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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

ARSUS, LLC,  
Plaintiff,  
v.  
TESLA MOTORS, INC.,  
Defendant.

Case No. [20-cv-00313-RS](#)

**CLAIMS CONSTRUCTION ORDER**

INTRODUCTION

In the operative Second Amended Complaint, plaintiff Arsus, LLC alleges defendant Tesla Motors, Inc.’s “Autopilot” system offered in Tesla automobiles infringes United States Patent No. 8,634,989 (“the ’989 Patent”) and United States Patent No. 10,259,494 (“the ’494 Patent”), both of which are entitled “Rollover Prevention Apparatus.” The parties now seek construction of the claims of the ’989 patent.<sup>1</sup> The heart of the dispute is whether the patent claims an apparatus that physically prevents a human driver from steering a vehicle to the point where it will rollover, or whether an autopilot system that will not steer to the point of rollover can infringe, even if a human driver can disengage the autopilot merely by turning the steering wheel to resume human control—and thereby potentially steer the vehicle beyond the point of rollover.

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<sup>1</sup> The record is unclear as to whether Arsus is still pursuing its claims under the ’494 Patent or whether any disputes under that patent will be resolved by construction of the ’989 patent.

1 Tesla argues the claims should be treated as “means-plus-function” claims under  
2 35 U.S.C. 112(f) (previously 35 U.S.C. 112, sixth paragraph).<sup>2</sup> Alternatively, Tesla proposes  
3 constructions of the claim language that would explicitly include language referring to the  
4 presence of a human driver and/or exclude autonomous driving systems. Arsus, in turn, insists  
5 none of the claims refer to a human driver or should be construed to include a limitation that  
6 excludes autonomous systems.

7 While the claims lack the familiar “means for” language invoking 35 U.S.C. 112(f), they  
8 only describe the claimed “apparatus” in terms of its *functions*, and do not recite *structure* that  
9 performs those functions. Accordingly, the claims must be construed as reaching only the structure  
10 described in the specification that correspond to those claimed functions, and any equivalents  
11 thereto. Otherwise, the claims would extend to *any and every* system that performs the function of  
12 preventing vehicle rollover. Arsus cannot reasonably claim it has a patent on the basic idea of  
13 preventing rollover, without regard to how a particular system attempts to achieve that result.

14  
15 **BACKGROUND**

16 The specification of the ’989 patent asserts “[v]ehicle rollover—generally defined as  
17 vehicular accident in which a vehicle turns over on its side or roof—is an extremely dangerous  
18 form of a vehicle crash.”

19 While there may be several factors for a vehicle to be turned or  
20 steered beyond the vehicle threshold of roll such as driver hurry or  
21 impatience and driver inexperience, a well know[n] cause for  
22 excessive turning or steering to the point of vehicle roll is the  
23 occurrence of an object such as a tumble weed or squirrel suddenly  
24 appearing in the driver[’]s path (hereafter referred to Sudden Object  
25 Appearance or SOA). In such SOA, even the most experienced  
26 drivers can feel the inherent and immediate urge to rapidly turn the  
27 steering wheel. It is just such turning of the steering wheel that  
28 causes many vehicle rollovers.

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25 <sup>2</sup> Tesla also asserts the claims are improper under that section because they are “single means  
26 claims,” rather than claims “for a combination” as permitted under the statute. This order’s  
27 conclusion that the claims can only be interpreted through the “means-plus-function” lens does not  
28 reach the separate issue as to whether they might be invalid as “single means claims.”

1 '989 Patent, 1:35-45.

2 This and other passages in the specification clearly imply the claimed invention  
3 contemplates an apparatus that physically prevents a driver from steering the vehicle to the point  
4 of rollover. As Arsus points out, however, the claim language includes no express reference to a  
5 driver. The order denying Tesla's motion to dismiss the operative complaint concluded:

6 Arsus's argument that the Tesla system infringes because it prevents  
7 *the autopilot* from oversteering is not so inconsistent with the  
8 language of the claims on their face as to permit resolution at the  
pleading stage.

9 Claims construction, of course, does not address infringement. Additionally, this order  
10 does not find the claims should be construed expressly to require a human driver. Instead, as  
11 noted, the claims will be found to be governed by section 112(f) (or, more precisely, the sixth  
12 paragraph of section 112 as in effect when the patent issued) and therefore limited to the  
13 corresponding structure in the specification, and any equivalents thereof.

