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REFORMING THE USPTO TO COMPLY WITH MPEP § 707.07(j) TO GIVE A FAIR SHAKE TO *PRO SE* INVENTOR-APPLICANTS

DR. PAUL M. SWAMIDASS

ABSTRACT

If *pro se* patent applicants are successful with their applications, they are likely to be inspired to become serial inventors and patentees. In contrast, a *pro-se* patent applicant, who is turned off by a non-transparent and arbitrary examination process at the United States Patent and Trademark Office (“USPTO”), may curtail his/her instinct to invent and patent. The USPTO does not collect data or publish statistical analyses of *pro se* patent applications. Therefore, the challenges faced by the *pro se* inventor-applicants are hidden. The author subjected himself to the PTO’s patent examination process as a *pro se* applicant for twenty-five months for a first-hand experience of the process, which resulted in an issued patent in December 2009 after four consecutive rejections of all claims. The author’s first-hand experience as a *pro se* patent applicant is included as an illustrative case with a contributed section by a registered patent attorney, who provides a third-party evaluation of the examination. A tool proposed in this article to assess the quality of the patent examination process reveals many of the problems facing *pro se* applicants and, specifically, the failure of examiners to follow the requirements of Manual of Patent Examining Procedure (“MPEP”) § 707.07(j). The paper reasons with some evidence that, at various stages in the examination process, the *pro se* applicant is pushed to the point of abandoning his/her application prematurely. Further, the case gives rise to a concern that examiners have become too dependent on patent attorneys representing inventors, and may engage in irrational rejection of *pro se* applications. Detailed recommendations for reforming the USPTO are offered to ensure that examiners comply with all the provisions of MPEP § 707.07(j).

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DR. PAUL M. SWAMIDASS *

INTRODUCTION

Stephen A. Merrill, Richard C. Levin and Mark B. Myers note in their report “A Patent System for the 21st Century” of the National Research Council (“NRC”) the obvious fact that “In spite of its pervasive influence, patent policy for the last 50 years has been the preserve of practicing attorneys, judges, patent office administrators, and legally trained legislators.”¹ They also indicate that patent policy would benefit from the insights of a diverse group of experts that includes “economists, scientists, and engineers in different disciplines, inventors, business managers, and legal scholars.”² Yet, as seen below, patent-law professionals are not entirely pleased with the United States (“U.S.”) patent system or patent policy.

This article is a somewhat pioneering effort to fathom the concerns of the *pro se* patent applicants, who have negligible influence on the patenting system or patent policies although it is well known that the individual inventor (or garage inventor) is as “American as apple pie”³ because the inventive genius combined with the lonely toils of the American individual inventor has given the nation brilliant technological breakthroughs and universal acclaim for American innovativeness; many such inventors went on to become jobs-creating entrepreneurs. It ought to be policy-makers’ concern to investigate whether the U.S. patent system treats the *pro se* patent applicant with appropriate efficiency and effectiveness especially because they do not have legal representation in a system predominantly crafted by legal professionals.

* Professor of Operations Management Director, Thomas Walter Center for Technology Management, 211 Ramsey Hall, Ginn College of Engineering, Auburn University, AL 36846-5358, (334) 844-4333, swamidass@auburn.edu. The author gratefully acknowledges the availability of Registered Patent Attorney A.J. Gokcek, Esq. for occasional informal consultations when needed, and for his contributed section in this article. The author is not an attorney. However, in Spring semester 2009 (fourteen months after filing his non-provisional), the author team-taught with a patent attorney a course on “IP and Patent Application Drafting” for college students at Auburn University. This elective course was attended by engineering and business students with original ideas that they wanted to patent. See Paul Swamidass & A. J. Gokcek, *Empowering Young Inventors: An Experimental Course on IP and Patent Application Drafting at Auburn University*, J. TECH. TRANSFER (forthcoming), available at <http://www.eng.auburn.edu/center/twc/Patent%20application%20drafting%20skills%20for%20college%20students.pdf>. The paper notes that sixteen students in the class had ideas but not the funds to engage an attorney to file patents with the United States Patent and Trademark Office. *Id.* (manuscript at 2–3). They would file patents as *pro se* or not file at all. See *id.* The course was intended to provide such inventors the skills to become informed *pro se* applicants. *Id.* (manuscript at 4).

¹ See NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, A PATENT SYSTEM FOR THE 21ST CENTURY 2 (Stephen A. Merrill et al. eds., 2004) [hereinafter NRC], available at http://books.nap.edu/openbook.php?record_id=10976&page=R1.

² *Id.*

³ Christopher A. Cotropia, *The Individual Inventor Motif in the Age of the Patent Troll*, 12 YALE J.L. & TECH. 52, 54 (2009).

