

UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS

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CRANE SECURITY	)		
TECHNOLOGIES, INC. and VISUAL	)		
PHYSICS, LLC,	)		
	)		
Plaintiffs,	)		
	)		
v.	)	Civil Action No. 14-12428-LTS	
	)		
ROLLING OPTICS AB,	)		
	)		
Defendant.	)		
<hr/>		)	

MEMORANDUM AND ORDER ON CLAIM CONSTRUCTION

February 8, 2016

SOROKIN, J.

In this intellectual property dispute, the plaintiffs Crane Security Technologies, Inc., and Visual Physics, LLC, allege that the defendant Rolling Optics AB infringed five of their patents: Patent Nos. 7,468,842 (the '842 patent), 8,120,855 (the '855 patent), 8,111,462 (the '462 patent), 8,009,360 (the '360 patent), and 8,254,030 (the '030 patent). Rolling Optics counterclaims for, among other things, declarative judgment of invalidity and non-infringement of the five asserted patents. Before the Court are the parties' briefs on claim construction. The court held a hearing pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), and heard argument and technology tutorials, on December 11, 2015.

I. BACKGROUND

The parties dispute the proper construction of numerous claims. The five patents generally relate to optical systems that project synthetic images. These systems, which are embedded into the new United States \$100 bill, are useful as anti-counterfeiting measures

because they are difficult to reproduce. All of the patents at issue are either a continuation-in-part or divisional from one patent, U.S. Patent Number 7,333,268 (the '268 Patent). The '268 patent covers a synthetic magnification micro-optic system, comprising a planar array of image icons and a planar array of image icon focusing elements. This is essentially the structure of the optical system in the patents at issue.

More particularly, in the patents at issue the optical system is composed of three main components, which are stacked. On the bottom are icon elements, which are the image that the user will see (dollar sign) (labeled 4). These images, which may be microscopic, are arranged in an array and, combined, make up a larger image. Above the array are focusing elements (lenses) (labeled 1), which focus the icon elements into a larger, “synthetic” image which we see. In between the icon array and the focusing elements is an optical spacer or substrate (labeled 5).

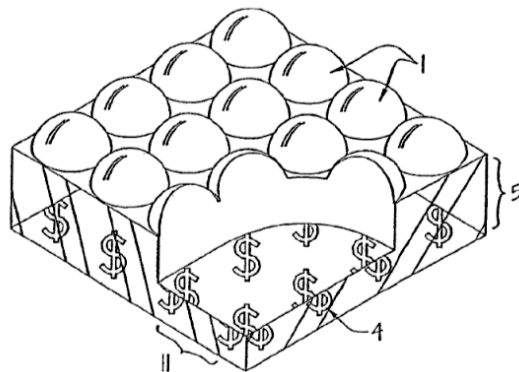
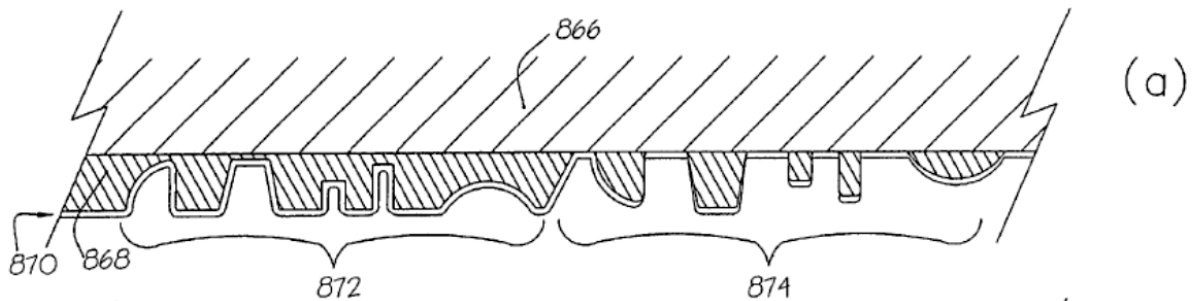


Fig. 1b

It is possible to manipulate the synthetic image by altering the spacing between individual icon elements, individual focusing elements, or both. Such manipulation results in making the synthetic image appear to move or lie above or below the optic system.

Icon elements are formed as three-dimensional structures with physical relief. As shown in Figure 37(a) of the '842 patent, this physical relief can take the form of “depressions” or

“voids” (labeled 872), or raised areas (labeled 874). The relief is below the substrate (labeled 866). The voids can be filled with another material.



Claim 57 of the '842 patent is representative of the system that the patents claim, generally. It claims:

A synthetic optical image system, comprising an array of focusing elements, and an image system including an array of microstructured icon elements designed to collectively form an image, wherein the array of focusing elements and the image system cooperate to form a synthetic optical image and, wherein the microstructured icon elements are either incorporated into an icon layer, or in a coating layer formed on a substrate, and wherein the layer is formed of either or both of positive icon image elements in which the positive image icon elements are formed as depressions or voids in the layer and background areas in the layer are formed as raised areas in the layer or of negative icon image elements in which the negative image icon elements are formed as raised areas in the layer and background areas in the layer are formed as depressions or voids in the layer. [Doc. No. 78-2 at 69:8-24]

The '842 patent expands on the '268 patent as a continuation-in-part; the '855, '462, '360, and '030 patents are all divisional of the '268 patent and claim various applications of it. For present purposes, it is enough to say that each patent asserts different claims relating to the same optical image system. To the extent the patents at issue differ in a manner material to claim construction, the Court addresses such differences, below.

