt by the user, yet provide a fluid seal such that fluid would be directed out the path 301 to achieve the damping function which a POSITA recognizes happens when fluid must pass through a restriction (3:64-4:2). Accordingly, a POSITA would recognize that a very good way to achieve a slidably engaging dynamic seal is for the bottom out piston 250 itself to have a close-fit (be slightly smaller) to the cup 275 and thus eliminate the need for a separate seal element. This type of configuration is commonly used in valves where the moving member is called a “spool,” for example.

Adjustable Hydraulic Bottom Out

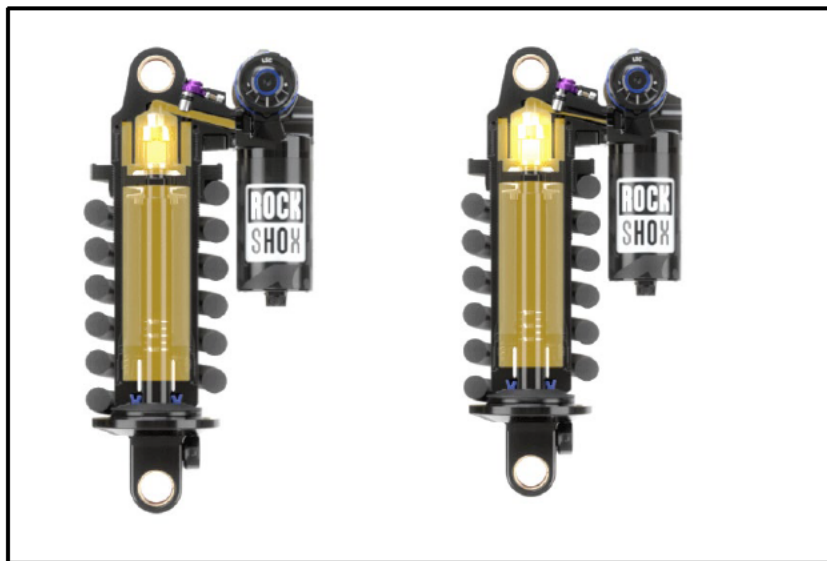
Super Deluxe Coil's (and now Vivid's) Adjustable Hydraulic Bottom Out also uses an orifice port featuring a tooled 3 mm adjuster to allow you to tune precisely how much bottom-out resistance you want. AHBO utilizes a Hydraulic Bottom Out chamber and piston. As the shock compresses, the piston moves up into the chamber, pushing oil through the Hydraulic Bottom Out port where the Hydraulic Bottom Out adjuster lives. There are five clicks of adjustment, from fully open (no bottom-out resistance) to fully closed (full bottom-out resistance). When the adjuster is closed, it increases the pressure building in the Hydraulic Bottom Out chamber, causing more damping as the shock enters the last 20% of travel. The theory is the same as what we discussed above with oil damping, just executed differently to accommodate design differences in each of the shocks.

<https://www.sram.com/en/rockshox/rockshox-technology/hydraulic-bottom-out> (blue

highlighting added, website last visited March 23, 2023)

11[d] an adjustable fluid flow path formed in the cup, the flow path providing fluid communication between the cup and the primary compression chamber in a compression stroke of the damper.

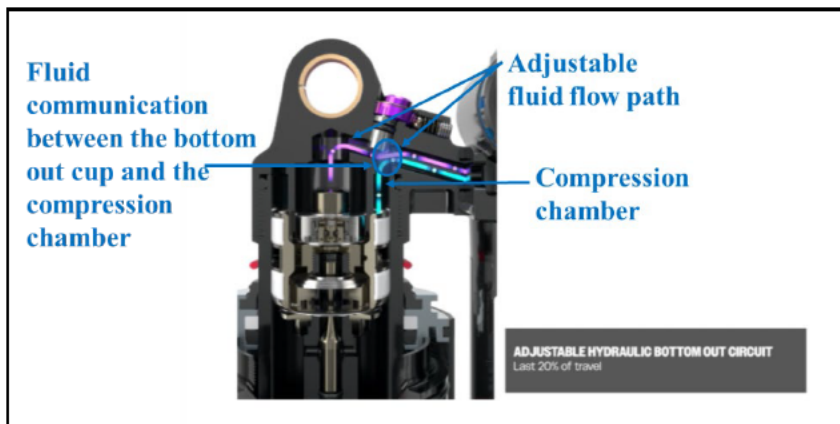
141. The Adjustable Hydraulic Bottom-Out (AHBO) feature of each of the Super Deluxe Coil Ultimate and the Vivid Ultimate includes a two-way adjustable fluid flow path (“Hydraulic Bottom Out Port”) that leads from the bottom out cup out to a reservoir, as shown below, and from the reservoir back to the bottom out cup. “As the shock compresses, the piston moves up into the chamber, pushing oil through the Hydraulic Bottom Out port where the Hydraulic Bottom Out adjuster lives. There are five clicks of adjustment, from fully open (no bottom-out resistance) to fully closed (full bottom-out resistance). When the adjuster is closed, it increases the pressure building in the Hydraulic Bottom Out chamber, causing more damping as the shock enters the last 20% of travel.” <https://www.sram.com/en/rockshox/rockshox-technology/hydraulic-bottom-out> (last visited March 25, 2024) (emphasis added).



<https://www.sram.com/en/rockshox/rockshox-technology/hydraulic-bottom-out> (last visited March 25, 2024)

142. In the above animations that can be seen at the references urls, the video frame on the left shows the adjustable fluid flow path (“Hydraulic Bottom Out Port”) mostly open, which causes only a small amount of bottom-out resistance. The video frame on the left shows the Hydraulic Bottom Out Port mostly closed, which causes high bottom-out resistance and thus more damping as the shock enters the last 20% of travel.

