

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION**

**PATHWAY IP LLC,**

*Plaintiff,*

**v.**

**THE PARTNERSHIPS AND  
UNINCORPORATED  
ASSOCIATIONS IDENTIFIED ON  
SCHEDULE "A",**

*Defendants.*

Civil Action No. 1:24-cv-05218

Judge: Hon. Franklin U. Valderrama

Magistrate Judge Jeffrey T. Gilbert

JURY TRIAL DEMANDED

**DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF**

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Pursuant to the Rule 16 Scheduling Order (Dkt. No. 191) and the Local Patent Rules, Defendants Stally, Herrfilk, Vlogging US, WisaKey, Xiteng Tech, Sensyne, Wanfaau, Eestoreamz, and Blights (the “NWM Defendants”), iphotoxx, Lixinshunyi, Photo Guard, RUIHOTOR, catchpiccus, HiFocusiUS, QiHuichang, ShiQiaoShang, VividNWUS, XingBoom, XuanXiuUS, Jinsnow, ShutterLight (the “Glacier Defendants”), Woputne-US, and Okshopping (the “Alioth Defendants”) (collectively, “Defendants”), as the parties opposing infringement, file this Opening Claim Construction Brief.

## **I. INTRODUCTION**

The Court should adopt Defendants’ proposed constructions for the claims of U.S. Patent No. 7,841,729 (the “Asserted Patent”) and reject Plaintiff’s proposed constructions.

## **II. THE ASSERTED PATENT**

The Asserted Patent is directed towards an “illuminator device for illuminating one or more users in front of a web camera and a communications terminal”. LPR 4.2 Joint Appendix - Ex. A at 001 Abstract. It contains thirteen total claims with Claims 1 and 10 being independent. Plaintiff has only asserted Claim 1 against Defendants. All of the terms for construction are dispositive.

Independent claim 1 is reproduced below.

1. An illuminator device for illuminating one or more users in front of a web camera and a communication terminal comprising:

a bulb having a toroidal shape for emitting light;

a reflector having a circular configuration to conform to the toroidal shape of said bulb for projecting the emitted light;

and an arm disposed between said bulb and the terminal for connection to the terminal, wherein said bulb is positionable relative to the web camera to provide optimal viewing of the user through the web camera.

*Id.* at Claim 1. The Asserted Patent discloses five separate embodiments. *Id.* at 2:15-35. The first

and fourth embodiments, shown in Figs. 1, 2, and 5, all include a “toroidal shaped bulb” and a reflector “conforming” to the toroidal shape of the bulb. *Id.* at Figs. 1, 2, and 6. The Asserted Patent discloses an “illuminator 10” which is connected to “frame 15 of screen 12 of a computer proximate to a webcam 20.” *Id.* at 2:41-43. It discloses “a bulb 25 for illumination of the user”. *Id.* at 2:47-48. “Bulb 25 has a toroidal or ring configuration that is capable of diffusing and shaping light through its surface.” *Id.* at 56-58. “Illuminator 10 further has a reflector 40 that surrounds or encases bulb 25.” *Id.* at 2:55-56. It further includes “a flexible arm 30 and a clamp 55 that permit adjustment of the location of bulb 25 relative to webcam 20.” *Id.* at 48-51.

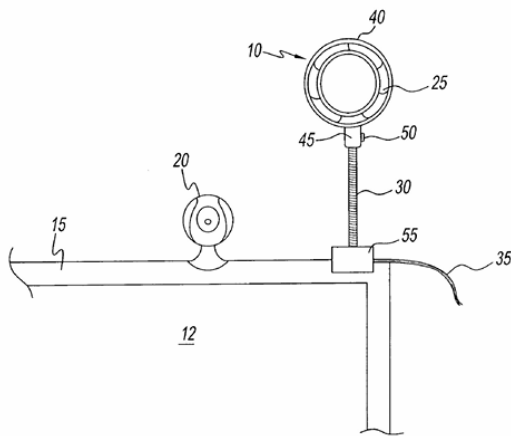


Fig. 1

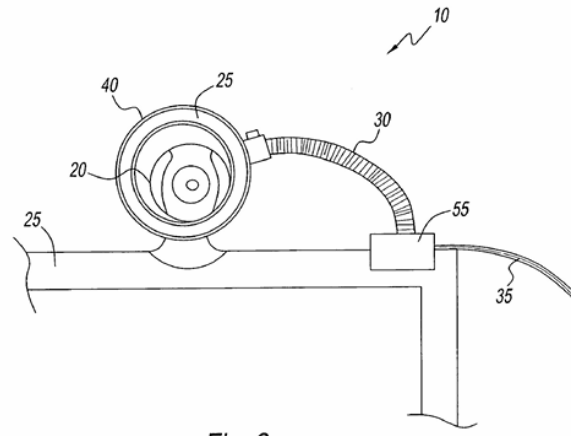


Fig. 2

In contrast, the second, third, and fifth embodiments do not disclose a toroidal shaped bulb, instead having a “sphere” or “semi-sphere” shaped bulbs. *See id.* at Figs. 3-5 and 7. For example, the second embodiment differs in that “bulb 65 has a semi-spherical or spherical shape” while “reflector 70 of this embodiment has an umbrella shape”. *Id.* at 3:20-25. “Bulb 65 is substantially a point source and its light is reflected by the relatively large umbrella.” *Id.* at 3:23-25. This is shown in Fig. 3.

