

The opinion in support of the decision being entered  
today is not binding precedent of the Board

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Paper No. 91

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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GREGORY HERMAN

Junior Party,  
(Application 09/488,960),

v.

NORMAN P. BARNES  
and GREGORY S. HERMAN

Senior Party,  
(Patent 6,144,679).

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Patent Interference No. 104,812

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Before LEE, TORCZON, and MEDLEY, Administrative Patent Judges.

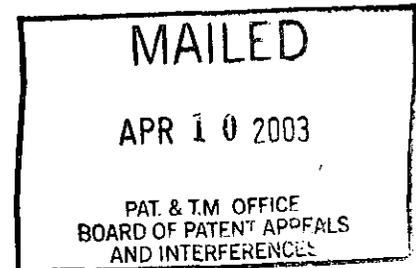
MEDLEY, Administrative Patent Judge.

**FINAL DECISION AND JUDGMENT UNDER 37 CFR § 1.658(a)**

**A. Introduction**

This interference was declared on 28 March 2002 to resolve an inventorship dispute.

Gregory S. Herman (Herman) and Norman P. Barnes (Barnes) applied for, and received a patent -  
the involved Barnes patent. Before the patent was granted, Herman filed a patent application (the



involved Herman application), essentially identical to the Barnes patent, naming himself sole inventor. Herman believes that he should have been named as the sole inventor in the Barnes patent and that Barnes was incorrectly named as an inventor. Herman has filed a preliminary motion (Paper 29 - Herman second substitute preliminary motion 1) for judgement against Barnes on the ground that the Barnes patent is invalid under 35 U.S.C. § 102(f) for naming the incorrect inventors.

After time had expired for filing preliminary motions, Herman sought to file a belated preliminary motion. Herman miscellaneous motion 2, seeking leave to file the belated preliminary motion was denied by a three judge panel (Paper 64). Herman requested reconsideration of that decision (Paper 87).

The parties agreed to proceed directly to final hearing on the matters of inventorship and reconsideration of the interlocutory decision denying Herman miscellaneous motion 2 (Paper 85). A final hearing was held on 27 February 2003.

During oral argument, after extensive questioning from the panel directed to Herman's miscellaneous motion 2, Herman withdrew that motion. Accordingly, Herman's request for reconsideration of the interlocutory decision denying Herman miscellaneous motion 2 is dismissed as moot.

Herman second substitute preliminary motion 1 is dismissed, or alternatively denied. Judgment is entered against Herman.

**B. Findings of fact**

The following findings of fact, as well as those contained elsewhere in this opinion are supported by a preponderance of the evidence.

## Background

1. Herman is involved on the basis of application 09/488,960, filed 21 January 2000.
2. Barnes is involved on the basis of U.S. Patent 6,144,679, granted 7 November 2000, based on application 09/232,169, filed 15 January 1999.
3. The real party in interest for Herman is Gregory S. Herman (Paper 3<sup>2</sup>/<sub>3</sub>).
4. The real parties in interest for Barnes are Science Applications International Corporation (SAIC) and National Aeronautical and Space Administration (NASA) (Paper 23).
5. The subject matter pertains to a method and apparatus for producing a terahertz electromagnetic wave by mixing two electromagnetic waves of specified wavelength using a nonlinear crystal.
6. The involved Herman application contains claims 1-32.
7. The involved Barnes patent contains claims 1-32.
8. Herman claims 1-32 correspond directly to and are identical to Barnes claims 1-32.
9. The interference was declared with counts 1-32.
10. The counts 1-32 are Barnes' claims 1-32, respectively.
11. Count 1 is identical to Barnes patent claim 1 and is as follows:

A method for generating a terahertz band electromagnetic wave using a nonlinear crystal having a Reststrahlen band of wavelengths including a fundamental Reststrahlen wavelength, the method comprising the steps of:

generating a first coherent electromagnetic wave of a first center wavelength shorter than the fundamental Reststrahlen wavelength;

generating a second coherent electromagnetic wave of a second center wavelength shorter than the fundamental Reststrahlen wavelength; and

mixing in the nonlinear crystal the first electromagnetic wave with the second

electromagnetic wave to generate a third coherent electromagnetic wave having a third center wavelength in a terahertz band, the third center wavelength being longer than the fundamental Reststrahlen wavelength.

12. Count 6 is identical to Barnes patent claim 6 and is as follows:

The method of claim 1, wherein the first and second electromagnetic waves are each continuous-wave waves.

13. Count 7 is identical to Barnes patent claim 7 and is as follows:

The method of claim 1, wherein the first electromagnetic wave is a pulsed wave and the second electromagnetic wave is a continuous-wave wave.

14. Count 25 is identical to Barnes patent claim 25 and is as follows:

The apparatus of claim 24, further including:

a first curved mirror in optical alignment with a first side of the nonlinear crystal, the first side of the nonlinear crystal being a side upon which the first and second electromagnetic waves are incident; and

a second curved mirror in optical alignment with a second side of the nonlinear crystal, the second side of the nonlinear crystal being a side from which the third electromagnetic wave exits the nonlinear crystal,

wherein a reflective cavity is formed between the first and second curved mirrors, the reflective cavity including at least a portion of the nonlinear crystal, the reflective cavity being frequency-locked to achieve double resonance of the first and second electromagnetic waves.

