

Nos. 2018-2374, 2019-1040

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**UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT**

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CRANE SECURITY TECHNOLOGIES, INC., VISUAL PHYSICS, LLC,  
*Plaintiffs/Cross-Appellants,*

v.

ROLLING OPTICS AB,  
*Defendant-Appellant.*

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On Appeal from the United States District Court for the District of Massachusetts,  
No. 1:14-cv-12428-LTS, Judge Leo T. Sorokin

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**BRIEF FOR PLAINTIFFS/CROSS-APPELLANTS CRANE SECURITY  
TECHNOLOGIES, INC. AND VISUAL PHYSICS LLC**

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February 11, 2019

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## CERTIFICATE OF INTEREST

Counsel for Plaintiffs/Cross-Appellants Crane Security Technologies, Inc. and Visual Physics, LLC certifies the following:

1. The full name of every party or *amicus* represented by me is:

Crane Security Technologies, Inc. and Visual Physics, LLC

2. The names of the real party in interest represented by me is:

Not applicable.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or *amicus curiae* represented by me are:

Plaintiff/Cross-Appellant Visual Physics, LLC is a wholly owned subsidiary of Plaintiff/Cross-Appellant Crane Security Technologies, Inc., which is a wholly owned subsidiary of Crane & Co., Inc., which is a wholly owned subsidiary of publicly held company Crane Co.

4. The names of all law firms and the partners or associates that appeared for the party or *amicus* now represented by me in the trial court or agency or are expected to appear in this court (and who have not or will not enter an appearance in this case) are:

WILMER CUTLER PICKERING HALE AND DORR LLP: Timothy A. Cook, Nicole M.F. Dooley, Brian J. Driscoll, Sydenham B. Alexander, III (former), Benjamin N. Ernst (former), Michael A. Greene (former), Wayne L. Stoner (former)

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5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal:

None.

Dated: February 11, 2019

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## **STATEMENT OF RELATED CASES**

No other appeal from the same civil action was previously before this or any other appellate court. Counsel for Plaintiffs/Cross-Appellants Crane Security Technologies, Inc. and Visual Physics, LLC (collectively, “Crane”) know of no other case pending in this or any other court that may affect or be affected by the Court’s decision in this appeal.

## **JURISDICTIONAL STATEMENT**

Crane agrees with the Jurisdictional Statement of Defendant-Appellant Rolling Optics AB (“RO”). Crane timely cross-appealed on September 28, 2018. Appx26034-26036.

## **INTRODUCTION**

This case was not close, but it took far longer to resolve than it should have. RO filed numerous baseless motions, asserted various invalidity defenses that it dropped shortly before trial, and insisted on trying other defenses that, even if successful, would not have saved RO from judgment of infringement. RO has not shown any error in that judgment. The only legal error was in the denial of Crane’s motion for post-*Markman* attorney’s fees unrelated to damages, which should be reversed or remanded.

RO learned of Crane’s technology and patents years before RO released a product. Even though RO conducted no investigation sufficient to give rise to a

good-faith belief of non-infringement or invalidity, it ignored Crane's repeated requests not to infringe, and instead knowingly created its "own variation" of Crane's patented technology. It tried to hide its misconduct from Crane before and during this litigation, and acted against its lawyers' advice by continuing to infringe after Crane filed suit. RO's misconduct resulted in unnecessary discovery and motion practice that imposed undue burdens on the district court and Crane, including a seven-day trial that was largely unnecessary. RO disputed personal jurisdiction despite shipping infringing products to the United States, including in the weeks before and after it moved to dismiss. It moved to compel production of hundreds of clearly privileged documents in a futile attempt to bolster a now-abandoned inequitable conduct claim, forcing the Magistrate Judge to review 4,000 pages *in camera*. It filed a meritless sanctions motion against Crane seeking counter-factual adverse inferences and rejecting Crane's offer of curative additional deposition time. And it repeatedly attempted to introduce undisclosed and untimely evidence, expert opinion, and argument.

RO's positions on the merits were unusually weak. RO did not even dispute infringement as to its "old" technology. With respect to its "new" technology, its infringement defenses primarily rested on the unsupported assertion that the patents-in-suit do not cover icons formed by printing, a position RO tries now to leverage by asserting a construction of "shaped posts" that it waived below. RO's

indefiniteness defenses were so transparently wrong that the district court granted summary judgment in Crane's favor *sua sponte*. And after the court granted summary judgment that all RO's accused products infringe, RO insisted on proceeding to trial—only to drop almost all of its invalidity defenses shortly before trial, leaving the validity of 13 of 22 infringed claims undisputed. As a result, no matter what the jury found, RO was bound to owe Crane damages and to face a permanent injunction. The jury took less than three hours to reject RO's remaining defenses, to find RO's infringement willful, and to award Crane the full amount of damages it sought. Except as to the sufficiency of Crane's original notice letter, RO does not appeal the verdict at all.

The district court's decision should be modified in only one respect: in denying Crane's motion for post-*Markman* attorney's fees, the court made a legal error in ignoring the substantive weakness of RO's merits positions and finding only that RO's litigation conduct was not "sanctionable" or "bad faith." Appx51. As the Supreme Court has ruled, "unreasonable" litigation conduct may support a fee award even if it is not "sanctionable," and RO's litigation positions and behavior were clearly "unreasonable." *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 555 (2014). The denial of Crane's request for attorneys' fees should accordingly be reversed, or at least remanded for consideration under the correct legal standard.



## STATEMENT OF ISSUES ON APPEAL

1. Whether the district court correctly decided that claims containing the term “a given plane” are not indefinite.
2. Whether the district court correctly decided that claims containing the term “substantially regular array spacing between a substantial number of image icons” are not indefinite.
3. Whether the district court correctly construed “shaped posts.”
4. Whether Crane’s 2010 letter to RO provided sufficient notice of infringement under 35 U.S.C. § 287(a).
5. (Cross-appeal) Whether the district court legally erred in denying Crane’s request for post-*Markman* attorneys’ fees merely because it found RO’s conduct not sanctionable, where RO’s defenses were unusually weak and RO litigated in an unreasonable manner.

## STATEMENT OF THE CASE

### A. The Parties

Crane & Co. has been the exclusive supplier of banknote paper for U.S. currency since the 1800s; it also supplies counterfeit-deterrent banknote papers and security devices worldwide. Appx15001-15002; Appx1387-1389(74:11-76:6). The technology at issue here is used in the U.S. \$100 bill and banknotes around the world. Appx1395-1396(82:20-83:14); Appx1581(109:4-16); Appx1776(122:15-

24); Appx5808. Appellee Crane Security Technologies, a subsidiary of Crane & Co., is responsible for research, development, and manufacture of Crane & Co.'s micro-optic and security products. Appx1387-1388(74:21-75:23). Crane Security Technologies exclusively licenses the asserted patents from its subsidiary, Appellee Visual Physics. Appx15001-15002; Appx1389-1390(76:22-77:5).

RO, a Swedish company that sells anti-counterfeiting labels, has sought to compete with Crane in the banknote security market. In late 2006 or early 2007, before ever selling a product, RO learned of the asserted patents' parent and of products incorporating Crane's technology. Appx51 n.5 (citing Appx1944-1946(108-110); Appx5357; Appx5359; Appx5369); Appx1677-1678(23:18-24:2); Appx1890-1892(54:1-55:3, 55:25-56:23). Indeed, RO's founder praised Crane's patent applications as "some of the most detailed and comprehensive seen in the patent process," stating that "all that can be done is to raise your hat for a job well done." Appx5345; *see also* Appx1737-1738(83:19-84:19).

#### **B. Crane's Unison Patents**

As the district court ruled on summary judgment, RO infringed 22 claims of five Crane patents: U.S. Patent Nos. 7,468,842 (the "'842 patent"); 8,009,360 (the

“’360 patent”); 8,111,462 (the “’462 patent”); 8,120,855 (the “’855 patent”); and 8,254,030 (the “’030 patent”) (collectively, the “Unison patents”).<sup>1</sup>

## **1. Background**

The patents-in-suit claim a unique system that creates novel and striking visual effects and is particularly useful as an anti-counterfeiting device. The system is “micro-optical,” meaning that it includes lenses or arrays of lenses that are between a few micrometers and a few millimeters in size. Appx1962(126:10-18).

Before the patented inventions, various optical materials were used for authentication and “to provide visual enhancement of manufactured articles and packaging.” Appx342(1:33-41). But they “all suffer from similar drawbacks” of being relatively thick and fuzzy, and thus less effective as security or anti-counterfeiting measures. Appx342(1:57-64). A need existed for “secure and visually unique optical materials that can facilitate overt authentication of currency, documents, manufactured articles, and products and for optical materials that provide visual enhancement of manufactured articles, products, and packaging.” Appx342(1:65-2:3).

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<sup>1</sup> RO infringed ’842 patent claims 57-59 and 76-79; ’030 patent claims 167, 175-178, and 181; ’360 patent claims 62-63, 73-74, and 76; ’462 patent claim 158; and ’855 patent claims 56 and 95-96. Appx3-4; Appx17731-17733; Appx17780-17786.

Inventors Richard Steenblik, Mark Hurt, and Greg Jordan developed a new system that uses an array of tiny lenses and an array of tiny icons working in unison—hence the term “Unison” patents—to create “synthetically magnified” images exhibiting a variety of novel visual effects. Appx310(Abstract). The patented technology produces visually distinctive and well-controlled effects that are easily recognized. The technology is extremely valuable for many applications, including as an anti-counterfeiting feature in currency. Appx359(35:12-36:20); Appx1395-1397(82:6-84:1); Appx1602-1603(130:23-131:15).

## 2. Creating synthetic images from arrays of icons and lenses

Figure 1a shows the claimed system’s basic structure:

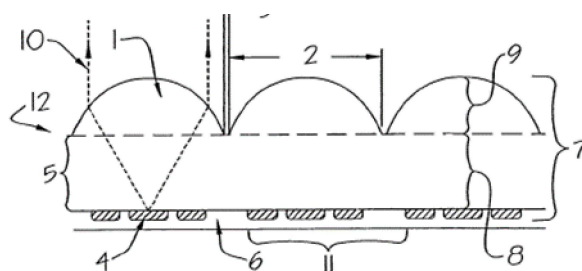


Fig. 1a

Appx313. The system includes three primary components: (1) lenses 1; (2) icons 4; and (3) an optical spacer 5, which separates the icons from the lenses. *Id.*; Appx345(7:15-44). The lenses 1 magnify the icons 4 into a larger, “synthetic” image that is projected to the viewer. Appx345(7:23-25). Figure 1b shows an implementation with dollar signs as icons:

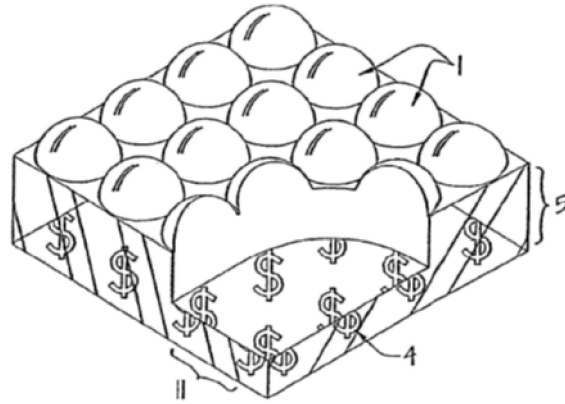
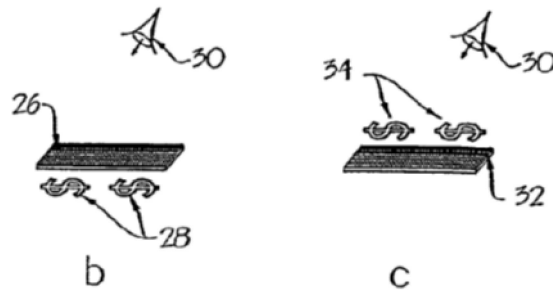


Fig. 1b

Appx314; Appx345(8:7-17). Individual images of dollar signs (which may be microscopic) are combined so that they may appear as a larger visible dollar sign.

### 3. Creating synthetic images with different visual effects

The patents also disclose creating synthetic images that appear to lie deep below or float above the material:



Figs 2b,c

Appx315. The patented inventions also make synthetic images that appear three-dimensional, that appear to move, and that appear to change form, shape, size, or color. *Id.* The '360 patent is particularly directed to “a synthetically magnified image that appears to lie **above** a given plane,” and the '030 patent to “a

synthetically magnified image that appears to lie *below* a given plane.” Appx310 (Title); Appx440 (Title).<sup>2</sup>

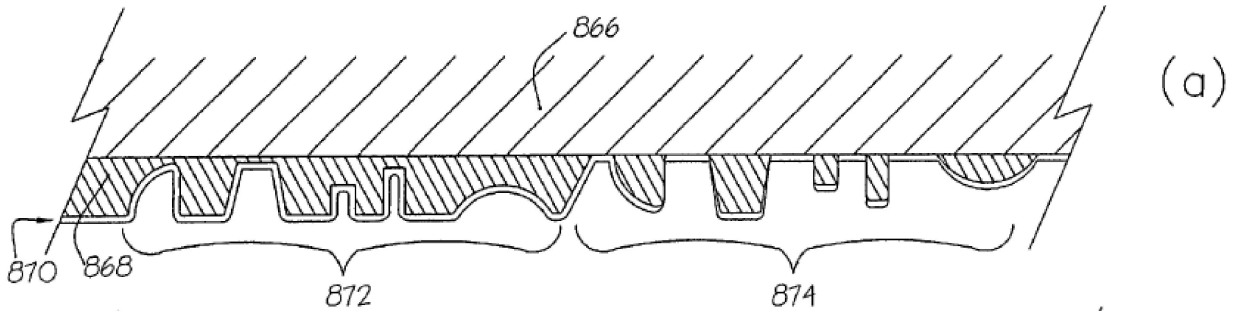
These optical effects are created by the particular arrangement of the icons and lenses. The icons are arranged in an array, wherein the individual icons repeat at a uniform distance (called a “repeat period” 11). Appx345(7:48-50). The lenses are similarly arranged by repeating at uniform distances (also a repeat period). *Id.* The patents teach that the “ratio of the repeat period of the icons to the repeat period of the lenses”—also called the “scale ratio”—can generate different visual effects. Appx345(7:50-52). When the icons’ repeat period exceeds the lenses’ repeat period, the synthetic image appears to float above the material; when the icons’ repeat period is lower than the lenses’ repeat period, the synthetic image appears to lie deep below the material. Appx345(7:54-62).