*Id.* at Fig. 3. In contrast the second embodiment discloses “a plurality of lights” “built into a frame 85 of screen 15 of computer.” *Id.* at 3:62-66. This embodiment is shown in Figs 4 and 5, reproduced below.

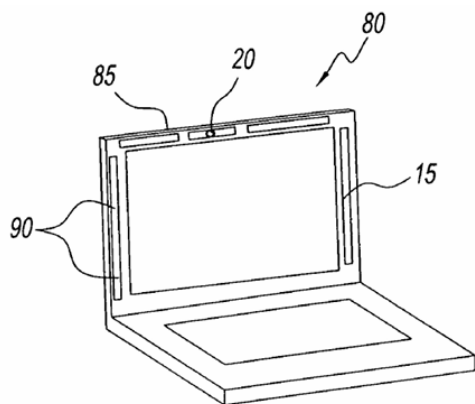


Fig. 4

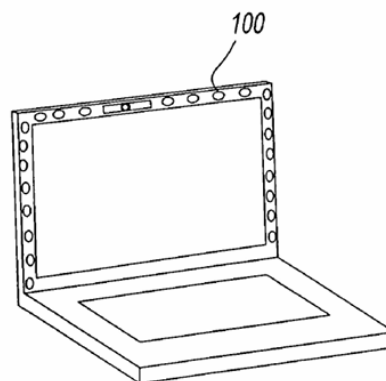


Fig. 5

*Id.* at Figs. 4-5.

The Fifth embodiment also discloses a “bulb 155” shown as a semi-spherical point light source, which is “surrounded by and [sic] attachable box 170 that is covered with a diffusion fabric 175.” *Id.* at 4:36-38.

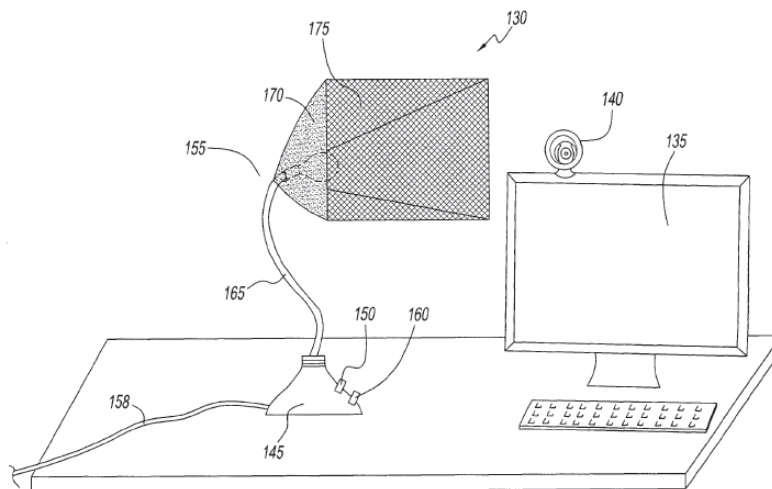


Fig. 7

*Id.* at Fig. 7.

As such, Claim 1 clearly relates to the first and fourth embodiments, which each have a toroidal shaped bulb, a reflector which “surrounds or encases” the toroidal shaped bulb; and an arm which permits the “adjustment of the location of bulb 25”. *Id.* at 2:49-56; Figs. 1, 2, and 6.

The prosecution history of the Asserted Patent is particularly relevant to the construction of "bulb having a toroidal shape." On November 27, 2009, the PTO issued an Office Action rejecting original Claim 1, among others, under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 3,604,913 to Crete. JA 086-087. Original Claim 1 recited, in relevant part: "...a bulb for emitting light; a reflector operatively associated with said bulb for projecting the emitted light..." JA 128, Original Claim 1. In response, on March 1, 2010, the applicant filed an amendment that significantly altered Claim 1. JA 075-079. The amended Claim 1 introduced new language, reciting in pertinent part: "...a bulb having a toroidal shape for emitting light; a reflector having a circular configuration to conform to the toroidal shape of said bulb for projecting the emitted light..." JA 076, Amended Claim 1.

In the remarks accompanying the amendment, the applicant argued that these changes overcame the Crete reference: "Crete does not disclose a bulb having a toroidal shape or a reflector having a circular shape that conforms to the toroidal shape of the bulb. By conforming to the shape of the bulb, the reflector of claim 1 is able to surround the web camera device and provide optimal light to the face of the user. Crete does not show such a configuration for the bulb and the reflector as claimed." JA 075. This amendment and accompanying argument were crucial in securing the allowance of Claim 1. The deliberate introduction of "toroidal shape" and the conforming reflector language to distinguish prior art has direct implications for claim scope, invoking principles of prosecution history estoppel, as will be discussed further below.

### III. STANDARDS FOR CLAIM CONSTRUCTION

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Claim construction is clearly an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *affd*, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). “In some cases, however, the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva Pharm. USA, Inc. V. Sandoz, Inc.*, 574 U.S. 318, 135 S. Ct. 831, 841 (2015) (citation omitted). “In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the ‘evidentiary underpinnings’ of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.” *Id.* (citing 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577).

To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See Phillips*, 415 F.3d at 1313; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc’ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *accord Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term’s context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can aid in determining the claim’s meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term’s meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314-15.

“[C]laims ‘must be read in view of the specification, of which they are a part.’” *Id.* at 1315 (quoting *Markman*, 52 F.3d at 979). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); accord *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor’s lexicography governs. *Id.* The specification may also resolve the meaning of ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex*, 299 F.3d at 1325. But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); accord *Phillips*, 415 F.3d at 1323.

