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August 9, 2000

Mr. Eliot I. Bernstein  
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**CONFIDENTIAL  
ATTORNEY-CLIENT PRIVILEGED**

Re: Correspondence and Issues regarding  
PCT International Patent Application entitled  
"System and Method for Providing an Enhanced Digital Image File"  
Filed: August 2, 2000  
Inventors: Bernstein, et al.  
Our Reference: 57103/120

Dear Eliot:

Pursuant to your e-mail instructions sent Friday, August 4, 2000, I forwarded a notebook to you containing a copy of all correspondence relating to the above-referenced patent filing. Furthermore, pursuant to your request during the telephone conference of Friday morning with Steve Becker, the following describes what occurred during the preparation of this application, any errors made in the application, how they were made, what risks are involved, and how the errors can be corrected.

### Overview

Before discussing the details, I would like to put things into perspective and comment on the magnitude of the errors and the extent of their repercussions. I believe that the errors in the filed specification are of a very minor, technical nature, which can be readily corrected in the various patent offices in due course, and which will have no negative impact whatsoever. The errors in the math will not affect our priority claim back to the August 2, 1999, provisional application, because the math examples were not originally in there. As Steve explained during the Friday teleconference, the worst thing that could happen is that we could lose the benefit of priority for the mathematical examples for a short period of time, i.e., from the August 2<sup>nd</sup> filing date to the filing date of a continuation-in-part application which could be prepared and filed this month, if we decide to do so. In my opinion, the entire

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situation surrounding these errors has been overstated, and your concerns expressed during the Friday teleconference are unwarranted.

### Correspondence

In order to explain exactly what happened, the following paragraphs set forth a brief description of the enclosed correspondence surrounding the preparation and filing of the PCT application, and points out where and why the errors occurred. The numbers below correspond to the tabs in the correspondence notebook.

1. July 21, 2000, Letter from Steve Becker to Brian Utley

This letter encloses the "Zoom and Pan" invention materials on which the above-referenced PCT application is based.

2. July 24, 2000, 4:44 p.m., E-mail from Steve to You and Brian

This e-mail summarizes the recent conversation regarding the zoom and pan invention, and sets forth our strategy for preparing and filing the application.

3. July 24, 2000, 5:02 p.m., E-mail from Steve to You

This E-mail attached a copy of the previous letter Steve sent to Brian on July 21, and asked you for any additional comments you may have.

4. July 25, 2000, 7:35 p.m., E-mail from Steve to You and Me

This e-mail just confirms the time for the next teleconference for discussing the patent application.

5. July 26, 2000, 3:01 p.m. and 3:06 p.m., Letter from Steve to You and Brian

This letter encloses the first draft of the PCT patent application and the inventor information sheet. The letter says that Steve will call both you and Brian at 5:00 p.m. Eastern Time that day.

Note that this first draft includes several blank spaces, question marks, and comments indicating where Steve thought that additional support was needed.

6. July 27, 2000, 11:43 a.m., Fax from Brian to Steve

This fax, sent from Kinko's in Ogden, Utah, when Brian was on vacation, encloses the first examples of the mathematical formulas and a single Example that will be added to the first draft of the application. Note that Brian originally defined the source image aspect ratio (siar) as the height over the width.

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7. July 27, 2000, 2:07-3:45 p.m., Fax from Steve to You and Brian

This fax includes only the nine pages of the application that were revised, including the background section and claims.

8. July 28, 2000, 4:56 p.m., Letter from Steve to You

This letter encloses the second draft of the patent application, which includes additional disclosure received from Brian. Since Brian was still on vacation, Steve asked you to make a copy of this letter and draft for Brian's review.

Note that in this second draft, that Steve's comment on page 13 points to an inconsistency between the math formulas and examples provided in this draft versus Brian's macro Excel spreadsheet output.