#### **4. Icon structure**

The patents also teach that icons can be three-dimensional structures with physical relief. For instance, “the icons can be created in the form of voids ... or they can be created in the form of ‘mesas’ or posts ..., or both.” Appx358(33:63-65). Figure 37(a) of the ’842 patent shows the icon image elements structured as “depressions,” “recesses,” “voids,” or “shaped voids or recesses” on the left side of the figure (872), and as “raised areas” on the right (874):

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<sup>2</sup> Emphases are added except where otherwise noted.



Appx195; Appx230(47:44-51).

The patents do not limit icons by how they are made. The '842 patent's specification specifically provides that “[m]icrostructured icon image elements” can be “formed in an icon layer by many suitable means,” including but not limited to “ink-jet *printing*, electro *printing*, *printing*, engraving, ... *and other suitable means* and combinations thereof.” Appx213(13:60-14:7).

### 5. Claim language

Claim 76 of the '360 patent is illustrated below:

76. A synthetic magnification micro-optic system comprising:

- (a) an array of image icons, which includes microstructured icon elements having a physical relief formed as shaped voids or recesses, or as shaped posts, or both; and
- (b) an array of image icon focusing elements,

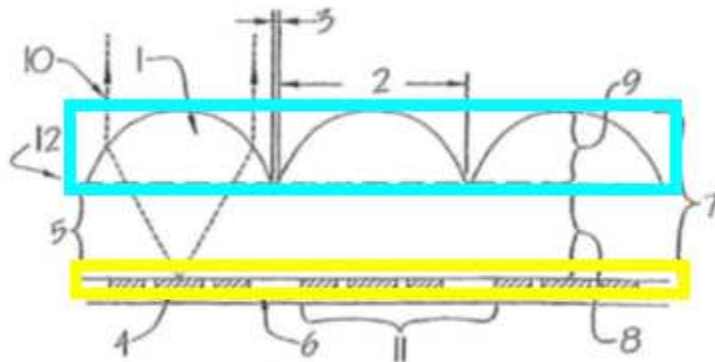


Fig. 1a

wherein, the array of focusing elements is disposed a substantially uniform distance from the array of image icons and forms at least one synthetically magnified image of at least a portion of the image icons, the at least one synthetically magnified image appearing to lie above a given plane.

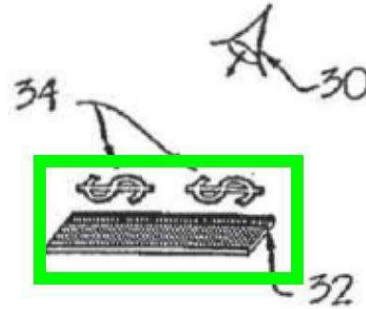
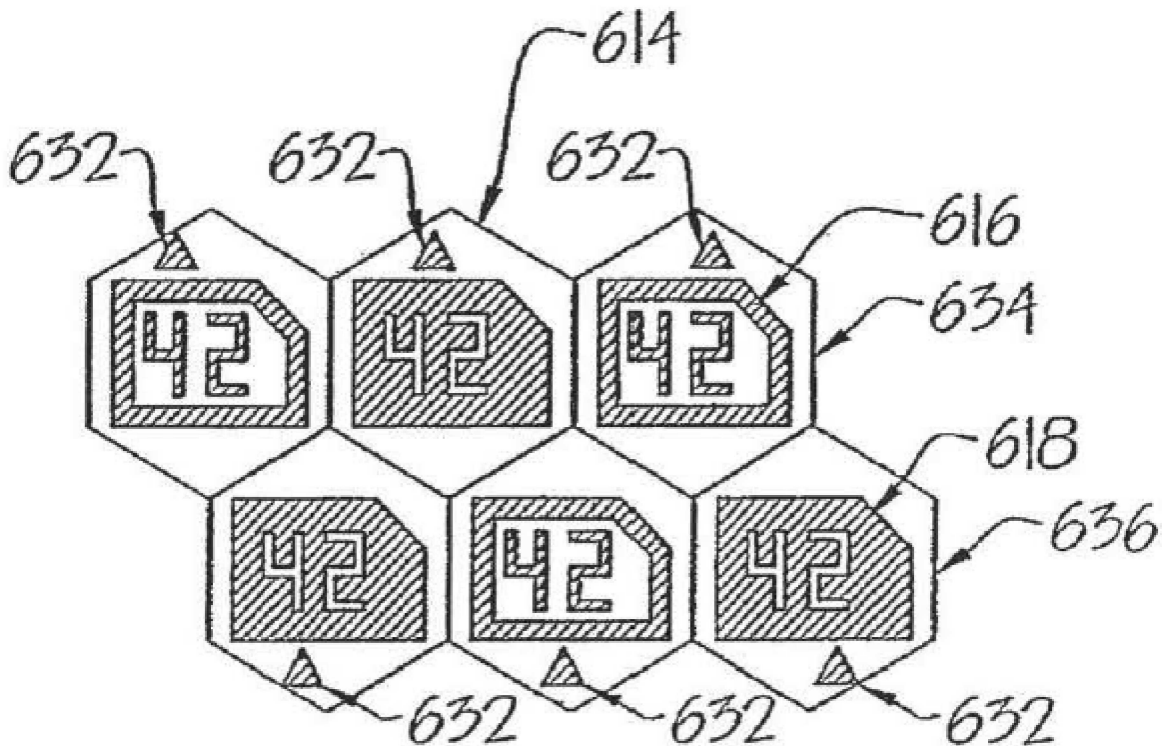


Fig. 2c

Appx364(46:5-16); Appx313; Appx315. Other claims recite different visual effects, such as the “synthetically magnified image” appearing to lie below (rather than above) “a given plane.” Certain claims, such as claims 62 and 63 of the ’360 patent, require that the “array of image icons” have “substantially regular array spacing between a substantial number of image icons within at least a portion of the image icon array,” as illustrated in Figure 25 below:





Appx363(43:36-44:9); Appx333; *see also* Appx356(30:17-19) (“Synthetic images are created from a multiplicity of regularly arrayed icon images that are imaged by a corresponding regular array of micro-lenses.”).

## 6. Prosecution history

The patents-in-suit are all either a continuation-in-part (the '842 patent (Appx161)) or divisionals (the '855 (Appx246), '360 (Appx310), '462 (Appx370), and '030 (Appx440) patents) of U.S. Patent No. 7,333,268 (the “268 patent”).

The applications underwent extensive examination; each patent lists well over 100 prior art references, including collectively *all* references discussed on pages 5-6 of RO’s brief. Appx161-162; Appx246-248; Appx310-312; Appx370-372; Appx440-442. Indeed, to the extent RO’s discussion is an attempt to undermine the Unison

patents' novelty, it fails—not least because RO has not appealed any prior-art validity challenge.

The prosecution history is relevant to two claim terms at issue.

*a. “Substantially regular array spacing between a substantial number of image icons”*

The examiner initially rejected various then-pending claims of the '855 patent as anticipated by the Florczak reference. Appx16967-16970; Appx16983-17008. In an examiner interview, the applicants explained that the spacing between image icons in Florczak “is not regular” because, in Florczak, “[l]ight is transmitted by each microlens to a unique position on the material layer, and produces a unique image,” such that “the portion of the material layer on which an image is formed is different for each microlens.” Appx17038-17039.<sup>3</sup>

Following the interview, the applicants amended claims to recite “a substantially regular array spacing between a substantial number of image icons within the image icon array,” and reiterated that “[t]he spacing between images” in Florczak “is not regular” because “the light that is transmitted by each microlens is transmitted *to a unique position on the material layer*, and produces a unique image.” Appx17013; Appx17021-17024; Appx17026-17029; Appx17032;

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<sup>3</sup> Florczak uses the terms “image”/“recorded image” to refer to the shapes underlying the lenses, and “composite image” to refer to the shapes perceived by the viewer. Appx17001(9:7-16). In the Unison patents, the analogous terms are “image icons” and “synthetically magnified images.” *See supra* pp. 7-9.

Appx17036; Appx17041-17042 (emphasis in original). The examiner subsequently withdrew the Florczak rejections.

***b. “Shaped posts”***

The examiner rejected certain then-pending claims of the ’462 patent over the Hutley reference. Appx17078-17079; Appx17081-17082. One rejected claim (174) recited “shaped posts”; other claims (32 and 82) reciting “shaped posts” were allowed. Appx17077; Appx17092; Appx17104; Appx17120. The office action did not specifically discuss “shaped posts.” Appx17077-17082.

The applicants amended claim 176 to recite, in relevant part, “shaped posts,” and made other amendments to other rejected claims (155, 170, and 177-178). Appx17117; Appx17119; Appx17121-17122. Although the “object arrays” of Hutley “may be printed, or generated photographically,” the applicants explained that Hutley “does not teach (or suggest) ... image icons in the form of shaped voids or recesses, or shaped posts.” Appx17125-17126.

As RO notes (Br. 45-46), the prosecution histories of the ’855 and ’030 patents include similar rejections over, and arguments regarding, Hutley. That is unsurprising, as the same primary examiner examined the ’462, ’855, and ’030 applications and the application that issued as the ’842 patent. Appx370; Appx161; Appx246; Appx440. Notably, however, the ’360 patent prosecution history—handled by different examiners—includes no rejections over Hutley, even

though the '360 patent also includes claims reciting “shaped posts,” and even though Hutley is cited in the '360 patent. Appx310-311.

### **C. District Court Proceedings**

#### **1. Pre-suit background**

Although RO knew of Crane in 2006 or 2007, Crane first learned of RO in early 2010. Appx1449-1450(136:13-137:7); Appx1890-1892(54:1-55:3, 55:26-56:23). After analyzing an RO product, Crane concluded that RO possibly infringed Crane’s intellectual property. Appx21434-21435; Appx1432-1433(119:12-120:10). On April 26, 2010, Crane wrote to RO’s then-CEO to “alert [RO] to a possible patent infringement situation regarding the manufacture and sale of [RO’s] optical products in relation to [Crane’s] UNISON patents.” Appx5178-5179. The letter (1) informed RO that Crane owned the Unison patent portfolio, (2) described that patent portfolio and the claimed inventions, (3) identified and attached the '268 parent patent application as well as the '842 patent (the only issued patent at that time), and (4) described the RO products that appeared to infringe Crane’s patents. *Id.*

RO responded with two sentences, stating “it is a company policy not to infringe valid patent rights” and that RO was “not involved in any activities in conflict with [Crane’s] patent rights.” Appx5180. Four months later, RO began shipping infringing products into the United States. Appx6207.

Crane discovered additional evidence of RO's infringement in 2012, identifying RO's infringing label on an UGG boot. Appx1434-1435(121:23-122:9). On December 3, 2012, Crane sent RO a second letter identifying all of the asserted patents and reminding RO of Crane's April 2010 letter.<sup>4</sup> Appx5181-5185. When RO persisted in its infringement, Crane was forced to file this lawsuit. Appx6207; Appx15001-15009.

## **2. Claim construction**

RO disputes the construction of "shaped posts," which appears in nine asserted claims.<sup>5</sup> In the district court, RO did not assert the construction it now urges on this Court ("microstructured icon elements in which the design is formed by the solid regions of a layer that remain after material has been removed or displaced from the layer," Br. 56). Appx75.

RO first argued indefiniteness, Appx15373, before proposing in its opening *Markman* brief that the term be construed as:

The inverse of shaped voids or recesses: microstructured icon elements in which the design is formed by the solid regions of a layer that remain after material has been removed or displaced from the layer. The void space around the 'shaped post' may be filled with material that provides a contrast.

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<sup>4</sup> RO does not challenge the sufficiency of Crane's 2012 notice letter.

<sup>5</sup> "Shaped posts" appears in '360 patent claims 74 and 76, '462 patent claims 159 and 161, '855 patent claims 67, 97, and 109, and '030 patent claims 177 and 181. Appx75.

Appx16068. After Crane responded that “shaped posts” should be construed as “pieces fixed in an upright position” (Appx15372), RO abandoned its original proposed construction without explanation and asserted in its reply *Markman* brief that “shaped posts” are:

The inverse of shaped voids or recesses: microstructured icon elements in which the design is formed by the solid regions of a layer. Shaped posts are distinguished from printed icon elements.

Appx17343.

As the district court observed, the parties primarily disputed whether “shaped posts” include “printed icon elements.” Appx75. The court noted that none of the nine relevant claims explicitly excludes printed icons. Appx76. The court was thus “reluctant to import” a limitation excluding icons formed by printing. *Id.* The court rejected RO’s argument that the applicants’ distinction of Hutley evidenced “a ‘fundamental difference’ between ... printed icons and” “shaped posts”; instead, the statement was “more reasonably read” as arguing “that Hutley did not teach shaped posts of any kind—whether printed or not.” Appx77. Accordingly, the court agreed with Crane that “shaped posts” should be construed—consistent with the plain meaning of “posts”—as “shaped as pieces fixed in an upright position.” Appx78.

### 3. Summary judgment

#### *a. RO's infringement*

Crane moved for summary judgment of infringement by all accused products. Appx25165-25189. RO did not dispute that its so-called “old” products infringed. Appx21-22. RO argued that products made with its “new printing process” (Br. 13-14) did not infringe because, it asserted, products with multiple overlapping arrays of non-identical icons lack “substantially regular array spacing between a substantial number of image icons.” Appx23-28. In addition, it argued for the first time that “shaped posts” required that icons be taller than they are wide. Appx28-31.