On the one hand, Mark Lemley recommends that the society accept “rational ignorance” (the result of less than serious examination of patent applications) at the United States Patent and Trademark Office (“USPTO”) for cost containment reasons while allowing many invalid patents to go through.⁴ On the other hand, the reasoning and evidence in this study shows, less than serious examination of *pro se* applications is resulting in “irrational rejection” of worthy *pro se* applications. An important implication being, *the experiences of patent attorneys and pro se applicants prosecuting a patent application could be polar opposites*. Therefore, all the USPTO-published data about patent applications prosecuted by attorneys are not relevant or helpful to our understanding of the plight of the *pro se* patent applicant. The examination process awaiting the *pro se* inventor-applicant at the USPTO seems to discourage *pro se* applicants, and encourages the premature abandonment of valid applications.

The solution to the problems faced by *pro se* applicants lies in the USPTO treating the *pro se* citizen-applicant in a manner consistent with the policies already found in Manual of Patent Examining Procedure (“MPEP”) § 707.07(j).⁵ The recommendations of this article for reforming the PTO include a simple measurement tool⁶ to evaluate the quality of the patent examination experienced by *pro se* applicants. Consistent use of the recommended measure by the USPTO would enable the Office to give pertinent feedback and training to examiners working with *pro se* applicants.

Published papers on patent prosecution in law journals and reviews are invariably written by law-school professors, practicing patent attorneys/agents, or patent-law students, who collectively tend to focus on the issues of relevance to patent attorneys representing inventors at the USPTO.⁷ The *pro se* applicant does not seem to appear on their radar screen for obvious reasons; attorneys do not serve the *pro se* community, and they are not exposed to the problems faced by the *pro se* patent applicant. Thus, there is a void in patent law journals on the issues faced by the *pro se* inventor-applicant. This paper attempts to fill this void in the legal literature.

For a study of USPTO performance in prosecuting *pro se* applications, the USPTO could be the natural source for data gathered over the years. The USPTO keeps and publishes many statistics about patent applications and issued patents, but does not collect data on the number of *pro se* applications and patents issued to *pro se* each year.⁸ Without data, it is near impossible to assess, critique, evaluate,

⁴ Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1531–32 (2001).

⁵ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, MANUAL OF PATENT EXAMINING PROCEDURE § 707.07(j) (8th ed., 7th rev. 2008) [hereinafter MPEP].

⁶ See Ex. 1 *infra*.

⁷ *E.g.*, Lemley, *supra* note 4 (law-school professor); Robert A. Migliorini, *Lessons for Avoiding Inequitable Conduct and Prosecution Laches in Patent Prosecution and Litigation*, 46 IDEA 221 (2006) (patent attorney); Hedwig A. Murphy, Comment, *Limiting Continuations: A Pharmaceutical Based Perspective*, 6 RUTGERS J.L. & PUB. POL’Y 856 (2009) (student).

⁸ *E.g.*, U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, U.S. PATENT STATISTICS, CALENDAR YEARS 1963–2009 (2010) [hereinafter PATENT STATISTICS 1963–2009], available at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.pdf; see GENERAL PATENT STATISTICS REPORTS, BY CALENDAR YEAR, <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm> (last visited May 18, 2010).

and improve the USPTO in its handling of *pro se* applications. A request for data on *pro se* applications to the USPTO, as this study got underway, was promptly responded saying, “We don't have reliable statistics on Pro se inventors because that information is not obtained from the applicant at the time of filing.”⁹ This is unfortunate. Additionally, *pro se* applicants are not as well organized as industry groups and associations representing patent attorneys to fight back unfair examination at the USPTO.

The debate on the quality of patents issued by the USPTO is never-ending. On this debate, one recognizable view belongs to Mark Lemley, whose thesis is: society should tolerate “rational ignorance” at the USPTO resulting in the issuance of “bad” patents.¹⁰ His logic being,

The PTO has come under attack of late for failing to do a serious job of examining patents, thus allowing bad patents to slip through the system. . . .

. . . .

. . . Because so few patents are ever asserted against a competitor, it is much cheaper for society to make detailed validity determinations in those few cases [during litigation] than to invest additional resources examining patents that will never be heard from again. In short, the PTO doesn't do a very detailed job of examining patents, but we probably don't want it to. It is “rationally ignorant” of the objective validity of patents, in economics lingo, because it is too costly for the PTO to discover those facts.¹¹

Lemley implies, when the USPTO “doesn't do a very detailed job of examining patents,” it lowers the standards for patents and thereby accepts almost all good patents and many bad patents.¹² He argues that the failure to conduct a serious examination is rational because it would be cost prohibitive to examine thoroughly all patent applications.¹³

Lemley's analysis does not include the *pro se* applicant. For example, the \$1.5 million dollar expense estimate he used (in year-2000 dollars) for litigating an average patent through trial and appeal¹⁴ is too cost prohibitive for the *pro se* applicant. As I argue later, perhaps most *pro se* applicants abandon prematurely their applications because of their frustrating experience with the USPTO

⁹ E-mail from Paul Harrison, U.S. Patent & Trademark Office, Patent Tech. Monitoring Team, to Paul Swamidass, Professor of Operations Mgmt. & Dir. Thomas Walter Center for Technology Management, Auburn Univ. (June, 25, 2009, 11:45 AM) (on file with The John Marshall Review of Intellectual Property Law).

