NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

DURR SYSTEMS, INC.,
Plaintiff-Appellant

v.

EFC SYSTEMS, INC.,
Defendant-Appellee

2024-2158

Appeal from the United States District Court for the District of Maryland in No. 1:18-cv-02597-SAG, Judge Stephanie A. Gallagher.

Decided: March 20, 2026

JEFFREY A. LAMKEN, MoloLamken LLP, Washington, DC, argued for plaintiff-appellant. Also represented by LIDIYA MISHCHENKO; LAUREN F. DAYTON, ERIC J. ROLSTON, New York, NY; THOMAS E. BEJIN, WILLIAM K. BROMAN, Taft Stettinius & Hollister LLP, Southfield, MI.

TRAVIS WILLIAM BLISS, Panitch Schwarze Belisario & Nadel LLP, Wilmington, DE, argued for defendant-appellee. Also represented by PHILIP L. HIRSCHHORN, KEITH AARON JONES, Philadelphia, PA.

Before DYK, BRYSON, and STOLL, *Circuit Judges*.

DYK, *Circuit Judge*.

Durr Systems, Inc. ("Durr") sued EFC Systems, Inc. ("EFC") alleging infringement of claims of U.S. Patent Nos. 6,189,804 ("'804 patent"), 6,360,962 ("'962 patent"), 7,017,835 ("'835 patent"), 8,141,797 ("'797 patent"), and 8,590,813 ("'813 patent"). The district court granted EFC's motion to exclude the testimony of Durr's expert, Vincent Dattilo, and its motion for summary judgment of noninfringement. Durr appeals.

We conclude that the district court erred in construing "generally conical/substantially conical" to exclude any curves or undulations and erred in construing "rear cover attached to the bell cup" to require that the rear cover and bell cup be formed from separate pieces. However, we determine that the district court did not abuse its discretion in excluding the testimony of Durr's expert. Accordingly, we *affirm* the district court's ruling excluding Mr. Dattilo's testimony, *reverse* its order granting summary judgment of noninfringement, and remand for further proceedings.

BACKGROUND

Durr's patents, which share the same specification, are directed toward rotary atomizers for particulate paints. According to the specification, many rotary atomizers "are unable to obtain good color matching" for particulate paint because "[w]hen [] paint is applied . . . particles are oriented generally perpendicular to the application surface" and "the paint has a different tint or color than intended, i.e. with the . . . particles lying flat." '804 patent, col. 1 ll. 32–39. Durr's rotary atomizer includes a bell cup with features that encourage laminar (nonturbulent) flow and thus produce uniform paint

droplets that lie flat on the surface. One such feature of the patented atomizer is the bell cup's "generally conical overflow surface." *Id.* col. 1 ll. 57–62. The bell cup is also "made hollow in order to reduce [its] weight" through a "rear cover [] secured to the rear of the bell cup body, enclosing an annular cavity." *Id.* col. 2 ll. 6–8. Durr's invention improves color matching for particulate paints by achieving "a more uniformed paint droplet size, which in turn facilities control of the particulates in order to assure proper orientation." *Id.* col. 1 ll. 51–56.

Claim 1 of the '804 patent, which is representative of the asserted claims covering a rotary atomizer bell cup, recites:

> A rotary atomizer bell cup for atomizing particulate material including paint having *a generally conical overflow surface* between a radially inward central axial opening and a radially outward atomizing edge, the generally conical overflow surface having a generally constant flow angle relative to the atomizing edge and a deflector having a deflection surface of generally rotational symmetry disposed in front of said central opening having a generally constant angle relative to the axis from at least one inlet to a radial outer edge.

'804 patent, claim 1 (emphasis added). Some of the asserted claims substitute the phrase "substantially conical" for "generally conical." *See, e.g.*, '797 patent, claim 8.

Several claims also require a hollow rear cover, and other claims require a hollow rear cover without requiring a generally or substantially conical surface. Claim 8 of the '797 patent, which is representative of the rear cover claims, recites:

> A rotary atomizer used to atomize a metallic based particulate paint comprising:

> a bell cup, including:
>
> > a central flat portion leading to a substantially conical overflow surface providing a color matching flow at a spray edge, the spray edge having a diameter; the particulate paint delivered to the bell cup through a central axial opening, wherein the substantially conical overflow surface extends from the central flat portion substantially to the spray edge; and
> >
> > a deflector having a diameter approximately one third the diameter of the spray edge; the deflector including a rear surface parallel to the central flat portion and a generally conical surface substantially parallel to the overflow surface of the bell cup; and
>
> *a rear cover attached to the bell cup* such that the atomizer is hollow, the rear cover cooperating with the bell cup to form an annular cavity, the annular cavity extending about a perimeter of the bell cup; wherein the rear cover extends from the bell cup to a hub such that the rear cover is substantially frustoconical from the bell cup to the hub.