9. July 31, 2000, 8:43 a.m., 9:27 a.m., and 1:45 p.m., E-mails from Brian to Steve

Here, Brian sent Steve three different versions of the imaging math formulas and examples. Note that the aspect ratio is still being defined as height over width.

10. July 31, 2000, 3:58 p.m., E-mail from Steve to Brian and You

This e-mail acknowledges receipt of Brian's three versions of the imaging math formulas and asks whether the latest e-mail is inclusive of all prior changes. Steve states that he will now amend the specification of the PCT application based on this latest mathematical formulas and examples.

11. July 31, 2000, 7:09 p.m., Fax from Steve to You and Brian

Steve faxed you the third draft of the patent application. Steve asked for comments as soon as possible, but in no event later than 10:00 a.m., Wednesday, August 2, which is the day that the application had to be filed.

12. August 1, 2000, 7:38 a.m., E-mail from Brian to Steve

This e-mail confirms that the last e-mail included all the changes to the imaging mathematics.

13. August 1, 2000, 7:42 a.m., E-mail from Brian to Doug

In this e-mail, Brian forwarded the July 31 e-mail to me, including the latest imaging mathematics.

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14. August 1, 2000, 8:30 a.m., Copy of Brian's Comments

This document shows Brian's comments on the second draft of the application. Brian gave this marked-up version to me when I was at your offices that morning.

15. August 2, 2000, 9:06 a.m., Fax from You to Steve and Me

This document sets forth the changes made to the third draft of the application by the Iviewit reviewing team, which now included Jim Armstrong. This document was the basis of our telephone conference from 10:00 a.m. to 3:30 p.m. that day. Note that this is the first time Jim provided his comments to us. Also note the extent of the comments, which, at this late stage in the process when the application had to be filed that same day, caused me some concern. During our teleconference, it became clear that we were revisiting old topics and decisions we previously made with you and Brian in the previous drafts of the application. Particularly note the extent of the mark-ups on the imaging mathematics beginning at page 11. A significant amount of time was spent discussing the particulars of the math formulas between Brian and Jim, and we all agreed that Brian would modify the math and examples and send them to me. Note that when the call ended, the source image aspect ratio was still being defined as height over width (see page 11).

16. August 2, 2000, 5:49 p.m., E-mail from Brian to Me

This e-mail attached the latest modifications to the mathematics and examples that Brian said he would send me. Note that this is the first time the aspect ratio is defined as width over height, since, in response to my pointing out the inconsistency between photography versus computer display aspect ratio conventions, Brian determined that it would be more consistent to express the math in the patent application in accordance with the computer display convention. This version of the imaging mathematics is what I used as the basis for the final draft of the patent application that was filed that night.

17. August 2, 2000, 9:39 p.m., E-mail from Me to Brian (at home) and You

This e-mail contained two versions of the same document, which represent where I was in the editing process at that time. The first document was in Word version 6.0/95 for Brian to be able to read at home. The second version was in Word 97 as usual. Note that my e-mail told you and Brian that you could send a copy to Jim if you want.

As you can see, I was fighting the clock since the application had to be on file before midnight that night, and I had to allow sufficient time to drive to the airport post office to obtain the filing date. Note that, beginning on page 13 (of the second version), and through to page 18, the imaging process mathematics and examples are set forth substantially in accordance with Brian's latest revisions. However, the digital example, beginning on page 22, had not yet been edited to pick up the change in aspect ratio convention. Also note in this

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draft that independent claim 1 has not yet been changed to make the user interface element a dependent claim.

After additional discussions with both you and Brian that night, you both gave me the verbal "okay" to file the application. We obviously did not have time to let all three of you review it again before it was filed. At that time, it was all I could do to finish making the changes you requested throughout the day. I did that. I then briefly checked over the final documents, worked with my foreign filing coordinator to prepare the formal filing papers, and drove to the airport post office. The PCT and corresponding U.S. patent applications were properly filed that night.