15. Count 26, which is identical to Barnes patent claim 26 is as follows:

The apparatus of claim 24, wherein the first and second sources are locked together using Pound-Drever-Hall frequency locking.

#### Herman's Inventorship Explanation

16. Herman testified that he was employed by SAIC from May 1992 until March 2000 (Herman Ex. 2021, ¶ 3).

17. During his employment, Herman worked on SAIC's Atmospheric Science Research

and Technical Support Services contract.

18. The SAIC contract was with NASA, and during the time Herman was employed by SAIC, Herman worked on the contract at NASA's Langley Research Center (Id., ¶ 3).

19. Herman's work through SAIC was directly related to his doctoral dissertation (Herman Ex. 2005, ¶ 4).

20. One of Herman's dissertation advisors was Barnes, who worked for NASA at Langley, and who apparently worked on the same contract at the time of the events (Id., ¶ 6).

21. Herman testified that on 12 March 1998, while working on his dissertation, he alone conceived of the invention<sup>1</sup>, entitled "Method and Apparatus for Producing a Coherent Terahertz Source" (Herman Ex. 2003, ¶ 4).

22. On 18 March 1998, Herman prepared a paper describing his conception (referred to as the invention disclosure document - "IDD") (Herman Ex. 2006) which was notarized 24 March 1998 (Herman Ex. 2003, ¶ 8).

23. On 17 March 1998 Herman disclosed the invention to Gary E. Halama (Halama).

24. Halama testified that Herman described to him an idea for a phase matching technique in gallium phosphide (GaP) to produce terahertz radiation using non-linear material characteristics (Herman Ex. 2017, ¶ 5).

25. Halama testified that Herman described certain equations and graphs to him that were the same as those disclosed in the notarized IDD (Herman Ex. 2017, ¶¶ 6-7).

26. Halama further testified that Herman drew a dispersion curve for GaP (Id., ¶ 11).

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<sup>1</sup> "The invention" conceived on 12 March 1998 does not apparently include all 32 counts. For example, Herman later testified that at least counts 25 and 26 were conceived during the week of January 8-15, 1999 (Herman Ex. 2021 at 40-43) .

27. Herman testified that on 18 March 1998, he disclosed his invention to Steve Sandford, head of NASA-LaRC's Electro-Optics and Controls branch, and sent an e-mail (Herman Ex. 2008) to him the following day with the invention disclosure attached to the e-mail (Herman Ex. 2003, ¶ 9).

28. The copy of the e-mail submitted into evidence does not have a paper attached to it, nor does the e-mail describe the elements of counts 1-32.

29. Herman testified that he also discussed his invention with Barnes on 18 March 1998 (Herman Ex. 2003, ¶ 7).

30. Herman testified that Barnes provided him with GaP Sellmeier coefficients to use in calculations of the invention (Id., ¶ 17).

31. According to Herman, he e-mailed, as an attachment, a copy of the invention disclosure (Herman Ex. 2018) to his doctoral dissertation advisor, Dr. Nasser Peyghambarian on 18 March 1998 (Id., ¶ 8).

32. Neither the copy of the e-mail submitted into evidence nor the attachment describe all of the elements of every one of counts 1-32.

33. With the hopes of getting his invention funded by NASA, Herman prepared a NASA Disclosure of Invention (NDI) form (Herman Ex. 2021, ¶ 12).

34. Sometime after preparing the NDI, Herman gave a copy of the NDI to Ms. Christyl Johnson, assistant to Sandford (Herman Ex. 2021, ¶ 14).

35. According to Herman, Ms. Johnson told him that Barnes was displeased that he was not included on the NDI as a co-inventor.

36. Also according to Herman, Ms. Johnson insinuated that if Barnes was not included as

a co-inventor on the NDI, then Herman would not receive funding for his invention (Herman 2003, ¶ 14-15).

37. Herman testified that he added Barnes to the NDI, in order to get funding for his invention (Id., ¶ 17).

38. Herman testified that he believed that the invention would ultimately be marketed by SAIC, and that he would receive 25% of the net revenue generated by the invention (Id., ¶ 19).

39. Accordingly, Herman completed an invention disclosure for SAIC (SID), apparently the same as the NDI (Id., ¶ 21).

40. The NDI and SID were apparently forwarded to patent counsel who drafted a patent application based on the NDI and SID.

41. Herman testified that he worked with SAIC outside counsel Gary Fedorochko to draft the application that matured into the Barnes patent (Herman Ex. 2005, ¶ 16).

42. After the patent application was filed, Herman made Fedorochko aware of his position that Barnes should not be named as an inventor (Herman Ex. 2005, ¶ 21).

43. According to Herman, Fedorochko told him to speak with Michael Lachuk, SAIC's senior patent counsel about his concerns of inventorship (Id.).

44. Sometime before or after the alleged conversation with Mr. Fedorochko, but after the filing of the application, Herman and Barnes executed a joint declaration for patent application on 1 March 1999.

45. The joint declaration states that:

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled METHOD AND APPARATUS FOR PROVIDING A COHERENT TERAHERTZ SOURCE ....

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above....

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon. (Barnes patent, joint declaration).