Although extrinsic evidence can be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (citations and internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert’s conclusory, unsupported assertions as to a term’s definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.*

The Supreme Court has held “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). One must bear in mind, moreover, that patents are “not addressed to lawyers, or even to the public generally,” but rather to those skilled in the relevant art. *Id.* at 2128. Furthermore, “the definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable.” *Id.* at 2129.

**IV. A PERSON HAVING ORDINARY SKILL IN THE ART**

A person having ordinary skill in the art (“POSITA”) for the asserted patents would have had at least a bachelor’s degree in electrical engineering, or a related field, at least two years of experience with photographic lighting systems. A person with additional education but less experience (or *vice versa*) could also be a POSITA.

**V. THE CLAIM TERMS AT ISSUE**

Term	Defendants’ Construction
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“bulb having a toroidal shape”	Indefinite  In the alternative:  “a single bulb having a three-dimensional torus shape”
“reflector having a circular configuration to conform to the toroidal shape of said bulb”	“a three-dimensional reflector that is a separate and distinct structural component that surrounds or encases said bulb and which conforms to the three-dimensional toroidal shaped curvature of said bulb”
“bulb is positionable relative the web camera”	“bulb is independently movable relative to the fixed web camera”
“optimal viewing”	indefinite
“emitting light”	“emitting diffuse light directly from the bulb's surface”

## VI. ARGUMENTS

### A. “a bulb having a toroidal shape”

#### 1. The Term "bulb having a toroidal shape" Renders Claim 1 Indefinite.

For clarity, the Glacier Defendants propose that the limitation "a bulb having a toroidal shape" is indefinite under 35 U.S.C. § 112(b). The NWM Defendants do not join in this argument. The use of “toroidal” is unclear because different cross-sectional shapes can lead to varying interpretations of the overall form, making it ambiguous as to what specific structure is intended. Additionally, the specification of Asserted Patent states: “Illuminator 10 further has a reflector 40 that surrounds or encases bulb 25. Bulb 25 has a toroidal or ring configuration that is capable of diffusing and shaping light through its surface.” Ex. A at 2:54-60; JA 008. However, the patentee disclaimed or abandoned the "ring configuration" of the bulb to overcome prior art. Both “ring” and “toroidal” are inherently vague, and their meanings are similar and relatively indistinct. As a result, the patentee effectively claimed one term while disclaiming another similarly vague one.

This creates uncertainty regarding the boundary of claim 1, and therefore, claim 1 lacks reasonable clarity for the public to understand its scope.

More specifically, claim 1 requires “a bulb having a toroidal shape for emitting light.” (*Id.* at Claim 1). However, the specification confusingly characterizes the bulb as having “a toroidal or ring configuration.” *Id.* at 2:55-58; JA 008. By explicitly disclosing two related but distinct embodiments—a broad/vague “toroidal” configuration and another broad/ vague “ring configuration”—and then expressly claiming only the “toroidal shape,” the patentee unequivocally dedicated the “ring configuration” to the public domain. The Federal Circuit has repeatedly emphasized that “when a patent drafter discloses but declines to claim subject matter ... this action dedicates that unclaimed subject matter to the public.” *Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1054 (Fed. Cir. 2002) (en banc). Rather than clarifying the claim’s scope, this deliberate dedication has intensified the ambiguity inherent in the claim language. The specification provides no explicit guidance whatsoever for distinguishing between the claimed “toroidal shape” and the dedicated “ring configuration.” A precise geometric definition for “toroidal”—a torus formed strictly by rotating a circular cross-section around an axis—might theoretically align with the patent’s stated objective of achieving uniform diffuse illumination with minimized shadows. *Id.* at 3:62-67; 4:1-7; JA 008. Yet, the specification nowhere adopts such a limiting definition. Instead, it broadly describes “toroidal or ring configuration,” inviting significant confusion about the precise scope of the term.

Indeed, numerous alternative cross-sectional shapes—elliptical, rectangular, irregular, and non-uniform—could conceivably create three-dimensional ring-like structures, each yielding dramatically different lighting effects and inherently failing the stated objective of uniform illumination. For instance, three-dimensional ring configurations created by rotating irregular

cross-sections—such as ellipses, rectangles, and other non-circular shapes—around a central axis, are prone to causing directional refraction of light. This means the light may deviate from the user's face positioned in front of the illuminator device. This occurs due to abrupt shape transitions, a non-continuous curvature distribution, or the presence of edges on the surface. Consequently, these configurations fail to achieve the non-directional diffusion of light that the Asserted Patent aims for. As a result, they cannot provide the uniform illumination effect necessary to minimize shadows, which is the overall objective of the Asserted Patent. Without specification-based guidance, one skilled in the art cannot reasonably determine whether these alternative shapes remain part of the patented "toroidal shape" or belong to the expressly dedicated "ring configuration." Such uncertainty fundamentally contravenes the definiteness standard of *Nautilus*, which mandates claims "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus*, 572 U.S. at 901.