18. August 3, 2000, 11:55 a.m., E-mail from Me to Brian, You, and Steve

This e-mail simply confirms that the applications were filed last night, and that copies would be forthcoming.

19. August 3, 2000, 1:35 p.m., E-mail from Brian to Me

This e-mail from Brian, thanking me for the "supreme effort to get the job done," was appreciated.

20. August 3, 2000, 2:47 p.m., E-mail from Me to You and Brian

After being informed that you wanted a copy of the application right away, I sent this e-mail attaching the Word document for the PCT application as filed. The e-mail clearly says that the drawings didn't change, which meant that you already had copies of the drawings from the previous drafts. I could not e-mail the drawings, and I thought since you already had a fax copy, this would suffice. I also said I would send full copies next week. This Word document does exactly represent what was filed in the PCT that night.

21. August 4, 2000, 11:34 a.m., Fax from Jim Armstrong to Me, copying You and Steve

This facsimile contains eight pages from the filed PCT application, which have been marked up to show what Jim believes are either typographical errors or improper formula expression. This fax was apparently the basis of the telephone call between you, Brian, Sy, Jim, and Steve on Friday. Each one of these purported "errors" will be discussed in detail below.

### Friday Teleconference

In your extended teleconference with Steve Becker on Friday, of which I was not a participant, you made several inaccurate statements, accusations, and remarks regarding the errors in the application and, in general, the proficiency of Foley & Lardner's services.

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Now that I have had the opportunity to review the tapes of the Friday teleconference, the patent application, and the application correspondence set forth above, I would like to explain exactly what errors were made, how they were made, why they were not caught, and what issues they raise. Although Steve did a masterful job of trying to educate you on the fundamentals of patent law in an attempt to put the errors in perspective, Steve was not involved in the preparation of the final draft of the application and so could not be expected to know how these errors arose.

### Discussion of Changes

Please refer to the August 4, 2000, 11:34 a.m., facsimile from Jim Armstrong, which can be found at tab 21 of the correspondence notebook.

#### (1) Page 12, line 27

Although this is not an error, and Jim did not mark it as such, I want to point out that the formula " $tiw = \text{square root}(tia * sir)$ " uses the word "square root" instead of the square root symbol. Either way, this formula is correct, and provides sufficient basis, in my opinion, to correct subsequent errors in this formula, particularly where they don't make sense.

I do recall Brian mentioning, late Wednesday night, that a square root symbol was missing. I understood his comment to mean that I used the word "square root" instead of the square root symbol in this line of the application. I might have told Brian I would fix this in the final draft, but I probably ran out of time. Nevertheless, this is not an error. In fact, I am thankful that I did not remove the word "square root" intending to insert a square root symbol which may have been forgotten in the rush.

#### (2) Page 13, line 7

The minimum scan density (msd) is defined here as " $msd = tih/sih$ " (target image height over source image height). This is mathematically equivalent to " $tiw/siw$ " (target image width over source image width), which is apparently what Jim and Brian want it to be for consistency with the last-minute change in aspect ratio convention. I agree. This formula can easily be changed to read " $msd = tiw/siw = tih/sih$ ," particularly because of the equivalency. It is my opinion that this is a very minor technical change, it should not be considered an error in any sense of the word, and I don't believe we will encounter any problems changing it in both the United States Patent and Trademark Office (USPTO) and the World Intellectual Property Office (WIPO) where the PCT (Patent Cooperation Treaty) International applications are filed, searched, and, optionally, examined. Recall that the same patent application was filed as both a PCT and US application Wednesday.

Note that this is the first time anybody pointed out a problem with this equation. The same equation appears in the previous drafts which you reviewed, and no reference to

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correcting this equation appears in Brian's latest imaging process mathematical spreadsheet. Therefore, your accusation that Brian made this change with me, and it's still wrong in the patent, is, itself, wrong.

