



July 22, 2008

Hon. Jon W. Dudas
Director of the U. S. Patent and Trademark Office
P. O. Box 1450
Alexandria, VA 22313-1450

RE: Patent prosecution inefficiencies involving insurance and financial services
business method patent applications.

Dear Director Dudas:

I am writing this letter because I have observed that recent patents¹ issued to Lincoln National Life Insurance Company (Lincoln National), which address the very significant variable annuity insurance market, appear to have noteworthy defects caused in large measure by inefficient and ineffective examination.

The purpose of this letter is to:

- Outline what I believe are causes of inefficiencies in the examination of patent applications in the insurance and the broader financial services areas.
- Point to a specific example where patent prosecution inefficiency is likely to have a costly impact.
- Suggest for your consideration a number of solutions which might address this problem.

By way of introduction, I am an actuary with over 40 years of experience, primarily, in the fields of life, health, and annuity insurance. I am a member of the American Academy of Actuaries (MAAA) and a Fellow of the Society of Actuaries (FSA). For the past few years I have focused and specialized on innovation in the insurance industry as a consulting actuary and have provided assistance to clients in drafting invention descriptions and developing and pricing new insurance products enabled by their innovations.

I am also an inventor with an issued U. S. patent and other patent applications pending. I am a subject matter expert and have worked with my clients' patent attorneys and agents in resolving examination issues related to patent applications they have filed. On two occasions I have made educational presentations as part of forums sponsored by the USPTO:

¹ US 6,611,815; US 7,089,201; and US 7,376,608

- On 11/20/2003 I conducted a seminar for Technology Center 3600 examiners to apprise them of the current state of insurance technologies relevant to their work.
- On 5/31/2006 I presented on state-of-the-art insurance topics to examiners at the USPTO Technology and Learning FORUM 2006 for examiners in Technology Centers 3600 and 3700.

I have made numerous presentations at industry meetings on recognizing and identifying intellectual property and on the importance of patents in the insurance and broader financial services industries.

As co-editor of the *Insurance IP Bulletin*², I have addressed many issues relevant to business method patents in the insurance and broader financial services areas. Patent applications in these subject matter areas are assigned to Technology Center 3600 for examination. In my work and in the preparation of articles and studies for publication in the *Insurance IP Bulletin*, I have noted inefficiencies in the examination of patent applications in these subject matter areas.

In order to better understand my point of view you should know that I believe that business method patents in the insurance and broader financial services areas are a good thing. I believe that practitioners in these fields ought to be allowed to protect their innovation with patents in the same manner that other inventors in other fields are allowed to protect their innovation.

I am concerned that the inefficiencies I note above and below produce bad results which, in turn, unfairly create negative impressions regarding business method patents, particularly those related to innovation in insurance and financial services. I believe that much of the concern in the insurance and financial services industries regarding the quality and substance of patents being issued can be traced directly to the bad results contributed to by lack of experience which results in inefficient and ineffective patent prosecution.

The Significance of the Lincoln National Patents

In this letter I am focusing on the three issued patents³ assigned to Lincoln National Life Insurance Company covering similar inventions related to methods of providing payout benefits from, essentially, unannuitized variable annuity account values. There are also two currently published Lincoln National patent applications⁴ on similar subject matter pending examination.

² The Insurance IP Bulletin is an e-newsletter distributed to subscribers free of charge via the internet. It is co-edited by Tom Bakos, FSA, MAAA and Mark Nowotarski, who is a patent agent. The current issue can be found at: <http://www.bakosenterprises.com/IP/IPB.html>.

³ The three issued patents are: US 6,611,815; US 7,089,201; and US 7,376,608.

⁴ The two pending published applications are: 2007/0011086 and 2007/0033124

This intellectual property claimed by Lincoln National has particular importance in the insurance industry because it describes business method processes currently embedded by many insurance companies in Guaranteed Living Benefit (GLB) riders routinely included in their variable annuity products. The Guaranteed Minimum Withdrawal Benefit (GMWB) rider is one form that a GLB may take.

Variable annuities are a very significant insurance market. Per NAVA⁵ as of the 1st Quarter, 2008 total assets invested in variable annuity products in the U. S. were about \$1.4 trillion⁶. New sales contribute approximately \$40 billion per quarter or \$160 billion per year. While there was a decrease in variable annuity asset values in 2007, variable annuities remain a significant insurance market.