This ambiguity closely parallels the situation in *Dow Chem. Co. v. Nova Chems. Corp.* (*Can.*), 803 F.3d 620, 634 (Fed. Cir. 2015) (“The question is whether the existence of multiple methods leading to different results without guidance in the patent or the prosecution history as to which method should be used renders the claims indefinite.”), where the Federal Circuit found claims indefinite because the existence of multiple plausible measurement or interpretive methods, without clear specification guidance, rendered the claim scope ambiguous. Similarly here, the patentee’s own ambiguous disclosure introduces substantial interpretative uncertainty—each potential cross-sectional shape significantly impacts the lighting effect of the bulb formed and the scope of the claimed invention, yet the intrinsic evidence fails entirely to identify any sufficiently dependent parameters or similar information distinguishing “toroidal shape” from the dedicated “ring configuration.” Indeed, the patentee’s dedication decision (dedicating ring configuration)

compounds rather than mitigates this indefiniteness. Having explicitly disclosed yet consciously abandoned the “ring configuration,” the patentee had an affirmative obligation to define explicitly and precisely the clearer claimed scope. Its failure to do so undermines the public notice function critical to patent law, leaving the public uncertain as to precisely which configurations are patented and which are free to use.

Because the patentee’s own specification and prosecution history leave fundamental uncertainty about the critical term “toroidal shape,” Claim 1 violates the statutory requirement of definiteness under 35 U.S.C. §112(b).

2. *Alternatively, "bulb having a toroidal shape" Must Be Construed as "a single bulb having a three-dimensional torus shape."*

The Court should adopt Defendants’ proposed construction of “a single bulb having a three-dimensional torus shape” for the term “a bulb having as toroidal shape” as this construction is supported by both the claims themselves, the specification, and the file history. In contrast, Plaintiff’s proposed construction would ignore the doctrine of claim differentiation, the clear guidance of the specification, the differing embodiments, and the Patentee’s own statements during prosecution.

First, the claims themselves make clear that the term “a bulb” refers to a *single* bulb or light source, rather than having multiple light sources. For example, Claim 1 states “a bulb . . . for emitting light”. This refers to an invention having a single bulb, *i.e.*, a light source, rather than multiple bulbs. This is only made more apparent when one considers dependent claims 2, 5, 6, and 8, which all refer to “said bulb”. *See* Ex. A at Claims 1, 2, 4, 6, and 8. In contrast, independent claim 10 refers to “a *plurality of bulbs*, wherein *said bulbs* are disposed in the frame of the terminal and *one of said bulbs* surrounds the web camera.” *Id.* at Claim 10. Similarly, dependent claims

11, 12, and 13, which all depend from claim 10, refer to “said plurality of bulbs.” *Id.* at Claims 11, 12, and 13. The Patentee was clearly aware of the distinction between the inventions of claims 1 through 9, and claims 10 through 13, and if he had intended to claim a device with multiple light sources in claims 1 through 9, he would have used the term “one or more” or “a plurality.” Instead, the Patentee explicitly referred to “a bulb”.

Plaintiff’s proposed construction, which includes “One or more elements that operate in unison to emit light having a shape of a toroid”, improperly attempts to read out the singular nature of “a bulb” and seeks to encompass multi-element arrays, which are not described as “a bulb” in the patent. *See Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998) (holding that a claim “may be no broader than the supporting disclosure”). And the intrinsic evidence of the Asserted Patent, including the specification and prosecution history, only discloses the situation involving a singular ‘bulb.’ Thus, the singular ‘bulb’ serves as the sole embodiment for interpreting the quantity of bulbs and should be used to define the singular interpretation of ‘a bulb’ in claim 1. This interpretation is most consistent with the overall inventive intent of the Asserted Patent. *See Medicines Co. v. Mylan, Inc.*, 853 F.3d 1296, 1309 (Fed. Cir. 2017) (“Example 5, however, is not merely the only disclosed embodiment of efficient mixing—it is the only description of efficient mixing in the patents in suit that casts light on what efficient mixing is and that enables one of ordinary skill in the art to achieve the objects of the claimed invention. Although the specification provides that Example 5 is “non-limiting,” (e.g., Asserted Patent at 5:1-6), no other part of the patents’ written description sufficiently teaches the affirmative steps that constitute efficient mixing. In this circumstance, we think it entirely appropriate to limit the term “efficiently mixing” to the sole portion of the specification that adequately discloses “efficient mixing” to the public.”); *See also Gen. Am. Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770

(Fed. Cir. 1996) (“the specification and drawings teach that the openings are provided along all four walls, and that each opening directs the flow of CO<sub>2</sub> gas down a particular, “adjacent” wall, i.e., the nearest wall. This is not just the preferred embodiment of the invention; it is the only one described.”).

The clear distinction between “a bulb” and “a plurality of bulbs” further highlighted by the specification itself. For example, the specification refers to five distinct embodiments as addressed above. *Supra* at 10. Claims 1 through 7 are clearly directed towards the first and fourth embodiments, which explicitly discuss single toroidal shaped light source. For example, the specification refers to “a bulb that is shaped as one of a toroid, a sphere and a semi-sphere.” Exhibit A at 1:46-47. When referring to the embodiments corresponding to claims 1 through 7, the specification is replete with examples which show that the correct construction for “a bulb having a toroidal shape” is “a single bulb having a three-dimensional torus shape.” *See id.* at 1:55-56 (“a bulb”); 1:67-2:1 (“a bulb”); 2:4-5 (“The bulb”); 2:47 (“Illuminator 10 has a bulb 25”).

Even then discussing the second embodiment, the Patentee still clearly intended “a bulb” to refer to a “single bulb.” *Id.* at 3:19-21 (“In FIG. 3, the illuminator 60 has a similar element as the first embodiment except that bulb 65 has a semi-spherical or spherical shape.”); *id.* at 23-25 (“Bulb 65 is substantially a point source and its light is reflected by the relatively large umbrella.”).