The court rejected RO’s argument regarding “substantially regular array spacing,” noting the patents’ disclosure of arrays of non-identical icons and RO’s interrogatory responses admitting that its arrays have “a constant ‘object period’” for each array. Appx23-27. As to “shaped posts,” the court considered RO’s taller-than-wide argument even though it “was not ... advanced or addressed” at *Markman*, and rejected it on the merits for three reasons. Appx28. First, “the patents themselves ... expressly teach shaped posts that are wider than tall” by referring to “shaped posts” as the “inverse” of “shaped voids,” which the patents describe as “typically” wider than tall. Appx29-30; *see also* Appx484(26:9-12). Second, in referring to icons that “can be created in the form of ... ‘mesas’ or posts

... or both,” “the patents use the terms mesas and posts in a way that indicates the two are not mutually exclusive.” Appx30; *see also* Appx488(33:60-64). Third, “[t]he plain meaning of upright” (as in “pieces fixed in an upright position”) “mandates no dimensional limits.” Appx30.

The district court granted summary judgment that each accused product infringed at least one of the 22 asserted claims. Appx3-4. The court denied RO’s subsequent motion for reconsideration or clarification regarding “shaped posts.” Appx20890.

***b. The claims’ definiteness***

RO cross-moved for summary judgment of indefiniteness of the asserted claims of the ’360 and ’030 patents and claim 56 of the ’855 patent, focusing on the terms “a given plane” and “substantially regular array spacing.” Appx3-4.

**(1) “a given plane”**

RO argued that Crane’s “use of the indefinite article ‘a’” in “a given plane” “signals that the claim covers *any* plane that one might select as the point of reference.” Appx9-10 (emphasis in original). The district court rejected RO’s argument for six reasons: (1) the “plane” identified in the specification is “the plane of the micro-optic system” (for example, “the plane of the Unison Float material”); (2) RO offered “no expert testimony (or any other evidence) that the term is not reasonably certain,” instead relying “entirely on its purely linguistic



argument”; (3) RO’s interpretation “would render the limitation meaningless”; (4) “the micro-optic system ... serves as the reference point for the synthetically magnified image effects that the claims describe”; (5) the examiner used the phrase “a given plane” with no apparent question as to its meaning; and (6) RO’s own marketing materials refer to images that appear “above and below” without identification of any specific reference plane. Appx10-13. Because “RO [had] received sufficient fact discovery, appropriate notice, and opportunity to present opposition” yet raised “no dispute of material fact warranting a trial,” the court granted summary judgment of no indefiniteness *sua sponte*. Appx12-13.

**(2) “substantially regular array spacing between a substantial number of image icons”**

RO argued that “substantially regular array spacing” was indefinite because, RO argued, (1) “the claim limitation fails to identify whether” it “must be determined by measuring the space in-between icons or the pitch (i.e., the repeat period) of the icons”; and (2) “the term does not disclose how to measure the space between non-identical image icons.” Appx14; Appx16.

As with “a given plane,” RO offered no expert testimony suggesting that a skilled artisan would not reasonably understand the claims’ scope. Appx16. The court again rejected RO’s argument and granted summary judgment of no indefiniteness *sua sponte*. Appx17. The court noted that the patents themselves “inform that it is the *repeat period* that matters for purposes of array spacing”:

Figure 1a is described as having icons with a “repeat period” and Figure 5a as “show[ing] a lens array ... having a regular *periodic* array spacing,” the “scale ratio” is defined as “the ratio of the *repeat period of the icons* to the repeat period of the lenses,” and visual effects result from “varying the ‘icon element repeat period.’” Appx14-15 (emphases in original); Appx18144; Appx18179(14:47-67); Appx18176(7:48-52). In contrast, the patents “neither identify nor place significance on the space in-between image icons.” Appx15. The court also cited RO’s own expert, Dr. James Leger, who testified that a “regular array requires periodicity” and that “regular ‘means periodic.’” *Id.* The court also cited RO’s description of its own products as “having ‘object arrays’ with spacing identified as the ‘pitch.’” *Id.* The court also noted that RO “offered no expert testimony or other evidence that the claim language does not inform, with reasonable certainty, a person skilled in the art how the pitch of non-identical icons is measured.” Appx16.

***c. Sufficient notice under 35 U.S.C. § 287(a)***

RO also sought summary judgment that Crane’s 2010 letter gave insufficient notice to entitle Crane to damages under 35 U.S.C. § 287(a). Appx32-35. The court denied RO’s motion, ruling that “[a] reasonable factfinder could conclude that” the 2010 letter “provided a charge of infringement and sufficiently specific

product identification for purposes of actual notice” of infringement of the ’842 patent. Appx35.

**4. RO’s unreasonable litigation conduct**

Throughout the case, RO filed baseless motions, tried to circumvent normal discovery processes, and forced a largely unnecessary trial, unreasonably wasting judicial resources and imposing costs on Crane.

***a. RO’s baseless personal jurisdiction challenge***

RO’s first response to Crane’s suit was to move to dismiss for lack of personal jurisdiction, even though it had been doing business with U.S. companies for years and shipped infringing products to the United States in the weeks before and after filing its motion. *Compare* Appx15010, with Appx6207 (showing eight infringing shipments between June and August 2014). RO nonetheless represented that its U.S. connections were “incidental,” “random,” “attenuated,” and “very tenuous.” Appx25011(11:1-13); Appx25016(16:8-12); Appx25018-25020(18:22-19:9, 20:15-22). The court denied RO’s motion (Appx15346), later noting that “discovery has revealed that the question of personal jurisdiction was perhaps not even close, something presumably then known to Rolling Optics.” Appx25050.

***b. RO’s baseless motion to compel nearly 600 privileged communications***

RO moved to compel production of approximately 600 privileged communications, claiming (without any basis) that they would support RO’s latter-

day inequitable conduct counterclaim. Appx25839-25840; Appx25143; Appx25065-25066. After reviewing roughly 4,000 pages *in camera*, the Magistrate Judge upheld Crane’s privilege claim as to every document and found that “nothing in the withheld documents” supported RO’s inequitable conduct theory. Appx25141 n.4; Appx25143; Appx25164.

***c. RO’s repeated attempts to circumvent discovery requirements***

Faced with no non-infringement defense, and apparently recognizing the weaknesses in its invalidity case, RO sought to introduce previously undisclosed—and untimely—evidence, expert opinion, and argument.

Over 14 months after the close of expert discovery, RO unilaterally served a Second Supplemental Declaration of its expert Dr. Leger that, among other things, sought to assert prior art he had not previously addressed. Appx25617-25618; Appx20893-20894. The court rejected RO’s attempt to reopen expert discovery. Appx25628-25629. Nonetheless, RO announced at the Final Pretrial Conference that it planned to elicit opinions from Dr. Leger’s disallowed declaration. Appx25741(52:3-19). The court again rejected RO’s attempt. Appx20892-20895.

RO also revealed in its pretrial disclosures that it planned to rely on certain “Rowland Technologies” products and patents as prior art, even though no expert witness had opined that they anticipated or rendered obvious any asserted claim. Appx25679-25680. The court granted Crane’s motion *in limine*. Appx25679-

25683; Appx25689. Despite that ruling, RO tried at trial to introduce Rowland material through its expert, Scott Scarbrough. Appx2100-2103(93:1-96:10). The court again rejected that attempt. Appx2100-2104(93:15-97:15).

***d. RO's abandonment of defenses before trial***

RO pursued obviousness and on-sale bar defenses that, for patents other than the '842 patent, depended on proving that the 62-page provisional application to which those patents claimed priority did not include sufficient description or enabling disclosure. Appx25841; Appx5345. RO served a lengthy expert report addressing this issue, to which Crane and its expert had to respond; a significant portion of deposition questioning of both sides' experts addressed these issues. Appx25841-25842. RO then abandoned its obviousness, written description, and enablement challenges less than a week before trial, leaving only its on-sale bar defense as to the '842 patent, and an anticipation defense that applied only to two of the seven asserted claims of the '360 patent. Appx25684. Because RO had no remaining defense to 13 of the 22 infringed claims, the trial gave RO no possibility of avoiding judgment of infringement or a motion for entry of a permanent injunction.

***e. RO's motion for sanctions and adverse inferences***

Several weeks before trial, named inventor Mr. Steenblik unexpectedly discovered additional inventor notebook pages in his personal files—and third

party Nanoventions (Mr. Steenblik's employer when the Unison technology was developed) produced those pages within two days. Appx25842. RO accused *Crane* of misconduct, even though Crane had never possessed the notebook and had asked counsel for Nanoventions and Mr. Steenblik for such information numerous times. Appx25630-25632; Appx25641-25645. RO leveled its accusations before gathering any evidence whatsoever and rejected Crane's offer to re-depose Mr. Steenblik. Appx25641. Instead, RO sought legally baseless "sanctions"—including excluding Mr. Steenblik from testifying at trial—and adverse factual inferences contrary to the notebook's contents. Appx25653-25657. Crane was forced to oppose RO's motion. Appx25633-25636; Appx25637-25659. The court admitted the notebook at trial (as Crane had agreed) and allowed a deposition of Mr. Steenblik (as Crane had offered), and otherwise denied RO's motion. Appx25660; Appx25842.

## **5. Trial and post-trial**

The jury learned that RO had been aware of Crane's technology and patent family while first designing its products (Appx1890-1892(54:1-55:3, 55:25-56:23)), began shipping infringing products to the United States shortly after receiving Crane's April 2010 notice letter (Appx1706-1707(52:7-53:14); Appx6207), continued to infringe after receiving the second notice letter in December 2012 (Appx5181-5185; Appx6207), and continued to infringe even after

Crane filed suit, despite being advised by its lawyers “against any activities/discussions/samples etc. until we have this case behind us” (Appx5378; Appx1716-1720(62:14-66:14)). The jury heard that RO tried to hide its infringement from Crane, all while making further attempts to copy Crane’s technology, going so far as to “produce [its] own variation” or “version” of products incorporating Crane’s patents. Appx5379; Appx6029-6032; Appx1691-1692(37:3-38:21). The jury also heard of the importance of currency security and that the U.S. Bureau of Engraving and Printing had raised concerns about RO’s infringement. Appx1435-1436(122:20-123:25).

RO lost every trial issue. After less than three hours’ deliberation, the jury found RO’s infringement willful, that RO actively induced infringement, that Crane’s 2010 letter gave sufficient notice, that Crane proved its full damages of \$119,186; that the on-sale bar did not invalidate the ’842 patent, and that claims 62 and 63 of the ’360 patent were not anticipated. Appx37-40.

The district court denied RO’s JMOL motion as relevant here.<sup>6</sup> Appx41-48. Crane moved for a permanent injunction; RO opposed only as to the injunction’s scope, and the court granted Crane’s request. Appx59-61; Appx20922-20940;

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<sup>6</sup> Crane did not oppose JMOL with respect to three RO products (of the more than 70 found to infringe) or a corresponding \$10,483 reduction in the damages award. Appx44; Appx17780-17786; Appx3-4.

Appx21412. The court also trebled the jury's damages, a ruling RO does not appeal. Appx53-59.

Crane moved for its attorneys' fees for the proceedings following the claim construction decision, but excluding all work relating to damages. Appx25830-26017. Crane explained that RO's merits positions were exceptionally weak and that RO had litigated the case unreasonably by filing numerous baseless motions and proceeding to a trial that would not help RO avoid judgment of infringement or a permanent injunction. Appx25835-25844; Appx25851-25854. The court denied Crane's fee motion. The court did not assess the reasonableness of RO's merits positions or its litigation tactics, other than to say that RO "did not engage in sanctionable conduct or bad faith litigation" and that RO's positions "were not frivolous." Appx49-53.

### **SUMMARY OF THE ARGUMENT**

1. RO has never disputed that the relevant "plane" discussed throughout the Unison patents is the plane of the micro-optic system, just as the district court concluded. RO's ability to conceive of a nonsensical interpretation of "a given plane" that has no support in the patents does not make the claims indefinite; notably, RO offered no expert testimony supporting its argument.
2. RO argues that "substantially regular array spacing between a substantial number of image icons" is indefinite. But the district court's correct



interpretation rests on the patents' consistent guidance that array spacing's "regularity" turns on the array's "repeat period." RO's strained alternative reading is unmoored from the intrinsic record, and RO again offered no expert testimony supporting its view.

3. RO's proposed construction of "shaped posts" is its fifth in this litigation, and may and should be rejected as waived. RO's assertion that "shaped posts" cannot be created through printing finds no support whatsoever in the patents; in fact, the specifications state the opposite. The prosecution history does not support RO's position either—the applicants distinguished Hutley because it does not disclose "shaped posts" of any sort, not because it created shaped posts through printing.

4. The jury's finding that Crane's 2010 letter provided adequate notice was amply supported by substantial evidence. The letter identified Crane's patents and described RO's allegedly infringing products. The law requires no more.

5. The district court made one discrete legal error: it denied Crane's request for attorneys' fees for post-*Markman*, non-damages proceedings based solely on a finding that RO's litigation conduct was not "sanctionable" or in "bad faith." Appx51. The court did not assess the substantive weakness of RO's trial positions or the possibility that non-sanctionable litigation conduct may nonetheless be unreasonable. Once that legal error is corrected and the totality of

RO's conduct is correctly assessed, this case is plainly exceptional and warrants an award of Crane's post-*Markman*, non-damages fees. RO's post-*Markman* liability defenses were exceptionally weak; indeed, RO has abandoned them all on appeal except for the sufficiency of Crane's notice letter, which has no impact on infringement, validity, or Crane's entitlement to injunctive relief. Those issues were effectively decided during claim construction and at summary judgment. There was accordingly no need for this case to proceed to trial. Moreover, RO litigated unreasonably in numerous respects. At the very least, the fee order should be vacated and remanded for further consideration under the correct legal standard.

### **STANDARD OF REVIEW**

The denial of attorneys' fees is reviewed for abuse of discretion. *Highmark Inc. v. Allcare Health Mgmt. Sys., Inc.*, 572 U.S. 559, 563 (2014). An error of law is an abuse of discretion. *Id.* at 563 n.2.