'797 patent, claim 8 (emphasis added).[1]

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[1] Other asserted claims use the language "bell cup further having attached [thereto] a rear cover." J.A. 77. We refer throughout this opinion to the language in

EFC manufactures and sells a bell cup that is useable in Durr's rotary atomizers. EFC's bell cup's overflow surface is slightly curved and its rear cover is not made from a separate piece than the bell cup itself. On August 22, 2018, Durr sued EFC for infringement of claims of the '804, '962, '835, '797, and '813 patents. EFC brought counterclaims seeking declaratory judgments of noninfringement and invalidity.

At a claim construction hearing, the parties disputed the meaning of the claim terms "conical," "generally/substantially conical," and "rear cover attached to the bell cup." J.A. 2288–89.[2] As to a "conical" surface, Durr proposed that the term be given its "[p]lain and ordinary meaning—to the extent ordinary meaning needs to be explained, 'resembling a cone in shape.'" J.A. 64. EFC argued a "conical" surface is "[a] surface that consists of a cone shape, *i.e.*, a surface which tapers, with a constant slope, from a circle towards a point." *Id.* The district court agreed with Durr and construed "conical" to have its plain and ordering meaning, noting that "it is readily apparent, even to a layperson, that the plain and ordinary meaning of conical is 'resembling a cone in shape.'" J.A. 64–65.

As to a "generally/substantially conical" surface, Durr proposed the terms be given their "[p]lain and ordinary meaning," or to the extent their ordinary meaning needed to be explained, "mostly conical." J.A. 66. EFC proposed construing a "generally/substantially conical" surface to mean "[a] surface that consists of one or more conical

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claim 8 of the '797 patent ("rear cover attached to the bell cup") because that claim is representative of the attached rear cover claims.

[2] Citations to the J.A. refer to the Joint Appendix submitted by the parties at Dkt. No. 29.

portions but without undulations or curved portions (*e.g.*, a surface consisting of portions of two cones)." *Id.*

The district court adopted EFC's construction. The district court agreed that a "generally/substantially conical" surface precludes undulations or curved portions. The district court found support for its construction in a preferred embodiment in the specification and the prosecution history that distinguished the '797 patent over U.S. Patent No. 4,838,487 ("Schneider").

As to a "rear cover attached to the bell cup," Durr proposed that the term be given its plain and ordinary meaning and EFC proposed that the term be construed as "[b]ell cup and rear cover being separate pieces that have been brought together and secured to one another." J.A. 77. The district court adopted EFC's construction. With respect to claim 8 of the '797 patent, the district court determined that this claim's structure and language indicated that the bell cup and rear cover were two separate pieces because the claim uses the word "including" to describe pieces integral to the bell cup in one limitation and then, in a separate limitation, uses the word "attached" to describe the rear cover. The district court also found support for its construction in dependent claims from the '813 patent which add limitations specifying how the rear cover is attached to the bell cup and suggesting that the rear cover and bell cup are formed by two separate pieces, such as dependent claim 7 which recites "the rear cover is welded to the bell cup." J.A. 78. Finally, the district court determined that the specification supported its conclusion because "the rear cover is consistently described as a separate piece that is secured to the bell cup." J.A. 79.

Durr moved to clarify that the district court's construction of "generally/substantially conical" does not exclude surfaces with inconsequential variations or curves. The district court declined to "read 'inconsequen-

tial' curvature or variation into this claim construction" and noted that, in any case, "it is unclear what would constitute 'inconsequential' curvature or variation." J.A. 88.