## II. LEGAL STANDARD

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381

F.3d 1111, 1115 (Fed. Cir. 2004)). The “construction of a patent, including terms of art within its claim, is exclusively within the province of the court.” Markman, 517 U.S. at 372. A claim’s words “are generally given their ordinary and customary meaning.” Phillips, 415 F.3d at 1312 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). This “ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Phillips, 415 F.3d at 1313. The “person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” Id. Consequently, in construing a claim the Court may consider “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” Id. at 1314 (quoting Innova/Pure Water, Inc., 381 F.3d at 1116).

### III. DISCUSSION

#### 1. Claim Construction

At the claim construction hearing, Rolling Optics clarified its argument as to the construction of the following terms: “microstructured icon elements,” “icon elements . . . formed as depressions or voids,” “recesses forming voids,” “shaped voids or recesses,” and “shaped posts.” As the Court understands Rolling Optics’ clarification, Rolling Optics contends that these claim terms do not reach icon elements that form synthetic images by the contrast between icon elements and the surrounding material. Instead, in Rolling Optics’ view, these claim terms encompass only icon elements that form synthetic images by the physical relief of the icon elements themselves. The Court rejects this argument because it fails both as a matter of law and

as a matter of fact. Rolling Optics' approach fails as a matter of law because it inappropriately reads a limitation into the claims that is not provided for by the claim language. See Hewlett-Packard Co. v. Mustek Sys., Inc., 340 F.3d 1314, 1324 (Fed. Cir. 2003). Furthermore, as a matter of fact, Rolling Optics' argument fails because it is premised upon the notion that the patentees during patent prosecution disavowed an apparatus containing printed icons without physical relief – a point Crane concedes – but also that the patentees disavowed an apparatus with printed icons that do contain physical relief. To the extent Rolling Optics contends that the patentees disclaimed an apparatus with printed icons that do have physical relief, the Court disagrees for reasons that follow.

In addition, Rolling Optics makes an overarching argument that when the patents in suit issued the applicants did not contemplate forming icon elements through printing. In support, Rolling Optics makes much of Pr392, a provisional patent application to which the '268 parent patent claims priority. Pr392 discusses making synthetic images through magnification of “micro-images,” and states that conventional printing of these “micro-images” cannot provide for sharply-defined synthetic images. Accordingly, Pr392 purported to advance the state of the art by “microprinting” image icons which, in turn, provide higher resolution synthetic images. Although Pr392 did not define “microprinting,” the thrust of Rolling Optics' argument is that there is evidence in the record to suggest that the patentees contemplated using microprinted image icons which, in reality, amount to image icons made by using ink to fill recesses in a layer. Therefore, the argument goes, the microprinted icon elements purportedly contemplated in the patents at issue are distinguishable from the printed icon elements that Crane believes the patents cover. The language of the patents does not establish Rolling Optics' theory. Nevertheless, we consider this overarching argument in construing the following claims.

A. “Microstructured Icon Elements” (’842 Patent claims 57, 58 59)

Each of claims 57 through 59 of the ’842 patent refer to a structure that contains “microstructured icon elements.” Claim 57, for example, describes:

A synthetic optical image system, comprising an array of focusing elements, and an image system including an array of microstructured icon elements designed to collectively form an image, wherein the array of focusing elements and the image system cooperate to form a synthetic optical image and, wherein the microstructured icon elements are either incorporated into an icon layer, or in a coating layer formed on a substrate . . . . [Doc. No. 78-2 at 69:8-16 (emphases added)]

Crane argues that the term “microstructured icon elements” is synonymous with the term “microstructured icon image elements” which the specification of the ’842 patent defines expressly as icon elements with a physical relief that can be formed by many means, including by printing. Id. at 13:60-14:7. See Phillips, 415 F.3d at 1315, 1321 (“the specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term’”; noting also that “the specification ‘acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication’”) (quoting Vitronics Corp., 90 F.3d at 1582). At no time does Rolling Optics suggest significance to the omission of the word “image” when considering the meaning of the claim term in light of the definition in the specification. Similarly, the Court discerns no such significance for purposes of construing this term.

Rather, Rolling Optics contends that (a) the patent distinguishes between icons formed by printing and those formed by microstructures, with the patent – at least in relevant part – claiming the latter while disclaiming the former; and that (b) Crane confirmed this distinction in the course of the patent prosecution. See Phillips, 415 F.3d at 1317 (courts may consider a patent’s prosecution history and evidence outside the patent and its prosecution, although these

sources are less useful than the specification when construing a claim). Rolling Optics contends that during prosecution of the '842 patent the applicants disclaimed printed icons. Rolling Optics points to the following statement made by the patentees to the Patent and Trademark Office (“PTO”) after the PTO rejected certain claims as anticipated by U.S. Patent Number 4,892,336 (“Kaule Patent”):

Kaule, et al. disclose an antifalsification document having a security thread imbedded therein, wherein the security thread is transparent and has a printed pattern on one side and on the opposite side, a lenticular structure. Thus, Kaule, et al. fail to teach an array of image icon elements including microstructured icon elements having a physical relief. [Doc. No. 81-25 at 19.]