### **ARGUMENT**

#### **I. THE DISTRICT COURT CORRECTLY RULED THAT RO FAILED TO PROVE THAT THE TERM "A GIVEN PLANE" IS INDEFINITE**

##### **A. Intrinsic And Extrinsic Evidence Show That "A Given Plane" Means "The Plane Of The Micro-Optic System"**

Indefiniteness must be proven by clear and convincing evidence. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015), *on remand from Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014). A

claim is indefinite only where the claim, “read in light of the specification delineating the patent, and the prosecution history, fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”

*Nautilus*, 572 U.S. at 901. “The definiteness requirement must take into account the inherent limitations of language. Some modicum of uncertainty ... is the price of ensuring the appropriate incentives for innovation.” *Id.* at 909 (internal quotation marks omitted).

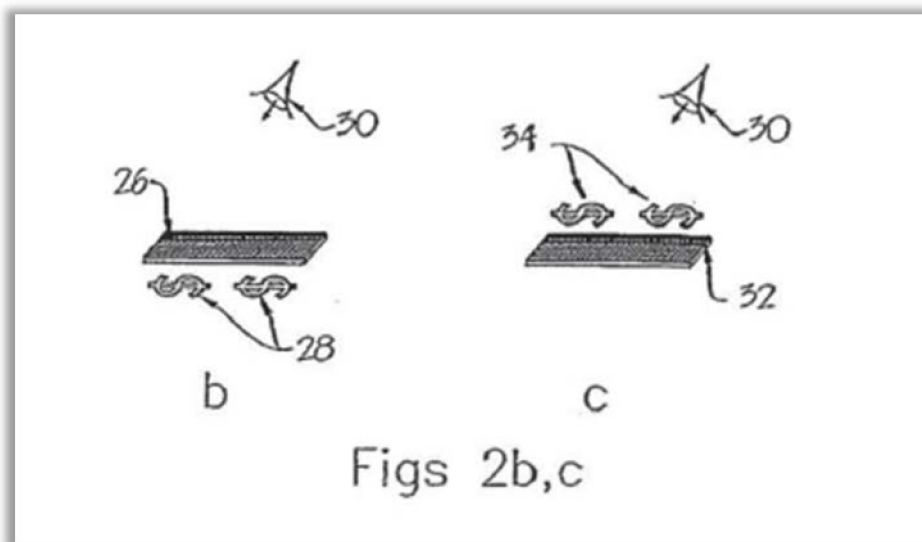
Claims are not read in isolation when evaluating an indefiniteness challenge; “general principles of claim construction apply.” *Eli Lilly & Co. v. Teva Parenteral Medicines, Inc.*, 845 F.3d 1357, 1370 (Fed. Cir. 2017) (internal quotation marks omitted). That includes resort to intrinsic evidence—claim language, specification, and prosecution history—extrinsic evidence, and how a skilled artisan “would have understood the [claim] after reading the intrinsic record.” *Eidos Display, LLC v. AU Optronics Corp.*, 779 F.3d 1360, 1365 (Fed. Cir. 2015); *Biosig*, 783 F.3d at 1377-1378.

**1. The claim language and specifications establish that “a given plane” means “the plane of the micro-optic system”**

As the district court correctly found, the plain meaning of “given” is “stated or provided.” Appx10; *see also* Br. 24 (“a given plane” means “a particular (or specified) plane”). Yet RO ignores the plane that is “stated or provided” by the ’360 and ’030 patents, and thus gives no effect to the word “given.” Appx10 (“RO

relies entirely on its purely linguistic argument arising from the word ‘a’ while ascribing no meaning to ‘given.’”). The court, in contrast, looked to the specification, as the Supreme Court directed. *Nautilus*, 572 U.S. at 901; Appx10.

The patents’ figures and text make clear that “a given plane” refers to the plane of the micro-optic system. Figures 2b-c, for instance, illustrate that the claimed synthetically magnified images appear to float above or lie below the plane of the system:



Appx315.<sup>7</sup> The relevant accompanying text states that the synthetically magnified images “appear to lie beneath the plane of the Unison Deep material” or “appear to lie above the plane of the Unison Float material.” Appx346(9:6-16). The specification also teaches that those effects are achieved by manipulating the

<sup>7</sup> Because the specifications of the ’360 and ’030 patents are substantially the same, this section cites the ’360 patent only.

spacing of the lens and icon arrays in the micro-optic system. Appx348(14:4-47); Appx317(Fig. 4). Thus, a skilled artisan would readily understand that “a given plane” identifies the plane of the system and that the patent teaches how to vary the synthetically magnified images’ apparent position compared to that plane. See *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1345 (Fed. Cir. 2018) (relying on patent figures and specification to “provide reasonable certainty as to the meaning of ‘elongated and substantially straight’”); *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1293 (Fed. Cir. 2017) (“A skilled artisan viewing Figures 11 and 19 would readily understand ... the meaning of ‘near’ with reasonable certainty.”), *cert. dismissed*, 139 S. Ct. 44 (2018); *Sonix Tech. Co. v. Publications Int’l, Ltd.*, 844 F.3d 1370, 1379 (Fed. Cir. 2017) (term not indefinite where, *inter alia*, the specification includes “specific examples” to guide a skilled artisan); *Biosig*, 783 F.3d at 1382-1383 (rejecting indefiniteness argument because the “patent’s claim language, specification, and the figures” gave meaning to the phrase “spaced relationship”); *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1346 (Fed. Cir. 2007) (relying on a figure to “provide[] a standard for measuring the meaning of the term ‘near’”).<sup>8</sup>

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<sup>8</sup> RO cites a law student note discussing “physical indefiniteness,” but the author recognizes that claims can be “physically definite even if they use comparative terms or involve ambiguous relationships between claim elements” where a skilled artisan would nonetheless understand the claims’ scope. Fox, *Understanding Nautilus’s Reasonable-Certainty Standard: Requirements for*

RO argues that the specifications do not explicitly use the phrase “a given plane.” Br. 25. But the specification need not recite a claim term *in haec verba* to make a skilled artisan “reasonably certain as to the scope of the invention.” *SimpleAir, Inc. v. Sony Ericsson Mobile Commc’ns AB*, 820 F.3d 419, 431-432 (Fed. Cir. 2016) (rejecting indefiniteness argument regarding claim term not recited in the specification); *see In re Skvorecz*, 580 F.3d 1262, 1268-1269 (Fed. Cir. 2009) (“[t]here is no requirement that the words in the claim must match those used in the specification disclosure” (quoting MPEP § 2173.05(e))).

Nor does the fact that the patentees elsewhere referred specifically to the plane of the micro-optic system compel a different result. As RO acknowledges (Br. 25-26), the specifications use several phrases when referring to the relative position of the claimed synthetically magnified images, including comparing their position to the following:

- “thickness of the material,” Appx343(3:27-28);
- “surface of the material,” *id.*(3:30-31);
- “thickness of the polymer film,” *id.*(4:13-14);
- “surface of the polymer film,” *id.*(4:15-16);
- “plane of the material,” Appx346(10:8-10); and

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*Linguistic and Physical Definiteness of Patent Claims*, 116 Mich. L. Rev. 329, 346-347 (2017).

- “plane of the UNISON material,” Appx357(31:18-21).

See also Appx346(9:10, 9:13-14, 9:36-37, 9:59-61).

Like these other phrases, “a given plane” is another variation referring to “the plane of the system.” Accordingly, “this is simply a case where the patentee used different words to express similar concepts.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1120 (Fed. Cir. 2004).<sup>9</sup>

**2. The language of unasserted claims confirms that “a given plane” means “the plane of the micro-optic system”**

The district court’s conclusion is further supported by the fact that other, unasserted claims recite “a given plane” as the antecedent basis for “the plane of the system.” See *Energizer Holdings, Inc. v. International Trade Comm’n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006) (“The requirement of antecedent basis is a rule of patent drafting, administered during patent examination.”); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*) (“Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.”).

For example, claim 42 of the ’360 patent first recites “at least one synthetically magnified image [that] appears to lie above a given plane.”

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<sup>9</sup> The fact that the ’360 and ’030 patents’ specifications use “given” to refer to a particular number of degrees in an angle (Br. 28 (citing Appx343(3:33-34))) does not support RO’s argument. The specification likewise picks out the particular plane above or below which icons appear: the plane of the micro-optic system.

Appx361(39:65-40:6). It then requires that “the at least one synthetically magnified image” have at least one additional visual effect, which could include “appearing to move between a spatial plane deeper than the system and a spatial plane above the system upon rotation of the system about an axis that intersects *the plane of the system*,” or “appearing to move in a direction parallel to an axis of tilt of the system upon tilting the system about an axis substantially parallel to *the plane of the system*.” Appx361(40:17-20). The only possible antecedent for these references to “the plane of the system” is the term “a given plane.” It does not matter that the two terms are not identical. *See Energizer Holdings*, 435 F.3d at 1371 (“‘anode gel’ is by implication the antecedent basis for ‘said zinc anode’”); *Masimo Corp. v. Mallinckrodt Inc.*, 18 F. App’x 852, 856 (Fed. Cir. 2001) (nonprecedential) (“adaptive filter” provided antecedent basis for “said adaptive canceler”); *Fisher-Price, Inc. v. Graco Children’s Prods., Inc.*, 154 F. App’x 903, 909 (Fed. Cir. 2005) (nonprecedential) (“[U]pper seating surface’ is by implication the antecedent basis for ‘seating area.’”); *Bondyopadhyay v. United States*, 748 F. App’x 301, 306 (Fed. Cir. 2018) (nonprecedential) (“geodesic sphere phased array antenna system” provided antecedent basis for “said geodesic sphere phased array structure”).

RO argues (Br. 25-28) that *Innova* requires giving different meanings to “a given plane” and “the plane of the system.” But as the district court recognized



(Appx11-12), this Court in *Innova* did not hold that the patentee's use of different words *necessarily* implied reference to different things. Instead, the Court concluded, based on the patent as a whole, that "this is simply a case where the patentee used different words to express similar concepts." *Innova*, 381 F.3d at 1120; *see also Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1347 (Fed. Cir. 2016) ("[T]he context in which 'tag' and 'token' are used demonstrates that the inventor intended these terms to refer to the same concept as 'link' ...."); *Bancorp Servs., L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1373 (Fed. Cir. 2004) (ruling, based on the patent claims and specification, that "the terms 'stable value protected investment,' 'surrender value protected investment,' and 'SVP' are equivalent"); *see also supra* p. 35 (citing cases where one term provided the antecedent basis for a non-identical term).<sup>10</sup>

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<sup>10</sup> *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572 (Fed. Cir. 1996) (Br. 28), is inapposite. There, this Court analyzed a claim reciting a "pusher assembly comprising one or more pusher bars," and reasoned that "[i]f the terms 'pusher assembly' and 'pusher bar' described a single element, one would expect the claim to consistently refer to this element as either a 'pusher bar' or a 'pusher assembly,' but not both." *Id.* at 1575, 1579. That premise does not apply to the '360 and '030 patents, because the inventors indisputably used multiple phrases to refer to the plane of the micro-optic system. *See supra* pp. 33-34. A skilled artisan would understand that the inventors also used "a given plane" to refer to the same concept.

**3. The prosecution history of the '360 patent further confirms that a skilled artisan would understand the scope of “a given plane”**

During prosecution of the '360 patent, the examiner demonstrated her understanding that “a given plane” referred to the plane of the micro-optic system, observing that “above and/or below a given plane” describes “the floatation of the image.” Appx16962. In doing so, the examiner distinguished between appearing above “a given plane” and below “a given plane.” *See id.* This distinction relies on the identification of a single, specified plane, *i.e.*, the plane of the system, and is contrary to RO’s proposed reading, under which every image appears simultaneously above and below an infinite number of planes. The examiner’s use of the term without difficulty reinforces that skilled artisans can understand it. *See Tinnus Enterprises, LLC v. Telebrands Corp.*, 733 F. App’x 1011, 1020 (Fed. Cir. 2018) (nonprecedential) (examiner’s use of disputed claim language “confirm[s] that the claim language informs a person of ordinary skill of the objective boundaries of the claim term”); *see also Eli Lilly*, 845 F.3d at 1372 (considering on claim construction the examiner’s view that “vitamin B12 and cyanocobalamin ‘are the same’ agents”); *St. Clair Intellectual Prop. Consultants, Inc. v. Canon Inc.*, 412 F. App’x 270, 276 (Fed. Cir. 2011) (nonprecedential) (“Because an examiner in reexamination can be considered one of ordinary skill in the art, his construction of the asserted claims carries significant weight.”).

RO tries to discount the examiner’s reading simply because the prosecution happened before *Nautilus*. Br. 28-29. But RO cites nothing suggesting that the examiner’s understanding of “a given plane” somehow turned on the “insolubly ambiguous” standard the Supreme Court rejected. On the contrary, the Manual of Patent Examining Procedure in effect at the time directed examiners to apply a definiteness standard resembling the one *Nautilus* approved: “The test for definiteness ... is whether ‘those skilled in the art would understand what is claimed when the claim is read in light of the specification.’” MPEP § 2173.02 (8th ed., Rev. 6, Sept. 2007) (quoting *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986)). The examiner’s remarks, therefore, show that she understood the meaning of “a given plane” because—read in light of the specification—it reasonably informed her of the scope of the invention, namely involving images that appear to lie above or below the plane of the micro-optic system.<sup>11</sup>

**4. Extrinsic evidence reinforces that a skilled artisan would understand “a given plane”**

As RO admits (Br. 29), the district court’s evaluation of extrinsic evidence deserves deference. *Biosig*, 783 F.3d at 1378 (“[U]nderlying factual determinations made by the district court based on extrinsic evidence are reviewed

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<sup>11</sup> RO asserts that the examiner believed “that the image could appear on any plane” (Br. 29); the argument, offered without citation, is bare attorney speculation.

for clear error.”). Three categories of extrinsic evidence confirm that a skilled artisan would understand that “a given plane” means the plane of the micro-optic system.