¹⁰ Lemley, *supra* note 4, at 1531–32.

¹¹ *Id.* at 1495, 1497 (footnote omitted). It is not known if the USPTO has changed its ways since Lemley's paper published in 2000. Given that it is ten years since his paper, the USPTO has had enough time to tighten the standards for allowing applications. His charge of “rational ignorance” may or may not be relevant today. No assumption is made by the author about the state of affairs today.

¹² *See id.* at 1497.

¹³ *Id.*

¹⁴ *Id.* at 1502.

examination process. For these two reasons alone, *pro se* applicants are not in a position to make validity arguments during litigation that Lemley prefers.

The reverse of the rational ignorance argument would be for the USPTO to arbitrarily elevate its standards for issued patents, and broadly reject almost all bad and many good applications without doing a serious examination; I call this option, “irrational rejection.” This paper makes the case that there are reasons to believe this occurs with *pro se* applications; a case is offered in this article as an illustration.

The thesis of this paper is, at the USPTO, *pro se* applicants are facing “irrational rejection,” which is a symmetrical equivalent of Lemley’s “rational ignorance” at the USPTO. Further, the thesis of this paper is that rational ignorance at the USPTO may encourage examiners to depend excessively on the research, reasoning and arguments of the patent-law professionals representing inventors to partially compensate for their “ignorance.” Without the inventor’s attorney to lean on, “irrational rejection” of *pro se* applications might result. The dynamics of rational ignorance and irrational rejection at the USPTO are expressed schematically as:

Case 1—patent application through attorneys/agents (Lemley’s view)

Patent application from attorney	→	depend on applicant’s attorney (Rational ignorance at PTO)	→	accept most applications (TYPE 1 error)
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Case 2—*pro se* application (the hypothesis of this paper)

Patent application from <i>pro se</i>	→	No applicant’s attorney (Rational ignorance at PTO)	→	reject most applications (TYPE 2 error; irrational rejection)
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Lemley argues that the “fail[ure] to do a serious job of examining patents” leads to the granting of a large number of invalid or bad patents;¹⁵ this is a case of Type I error or false positive where bad patents are issued (see Case 1 above). The thesis of this paper implies that, in the case of the *pro se* applicants, the USPTO’s irrational rejection leads to Type II error or false negative (see Case 2 above). Consequently, the *pro se* applicant’s experience at the USPTO is vastly different from the experience of legal professionals prosecuting patent applications. This paper explores the *pro se*’s side of the picture in greater depth with a real-life case of a *pro-se* patent application prosecution, and an evaluation of the case by a registered patent attorney.

Excessive Type II errors at the USPTO (Case 2 scenario) means the unfair rejection of many valid *pro se* applications; this problem needs the attention of the reformers of the USPTO, the inventing community, USPTO management, law makers, and policy makers in the U.S. government (Department of Commerce). This paper argues against any form of irrational rejection at the USPTO because it costs the society valid patents while severely discouraging serial inventors, and diminishing the number of potential future clients for patent-law professionals and

¹⁵ *Id.* at 1496.

income to the PTO; this is so because a successful *pro se* applicant today could become a serial inventor of tomorrow, and a likely client of patent-law professionals in the future.

How could one know firsthand about the problems and pains of the *pro se* inventor-applicant at the USPTO? There is no proper way except by actually prosecuting a patent application at the USPTO without representation by a patent attorney/agent. The author tried it and documents the first-hand experience in a case described later.

I. BELEAGUERED, IGNORED *PRO SE* APPLICANTS

Without patent protection for a new, fledgling business based on a new product, economically stronger imitators can enter the market and snatch the market away; thus, the patent serves as a market-entry barrier.¹⁶ For this and similar reasons, while a patent for a potentially sound idea could attract investment capital, the same cannot be said about an idea lacking the protection of a patent; this fact is of greater importance to average *pro-se* patent applicants.