143. When the adjustable fluid flow path (“Hydraulic Bottom Out Port”) is fully or partially open, there is fluid communication between the bottom out cup and the primary compression chamber in a compression stroke of the damper, as shown below. Specifically, if the Hydraulic Bottom Out Port is fully or partially open during a compression stroke, there will be fluid flow from the bottom out cup (shown in pink in the image below) and flow from the compression chamber (shown in blue in the image below) that will intermix/coalesce in the Hydraulic Bottom Out Port, and thus the oil leaving the bottom out cup will communicate with the oil in the compression chamber. In other words, there will be fluid communication between the bottom out cup and the primary compression chamber. In fact, it is my understanding that SRAM itself has said in its invalidity contentions with respect to claim 11 that “fluid communication is made regardless of the direction of the fluid flow.” Thus, as shown below, the adjustable fluid flow path (Hydraulic Bottom Out Port) facilitates fluid communication between the cup and the primary compression chamber in a compression stroke of the damper.



<https://www.sram.com/en/rockshox/rockshox-technology/vivid-development> (last visited on March 25, 2024, annotations in blue added)

b. Claim 12

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

144. As discussed above with respect to claim 11, as the shock compresses, the bottom out piston slides into the bottom out cup and contacts an interior wall of the cup, thereby acquiring a “second position” where the bottom out piston is housed within the cup. As a POSITA would understand, however, the contact between the bottom out piston and the bottom out cup is transitory, because the bottom out piston slides out of the bottom out cup during a subsequent rebound stroke.

145. While the bottom out piston is housed within the bottom out cup at the end portion of a compression stroke (and before the piston slides out of the cup), the bottom out piston engages the interior wall of the cup “sealingly” such that mostly all of the fluid flow from the bottom out cup will happen through the orifice port (referred to by SRAM as the “Hydraulic Bottom Out port”) and only miniscule amount of oil may flow from the bottom out cup to the

damper chamber through the slight annular gap between the bottom out piston and the interior wall of the cup.

c. **Claim 13**

The damper of claim 12, further including a fluid flow path formed between the cup and the primary compression chamber; wherein the capacity of the fluid flow path is adjustable.

146. Claim 13 is not limited to a compression stroke. During a rebound stroke, some oil (fluid) flows from the reservoir through the adjustable fluid flow path (Hydraulic Bottom Out port) into the bottom out cup and then into the primary compression portion of the damper chamber (which is next to the bottom out cup and in fluid flow), thus providing a fluid flow path between the cup and the primary compression chamber. *See* testimony of SRAM's Kevin Wesling (excerpted below). The capacity of the fluid flow, i.e., the flow rate volume/time, between the cup and primary compression chamber is adjustable because of the hydraulic bottom-out adjuster disposed in the Hydraulic Bottom Out port. The adjuster (referred to as needle valve by Mr. Wesling) adjusts the capacity of fluid flow into the bottom out cup and thus into the primary compression chamber (from the bottom out cup).

Q. Is there any passage for oil to potentially flow from the bottom-out cup into the damper chamber?

A. Yes.

Q. And where is that flow path?

A. Well, for one, if the piston is completely -- you're showing this in a fully compressed state. **In a noncompressed state, the -- the bottom-out cup and the damper chamber are next to each other. There's -- there -- there's easy flow between those two.** And then -- yeah, and -- and then there is always -- well, there is,

in a rebound stroke, the possibility of oil -- actually, I don't think there's a possibility of the oil in rebound being pulled -- no.

No. **The oil can only flow in -- either from the -- from the reservoir through the bottom-out cup and then back out as the piston leaves** or the oil is going to flow through the passageway into the damper chamber directly.

Q. Would you repeat that last part again.

A. Will flow into the damper chamber directly.

Q. Where is fluid flowing from?

A. Well, I mean, **in a rebound stroke, the reservoir is pressurized, so it's pushing the oil, and as it pushes out of the reservoir with the IFP, it pushes the oil back into the damper chamber, and a small portion of it may get pushed back through that needle -- that valve -- that adjustable bottom-out valve into the bottom-out cup.**

March 7 Wesling Dep. Tr., 87:11-88:14 (emphases added); *see also* 94:21-96:30 (discussing that fluid flows "both ways" through the Hydraulic Bottom Out port and that the adjustable valve is not a "one-way valve").

d. Claim 14

The damper of claim 13, further including an externally accessible adjuster connected to a valve disposed in the flow path.

147. The Adjustable Hydraulic Bottom Out (AHBO) feature of each of the Super Deluxe Coil Ultimate and the Vivid Ultimate includes an externally accessible adjuster in the form of a dial that is connected to a valve disposed in the fluid flow path (Hydraulic Bottom Out port). The "flow path" referred to in this claim is the adjustable fluid flow path to and from the bottom out cup. The adjuster has "five clicks of adjustment, from fully open (no bottom-out

bleed assembly technology of the Accused Forks and adjustable hydraulic bottom out technology of the Accused Shocks are not staple articles or commodities of commerce capable of substantial non-infringing use.

XII. NOTICE AND SUPPLEMENTATION

157. I understand that discovery is ongoing in this case. Therefore, I reserve the right to supplement my opinions after I have had the opportunity to review deposition testimony or in light of additional documents that may be brought to my attention.

158. For the purposes of this Report, I have reviewed materials and testimony that I believe are appropriate considering the evidence available at this time. I understand that I will have the right to supplement or amend this Report in the event additional evidence or information pertinent to my opinions becomes available, and I plan to do so. I may also provide rebuttal to any opinions of other fact and expert witnesses, should I be requested to do so.

Executed this 28th day of March, 2024.

A handwritten signature in dark ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Alexander H. Slocum, Ph.D.