**First**, as the court found, RO’s own marketing materials referring to images appearing “above or below,” without mention of any particular plane, demonstrate that skilled artisans understand the reference to mean above or below the plane of the system. *See* Appx12; *see also DDR Holdings, LLC v. Hotels.com L.P.*, 773 F.3d 1245, 1260-1261 (Fed. Cir. 2014) (evidence that a defendant understood the disputed term indicates that it is not indefinite). For example, the court relied on RO marketing materials describing “3D, depth and floating” effects as “above or below,” without specifying a reference plane. Appx12; Appx18521; *see also* Appx18525; Appx18727-18728. RO does not identify the reference plane because skilled artisans understand what the reference plane is: the plane of the micro-optic system.

**Second**, Crane’s expert, Professor George Barbastathis, Ph.D., opined at length that a skilled artisan would understand that “a given plane” refers to the plane of the micro-optic system. Appx20754-20767(¶¶214-262). He explained that, among skilled artisans, “it is so clear that ‘above a given plane’ means [the] plane of the system that it is typical to discuss synthetic visual images that ‘float’

without stating that the reference point is [the] plane of the micro-optic system.” Appx20757-20758(¶235).

*Third*, others in the field use “a given plane” in patent claims. A recent patent application for an anti-counterfeiting device from inventors unrelated to Crane uses the term to claim a floating image. Appx25475(Abstract); Appx25499-25500(claims 1, 11) (“the visible image appears to float above a given plane”).

RO does not dispute any of this. Instead, RO accuses the district court of disregarding its expert, Michael Gale. Br. 29-30. But RO fails to mention that the district court *struck* Mr. Gale’s Declaration because it was untimely. Appx84-86. RO has not appealed that evidentiary ruling and cannot contest it now. *See Advanced Magnetic Closures, Inc. v. Rome Fastener Corp.*, 607 F.3d 817, 833 (Fed. Cir. 2010) (“This court has consistently held that a party waives an argument not raised in its opening brief.”). The court noted RO could re-submit the Gale Declaration on summary judgment (Appx85 n.9), but RO chose not to do so. RO did not even discuss the Gale Declaration in summary judgment briefing—burying its only citation to that declaration in the parties’ statement of material facts as an unexplained docket number (corresponding to the submission the district court had stricken). Nor did RO’s counsel reference Mr. Gale’s declaration at oral argument, leading the district court to find that RO offered “no expert testimony” on that point (Appx10)—a finding RO does not challenge on appeal. RO cannot fault the

district court for not mentioning evidence that RO itself did not properly submit or rely on; by failing to proffer or discuss the Gale Declaration at summary judgment, RO waived the argument. *HTC Corp. v. IPCOM GmbH & Co., KG*, 667 F.3d 1270, 1281-1282 (Fed. Cir. 2012) (“As a general rule, an appellate court does not consider an issue not passed upon below ...”); *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1426 (Fed. Cir. 1997) (“In short, this court does not ‘review’ that which was not presented to the district court.”).<sup>12</sup>

### **B. RO’s Remaining Arguments Are Meritless**

RO finally accuses Crane of changing claim construction positions, and the district court of rewriting the claims. Br. 30-32. Neither argument has merit.

*First*, Crane’s position has not changed. Crane asserted early on, as it does now, that the “term should be given its plain and ordinary meaning to a person skilled in the art.” Appx17358. It was only in responding to RO’s unsupported arguments that Crane undertook to make explicit what the plain and ordinary

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<sup>12</sup> The Gale Declaration changes nothing in any event. Mr. Gale asserts without explanation that “there is no indication in the specification where ‘a given plane’ is located.” Appx17425(¶39). As explained above (pp. 30-34), that conclusory assertion is incorrect. *See Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 1001 (Fed. Cir. 2008) (“Conclusory expert assertions cannot raise triable issues of material fact on summary judgment.”). Moreover, Mr. Gale makes the legal argument that, because claim 42 of the ’360 patent references several variations on “the plane of the system,” “a given plane” must not mean “the plane of the system.” Appx17425(¶39). But, as explained above (pp. 33-36), variations on “the plane of the system” within and without claim 42 show only that the patentees did not use only one phrase when referring to the plane of the micro-optic system.

meaning is. Although Crane initially proposed to construe “above/below a given plane” to mean “[The image appears to lie] above/below a given plane of the micro-optic system,” Appx15389, Crane clarified at summary judgment that—consistent with Professor Barbastathis’s opinion, *see supra* pp. 39-40—there was no functional difference between *a* plane of the system and *the* plane of the system. Appx1185(35:3-21).<sup>13</sup>

*Second*, the district court did not rewrite the claims, but simply chose the reasonable understanding of them consistent with the patents as a whole, rather than RO’s result-oriented reading “unmoored from the patents.” Appx10. There was no error in reading the claims “in light of the patents’ specifications and prosecution histories.” *Id.*; *see Nautilus*, 572 U.S. at 901 (claim must be “read in light of the specification delineating the patent, and the prosecution history”). Nor was the court wrong to conclude that “RO’s understanding would render the limitation meaningless, as any synthetically magnified image would appear

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<sup>13</sup> Contrary to RO’s suggestion (Br. 30-31), Crane’s and Professor Barbastathis’s references to *a* plane of the system do not contradict anything in the patents. Professor Barbastathis explained that multiple theoretical planes within the micro-optic system may be treated as one for the purpose of determining the relative position of synthetic images: “The micro-optic system is a thing, a physical thing, that has finite thickness. So I can actually fit infinite planes within the finite thickness of the micro-optic system. However, *there would be no doubt as to whether the image forms above or below any of those planes within the thickness of the micro-optic system.*” Appx20246(114:16-23).

simultaneously above and below an indefinite number of ‘given planes’ regardless of the image’s position.” Appx10.<sup>14</sup>

The cases RO cites are distinguishable, as they involve situations where only one reading was possible. In *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776 (Fed. Cir. 2010), this Court accepted the unambiguous meaning of “centrifugal unit,” even though the claim contained dimensional limitations that rendered the claim “absurd[.]” *Id.* at 782. Similarly, in *Rhine v. Casio, Inc.*, this Court interpreted the unambiguous phrase “at least one” to mean “at least one.” 183 F.3d 1342, 1345 (Fed. Cir. 1999). Here, by contrast, RO’s strained interpretation is not “the only claim construction that is consistent with the claim’s language and the written description” (*id.*); rather, a skilled artisan reading the claims in light of the specification would understand that “a given plane” means the plane of the micro-optic system. That “d[oes] not rewrite the claim but ‘merely restate[s] its plain meaning’ in light of the specification and the knowledge in the art.” *Haemonetics*, 607 F.3d at 782 (quoting *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1348 (Fed. Cir. 2009)).

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<sup>14</sup> RO misleadingly states, without citation, that the district court “observed that the claim as written fails to provide objective boundaries.” Br. 32. The court said nothing of the sort. Rather, it was “**RO’s understanding**” that “would render the limitation meaningless.” Appx10.



Moreover, were there any ambiguity—though there is none—it should be resolved in favor of validity. *See Phillips*, 415 F.3d at 1327 (“[C]laims should be construed to preserve their validity” when “the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.” (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 911 (Fed. Cir. 2004))); *see also Wasica Fin. GmbH v. Continental Auto. Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017) (“It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.”). The district court’s construction is eminently “‘practicable,’ is based on sound claim construction principles, and does not revise or ignore the explicit language of the claims.” *Phillips*, 415 F.3d at 1327.

RO appears to believe that no claim issued pre-*Nautilus* is entitled to a validity-preserving construction (Br. 34-35), but that is incorrect. *Nautilus* “does not render all of the prior Federal Circuit and district court cases inapplicable.” *Biosig*, 783 F.3d at 1381 (quoting *Freeny v. Apple Inc.*, No. 2:13-CV-00361-WCB, 2014 WL 4294505, at \*5 (E.D. Tex. Aug. 28, 2014) (Bryson, J., sitting by designation)). *Nautilus* certainly did not affect the statutory presumption of validity and concomitant clear-and-convincing standard of proof. *See id.* at 1377. And *Phillips* provides that “[t]he applicability of the [validity-preserving] doctrine in a particular case ... depends on the strength of the inference that the PTO would

have recognized that one claim interpretation would render the claim invalid, and that the PTO would not have issued the patent assuming that to be the proper construction of the term.” 415 F.3d at 1328. That inference is particularly strong here: had the examiner believed that RO’s expansive interpretation of “a given plane” were the correct one—and she manifestly did not—it is highly unlikely that the PTO would have issued the claims, whether before *Nautilus* or after. See MPEP § 2173.02 (8th ed., Rev. 6, Sept. 2017) (reciting a definiteness standard similar to *Nautilus*). The far more reasonable conclusion is that the claims were issued on the understanding—well-supported by the intrinsic and extrinsic record—that “a given plane” refers not to any plane anywhere, but to the plane of the micro-optic system discussed repeatedly in the specification. Once again, RO offers nothing beyond bare attorney argument to support its inference that the examiner would have reached any other conclusion after *Nautilus*.

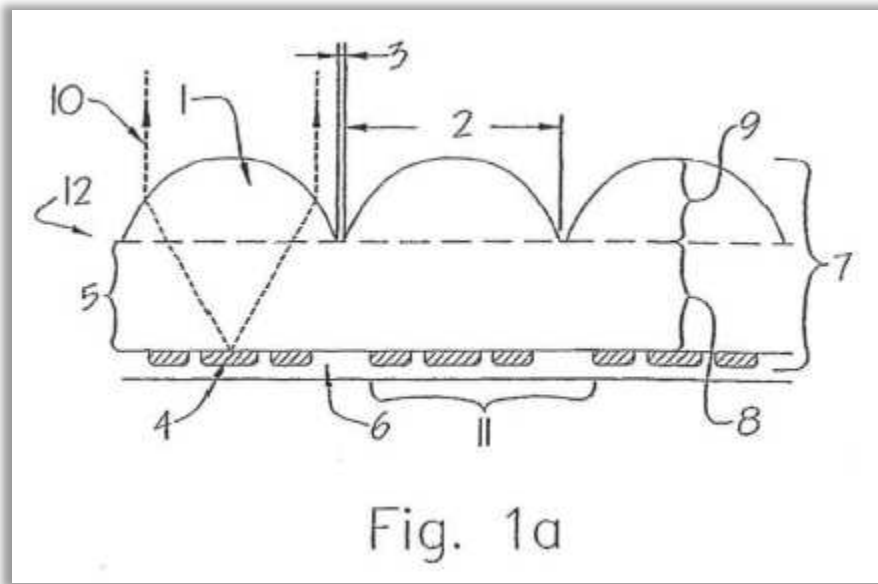
**II. THE DISTRICT COURT CORRECTLY RULED THAT RO FAILED TO PROVE THAT THE TERM “SUBSTANTIALLY REGULAR ARRAY SPACING BETWEEN A SUBSTANTIAL NUMBER OF IMAGE ICONS” IS INDEFINITE**

RO asserts that “substantially regular array spacing between a substantial number of image icons” is indefinite, because spacing can be measured two different ways: (1) the repeat period or (2) the space between icons. Br. 40-41. RO ignores the specifications’ clear teaching of the former method—the repeat period of the array—which the extrinsic evidence also confirms.

**A. The Specifications Confirm That An Array's Repeat Period Determines "Substantially Regular Array Spacing"**

The specifications of the '360 and '855 patents are unambiguous:

"substantially regular array spacing" corresponds to and is determined by the repeat period. Each patent's first figure identifies the repeat period 11:



Appx313; Appx345(7:48-50) ("The repeat period 11 of the icon elements 4 is substantially identical to the repeat period of the lenses 1 ....").<sup>15</sup> The text directly connects the spacing shown in Figure 1a to regular array spacing generally: "Fig. 1a is not specific to a square array pattern, but is a representative cross-section of all *regular periodic array* patterns." Appx345(8:10-12); *see also* Appx356(30:18-19) ("Synthetic images are created from a multiplicity of *regularly arrayed* icon

<sup>15</sup> Because the specifications of the '360 and '855 patents are substantially the same, this section cites the '360 patent only.

images ....”). Moreover, the repeat period of the icon array is tied to the invention’s overall operation. Appx345(7:50:52) ([T]he ‘scale ratio’, the ratio of the *repeat period* of the icons to the *repeat period* of the lenses, is used to create many different visual effects.”); *see also id.*(7:52-8:6); Appx348(14:4-47); Appx317(Fig. 4). Accordingly, the repeat period—not mere spacing between individual icons—is the relevant concern in determining “substantially regular array spacing.” *See supra* p. 32 (citing cases).

The conclusion is no different for arrays with non-identical icons. Figure 26 shows an icon array used to create three dimensional effects, showing a representation of the synthetically magnified image 670 the icon array produces:

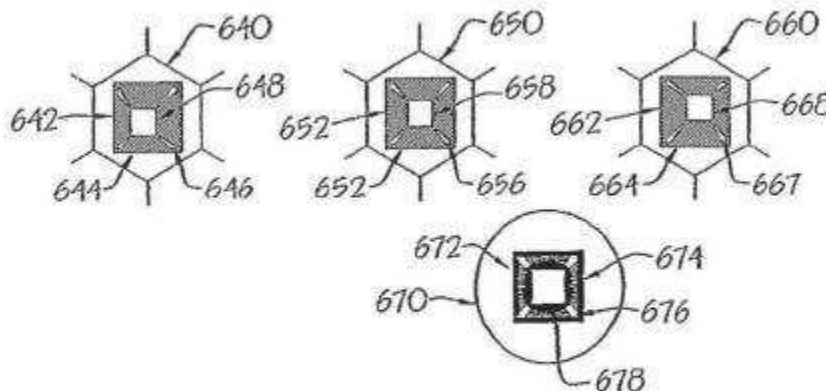


Fig. 26

Appx334. The text explains that the icons contained in the hexagonal “icon zones” in the array are non-identical. Appx356(30:63-66) (“In general, the icon image in each icon zone in a Unison 3-D material will be slightly different from its nearby

neighbors and may be significantly different from its distant neighbors.”). As the district court observed, “[t]he specification’s teaching of icon position within icon zones underscores the *periodic* nature of substantially regular array spacing.”