In contrast, where the specification discusses the embodiments corresponding to claims 10-13, it clearly distinguishes that these embodiments have multiple bulbs, or light sources. *Id.* at 3:63-66 (“Illuminator 80 is in the form of a plurality of lights 90 . . . Plurality of lights 90 surround the webcam 20 and cast diffuse light on the face of the user”); 4:8-10 (“The illuminators shown in FIGS. 4 and 5”); *id.* at 4:11-14 (“Lights 90 are mounted in the frame . . . Lights 90 occupy less space and are more discreet”). This clear distinction between “a bulb”, “lights 90”, “a plurality of

lights”, or “Illuminators” is further shown by the figures themselves. For example, FIGS. 1, 2, and 3, reproduced above, each show a single bulb, designated as 25 in FIGS. 1 and 2 and 65 in FIG. 3. *Id.* at Figs. 1-3. In contrast, FIGSs. 4 and 5, which correspond to the third embodiments having “lights 90” or “a plurality” of lights or illuminators, clearly shows multiple bulbs, shown as 90. *Id.* at FIGS. 4-5.

Additionally, the specification makes clear that “a bulb having a toroidal shape” refers to “a single bulb having a three-dimensional torus shape” rather than being a “spherical”, “semi-spherical”, or multiple “lights.” *Compare id.* at 2:56 (“Bulb 25 has a toroidal or ring configuration”) *with id.* at 1:46-47 (“a bulb that is shaped as one of a toroid, a sphere and a semi-sphere”); 3:23-25 (“Bulb 65 is substantially a point source and its light is reflected by the relatively large umbrella reflector.”); 3:54-66 (“Illuminator 90 is in the form of a plurality of lights 90 . . . Plurality of lights 90 surround the webcam”); 4:11-12 (“Lights 90 are mounted in the frame are compact and thus very convenient.”). The ordinary meaning of “toroidal” is “of, relating to, or shaped like a torus or toroid: doughnut-shaped.” A torus is inherently a three-dimensional object. The specification links the “toroidal...configuration” of the bulb to its capability of “diffusing and shaping light through its surface.” *Id.* at 2:56-58. This implies a continuous, three-dimensional surface, consistent with a geometric torus, which is necessary for the kind of uniform diffusion the patent aims to achieve. By disclosing alternative shapes like “sphere,” “semi-sphere,” and the broader “ring configuration” but only claiming the “toroidal shape,” the patentee dedicated these unclaimed alternatives to the public. *See Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1054 (Fed. Cir. 2002) (“when a patent drafter discloses but declines to claim subject matter...this action dedicates that unclaimed subject matter to the public.”).

Finally, even the Patentee's own statements made during prosecution to overcome the prior art make clear that the proper construction of "a bulb having a toroidal shape" must be "a single bulb having a three-dimensional torus shape." For example, Claim 1 was initially rejected as the examiner stated that the prior art reference Crete had "a reflector, a positionable bulb and an arm between said bulb and assembly." Exhibit B at 086. To overcome this rejection, the Patentee amended claim 1 to include the phrase a "bulb having a toroidal shape". *Id.* at 073. In addition, the Patentee amended claim 13 (now claim 10) to include the phrase "and one of said plurality of bulbs surrounds the webcam." *Id.* at 074. This was a clear, narrowing amendment made for reasons related to patentability. Under the doctrine of prosecution history estoppel, a patentee is estopped from recapturing through the doctrine of equivalents (or through an unduly broad claim interpretation) subject matter surrendered during prosecution. By adding "toroidal shape," the patentee surrendered any claim to bulb shapes that are not genuinely "toroidal" in the context of the amendment made to overcome prior art. Given that the Patentee amended Claim 1 to include "a bulb having a toroidal shape" while at the same time amended Claim 13 to differentiate between the single bulb of Claim 1 with the "plurality of bulbs" of Claims 10-13, the Court must adopt Defendants' proposed construction, *i.e.*, that "a bulb having a toroidal shape" refers to "a single bulb having a three-dimensional torus shape."

For the foregoing reasons, the Court should rejected Plaintiff's attempt to impermissibly broaden the scope of the claim term "a bulb having a toroidal shape" to cover "one or more" bulbs. Plaintiff's proposed construction is clearly wrong in the face of the claims themselves, the specification, and the Patentee's own statements during prosecution. In contrast, the claims themselves distinguish between a single bulb having a toroidal shape and one or more bulbs.

Furthermore, this construction is supported by the specification and the file history. As such, the Court should adopt Defendants' proposed construction.

Second, "toroidal shape" should be understood in its precise geometric sense as a "three-dimensional torus shape." The ordinary meaning of "toroidal" is "of, relating to, or shaped like a torus or toroid: doughnut-shaped." A torus is inherently a three-dimensional object. The Asserted Patent specification links the "toroidal...configuration" of the bulb to its capability of "diffusing and shaping light through its surface." Asserted Patent at 2:56-58; JA 008. This implies a continuous, three-dimensional surface, consistent with a geometric torus, which is necessary for the kind of uniform diffusion the patent aims to achieve.

Third, and most powerfully, the doctrines of prosecution history estoppel and disclosure-dedication mandate this narrow construction. During prosecution, the applicant amended Claim 1 to introduce the "toroidal shape" limitation specifically to distinguish the invention from the prior art (Crete). JA 075-78. This was a clear, narrowing amendment made for reasons related to patentability. Under the doctrine of prosecution history estoppel, a patentee is estopped from recapturing through the doctrine of equivalents (or through an unduly broad claim interpretation) subject matter surrendered during prosecution. By adding "toroidal shape," the patentee surrendered any claim to bulb shapes that are not genuinely "toroidal" in the context of the amendment made to overcome prior art.