#### 14 LEGAL STANDARD

15 Claim construction is a question of law to be determined by the courts. *See Markman v.*  
16 *Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). "Ultimately, the interpretation to be  
17 given a term can only be determined and confirmed with a full understanding of what the  
18 inventors actually invented and intended to envelop with the claim." *Phillips v. AWH Corp.*, 415  
19 F.3d 1303, 1316 (Fed. Cir. 2005) (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158  
20 F.3d 1243, 1250 (Fed. Cir. 1998)). Accordingly, a claim should be construed in a manner "most  
21 naturally align[ed] with the patent's description of the invention." *Id.*

22 The first step in claim construction is to look to the language of the claims themselves. "It  
23 is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the  
24 patentee is entitled the right to exclude.'" *Phillips*, 415 F.3d at 1312 (quoting *Innova/Pure Water,*  
25 *Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). A disputed claim  
26 term should be construed in a manner consistent with its "ordinary and customary meaning,"  
27

1 which is “the meaning that the term would have to a person of ordinary skill in the art in question  
2 at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at  
3 1312–13. The ordinary and customary meaning of a claim term may be determined solely by  
4 viewing the term within the context of the claim’s overall language. *See id.* at 1314 (“[T]he use of  
5 a term within the claim provides a firm basis for construing the term.”). Additionally, the use of  
6 the term in other claims may provide guidance regarding its proper construction. *See id.* (“Other  
7 claims of the patent in question, both asserted and unasserted, can also be valuable sources of  
8 enlightenment as to the meaning of a claim term.”).

9 A claim should also be construed in a manner consistent with the patent’s specification.  
10 *See Markman*, 52 F.3d at 979 (“Claims must be read in view of the specification, of which they  
11 are a part.”). Typically, the specification is the best guide for construing the claims. *See Phillips*,  
12 415 F.3d at 1315 (“The specification is . . . the primary basis for construing the claims.”);  
13 *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (“[T]he specification is  
14 always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single  
15 best guide to the meaning of a disputed term.”). In limited circumstances, the specification may be  
16 used to narrow the meaning of a claim term that otherwise would appear to be susceptible to a  
17 broader reading. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337,  
18 1341 (Fed. Cir. 2001). Precedent forbids, however, term construction imposing limitations not  
19 found in the claims or supported by an unambiguous restriction in the specification or prosecution  
20 history. *See Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1347 (Fed. Cir. 1998) (“[A] court may  
21 not import limitations from the written description into the claims.”); *Comark Commc’ns., Inc. v.*  
22 *Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998) (“[W]hile . . . claims are to be interpreted in  
23 light of the specification, it does not follow that limitations from the specification may be read into  
24 the claims.”); *SRI Int’l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en  
25 banc) (“It is the *claims* that measure the invention.”) (emphasis in original). A final source of  
26 intrinsic evidence is the prosecution record and any statements made by the patentee to the PTO  
27 regarding the scope of the invention. *See Markman*, 52 F.3d at 980.

1 Courts may also consider extrinsic evidence, such as expert testimony, dictionaries, or  
2 technical treatises, especially if such sources are “helpful in determining ‘the true meaning of  
3 language used in the patent claims.’” *Phillips*, 415 F.3d at 1318 (quoting *Markman*, 52 F.3d at  
4 980). Ultimately, while extrinsic evidence may aid the claim construction analysis, it cannot be  
5 used to contradict the plain and ordinary meaning of a claim term as defined within the intrinsic  
6 record. *See id.* at 1322–23.

## 8 DISCUSSION

### 9 A. Claim 1

10 Claim 1 of the '989 patent states:

11 A rollover prevention apparatus that allows a vehicle to be steered within a  
12 non-rollover steering range of motion of said vehicle but prevents said  
vehicle from being steered beyond a rollover threshold of said vehicle.

13 Although there is some implication in the prosecution history that the patentee may have  
14 considered it significant that the claimed invention was expressly described as both allowing  
15 steering in the non-rollover range and preventing steering beyond the threshold, the parties have  
16 not suggested that for claims construction purposes the two clauses do anything more than  
17 redundantly emphasize the claimed apparatus functions to prevent rollover. The question,  
18 therefore, is only whether the claim recites sufficient structure, such that resort to section 112(f) is  
19 unnecessary. It does not.

20 Arsus correctly observes there is a presumption that claims lacking the phrase “means for .  
21 . . .” are *not* means-plus-function claims under section 112(f). *See, Williamson v. Citrix Online,*  
22 *LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). *Williamson*, however, expressly overruled prior cases  
23 describing that presumption as “strong” or “not readily overcome.” *Id.* Instead, *Williamson*  
24 explained,

25 The standard is whether the words of the claim are understood by persons of ordinary skill  
26 in the art to have a sufficiently definite meaning as the name for structure . . . When a  
27 claim term lacks the word “means,” the presumption can be overcome and § 112, para. 6  
will apply if the challenger demonstrates that the claim term fails to “recite sufficiently  
definite structure” or else recites “function without reciting sufficient structure for

1 performing that function.”  
2 792 F.3d at 1349 (citations omitted).