The sales success experienced over the past ten years by the, at least, 25 insurers offering variable annuity products has been attributed to GLBs, including the GMWB riders, which almost all variable annuity insurers include in their portfolios. Therefore, the GMWB rider or benefit is considered very important to the continued success of the variable annuity insurance industry.

Lincoln National is asserting patent rights contained in its patents US 6,611,815, US 7,089,201, and US 7,376,608 by filing patent infringement law suits against two competitor insurers who offer GMWBs: *Transamerica Life Insurance Company* and *Jackson National Life Insurance Company*.

The fact that Lincoln National is enforcing its patents is of great interest in the insurance industry and is what attracted my attention to them. This action will also surely bring their patents under judicial and expert scrutiny as the lawsuits make progress. Such review and scrutiny will most certainly be focused on the USPTO examination process which caused these patents to be issued and has already begun to highlight deficiencies.

Cause of Inefficiencies in the Examination Process

In my opinion patent prosecution inefficiencies result both from inexperience in the patent office and from inexperience in the group of applicants (including their patent attorneys/agents) who submit and prosecute applications in the insurance and broader financial services areas. This inexperience is derived from the fact that the subject matter contained in these business method patent applications is not taught by the prerequisite educational background required to become a patent attorney/agent or patent examiner.

⁵ NAVA is non-profit trade association of Insurance Companies, Investment Management Firms, Broker/Dealers, Banks, Financial Planners, and other leaders in the variable annuity industry. See: http://www.navanet.org/frames/about_dex.htm for more information.

⁶ See NAVA website: <http://www.navanet.org/press/PDF/NAVA1stQuarterResults.pdf>

Therefore, patent examiners or patent attorneys/agents, except coincidentally⁷ or as a result of independent study, cannot be expected to have subject matter expertise approaching the level of ordinary or reasonable skill in these art areas.

For example, an individual with the requisite subject matter expertise in the insurance subject matter area would be someone with a degree in actuarial science or who had achieved through rigorous study and examination certification as a Member of the American Academy of Actuaries (MAAA) or Fellow/Associate of either the Society of Actuaries (FSA, ASA) or Casualty Actuarial Society (FCAS, ACAS)⁸.

This problem has a two-sided effect. Since both patent examiners and patent attorneys/agents are subject to the same technological, educational prerequisites, neither has the background provided by education, training, or experience (except coincidentally) to naturally understand, as would a person of ordinary or reasonable skill in the art, the concepts and processes contained in insurance or financial services business methods. Therefore, in the prosecution of patent applications in these art units, what may be obvious to a person skilled in the art could easily be missed, and often is missed, by both the applicant's patent attorney/agent and the patent office. What is going on is something akin to the blind leading the blind.

As a result of this lack of experience and expertise in the patent office, patent prosecution in these art areas is made more difficult, time consuming, and inefficient – often resulting in defective patents⁹ being issued.

Based on my personal experiences, the USPTO examiners assigned to insurance business method patent review are intelligent and well meaning. However, by design they apparently do not have ordinary skill or experience in the art of insurance and the broader financial services. The “design” aspect of this deficiency is made evident by reference to the technical subjects listed as a prerequisite requirement¹⁰ for admittance to the examination to become a patent attorney/agent (or patent examiner). This list is clearly dominated by technical, scientific subjects. Even mathematics is not among the qualifying subjects.

⁷ I recognize that the patent office has some examiners with MBAs and some examiners may have had experience in industries such as insurance and financial services unrelated to the formal education and training in the technical sciences that officially qualified them to become patent examiners. However, this dependence on a happenstance finding of “dual majors” to staff an important patent office function seems an indirect and inefficient way to address an important need.

⁸ The designations listed above are not the only actuarial certifications that might qualify someone as a subject matter expert in the field of insurance.

⁹ By “defective patent” I mean an issued patent that claims either more or less than the applicant/inventor is entitled to.

¹⁰ See **General Requirements Bulletin for Admission to the Examination for Registration to Practice in Patent Cases Before the United States Patent and Trademark Office** as published by the USPTO – available at: <http://www.uspto.gov/web/offices/dcom/olia/oed/examregist.htm>.

Degrees or qualifications in subjects that are related to the subject matter of insurance and financial services industry business method invention are missing from the list of prerequisite subjects. Clearly, individuals with degrees in, for example, actuarial science, business (including MBA), economics, and finance would be better equipped educationally and through experience to draft, evaluate, or examine patent applications with claims in insurance and the broader financial services areas. For example, these claims may be classified as 705/4, 705/35, 705/36, or in any of the other appropriate 705 classifications.