In Rolling Optics’ view, the patentees’ statement indicates that they disclaimed printed icons in distinguishing their invention from that of Kaule. However, the “doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of [a] claim congruent with the scope” of a disclaimer if the “patentee has unequivocally disavowed a certain meaning to obtain his patent.” Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1333 (Fed. Cir. 2004) (emphasis added) (quoting Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003)). See Avid Tech., Inc. v. Harmonic, Inc., No. 2015-1246, 2016 WL 363410, at \*4 (Fed. Cir. Jan. 29, 2016) (“When the prosecution history is used solely to support a conclusion of patentee disclaimer, the standard for justifying the conclusion is a high one.”). The Court concludes that the patentees’ statement distinguishes the Kaule Patent as prior art using printing as opposed to microstructures with physical relief, but leaves open the possibility that the '842 patent reaches certain printed icons with physical relief.<sup>1</sup> Because the patentees’ “prosecution argument is subject to more than one reasonable interpretation, one of which is consistent with a proffered meaning of the disputed term[,]” the Court declines to find a “clear and unmistakable’

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<sup>1</sup> Rolling Optics concedes that some printing results in no physical relief at all.

disclaimer” here. See SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1287 (Fed. Cir. 2005) (quoting Golight, Inc., 355 F.3d at 1332)). See also Avid Tech., Inc., 2016 WL 363410, at \*4.

The remainder of Rolling Optics’ arguments concerning this claim term are not persuasive. Insofar as Rolling Optics argues that printing is not encompassed by claims 57 through 59 of the ’842 patent, the specification’s definition of the term controls construction of “microstructured icon elements,” at least with regard to claims in the ’842 patent. See Phillips, 415 F.3d at 1315. Furthermore, to the extent Rolling Optics argues that claim 83 of the ’842 patent – which mentions “image icons . . . formed from printing, microstructures” or other processes – suggests a distinction between printed icons and microstructured icons, the Court disagrees that claim 83 makes any such distinction: in fact, it allows for image icons to be made from printing, microstructures, or “combinations thereof.” Doc. No. 78-2 at 72:20-24.

In all, the Court concludes that the ’842 patent specification’s definition of “microstructured icon image elements” controls construction of the term “microstructured icon elements” and, therefore, the Court adopts Crane’s construction of “microstructured icon elements.” This construction is as follows:

Icon elements having a physical relief or microstructure that can be formed in an icon layer by many suitable means, including thermoforming, casting, compression molding, injection molding, embossing, patterned radiation exposure and development, laser exposure and development, ink-jet printing, electro printing, printing, engraving, electroforming, ruling, photographic, holographic and laser exposure of a photosensitive emulsion combined with well-known hardening and etching or swelling processes, masking and deposition processes, masking and chemical etching, masking and reactive ion etching, masking and ion beam milling, micromachining, laser machining and laser ablation, photopolymer exposure and development, and other suitable means and combinations thereof. [Id. at 13:60-14:7]



- B. “Icon Elements . . . Formed As Depressions or Voids” (’842 Patent claims 57, 58, 59); “Recesses Forming Voids” (’842 Patent claims 76, 77, 78, 79, 80, 81, 82, 83, 85, 90); “Shaped Voids Or Recesses” (’360 Patent claims 73, 76; ’462 Patent claims 158, 161; ’855 Patent claims 56, 67, 95, 96, 109; ’030 Patent claims 175, 176, 181)

Various claims in the ’842 patent, ’360 patent, ’855 patent, and ’030 patent refer to “icon elements . . . formed as depressions or voids,” “recesses forming voids,” and “shaped voids or recesses.” See, e.g., Doc. 78-2 at 69:18-19 (claim 57 of the ’842 patent refers to icon elements “formed as depressions or voids”); Id. at 71:48-51 (claim 76 of the ’842 patent refers to “image icons formed as recesses in a substrate, the recesses forming voids that are optionally filled with a material providing a contrast with the substrate”); Doc. No. 78-3 at 45:39-40 (claim 73 of the ’360 patent refers to image icons “formed as shaped voids or recesses on or in a surface of the substrate”). The parties do not dispute that these three terms may be construed together. Crane interprets “depressions,” “voids,” and “recesses forming voids,” as follows: “recessed spaces (which may be filled with another material).” It construes “shaped voids or recesses” as icons “shaped as recessed spaces (which may be filled with another material).” Rolling Optics essentially is in agreement with Crane’s interpretation, and the Court therefore construes these terms in accordance with Crane’s proposed construction.<sup>2</sup>

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<sup>2</sup> At the Markman hearing, Rolling Optics clarified its view that the scope of the patents at issue was narrowed during prosecution so as not to reach optic systems that produce a synthetic image through contrast between printed elements and surrounding material. According to Rolling Optics, therefore, to the extent that voids, recesses and depressions form a synthetic image through contrast, the patents at issue do not reach them. The Court disagrees with Rolling Optics’ perspective for the reasons stated in the text.

The Court further notes that Rolling Optics also has relinquished its earlier argument that any of these terms refer to empty spaces which may be filled by “contrasting material.” Doc. No. 90 at 16.

