



**DECLARATION**  
**Civil Action No. 3:03-CV-317**

**By Jake Richter**

**July 15, 2003**

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**DECLARATION**  
**By Jake Richter**

**Qualifications**

1. My name is Jake Richter, and I am presently the president of Patent Logistics, LLC, headquartered in Norfolk, Virginia. While details of my publishing history and work experience can be found in my Curriculum Vitae, located on-line at

<http://www.PatentLogistics.com/CVJakeRichter.html>, I will highlight several areas of my background below which are germane to the present matter.

2. I have worked with computer graphics technology for over two decades, ranging from the development of video games and 3D graphics rendering to extensive digital image processing and manipulation of photographic images.

3. During this the last 18 years, I have written at least 400 articles and papers on technical issues, the vast majority of which deal with computer graphics and display technology. My articles have appeared in publications ranging from BYTE, PC Week, InfoWorld, ComputerLife, and PC Magazine to Desktop Engineering, Computer Aided Engineering, PC Graphics Report/The Peddie Report, among many others. I have also authored and co-authored three books, and contributed to several more, all in the field of PC graphics, AutoCAD, and programming. I have also spoken at numerous conferences, including NCGA, Electronic Imaging and A/E/C Systems, on the topic of computer graphics and imaging technology.

4. I have a Bachelor of Science degree in Computer Science from Rensselaer Polytechnic Institute (RPI), with a minor in German, and am a listed co-inventor on a patent

(U.S. Patent No. 5,101,444) dealing with *n*-dimensional display list processing (a particular graphics technology).

5. My computer software expertise includes graphics and systems programming, reverse engineering, technical writing, and usability analysis.

6. I am a professional photographer, and my images are used on Web sites around the world, as well as in print in a variety of formats. My photographs have appeared on a variety of Web sites, including that of the Discovery Channel, and in various magazines, including Rodale's Scuba Diving and related publications. I am also a digital imaging artist, and limited edition prints of my digital art grace homes around the world. And, as a Web site programmer and designer, I have spent some time in the last year in on-going development of a Web site featuring 360 degree panoramic views of the island of Bonaire.

7. I have used a wide range of photographic equipment including a variety of still and digital cameras, lenses, and related accessories in the 28 years I've been taking pictures. I am also a certified underwater photography instructor, and have won awards at several underwater photography competitions. I also recently wrote a manual for using the BeHere 360 degree lens with the Sony F707 and F717 digital cameras for BeHere Corporation.

8. One of the other companies I am heavily involved in, Caribbean WebCams, LLC, develops WebCam monitoring systems which use both analog video and digital image inputs. The imagery captured from these inputs are recorded into Internet-accessible archives.

9. I am registered with the United States Patent and Trademark Office (USPTO) as a Patent Agent, and therefore entitled to practice patent law and represent clients before the USPTO in patent matters. My USPTO registration number is 50,233.

10. I was an expert in the two previous litigations between Ford Oxaal and Internet Pictures Corporation (“iPIX”), and as such am well versed in the technology at issue. During the course of that litigation I also came to own an iPIX camera kit featuring a fisheye lens, digital camera, tripod, software, and instructions on use of all these components. This kit was purchased directly from iPIX.

### **Background**

11. The present litigation has been initiated by iPIX against Mr. Oxaal and Mind’s Eye View (“MEV”), because MEV is selling a software program called “Click Away” which iPIX alleges infringes one of their patents, U.S. Patent RE 36, 207 (“the ‘207 patent”) – specifically that claim 1 of the patent reads on the *Click Away* software.

12. The *Click Away* software is available from MEV’s PictoSphere Web site<sup>1</sup> as a “Beta” test release.<sup>2</sup> A well known and widely used freeware program called PTVIEWER is distributed alongside the *ClickAway* software free-of-charge. Collectively, iPIX refers to the combination of the ClickAway beta software and the freeware PTVIEWER software as the “Click Away Product” (hereinafter “the Accused Product”<sup>3</sup>).

13. The ‘207 patent is a reissue of U.S. Patent 5,185,667 (“the ‘667 patent”), which was surrendered as part of the reissue procedure. The reissue was apparently for the express purpose of adding H. Lee Martin as an inventor to what became the ‘207 patent, over five

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<sup>1</sup> <http://www.pictosphere.com>

<sup>2</sup> “Beta” is a computer software designation to indicate that software is not yet ready for regular use and will likely contain numerous bugs, and may have features which will not be in a final version of the software, or conversely, may not yet have all the features the developer of such software plans to have in the release (sometimes referred to as Gamma or Gold) version of the software. Releasing Beta software is done by developers to get feedback from users on the quality and capability of the software.

years after the application for the original '667 patent was first filed. It should be noted that the '667 patent was successfully asserted against Infinite Pictures, Inc. ("IPI"), and more specifically, against IPI's SmoothMove Panorama Builder software, in previous litigation, but that the '207 reissue patent has never been successfully asserted against any party.

14. iPIX also alleges that MEV has made certain statements on its Web site and in private e-mails which are not true and allegedly are damaging to iPIX's business. As I am not an attorney nor an expert in tort law, I will not address that particular issue in this Declaration.

15. This Declaration will, however, address the issue of infringement of the '207 patent by the Accused Product, and the individual components thereof, as well as the validity of the '207 patent in light of both prior art which iPIX did not bring to the attention of the examiner during the prosecution of the '207 patent or that of the original '667 patent.

### **The '207 Patent**

16. The '207 patent is directed to an "Omniview Motionless Camera Orientation System" that captures live video images produced by a video camera equipped with a fisheye lens, at real-time video rates<sup>4</sup>, and de-warps and outputs a selected portion of the captured hemispherical video image to a television display and/or to a recording device, according to a selected viewing angle and magnification.<sup>5</sup> The '207 patent has three independent claims, and eight dependent claims, all of which are dependent on independent claim 1.

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<sup>3</sup> When referring to the two components of the Accused Product in my Declaration as individual entities, I will refer to them directly by name, e.g, the *Click Away* beta software or the PTVIEWER software.

<sup>4</sup> For example, the "video rate" of standard U.S. television information is a refresh rate of 29.97 frames per second (usually rounded up to 30 frames per second).

<sup>5</sup> See, e.g., the Abstract of the '207 patent.

17. The only claim of the '207 patent apparently being asserted against Mr. Oxaal and MEV is independent Claim 1.

### **Infringement Analysis**

18. In an infringement analysis, the issue is whether every element of a claim can be read on an accused product or device. In the matter at hand, that means that in order for infringement to be proven, every element of claim 1 of the '207 patent must read on the Accused Product, either literally or under the Doctrine of Equivalents. Stated another way, that means that if even just one single element of the claim at issue does not read on the Accused Product, then the claim as a whole does not read on the Accused Product, and therefore the Accused Product does not infringe the claim at issue. As I will detail below, it is my belief that most, if not all, of the elements of claim 1 of the '207 patent do not read at all on the Accused Product.

### ***Means-Plus-Function Issues***

19. Claim 1 of the '207 patent consists of nine elements, eight of which are in means-plus-function form, as per 35 U.S.C. § 112, sixth paragraph.<sup>6</sup>

20. The Federal Circuit explained the proper way to construe means-plus-function terminology in *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388-89, 21 USPQ2d 1383, 1387 (Fed.Cir. 1992), as follows:

Under 35 U.S.C. § 112, [sixth paragraph], to satisfy a means-plus-function limitation literally, the accused device must perform the identical function required by the limitation and must incorporate the structure

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<sup>6</sup> The pertinent part of 35 U.S.C. § 112 reads as follows:

“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 such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

disclosed in the specification, or its substantial structural equivalent, as the means for performing that function.

