

United States District Court,
N.D. Texas, Dallas Division.

BAE SYSTEMS ELECTRONICS LIMITED,
Plaintiff.

v.

ROCKWELL COLLINS, INC. and Elcan Optical Technologies,
Defendants.

No. Civ.A.3:03CV0694-K

Aug. 12, 2004.

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MARKMAN MEMORANDUM OPINION AND ORDER

KINKEADE, J.

Before the Court are the parties' briefs on the issue of claim construction of the patent-in-suit, U.S. Patent No. 4,611,877 ("the '877 patent"). Having conducted a *Markman* hearing and reviewed the parties' briefs and all related filings and evidence, including the patent-in-suit, the specification, the patent prosecution history to the extent it was submitted by the parties, and the parties' proposed claim constructions, this Court construes the disputed claims, as necessary, according to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed.Cir.1995) (en banc), *aff'd*, 517 U.S. 360 (1996).

I. Background

On September 16, 1986, the United States Patent and Trademark Office ("U.S.PTO") issued the '877 patent to GEC Avionics Limited. After several name changes, GEC Avionics Limited became BAE Systems Electronics Limited ("BAE"), the plaintiff in this case. Accordingly, BAE is the current owner of the '877 patent.

The '877 patent deals with "head up displays" in aircraft cockpits. In airplanes, pilots use what is called a "head up display" during flight. Head up displays create holographic images that are used to enable a pilot to see data that is of interest to him without having to look down at the instrument panel. Like a movie projector and its screen, a head up display consists of two basic parts: (1) an optical projector, which takes

the data of interest from some sort of luminous data source and projects it toward a viewing surface, and (2) the viewing surface itself, known as a "combiner" because it allows the pilot to view the combination of the projected data and the sky in front of the pilot.

The '877 patent deals primarily with the projector aspect of the head up display, and is aptly captioned "optical projector for head-up displays." Specifically, the abstract of the '877 patent provides:

[a]n optical projector for a head-up display wherein light from a data source (15) passes through a first lens arrangement (23) and then into a wedge-shaped body (27) via a first face (29) of the body wherein the light is, in turn, internally reflected at second and third angled faces of the body (35 and 33) and then exists the body at the second face (35) to pass via a second lens arrangement (25) to the system combining (13) in a direction at an angle to that which light enters the body.

The arrangement of the projector facilitates the projector having lateral dimensions dictated by the data source (e.g. a CRT) rather than the optical elements of the projector.

The '877 patent was filed in 1985 and approved in 1986, and it originally had 5 claims. However, in July of 2001, BAE requested that the U.S. PTO reexamine the patentability of the '877 patent due to BAE's alleged discovery of prior art relevant to the '877 patent. After conducting reexamination proceedings, the U.S. PTO issued reexamination certificate U.S. 4,611,877, which not only confirmed the patentability of original claims 1-5, but also issued new claims 6-13.

II. Construction of the Claims of the '877 Patent

A. Principles of Claim Construction

Claim construction is a matter of law, and claims are construed by the court as they would be understood by persons of ordinary skill in the field of the invention. *See* Markman, 52 F.3d at 979. The court starts with the claim itself, read in light of the specification. *See* Vivid Technologies, Inc. v. American Science & Engineering, Inc., 200 F.3d 795, 804 (Fed.Cir.1999). The words of the claims themselves define the scope of the invention, and unless the patentee has chosen to use terms in some other manner, the court gives the terms their ordinary and customary meaning. *See* Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1366 (Fed.Cir.2001). It is thus necessary to review the specification to determine whether the patentee has assigned any special meaning to claim terms, as the specification is "the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996).

In addition to the claim language and the specification, the prosecution history is often helpful in understanding the intended meaning, as well as the scope, of technical terms in the claims. *See* Vivid Techs., 200 F.3d at 804. In particular, the prosecution history is relevant in determining whether the patentee intends the language of the patent to be understood in its ordinary meaning. Although a court should generally give such terms their ordinary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, so long as the special definition of the term is clearly stated in the patent specification or file history. *See* Vitronics Corp., 90 F.3d at 1582.

When the intrinsic evidence unambiguously describes the scope of a patented invention, reliance on extrinsic evidence is improper. *See id.* at 1583. While the Court may consult extrinsic evidence to educate itself about the invention and relevant technology, it may not rely upon extrinsic evidence to reach a claim construction that is clearly at odds with a construction mandated by the intrinsic evidence. *See* Key Pharms.

v. Hercon Labs. Corp., 161 F.3d 709, 716 (Fed.Cir.1998). Using these tools, the court construes only the claims that are in controversy, and only to the extent necessary to resolve the dispute. *See Vivid Techs.*, 200 F.3d at 803.