C. “Shaped Posts” (’360 Patent claims 74, 76; ’462 Patent claims 159, 161; ’855 Patent claims 67, 97, 109; ’030 Patent claims 177, 181)

The parties ask the Court to construe the term “shaped posts” which appears in a number of claims in the ’360 patent, ’462 patent, ’855 patent, and ’030 patent. For example, claim 74 of the ’360 patent recites a “synthetic magnification micro-optic system comprising,” among other things, “a substrate positioned between the arrays of image icons and focusing elements, wherein at least a portion of the image icons are formed as shaped posts on a surface of the substrate.” Doc. No. 78-3 at 45:47-54. Crane construes “shaped posts” as icons “shaped as mesas or pieces fixed in an upright position.” Rolling Optics interprets the term more narrowly, as 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.” The dispute between the parties primarily boils down to whether the term “shaped posts” encompasses printed icon elements.

To construe this term, the Court begins with the words of the claims. See Phillips, 415 F.3d at 1312. “[T]he words of a claim ‘are generally given their ordinary and customary meaning[,]’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” Id. at 1312-13 (quoting Vitronics, 90 F.3d at 1582). Crane urges the Court to apply the dictionary definition of “post” to the term at issue, and suggests that the common definition of “post” is “a piece . . . fixed firmly in an upright position.” Merriam-Webster’s Collegiate Dictionary 969 (11th ed. 2005). However, given that a dictionary definition must yield to “art-specific” evidence of a claim term’s meaning, see Phillips, 415 F.3d at 1322, the Court turns to the patents themselves to determine whether Crane’s interpretation is a proper construction of the term “shaped posts.” See id. at 1324 (“a judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to

begin to understand the meaning of the term, before reviewing the remainder of the patent to determine how the patentee has used the term”).

Rolling Optics argues that the language of the claims that include the term “shaped posts” indicates that the term refers to microstructured icon elements, and not to icon elements formed by printing. Of the nine claims at issue here, five describe image icons formed as “shaped posts” with no mention of microstructures or printing, see Doc. No. 78-3 at 45:53 (’360 patent); Doc. No. 78-4 at 66:35-36 (’462 patent); Doc. No. 78-5 at 47:35-36, 52:25 (’855 patent); Doc. No. 78-6 at 58:53-54 (’030 patent), and four of the claims refer to “microstructured icon elements having a physical relief formed . . . as shaped posts,” but do not preclude explicitly printed icon elements. See Doc. No. 78-3 at 46:7-9 (’360 patent); Doc. No. 78-4 at 66:56-58 (’462 patent); Doc. No. 78-5 at 55:20-22 (’855 patent); Doc. No. 78-6 at 59:39-41 (’030 patent). Crane contends that because none of these claims explicitly excludes printed icons, the term “shaped posts” reaches icons formed by printing.

Crane’s argument has merit. In the absence of language in the claims at issue that limits “shaped posts” to non-printed icons, the Court is reluctant to import such a limitation into the claims. This is so because the court “cannot construe [a] claim to add a limitation not present in the claim itself.” See Hewlett-Packard Co., 340 F.3d at 1324. See also Prima Tek II, L.L.C. v. Polypap S.A.R.L., 318 F.3d 1143, 1149 (Fed. Cir. 2003) (declining to construe the term “floral holding material” as limited to an apparatus that flower stems can be “inserted into and through” because “[n]either the phrase ‘inserted into’ nor ‘inserted through’ appears in any of the asserted claims”).<sup>3</sup>

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<sup>3</sup> Rolling Optics argues also that the term “shaped posts” reaches only those icons formed in, rather than on, a layer of material. The Court disagrees. All but one of the claims at issue that refer to the term “shaped posts” are apparatus claims, and the Court declines to adopt Rolling

Nevertheless, Rolling Optics contends that during prosecution of the '462, '855 and '030 patents, the patentees disclaimed any “shaped posts” formed by printing. The Court disagrees. During prosecution of these patents the patentees distinguished their invention from UK Patent GB 2,362,493 (“Hutley patent”), stating that “the object arrays [in the Hutley patent] may be printed” but that “Hutley does not teach (or suggest) . . . image icons in the form of shaped voids or recesses, or shaped posts.” Doc. No. 81-27 at 44 ('462 patent); Doc. No. 81-28 at 40 ('855 patent); Doc. No. 81-29 at 45 ('030 patent). Rolling Optics reads this statement as an indication that the patentees saw a “fundamental difference” between the Hutley patent’s printed icons and the shaped posts in the patents at issue, but the Court is persuaded that this statement is more reasonably read as distinguishing the patents at issue from the Hutley patent on the ground that Hutley did not teach shaped posts of any kind – whether printed or not. By distinguishing the Hutley patent on the basis that it used printed icons but not shaped posts, the patentees cannot be said to have unequivocally disavowed any kind of shaped posts, let alone those formed by printing.<sup>4</sup> See Golight, Inc., 355 F.3d at 1333.

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Optics’ construction because doing so would improperly read a process into these apparatus claims. See Baldwin Graphic Sys., Inc. v. Siebert, Inc., 512 F.3d 1338, 1344 (Fed. Cir. 2008) (“Courts must generally take care to avoid reading process limitations into an apparatus claim because the process by which a product is made is irrelevant to the question of whether that product infringes a pure apparatus claim . . .”) (citations omitted). As for the one claim at issue that is a method claim, see Doc. No. 78-5 at 47:27-39 ('855 patent), the method described in that claim does not include a requirement that shaped posts be formed in a layer, rather than on a layer, of material. In all, therefore, Rolling Optics’ argument on this front is unavailing.