21. A claim chart which determines the structure in the specification for each means-plus-function element is given in Exhibit A of this Declaration. The claim chart in question also provides an overview of how such elements and structure read (or actually, do not read) on the Accused Product. However, more elaboration on several of the claim elements and structures can be found below.

***Camera Imaging System & Fisheye Lens Means***

22. The first element of claim 1 of the '207 patent is a camera imaging system for receiving optical images and for producing corresponding output signals. The camera imaging system disclosed in the specification of the '207 patent is a video camera that produces electronic output signals. Video cameras at the time of the filing of the application for what ultimately became the '207 patent typically generated an electronic video signal, e.g. NTSC<sup>7</sup> (color), EIA (monochrome), or PAL. For example, the video signal under the NTSC or EIA standards produces 29.97 complete sequential screens full of images per second.<sup>8</sup>

23. With that in mind, the specification of the '207 patent never contemplates a still film camera, and in fact teaches away from such cameras:

Accordingly, no mechanical devices are required to attain this extensive analysis and presentation of the view of an environment through 180 degrees of pan, 180 degrees of tilt, 360 degrees of rotation, and various degrees of zoom magnification.

('207 patent, column 8, lines 4-7)

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<sup>7</sup> NTSC, which stands for National Television Standards Committee, is the video standard for television-quality video signals in North America, as well as some other parts of the world. In Europe, the PAL standard is used predominantly. NTSC is a color standard, while EIA is the monochrome (black and white) equivalent of the NTSC standard, and is very common in monochrome security cameras systems.

<sup>8</sup> Screen refresh rates are expressed in hertz (Hz).

A still image film camera, and in fact the typical use of a digital still image camera, are all mechanically intensive, requiring, at the very least, that a mechanical button be physical pressed to take a picture. In a film-based still image camera, depressing the shutter button may cause the camera to auto-focus (a mechanical function), open and close a shutter in front of the current frame of film load in the camera, and advance the film carrier to position a new frame of film for a subsequent picture.<sup>9</sup> Digital still image cameras are likely to also auto focus their lenses when the shutter button is pressed. In neither case, at least during typical use of such still image cameras is an output signal transmitted outside the camera automatically without mechanical assistance.<sup>10</sup>

24. Thus, the '207 patent teaches away from the use of anything but a camera with a live video feed.

25. Per the second element of claim 1, the video camera must also feature a fisheye lens<sup>11</sup> providing a hemispherical field of view. There is an issue here of enablement, in that the specification of the '207 patent apparently does not function properly with a hemispherical image, but I address that issue later in this declaration.

26. Be that all as it may be, the Accused Product features neither a camera imaging system nor a fisheye lens, and in fact is not even offered with such hardware by MEV, or anyone else to my knowledge. Nor is the Accused Product reliant on images from a video

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<sup>9</sup> Older cameras would additionally require advancing the film manually using a crank or lever.

<sup>10</sup> For a film camera that involves rewinding the film, opening the camera to extract the roll of film, and then having it processed, and then scanned. For a digital still camera it involves the separate step of either attaching a cable to the camera to connect it to a computer or opening a compartment in the camera to extract the media and then inserting it into a receptacle on a digital film media reader in or attached to a computer or printer. All these operations are quite mechanical in nature.

<sup>11</sup> This element is in means-plus-function language, and the structure in the specification refers to an Nikon 8mm lens which produces a circular 180 degree field-of-view, which is another way to say a hemispherical field of view.

camera.<sup>12</sup> Instead, the Click Away beta software accepts as input static (non-moving) graphics image files<sup>13</sup>, which can come from a number of sources, some of which include:

- A. a film-based still image camera equipped with a 180 degree or greater circular fisheye lens, where the pair of matching but opposing hemispherical images captured on film are scanned after the film is developed and the resulting scans are saved in a file format understood by the Click Away beta software;
- B. a digital still image camera equipped with a 180 degree or greater circular fisheye lens, where the pair of matching but opposing hemispherical images are captured on digital media and then copied to a computer and saved in a file format understood by the Click Away beta software;<sup>14</sup>
- C. either of the above cameras equipped with an alternate lens or reflective ball system capable of viewing (and photographing) a 180 degree or greater hemispherical image;<sup>15</sup>
- D. matching hemispherical images transmitted from another remote location to an Accused Product user;

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<sup>12</sup> It is not clear to me that the Accused Product is even capable of using live video information in any way or form as its input.

<sup>13</sup> The Click Away beta software portion of the accused product requires two hemispherical static images representing 180 degree or greater content in circular image form, which is significantly different from one live video hemispherical image.

<sup>14</sup> In my own experimentation with the Accused Product, I used digital images I took on April 29, 2000 – over three years ago – using a Nikon CoolPix 800 camera with the Nikon FC-E8 fisheye converter adapter lens, mounted on an tripod using an iPIX rotator. The entire camera kit, including the rotator, lens, camera, and tripod, was purchased from iPIX earlier in 2000. Under the broad (and frankly unsubstantiated) interpretation of claim 1 offered by iPIX, would the use of an iPIX camera imaging system in conjunction with the Accused Product make iPIX themselves a contributory infringer of the '207 patent?

<sup>15</sup> This solution uses something other than a fisheye lens. An example would be using spherical light probes, such as what is documented at [http://www.cs.northwestern.edu/~jet/Teach/2002\\_3spr\\_IBMR/IBMRtumblin13.pdf](http://www.cs.northwestern.edu/~jet/Teach/2002_3spr_IBMR/IBMRtumblin13.pdf).

- E. matching hemispherical images retrieved from local and/or remote storage (e.g. a Web site) that may have been originally captured or generated by a third party at another time and place without any involvement of the user of the Accused Product; or
- F. generating the hemispherical imagery in a 3D graphics rendering package or game world, using either a computer-simulated fisheye lens, or imagery captured off a mirrored sphere.<sup>16</sup>

All of the above examples are definitive, non-infringing uses of the Accused Product with respect to the first two elements of the claim at issue.

27. In conclusion with respect to the first two elements of the claim at issue, neither element reads literally or by equivalence on the Accused Product.

***Image Capture Means***

28. The third claim element, which is the mean-plus-function element “image capture means” also does not read on the Accused Product, either literally or by equivalence.

29. The only disclosed structure corresponding to the claimed “image capture means” of the “device” claimed in the ‘207 patent captures live video images produced by a video camera in “real-time”, e.g., approximately 30 frames per second via NTSC.

In the present invention, these transformations can be performed at real-time video rates (30 times per second), compatible with commercial video standards.

(‘207 patent, column 4, lines 41-44)

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<sup>16</sup> See, e.g. [http://www.finalrender.com/finalrender/the\\_product9.htm](http://www.finalrender.com/finalrender/the_product9.htm), which features an overview of cebas’ finalRender product, which in turn permits users of the popular 3DS MAX 3D rendering software to create hemispherical images, all without the use of any camera whatsoever.

30. Here, as with the first two claim elements addressed above, still photography camera equipment such as might be used by users of the Accused Product does not include any element which has “equivalent” structure, under either the so-called “function/way/result” (“tripartite”) test, or the so-called “known interchangeability” test, as will be shown below.

31. The Supreme Court has acknowledged that a product that does not literally infringe a patent claim may still infringe under the judicially-created Doctrine of Equivalents.<sup>17</sup> The Supreme Court has also recognized the all-limitations rule as a limit on the application of the Doctrine of Equivalents.<sup>18</sup> Thus, the essential inquiry under the doctrine of equivalents is whether the subject product or process contains elements that are identical or “equivalent” to *each* element recited in the claim. The determiner of “equivalency” is whether the differences between an element in the product and a corresponding element in the claim are “insubstantial”. Where the differences are not “insubstantial”, there can be no infringement under the Doctrine of Equivalents.