B. Claim 1

Claim 1 reads as follows:

An optical projector comprising a luminous data source and means for projecting and collimating light from the data source comprising a first lens arrangement having an optical axis arranged to receive light from the data source, a second lens arrangement having an optical axis inclined with respect to the optical axis of the first lens arrangement, and reflector means between the first and second lens arrangement arranged to deflect rays from the first lens arrangement to the second lens arrangement for transmission thereby ...

Column 3, lines 12-21 of the '877 patent (hereinafter set out as "Col. 3, ll. 12-21"). The parties' primary dispute centers around the meaning of a particular phrase located in claim 1 of the '877 patent.

1. Means-Plus-Function Language

As an initial matter, the Court shall determine whether the language of claim 1 of the '877 patent invokes so-called "means-plus-function" language. On several occasions, the relevant claims of the '877 patent make use of the word "means" when describing the functions of the head up display projector. When a patentee avails himself of the statutorily authorized "means plus function" claim form, certain structural limitations from the specification are imported into the claim construction process. *See* 35 U.S.C. s. 112, para. 6. Specifically, the statute provides that an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and the claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. *See id.*

Use of the term "means" in a claim followed by a functional statement gives rise to a presumption that the patentee intends s. 112, para. 6 to govern the claim's construction. *See Personalized Media Communications, LLC v. International Trade Com'n*, 161 F.3d 696, 703 (Fed.Cir.1998). However, this presumption can be overcome in two ways: (1) a claim element that uses the word "means" but fails to recite function corresponding to the means does not invoke s. 112, para. 6; and (2) even if the claim element specifies a function, if it also recites sufficient structure or material for performing that function, s. 112, para. 6 does not apply. *See Allen Engineering Corp. v. Bartell Industries, Inc.*, 299 F.3d 1336, 1347 (Fed.Cir.2002) (internal citations omitted). In order to recite "sufficient structure," a claim term, as the name for structure, has to have a reasonably well understood meaning in the art. *See id.*

The parties contend that, due to the precise nature in which claims 1 and 10 describe the structure required to carry out the specified functions of the '877 patent, the language '877 is not written in means-plus-function format. Considering the detail of the language included in the independent claims of the '877 patent, the Court agrees. Accordingly, the '877 patent does not involve means-plus-function language.

2. "Collimating Light"

The primary-and potentially dispositive-issue in this case concerns the meaning of the phrase "collimating light" in the '877 patent. As stated above, the language of claim 1 states the following: "An optical projector

comprising a luminous data source and means for projecting and collimating light from the data source comprising...." Col. 3, ll. 12-14. Defendants claim that the '877 patent requires the overhead projector to collimate the light, while BAE claims that the '877 patent only requires the light to be collimated by the time it reaches the observer's eyes, not at some "arbitrary earlier location." *See* Plaintiff's Markman Brief, p. 3.

In accordance with the rules of claim construction, the Court starts with the language of the claim itself, read in light of the specification, along with the prosecution history, if appropriate. *See* *Vivid Techns.*, 200 F.3d at 804. As an initial matter, it is important to note that nowhere in claims 1-5 of the '877 patent is a combiner explicitly referred to. Indeed, the word "combiner" does not appear in the language of the claims of the '877 patent until claim 6, which, along with claims 7-13, were added as a result of reexamination proceedings. According to the express terms of the patent statute, no claim added to a patent as part of a reexamination proceeding shall enlarge the scope of any existing claims. *See* 35 U.S.C. s. 305. Therefore, claims 6-13, added to the '877 patent as a result of reexamination proceedings, cannot enlarge the scope of the inventions claimed in claims 1-5 of the '877 patent as a matter of law.

As stated above, head-up displays typically are composed of both optical projectors and combiners. Keeping that in mind, the language of claims 1-6 indicates that claims 1-4 deal only with the optical projector element of a head-up display. For example, each of claims 1-4 start off with the words "[a]n optical projector...." Col. 3, ll. 12; Col. 4, ll. 10, 15, 18. However, claim 5 reads "[a] head-up display incorporating an optical projector according to claim 1," and claim 6 states "[a] head-up display head according to claim 5, further including a combiner reflecting the transmitted light from said second lens arrangement to an observer." Col. 4, ll. 25-26; Reexamination Certificate Issued Under 35 U.S.C. 307, Col. 1, ll. 20-22. Because claims 5 and 6 explicitly refer to the optical projector being only one part of a head-up display, with a combiner being the other part, and as claims 1-4 specifically refer only to "an optical projector," it appears that the functions and structures referred to in claim 1 relate only to the optical projector.