<sup>4</sup> Rolling Optics directs the Court to additional language used by the patentees to distinguish the Hutley patent that only confirms the Court’s view. The patentees wrote to the PTO that certain claims within the patent application describe “image icons formed as shaped posts” or “microstructured image icons having a physical relief formed as . . . shaped posts,” and that the Hutley patent “fails to teach these features.” See, e.g., Doc. No. 81-27 at 45. In other words, the patentees distinguished the patents at issue from the Hutley patent on the ground that the latter did not specify shaped posts of any kind.

Because there is nothing in the patent documents or history suggesting a different interpretation of “shaped posts,” the Court construes the term consistent with Crane’s construction, i.e., icons “shaped as pieces fixed in an upright position.”<sup>5</sup> See Vitronics Corp., 90 F.3d at 1584 n.6 (courts may “rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents”). This construction applies to each use of “shaped posts” in each of the claims at issue. See Innova/Pure Water, Inc., 381 F.3d at 1119 (“Unless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim.”).

D. “Movement/Motion Effect/Appearing to Move” (’462 Patent claims 76, 102, 105, 133, 134, 158, 159, 161; ’855 Patent claims 87, 88)

Claims in the ’462 and ’855 patents describe optical systems and a security device comprising synthetic images with a “motion effect,” synthetic images “appearing to move,” and a synthetic image that “shows movement.” See, e.g., Doc. No. 78-4 at 45:5 (’462 patent refers to “motion effect”); Id. at 66:27-28 (’462 patent describes synthetic image “appearing to move”); Doc. No. 78-5 at 50:49-51 (’855 patent refers to synthetic image that “shows movement”). Crane construes these terms as meaning “having or appearing to have motion.” Rolling Optics disagrees, and interprets these terms as meaning “having or appearing to have orthoparallactic motion.” The question, therefore, is whether, as Rolling Optics asserts, the terms “movement,” “motion effect” and “appearing to move” refer to orthoparallactic motion only. The parties agree

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<sup>5</sup> Crane suggested that construction of the term “shaped posts” include the word “mesas,” but that word is not interchangeable with the word “posts.” Crane’s briefs did not explain why the term “shaped posts,” as used in the claims at issue, includes “mesas” and the Court discerns no reason why it should. Accordingly, the Court declines to construe “shaped posts” as meaning “mesas.”

that orthoparallactic motion, at least as applied to the synthetic images in question, occurs when an optical system is tilted and the synthetic image moves perpendicularly to the direction of the tilt. For example, if the optical system is tilted up and down, the synthetic image moves to the right and left.

Beginning with the plain and ordinary meaning of these terms, see Phillips, 415 F.3d at 1312-13, it cannot seriously be doubted that the plain meaning of “movement,” “motion effect,” or “appearing to move” encompasses all types of motion, including, but not limited to, orthoparallactic motion. This interpretation is bolstered by an examination of the ’462 and ’855 patents as a whole. Claim 102 of the ’855 patent and claim 157 of the ’462 patent each refer explicitly to a synthetic image having an “orthoparallactic motion effect.” Doc. No. 78-5 at 53:54-55 (’855 patent); Doc. No. 78-4 at 66:10-13 (’462 patent). It is reasonable to conclude, therefore, that the applicants knew how to specify orthoparallactic movement but declined to do so in the claims at issue. See Phillips, 415 F.3d at 1314 (“Differences among claims can . . . be a useful guide in understanding the meaning of particular claim terms.”). Moreover, the use of the word “orthoparallactic” to modify “motion effect” in one of a patent’s claims indicates that the term “motion effect” in another claim does not refer only to orthoparallactic motion inherently. See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1329 (Fed. Cir. 2006) (where the “term ‘rigid’ appears in connection with ‘insert’” in one claim, but not in other claims, “it implies that the term ‘insert,’ when used elsewhere in the patent, does not inherently carry a ‘rigid’ limitation”).

Furthermore, the Court must construe the claims incorporating the terms “movement,” “motion effect,” and “appearing to move” in light of the specifications of the ’462 and ’855 patents. See Phillips, 415 F.3d at 1315. The specification of each refers to “orthoparallactic”

movement and motion. See, e.g., Doc. No. 78-4 at 3:9-10 (referring to a synthetic image’s “orthoparallactic movement”); Doc. No. 78-4 at 5:51-52 (“orthoparallactic . . . motion effect”); Doc. No. 78-5 at 3:9-10 (referring to a synthetic image’s “orthoparallactic movement”); Doc. No. 78-5 at 5:51-52 (“orthoparallactic . . . motion effect”). “The intrinsic evidence of the specification therefore suggests that the patentees knew how to restrict their claim coverage” to orthoparallactic motion, and that in drafting the claims at issue they instead “chose a different term that implies a broader scope.” Acumed LLC v. Stryker Corp., 483 F.3d 800, 807 (Fed. Cir. 2007).