32. In determining equivalents, the court may consider whether an element in the accused product performs substantially the same function, in substantially the same way, to obtain substantially the same result as the corresponding element of the claim. This test is frequently referred to as the “function/way/result” or “tripartite” test.

33. In *Warner-Jenkinson*, the Supreme Court pronounced that:

Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents

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<sup>17</sup> See, e.g., *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 122 S.Ct. 1831, 1838, 62 USPQ2d 1705 (2002) (“*Festo II*”); *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17 (1997) (“*Warner-Jenkinson*”).

<sup>18</sup> *Warner-Jenkinson*, 520 U.S. at 30 (1997).

must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.

*Warner-Jenkinson*, 117 S.Ct. at 29.

34. Based on the foregoing, there can be no infringement under the Doctrine of Equivalents where a claim element or limitation is missing entirely from the product or process under consideration. The Doctrine of Equivalents does not mean that limitations can be ignored:

There can be no infringement as a matter of law if any claim limitation is missing from the accused device because it is 'well settled that each element of a claim is material and essential, and that in order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device.

*Digital Privacy Inc. v. RSA Security Inc.*, 62 USPQ2d 1773, 1775 (Fed. Cir. 2002), quoting *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538-39 (Fed. Cir. 1991) (quoting *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985).

35. Returning to the element at issue, under the “function/way/result test”, the result achieved by the “image capture means” in a still photography camera is unquestionably substantially different than the result achieved by the “image capture means” of the disclosed structure corresponding to that element in the ‘207 patent, *i.e.*, digitizing still images in non-real-time<sup>19</sup> versus digitizing live moving video images in real-time.

36. With respect to the so-called “known interchangeability” test, the Federal Circuit’s decision in the *Interactive Pictures* case is particularly instructive. In that case, the Federal Circuit pronounced the following:

In *Chiuminata*, we held that a finding that a component of an accused product is not a structure “equivalent” to the corresponding structure of a

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<sup>19</sup> In other words, at a time prior to the use of the Accused Product, as the Accused Product presently has no way to accept images live, directly from a still image camera.

means-plus-function limitation for purposes of literal infringement analysis precludes a finding that the same *structure* is equivalent for purposes of the doctrine of equivalents, unless the component constitutes technology arising after the issuance of the patent.

*Interactive Pictures Corp. v. Infinite Pictures Inc.*, 61 USPQ2d 1152, 1160 (Fed. Cir. 2001), citing *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1311, 46 USPQ2d 1752, 1758 (Fed. Cir. 1998) ("*Chiuminatta*"). (italics in original).

37. In the present case, still image capture means (the allegedly corresponding structure in the Accused Product) were unquestionably well-known prior to the filing date<sup>20</sup> of the originally-filed application, and thus, the allegedly corresponding structure in the accused product is not technology arising after the issuance of the patent. Since still image capture means were known at the time the originally-filed application was filed, but were not disclosed in the '207 patent, then under the controlling law discussed above, the Accused Product cannot be found infringing, either literally, or under the Doctrine of Equivalents.

38. In his Declaration (hereinafter "the Birdwell Declaration"), iPIX's expert, Dr. Birdwell, does not even specify the structure disclosed in the '207 patent specification corresponding to the "image capture means", much less explain what allegedly corresponding structure in the accused "Click Away Product" is equivalent thereto under 35 U.S.C. § 112, ¶ 6, as is required to demonstrate infringement.

39. In short, the facts do not support iPIX's assertion that this claim element reads on the Accused Product, either literally or under the Doctrine of Equivalents.

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<sup>20</sup> The original application was filed on May 13, 1991.

***Image Transform Processor Means***

40. The fifth claim element, which is the mean-plus-function element “image transform processor means” also does not read on the Accused Product, either literally or by equivalence.

41. In the claim chart portion of the Birdwell Declaration, Dr. Birdwell alleges that the PTViewer software component of the Accused Product constitutes structure that satisfies the claim element “image transform processor means.”

42. However, as mentioned elsewhere in this Declaration, Dr. Birdwell does not even specify the structure disclosed in the ‘207 patent specification corresponding to this claim element, much less explain how the PTViewer software is “equivalent” to that unspecified structure.

43. The structure disclosed in the ‘207 patent specification corresponding to the “image transform processor means” are Application Specific Integrated Circuit (ASIC) chips 6 and 7, labeled X-MAP and Y-MAP in Fig. 1 of the ‘207 patent.

An image processing system consisting of an X-MAP and a Y-MAP processor shown as 6 and 7, respectively, performs the two-dimensional transform mapping.

(‘207 patent, column 3, lines 34-37)

and

The X-MAP and Y-MAP transform processors 6 and 7 and image filtering 8 can be accomplished with application specific integrated circuits or other means as will be known to persons skilled in the art.

(‘207 patent, column 4, lines 2-5)

44. The “way” in which this structure disclosed in the ‘207 patent performs the functions of “processing said digitized signals” and “producing output transform calculation signals” is substantially different than the “way” in which the allegedly corresponding PT-

Viewer software performs these functions. In particular, the “way” that the disclosed structure of the ‘207 patent performs these functions is that it uses affine transformation equations to de-warp or perspective correct a digitized fisheye image, whereas the “way” that PTViewer performs the allegedly corresponding functions is that it uses completely different algorithms to project an image based on equirectangular image input of a 360 degree panoramic image (which may be a spherical image or a more simple panorama). This equirectangular image is not the same as a digitized fisheye image – in fact, it is the result of splicing two different hemispherical images together into a non-circular, equirectangular format via user control. PTViewer merely displays a user controllable view of the equirectangular image, and in fact PTViewer works with images of all sorts, not just spherical equirectangular images. For example, I have used PTViewer in the past with cylindrical images created from TotalView Photo Maker, which in turn dewarps the 360 degree by ~90 degree cylindrical panoramic images taken with my BeHere lens.

45. Further, the disclosed “image transform processor means” must be implemented in an electronic transform processor means in order to de-warp the digitized fisheye video imagery in real-time, at video rates. For example, the specification states:

...no approach using strictly electronic transforms and fisheye optics has ever been successfully implemented prior to this effort.

(‘207 patent, column 3, lines 18-20).

The phrase “strictly electronic transforms” clearly excludes software running on a general-purpose computer. In fact, software implementations of fisheye image transforms had been previously developed by others before the “invention” described in the ‘207 patent. Moreover, the remainder of the specification of the ‘207 patent makes clear that the “image

transform processor means” necessarily had to be implemented in the form of discrete electronic processor components, such as ASICs, because real-time interactivity could not have otherwise been achieved. Thus, the claim element “image transform processor means” should be construed to be limited to dedicated or discrete electronic means, such as ASICs or other “equivalent” structure, and should specifically be construed to exclude software running on a general-purpose processor.

46. In any event, the disclosed and accused structure are not “equivalent” structures because they clearly operate in a substantially different “way” (as discussed above), and because they produce a substantially different “result” (i.e., they produce completely different “output transformation calculation signals”).

47. It is my understanding that since the disclosed and accused structure are not “equivalent” structures, then the “known interchangeability” test is not a proper test for determining equivalence with respect to this claim element.

48. Moreover, since “image transform” software running on a general-purpose processor was already known at the time the alleged “invention” of the '207 patent was made, then the “known interchangeability” test is not a proper test for determining equivalence with respect to this claim element anyway.

49. Based on the foregoing, the PTVIEWER software does not constitute structure that is “equivalent” to the structure disclosed in the '207 patent corresponding to the “image transform processor means.” Moreover, since iPIX has already conceded that the technology for projecting an equirectangular image from 3-D to 2-D was already known as of the

effective filing date of the '207 patent, then iPIX is precluded from relying upon the “known interchangeability” test to show infringement under the Doctrine of Equivalents.