Appx25 n.13. Even where the icons are non-identical, the specification leaves no doubt that “substantially regular array spacing” refers to the repeat period: “The synthetic image of the hollow cube 674 shows the effects of the different synthetic magnification factors that result from the effective *repeat periods* of the different elements of each of the icon images.” Appx357(31:6-10).

RO’s counterarguments again fail. *First*, the fact that the specifications do not explicitly recite “substantially regular array spacing” (Br. 35) does not make the claim indefinite. *See supra* p. 33 (citing cases). As explained above, the intrinsic evidence amply shows a skilled artisan that “substantially regular array spacing” depends on the repeat period.

*Second*, RO accuses the district court of importing limitations into the claims. Br. 38-40. Not so; the court merely interpreted the meaning of an existing limitation—“substantially regular array spacing”—in light of the specification. Appx14-15; *Nautilus*, 572 U.S. at 901 (indefiniteness must be considered “in light of the specification”). On remand from *Nautilus* itself, this Court recognized that the patent did not define the disputed term (“spaced relationship” with “actual parameters”) yet had no difficulty ruling that the “claim language, specification,

and the figures illustrating the ‘spaced relationship’ between the live and common electrodes ... provide sufficient clarity to skilled artisans as to the bounds of this disputed term.” *Biosig*, 783 F.3d at 1382-1383 (citation omitted); *see also supra* p. 32 (citing cases). The district court did likewise here.

*Dow Chemical Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620 (Fed. Cir. 2015), does not help RO. That case yielded four methods for calculating the claimed “slope of strain hardening coefficient,” and “[n]either the patent claims *nor the specification* here discusse[d] the four methods or provide[d] any guidance as to which method should be used or even whether the possible universe of methods is limited to these four methods.” *Id.* at 633-634. If anything, *Dow confirms* the propriety of considering the specifications, which here direct a skilled artisan to an icon array’s repeat period and “neither identify nor place significance on the space in-between image icons.” Appx15. RO identifies nothing in the specification supporting its contrary argument.

**B. The Prosecution History Does Not Show That Claims Requiring “Substantially Regular Array Spacing” Are Indefinite**

Although RO places great weight on the applicants’ statements distinguishing Florczak (Br. 37-38, 41), they do not support RO’s argument, for the simple reasons that Florczak does not disclose a repeat period at all, and the applicants did not rely on spacing between icons to distinguish it.

**1. Florczak does not disclose a repeat period**

Florczak discloses a “microlens sheeting” and a “layer of material ... adjacent to the microlenses” on which “[i]ndividual images [i.e., image icons]” are formed. Appx16997(2:17-24); Appx16999(5:35-40). The layer of material and microlens sheeting cooperate to form a “composite image that appears to be suspended ... above ... and/or below the sheeting.” Appx16999(5:35-40).

RO asserts without support that Florczak’s Figure 5 shows an icon array with a repeat period. But neither Figure 5 nor the associated text (Appx17001(9:7-12)) refers to a repeat period or a pitch, describes any icon array as regular or periodic, or otherwise informs a skilled artisan that the icons have “substantially regular array spacing.” *See Nystrom v. TREX Co.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005) (“[P]atent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” (internal quotation marks omitted)). Florczak does not mention “repeat period,” “pitch,” “periodic” arrays, or “regular” arrays anywhere. Thus, RO’s claim that Florczak discloses a “periodic array” (Br. 37) and a “regular pitch” (Br. 38) is pure attorney speculation, unsupported by expert opinion or disclosure in Florczak itself; the district court was not required to accept it. *See Creative Compounds, LLC v. Starmark Labs.*, 651 F.3d 1303, 1312 (Fed. Cir. 2011) (“evidentiary shortcomings are not overcome by ... attorney argument”);

*Enzo Biochem, Inc. v. Gen-Probe Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005)

(“Attorney argument is no substitute for evidence.”).<sup>16</sup>

**2. RO misconstrues the applicants’ rationale for distinguishing Florczak**

RO’s argument fails for a separate reason: the applicants distinguished Florczak because it did not disclose regular icon spacing *at all*, not because it lacked regular spacing between icons. *See supra* pp. 13-14; Appx17039; Appx17042. The applicants explained that the irregularity stems from the way Florczak forms its icons (called “images” in Florczak). In Florczak, light is transmitted through microlenses onto a photo-sensitive material. Appx17041. The applicants pointed out that:

[T]he light that is transmitted by each microlens is transmitted to a unique position on the material layer, and produces a unique image. Where each microlens “sees” the incoming energy from a different perspective, the portion of the radiation sensitive material on which an image is formed is different for each microlens. The image spacing, therefore, is not regular.

Appx17042 (emphasis in original); *see also* Appx17043-17044 (referring back to this explanation and confirming that Florczak does not teach or suggest “an array of image icons with a substantially regular array spacing between image icons”).

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<sup>16</sup> In the declaration RO submitted with its claim construction reply brief, Mr. Gale opined—without any discussion of whether regularity is a question of the repeat period or the distance between individual icons, and apparently without any difficulty understanding the claim language—that Florczak discloses “substantially regular array spacing.” Appx17425. As explained above (pp. 40-41), RO waived reliance on Mr. Gale’s opinions.



Nothing in the prosecution history suggests that the applicants distinguished Florczak based on the distances between icons. First, the applicants' conclusion that "the portion of the radiation sensitive material on which an image is formed is different for each microlens" does not mention the distance between individual icons; rather, the applicant was clear that Florczak's icon spacing "is not *regular*." Appx17042; Br. 37-38. And the applicants' references to "image spacing," "spacing between image icons," and "spacing between images" merely track the claim language; they do not suggest that this limitation turns on anything other than repeat period. Appx17039; Appx17042-17044; Br. 37-38, 49. At its core, RO's position amounts to unsupported attorney argument that Florczak discloses icons with a repeat period, such that the applicants' statements distinguishing Florczak's image spacing suggest that the patents-in-suit claim something else. Because RO's underlying premise regarding Florczak is incorrect (*see supra* pp. 50-51), its argument about what the applicants must have meant in their statements to the examiner collapses. Accordingly, RO's attempt to ground its indefiniteness argument in the prosecution history of the '855 patent fails.

**C. The Extrinsic Evidence Further Confirms That "Substantially Regular Array Spacing" Refers To The Repeat Period**

Once again, the district court's evaluation of extrinsic evidence—to which this Court defers, *see supra* pp. 38-39—confirms that "substantially regular array spacing" refers to the repeat period. Appx15. RO's expert Dr. Leger testified that

a “regular array requires *periodicity*” and that regular “means *periodic*,” thereby connecting regular array spacing with the array’s repeat *period*. Appx14-15; Appx20454-20455(105:1-2, 108:2-109:24). The court also observed that “RO described its products as having ‘object arrays’ with spacing identified as the ‘pitch’” (i.e., repeat period). Appx14-15; Appx18328-18329; Appx18331. RO even disclosed specific repeat periods for several products in response to Crane’s interrogatories, confirming that a skilled artisan has no difficulty understanding and determining the repeat period of icons in a substantially regular array. Appx18727; Appx18730-18732; Appx18734-18736; Appx18747-18748.

The court also found that RO offered no expert opinion on whether the patents disclosed how to measure repeat periods of non-identical image icons (Appx16)—a finding RO does not dispute on appeal. Yet RO’s experts elsewhere understood and used “substantially regular array spacing” in their analyses. RO expert Scott Scarbrough used the term throughout his validity report—including when discussing the very claims RO now asserts are indefinite—without any indication that he found the term unclear. Appx25543; Appx25545; Appx25547-25548; Appx25557. He also had no difficulty discussing the term during his deposition. Appx25530(157:16-24) (asserting that a particular type of visual effect raised inference that the system “had substantially regular array spacing between the image icons”). Similarly, Dr. Leger did not raise any indefiniteness issue with

respect to “substantially regular array spacing” in his two validity reports, even though he analyzed two of the claims at issue in RO’s appeal. Appx20077-20084; Appx20340-20341. Once again, RO’s ability to understand the term shows that it is not indefinite. *See DDR*, 773 F.3d at 1260-1261.<sup>17</sup>

### **III. RO’S “SHAPED POSTS” ARGUMENTS ARE WAIVED AND MERITLESS**

#### **A. RO Waived Its “Shaped Posts” Arguments**

RO asks the Court to construe “shaped posts” to mean “microstructured icon elements in which the design is formed by the solid regions of a layer that remain after material has been removed or displaced from the layer.” Br. 56. That is RO’s *fifth* proposed construction for “shaped posts” and was not advanced below.

Waiver “preclude[s] a party from adopting a new claim construction position on appeal.” *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1346 (Fed. Cir. 2001). An argument is “new” for waiver purposes if it “change[s] the scope of the claim construction.” *Solvay S.A. v. Honeywell Int’l Inc.*, 742 F.3d 998, 1003 (Fed. Cir. 2014) (citation omitted).

Despite advancing four different “shaped posts” constructions below, RO did not propose its current construction to the district court. *Compare* Appx15372,

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<sup>17</sup> Dr. Leger’s infringement report stated that “[i]t is not clear to me how to determine whether a given foil satisfies this limitation.” Appx19802(¶37). However, Dr. Leger’s concern was “what constitutes an ‘image icon’” when “there is not an array of identical elements.” Appx19803(¶39). RO has not raised that issue on appeal.

and Appx75, with Br. 56. And although RO's third proposed construction below required "shaped posts" to be "formed by the solid regions of a layer that remain after material has been removed or displaced from the layer" (Appx16068-16070), RO abandoned that requirement in its reply *Markman* brief, which stated that shaped posts are merely "formed by the solid regions of a layer." Appx17343; compare Appx15372, with Appx17343. The district court did not address RO's abandoned argument in its *Markman* order. Appx75-78. And RO's new appellate construction differs significantly from the proposal it landed on below: like RO's abandoned construction, it requires that the "shaped posts" be "formed by the solid regions of a layer *that remain after material has been removed or displaced from the layer.*" Br. 56.

The Court may and should accordingly reject RO's "shaped posts" argument without more. See *Digital-Vending Servs. Int'l, LLC v. University of Phoenix, Inc.*, 672 F.3d 1270, 1274 (Fed. Cir. 2012) (declining to "review an argument" where party's proposed construction on appeal was "different in scope from the construction it sought below").

**B. The District Court Correctly Construed "Shaped Posts"**

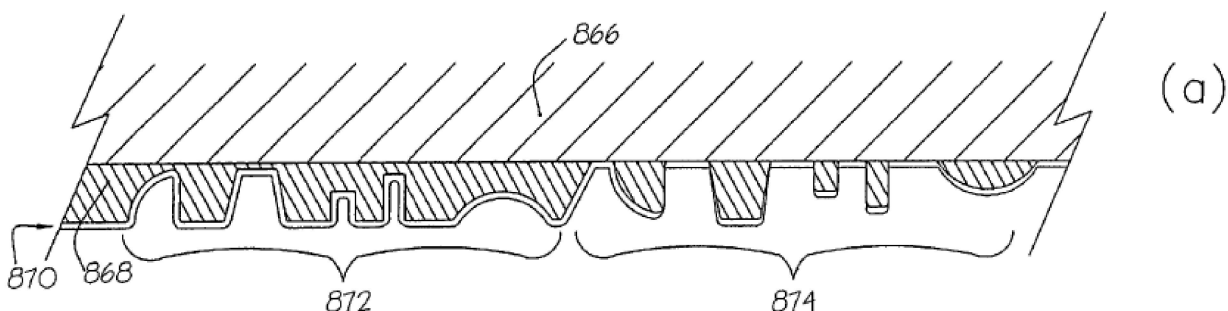
Even apart from RO's waiver, the district court's construction—"icons shaped as pieces fixed in an upright position"—should be affirmed.

**1. The district court's construction is consistent with the claims and specification**

The plain meaning of “shaped posts” is icons “shaped as pieces fixed in an upright position.” Appx75; Appx78; *see Phillips*, 415 F.3d at 1312 (claim terms “are generally given their ordinary and customary meaning” (citation omitted)). The ordinary meaning of “post” is “a piece fixed firmly in an upright position,” Appx15372 (citing Appx15820), and neither the claims nor the specifications suggest a different meaning. Appx78; *see Starhome GmbH v. AT&T Mobility LLC*, 743 F.3d 849, 856 (Fed. Cir. 2014) (“[J]udges are free to rely on dictionaries at any time during the process of construing claims so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.” (citation and internal quotation marks omitted)); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (“it is appropriate to consult a general dictionary definition of the word” where the “specification does not assign or suggest a particular definition to the term”).

The patents teach that image icons can be three-dimensional structures with physical relief, including “posts” projecting from the optical spacer or substrate, or “depressions,” “recesses,” and “voids” in the substrate. *See supra* pp. 9-10. They also state that “shaped posts” can be the “inverse” of icons formed as voids. Appx224(36:20-21) (“[i]cons formed from shaped voids and their inverse, icons formed from shaped posts”). For instance, Figure 37(a) of the ’842 patent shows

the same image constructed in icons as depressions or voids on the left side (labeled 872), and as raised areas on the right (labeled 874):



Appx195. The patents thus show that “shaped posts” are image icons “shaped as pieces fixed in an upright position.”

## 2. RO’s appellate construction improperly reads narrowing limitations into the claim

By contrast, RO’s construction—“microstructured icon elements in which the design is formed by the solid regions of a layer that remain after material has been removed or displaced from the layer”—improperly adds at least two limitations into the claims. *See Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1324 (Fed. Cir. 2003) (“We cannot construe the claim to add a limitation not present in the claim itself.”).

*First*, RO’s construction would limit the claims to icons produced by a specific method—those “formed by the solid regions of a layer that remain after material has been removed or displaced from the layer.” Br. 56. RO’s goal is plain: its construction would exclude “shaped posts” created by *adding* material to the lower surface of an optical spacer, *e.g.*, by printing, as is done in RO’s

infringing products. *See* Appx15374. Yet the claims do not require any particular method of manufacture for “shaped posts,” much less exclude printing or specify “remov[ing] or displac[ing]” material. Appx15373.