Following claim construction, EFC moved to exclude the testimony of Durr's expert, Mr. Dattilo. In analyzing EFC's motion, the district court first defined a person of ordinary skill in the art ("POSA") as "someone with a strong technical education that need not include a master's degree and with extensive experience in atomization and the fluid dynamics of rotary atomizers, including specific experience in the design of such atomizers." J.A. 13–14. It also clarified that "[i]f the person has a master's degree in engineering, fewer years of experience shall be required." J.A. 14. Based on this definition, the district court granted EFC's motion to exclude Mr. Dattilo's testimony as to infringement because "a qualified expert must have technical experience and knowledge about the design of [an atomizer's] features" and he "lack[ed] such technical experience and knowledge." J.A. 15. The district court determined Mr. Dattilo could not provide testimony on doctrine-of-equivalents infringement for the same reasons. In the alternative, the district court noted that Mr. Dattilo's opinions as to doctrine-of-equivalents infringement must be excluded because "he [did] not conduct his analysis 'on a limitation-by-limitation basis' as required by the Federal Circuit." J.A. 17.

The parties also filed cross motions for summary judgment. The district court granted EFC's motion for summary judgment of noninfringement because it found no genuine dispute of material fact that EFC's bell cup is not "generally/substantially conical" because its overflow surface is slightly curved and that EFC's rear cover is not "attached" to the bell cup because it is not formed from separate pieces.

Durr timely appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I

Durr first argues the district court erred in construing "generally/substantial conical" and "rear cover attached to the bell cup." We review a district court's claim construction based on intrinsic evidence de novo and any underlying factual findings based on extrinsic evidence for clear error. *Apple Inc. v. Wi-LAN Inc.*, 25 F.4th 960, 967 (Fed. Cir. 2022).

A

Durr argues that the district court's construction of a "generally/substantially conical" surface as a "surface that consists of one or more conical portions but without undulations or curved portions (*e.g.*, a surface consisting of portions of two cones, etc.)" is contrary to the plain meaning of the claims. We agree.

"[W]ords of approximation, such as 'generally' and 'substantially,' are descriptive terms commonly used in patent claims to avoid a strict numerical boundary to the specified parameter." *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1310–11 (Fed. Cir. 2003) (internal quotation marks and citations omitted); *see also Aventis Pharms. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1377 (Fed. Cir. 2013) ("[T]his court has interpreted 'substantially' as a non-specific term of approximation that avoids a numerical boundary."); *Liquid Dynamics Corp. v. Vaughan Co.*, 355 F.3d 1361, 1368 (Fed. Cir. 2004) ("The term 'substantial' is a meaningful modifier implying 'approximate,' rather than 'perfect.'"); *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 907 (Fed. Cir. 2005). In the context of the claims here, we conclude that the plain meaning of a "generally/substantially conical" surface allows some deviation

from "conical," and could include undulations or curved portions.

The specification is not inconsistent with this construction. The district court cited one preferred embodiment in the specification in support of its construction describing "a generally conical rear surface 144 which extends to a generally rounded central rear surface 142[.]" J.A. 68. It additionally pointed to Figure 5, reproduced below, depicting this embodiment, where "it is clear that the 'rounded central rear surface[,]' #142, is curved, while the 'generally conical rear surface' is not." J.A. 69.

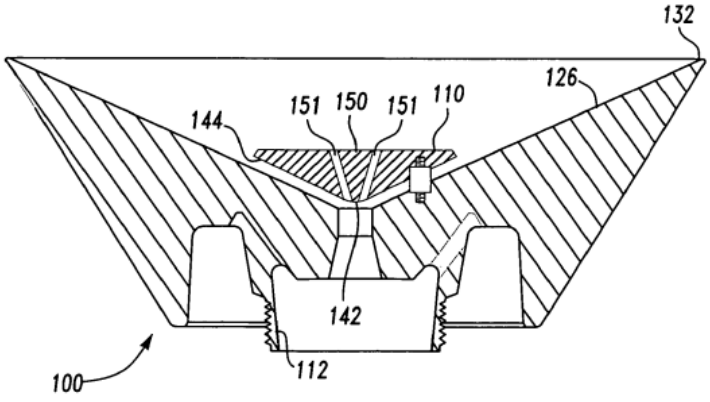
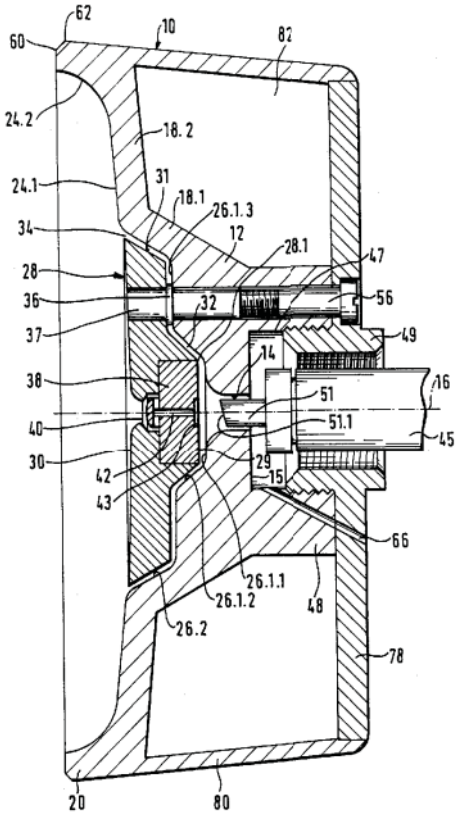