3 Here, Arsus contends the claim recites two elements of structure. First, Arsus asserts the  
4 term “apparatus” is a structural element. That argument is circular. Arsus cannot show that  
5 “apparatus” is not a nonce term—effectively equivalent to “means”—by arguing that “apparatus”  
6 itself is a structure.<sup>3</sup> Second, Arsus contends the claim’s use of the words “steered” and “steering”  
7 imply the existence of a steering wheel, “a known vehicle structure.” Even assuming that is so,  
8 however, the implied recitation of a “steering wheel” plainly is *not* “sufficient structure for  
9 performing [the] function” claimed in Claim 1. While every ordinary car has a steering wheel, the  
10 vast majority of cars do not have an apparatus to prevent steering to the point of rollover, through  
11 the structure of the steering wheel or otherwise.

12 Arsus relies heavily on *Philips, supra*, 415 F.3d 1303, which involved a claimed invention  
13 of modular, steel-shell panels that could be welded together to form vandalism-resistant walls. In  
14 that case the Federal Circuit evaluated claim language referring to:

15 an outer shell . . . , sealant means . . . and further means disposed  
16 inside the shell for increasing its load bearing capacity comprising  
*internal steel baffles* extending inwardly from the steel shell walls.

17 *Id.* at 1311 (emphasis added).

18 The court concluded “baffles” was not means-plus-function language invoking the statute.

19 The court observed:

20 To be sure, the claim refers to “means disposed inside the shell for  
21 increasing its load bearing capacity,” a formulation that would

22 \_\_\_\_\_  
23 <sup>3</sup> As explained in *Williamson*, in the patent context, “nonce terms” are “[g]eneric terms such as  
24 ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words that reflect nothing more than verbal  
25 constructs [that] may be used in a claim in a manner that is tantamount to using the word ‘means’ .  
26 . . .” 792 F.3d at 1350. In the context of the ’989 patent, the word “apparatus” is plainly just such  
27 a “generic term” that does not disclose any particular structure.

1 ordinarily be regarded as invoking the means-plus-function claim  
2 format. However, the claim specifically identifies “internal steel  
3 baffles” *as structure that performs the recited* function of increasing  
4 the shell’s load-bearing capacity.

5 *Id.* at 1311 (emphasis added).

6 *Phillips* is therefore inapposite. Nothing in Claim 1—neither the nonce term “apparatus”  
7 nor the implied references to a steering wheel—identify a structure that performs the recited  
8 functions of “allow[ing] a vehicle to be steered within a non-rollover steering range of motion”  
9 and/or “prevent[ing] said vehicle from being steered beyond a rollover threshold.”<sup>4</sup>

10 Thus, as noted above, were Arsus’s position adopted that the claim should be construed by  
11 using various dictionary definitions of particular words in the claim (none of which are  
12 particularly controversial in and of themselves), the patent would effectively claim any and every  
13 “apparatus” that is directed at performing the recited functions, regardless of the technological  
14 design and approach to doing so. Arsus thereby would have a patent on the very idea of preventing  
15 a vehicle being steered to the point of rollover. Nothing in the record supports a conclusion that  
16 Arsus was granted, or would be entitled to, a patent on *that* idea, as opposed to the narrower ideas  
17 presented in the specification as to how that goal could be accomplished.

18 Claim 1 will therefore be construed as a means-plus-function claim, where the function is  
19 “allow[ing] a vehicle to be steered within a non-rollover steering range of motion . . . but  
20 prevent[ing] said vehicle from being steered beyond a rollover threshold.” The claim covers “the  
21 corresponding structure . . . described in the specification and equivalents thereof.” Section 112(f).

22 While Arsus has argued the claim should not be construed as being subject to Section

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23 <sup>4</sup> Arsus repeatedly insists the appearance of even a “single word” of structure in a claim prevents  
24 section 112(f) from applying. The issue is not how many words referring to something that could  
25 be “structure” there are in the claim. Rather, the question is whether or not the “the claim term  
26 fails to ‘recite sufficiently definite structure or else recites ‘function *without reciting sufficient*  
27 *structure for performing that function.*’” *Williamson*, 792 F.3d at 1349 (citations omitted,  
28 emphasis added). A single word may suffice in some instances, but the words Arsus insists here  
are “structure” do not.