In fact, eight of the nine claims that recite “shaped posts” are directed to apparatus claims and do not involve a method at all. Appx15373-15374 (citing Appx364(45:53, 46:9); Appx434(66:36, 66:58); Appx303(52:25), Appx305(55:22); Appx500(58:54); Appx501(59:39-41)). And the one “shaped post” claim that is directed to a method—’855 patent claim 67—does not remotely require “removing or displacing material” from a layer. Appx15374. It instead requires: (1) providing an optical spacer; (2) applying radiation-curable resin to the upper and lower surfaces of the spacer; (3) “forming an array of image icon focusing elements on the upper surface of the optical spacer and an array of image icons in the form of shaped posts and/or shaped voids or recesses on the lower surface of the optical spacer”; and (4) using radiation to cure the resin.

Appx301(47:27-39); Appx15374. If the claim required removing or displacing material from a layer—as RO contends—it would have said so.<sup>18</sup>

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<sup>18</sup> Claim 67 recites neither that the “shaped posts” are formed “in a layer, rather than on a layer of material,” as RO contends (Br. 47-48), nor that “shaped posts” result from “removing or displacing material from a layer,” as RO’s construction would require. The only basis for RO’s assertions is the specification’s discussion of an “exemplary method of manufacture,” but the claim does not recite that method, and patent claims are not limited to particular disclosed embodiments. *Phillips*, 415 F.3d at 1323 (warning “against confining

*Second*, RO seeks to read the term “microstructured” into claims that do not include it. Br. 42, 46-47. The claims themselves disprove RO’s argument. Each of the nine asserted claims requiring “shaped posts” refers to “image icons.” Appx15374 (citing Appx364(45:53, 46:7); Appx434(66:35, 66:56); Appx301(47:35-36); Appx303(52:25); Appx305(55:20); Appx500(58:50); Appx501(59:39-40)). Four of those claims—including ’360 patent claim 76 and ’030 patent claim 181, which RO cites (Br. 42)—also require the image icons to be “microstructured”; the other five describe image icons as “shaped posts” with no mention of “microstructured” icons. Appx15374; *compare* Appx364(46:7-8), Appx434(66:56-57), Appx305(55:20-21), Appx501(59:39-40) (each requiring “microstructured” icons), *with* Appx364(45:53), Appx434(66:35), Appx301(47:35), Appx303(52:25), Appx500(58:53). Thus, because some claims expressly require icons that are *both* “microstructured” *and* “shaped posts,” while others require icons that are “shaped posts” *but not* “microstructured,” it would be redundant to read “microstructured” into the construction of “shaped posts.”

*Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016) (rejecting construction because “[c]onstruing a claim term to include features of that term

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the claims to [particular] embodiments”). Moreover, other claims that require “shaped posts *on a surface of a substrate*” confirm that “shaped posts” may be either “in a layer” or “on a layer.” Appx360(claim 27); Appx424(claim 81); Appx428(claim 113); Appx490(claim 22); Appx493(claim 80).



already recited in the claims would make those expressly recited features redundant”). And in the claims that recite both terms, “microstructured icon elements” is consistently used alongside more specific structural limitations, such as “shaped posts”; the two terms certainly are not coextensive.

In any event, RO’s argument is self-defeating, as it incorrectly assumes that “microstructured” icons cannot be formed by printing. Br. 46-47. That argument finds no support in the claims and is flatly inconsistent with the ’842 patent’s express definition of “[m]icrostructured icon image elements,” which provides that such icons may be formed by “many suitable means,” including multiple types of “printing.” *See supra* p. 10; Appx213(13:60-14:7).<sup>19</sup>

### **3. The district court’s construction is consistent with the prosecution history**

RO argues that, during prosecution, applicants distinguished Hutley by disclaiming “shaped posts” formed by printing. Br. 45, 48-49. But there was no disclaimer of printed “shaped posts” at all, much less the “clear and unmistakable disclaimer” the law requires. Appx15365; Appx17452; *see Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1063-1064 (Fed. Cir. 2016); *see also Technology*

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<sup>19</sup> Given the relationship among the asserted patents—they are all either a continuation-in-part or divisional of the same parent—it is appropriate to look to each asserted patent in construing “shaped posts.” *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1316 (Fed. Cir. 2015) (requiring claim terms to be interpreted consistently across patents where, as here, the patents “derive from the same parent application and share many common terms” (citation omitted)).

*Properties Ltd. LLC v. Huawei Techs. Co.*, 849 F.3d 1349, 1357-1358 (Fed. Cir. 2017) (“If the challenged statements are ambiguous or amenable to multiple reasonable interpretations, prosecution disclaimer is not established.”).<sup>20</sup>

The applicants distinguished Hutley on multiple grounds, including that Hutley does not disclose icons in the form of shaped posts ***at all***:

Hutley does not teach (or suggest) forming arrays of image icons and focusing elements using a substantially transparent or clear radiation curable resin, ***nor does Hutley teach (or suggest) image icons in the form of shaped voids or recesses, or shaped posts.***

Appx17126. RO asserts that applicants saw a “fundamental[] differen[ce]” between “shaped posts” and structures that result from printing.<sup>21</sup> Br. 49. That assertion has no basis. Although applicants mentioned that Hutley’s object arrays “may be printed, or generated photographically,” they did not state that Hutley

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<sup>20</sup> Apparently recognizing its heavy burden to prove prosecution disclaimer, RO tries to disclaim a disclaimer argument. Br. 48-49. But RO’s contention—that the claims should be limited because the applicant supposedly distinguished Hutley for the asserted reasons (Br. 45, 48-49)—is clearly a prosecution disclaimer argument. *See, e.g., Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1374 (Fed. Cir. 2008) (prosecution disclaimer may occur where patentee “clearly characteriz[es] the invention in a way to try to overcome rejections based on prior art”).

<sup>21</sup> RO argued below that all printed icons must have some physical relief. *E.g.*, Appx1059(59:4-6). Crane adduced evidence showing that “not *all* printing creates a structure with a physical relief.” Appx17448-17450 (citing Appx16128 (disclosing a printed pattern without a physical relief)) (emphasis in original). The court accordingly found that “some printing results in no physical relief at all.” Appx72. RO does not appeal that factual finding, which is entitled to deference. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 836-838 (2015).

lacks “shaped posts” *because* it discloses printed icons. Appx17126. Rather, as the district court recognized, the applicant invoked “the ground that Hutley did not teach shaped posts *of any kind—whether printed or not.*” Appx77. The applicant did not make any disclaimer as to printed icons—much less a “clear and unmistakable” or “unambiguous” one. *See* Appx17126; *see also, e.g., Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1046-1047 (Fed. Cir. 2016) (no “clear and unmistakable” disclaimer because cited portions of prosecution history were “readily susceptible to a narrower reading”); *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 833 (Fed. Cir. 2003) (no disclaimer where statement, when “viewed in context,” was not “a clear and unambiguous disavowal of claim scope”).<sup>22</sup>

#### 4. RO’s other arguments are wrong

RO’s other arguments mischaracterize the district court’s decision, the patents, and the record.

*First*, the district court did not “improperly favor[]” a dictionary definition. Br. 42. In referring to the “dictionary definition of ‘post,’” the court merely summarized Crane’s proposed construction. Appx75 (“Crane urges the Court to apply the dictionary definition of ‘post’ ....”). *In the very next sentence*, the court

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<sup>22</sup> The ’360 patent’s prosecution history notably includes no rejections over Hutley even though the ’360 patent also includes claims reciting “shaped posts,” and even though Hutley is among the first references cited on the face of the ’360 patent. Appx310.

recognized that a “dictionary definition *must yield* to ‘art-specific’ evidence of a claim term’s meaning” and therefore “turn[ed] to the patents themselves to determine ... [the] proper construction of the term ‘shaped posts.’” *Id.*

The court’s approach was entirely consistent with *Phillips*. Appx75-76. *Phillips* did not—as RO appears to contend (Br. 46)—preclude the use of general dictionary definitions during claim construction; rather, it made clear that “[d]ictionaries or comparable sources *are often useful*” during claim construction, such that judges may “consult dictionaries ... at any time.” 415 F.3d at 1322 (citation omitted); *see also Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) (“[O]ur decisions, including *Phillips*, ... do not preclude the use of general dictionary definitions as an aid to claim construction.”); *Comaper*, 596 F.3d at 1348 (explaining, citing *Phillips*, that “it is appropriate to consult a general dictionary definition” during claim construction).

*Second*, RO’s repeated reliance on Figure 7c of the ’842 patent (Br. 15-16, 44-45, 47-48) is misplaced. Although Figure 7c “depicts a microstructure approach” to image icons, it does not limit the process by which those icons are created; indeed, Figure 7c and its accompanying text never mention the “removal of material” or “material that remains in a layer.” Appx218-219(24:65-25:5). Notably, before describing Figure 7c, the patent defines microstructured icons as capable of being created by “many suitable means,” including “ink-jet *printing*,

electro *printing*, [and] *printing*[.]” Appx213(13:60-14:7). Moreover, Figure 7c is only *one embodiment*. Appx218(24:45-47) (describing Figure 7c as an “alternative embodiment[.]”); *see Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention,” this Court has “repeatedly warned against confining the claims to those embodiments.”); Appx17453.

*Third*, RO relies on certain unasserted claims that recite “shaped posts.” Br. 42-43. None of those claims, however, prescribes a method of manufacturing the “shaped posts” themselves, and none requires removing or displacing material from a layer. Rather, each discloses “icons formed as shaped posts on a surface of the substrate, spaces between the shaped posts optionally filled with a material having a different refractive index than the substrate.” Br. 42 (citing Appx360(claim 27); Appx424(claim 81); Appx428(claim 113); Appx490(claim 22); Appx493(claim 80)).

*Finally*, RO complains that the district court did not “mention[] the specification” or “address[] ... Figs. 7a and 7c” in its *Markman* order. Br. 47. Yet RO acknowledged below that “[t]he court may not need to look beyond the language of the claims” in construing claim terms. Appx16047. In any event, the court concluded that “there is nothing in the *patent documents* or history suggesting a different interpretation of ‘shaped posts,’” Appx78, confirming that

the district court considered the specification, which is entirely consistent with the district court's construction of "shaped posts." *See supra* pp. 56-57.

**C. RO Has Not Preserved Any Argument Regarding Its Discredited "Taller-Than-Wide" Construction**

Despite including a heading in its appeal brief stating that the district court erred by "chang[ing] its claim construction" for "shaped posts," Br. 49, the actual section of RO's brief (at 49-51) merely recites RO's view of post-*Markman* procedural history. RO does not present any actual argument or assignment of error, and RO cannot develop one for the first time in reply. *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1319 (Fed. Cir. 2006) ("[A]rguments not raised in the opening brief are waived.").

In particular, RO does not claim that the court erred in rejecting RO's argument—presented for the first time at summary judgment—that shaped posts must be taller than they are wide, nor does RO ask this Court to adopt a taller-than-wide "shaped posts" construction. Br. 49-51; Appx28. RO likewise does not argue that the district court was somehow forbidden from clarifying its construction at summary judgment. Appx29 (clarifying that, "[i]n declining to construe shaped posts as *identical* to mesas" at *Markman*, "the Court merely determined that the terms 'shaped posts' and mesa are not *wholly interchangeable*"); *see O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (explaining district court's ongoing obligation to

resolve claim construction disputes). And RO does not claim that the district court abused its discretion by refusing to allow RO to submit a supplemental expert report. Nor could it, as RO had ample opportunity to present its flawed taller-than-wide theory, which the court properly rejected on grounds RO has not even mentioned, let alone appealed. Appx30; *see also* Appx20892-20895 (district court explaining the history of RO's taller-than-wide arguments, and excluding RO's supplemental report on five separate bases); *see supra* pp. 18-19.

#### **IV. SUBSTANTIAL EVIDENCE SUPPORTS THE JURY'S FINDING THAT CRANE'S APRIL 2010 LETTER PROVIDED ACTUAL NOTICE OF INFRINGEMENT**

The jury's factual finding that Crane's April 26, 2010 letter to RO regarding "possible patent infringement" provided actual notice of infringement under 35 U.S.C. § 287 was amply supported by substantial evidence. Appx5178-5179; Appx38; *see* 35 U.S.C. § 287(a) (damages available where "the infringer was notified of the infringement and continued to infringe thereafter"); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1111 (Fed. Cir. 1996) (whether particular notice satisfies Section 287 is a question of fact).

To provide actual notice, "a letter must be sufficiently specific to support an objective understanding that the recipient may be an infringer." *Funai Elec. Co. v. Daewoo Elecs. Corp.*, 616 F.3d 1357, 1373 (Fed. Cir. 2010). The notice need not include an "unqualified charge of infringement" or even use the word "infringement." *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1345-1346 (Fed. Cir.

2001). On the contrary, effective notice can have “numerous possible variations in form and content.” *SRI Int’l, Inc. v. Advanced Tech. Labs., Inc.*, 127 F.3d 1462, 1470 (Fed. Cir. 1997); *see also Minks v. Polaris Indus., Inc.* 546 F.3d 1364, 1376-1377 (Fed. Cir. 2008) (requiring only that a notice letter be “sufficiently specific” in that the accused infringer “knew of the adverse patent and the alleged infringement” (quoting *Gart*, 254 F.3d at 1345)).

As the jury heard, Crane first learned of RO in February 2010. Appx21434-21435; Appx1432-1433(119:12-120:10). It obtained an RO product shortly thereafter and, after evaluating it, “believe[d] that it was possible that [RO] infringed” Crane’s intellectual property. Appx1432-1433(119:12-120:10). Crane sent RO’s then-CEO a letter in April 2010 that: (1) “alert[ed RO] to a possible patent infringement situation regarding the manufacture and sale of [RO’s] optical products in relation to [Crane’s] patents”; (2) identified Crane’s patents, including the asserted (and infringed) ’842 patent; and (3) and identified RO’s infringing products, *i.e.*, RO’s film products “that produce three dimensional images that appear to exist on a plane other than the surface of the film” and that RO offered “for packaging and security label applications.” Appx5178-5179. This by itself is substantial evidence supporting the jury’s finding that Crane’s letter satisfied Section 287. *See Gart*, 254 F.3d at 1339.