My understanding is that the technical/scientific subject prerequisites described in the General Requirements Bulletin published by the USPTO are not hard coded into patent law. They are more like patent office rules or procedures applied by the Office of Enrollment and Discipline (OED) and could be changed or updated with relative ease and, probably, ought to be changed in order to assure that a patent attorney/agent or examiner who “possesses the legal, scientific, and technical qualifications necessary for him or her to render applicants valuable service”¹¹ is available¹² to inventors in the insurance and broader financial services areas.

Evidence of Prosecution Inefficiency – the Lincoln National Patents

My general impression, having carefully reviewed the Lincoln National family of patents from the point of view of a person of ordinary skill in the art, is that they were:

- poorly drafted, and
- inadequately checked and reviewed by the applicant during initial drafting, patent prosecution, and after issue.

As a result of poor drafting some specification language and the meaning of terms and expressions used in the claims is difficult to fully comprehend. This is evidenced to some extent by the two Markman Hearing Opinions. Note in particular the following from the 7,089,201 Opinion in the Jackson National litigation [emphasis added]:

*The Brief Summary Of The Invention is somewhat more illuminating than the Abstract as to the nature of what is claimed in the '201 patent, perhaps in part because of the context provided by the Background Of The Invention. Unfortunately, the parties' different impressions of what—or specifically, how many—inventions are described in the Brief Summary and the Detailed Description suggest that the illumination is less than brilliant.*¹³

¹¹ See §11.7 (Requirements for registration) of the General Requirements Bulletin.

¹² Clearly, patent attorneys and examiners, as a group, have a broad range of technical subject matter qualification but no single individual is qualified in every subject matter area. One can reasonably assume that patent attorneys only accept assignments for which they are individually qualified and that examiners are assigned to art units for which they have some expertise. The point is that by design no patent attorney or examiner is qualified on the basis of expertise in the insurance and broader financial services areas. Therefore, it is highly unlikely that patent attorneys or examiners with expertise in those areas will be available to inventors.

¹³ Markman Hearing - Opinion & Order, - 7,089,201, pg. 13

In some cases important or critical terms and expressions used in the claims were not defined explicitly or were not defined at all in the specification. It is generally true that in a well drafted specification all terms or expressions used to describe an invention and certainly all terms used in the claims, except perhaps those with a meaning well understood by a person of ordinary skill intended, ought to be explicitly defined. The drafters of Lincoln's applications could have certainly done this but, carelessly, they did not.

Since all of this IP is based on the same or very similar concepts, methods, or processes, specification language was freely copied between the applications in the family. Often this resulted in incongruities or inconsistencies within the specification description. Often mistakes were introduced by the applicant when this copying was done and were never caught on review. In one instance a formula error was made by the applicant and, apparently, not discovered until the Defendant in one infringement action pointed it out.

The cobbling together of specification language from, in effect, stock pieces, often resulted in specifications describing inventions for which claims were not made in a particular application. And, since the descriptive wording used was, in a sense, generic with respect to the underlying inventions and treated, essentially, as transferable among the IP family, the specification language in a specific application often did not clearly describe the inventions claimed in that application. This is evidenced by the following excerpt from the 7,089,201 Markman Hearing Opinion (Jackson National litigation) in which the Court was having difficulty resolving differences between Plaintiff and Defendant on how many aspects of the invention were being disclosed [emphasis added]:

*Although the court is tempted to throw up its hands and declare the Detailed Description hopelessly vague, because the precise demarcation point between a second and third method or program is not clear, what is clear is that the remainder of the Detailed Description, that is, the part beginning at Col. 11, l. 49, describes a "withdrawal program" with both a "liquidity period" or "unannuitized" period and a "life annuity period" or "annuitized" period, i.e., a third, "combined" program.*¹⁴

The patent office also made errors when it published the Lincoln National issued patents which were not discovered on review or corrected by the applicant after publication. Overall, this poor drafting and inadequate checking and attention to detail both by the applicant and the patent office have the potential to create weaker patents.