The best-case scenario, which I predict will occur, is that the USPTO and WIPO will permit me to make a preliminary amendment to the specification to make this change. In the worst-case scenario, the USPTO or WIPO will consider the change to be impermissible new matter, and the equation will have to remain as it was filed. In that case, there is an extremely remote chance that someone, someday, could argue that the inconsistency could cause the patent to be invalid for lack of enablement, i.e., that the specification does not "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 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." (35 U.S.C. § 112, ¶ 1.) However, I highly doubt that such a minor inconsistency could warrant such a drastic effect, especially since the mathematics itself isn't claimed.

(3) Page 13, line 19

For consistency's sake, " $viw = vwh * 1.25$ " should be changed to " $viw = vih * 1.25$ ", even though the previous line states that " $vih$ " and " $vwh$ " are equal to each other. Again, I would consider this a minor technical modification to a mathematical example that is not necessary for validity of the patent. Nevertheless, I think that we will be able to make this minor correction in both the USPTO and WIPO without any problem or repercussions. Not only is it simply a more preferred way of stating the same mathematical value, it is supported in the terminology of Examples 2 and 3. It is also an obvious inconsistency which would be known to those skilled in the art.

Note that this inconsistency appears in the latest version of Brian's mathematical formula spreadsheet under Example 1, which was essentially cut and pasted from his spreadsheet into the patent application shortly before it was filed. I did not have time that night to double-check all of the mathematical formulas.

(4) Page 13, line 23

The square root symbol is missing over the expression " $2,560,000/0.8$ ". This is an oversight on my part. The square root symbol does appear in Brian's Excel spreadsheet. I simply cut and pasted the text from Brian's Excel spreadsheet into a Microsoft Word document. Apparently, when this occurs, the square root symbol disappears. I simply did not have sufficient time to double-check all of the math.

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As mentioned above, I do recall Brian mentioning, late Wednesday night, that a square root symbol was missing. However, I thought he was referring to the word "squareroot" on Page 12, line 27, and not here.

I now see that Jim also discovered this error on page 14 of his marked-up third draft. I did not see it at the time, because I did not go through, line-by-line, all of Jim's changes to the math since Brian was going to revise it anyway. Furthermore, I could not rely on all of Jim's mark-ups as the basis of the changes, since they appeared to me to essentially be the mathematical scratchpad he used in trying to understand the invention. It would have made no sense to follow all of his changes. Furthermore, Jim missed other changes that Brian and I caught later that night.

Once again, I do not believe that this "missing square root symbol" error is of a major concern. I believe that it would be considered a typographical error in the math, which can easily be corrected in the USPTO and WIPO by a preliminary amendment. Support for such a preliminary amendment is found at page 12, line 27, where the same formula appears correctly stated using the word "squareroot." Furthermore, any person skilled in the art would realize that 2,560,000 divided by 0.8 does not equal 1789 as set forth in the description, but that the square root of such a quantity would make the equation correct.

Again, let me discuss a worst-case scenario. If, on the remote chance that the USPTO or WIPO determines that the addition of a square root symbol is not a simple typographical error but instead constitutes new subject matter that cannot be added to the specification, we would have to determine at that time the proper course of action. First, such a determination can be appealed if we believe it is warranted. Second, the entire Example 1 can be stricken from the application if we feel that the remainder of the specification provides sufficient enablement for the claimed invention, and that leaving Example 1 in the specification without the square root symbol somehow takes away from enablement. Third, we can file another patent application in both the USPTO and WIPO, with the corrected formula. This would ensure that we would only lose priority from August 2 to the date of the filing of the corrected application. Since this mathematical example isn't in the original priority documents, it cannot be said that we would lose any benefit of priority from the original provisional applications.

I do not agree with Jim's argument that the missing square root symbol makes the entire patent application so difficult to understand that correction would be needed to apply the math to create the image. Steve's counter-argument is directly on point: if correct math was required to create the image, then the August 2, 1999, provisional filing would be essentially worthless for lack of enablement, because it has no math. I simply do not believe that perfectly correct math is required for enablement.