Keeping that in mind, it is obvious that the collimating function referred to in claim 1 is performed solely by the optical projector. The language of claim 1 unambiguously states that the '877 patent claims "an optical projector comprising a luminous data source and means for projecting and collimating light from the data source...." Col. 3, ll. 12-14. Additionally, the specification of the '877 patent indicates that the optical projector collimates the light. First, the specification states that the invention of the '877 patent

relates to optical projectors for head-up displays. More particularly, the invention relates to such optical projectors wherein: light from a luminous data source is projected and collimated by means of spaced first and second lens arrangements.... Such an optical projector is hereinafter referred to as an optical projector of the kind specified."

Col. 1, ll. 5-20. This language confirms the language of claim 1, which unambiguously states that the invention of the '877 patent is an optical projector in which light from a luminous data source is projected and collimated. As is the case with the language of claim 1, the specification makes no reference to a combiner collimating the light.

The specification also includes a drawing of the '877 patent, referred to in the specification as Figure 1. In describing Figure 1, the specification states in pertinent part:

[r]eferring to Fig. I, the display head comprises an optical projector 11 and a combiner arrangement 13. The projector 11 comprises a cathode ray tube (CRT) 15 and a *collimating optical system* 17 supported within a

housing 19. The active elements of the collimating system 17 comprise two serially spaced apart lens clusters 23 and 25....

Col. 1, ll. 60-66 (emphasis added). Indeed, Figure 1 shows that the projector 11 includes the collimating optical system 17. The projector 11 containing the collimating optical system 17 is held within a housing 19, and the housing 19 and the combiner arrangement 13 are clearly separated from each other.

Taking all of this intrinsic evidence together, it is clear that the language of claim 1, read in light of the specification, calls for the optical projector to perform the function of collimating the light emitted from the luminous data source. First, claim 1 refers only to an optical projector, and states that the invention has "means for projecting and collimating light." Additionally, the specification clearly states that the invention relates to an optical projector wherein light is projected and collimated, and the specification states that the optical projector is comprised, in part, of a collimating optical system. While the '877 patent clearly calls for the optical projector to collimate the light going through it, nowhere does the '877 patent state that the combiner collimates the light. Accordingly, the only conclusion which the intrinsic evidence leads to is that the optical projector collimates the light emitted from a luminous data source in the '877 patent.

BAE argues vehemently against this conclusion. First, BAE argues that the term "comprising" in the language of claim 1 allows a combiner to be added into claim 1 to perform the functions of the invention. BAE correctly notes that use of the term "comprising" generally signifies that the claims do not exclude the presence of factors in addition to those explicitly recited in the accused apparatus. *See Vivid Techs.*, 200 F.3d at 811. However, the '877 patent does claim a combiner in the language of claims 5 and 6. Claim 5 calls for "[a] head-up display head incorporating an optical projector according to claim 1," while claim 6 simply calls for "[a] head-up display head according to claim 5, further including a combiner reflecting the transmitted light from said second lens arrangement to an observer." Col. 4, ll. 25-26; Reexamination Certificate Issued Under 35 U.S.C. 307, Col. 1, ll. 20-22. Thus, although claim 1 only references "an optical projector ...," and claims 5 and 6 reference a combiner, BAE argues that claim 1 implicitly incorporates a combiner into the functions to be performed by the invention which is the subject of claim 1.

If the combiner was meant to perform the function of collimating the light, the patentee in this case could have claimed a combiner in the language of claim I instead of claim 6. The patentee made no such claim, however. Nevertheless, even if claim 1 could contemplate the presence of a combiner, there is no indication that a combiner assists the optical projector in performing the functions of projecting and collimating the light.

BAE's other argument also fails. BAE argues that it is error to interpret the claims to read that all of the collimation occurs in the optical projector, because "none of the claims state where collimation occurs." Plaintiff's Markman Brief, p. 2. Relying on the language of the claim which calls for means to project and collimate the light, BAE argues that concluding that the optical projector performs the collimating function "is contrary to the '877 patent' s teaching that the optical projector also uses a combiner to *project* a light image to a viewer." *Id.* (emphasis in original). However, BAE's interpretation is incorrect.