It became apparent from my review of the patents and associated file wrapper documents that my evaluation and review of these patents as an actuary with 40+ years of experience in the insurance industry was significantly different than the review given by the examiner. Because the examiner did not have the background or experience at a level of ordinary skill in the

¹⁴ Markman Hearing - Opinion & Order,- 7,089,201, pg. 33

subject matter he, essentially, did not fully understand the concepts, processes, or technical aspects of the claimed inventions. As a result, relevant prior art was either not found or misinterpreted. Some detailed examples are provided below.

Life Insurance Guarantees in Prior Art

A basic underlying invention claimed by Lincoln National in the three issued patents relates to providing a guarantee in an insurance contract. In particular, a guaranteed minimum annuity payment is claimed. Simply providing a guaranteed minimum payment would seem to be obvious as guarantees are an essential part of insurance products and there are many examples of guaranteed minimum payments. In addition, as in the Lincoln National patents, there are usually conditions applied for continued receipt of the guaranteed payments.

For example, the specification language in the Lincoln National patents describes a fixed, interest only annuity formula using an assumed interest rate (AIR) to calculate the amount of the guaranteed minimum benefit payment. Fixed annuities, which typically guarantee a minimum interest rate, are prior art examples of annuities that, at the time the applications were filed, already provided a guaranteed minimum benefit payment.

Cooperstein, US 5,893,071, as Prior Art

In particular, the examiner apparently saw no relevance to a piece of prior art disclosed by the applicant, the Cooperstein patent, US 5,893,071. Cooperstein, in fact, has a great deal of relevance since it discloses an essential feature claimed by the Lincoln National patents.

In order to describe what the examiner missed in his review, I must get technical.

The essential feature of the Lincoln National invention disclosed by Cooperstein is an immediate annuity with an account value which provides liquidity during a payout phase. It should be noted that the Cooperstein patent was filed in 1996 prior to the landmark State Street Bank¹⁵ decision which produced a greater acceptance of business method patents. Therefore, the Cooperstein patent was written in language designed to describe the invention in terms of its underlying technical aspects while the Lincoln National patents were drafted to a standard that did not require as much technical description.

Word searching is typically used by examiners in their search for prior art. In this case however, word searching would not have been an effective process because of the significantly different drafting styles. Essentially, while the concepts were the same or similar, the words found in the Lincoln National patents were not the same as those used in the Cooperstein patent to describe essentially similar innovation.

In order for the examiner to have noticed relevant prior art in the Cooperstein patent, the examiner would have had to have read and understood the Cooperstein patent. This would

¹⁵ State Street Bank & Trust Co. v. Signature Financial Group

have been very difficult, at least, for someone with no training, education, or experience in annuity design, development, administration, or pricing. In particular, a strong background in actuarial science would have been necessary to understand the similarity in the processes being described.

For example, the Lincoln National patent U.S. 7,089,201¹⁶ identifies a component in a formula relating two successive account values as the “increment for survivorship”. It would be evident to someone of ordinary skill (e.g. an actuary) that the Lincoln National “increment for survivorship” is identical to the element described in US 5,893,071 which Cooperstein called a “living credit”.

An essential feature of the Lincoln National patents is the creation of a retrospective account value for a payout annuity where the “increment for survivorship” is an element used in the calculation. The prior art Cooperstein patent (US 5,893,071) also describes a retrospective account value for a payout annuity where the “living credit” is an element used in the calculation. Thus, Cooperstein’s prior disclosure of this essential feature of the Lincoln National invention went unnoticed by the patent examiner – either because:

- the examiner did not find this similarity through a simple word search of patent prior art, or
- the examiner did not understand the actuarial mathematics underlying either the Lincoln National or the Cooperstein descriptions.

Life of Virginia as Prior Art

The Lincoln National inventions enable an immediate annuity with cash withdrawal values. That is, as Lincoln National describes it, their invention provides continued liquidity during a payout annuity phase. However, it is evident through a search of published actuarial literature that Life of Virginia had an identical liquidity feature in their “Added Options” immediate annuity products as early as 1992, at least six years prior to the earliest provisional patent application filed by Lincoln National.

The existence of an earlier Life of Virginia immediate annuity product can be found through a search of actuarial publications of the Society of Actuaries and the American Academy of Actuaries which are available online. In addition, both Life of Virginia and Lincoln National received Private Letter Rulings (PLRs) from the IRS addressing the tax consequences of the application of their identical methodologies of providing cash withdrawal values on immediate annuities. These PLRs provide a description of how the Life of Virginia and Lincoln National product innovations work. Despite their name, Private Letter Rulings are published and are available online also. A review of the Life of Virginia and Lincoln National PLRs would reveal that identical processes are being applied.