It is my opinion that there is no need to file a corrected application as a continuation-in-part to remedy the situation. I plan to file a preliminary amendment in the



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USPTO and WIPO to correct the formula, which I believe will be accepted without an argument. I have successfully made changes of similar scope by preliminary amendment in both the USPTO and WIPO without encountering any problems. If I am proved wrong, and we decide not to appeal, I still think there is little downside risk in leaving the application as it is. In fact, I believe that there is more risk involved in filing a continuation-in-part application to correct such minor errors, since it could be argued that such a new filing constitutes an admission against us that the addition of the square root symbol is new subject matter.

(5) Page 13, lines 23-25

Since the aspect ratio convention was changed at the last minute, these three formulas should have been changed to precisely correspond to that convention. However, with the addition of the square root symbol in the formula in line 23, the three lines are actually correct as set forth in the patent application, but somewhat inconsistent with the new convention. Moreover, the final number result is identical to that which would be obtained by reversing the formulas as now requested. Once again, I believe that both the USPTO and WIPO will permit us to change these formulas to make them consistent and easier to read.

Note that, with the exception of the square root symbol disappearing as discussed above, these formulas were cut and pasted from Brian's latest Excel spreadsheet, and appeared as set forth here in the 9:39 p.m. application draft sent to you and Brian.

(6) Page 13, line 29

The viewing window stated as "320 x 240 pixels" should read "480 x 320 pixels" as set forth on line 14 of the same page. This was simply an oversight by all of us. Neither you nor Brian caught the mistake in the second draft sent July 28th (at page 13) or the third draft sent July 31st (at page 14), and Jim also missed it in his August 2nd mark-up. I missed it also during my final edits.

Once again, I believe that this would be considered a minor typographical or technical error, which can readily be corrected in both patent offices with a preliminary amendment. It is clearly supported at lines 14 and 15 on the same page of the patent application. The reader would know that this is an obvious typographical error, and correcting it does not constitute new matter. On the other hand, if somehow it does not get corrected, I do not believe that this error would render the patent invalid for lack of enablement.

(7) Page 14, line 6

I agree with Jim's suggestion that the width and height be stated here, as was done in Examples 1 and 3. Again, I do not believe this is a major concern, and I think we will be able to add the width and height labels with a preliminary amendment. It is clearly supported elsewhere in the specification. Note that this oversight could have been caught by

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you or Brian before filing, since it appears the same way on page 16 of the 9:39 p.m. draft. Nevertheless, this is a very minor point, which will have no affect whatsoever.

(8) Page 14, line 17

Again, the square root symbol is missing, but this time the formula itself does not need to be changed other than adding the square root symbol. See my previous comments regarding addition of the square root symbol.

(9) Page 14, line 27

Here, "400w by 360w" should read "400w by 360h". This is an extremely minor typographical error, which can readily be corrected by preliminary amendment. This particular error should have been caught by all of us a long time before the filing date, since it also appears in the third draft.

(10) Page 15, line 6

Once again, the square root symbol is missing, but the underlying equation is otherwise correct. Refer to my previous comments regarding addition of the square root symbol.

(11) Page 18, line 28

Again, the square root symbol is missing. This example provides even a stronger argument that omission of the square root symbol is a typographical error, since the exact same formula is stated correctly on page 12 at line 27 using the word "squareroot". Again, refer to my previous comments regarding the omission of the square root symbol.

(12) Page 19, lines 2, 3, and 23

According to the Friday discussion between Jim and Brian, the question arose whether the minimum scan density should be stricken from these lines (since it doesn't add anything and could possibly confuse the reader), or whether it should be left in there, but with the addition of a new sentence that states that minimum scan density is not required since we are dealing with a digital image. Brian and Jim agreed on the latter.