46. During cross examination, with respect to a conversation that Herman had with Barnes on 1 March 1999 (the day the declaration was executed by both Barnes and Herman)

Herman testified that:

A. No, I think I just said, you know, did you talk to Mr. Fedorochko, and I think he indicated that he had not. I asked him if he still wanted to sign it, that I didn't think he was an inventor, and he said he wanted to sign it.

Q. So you did say that you didn't think he was an inventor, to him?

A. Well I think I reiterated, I didn't think his – well, it's not a contribution, his providing me some coefficients three years earlier was such a, was constituting being an inventor. (Barnes Ex. 1052, pages 75-76, lines 21-8).

47. Herman testified that in the first week of April 1999, he learned that SAIC's compensation package for inventors had changed, such that Herman would receive far less money for his invention than he originally believed (Herman Ex. 2003, ¶ 30).

48. Herman filed the involved Herman application 21 January 2000.

49. Herman alleges that Barnes had no knowledge of the subject matter of the invention described in the involved Barnes patent, and thus cannot be a joint inventor.

50. This allegation is based on comments Barnes allegedly made upon reviewing a paper written by Messaud Bahoura covering the same concepts and terminology used in the involved

Barnes patent.

51. Particularly, Herman alleges that the following comment made by Barnes to Bahoura in an e-mail communication is evidence that Barnes was not aware of the contents of the involved Barnes patent:

Messaoud:

Could not find the attached file to this E-mail so an earlier version was read. In general, your concept of using a beat frequency and beat index of refraction is a fresh way of looking at the problem. This fresh approach brings new insights and should be an interesting way of conceptualizing the process. (Herman Ex. 2010, page 2).

Evidence of conception of Counts 6, 7, 25 and 26

52. Herman testified that he alone conceived of the elements of counts 1-32 (Herman Ex. 2021, pages 7-48).

53. Herman testified that the elements of count 6 are met by the evidence as follows:

The subject matter of claim 6 was provided solely by me, Gregory S. Herman, to Gary Fedorochko, the patent counsel who prepared the patent application for the '679 patent, during the week of January 8-15, 1999, without any participation of, or without any contribution by, Norman P. Barnes.

**Herman IDD (Herman Exhibit 2006):**

Based upon the disclosure in the Herman IDD on Page 2, paragraph 5, lines 2-4, one of ordinary skill in the art, without any undue experimentation, could ascertain that the first and second electromagnetic waves described in the Herman IDD could both be continuous-wave waves. However, Claim 6 depends from Claim 1 and I conceived the novel combination of Claim 6 which includes the recitations of Claim 1.

**Herman NDI (Herman Exhibit 2012):**

Section D: Page 7, paragraph 2. (Herman Ex. 2021, page 15).

54. Herman testified that the elements of count 7 are met by the evidence as follows:

The subject matter of claim 7 was provided solely by me, Gregory S. Herman, to Gary

Fedorochko, the patent counsel who prepared the patent application for the '679 patent, during the week of January 8-15, 1999, without any participation of, or without any contribution by, Norman P. Barnes.

**Herman IDD (Herman Exhibit 2006):**

Based upon the disclosure in the Herman IDD on Page 2, paragraph 5, lines 2-4, one of ordinary skill in the art, without any undue experimentation, could ascertain that the first electromagnetic wave described in the Herman IDD could be a pulsed wave, and the second electromagnetic wave could be a continuous-wave wave. However, Claim 7 depends from Claim 1 and I conceived the novel combination of Claim 7 which includes the recitations of Claim 1.

**Herman NDI (Herman Exhibit 2012):**

Section D: Page 7, paragraph 2. (Herman Ex. 2021, page 16).

55. The portion of the Herman IDD that Herman directs us to in support of Counts 6 and 7 is as follows:

In addition, we are considering interactions such that the generated idler frequency  $\omega_3$  is on the low frequency side of the fundamental phonon resonance in the *Reststrahlenband*, while the pump and signal frequencies,  $\omega_1$  and  $\omega_2$  are on the high frequency side of the band. (Herman Ex. 2006, page 2).

56. The portion of the NDI that Herman directs us to in support of Counts 6 and 7 is as follows:

For a narrow-band terahertz output, two narrow-band sources are used for the pump and signal wave sources. The two sources could either both be lasers or a combination of lasers and parametric oscillators. For a wide-band terahertz output, a narrow-band pump wave source is used in combination with a wide-band signal wave source, or vice versa. The pump and signal wavelengths are selected so that the interaction is phasematched for the desired idler wavelength range, using the CRBDC phasematching technique. (Herman Ex. 2012, Section D, second paragraph).

57. Herman testified that he alone conceived of count 25 as follows:

The subject matter of claim 25 was provided solely by me, Gregory S. Herman, to Gary Fedorochko, the patent counsel who prepared the patent application for the '679 patent, during the week of January 8-15, 1999, without any participation of, or without

any contribution by, Norman P. Barnes.

The technique of Resonant Enhancement is an established technique that was initially discovered by Ashkin et al., in 1966, and applied to Optical Second Harmonic Generation and Mixing. The technique of resonant enhancement involves placing the nonlinear crystal in a reflective cavity, which surrounds the nonlinear crystal (See ... Herman Exhibit 2023). The technique of Resonant Enhancement has established itself, and has been used by many others skilled in the art to achieve double resonance of the pump and signal waves (See ... Herman Exhibit 2024).