RO asserts that Crane's letter did not "accuse any specific product." Br. 54-55. Yet Crane's letter identified RO's "optical products" "that produce three dimensional images" and that RO offered "for packaging and security label applications." Appx5178-5179. Section 287 requires no more. *See Funai*, 616 F.3d at 1373 (notice letter should identify a "specific product *or group of products*"; letter provided actual notice even with respect to products not identified in letter because, "when the threshold specificity is met, the ensuing discovery of other models and related products may bring those products within the scope of the notice"); *Minks*, 546 F.3d at 1376-1377 (jury is "permitted to find notice prior to the date Minks discovered Polaris' infringement" because "knowledge of a specific infringing device is not a legal prerequisite"). These facts are a far cry from *Amsted Industries Inc. v. Buckeye Steel Casting Co.*, where the letter failed to accuse even an offer of an infringing product or type of product. 24 F.3d 178, 187 (Fed. Cir. 1994).

RO further asserts that Crane's letter did not "demand that [RO] cease and desist." Br. 53-54; *see id.* 55 (arguing that Section 287 "requires a proposal to abate infringement"). But as the district court recognized, Section 287 does not require that a notice letter expressly provide a "proposal to abate." Appx34 n.17. This Court has held that letters without such a "proposal to abate" satisfy Section 287. *See Monsanto Co. v. Bowman*, 657 F.3d 1341, 1349 (Fed. Cir. 2011); *see*

also Exhibit 2 to Opposition to Motion for Summary Judgment, *Monsanto Co. v. Bowman*, No. 07-cv-00283-RLY (S.D. Ind. Nov. 18, 2018), ECF73-2 at 10-11 (Monsanto letter, not including a proposal to abate). *SRI* did not suggest otherwise; it merely ruled that a proposal to abate infringement *suffices* to notify a defendant of potential infringement, not that such a proposal is *necessary*. Appx34 n.17; *see SRI*, 127 F.3d at 1470 (noting that there are “numerous possible variations in form and content” to satisfy Section 287, including informing the infringer of “the identity of the patent and the” infringing activity and providing “a proposal to abate”). The district court recognized that Crane’s letter here “substantially parallels [the sufficient letter] in *SRP*”—whereas the letter in *SRI* informed the defendant that it “may infringe,” Crane’s letter informed RO of “possible patent infringement”—and thus “[a] reasonable factfinder could conclude” that Crane’s letter satisfied Section 287 as well. Appx35.<sup>23</sup>

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<sup>23</sup> RO claims, without elaboration or support, that there was “no evidence that Crane *believed*” that RO infringed in April 2010. Br. 53. The district court properly rejected this same argument. Appx47 (“[T]he trial testimony was sufficient to support a conclusion that Crane believed that RO infringed its patents at the time that it sent the April 2010 letter.”); Appx21432-21435; *see Zimmerman v. Direct Fed. Credit Union*, 262 F.3d 70, 75 (1st Cir. 2001) (court must draw all reasonable inferences in favor of the prevailing party in assessing JMOL motion). RO does not challenge that conclusion in its opening brief, and any such argument is now waived. *SmithKline*, 439 F.3d at 1319.

**V. THE DISTRICT COURT COMMITTED LEGAL ERROR IN DENYING CRANE'S MOTION FOR ATTORNEYS' FEES UNDER 35 U.S.C. § 285**

The district court made one legal error that this Court should correct. In rejecting Crane's request for post-*Markman* attorney's fees (excluding work related to damages), the court did not consider the "totality of the circumstances" of the case, as it should have. *Octane Fitness*, 572 U.S. at 554. Indeed, it did not assess the strength of RO's merits contentions at all. Appx49-53. And while it considered RO's litigation conduct, it only considered whether the conduct was "sanctionable" or in "bad faith" (Appx51-52); it did not assess whether RO's litigation conduct was nonetheless "unreasonable," or that unreasonable conduct together with a very weak position on the merits may together make a case "exceptional." Appx49-53; *see Octane Fitness*, 572 U.S. at 554-555.

Courts may award the prevailing party its attorneys' fees in "exceptional" cases. 35 U.S.C. § 285. An "exceptional" case is "one that stands out from others with respect to the *substantive strength* of a party's litigating position (considering both the governing law and the facts of the case) *or* the *unreasonable manner* in which the case was litigated." *Octane Fitness*, 572 U.S. at 554. Thus, a court considering whether to award attorneys' fees should consider the "totality of the circumstances," including *both* (1) the "substantive strength" (or lack thereof) of a party's litigation position, and (2) a party's "unreasonable" litigation conduct. *Id.*

**A. The District Court Erred By Failing To Consider The Substantive Weakness Of RO's Merits Positions And Applying The Wrong Standard In Considering RO's Litigation Conduct**

Although the district court recognized its obligation to consider the “totality of the circumstances” (Appx49), its ultimate analysis failed to do so in two important respects.

*First*, the court did not evaluate the substantive weakness of RO's merits case, which *Octane Fitness* requires. 572 U.S. at 554. Instead, the court assessed *only* RO's litigation conduct. This failure itself warrants vacatur at the very least. *See AdjustaCam, LLC v. Newegg, Inc.*, 861 F.3d 1353, 1360 (Fed. Cir. 2017) (district court “must actually assess the totality of the circumstances” under Section 285); *Atlantic Research Mktg. Sys., Inc. v. Troy*, 659 F.3d 1345, 1360 (Fed. Cir. 2011) (district court abuses its discretion where it “fail[s] to conduct an adequate inquiry”).

*Second*, the court assessed RO's litigation conduct under a legally incorrect standard. Despite recognizing that non-sanctionable conduct may justify a fee award (Appx49), the court ultimately found only that RO “fought hard” and its behavior was not “sanctionable” or in “bad faith.” Appx51-52. But as the Supreme Court made clear, conduct may still be “unreasonable” even if it is not “sanctionable.” *Octane Fitness*, 572 U.S. at 554-555 (“unreasonable conduct ... while not necessarily independently sanctionable” may “justify an award of fees”);

*Rothschild Connected Devices Innovations, LLC v. Guardian Prot. Servs., Inc.*, 858 F.3d 1383, 1389-1390 (Fed. Cir. 2017) (“Whether a party avoids or engages in sanctionable conduct under Rule 11(b) is not the appropriate benchmark . . . .” (citation and internal quotation marks omitted)). Thus, because the district court considered only whether RO’s litigation conduct was “sanctionable” or in “bad faith”—rather than considering RO’s behavior under *Octane Fitness’s* “unreasonableness” standard—the denial of attorneys’ fees should be vacated or reversed. *Rothschild*, 858 F.3d at 1389-1390.

**B. This Case Is Exceptional Under Section 285**

While the district court’s legal error compels at least a remand, the facts here are so one-sided as to permit this Court to reverse outright and direct entry of Crane’s requested award of post-*Markman* fees unrelated to damages, because of RO’s exceptionally weak merits positions and unreasonable litigation tactics.

RO’s merits positions were breathtakingly insubstantial. Following claim construction, RO conceded that its “old” products infringed, and its non-infringement arguments for its “new” products failed at summary judgment. *See supra* pp. 18-21; Appx25840; Appx25842-25843; Appx25851-25852; Appx26025-26026; *see also Cambrian Sci. Corp. v. Cox Commc’ns, Inc.*, 79 F. Supp. 3d 1111, 1115-1116 (C.D. Cal. 2015) (case exceptional where litigation position became untenable as a result of claim construction ruling). The lack of *any* viable non-

infringement defense itself supports awarding fees. *E.g., Nikko Materials USA, Inc. v. R.E. Serv. Co.*, No. 03-cv-2549-SBA, 2006 WL 118438, at \*7-8, 10 (N.D. Cal. Jan. 13, 2006) (fees justified by “overwhelming lack of any competent evidence in support of” defendant’s positions).

RO’s invalidity positions fared no better. Appx25841-25844; Appx25851-25852; Appx26025-26026. At trial, RO presented ***no invalidity defense at all*** for the infringed claims of the ’462, ’855, or ’030 patents, or claims 73, 74, or 76 of the ’360 patent. Appx25842-25843. Its indefiniteness positions are likewise especially weak, as explained above and reinforced by the fact that RO relies on ***no admitted supporting expert testimony whatsoever***. *See supra* pp. 40-41, 53-54. RO’s remaining invalidity arguments were uniformly rejected by the jury, and RO has abandoned them all on appeal. Appx25842-25844; Appx25851-25852; Appx26026; *see Cognex Corp. v. Microscan Sys., Inc.*, No. 13-cv-2027-JSR, 2014 WL 2989975, at \*4, 7-8 (S.D.N.Y. June 30, 2014) (granting fees despite denying plaintiff’s previous motion for summary judgment, based in part on finding accused infringer’s “defenses ... offered at trial ... particularly weak”).

In addition to asserting baseless non-infringement and invalidity positions that it has now abandoned, RO litigated the case unreasonably. *See Monolithic Power Sys., Inc. v. O2 Micro Int’l Ltd.*, 726 F.3d 1359, 1367 (Fed. Cir. 2013) (“[A]n overall vexatious litigation strategy and numerous instances of litigation

misconduct are sufficient to support an exceptional case determination.”). RO forced the case to trial even though, no matter the outcome, RO’s accused products would infringe valid claims. Appx25842; Appx25851-25852; Appx26025-26026. Apart from the sufficiency of Crane’s April 2010 notice letter, RO does not appeal *any* trial issue. Rather, RO’s principal merits arguments on appeal—indefiniteness and the proper construction of “shaped posts”—were decided as a matter of law well before trial. *See supra* pp. 16-21. RO could have stipulated to infringement and the entry of an injunction and appealed; instead, it insisted on a costly (and unnecessary) trial.

RO’s other tactics imposed additional, unnecessary burdens on Crane and the district court.

*First*, RO filed a string of meritless motions: its challenge to personal jurisdiction, which the court noted was “perhaps not even close, something presumably then known to” RO; its motion to compel production of privileged documents, which was denied in its entirety; and its motion for “sanctions,” which secured only relief to which Crane agreed before RO filed its motion. *See supra* pp. 24-25; Appx25838-25840; Appx25842; Appx25853; Appx26027. In each instance, the district court denied the extraordinary and unsupported relief RO

sought, but only after Crane was forced to expend significant time and resources. Appx25853.<sup>24</sup>

**Second**, RO continually shifted its claim construction arguments, repeatedly changing its “shaped posts” construction before and after *Markman*. *See supra* pp. 16-19; *see also* Appx25839; Appx25853-25854. This approach unnecessarily increased the complexity of the case. *See, e.g., Oplus Techs., Ltd. v. Vizio, Inc.*, 782 F.3d 1371, 1374 (Fed. Cir. 2015) (“[d]efending against a constantly moving target would logically have increased the expense of litigation”); *Pure Fishing, Inc. v. Normark Corp.*, No. 10-CV-2140-CMC, 2014 WL 5474589, at \*5 (D.S.C. Oct. 28, 2014) (shifting claim construction positions resulted in “unwarranted” burden on opposing party and court, and supported exceptional case finding).

**Third**, RO pursued meritless defenses only to abandon them on the eve of trial, such as its written description, enablement, and obviousness arguments. Appx25852-25853. RO thus effectively conceded that it infringed valid claims, but only after making Crane unnecessarily expend resources to prepare to try defenses that RO ultimately dropped. *See supra* p. 24; Appx25841-25842; Appx25852-25853; Appx26027.

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<sup>24</sup> Crane did not seek attorneys’ fees related to RO’s motion to dismiss below. Instead, Crane took a measured approach to its fees request, and only sought to recover those fees incurred after the February 2016 *Markman* order because RO’s positions were objectively baseless at least by that time. Appx25851-25852. Crane also did not seek fees related to damages.



*Fourth*, RO repeatedly attempted to introduce untimely evidence, expert opinion, and invalidity positions. *See supra* pp. 23-24. This pattern of repeated disregard of the district court’s deadlines and orders further supports a fee award. *See, e.g., Oplus Techs.*, 782 F.3d at 1374-1375; *Monolithic Power*, 726 F.3d at 1367; *Georgetown Rail Equip. Co. v. Holland L.P.*, No. 6:13-cv-366, 2016 WL 3346084, at \*24 (E.D. Tex. June 16, 2016) (case exceptional where party “continue[d] to raise rejected arguments that [were] found to be objectively unreasonable”).

\* \* \*

RO’s appeal arguments are unusually weak, but the issues it forced to an unnecessary trial were manifestly baseless—as shown by RO’s own abandonment of many defenses before trial and many others on appeal. When viewed together with RO’s unreasonable litigation conduct and under the correct legal standard, they make an award of fees appropriate.

### CONCLUSION

The district court’s judgment on the merits should be affirmed. The denial of Crane’s request for post-*Markman* attorneys’ fees should be reversed or vacated and remanded for further proceedings.

Respectfully submitted,

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February 11, 2019

### **CERTIFICATE OF SERVICE**

I hereby certify that, on this 11th day of February, 2019, I filed the foregoing Confidential Brief for Plaintiffs/Cross-Appellants with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

Additionally, I hereby certify that on the 11th day of February, 2019, I caused the Confidential Brief for Plaintiffs/Cross-Appellants to be emailed to counsel for Defendant-Appellant Rolling Optics AB.

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## CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(g), the undersigned hereby certifies that this brief complies with the type-volume limitation of Federal Circuit Rule 28.1(a).

1. Exclusive of the exempted portions of the brief, as provided in Fed. R. App. P. 32(f) and Fed. Cir. R. 32(b), the brief contains 16,304 words.

2. The brief has been prepared in proportionally spaced typeface using Microsoft Word 2010 in 14 point Times New Roman font. As permitted by Fed. R. App. P. 32(g), the undersigned has relied upon the word count feature of this word processing system in preparing this certificate.

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