Furthermore, the disclosure-dedication doctrine applies. The specification of the Asserted Patent explicitly discloses that the bulb can be "shaped as one of a toroid, a sphere and a semi-sphere." *Id.* at 1:46-48; JA 008. It also describes the bulb as having a "toroidal or ring configuration." *Id.* at 2:55-57; JA 008. However, claim 1, as issued, only claims a bulb having a "toroidal shape." By disclosing alternative shapes like "sphere," "semi-sphere," and the broader

“ring configuration” but only claiming the “toroidal shape,” the patentee dedicated these unclaimed alternatives to the public. *See Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1054 (Fed. Cir. 2002) (“when a patent drafter discloses but declines to claim subject matter...this action dedicates that unclaimed subject matter to the public.”).

The combined effect of prosecution history estoppel and the disclosure-dedication doctrine is critical here. The patentee narrowed the claim to "toroidal shape" to gain allowance and disclosed, but did not claim, a "ring configuration" (among other shapes). If "toroidal shape" is not construed narrowly as a specific three-dimensional geometric form (i.e., a true torus, formed by rotating a circular cross-section), distinct from a general "ring configuration," then the public would have no clear notice of what was surrendered during prosecution versus what was dedicated through disclosure. The dedication of "ring configuration" would become illusory if "toroidal shape" could be broadly interpreted to recapture general ring-like arrangements of lights. To give substantive effect to both the narrowing amendment (estoppel) and the disclosure of unclaimed alternatives (dedication), "toroidal shape" must be limited to its specific, three-dimensional geometric torus meaning. This is the only interpretation that respects the patentee's choices and provides the public with the certainty required by patent law. Plaintiff's attempt to define "toroidal shape" to potentially include "one or more elements that operate in unison" arranged in a ring would improperly vitiate these fundamental doctrines.

Such a narrow construction, limiting "bulb having a toroidal shape" to "a single bulb having a three-dimensional torus shape," is essential to define the actual scope of the invention patented, as distinguished from what was surrendered or dedicated. Adopting (by the Court) this construction would be dispositive of non-infringement.

**B. “positionable relative to the web camera”**

The term “bulb is positionable relative [to] the web camera” should be construed as “bulb is independently movable relative to the fixed web camera.” This construction—particularly the emphasis on the bulb being movable relative to the fixed web camera—is consistent with the specification, the claims themselves, and the common understanding of the term “relative.”

Claim 1 describes “said bulb is positionable relative to the web camera to provide optimal viewing of the user through the web camera.” Exhibit A at 5:15-17. This language unequivocally indicates that the bulb is independently movable so that it can be positioned in accordance with the placement of the web camera, which remains fixed while the bulb is independently adjustable. This fact is further highlighted by dependent Claim 4, which includes a “flexible arm that permits said bulb to be positioned relative to the web camera.” *Id.* at 5:24-25.

Indeed, the specification repeatedly stresses that it is the bulb, or illuminator, which is movable rather than the web camera, which is fixed. *See, e.g., id.* at 2:4-6 (“The bulb is positionable relative to the web camera to provide optimal viewing of the user through the web camera.”); 4:36-38 (“Bulb 155 is connected to base by an adjustable arm 165 to adjust the position of bulb 155 relative to user and webcam.”); 3:7-12 (“illuminator 10 is movable along the length of screen 15”); 4:27-29 (“In this embodiment, a user is able to position illuminator as desired on a flat surface relative to webcam 20.”).

The Patentee also repeatedly emphasizes the independently movable nature of the bulb. For instance, the Patentee stated that “The present disclosure yet still further provides for an illuminator device for the face of the user viewed through a webcam, in which the illuminator is movable on a surface relative to the user and the webcam for optimal adjustability.” *Id.* at 1:58-61. Another example is where the Patentee stated that “Illuminator 10 preferably has a flexible arm 30 and a clamp 55 that permit adjustment of the location of bulb 25 relative to webcam 20,” which

also indicates that the bulb is independently adjustable, relative to the fixed webcam, by adjusting the flexible arm and clamp. *See id.* at 2:47-51; *see also id.* at Fig. 2.

Indeed, the Patentee’s Figs. reflect the same concept—that the web camera always remains fixed, regardless of whether the bulb moves. For example, in each of the five embodiments disclosed, the Patentee clearly shows that the web camera is fixed, either to a screen, or as part of the frame. *See id.* at Figs 1, 2, and 3 reproduced above (showing webcam 20 fixed to screen 15 and 25); Figs. 4 and 5 (showing webcam 20 as part of frame 15); and Figs 6 and 7 (showing webcam 20 fixed to the screen). Each of the figures clearly show that the position of the web camera is fixed, either to the screen or as part of the screen, while the illuminator bulb is movable to position the bulb. The comparison of Figs. 1 and 2 makes this even more apparent, where flexible arm 30 is shown connected to the screen 15 by claim 55 on one side, and to illuminator 10 and bulb 25 on the other side. *See id.* at Figs. 1 and 2. By adjusting flexible arm 30, illuminator 10 and bulb 25 are moved to from the vertical position shown in Fig. 1, to a placement in front of and surround web cam 20 in Fig. 2. *Id.*; *see also id* at 2:48-51 (“Illuminator 10 preferably has a flexible arm 30 and a clamp 55 that permit adjustment of the location of bulb 25 relative to webcam 20.”).