In these disclosures, what is described is a technique wherein the nonlinear optical crystal is placed in a reflective cavity, and that the reflective cavity is frequency-locked to achieve a double resonance of the pump and signal waves. As shown, the Resonant Enhancement technique is equivalent to what is spelled out in claim 26[sic].

Although, by itself, the technique of Resonant Enhancement is an established state-of-the-art, that the application of the technique to Claim 24, which in turn is dependent on the independent Claim 19, is novel. Therefore, Claim 25 depends from Claim 24 and 19, and I conceived of the novel combination of Claim 25, which includes the recitations of claims of 24 and 19.

**Herman IDD (Herman Exhibit 2006):**  
“Skill in the art”.

**Herman NDI (Herman Exhibit 2012):**  
“Skill in the art”.

**‘679 Patent (Herman Exhibit 2001):**  
Column 9, line 67 through Column 10 line 9. (Herman Ex. 2021, pages 40-41).

58. Herman testified that he alone conceived of count 26 as follows:

The subject matter of claim 26 was provided solely by me, Gregory S. Herman, to Gary Fedorochko, the patent counsel who prepared the patent application for the ‘679 patent, during the week of January 8-15, 1999, without any participation of, or without any contribution by, Norman P. Barnes.

The technique of Pound-Drever-Hall is an established frequency locking technique that was initially discovered by Pound in 1946 and applied to Microwave oscillators. (See Pound article, Herman Exhibit 2025). In 1983, Drever, et al. applied the technique to laser oscillators. Since that time, the technique of Pound-Drever-Hall frequency locking has established itself, and has been used by many others skilled in the art. (See ... Herman Exhibit 2026).

Although, by itself, the technique of Pound-Drever-Hall frequency locking is an established state-of-the-art, the application of the technique to Claim 24, which in turn is dependent on the independent Claim 19, is novel. Therefore, Claim 26 depends from Claims 24 and 19 and I conceived of the novel combination of Claim 26 which includes

the recitations of Claims 24 and 19.

**Herman IDD (Herman Exhibit 2006):**  
“Skill in the art”.

**Herman NDI (Herman Exhibit 2012):**  
“Skill in the art”.

**‘679 Patent (Herman Exhibit 2001):**  
Column 10, lines 17-21. (Herman Ex. 2021, page 42).

### **C. Discussion**

#### Procedural Matters

Herman’s second substitute preliminary motion 1 lacks the necessary cohesiveness between facts, evidence and arguments. Judge Lee explained earlier in this proceeding, in a paper dismissing Hermans’ second submission of its preliminary motion 1 (entitled substitute preliminary motion 1) the importance of explaining how the evidence and facts support an argument. A portion of that decision is as follows:

The argument section, Section D, appears on pages 9-11 of the preliminary motion. Within these pages, there is not a single citation to the evidence in support of the arguments made, and also not any explanation as to why such evidence supports the arguments. A proper motion shall contain specific citation to the supporting evidence and an explanation as to how the evidence cited supports the arguments made. A reference to a particular statement of fact is acceptable if that statement of fact is exactly on point and in turn contains a specific citation to the underlying evidence. Even then, there still may be a need for explanation which ties the cited evidence to the argument made.

It is not sufficient for a moving party to simply make arguments. Nor is it sufficient for a moving party to make arguments and then submit a batch of evidence without associating each argument with the evidence in support of that argument. Even when such association is made, an explanation to relate the evidence to the associated argument may still be necessary (Paper 28 at 2).

Herman was given another opportunity to amend his preliminary motion. The motion we have before us, however, suffers from some of the same maladies as those in Herman’s substitute

preliminary motion <sup>2</sup>. Herman fails to explain how the cited evidence supports the arguments made. For example, Herman argues that:

[A]ll the subject matter defined in Counts 1-32, which correspond to claims 1-32 in the '679 patent and to claims 1-32 in the '960 application, is attributable solely to Herman. This is evidenced by the 7/9 Herman declaration (See ¶ 22, Counts 1-32, 7/9 Herman declaration, Exhibit 2021) which sets forth a description of each of Counts 1-32 and how each of those counts is disclosed and supported by each of the Initial Disclosure Document (Exhibit 2006), the Herman NDI (Exhibit 2021) and the 7/5 Halama declaration (Exhibit 2017) (Paper 29 at 18).

As explained by Judge Lee, it may not be enough to merely make an argument and cite to some evidence. That is the case here. Herman argues that Herman conceived of all 32 counts in a conclusory manner and then directs us to certain evidence. Note, however, that conclusory statements and an invitation to examine a voluminous record are insufficient. In re Swartz, 232 F.3d 862,864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000). Herman makes no effort to explain, in its motion, how Herman conceived of every element of each of the 32 counts. Instead, Herman asks us to look to the evidence and come up with our own theory. However, it is not apparent what we are looking for, or even what passages or pages to consider. For example, Herman states that the Halama declaration supports the conception of all 32 counts. Yet, the Halama declaration provides no discussion of the individual counts. The same can be said about the IDD and the NDI. Herman's citation to evidence without explaining the evidence as it relates to the argument only confuses and frustrates the reader. It does not set forth a position upon which Herman can succeed.