Rolling Optics, however, seizes on the fact that the patents’ specifications refer to “motion” and “movement” as orthoparallactic to argue that these terms carry the same meaning in the claims at issue. It is true that the specifications of the ’855 and ’462 patents refer to “motion effect” exclusively as “orthoparallactic” and often refer to “movement” the same way. However, the Federal Circuit has “repeatedly warned against confining the claims to” the “very specific embodiments of the invention” in a patent’s specification, Phillips, 415 F.3d at 1323, and the Court declines to do so here because the plain language of the claims at issue indicates that “movement” and “motion” do not refer only to orthoparallactic movement and motion exclusively. See Acumed LLC, 483 F.3d at 807 (declining to construe a term according to the patent’s specification where the ordinary meaning of the claim at issue “covers more than the particular embodiment shown in the figures”).

Rolling Optics fares no better in arguing that the applicants for the ’462 patent disclaimed any movement or motion of synthetic images other than that which is orthoparallactic. During prosecution of the ’462 patent, the applicants stated to the PTO in response to the latter’s rejection of the application that the:

'motion effect' claimed in the present Application (11/932,468) is described and shown in this application as synthetic images appearing to move from one position to another position along a given plane when the micro-optic system is tilted, or viewed from a different viewing angle. FIG. 2a of the present Application (11/932,468) illustrates an exemplary orthoparallactic synthetic image motion effect of the embodiment of FIGS. 1a-b. As described in paragraph [0085] of the present Application (11/932,468), synthetically magnified image 14 shows orthoparallactic motion 20 – motion which is perpendicular to the normally expected parallax motion direction. The right side of FIG. 2a depicts a perspective view of a piece of material 12 exhibiting the orthoparallactic motion of a singly synthetically magnified image 14 as it is oscillated 18 about horizontal rotational axis 16. The dotted outline 22 shows the position of the synthetically magnified image 14 after it has moved to the right by orthoparallax and the dotted outline 24 shows the position of the synthetically magnified image 14 after it has moved to the left by orthoparallax. [Doc. No. 81-32 at 46]

Although this statement indicates a single example of the claimed technology, nowhere does it contain a clear disclaimer of non-orthoparallactic motion or movement of a synthetic image. See Golight, Inc., 355 F.3d at 1333.<sup>6</sup>

In all, the Court concludes that Crane's construction of the terms "motion effect," "appearing to move" and "movement" is consistent with the plain meaning of the claims and the patents as a whole. Therefore, these terms are to be construed as "having or appearing to have motion," rather than as exclusively referring to orthoparallactic motion.

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<sup>6</sup> Rolling Optics points also to two other statements made by the '462 patent applicants to the PTO during patent prosecution that purportedly constitute disclaimers of non-orthoparallactic motion or movement. The first statement is: "Applicant further submits that the way in which the system is arranged to provide a motion effect is quite a bit different than the way the system is arranged to provide either a morphing effect or a floating effect." Doc. No. 81-32 at 45. The second statement is that "the 'motion effect' claimed in the present Application (11/932,468) is described and shown in this application as synthetic images appearing to move from one position to another position along a given plane when the micro-optic system is tilted, or viewed from a different viewing angle. As such, the floating effect or appearing 'to lie above a given plane' as well as the additional effect of 'appearing to move between a spatial plane deeper than the system and a spatial plane above the system', as noted above, do not constitute a 'motion effect.'" Id. at 47 (emphasis in original). Neither of these statements, either alone or taken together, constitute clear disclaimers of non-orthoparallactic motion or movement.



E. “Security Device/Document/Label” (’842 Patent claim 78; ’855 Patent claims 56, 63, 67, 87, 88, 95, 96, 97, 109)

Certain claims in the ’842 and ’855 patents refer to a “security device,” “security document” or “security label.” See, e.g., Doc. No. 78-2 at 71:56-58 (security device); Doc. No. 78-5 at 46:29 (security label or document). Crane proposes the following construction based on its view of the ordinary meaning of “security”: “A security device/document/label that helps identify, establish the authenticity of, or protect an item such as currency, an identification document, or a product.” Rolling Optics, on the other hand, views these terms as meaning a “device, document or label that demonstrates the authenticity of an associated item such as currency, identification document or product.” The parties agree, therefore, that the terms reach devices, documents or labels that authenticate something, but Rolling Optics asserts that the terms reach no further and do not encompass devices, documents or labels that “help identify” an item.<sup>7</sup>

As an initial matter, the plain meaning of “security” suggests that the term refers to more than just authentication. For example, security measures are used to protect people and things, not just to establish an item’s authenticity. Furthermore, “security” is defined as being synonymous with protection. Merriam-Webster’s Collegiate Dictionary 1123 (11th ed. 2005). Accordingly, the ordinary meaning of “security” suggests that a security device, label or document reaches beyond that which authenticates an item and encompasses those devices,

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<sup>7</sup> At the Markman hearing, the parties mentioned two examples of a security device that would identify an item but not authenticate it. The Court does not find either example accurate. The first example offered was a security device on a business card, but it cannot be said that such a security device would “identify” the business card in any meaningful way. The second example given was a luggage tag, but a security device on a luggage tag certainly would “authenticate” the tag as legitimate. In the absence of other examples, the Court discerns no scenario in which a security device would identify an item without also authenticating it.

labels and documents that protect items in any number of ways. In addition, the specifications of the '855 and '842 patents indicate that a “security device” does more than authenticate an item; indeed, it can be used to protect an item by being incorporated into, among other things, a “tamper indicating device.” See, e.g., Doc. No. 78-5 at 4:48-52 ('855 patent) (“The present disclosure further provides a security device suitable for at least partial incorporation in or on, and for use on or in association with, a security document, label, tear tape, tamper indicating device, sealing device, or other authentication or security device”); Doc. No. 78-2 at 7:19-23 ('842 patent includes the same language).