Given that the claims, the specification, and figures clearly and repeatedly show that the bulb is movable in relation to a fixed web camera, the Court must adopt Defendants proposed construction, “bulb is independently movable relative to the fixed web camera.”

**C. “reflector having a circular configuration to conform to the toroidal shape of said bulb”**

The term “reflector having a circular configuration to conform to the toroidal shape of said bulb” should be construed as “a three-dimensional reflector that is a separate and distinct structural component that surrounds or encases said bulb and which conforms to the three-dimensional

toroidal shaped curvature of said bulb”. Construing the term as “a three-dimensional reflector that is a separate and distinct structural component that surrounds or encases said bulb and which conforms to the three-dimensional toroidal shaped curvature of said bulb” is consistent with the specification, the file history, and the claims themselves.

First, the Patentee’s own statements made during prosecution to overcome the prior art make clear that the proper construction of “reflector having a circular configuration to conform to the toroidal shape of said bulb” must be “a three-dimensional reflector that partially surrounds said bulb and which conforms to the three-dimensional toroidal shaped curvature of said bulb.” For example, original Claim 1 which included the limitation “a reflector operative associated with said bulb” was rejected as the examiner stated that the prior art reference Crete had reflector. Exhibit B at 086. The Crete reference, specifically, disclosed a cone shaped reflector. *Id.* at 75. (“Crete discloses ... Reflectors have an approximately cone shaped configuration.”). To overcome this rejection, the Patentee amended Claim 1 to remove “operatively associated with said bulb” and included the additional limitation “a reflector having a circular configuration to conform to the toroidal shape of said bulb” and argued that “Crete does not disclose a bulb having a toriodal [sic] shape or a reflector having a circular shape that conforms to the toroidal shape of the bulb. By conforming to the shape of the bulb, the reflector of claim 1 is able to *surround* the web camera device and provide optimal light to the face of the user.” *Id.* at 73 & 75. As such, the proper construction for this term must include the limitation that the reflector be a “three-dimensional reflector that ... surrounds or encases said bulb and which conforms to the three-dimensional toroidal shaped curvature of said bulb.”

The claim itself describes the “reflector” as having “a circular configuration to conform to the toroidal shape of said bulb for projecting the emitted light.” Exhibit A at 5:12-13. To achieve

this function, the reflector must necessarily surround the single toroidal-shaped bulb, which requires it to be a “three-dimensional reflector,” so that it can conform to the bulb’s three dimensional toroidal shape and project its emitted light.

This construction is further supported by the specification. For instance, the specification describes the invention as “an illuminator device for the face of the user viewed through a webcam, in which the illuminator device has a bulb that is surrounded by a reflector”. *Id.* at 1:55-56. Indeed, the Patentee repeatedly emphasizes the “surrounding” nature<sup>1</sup> of the claimed reflector, stating, for example, “Illuminator 10 further has a reflector 40 that *surrounds* or encases bulb 25. Bulb 25 has a toroidal or ring configuration that is capable of diffusing and shaping light through its surface”. *Id.* at 2:55–2:58 (emphasis added).

In contrast, where the specification discusses other embodiments, it distinguishes the “reflector” which “conforms” to the toroidal shaped bulb from reflectors which do not. For example, the second embodiment depicts an umbrella-shaped reflector and semi-spherical light source, in contrast to the toroidal-shaped reflector that surrounds the toroidal-shaped bulb. *See id.* at Fig 3, 3:21-3:25 (The reflector 70 of this embodiment has an umbrella shape that is capable of reflecting light onto the users face from bulb 65. Bulb 65 is substantially a point source and its light is reflected by the relatively large umbrella reflector.”). The fifth embodiment—another example that does not include a toroidal-shaped bulb—features a box covered with diffusion fabric, with its interior surfaces lined with reflective film to direct light from the bulb. *Id.* at 4:38-4:42;

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<sup>1</sup> This “surrounding” nature further suggests that the side bulb and the reflector must be two distinct components; they cannot be permanently affixed or constructed as a single integrated unit. There must be a space between them—*i.e.*, they must be capable of functioning independently as a bulb and as a reflector.

*see also* Exhibit B at 076 (“Cook<sup>2</sup> does not remedy the deficiencies of Crete by disclosing a toroidally shaped bulb and a reflector having a circular shape that conforms to the shape of the bulb.”). Axiomatically, neither the umbrella shaped reflector nor the box with a diffusion fabric “conform to the toroidal shape of said bulb”. Exhibit A at 5:12-5:13.

The reflector must also be a separate and distinct component from the toroidal-shaped bulb. The Patentee discussed the reflector and the bulb as two separate and distinct components through the Asserted Patent. *See, e.g., id.* at 1:66-2:2 (“An illuminator device for illuminating one or more users in front web camera and a communication terminal having a bulb for emitting light; a reflector operatively associated with the bulb for projecting the emitted light; ...”). This is reinforced by the principle that separately listed claim elements are presumed to be distinct components. *See Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“Where a claim lists elements separately, “the clear implication of the claim language” is that those elements are “distinct component[s]” of the patented invention.”). Further, as Claim 2 indicates, the reflector is “positioned proximate said bulb to project light towards a face of said user or said users.” *Id.* at 5:18–5:20 (emphasis added). Throughout the Asserted Patent, the Patentee has used the word “proximate” to describe the relationship between two separate and distinct components. For example, it describes the claimed illuminator as being proximate to the webcam. *Id.* at 2:39–2:43 (“Referring to FIG. 1, a webcam illuminator of the present invention is shown and is generally represented by reference numeral 10. Illuminator 10 of the present invention is a connected frame 15 of screen 12 of a computer proximate a webcam 20.”). *See Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010)

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<sup>2</sup> Cook refers to the reference the examiner cited in finding “Crete does not specifically disclose the use of a piece of material of fabric as a diffuser. Cook in a light modifier teaches the use of a piece of material of fabric in a light box as a diffuser.” Exhibit B at 088.