There is yet another procedural flaw. Herman impermissibly incorporates arguments into

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<sup>2</sup> See Laitram Corp. v. Cambridge Wire Cloth Co., 919 F.2d 1579, 1584, 16 USPQ2d 1929, 1933 (Fed. Cir. 1990) (sanctioning both counsel for repeatedly filing useless briefs).

its brief. Herman directs our attention to the Herman 7/9 declaration in support of the argument that Herman alone conceived of the 32 counts. There, Herman does discuss with some particularity each of the 32 counts. In addition, there are discussions or arguments made by declarant Herman, explaining why he was the first to conceive. For example, with respect to count 25 (claim 25), Herman testified that the elements of the claim are state of the art, encompass the novel features of the independent claim from which claim 25 depends, and therefore is solely attributable to Herman (ff<sup>3</sup> 57). Clearly this is an argument advanced by Herman, yet the argument is not in Herman's brief, but rather in Herman's declaration. Herman is incorporating by reference those arguments made by the inventor Herman into its brief. Such incorporation of arguments is not permitted. See LeVeen v. Edwards, 57 USPQ2d 1406, 1412 (Bd. Pat. App. & Int. 2000)(Int. Tr. Sec. Precedential). See Paper 1, Standing Order § 13, citing to Desilva v. DiLeonard, 181 F.3d 865, 866-867 (7<sup>th</sup> Cir. 1999) (criticizing incorporation by reference as a ruse to avoid page limits). By incorporating arguments into its brief, Herman is taking a chance that we will look at all of the submitted evidence to find the relevant arguments and explanations necessary to make its case.

During oral argument, when asked why Herman incorporated by reference those arguments and explanations found in the Herman declaration into the brief, counsel for Herman explained that he did so to avoid the 25 page limit set by the Standing Order. That response, however, is dissatisfying. While Herman's brief is within the confines of the page limitation, Herman has in effect circumvented the page limitation requirement by submitting Herman's 49 page declaration. Counsel for Herman could have asked for a waiver of the page limitation in

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<sup>3</sup> ff denotes finding of fact.

order to address each count in its motion. No such request was made. Instead, Herman impermissibly incorporates arguments from other sources into its brief.

Herman has failed to follow certain procedures as outlined above, and as such, Herman second substitute preliminary motion 1 is dismissed. Alternatively, we deny Herman second substitute preliminary motion 1 for the following reasons.

#### Inventorship

An interference may be declared to resolve an inventorship dispute between an applicant and patentee. Chou v. University of Chicago, 254 F.3d 1347, 1358 n.2, 59 USPQ2d 1257, 1262 n.2 (Fed. Cir. 2001)(a means for a putative inventor to assert inventorship rights is to file a patent application and seek to have the PTO declare an interference in order to establish inventorship).

Herman must demonstrate by a preponderance of the evidence that the inventorship listed on the Barnes patent is incorrect. The burden of showing something by a preponderance of the evidence requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence before the trier of fact may find in favor of the party who carries the burden.

Concrete Pipe & Products of California, Inc. v. Construction Laborers Pension Trust for Southern California, 508 U.S. 602, 622, 113, S.Ct. 2264, 2279 (1993).

Although not binding precedent of the Trial Section, Ellsworth v. Moore, 61 USPQ2d 1499 (Bd. Pat. App. & Int. 2001) provides guidance. There, Ellsworth claimed that he was the sole inventor of the claims in the Ellsworth/Moore patent. Ellsworth filed an application, identical to the patent with the hopes of provoking an interference. An interference was declared with counts 1-15 ; those counts being identical to the Ellsworth/Moore patent claims and the Ellsworth application claims.

The panel explained that in order for Ellsworth to prevail, Ellsworth must:

(1) demonstrate a prior conception of each of the counts 1-15<sup>4</sup>, and (2) explain why the inventorship in the Moore patent was incorrect. Id. 61 USPQ2d 1505. Upon reviewing the evidence, the panel determined that Ellsworth had failed to sufficiently explain why the inventorship listed on the Ellsworth/Moore patent was incorrect.

The parties were made aware of the Ellsworth decision (Paper 43 at 3). For Herman to prevail on its motion, Herman must: (1) demonstrate that he alone conceived of the invention of each of the 32 counts prior to 15 January 1999, and (2) provide an explanation as to why the inventorship of the Barnes patent is incorrect. As further noted by the Ellsworth panel, “any time an inventor - particularly in a contested case - has a change of heart about inventorship, the inventor’s credibility necessarily becomes an issue.” Id. Accordingly, Herman’s conception, and explanation of inventorship, must be corroborated.

Counsel for Herman agreed that, in this case, Herman must demonstrate prior conception of all 32 counts (Papers 20 and 86). In its brief, Herman generally discusses the 32 counts and does provide an explanation, or story, as to why the inventorship in the Barnes patent is incorrect. Nevertheless, for the reasons that follow, Herman is denied the relief requested.

#### Herman’s credibility

Herman’s account of events is as follows:

Herman worked for SAIC on a project that was overseen by NASA (ffs 16-18).

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<sup>4</sup> The panel later explained that Ellsworth need not demonstrate a prior conception of every count, but may be entitled to a patent to those counts (claims) for which Ellsworth could demonstrate sole conception. Here, however, Herman agreed that in this proceeding, it would not be entitled to any relief unless it made a successful showing with respect to each and every one of counts 1-32 (Papers 20 and 86). Barnes’ opposition is based on that agreement.