¹⁶ See col.7, line 43 of U.S. 7,089,201 for Lincoln National’s description of “increment for survivorship”.

The examiner did not find this prior art, presumably because the publication data bases in which it resides are not included in the non-patent prior art data bases searched by the USPTO. A person of ordinary skill in the art of the Lincoln National patents (e.g. an actuary) would have easily found, as I did, these references or would have been aware of them without searching because of personal experience.

Inconsistent definitions in US 7,376,608

In the recently issued Lincoln National patent, US 7,376,608, there is an obvious inconsistency in the meaning of the term “specified withdrawal rate” as used in Claim #1 and its dependent Claims 7 & 8 which went unnoticed by the patent examiner. The term “specified withdrawal rate” is not defined in the specification and has no specific or special meaning to a person of ordinary skill in the art. Therefore, its meaning can only be derived from the common meaning applied to the words used, how the expression is applied in the claims, and reference to any file wrapper correspondence between the examiner and the applicant which may provide enlightenment.

It is clear from a reading of Claim #1 that “specified withdrawal rate” must mean a dollar amount despite the use of “rate” in the expression. However, in dependent Claims #7 & 8 “specified withdrawal rate” clearly means a percentage rate that is multiplied by an account value to get a dollar amount.

This inconsistency, which I believe renders the meaning of these claims in US 7,376,608 indefinite, went unnoticed by the patent examiner.

Suggested Solutions

It is clear that the subject matter in the inventions claimed by Lincoln National was well outside the ordinary skills sought by the patent office when it qualifies either patent examiners or patent attorneys/agents. These and other patents in the field of insurance or broader financial services do not conform to the presumption made by the USPTO (when it sets educational and experience prerequisites) that all invention is in technical or scientific fields.

Clearly, it would be reasonable for the patent office to consider one or more of the following in order to solve these patent prosecution problems:

- Expand the degrees and areas of study that qualify an individual for admittance to the examination to become a patent attorney/agent (or patent examiner) so that these prerequisites include subjects like actuarial science, business (e.g. MBA), economics, and finance.
- Allow the patent office to retain experts to aid examiners in areas of art in which the patent office has no ordinary or reasonable skill.
- Utilize a method such as Peer-to-patent in which pending patent applications are given public exposure in fields of art where the patent office examiners have little or no

training or experience. Through such a process patent examiners would, at least, have informal exposure to expert thinking in the field of art of the patent application.

Applicants may now use experts to refine their patent applications or to address an examiner objection and this may be helpful to some extent. Based on my own involvement in this activity of helping my clients in dealing with examiner objections, this certainly seems to be the case. However, this approach is not as efficient as it could be if both the examiner and the applicant's patent attorney/agent were equally qualified in the subject matter at a level of, at least, ordinary skill.

Conclusion

Improving patent prosecution with respect to business method patents in the insurance and broader financial services areas will be beneficial to everyone involved and the public.

Patents like Lincoln National's are very likely to attract judicial review as they are enforced through infringement law suits. The USPTO is very likely to come under critical review as a result of these lawsuits since the defense's usual first effort is to invalidate a patent and to show that the patent office made a mistake in issuing it in the first place. Usually, significantly more money is spent and more expertise is brought to bear on this judicially inspired review than by either party in the original patent prosecution effort. Therefore, the patent office should have a strong incentive to minimize errors that it can easily minimize by ensuring that qualified examiners are available.

The USPTO is charged with enforcing the §112 requirement that the specification contain a written description of the invention and the manner and process of making and using it, in such full, clear, concise, and exact terms that a person of ordinary or reasonable skill in the art can make and use it. In the case of the Lincoln National patents the USPTO has not done this.

I believe I have suggested a number of possible changes in USPTO procedure which can be easily implemented with little additional cost or which would have significant benefit to the patent office, applicants, and the general public relative to any additional cost.

Please let me know if I can provide you with any additional information or detail regarding the subject discussed above that you or any member of your staff would find helpful in considering the issues that I have addressed in this letter.

Sincerely,



Tom Bakos, FSA, MAAA
Consulting Actuary

cc: Wynn Coggins (wynn.coggins@uspto.gov)
John Love (john.love@uspto.gov)