50. Under the standard pronounced by the U.S. Supreme Court in *Festo II*:

The patentee must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.

*Festo II*, 122 S.Ct. at 1842.

In the present case, iPIX cannot show that the claim could not have been drafted in a clear and definite manner to encompass the alleged “equivalent” in question.

Accordingly, this claim element is not satisfied under the Doctrine of Equivalents, and it is therefore my belief that the element in question does not read on the Accused Product literally or via equivalence.

#### ***Output Means***

51. The ninth and final element of the claim at issue involves another means-plus-function term, namely “output means”. It is my belief that this element also does not read on the Accused Product either literally or by equivalence.

52. For the element in question, claim 1 of the '207 patent recites:

output means connected to said output image memory means for *recording* said perspective corrected view according to said selected viewing angles and magnification.

('207 patent, ninth element of claim 1, *emphasis added*)

53. There is no explicit structure disclosed in the '207 patent specification that performs this function. More specifically, there is no explicit structure corresponding to an output means which *records* a view disclosed in the '207 patent.

54. However, the word “recording” appears in four places in the patent. Once in the Abstract, and once in each of the independent claims 1, 10, and 11. In all three claims the

term “recording” is used in exactly the same fashion, using exactly the same language as follows the word “recording” in the above excerpted claim element from claim 1.

55. In the Abstract, the term “recording” is used as follows:

and a corrected image is output as a video image signal for viewing,  
*recording, or analysis.*

(’207 patent, Abstract, *emphasis added*)

56. The Manual of Patent Examining Procedure (MPEP), used by patent examiners at the U.S. Patent & Trademark Office, addresses the situation where terminology in a means-plus-function element is not inherently obvious or clear.

In considering whether there is 35 U.S.C. 112, para. 1, support for a means- (or step) plus-function claim limitation, the examiner must consider not only the original disclosure contained in the summary and detailed description of the invention portions of the specification, but also the *original claims, abstract, and drawings.*

(MPEP, August 2001 Edition, Section 2163, Page 2100-162, *emphasis added*)

57. There is no support for understanding exactly what is meant by “output means ... for recording” from the drawings, nor from analyzing claims 10 and 11, which leaves the Abstract’s use of the term. As shown above, “recording” is used as an action clearly separate and distinct from “viewing”, as indicated by the use of the term “or” in the phrase “viewing, recording, *or analysis*”.

58. This separation from “viewing” as an action for the “output means” of the element in question is further supported by claim 2 of the ’207 patent, which states:

2. The device of claim 1 wherein said *output means includes image display means* for providing a perspective corrected image display according to said selected viewing angle and said magnification.

(’207 patent, claim 2, *emphases added*)

Under the Doctrine of Claim Differentiation, the use of “image display means” in dependent claim 2 means that that claim 1’s “output means” element specially does not include “image display means” of any sort<sup>21</sup>, reaffirming that the “output means” of claim 1 refers specifically to “recording” the output and not displaying it at the time of recording.

59. Considering that the business of the company in 1991 of iPIX (formerly known as Omniview and known in 1991 as TeleRobotics or TRI) was security camera systems, “recording” as it relates to recording an on-going real-time video stream from a security camera per the invention of the ‘207 patent makes perfect sense. As such, it is my belief that the “output means ... for recording” refers to recording the image from the output memory means to a recording device of some sort, e.g. a video tape recorder (VTR), as is commonly used in security or surveillance systems, for later viewing of the perspective corrected view according to said selected (at time of recording) viewing angles and magnification.

60. Ignoring for the moment that the PTViewer software of the Accused Product is incapable of recording its output images to a hard disk<sup>22</sup>, I know that the concept of recording video to hard disk was known at least as early as 1988 – I personally attended a demonstration of a specially equipped computer system capable of this type of functionality by an outside company looking to license such technology to others in 1988 while I was employed at Number Nine Computer Corporation. And, in the July 1989 paper, “*DVI – A*

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<sup>21</sup> For example, the “display monitor 11” of Fig. 1 of the ‘207 patent.

<sup>22</sup> Each time the user moves his/her input device, e.g., a mouse, the presently displayed PTViewer software generated image disappears and is replaced by a new image. While it might be possible to capture a sequence of the PT Viewer generated images, such capturing operations can only be performed using third party hardware or software not provided by MEV.

*Digital Multimedia Technology*<sup>23</sup>, G. David Ripley discusses how video can be captured in real-time to a hard disk.

61. The technology of recording real-time live video to hard disk or even other random access media, while not as widespread in 1991 as it is now, was certainly not technology arising after the issuance of the patent. And, since the specification of the '207 patent makes no mention of recording or even storing intermediary images on a hard disk or other permanent random access storage, iPIX is therefore prevented from attempting to broadly interpret the “output means for recording” (or any other element of claim 1, for that matter), as referring to storage of image information on a hard disk, either literally (because of lack of mention) or as an equivalent (because it was known at the time but not mentioned).

62. With respect to the “output means” element in the claim chart portion of the Birdwell Declaration, Dr. Birdwell opines that:

The perspective corrected view is placed in RAM and displayed on the computer monitor.

(Birdwell Declaration, claim chart, last element)

63. Apparently this is supposed to show that the “output means” element reads on the Accused Product. However, this assertion is plainly incorrect, since the claim element in question does not recite “displaying” the perspective corrected view, but rather, recites “recording” said perspective corrected view, as indicated above.

64. According to Dr. Birdwell’s own analysis, this “recording function” of the “output means” cannot possibly be met by the storage of the perspective corrected view in the RAM, since the “output means” is “connected to said output image memory means” that

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<sup>23</sup> See the '207 prosecution history for a copy of this article.

Dr. Birdwell previously asserted in the same claim chart as corresponding to the RAM that stores the perspective corrected view. In other words, the “output means” cannot be connected to itself, and does not read from the output image memory only to store the data it read from the memory back into the memory.

65. Dr. Birdwell’s claim chart seems to further imply that the “computer monitor” of the customer’s computer constitutes the “output means” for “recording” the perspective corrected view. As I have already shown above, this is not a valid interpretation of “recording”.

66. In light of the above, it should be noted that the Accused Product does not come bundled with any sort of recording device, such as a VTR or its equivalent for recording live video in real-time.

67. Moreover, even if the “output means” of claim 1 is somehow, beyond all reason, construed to correspond to the structure disclosed in the ‘207 patent specification that performs the “providing a ... display” function, the only structure disclosed in the ‘207 patent specification for performing this function is a television display or video display monitor that receives a live video image input from a video camera and displays the live video imagery in real-time, i.e., with no appreciable delay between the time the video is captured by the video camera and the time it is displayed on the video monitor. Even here, the Accused Product does not come with any hardware, including a display device such as a computer monitor.

68. Computer systems such as might be used by users/customers of the accused Click-Away software product do not have any element which has “equivalent” structure to

the disclosed structure corresponding to the “image display means”, under either the “function/way/result” test, or the “known interchangeability” test.

69. Under the “function/way/result” test, the result achieved by the allegedly corresponding “output means” in a user’s computer system (*i.e.*, the computer monitor) is unquestionably substantially different than the result achieved by the “image capture means” of the disclosed structure corresponding to that element in the ‘207 patent, *i.e.*, displaying *still* images in *non-real-time* on the computer versus displaying *live moving video* images in *real-time* as per the patent.

70. Also, since computer monitors were unquestionably well-known prior to the filing date of the originally-filed application, but not disclosed in the ‘207 patent, then under the controlling law discussed previously, since the allegedly corresponding structure in the accused product is also not technology arising after the issue of the patent at issue, and therefore, the Accused Product can not be found to be infringing, either literally, or under the Doctrine of Equivalents.