During at least part of the time he worked for SAIC, Herman was working on his doctoral dissertation - the work for SAIC being related to his dissertation work (ff 19). Barnes, a NASA employee, was one of Herman's dissertation advisors, and the two apparently worked together on the NASA project. On 12 March 1998, Herman alone conceived of the invention using his own resources (ff 21). Herman told Barnes of his idea on 18 March 1998. At that time, Barnes provided Herman with Sellmeier coefficients to use in calculations of the invention (ff 30). Some unspecified time later, Herman approached NASA with his idea to get funding for his invention. He presented NASA with a NASA Disclosure of Invention form (NDI). A NASA representative, Ms. Johnson, told Herman that unless he added Barnes to the NDI, NASA would not be interested (ff 36). Feeling as if he had no choice, Herman added Barnes to the NDI. Herman also drafted an invention disclosure for SAIC (referred to as SID) which is apparently the same as the NDI. Herman did so with the hopes that SAIC would compensate him for his invention (ffs 38 and 39). The NDI and SID were forwarded to patent counsel, who apparently relied on the same to draft a patent application that ultimately issued as the Barnes patent.

The application for patent was filed 15 January 1999. On 1 March 1999, the day that Herman and Barnes executed the joint declaration for patent application, Herman told Barnes that he did not think that Barnes was an inventor (ff 46). Nevertheless, Herman and Barnes signed the declaration, declaring themselves joint inventors (ff 45). Herman was to be compensated by SAIC for profits emanating from the Barnes patent. SAIC changed its inventor compensation package after the Barnes patent application was filed and after the joint declaration was executed, such that Herman would receive substantially less money for his invention (ff 47). Frustrated, Herman filed the involved Herman application on 21 January 2000, naming himself sole inventor.

The facts surrounding Herman's story are troubling. Assuming the story is true, Herman has demonstrated a willingness to lie, when it is convenient for him to do so. Herman admitted that he signed a joint declaration, wherein the penalties of willfully making a false statement are

expressly stated, while believing himself to be a sole inventor. In that regard, note that the joint declaration in the involved Herman application states that willfully making a false statement is punishable by fine or imprisonment, or both (ff 45). When he perceived that his project was at risk of termination if he told the truth, Herman, by his own admission, made the conscious decision to tell a lie. That gives us no confidence that in this proceeding where the potential gain for telling a lie can be substantial, Herman is telling the truth. Moreover, the matter over which Herman was willing to lie is the same as that matter now at issue, i.e., whether Herman is the sole inventor of the involved Barnes patent. Accordingly, we do not credit the testimony of the inventor Herman.

Without credible testimony from Herman, Herman has little left to support its motion. Herman relies primarily upon Herman's testimony to prove conception of the invention and to explain why the inventorship of the Barnes patent is incorrect. The remaining evidence submitted by Herman does not fill the void. As an example, Herman relies on the testimony of Herman alone to demonstrate conception of at least counts 25 and 26 (ffs 57 and 58). Herman has directed us to no other evidence that would support a prior conception of at least counts 25 and 26, and without credible testimony from Herman, Herman's preliminary motion necessarily fails.

Furthermore, many of the facts presented by Herman with respect to the explanation of the change of inventorship are supported by Herman's testimony alone. For example, Herman testified that Ms. Johnson told him that unless he added Barnes to the NDI, then he would not get funding from NASA (ff 36). Aside from the fact that Herman's testimony is hearsay, apparently not within an exception, without credible testimony from Herman there is no support for the

proposed fact. Ms. Johnson does not testify for Herman in support of its motion.

For these reasons, Herman substitute preliminary motion 2 is denied.

Alternatively, even crediting Herman's testimony, Herman's motion fails. Herman has failed to sufficiently demonstrate conception of every count. In addition, Herman's story as to why the inventorship is incorrect in the Barnes patent is insufficiently corroborated. Either of these reasons alone is a basis for denying Herman second substitute preliminary motion 1.

### Conception

The statutory provision, 35 U.S.C. § 116, regarding joint inventorship is as follows:

[I]ventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.

As explained earlier in this proceeding (Paper 1 at 5, Paper 20 at 3), Barnes is a joint inventor of the Barnes patent if he made a contribution towards the conception of a single claim (count). In order to demonstrate that Barnes is not a joint inventor, Herman must demonstrate that he alone conceived of counts 1-32 prior to 15 January 1999, the critical date. If Herman fails to demonstrate conception of even one of the counts, Herman's motion fails. There are several counts for which Herman fails to demonstrate a prior conception. We will discuss four of the counts in detail.

### Count 25

Herman has failed to sufficiently demonstrate conception of count 25 (ff 14) prior to the critical date. Herman testified that he conceived of the invention of count 25 sometime during the week of 8-15 January 1999 and disclosed the invention to the attorney responsible for

drafting the Barnes patent application, Fedorochko (ff 57). Fedorochko does not testify for Herman. Herman fails to direct us to corroborating evidence to show that the subject matter of count 25 was conceived solely by Herman during the week of 8-15 January 1999, and thus conceived prior to the critical date.