("Where a claim lists elements separately, "the clear implication of the claim language" is that those elements are "distinct component[s]" of the patented invention."); *See also Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1382 (Fed. Cir. 2022) ("The "safety contact element" and "exit end of the mechanism" are distinct components. The asserted claims list those elements separately.... No party has identified claim language overcoming the presumption that the exit end of the mechanism and the safety contact element are distinct components.... Accordingly, we construe the "safety contact element" and "fastener driving mechanism" as separate components.").

Plaintiff first suggests that no claim construction is needed for this term. Its alternative construction seems that to agree that the reflector has to have the same shape, outline, or contour as the toroidal shaped bulb, in conforming the toroidal shaped bulb. Plaintiff's proposed alternative construction contradicts its own claim and specification. Plaintiff's proposed construction that defines the term as "a relative arrangement of elements having the form of a circle" ignores the clear language in the claim and specification, which require that the reflector "surround or encase" the single toroidal bulb. *See supra* at 15-17. Therefore, the reflector cannot merely "have the form of a circle"; it must be "a three-dimensional reflector" that "surrounds said bulb."

#### **D. "optimal viewing"**

Defendants contend that the Court should find that the term "optimal viewing" indefinite because it fails to inform a POSITA as to the positional relationship required to define whether "optimal viewing" is satisfied.

Claim 1 recites "wherein said bulb is positionable . . . to provide optimal viewing of the user through the web camera." Exhibit A at Claim 1 (5:15-17). A POSITA would not know the scope of the term "optimal viewing" with reasonable certainty because the claims provide no guidance as to acceptable tolerances and the specification fails to offer any guidance whatsoever.

A POSITA would recognize that the “claimed invention requires some standard of measuring the optimal viewing through the web camera. However, neither the claims nor the specification provides any standard for measuring the “optimal viewing” which is claimed. *See generally*, Exhibit A. This stands in stark contrast to cases where the specification sets forth a method of measurement to determine what is claimed. *See Seattle Box Co. v. Industrial Crating & Packing*, 731 F.2d 818, 826 (Fed. Cir. 1984). The specification uses phrases like “optimal viewing of the user”, “aesthetically pleasing appearance” (Ex. A at 1:30-36; JA 008), “most flattering light,” “prevents any shadows,” and “prevents any facial imperfections from being highlighted” (*id.* at 3:1-5; JA 009). While these describe desired outcomes, they do not provide any objective criteria, measurements, or parameters (e.g., specific lumen levels, shadow reduction percentages, color rendering index, quantifiable uniformity of light) that would allow a POSITA to determine if "optimal viewing" has been achieved. What one person considers "optimal" or “aesthetically pleasing” is inherently subjective and can vary widely. The fact that the prior art includes multiple examples of similar devices serves as further evidence of indefiniteness. Because the Asserted Patent provides no definition or measurement for what “optimal viewing” means, one of skill in the art is left to guess whether what deviation or slight curvature would fit within the claims scope. As such, the term is indefinite.

**E. “emitting light”**

Glacier Defendants' Proposed Construction: "Emitting diffuse light directly from the bulb's surface." The NWM Defendants do not join in this argument.

This construction is strongly supported by the specification's repeated emphasis on the bulb's inherent capability to produce diffuse light. The patent states: “Bulb 25 has a toroidal or ring configuration that is capable of diffusing and shaping light through its surface.” Asserted Patent, at 2:56-58; JA 008. It continues, "Such a configuration permits light illuminating the face of the

user to be as diffuse as possible." *Id.* at 2:58-59; JA 008. The overall purpose is to provide "diffuse illumination to the face of the user." *Id.* at 1:41-42; JA 008.

These statements clearly teach that the act of "emitting light" by the claimed "bulb" is not just any emission, but an emission of diffuse light that originates directly from the bulb's surface due to the bulb's own characteristics. This distinguishes the claimed invention from systems where a bulb might emit harsh, non-diffuse light that is subsequently diffused by a separate, external diffuser (although the patent does describe a diffusion fabric in a separate embodiment (*Id.* at 4:36-53; JA 009), the term "emitting light" pertains to the fundamental characteristic of the bulb itself as described in the context of the primary embodiments and Claim 1).

Plaintiff's proposed construction, "Plain and ordinary meaning, or having a shape of a toroid...", is unhelpful and circular for the phrase "emitting light." It conflates the act of emission with the shape of the bulb and fails to capture the quality of light (diffuse) that the specification attributes to the bulb's emission. Defendants' construction, by contrast, aligns with the patent's explicit teachings about how the bulb functions to achieve the invention's goals.

## **VII. CONCLUSION**

For the foregoing reasons, Defendants' proposed constructions should be adopted and Plaintiff's constructions rejected.

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that on the day of May, 2025, I electronically filed the foregoing document with the clerk of the court for the U.S. District Court, Northern District of Illinois, using the electronic case filing system of the court. The electronic case filing system sent a “Notice of Electronic Filing” to the attorneys of record who have consented in writing to accept this Notice as service of this document by electronic means.

/s/ Mingzi (“Marjorie”) Ouyang  
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