Fig-5

J.A. 110. Putting aside the fact that the preferred embodiment cited by the district court refers to the deflector [110], not the overflow surface [126], this embodiment does not suggest that the term "generally conical" precludes *all* curves, only that a "generally rounded" surface is not "generally conical." *See* '804 patent, col. 4, ll. 4–11.

Similarly, the prosecution history (in which the patent applicant distinguished Schneider) only shows that Schneider's dramatic undulating overflow surface is not

"substantially conical." Schneider, pictured below, discloses a bell cup with an overflow surface [24.1 and 24.2] that curves, forming what Durr calls a "sharp lip" [24.2], towards the spray edge [60]. Pet'r's Br. 43.



J.A. 3235. During prosecution of the '797 patent, the patent applicant distinguished the invention over Schneider by contrasting the claimed "substantially conical overflow surface extending from the central flat portion to the spray edge" to Schneider's overflow surface, where the substantially conical portion "does not 'extend . . . to the spray edge.'" J.A. 2588. The patent applicant added that

"the insertion of 'substantially' prior to 'conical' does not so broaden 'conical' to read upon [Schneider's] undulating surface." J.A. 2589. While this prosecution history clearly shows that "generally/substantially conical" cannot capture the curve disclosed in Schneider, it does not preclude the claim language from capturing some surface deviations. A jury trial is required under the correct construction to determine if EFC's bell cup infringes the asserted claims.

B

Durr also argues that the district court erred by not giving "attached" its plain and ordinary meaning, which does not require that the rear cover and bell cup be formed from separate pieces. We agree. This is not a product-by-process claim. As such, the meaning of "attached" is agnostic to the method or procedure of attachment. The plain meaning of "attached" is broad enough to encompass both two pieces that are secured together or two pieces that are proximate to each other although formed from a single piece at the outset. *See Webster's Third New Int'l Dictionary* 140 (2002) (defining "attach[ed]" as "join[ed,]" "fix[ed] or fasten[ed,]" or "connect[ed]"); *Attached*, Merriam-Webster.com Dictionary, https://www.merriam-webster.com/dictionary/attached (last visited Mar. 6, 2026) (defining "attached" as "connected or joined to something"); 1 *Oxford English Dictionary* 759 (2d. ed. 1989) (defining "attached" as both "[t]acked on, fastened by a material union" and "[j]oined functionally").

Nothing in the dependent claims or specification limits "attached" to only securing two separate pieces together. That the dependent claims require a rear cover and bell cup that start as two separate pieces and are secured together does not impose any such requirement on the independent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314–15 (Fed. Cir. 2005) (en banc). Similarly, the

fact that the only example in the specification involves joining two pieces does not limit the claims. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001). This is particularly true here where nothing in the nature of the invention suggests joining two pieces together is necessary to achieve the desired result.

II

Durr argues the district court abused its discretion by excluding Mr. Dattilo's testimony based on an improper definition of a POSA. We review the district court's decision to exclude an expert witness for abuse of discretion. *See Trudell Med. Int'l Inc. v. D R Burton Healthcare, LLC*, 127 F.4th 1340, 1347 (Fed. Cir. 2025) (applying Fourth Circuit law). The level of ordinary skill in the art is a question of fact reviewed for clear error. *ALZA Corp. v. Andrx Pharms., LLC*, 603 F.3d 935, 940 (Fed. Cir. 2010).