Furthermore, Herman incorrectly uses an obviousness standard to demonstrate conception of count 25. Cf. Eaton v. Evans, 204 F.3d 1094, 53 USPQ2d 1696 (Fed. Cir. 2000). Herman testified that, by itself, the technique of resonant enhancement, e.g., the technique claimed in count 25, is state-of-the-art and refers to the Herman IDD and Herman NDI as “skill in the art” (ff 57). Herman, in his declaration, argues that:<sup>5</sup>

Although, by itself, the technique of Resonant Enhancement is an established state-of-the-art, that the application of the technique to Claim 24, which in turn is dependent on the independent Claim 19, is novel. Therefore, Claim 25 depends from Claim 24 and 19, and I conceived of the novel combination of Claim 25, which includes the recitations of Claims 24 and 19 (Herman Ex. 2021, page 41).

We understand the argument to mean that since the novel invention in the form of independent claim 19 was solely conceived by Herman, any claim depending from the independent claim and obvious in view of the independent claim, is necessarily solely attributable to Herman<sup>6</sup>. The argument is rejected.

In this interference, each and every count is a separate invention with respect to proofs demonstrating sole inventorship. That the elements of count 25 are well known does not mean that the elements were known to Herman or that he conceived of the invention of count 25.

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<sup>5</sup> As already discussed, Herman’s incorporation of arguments from the Herman declaration into the brief is unacceptable. Nonetheless, we address the merits of the argument.

<sup>6</sup> During oral argument, counsel for Herman agreed to our interpretation of the argument advanced by Herman in his declaration.

Here, it is incumbent upon Herman to demonstrate that for each and every count he conceived of the subject matter, including each element of the count, to the exclusion of Barnes. Herman has failed to sufficiently demonstrate that he alone conceived of the invention of count 25.

#### Count 26

Herman makes a similar argument with respect to count 26 (ff 15). Herman testified that he conceived of the invention of count 26 sometime during the week of 8-15 January 1999 and disclosed the invention to Fedorochko (ff 58). Again, Herman fails to direct us to corroborating evidence that demonstrates that the subject matter of count 26 was conceived by Herman during the week of 8-15 January 1999, and thus conceived prior to the critical date.

Herman testified that the technique of Pound-Drever-Hall is an established frequency locking technique. Herman argues that because the claim depends from the novel independent claim, then the dependent claim 26 necessarily is solely attributable to Herman (ff 58). As stated above in connection with count 25, such an argument is misplaced and rejected.

#### Count 6

Barnes claim 6 depends on claim 1 and recites that the first and second electromagnetic waves are each continuous-wave waves (ff 12). Herman, in his declaration, argues again that the subject matter of the count was provided by him to Fedorochko during the week of 8-15 January 1999. However, Herman has directed us to no corroborating evidence for the assertion that Herman conceived of the subject matter of count 6 prior to the critical date.

Herman argues that one of ordinary skill could ascertain that the waves described in the Herman IDD could both be continuous-wave waves, and that since claim 1 is novel, claim 6, which depends from claim 1 is also novel and thus solely attributable to Herman (ff 53). The

passages in the Herman IDD, the Herman NDI, and Halama affidavit that Herman direct us to do not describe that both of the first and second waves are continuous. It is not enough that one of ordinary skill in the art would understand that, given the IDD, the first and second waves could be continuous. As stated above, with respect to count 25, obviousness is not the test for demonstrating that Herman alone conceived of the invention. Rather, Herman must demonstrate that he, prior to the critical date, thought of the embodiment where the first and second waves are continuous.

#### Count 7

Barnes claim 7 depends on claim 1 and recites that the first electromagnetic wave is a pulsed wave and the second electromagnetic wave is a continuous-wave (ff 13). Herman, in his declaration, argues that the subject matter of count 7 was provided by him to Fedorochko during the week of 8-15 January 1999 (ff 54). As with counts 6, 25, and 26, Herman has failed to direct our attention to corroborating evidence that Herman conceived of the subject matter of count 7 prior to the critical date.

Herman argues that one of ordinary skill could ascertain that the first and second electromagnetic waves described in the Herman IDD could be pulsed and continuous waves respectively. Herman argues that since claim 1 is novel, claim 7, which depends from claim 1 is also novel and thus solely attributable to Herman (ff 54). The passages in the Herman IDD and the Herman NDI and Halama affidavit that Herman direct us to, do not describe that the first and second waves are pulsed and continuous waves respectively. Again, it is not enough that one of ordinary skill in the art would understand that, given the IDD, the first and second waves could be pulsed and continuous waves as already explained.

Since Herman has failed to sufficiently demonstrate that he conceived of at least counts 6, 7, 25, and 26, Herman's motion is denied based on this alternative ground.

Lack of corroboration of Herman's story

In addition to proving a prior conception of all 32 counts, Herman must provide an explanation of why the inventorship in the Barnes patent is incorrect. Even if we were to believe that Herman is capable of providing truthful information, the information that Herman has provided is insufficiently corroborated. For example, Herman explains that he was coerced into adding Barnes to the NDI that was used to draft the Barnes patent application. However, Herman's account of events are not corroborated. Ms. Johnson, who allegedly told Herman to add Barnes to the NDI does not testify for Herman in support of its preliminary motion. According to Herman, Fedorochko, the patent attorney that drafted the Barnes application, was aware that Herman believed himself to be the sole inventor. Yet, Fedorochko does not testify in support of Herman's preliminary motion. Herman's account of what he told Fedorochko and what Fedorochko told Herman are uncorroborated statements made by an inventor.