This time, however, I don't agree and I recommend that we do not make such a change by adding a sentence. There is much higher likelihood that the addition of such a sentence would trigger a new matter rejection. Furthermore, it may contravene any argument we have that all of the changes to the specification are simply typographical errors in very technical formulas and do not constitute new matter. The addition of such a sentence in this example could be a red flag. The only way I would recommend adding such a statement would be if you could show me that it was clearly supported elsewhere in the specification.

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Otherwise, I think that the statement "minimum scan density equals N/A" on line 23 says the same thing, and is actually an important part of the teaching of this example to instruct the reader that scan density is not a concern with a digital image.

If you don't agree that leaving the language in is the appropriate thing to do, then I would be willing to try to amend the specification by striking the minimum scan density language in this example. At least there is a harder argument that the patent offices would have to make if they were to hold that removal of this text represents new matter or renders the specification non-enabling.

No matter what we decide to do on this point, it is also minor concern.

(13) Page 19, line 10

Changing " $0.75=0.75$ " to " $1.33=1.33$ " should not be a problem, since it is fully supported in the previous lines of that example. The mistake is obvious, and we would not be adding new matter to make the change. I believe that this can also be done by a preliminary amendment in the USPTO and WIPO.

(14) Page 19, line 15

Again, the square root symbol is missing, but the equation is otherwise correct. Refer to my previous comments regarding the square root symbol.

Summary

As you can now appreciate, the application as filed was not "completely wrong" as you first thought. True, Brian and I changed the math at the last moment to improve the readability, which I believe was successfully accomplished. Even if I had time, I could not have entered all of Jim's last-minute comments and corrections myself, because they were also wrong. We mutually agreed to let Brian take another pass and correct the math. He did. I took his work and pasted it into the specification. Unfortunately, the computer "ate" the square root symbol, and I didn't catch it. You had an opportunity to review it, and you didn't catch it. Brian had an opportunity to review it, and, if he did catch it and mention it to me, then I must have misunderstood him. Both you and Brian gave me the verbal OK to file it. Looking back, I think Brian did an outstanding job of changing the aspect ratio conventions at the last minute. I think we ended up with a much-improved patent application than we had with the third draft.

No matter how these "errors" arose, I believe that they are all of a minor technical and typographical nature, and that corrections can readily be made by preliminary amendment in both the USPTO and WIPO. Regarding the timing for making the preliminary amendments, I do not believe there is any rush. Even if there was, we would have a problem

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in making such amendments now without filing an entirely new patent application in both the USPTO and WIPO.

In the USPTO, for example, it is not standard practice to file any amendments before we have received the filing receipt and application number. Otherwise, there is a very good chance the amendment will be lost in the Patent Office. Furthermore, there is essentially no rush to file the amendment, so long as it does not include new matter. We can also wait until after the first office action. Furthermore, we will not know whether our preliminary amendment will be accepted until the Examiner reviews the amendment during examination, which may not occur until a year from now.

Similarly, in WIPO, the PCT rules do not even allow us to file a preliminary amendment to amend the specification until the PCT Chapter 2 demand is filed at the 19-month point (seven months from now). Again, even then, we won't know whether the PCT Examiner accepts the amendment until months after that.

### Conclusion

As I stated above, I believe that the "errors" are of a very minor, technical nature, that they can be readily corrected in the various patent offices in due course, and that they will have no negative repercussions whatsoever. I think there is very little risk in waiting a few weeks to file a preliminary amendment, and very little advantage in filing all new applications to make these corrections. Since the math was not in the original provisional patent applications filed by Ray Joao, there can be no loss of priority claim for that subject matter.

I hope you can now appreciate why I think that your fears about these "errors" are exaggerated, your accusations that we didn't follow your directions are unfounded, and your criticism of Foley & Lardner work product is unwarranted.

Of course, if you have any questions or comments on any of the above, please do not hesitate to contact me.

Very truly yours,



Douglas A. Boehm

cc: Brian G. Utley  
Simon L. Bernstein  
James F. Armstrong  
→ William J. Dick  
Steven C. Becker