1 112(f), it has not taken issue with Tesla’s identification of corresponding structure in the  
2 specification, and that identification otherwise appears accurate. So, Claim 1 extends to:

3  
4 (1) An adaptive steering range limiting device (ASRLD) comprised  
5 of: (i) a steering wheel; (ii) a steering column; (iii) a steering  
6 column position detection disc (SCPDD)—comprised of a disc  
7 having a plurality of magnetic targets embedded within it spaced  
8 substantially equally about its periphery; (iv) a pair of opposing  
9 unidirectional brake assemblies configured to grip/clamp the  
10 SCPDD when actuated, and (v) an electronic control unit that is  
11 connected the unidirectional brake assemblies, a sensor for  
12 detecting the targets on the steering column position detection  
13 disc, and one or more sensors for detecting vehicle speed, degree  
14 of steering position, vehicle center of gravity, vehicle suspension  
15 stiffness, wheel base width, vehicle loading, vehicle tire  
16 pressure, fraction between a road and vehicle tires, and/or road  
17 bank angle; or

18 (2) An adaptive steering range limiting device (ASRLD) comprised  
19 of: (i) a steering wheel; (ii) a steering column; (iii) a steering  
20 column disc device (SCDD)—comprised of a disc having a  
21 plurality of actuator pins spaced substantially equally about its  
22 periphery; (iv) a block that interferes with actuated pins, and; (v)  
23 an electronic control unit that is connected to the actuator pins  
24 on the SCDD and one or more sensors for detecting vehicle  
25 speed, degree of steering position, vehicle center of gravity,  
26 vehicle suspension stiffness, wheel base width, vehicle loading,  
27 vehicle tire pressure, traction between a road and vehicle tires,  
28 and/or road bank angle.

—as described in the specification of the ’989 Patent at 2:8-24, 4:41-5:39, 6:60-7:7, Figs.1, 2, 3A-  
3B (corresponding structure #1), 7:24-67, 6:60-7:7, Figs. 5, 6A-6E, 7, 7A (corresponding structure  
#2)—and equivalents thereto.<sup>5</sup>

B. Claim 14

Claim 14 states:

An adaptive steering apparatus that automatically adaptively

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<sup>5</sup> Tesla proposes additional construction of the language describing the claimed *functions* of the “apparatus,” but it has not shown why the plain meaning of the words used in the claim is inadequate.



1 prevents a vehicle from being steered beyond the threshold of roll of  
2 said vehicle at any speed of said vehicle while also providing for  
3 maximal non-rollover steering range of motion of said vehicle,  
4 wherein said apparatus that automatically adjusts a steering range of  
5 motion in response to at least one predetermined input.

6 This claim calls out additional functions that the apparatus must perform, but Arsus still  
7 relies solely on the word “apparatus” and the implied steering wheel to serve as the structure to  
8 perform those functions. The final clause, beginning “wherein said apparatus . . .” includes a  
9 grammatical error. Depending on the intended meaning, the error could be corrected by omitting  
10 the word “that.” Although not relied on by Arsus, the final clause’s description that the apparatus  
11 works by utilizing “at least one predetermined input” arguably moves at least that portion of the  
12 claim slightly in the direction of a recitation of structure. Ultimately, though, with or without the  
13 grammatical error, Claim 14 is subject to the same analysis as Claim 1. Section 112(f) applies, the  
14 functions are those set out in the claim, and the claim extends to the same structure, and its  
15 equivalents, as set out above.

16 C. Claim 21

17 Claim 21 states:

18 An adaptive steering apparatus for use in automatically adaptively  
19 preventing a vehicle from being steered beyond the threshold of roll  
20 of said vehicle at any speed of said vehicle while also providing for  
21 maximal non-rollover steering range of motion of said vehicle at any  
22 speed of said vehicle, wherein said apparatus automatically and  
23 adaptively adjusts the steerable range of motion of a vehicle such  
24 that said steerable range of motion does not exceed the rollover  
25 threshold of said vehicle at substantially any speed of said vehicle.

26 This claim also specifies additional or different functions the apparatus must perform.  
27 Arsus again relies solely on the term “apparatus” and the implied steering wheel. The analysis and  
28 result are the same as for the preceding claims.

D. Other issues

Resort to prosecution history is not necessary to conclude Section 112(f) governs here.

1 Nevertheless, it is worth observing that the patentee quite clearly obtained allowance of the claims  
2 by arguing to the examiner that the Onieva and Solmaz prior art references both involved  
3 “autonomous” steering and were therefore distinguishable. Indeed, as one example, the patentee  
4 specifically argued that where an autonomous steering system can be overridden by a human  
5 driver, the limitations of Claim 14 are not satisfied.

6 As it did at the motion to dismiss stage, Arsus argues no issue or claim preclusion arises  
7 from *Arsus, LLC v. John H. Firmage, Inc.*, 2018 WL 6026820, at \*2 (D. Utah Nov. 16, 2018)  
8 (aff’d, 778 F. App’x 968 (Fed. Cir. 2019)). That may be so, but the results in that case lend further  
9 support to the conclusions of this order.

10 Finally, as reflected above, this analysis does not rely on any facts or opinions presented by  
11 the parties’ respective experts, but neither does it contradict any admissible factual evidence or  
12 admissible opinions—as opposed to legal conclusions—they offer.

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14 **IT IS SO ORDERED.**

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16 Dated: December 13, 2021



RICHARD SEEBORG  
Chief United States District Judge

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