The e-mails having attachments that allegedly describe the invention are also insufficient to establish that Herman alone conceived of the invention (ffs 27, 28, 31 and 32). The e-mails do not establish that Herman alone conceived of the invention, since the e-mails do not describe the elements of any of counts 1-32. Even if we were to assume that the e-mails include the attachment that Herman describes (the IDD), Herman has failed to sufficiently demonstrate that "the attachment" or IDD describes the elements of at least counts 6, 7, 25 and 26 as previously explained.

Still, there are other flaws with respect to Herman's story. Herman acknowledges that

Barnes was involved in some way. According to Herman, Barnes provided Herman with well known Sellmeier coefficients that Herman used in calculations of the invention (ff 30). Herman argues that Barnes' contribution was insignificant, citing to Pannu v. Iolab Corp., 155 F.3d 1344, 1351, 47 USPQ2d 1657, 1663 (Fed. Cir. 1998)(a purported inventor must show that he made a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and did more than merely explain to the real inventors well-known concepts and/or the current state of the art).

Herman does not explain in its brief, nor is it apparent from the evidence that Herman directs us to, what Sellmeier coefficients are, why such coefficients are well known, how these coefficients fit within the context of each count, or why providing the coefficients would be an insignificant contribution towards conception. It is not enough that Herman himself testifies that the coefficients are well known, without directing us to further evidence to corroborate the assertion.

Herman also relies on the testimony of Halama in support of its assertion that Herman alone conceived of the 32 counts. Although Halama does testify that Herman disclosed equations and graphs that are the same as those disclosed on the IDD and NDI prior to the critical date (ffs 24-26), such evidence fails to demonstrate that: (1) Barnes was not a co-inventor of any of the 32 counts, or that (2) the graphs and equations on the IDD and the NDI demonstrate a prior conception of every count. As stated above, with respect to count 25, for example, Herman even acknowledges that the NDI and IDD fail to describe the elements of count 25. For these reasons, Halama, Herman's sole corroborating witness, fails to provide corroborating evidence that Herman alone conceived of all of counts 1-32.

Lastly, Herman argues that Barnes could not have been an inventor of the Barnes patent, since Barnes was unfamiliar with the subject matter in the Barnes patent (Paper 29 at 20). The argument is based on comments that Barnes made regarding an article written by Bahoura. According to Herman, the Bahoura article covers the same subject matter as that in the Barnes patent. Barnes apparently reviewed the Bahoura article and sent Bahoura an e-mail (ff 51). Herman argues that the comments made by Barnes in the e-mail demonstrate that Barnes thought that the subject matter covered in the Bahoura article was novel. Herman argues that since Barnes believed the subject matter in the Bahoura article to be novel, that Barnes then did not know what was in the Barnes patent. There are several reasons why Herman's argument fails.

First, the e-mail does not refer to terminology that is used in the counts. Barnes' remarks are directed to using a beat frequency and a beat index of refraction. These terms are not used in the 32 counts. Nor has Herman explained how the terminology of "beat frequency" and a "beat index of refraction" relate to the subject matter of counts 1-32. Furthermore, Herman has made no attempt to explain how the article is the same as the subject matter of the 32 counts. Even if the Bahoura article and the Barnes patent cover the same subject matter, the comments made by Barnes in the e-mail do not necessarily mean that Barnes was unaware of the content in the Barnes patent. We do not know what Barnes' comments mean, nor will we speculate. Barnes does not testify as to the content of the e-mail.

Since Herman has failed to provide a corroborated explanation, Herman second substitute preliminary motion 1 is denied on this alternative ground.

Since Herman has failed to demonstrate by a preponderance of the evidence that it is entitled to the relief requested, we need not and have not considered Barnes' opposition or

Herman's reply.

Motions to suppress

Herman filed a motion to suppress certain ones of Barnes' exhibits (Paper 73). Barnes relied on the objected to exhibits in support of its opposition to Herman second substitute preliminary motion 1. Because Herman second substitute preliminary motion 1 failed to set forth a prima facie case, there was no occasion to consider Barnes' opposition. We did not rely on the Barnes exhibits, or those portions of Barnes' exhibits, that Herman seeks to suppress in rendering our decision. Accordingly, Herman's motion to suppress is dismissed.

Barnes filed a motion to suppress certain ones of Herman's exhibits that Herman relied on in support of Herman's second substitute preliminary motion 1 and Herman's reply 1 (Paper 70). Because Herman failed to demonstrate that it was entitled to the relief requested, neither Barnes' opposition nor Herman's reply were considered. Accordingly, there was no occasion to consider those Herman exhibits submitted in support of Herman's reply that were not submitted in support of its preliminary motion.

With respect to those documents Herman relies on in support of its preliminary motion 1 that Barnes seeks to suppress, we find it unnecessary to consider the specific objections to the admissibility of those exhibits, since Herman has failed to demonstrate that the inventorship listed in the Barnes patent is incorrect by a preponderance of the evidence, even assuming the exhibits to be admissible. Accordingly, Barnes' motion to suppress is dismissed.

**D. Judgment**

Based on our decision, it is



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