"To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—a witness must at least have ordinary skill in the art. Without that skill, the witness' opinions are neither relevant nor reliable." *Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022). "This is true regardless of whether the witness is being offered to testify on literal infringement, doctrine-of-equivalents infringement, or both. . . . The absence of relevant knowledge and the risk for abuse apply equally to both situations." *Id.* at 1377.

Before the district court, the parties disputed the relevant art and, as a result, the definition of a POSA. Durr argued that the relevant art is paint and color matching, and that a POSA is a technical or business professional with 10–15 years of experience in "'automotive or industrial painting systems' and knowledge of 'industrial

robots, fluid dynamics, paint chemistry, automated . . . painting and manufacturing processes and management,' and 'painted surface . . . quality and control.'" J.A. 9 (alterations in original). EFC argued that the relevant art is rotary atomizer design and that a POSA is "someone with at least a master's degree in mechanical engineering and five years of experience in 'atomization and fluid dynamics of rotary atomizers,' including specific experience in designing rotary atomizers." J.A. 9.

In considering the definition of a POSA, the district court identified six relevant factors from *Best Med. Int'l, Inc. v. Elekta Inc.*, 46 F.4th 1346 (Fed. Cir. 2022): "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." J.A. 9 (quoting *Best Med.*, 46 F.4th at 1353). The first three factors are principally applicable in defining a POSA in this case. In a broad sense, the problem concerned the difficulty of causing paint droplets to lie flat on a surface. But the immediate problem—and the concern of the patents—was with the functioning of the atomizer, and the solution lay not in altering the nature of the paint but in altering the design of the atomizer.

The specification states that in "known atomizer bell cups, the paint follows a tortuous, turbulent path from the nozzle to the atomizing edge" and, as a result, "paint from the atomizer is atomized to a wide variety of paint droplet sizes." '804 patent, col. 1 ll. 26–34. The invention solves these problems through a rotary atomizer with "several inventive features" including "a generically conical overflow surface having a generally constant flow angle between a deflector and the atomizing edge," an increased exposed surface area, and an increased diameter of the atomizing edge. *Id.* col. 1 l. 57–col. 2 l. 2. The rotary atomizer's design solves these problems, as "[t]he bell cup

is designed to reduce flow deviations of the paint as it travels from the axial opening to the spray edge in order to provide laminar flow of the paint across the overflow surface and the atomizing edge." *Id.*, col. 2 ll. 2–5. Moreover, some asserted claims are not limited to the application of paint as they explicitly recite the application of any "particulate material." *See* '804 patent, claim 1.

The district court did not err in concluding that the relevant art "involves atomization and fluid dynamics rather than paint and color match," J.A. 11. Given that Mr. Dattilo admittedly has no experience designing rotary atomizers, the district court did not err in excluding his testimony.

Durr argues that one of the inventors, Robert Heldt, would not meet the district court's definition of a POSA because he has no expertise in fluid dynamics, but Mr. Heldt's qualifications "[are] not determinative." *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986). The asserted patents list multiple named inventors, as to three of which the record contains no evidence about their level of skill. Durr has not shown that these inventors lacked design qualifications, and given the nature of the invention, it seems almost certain that they were skilled in design. Mr. Heldt's limited qualifications do not compel us to conclude that the district court erred in determining the relevant art was rotary atomizer design.

Durr does not dispute that Mr. Dattilo does not meet the district court's definition of a POSA. Because we conclude the district court did not err in its definition of a POSA, we conclude that the district court did not abuse its discretion by excluding Mr. Dattilo's testimony. We accordingly need not reach Durr's arguments as to whether Mr. Dattilo's doctrine-of-equivalents infringement analysis should also be excluded because it was not conducted on a limitation-by-limitation basis.

CONCLUSION

We conclude that the district court erred in construing a "generally/substantially conical" surface to mean a "surface that consists of one or more conical portions but without undulations or curved portions (*e.g.*, a surface consisting of portions of two cones, etc.)." We also conclude that the district court erred in construing a "rear cover attached to the bell cup" to require that the rear cover and bell cup are two different pieces secured together. With respect to the expert testimony, we do not think the district court clearly erred in defining a POSA or abused its discretion in excluding Mr. Dattilo's testimony. We accordingly affirm-in-part, reverse-in-part, and remand for further proceedings consistent with this opinion.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED

COSTS

No costs.