***Preamble***

71. I also believe that the negative claim limitation “no moving parts” recitation in the preamble of claim 1 is not satisfied by the Accused Product, either literally or by equivalence.

72. Each of the claims of the ‘207 patent recites a “device” that has “no moving parts.” As this limitation is expressed in the preamble of claims that are directed to the entire device, this limitation applies to the entire “device” that is claimed, *i.e.*, the term is distributed over the entire “device” claim.

73. As I have already explained, still photography camera equipment such as might be used by users of the Accused Product does not include any element that has “no moving parts.” Further, such camera equipment, if used at all, would very likely include a “rotator” that facilitates the capture of back-to-back fisheye lens images, or, at the very least, require that button (a mechanical device) be pressed to take a picture.

74. Stated another way, the combination of the accused software, with a user’s camera system that includes a rotator, can not possibly be found to infringe claim 1 of the ‘207 patent, since such a “device” includes a “moving part” (the rotator), which is expressly prohibited by the negative limitation, “no moving parts,” recited in the preamble of claim 1.

75. It should be noted that as previously mentioned, the user may not even have his or her own camera system, and may instead get the pair of hemispheric images required by the Accused Product from a third party or from a local or remote image storage facility, or generate them dynamically from a 3D graphics program.

76. Because the accused combination of the user’s camera system and Accused Product (which is solely software) installed on the user’s computer, to the extent the user has any camera system, includes a shutter release button and a rotator (“moving part”), this accused combination can not be found to infringe any claim of the ‘207 patent, since all claims of the ‘207 patent include the negative limitation “no moving parts.”

77. Furthermore, I fail to see how the alleged combination of the user’s computer, the user’s (or another’s) camera equipment, the Accused Product, together comprise a “device” within the meaning and scope of claim 1 of the ‘207 patent.

78. As previously noted, claim 1 of the '207 patent is directed to a "device" that includes nine (9) separate elements, at least eight (8) of which are "means-plus-function" elements that must be construed under 35 U.S.C. § 112, ¶ 6, and thus, restricted in scope to the disclosed structure corresponding to those respective elements.

79. The structure disclosed in the specification of the '207 patent corresponding to the at least eight (8) "means-plus-function" elements recited in claim 1 of the '207 patent cooperatively function in such a manner as to ensure that there is no user-perceptible delay between the time that the video image is captured by the video camera to the time that the selected portion of the de-warped video image is displayed on the video display. Simply stated, the "device" of claim 1 of the '207 patent operates in "real-time" from the point/time that a video image is captured by the video camera to the point/time that a selected portion of the de-warped video image is displayed on the video display. This is an essential aspect of the "device" disclosed in the '207 patent.

80. In contrast, immersive imaging trades spatial continuity for temporal continuity. In order to capture two or more images from the same point in space, there must be a temporal discontinuity between the adjacent images. In other words, in order to capture the images necessary to make a spherical image with the Accused Software using a fisheye lens, some time will necessarily elapse between the capturing of the first hemispherical image, and the capture of the second opposing hemispherical image. Further, with current still camera technology, there will be a delay in getting captured images into the computer, ranging from minutes to days (if film processing is involved). Contrast this to the device recited in claim 1 of the '207 patent, which produces a continuous stream of real-time video frames.

81. In any event, fundamental canons of claim construction dictate that a “device” can not be construed to be comprised of a loose collection or mere aggregation of elements that are not connected together<sup>24</sup> as components of the same “device.” However, this is precisely how iPIX and Dr. Birdwell are improperly attempting to construe claim 1 of the ‘207 patent.

82. The written description of the '207 patent does not reasonably convey that the inventors of the claimed invention regarded as their invention a still photography system in which the captured still photographic image data is captured and stored at one point in time, and then viewed at a later point in time. Nor does the written description of the '207 patent reasonably convey that the inventors of the claimed invention regarded as their invention a “device” in which the camera imaging system components are disconnected from and operated independently of the other components of the “device” at a different time and place.

83. It is my belief that the Accused Product itself is not the “device” of claim 1 of the ‘207 patent, and as MEV does not sell computers, cameras, lenses, and whatever other components would be necessary to build the device according to claim 1, then claim 1 of the ‘207 patent does not read on the Accused Products.

84. In conclusion on the topic of non-infringement, it is my belief, based on the foregoing, that the Accused Product does not infringe claim 1 of the ‘207 patent on numerous, independent grounds not considered in the *Interactive Pictures* case.

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<sup>24</sup> While not disclosed specifically in the '207 patent, it is without doubt that various “synchronizing signals” and the like are being routed between and among the discrete components to thereby allow these components to operate as a device.

### **The Birdwell Declaration**

85. iPIX has retained the services of Dr. J. Douglas Birdwell to provide a Declaration in support of their efforts to have the court decide in their favor on the issue of a preliminary injunction. Dr. Birdwell has also submitted reports and testified under deposition and at trial as part of the services he has provided to iPIX in prior litigation against other parties and in the previous rounds of litigation with Mr. Oxaal.

86. The Birdwell Declaration does not properly address the issue of infringement or non-infringement of the Accused Product as it pertains to the '207 patent, as I will detail below.

87. Contrary to his assertions in the Birdwell Declaration<sup>25</sup>, Dr. Birdwell has actually not compared the Accused Product with claim 1 of the '207 patent. Instead, Dr. Birdwell has compared another different product, namely IPI's SmoothMove Panorama Builder software, with the Accused Product and, based on a comparison of these two software packages<sup>26</sup>, concluded that the Accused Product infringes claim 1 of the '207 reissue patent because the IPI software was found to infringe the now surrendered '667 patent.

88. However, in determining whether the Accused Product infringes claim 1 of the '207 patent, it is necessary to actually compare the Accused Product to the claim at issue, rather than compare another allegedly similar software product to a claim in a different patent, no matter how similar that claim may seem to the claim at issue and no matter how similar the software product may appear to be to the Accused Product.

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<sup>25</sup> See Birdwell Declaration, paragraphs 5 through 14.

<sup>26</sup> Per the Birdwell Declaration, Dr. Birdwell believes that the SmoothMove Panorama Builder software and the accused product are similar enough in operation and function that there is no material difference between the two.

89. This is especially important with the patent at issue, as Dr. Birdwell relied on the Doctrine of Equivalents previously when the '667 patent was being asserted against IPI's SmoothMove product, and must undoubtedly rely on the Doctrine of Equivalents when attempting to read claim 1 of the '207 reissue patent on the Accused Product, as it does not appear that literal infringement is possible by the Accused Product<sup>27</sup>. In using the Doctrine of Equivalents to attempt to make a case of infringement, one must look at the available body of prior art, including prior art references in the patent and the patent file wrapper, to ensure that the equivalents being used are not sufficiently broad so as to also read on the prior art. The '667 patent cited only four prior art references, while the '207 patent cites nearly 50 such references – a more than 10x increase in the reference count.

90. Furthermore, iPIX has relied upon Dr. Birdwell's flawed and inadequate infringement analysis and claim chart, to support its assertion of "reasonable likelihood of success on the merits" with respect to its patent infringement claim. Dr. Birdwell's claim chart does not make the required showing that the allegedly corresponding structure in the accused product is "equivalent" to the structure disclosed in the '207 patent, with respect to *any* of the at least eight "means-plus-function" claim elements recited in claim 1. Dr. Birdwell's claim chart totally lacks a middle column which describes the disclosed structure corresponding to each recited "means-plus-function" claim element, and further lacks any description in the rightmost column of the chart describing what allegedly corresponding structure in the accused "Click Away Product" is "equivalent" thereto under 35 U.S.C. § 112, ¶ 6, as is required to demonstrate infringement.