The more difficult question, however, is whether the term “security” reaches as far as Crane says it does – that is, whether a security device, label or document “helps identify” an item. Crane points to an everyday example – an employee’s identification card – to argue that some security devices identify a person and, accordingly, that the ordinary meaning of “security” encompasses identification. As Crane points out, Rolling Optics’ own marketing materials, which advertise products that combine “aesthetically superior solutions and high levels of security in one simple package,” indicate that a security device also can identify an item. Doc. No. 94-7 at 6. See Doc. No. 97-1 (SEALED) at 16 (Rolling Optics’ marketing materials state that its optical effects make “the material highly attractive for the public” which “is of crucial importance when it comes to security since the effects can be easily identified”). Given that “the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention,” Phillips, 415 F.3d at 1313, Rolling Optics’ view of security devices is instructive on the breadth of the term in the patents at issue.

Rolling Optics counters that the specifications of the '842 and '855 patents draw a distinction between security devices and “visual enhancements” that, in Rolling Optics’ view, identify an item. Specifically, the specifications state that the “unusual optical effects provided by the various embodiments of the disclosure can be used as a security device for overt and covert authentication of currency, documents, and products as well as visual enhancement of products, packaging, printed material, and consumer goods.”<sup>8</sup> Doc. No. 78-5 at 1:21-26 ('855 patent); Doc. No. 78-2 at 1:22-26 ('842 patent). Even assuming that “visual enhancements” are synonymous with something that identifies an item, the purported distinction made between security devices and visual enhancements is not as clear as Rolling Optics makes it out to be. This is so because the language just quoted is conjunctive and, therefore, it allows for an optical effect to be used both as a security device and as a visual enhancement. Accordingly, to the extent a visual enhancement “helps identify” an item, the language in the specification upon which Rolling Optics relies does not preclude a security device from acting as a visual enhancement, thereby helping to identify a product or other thing.

In sum, the plain language of the claims at issue indicates that security devices, labels and documents “help identify” an item. Therefore, the Court adopts Crane’s construction of these terms.

#### F. The Gale Declaration

A pause is in order to discuss Crane’s Motion to Strike as untimely the declaration of Rolling Optics’ purported expert witness Michael T. Gale, which Rolling Optics filed with its reply claim construction brief. Doc. No. 109; Doc. No. 118; Doc. No. 92. Rolling Optics refers

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<sup>8</sup> The '842 patent refers to “unusual effects” rather than “unusual optical effects” but the Court discerns no way in which this affects the purported distinction between security devices and visual enhancements. Doc. No. 78-2 at 1:22.

to the Gale Declaration in its reply brief to support arguments concerning construction of the terms “microstructured icon elements,” “shaped posts,” “appearing to move,” “motion effect,” and “security device.”

Because the Court views the Gale Declaration as untimely, the Motion to Strike (Doc. No. 109) is ALLOWED. It is evident that Rolling Optics did not disclose Gale as one of its experts until it filed his declaration attached to its reply brief. Given that the parties simultaneously submitted their opening claim construction briefs and then simultaneously submitted their reply briefs, the disclosure of the declaration with the reply brief is untimely. Cf. Fed. R. Civ. P. 6(c)(2); L.R. 7.1(b)(1).<sup>9</sup>

In any event, the Gale Declaration falls into the category of extrinsic evidence, which is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” See Phillips, 415 F.3d at 1317 (quoting C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed. Cir. 2004)). The Federal Circuit views “extrinsic evidence in general as less reliable than the patent and its prosecution history in determining how to read claim terms” because, among other reasons, (a) extrinsic evidence is “not part of the patent and does not have the specification’s virtue of being created at the time of patent prosecution for the purpose of explaining the patent’s scope and meaning,” and (b) “extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” Id. at 1318. “The effect of that bias can be exacerbated” if, as here, “the expert’s opinion is offered in a form that is not subject to cross-examination.” Id. For these reasons and in light of the intrinsic evidence discussed above,

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<sup>9</sup> Nothing in the Court’s ruling today prevents Rolling Optics from submitting the Gale Declaration in the course of summary judgment motions.

the Court finds the Gale Declaration to be weak evidence with regard to claim construction of the terms at issue. In particular, the Court does not credit Gale’s opinion that a person skilled in the art would interpret the claims contrary to how Crane construes them insofar as adopted by the Court. This is so, in part, because on at least one occasion Gale’s opinion contradicts the patent language. Indeed, he contends that the term “microstructured icon elements” are not to be printed, even though the specification of the ’842 patent states otherwise. Doc. No. 78-2 at 13:60-14:7. See Phillips, 415 F.3d at 1318 (“a court should discount any expert testimony ‘that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent’”) (quoting Key Pharms. v. Hercon Labs. Corp., 161 F.3d 709, 716 (Fed. Cir. 1998)). Moreover, the Gale Declaration suffers from the weaknesses inherent to extrinsic expert testimony discussed above, rendering it largely unhelpful with regard to claim construction.