First, as stated above, claim 1 applies only to an optical projector, as a combiner is not even indirectly referenced until claim 5. Additionally, the language on which BAE relies is unavailing. BAE argues that language found in the specification supports its contention: "[a]fter passing through the lens cluster 25 the light rays are reflected at the combiner arrangement 13 to provide an observer 41 with a collimated image of the luminous data presented on the CRT screen superimposed on his view through the combiner

arrangement 13." Col. 2, ll 30-35. Because the combiner projects the image, BAE argues, the combiner both projects and collimates the light. However, the specification says nothing about the combiner projecting any light. It says only that "the light rays are *reflected* at the combiner arrangement." Col. 2, ll. 31-32.

Similarly, BAE's position that the '877 patent requires only that the light be collimated by the time the observer views the image on the combiner is also erroneous. The specification language on which BAE relies does not address where the light itself is collimated, which is the issue in this case. Instead, the specification only states that an observer does not see a collimated *image* until the light rays are reflected off the combiner. Accordingly, BAE's argument is without merit.

For the reasons stated above, the Court construes claim 1 of the '877 to require an optical projector that both projects and collimates the light sent from a luminous data source.

3. Other Disputed Terms and Phrases in Claim 1

Because the construction of the term "collimating light" is dispositive of BAE's causes of action in this case, the Court need not construe the meanings of the remaining terms and phrases in claim 1 of the '877 patent.

C. Claims 2-9

The parties dispute the proper construction of several terms and phrases in claims 2-9 of the '877 patent. However, the parties do not dispute that claims 2-9 are dependent on claim 1, and that as dependent claims, they can only be narrower than claim 1. *See* 35 U.S.C. s. 112, para. 4. Accordingly, claims 2-9 require that the optical projector perform the function of collimating the light. As the issue of collimation is dispositive of the issues in this case, the Court need not construe the remaining disputed terms and phrases in claims 2-9.

D. Claim 10

In 2001, BAE requested that the U.S.PTO reexamine the '877 patent, and upon reexamination, the U.S. PTO issued claims 6-13 of the '877 patent on September 17, 2002.

The terms of independent claim 10 are slightly different than independent claim 1. Whereas claim 1 called for "[a]n optical projector comprising a luminous data source and means for projecting and collimating light from the data source comprising ...," claim 10 reads as follows:

A head-up display for displaying data super-imposed upon the view of an observer; said display comprising:

a luminous data source;

means for projecting and collimating light from the data source comprising

a first lens arrangement ...

a second lens arrangement ...

reflector means ...; and

a combiner reflecting the transmitted light from said second lens arrangement to said observer

Reexamination Certificate Issued Under 35 U.S.C. 307, Col. 1, ll. 31-35, Col. 2, ll. 1-27. Again, as with claim 1, the means for projecting and collimating light comprises a first lens arrangement, a second lens arrangement, and reflector means, while the combiner is an element wholly separate from the "means for projecting and collimating light."

Even if the language of claim 10 might indicate that a combiner takes part in performing the function of collimating the light, this language must be read in light of the original claims 1-5. As stated above, no claim added to a patent as part of a reexamination proceeding shall enlarge the scope of any existing claims. *See* 35 U.S.C. s. 305. Accordingly, because claim 1 requires that the optical projector perform the function of collimating the light, allowing the combiner to perform the collimating function would impermissibly enlarge the scope of the '877 patent, thus making claim 10 invalid. Therefore, in light of both the language of claim 10 and the requirements of the patent statute, the Court holds that claim 10 also requires the optical projector to perform the function of collimating the light.

E. Claims 11-13

The parties dispute the proper construction of several terms and phrases in claims 11-13 of the '877 patent. The parties do not dispute that claims 11-13 are dependent on claim 10, and that as dependent claims, they can only be narrower than claim 10. *See* 35 U.S.C. s. 112, para. 4. Accordingly, as claim 10 requires that the optical projector perform the function of collimating the light, claims 11-13 also require that the optical projector perform the function of collimating the light. As the issue of collimation is dispositive of the issues in this case, the Court need not construe the remaining disputed terms and phrases in claims 11-13.

III. Conclusion

For the reasons stated above, the Court construes each of the claims of the '877 patent to require an optical projector which collimates light before the light arrives to the combiner. Because this construction is dispositive of the issue of infringement, the Court need not construe the meanings of the other contested terms and phrases of the '877 patent. *See Vivid Technologies, Inc.*, 200 F.3d at 803 (holding that the court construes only the claims that are in controversy, and only to the extent necessary to resolve the dispute).

SO ORDERED.

N.D.Tex.,2004.

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