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<sup>27</sup> See Exhibit A of this Declaration.

91. In addition to Dr. Birdwell's adding non-existent hardware to the Accused Product in order to fill out his claim chart, he makes several mistakes in his attempted interpretations of the claim elements. Some of these interpretations have been addressed elsewhere in my Declaration, but I will address one of them immediately below.

92. Specifically, in attempting to read the "input image memory means" element on the Accused Product, Dr. Birdwell states:

The software imports two digital hemispherical fisheye images and converts them into a[n] equirectangular or cubic digital panoramic format which is stored in a file. The digital panoramic file is placed in RAM (random access memory) and the hard drive.

(Birdwell Declaration, claim chart)

However, the input image memory means refers to the structure where the raw, untransformed digitized circular fisheye image will be stored, and not where a converted/corrected image will be stored, which is actually the "output image memory means" of a subsequent claim element. In my opinion, Dr. Birdwell blatantly mischaracterizes the function of the "input image memory means", presumably in an effort to try and fit the claim language to the Accused Products, and apparently without regard to the underlying structure for this and other means-plus-function elements.

93. Further, in the claim chart section dealing with "image transform processor means", Dr. Birdwell broadly states that "Viewer software all function[s] equivalently...[they] dewarp[ ] the image so it looks normal". However, by making that overly broad statement, he ignores the fact that cubic-based spherical viewers take in rectilinear images – six of them, to be exact – one for each side of a virtual cube with the viewer in the center. The cubic viewer software, such as QuickTime VR (QTVR) or

PanoWeaver Cubic, then seams all six images<sup>28</sup> together during the viewing process for smooth-looking panning and visualization of the cubic space. During this viewing process, the cubic image is in no way “de-warped”. This is quite different from what the patent at issue discloses and claims. And, it should be noted, the Click Away beta software does produce cubic output as well as equirectangular output. Moreover, cubic content can also be generated entirely without the use of fisheye lenses. The same applies to equirectangular content.<sup>29</sup>

94. For this, and numerous other reasons discussed elsewhere herein, Dr. Birdwell’s claim chart woefully fails to demonstrate that the Accused Product infringes claim 1 of the ‘207 patent. To correct this lack of information, I have provided a claim chart which addresses these deficiencies as Exhibit A of this Declaration.

95. In paragraph 11 of the Birdwell Declaration, Dr. Birdwell claims:

There is no material difference with respect to claim 1 between converting two or three fisheye images into a panoramic format: in both cases the panoramic format is created from fisheye images.

Again, this is a very broad statement which ignores the fact that claim 1 discloses absolutely nothing about using more than one fisheye image in conjunction with another one or two fisheye images in order to create a spherical image. The ‘207 patent addresses only the viewing of parts of one hemispherical image, and apparently improperly at that (see enablement discussion below), and is in fact not capable of handling more than one fisheye image.

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<sup>28</sup> Each of these images has correct perspective and shows no warping. In fact, each of these six images can be taken individually with a non-fisheye lens, or computer generated from a larger panorama, using, for example, a Kaidan spherical “head” for a tripod, in conjunction with stitching software.

96. In the same paragraph, Dr. Birdwell again improperly asserts that a “cubic panoramic format” is a “known substitute for the equirectangular format and for digitized fisheye signals.” It is not clear to me what a “digitized fisheye signal” is, but as I have already pointed out, you can make cubic image data sets without the use of a fisheye lens. Similarly, using certain stitching software you can also make equirectangular images without a fisheye lens.

97. Based on the above items, as well as the other mistakes in Dr. Birdwell’s Declaration mentioned elsewhere in my Declaration, it is clear to me that Dr. Birdwell’s Declaration consists more of vague generalizations than of real, valid analysis of the actual issues surrounding alleged infringement of the ‘207 patent by the Accused Product.

#### **Previously Unaddressed Prior Art Issues – Invalidity by Anticipation**

98. Several important issues not considered in the prior IPI case concerning the original ‘667 patent are presented for consideration in this case, wherein the ‘207 reissue patent is at issue, and accordingly, iPIX’s reliance upon the IPI case to make its showing of reasonable likelihood of success on the merits is misplaced

99. First, I believe that the Court will have to consider the extensive prosecution history of the Reissue patent in order to determine the prosecution history estoppel effect of arguments presented and positions taken by iPIX therein. The prosecution history of the Reissue patent was not considered in the IPI case, nor, does it appear, that many of the added prior art references in the Reissue application, were thoroughly reviewed, if at all.

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<sup>29</sup> Numerous software “stitching” programs, such as REAL VIZ Stitcher – see <http://www.realviz.com> - can be used to stitch rectilinear images as captured with a standard lens into cubic or equirectangular output.

100. Most importantly, as I will address later in this Declaration, I believe that the '207 patent is invalid under at least 35 U.S.C. §§102(a), 102(b), and 102(e) and 35 U.S.C. § 112, first and second paragraphs. It is my understanding that none these issues were even raised, much less litigated in the IPI case. Moreover, several of the anticipatory references addressed below are not of record in either the '667 patent or the '207 reissue patent.

***Japanese Patent Publication Hei-2-127877***

101. I believe that at least claim 1 of the '207 reissue patent is anticipated by Japanese Patent Publication Hei-2-127877<sup>30</sup>, which was published on May 16, 1990<sup>31</sup>. Thus, Hei-2-127877 constitutes a 35 U.S.C. §102(a)<sup>32</sup> reference with respect to the '207 reissue patent.

102. The Hei-2-127877 publication discloses an electronic still camera including a fisheye lens. The user can select between several zones in the fisheye image stored in a memory, process the selected portion of the image to produce a rectilinear image stored in a second memory. The output of this second memory is provided to a television monitor for display. In other words, fisheye pickup picture data is sectioned into nine areas and stored in a picture data memory 13. A memory address corresponding to each of the 9 areas is stored in a fisheye picture address storage section 14 while a fisheye lens distortion factor storage section 15 stores a fisheye lens distortion factor corresponding to the memory data of each address in a picture data stored in the picture data memory 13. Then, an optional area in the

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<sup>30</sup> This publication can be found in Exhibit B of this Declaration. The first page, containing the abstract, is in English, and an English translation of the Japanese text of the patent follows the Japanese text.

<sup>31</sup> The filing date of Hei-2-127877 is almost one year prior to the filing of the application that matured into the '667 patent.

<sup>32</sup> The pertinent part of 35 U.S.C. § 102 reads as follows:

“A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent[.]”

picture data produced by the fisheye lens elements 18a, 18b is selected to apply the fisheye distortion correction for the picture data designation area based on the fisheye lens distortion factor corresponding to the designation area. Thus, the fisheye picture data picked up over a wide range is reproduced and displayed without distortion. It will be appreciated that different portions of the stored images and different levels of magnification can be produced by user operation of a keypad. A detailed claim chart comparing claim 1 of the '207 patent to the Hei-2-127877 publication is provided in Appendix C.

***U.S. Patent No. 5,130,794 to Ritchey***

103. I further believe that at least claim 1 of the '207 reissue patent is anticipated by U.S. Patent No. 5,130,794 to Ritchey<sup>33</sup>, which was filed on March 29, 1990 as Serial No. 07/501,277 and which issued on July 14, 1992. Thus, the '794 patent qualifies as a 35 U.S.C. §102(e)<sup>34</sup> reference with respect to the '207 reissue patent. See the attached claim chart in Appendix E.