## 2. Claim Definiteness

The Court turns to Rolling Optics’ arguments that certain of the claims at issue are indefinite and, therefore, invalid. The Supreme Court has held that “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” Nautilus, Inc. v. Biosig Instruments, Inc., 134 S.Ct. 2120, 2124 (2014). “A patent is presumed valid under 35 U.S.C. § 282 and, ‘consistent with that principle, a [fact finder is] instructed to evaluate . . . whether an invalidity defense has been proved by clear and convincing evidence.” Biosig Instruments, Inc. v. Nautilus, Inc., 783 F.3d 1374, 1377 (Fed. Cir. 2015) (quoting Microsoft Corp. v. i4i Ltd. P’ship, 131 S.Ct. 2238, 2241 (2011)).

“Indefiniteness is a matter of claim construction, and the same principles that generally govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction.” Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1319 (Fed. Cir. 2008). See Energizer Holdings, Inc. v. Int’l Trade Comm’n, 435 F.3d 1366, 1368 (Fed. Cir. 2006) (“An analysis of claim indefiniteness . . . is ‘inextricably intertwined with claim construction’”) (quoting Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1379 (Fed. Cir. 1999)). However, some courts have declined to resolve issues of indefiniteness during the claim construction stage of litigation. See, e.g., Indus. Tech. Research Inst. v. LG Elecs. Inc., No. 3:13-CV-02016-GPC-WVG, 2014 WL 6907449, at \*3 (S.D. Cal. Dec. 8, 2014). One reason for deferring indefiniteness determinations until summary judgment is that a finding of indefiniteness invalidates a patent claim, and it may be imprudent to do so prior to the conclusion of discovery. See Int’l Dev. LLC v. Richmond, No. 09-2495 (GEB), 2010 WL 4703779, at \*6-7 (D.N.J. Nov. 12, 2010).

With these considerations in mind, the Court proceeds to dispose of one of Rolling Optics’ assertions of indefiniteness that the Court finds unpersuasive. As to the claim language “above or below a given plane,” however, Rolling Optics raises substantial questions of indefiniteness. Similarly, Rolling Optics raises a legitimate argument of indefiniteness with regard to at least the term “substantially regular” in the claim language “substantially regular array spacing between a substantial number of image icons within at least a portion of the image icon array.” Given that Crane has yet to submit expert evidence on indefiniteness, and that it expressed at the Markman hearing a desire to proffer such expert evidence, and that Crane is entitled to do so to counter the Gale Declaration submitted by Rolling Optics, the Court declines to rule at this time on the definiteness of the claim terms “above or below a given plane” and

“substantially regular array spacing between a substantial number of image icons within at least a portion of the image icon array.” Crane is entitled to submit expert evidence regarding these terms prior to any ruling on these issues. The Court will address these issues at summary judgment.

A. Used in Conjunction With Printed Information ('030 Patent claim 194)

Claim 194 of the '030 patent refers to a “synthetic magnification micro-optic system” that forms a synthetic image and is “used in conjunction with printed information, such that both the printed information and the [synthetic image] can be seen at the same time in spatial or dynamic relationship to each other.” Doc. No. 78-6 at 62:27-41. Crane concedes that it no longer asserts this claim against Rolling Optics in this litigation. Nevertheless, Rolling Optics urges the Court to rule that the phrase “used in conjunction with printed information” renders the claim indefinite, arguing that the claim’s construction remains at issue because Rolling Optics’ counterclaim for invalidity reaches the claim. See Doc. No. 87 at 8. The Court reserves ruling on this issue until summary judgment. As the Court stated at the Markman hearing, however, the Court urges the parties to resolve this issue in a manner that will avoid the need for further litigation, and avoid judicial resolution of, among other things, whether there remains a case or controversy with regard to Claim 194 and whether Rolling Optics’ counterclaim still reaches Claim 194. To the extent the parties are unable to resolve this issue, they may bring it up at summary judgment.

B. Optical Effect ('360 Patent claims 62, 63)

Rolling Optics asserts that two claims in the '360 patent are indefinite for incorporating the term “optical effect.” Claim 62 recites a micro-optic system that forms a synthetic image as well as a second synthetic image “exhibiting a different optical effect” than the first. Doc. No.

78-3 at 43:36-54. Claim 63 does the same, but adds that the “optical effect” of the second synthetic image “is different in one or more of form, color, direction of movement or magnification.” Id. at 43:55-44:9. The thrust of Rolling Optics’ objection is that the term “optical effect” is without clear boundaries, making it indefinite.

The Court disagrees. “A patentee may claim an invention broadly and expect enforcement of the full scope of that language absent a clear disavowal or contrary definition in the specification.” Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004). See Thorner v. Sony Computer Entm’t Am. LLC, 669 F.3d 1362, 1367 (Fed. Cir. 2012) (“The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.”). No such disavowal appears in the record here. Therefore, the term “optical effect” is amenable to construction according to its plain terms (optical effect), and the term therefore does not render claims 62 and 63 of the ’360 patent indefinite.

#### IV. CONCLUSION

The claim terms at issue will be construed for the jury and for all other purposes in the pending litigation in a manner consistent with the above rulings of the Court. With regard to Rolling Optics’ assertions of claim indefiniteness on which the Court defers ruling, the Court will entertain argument on such matters at summary judgment.

SO ORDERED.

/s/ Leo T. Sorokin  
Leo T. Sorokin  
United States District Judge