***U.S. Patent No. 4,908,874 to Gabriel***

104. I also believe that at least claim 1 of the '207 reissue patent is anticipated by U.S. Patent No. 4,908,874 to Gabriel<sup>35</sup>, which has an effective filing date of April 11, 1980 and

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<sup>33</sup> This patent can be found in Exhibit D of this Declaration.

<sup>34</sup> The pertinent part of 35 U.S.C. § 102 reads as follows:

“A person shall be entitled to a patent unless —

(e) the invention was described in—

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a)[.]”

<sup>35</sup> This patent can be found in Exhibit F of this Declaration.

which issued on March 13, 1990. Thus, the '874 patent qualifies as a 35 U.S.C. §102(b)<sup>36</sup> reference with respect to the '207 reissue patent. See the attached claim chart in Appendix G.

### **Invalidity Issues**

#### ***35 U.S.C. §112, ¶ 1 – Non-Enablement / Inadequate Written Description / Best Mode***

105. I also believe that all of claims 1-11 of the '207 reissue patent are invalid under 35 U.S.C. §112, first paragraph<sup>37</sup>, for failing to adequately set forth an enabling disclosure regarding providing a perspective corrected view.

106. Whether claims are sufficiently enabled by a disclosure in a specification is determined as of the date when the patent application was first filed. Furthermore, to be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.<sup>38</sup>

107. Moreover, the written description of the '207 patent does not reasonably convey that the inventors of the claimed invention regarded as their invention a still photography system in which the captured still photographic image data is captured and stored at one point in time, and then viewed at a later point in time, contrary to how iPIX had asserted the '667 patent and is now trying to do with the '207 reissue patent. Nor does the written description of the '207 patent reasonably convey that the inventors of the claimed invention regarded as

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<sup>36</sup> The pertinent part of 35 U.S.C. §102 reads as follows:

"A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States[.]"

<sup>37</sup> The pertinent part of 35 U.S.C. § 112 reads as follows:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."

<sup>38</sup> See Manual of Patent Examination Practice (MPEP) § 2164, and § 2164.01(a) in particular.

their invention a “device” in which the camera imaging system components are disconnected from and operated independently of the other components of the “device” at a different time and place, again as iPIX is now attempting to do.

108. Although still cameras were well-known prior to the filing date (May 13, 1991) of the originally-filed application, the only “camera imaging system” disclosed in the ‘207 patent is a video camera imaging system. If the inventors regarded still photography as part of their invention, they could and should have said so (as they did in later-filed applications).

In a recent case, the Federal Circuit pronounced that:

As the court observed in *Sage*, the patentee had an opportunity to draft the patent in a way that would make clear that dual lumens as well as coaxial lumens were within the scope of the invention, but the patentee did just the opposite, leaving competitors and the public to draw the reasonable conclusion that the patentee was not seeking patent protection for catheters that used a dual lumen configuration. Under these circumstances, the district court was justified in concluding that a reasonable jury could not find that the accused devices infringe the SciMed patents under the doctrine of equivalents.

*SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“*SciMed*”).  
(From: <http://www.law.emory.edu/fedcircuit/wpds/mar2001/99-1499.wp>)

109. It is settled patent law that that as between a claim interpretation that is clearly supported by the written description, and one that raises questions of invalidity under 35 U.S.C. § 112, ¶ 1, the narrower interpretation must prevail.

110. Based on the above, the “device” recited in each of the claims of the ‘207 patent must be construed to mean a “device” in which all of the recited elements are interconnected as part of that “device”<sup>39</sup>. Based upon this claim construction, the accused combination of elements – the *Click Away* beta software, the PTVIEWER software, the user’s computer

system, a recording device<sup>40</sup>, and the fisheye equipped still camera system – all of which are unquestionably not interconnected together as part of a common “device” and are not even available for purchase together at the same time from the same vendor, do not infringe any of the claims of the ‘207 patent.

111. Thus, the claims of the ‘207 patent, if construed as broadly as iPIX and Dr. Birdwell have attempted to construe them, would be invalid under 35 U.S.C. § 112, ¶ 1 on the grounds of non-enablement.

112. As was established by the testimony and testing of Thomas E. Baker in the IPI case<sup>41</sup>, the specification of the ‘207 patent does not provide an enabling disclosure of the invention as claimed in the ‘207 patent, even if construed properly to be limited to the capture, processing, and recording of a single hemispherical image, as opposed to a complete spherical image. Mr. Baker proved that the mathematical transformation equations disclosed in the ‘207 patent for performing the perspective transformation of the fisheye imagery are unworkable for performing the recited function of the claimed “image transform processor means”, *i.e.*, to perspective correct *any* selected portion of the hemispherical fisheye image. Further, according to documents submitted by IPI to the U.S. Patent & Trademark Office after the issue fee for the ‘207 patent was paid, Dr. Birdwell was unable in court to disprove the validity of Mr. Baker’s experiment, as described in his declaration.

113. During the pendency of the litigation involving the ‘667 patent, iPIX admitted that the circuit elements employed as the “image transform processor means”

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<sup>39</sup> In other words, in close proximity to one another.

<sup>40</sup> As in claims 1, 10, and 11, or a display device as in claim 2.

<sup>41</sup> See Exhibit H of this Declaration for a copy of Mr. Baker’s Declaration.

included TMC2302, TMC3211, and TMC2330 application specific integrated circuits (ASICs) manufactured by TRW for the purposes of directly transforming — including warping, zooming, panning etc. — one form of an image into another form in real time. These particular ASICs were not disclosed in the application, although practically every other element was identified by manufacturer and part number. Furthermore, the data sheets for these ASICs were not of record in the '667 patent; only the data sheet for the TMC2302 is of record in the '207 patent. Moreover, while the equations solved by these ASICs may have been set forth in the corresponding applications, the underlying software code was not disclosed in the applications. Since it is, without question, a combination of the ASICs and the code listing employed in the ASICs which impart the much touted “real time” capability of the device recited in claim 1 of, for example, the '207 patent, and since both the identity of the ASIC set and the code employed thereby were never disclosed during the prosecution of either the '667 patent or the '207 patent, the inventors utterly failed to satisfy the enablement requirement of 35 U.S.C. §112, 1.

114. Furthermore, according to TeleRobotics International's (TRI) correspondence with NASA, a government organization which underwrote some of the development of the invention of the '207 patent (see the NASA attribution added to the specification during the reissue of the '207), TRI also claimed to have come up with “a novel” solution to achieve real-time perspective correction, in conjunction with the use of the speciality processors, namely using the processors to generate a pixel transform look-up table to avoid the time consuming effort of having to recalculate the value of each pixel being output to a recorder

(claim 1) or a display (claim 2).<sup>42</sup> In any case, the use of look-up tables, which according to this document (which details the predecessor to the specification of the '207 patent) are novel and required, the use of look-up tables as a means to achieve real-time perspective correction is mentioned nowhere in the specification for the '207 patent. This lack of disclosure by itself also shows the inventors have failed to satisfy the enablement requirement of 35 U.S.C. §112, ¶ 1.

115. Based on the previous paragraphs, there is a strong indication that the written description of the '207 patent does not provide an enabling disclosure of a critical function of the claimed invention recited in all claims of the '207 patent, namely the perspective *correction of any* selected portion of the captured hemispherical image, especially in real-time, and that any attempt to make or build the invention based on the inadequate disclosure would require undue experimentation to have any hope of meeting with success. Accordingly, all claims of the '207 patent are plainly invalid under 35 U.S.C. § 112, ¶ 1.

116. Nevertheless, the claims of the '207 patent have been construed by iPIX and Dr. Birdwell to cover the perspective correcting and viewing any selected portion of a complete spherical image, and in real-time. Accordingly, since the scope of the invention *as claimed*<sup>43</sup> exceeds the scope of enablement of the application as originally filed on May 13, 1991, the claims of the '207 patent must all be held invalid under 35 U.S.C. § 112, ¶ 1.

117. This conclusion has been corroborated by iPIX itself. For example, during prosecution of Application Serial No. 08/494,599, iPIX represented to the Patent Office that:

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<sup>42</sup> The NASA correspondence in question is attached as Exhibit I. See the pages numbered 10 and 15 of this exhibit for more information.

<sup>43</sup> In other words, as the claims have been construed.

Zimmerman is directed to an omnidirectional viewing system that produces the equivalent of pan, tilt, zoom and rotation within a *hemispherical field-of-view*. The system includes a fish-eye lens which has a hemispherical field-of-view. *Zimmerman does not appear to be directed to a system which combines two hemispherical images.*

*(Emphases added)*

iPIX further stated that

*...neither Zimmermann nor Ritchey teaches or suggests the combining of two hemispherical images to form a seamless spherical image as recited in independent claims 1, 7 and 26.*

*(Emphases added)*

118. In another of its patent applications, Serial Number 08/516,629, iPIX stated:

*In parent U.S. patent no. 5,185,667, an approach is described which uses a single image and allows navigations about the single image. The described method involves the capture of a single wide angle image (not a complete spherical image) and is thus limited in the effect on the user by having limits set at the edge of the wide angle field of view, thus constraining the user to a region of view direction."*

*(Emphases added)*

119. Based on the foregoing, it is my opinion that the asserted scope of the claims of the '207 patent exceeds the scope of enablement of the written description of the '207 patent, thereby rendering these claims invalid under 35 U.S.C. §112, ¶ 1.<sup>44</sup>

120. Finally, there is the issue of the "best mode" requirement of 35 U.S.C. § 112, ¶ 1, which demands that the inventor disclose the best mode known to him or her at the time the application is filed with the U.S. Patent & Trademark Office. However, during the IPI litigation it was disclosed<sup>45</sup> that while Mr. Zimmerman, the named inventor on the original application had been using a particular set of off the shelf TRW chips as the X-MAP and Y-

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<sup>44</sup> If so construed as to cover the building and viewing of spherical images or even selected part of opposing images, as opposed to the viewing of single hemispherical images.

<sup>45</sup> '207 patent prosecution history, paper 17, page 2

MAP transform processors in the '207 patent as long as six months prior to the date the application was filed, but failed to disclose this to the PTO:

The prior art submitted herewith includes of data sheets of application-specific integrated circuits (ASICs) manufactured by TRW Corp. for the purpose of real-time image transformation. These data sheets were introduced at trial as plaintiffs exhibit PX 409. These data sheets, obtained from the inventor, Mr. Zimmermann, describe the ASICs actually used by him to perform the "image transform means" referred to in claim 1 of the original '667 patent (see col. 4, lines 1-5). In fact, Mr. Zimmermann testified that he used these ASICs half a year prior to the May 13, 1991 application date of the original '667 patent to construct a working prototype of the system described and claimed in the original '667 patent.

The PX 409 data sheets disclose key elements of the claims in great detail, for the specific purpose of image transformation, including image warping, rotation, zoom, pan in either dimension, in real time, as claimed in the '667 patent. The capabilities provided by these ASICs enabled the "continuous redetermination of the transformal mapping" which the applicants argued distinguished the claimed invention from the closest prior art in the original prosecution. Nonetheless, the specific ASICs actually used by the inventor to implement the claimed "image transform means" were not disclosed in the patent specification and the data sheets describing them were not submitted in an information disclosure statement.

In my opinion as a patent professional, the suppression of this information, or at the very least, the negligence in not including the part numbers for these chips in the application's specification when describing the transform processors, borders on inequitable conduct, and certainly runs afoul of the best mode requirement of 35 U.S.C. § 112, ¶ 1. As such, I believe this patent is rendered invalid because it does not actually disclose the best mode known to the inventor at the time the original application was filed. Further support for this is offered a few paragraphs earlier with respect to non-enablement in light of the absence of the disclosure of the programming of the TRW ASICs, programming which should at the very least correspond to the method for solving equations 17 and 18 in order to satisfy the best mode requirements of 35 U.S.C. § 112, ¶ 1.

121. Moreover, And, as the inventors were aware of the aforementioned hardware look-up table technique, and admittedly referred to it as “novel” in their correspondence with NASA, but failed to disclose it in their written description of the preferred embodiment, they also have failed here to satisfy the best mode requirement of 35 U.S.C. §112, ¶ 1.

***35 U.S.C. §112, ¶ 2 – Indefiniteness***

122. It is my belief that claim 1 of the ‘207 is invalid under 35 U.S.C. § 112, ¶ 2<sup>46</sup> on the grounds of indefiniteness, with respect to the claim language used to define the “output image memory means”, which renders this claim element indefinite.

123. The claims of a patent must also particularly point out and distinctly claim the subject matter which the applicant regards as his invention. The language of the claims must set out and circumscribe a particular area that the applicant regards as his invention, with reasonable precision and particularity. This statutory requirement is frequently referred to as the “definiteness” requirement. Where the bounds of the claims are indeterminable, the claims are invalid as indefinite.

124. As will shown below, in the present case, the claim element “output image memory means for receiving said output signals from said image transform processor means” is indefinite in light of the specification.

125. Fig. 1 of the ‘207 patent depicts “image transform processor means” comprised of Application Specific Integrated Circuits (ASICs) 6 and 7, labeled X-MAP and Y-MAP, respectively. However, the only “output signals” produced by the X-MAP and Y-MAP

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<sup>46</sup> The pertinent part of 35 U.S.C. § 112 reads as follows:  
“The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”

processors 6 and 7, respectively, are the “output transform calculation signals”. In other words, X and Y addresses that are applied to the “input image buffer 4”, which in turn is referred to in claim 1 of the ‘207 patent as “input image memory means”. The sub-phrase “said output signals received from said image transform processor means” can only mean “said output transform calculation signals” generated by the image transform processor means. However, as demonstrated above, the “output transform calculation signals” are received by the “input memory means” 4, and not by the “output image buffer” 9. The “output image buffer” 9 is the only “memory means” of the device disclosed in the ‘207 patent in which the “output perspective corrected view” is stored:

The transformed image is filtered by a 2-dimensional convolution filter 8 and the output of the filtered image is stored in an output image buffer 9.

(‘207 Patent, column 3, lines 45-48)

The “output image buffer” 9 does not receive *any* “output signals” from the the X-MAP and Y-MAP processors 6 and 7 (the “image transform processor means”), much less “output transform calculation signals.”

126. Further, the “output transform calculation signals” are the X and Y addresses that are applied to the “input image buffer 4”, and not the “output perspective corrected view”, as Dr. Birdwell intimates.

127. The only output signals produced by the “image transform processor means” recited in claim 1 are the “output *transform calculation* signals”. Thus, the only possible antecedent basis for “*said* output signals” in the next claim element (i.e., “output image memory means”) is the “output *transform calculation* signals”.

128. Because the “output image memory means” disclosed in the written description does not receive any “output signals” from the “image transform processor means”, as the claim language recites, the claim language of the claim element in question is indefinite, and therefore, invalid under 35 U.S.C. § 112, ¶ 2.

**Conclusion**

129. Based on the results of my analysis of the ‘207 patent and review of the Accused Product, as documented here in this Declaration, I can only conclude that claim 1 as a whole as well as the individual elements of the ‘207 patent do not read on the Accused Product, either literally or under the Doctrine of Equivalents.

I declare under penalty of perjury under the laws of the United States of America that all statements and affirmations made herein of my own knowledge are true and correct, and all statements made on information and belief are believed to be true and correct.

Executed on July 15, 2003

By

  
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Jake Richter