According to a *Business Week* article, “Chief executives from 28 large corporations, including Google (GOOG), Cisco (CSCO), Research in Motion (RIMM), and Intel (INTC), sent President Barack Obama a letter on Mar. 25, [2009], urging him to support the Patent Reform Act of 2009. The problem, they say: Litigation costs and patent infringement damages are stifling innovation.”¹⁷ This is a problem faced by the “big boys” of business. Their inventions are complex and exist in a rarified domain beyond the reaches of small citizen-inventors. What this letter exemplifies is that they have the clout and visibility to lobby the White House and the Congress on patent matters as a collective group of business titans.

On the other hand, small *pro se* patent applicants are scattered and disorganized. Their problems with the patenting system are vastly different from those faced by large corporation. Relatively speaking, their problems rarely get aired, or get the attention of Congressional Committees or the Secretary of Commerce because they lack representation by powerful lobbyists and PR agencies. *Pro se* applicants cannot get the same attention that the above-cited joint letter of 28 CEOs of U.S. behemoths could generate in the media, in the Congress and in the government. Yet, the problems faced by *pro se* applicants could be more severe; we may never know how many inventors with exceptionally good commercially potent ideas, unable to use the services of attorneys, stay away from the confusing and intimidating patenting process. The problems of the *pro se* seem to be neglected at the PTO because the Office does not collect, analyze and publish data pertaining to *pro se* applicants; the fact that the PTO does not bother to collect and process data on *pro se* applications is troubling. Consider the following anonymous entries in digital blogs/journals on the web:

¹⁶ See 35 U.S.C. § 154(a)(1) (2006) (granting patent owners the “right to exclude others from making, using, offering for sale, or selling the invention”).

¹⁷ *Are Patent Problems Stifling U.S. Innovations?*, BUS. WK., Apr. 8, 2009, http://www.businessweek.com/innovate/content/apr2009/id2009048_138177.htm?chan=innovation_branding_other+innovation+and+design+stories (last visited May 18, 2010).

1. “Any system that has gotten so complex that an above average US Citizen [sic] cannot use it is broken and needs to be fixed.”¹⁸ *Unfortunately, this could be a typical response of many pro se inventors who come in contact with the USPTO.*

2. “I will pass along some good advice I received when I was a junior: pro se inventors should be ground into the ground. Giving them anything but the pro se form paragraph advising them to retain the services of an attorney in the well written rejection they deserve will get an examiner into trouble.”¹⁹ *While not all examiners may think so, this may represent the line of thinking among a substantial proportion of examiners. Many pro se applicants who subjected themselves to the patent examination process may confirm the truth behind this unfortunate statement.*

3.

The pro se has made the choice to conduct their prosecution on the cheap, without benefit of someone who knows how to do it well; they deserve whatever they get. If that results in less than ideal patent protection, well, so be it. They live with the consequences of their decision.

. . . I would point out, however, that having provisions for pro se applicants is **ideally** supposed to allow an applicant to get protection for their invention commensurate with the merits of their invention, even when they cannot afford to pay an attorney to prosecute the application for them.²⁰

This examiner thinks that, as long as the PTO process allows for pro se applicants to file without legal representation, their applications must be examined and allowed if justified, even if it is not the best patent (or ideal patent) the inventor could have had. This view is more realistic and practical, and may be consistent with the original intent behind the very creation of the PTO.

Patenting correlates with innovation and hence any artificial barrier to patenting cripples innovation. In a *Business Week* article, economist Michael Mandel writes, “[T]here's growing evidence that the innovation shortfall of the past decade is not only real but may also have contributed to today's financial crisis.”²¹ Given the economic problem we face, *we should not underestimate the urgent need to fix any and all factors that suppress innovation in this country, including the patent-application prosecution process encountered by pro se applicants.*

¹⁸ Anonymous, Comment to *Pro Se Patent Applicants*, LIVE JOURNAL (July 16, 2007, 4:14 PM UTC), <http://Just-n-examiner.livejournal.com/21207.html>.

¹⁹ Anonymous, Comment to *Pro Se Patent Applicants*, LIVE JOURNAL (July 16, 2007, 12:09 PM UTC), <http://Just-n-examiner.livejournal.com/21207.html>.

²⁰ Just an Examiner, *Pro Se Patent Applicants*, LIVE JOURNAL (July 14, 2007, 15:23:00), <http://Just-n-examiner.livejournal.com/21207.html>.

²¹ Michael Mandel, *Innovation Interrupted: During the Last Decade, U.S. Innovation Has Failed to Realize Its Promise—and That May Help Explain America's Economic Woes*, BUS. WK., June 15, 2009, at 34.

A major study of the patent system by the National Research Council edited by Stephen A. Merrill, Richard C. Levin and Mark B. Myers expresses the well-founded concerns of many that the “sheer volume of applications to the U.S. Patent and Trademark Office . . . threatens to overwhelm the patent examination corps, degrading the quality of their work.”²² No one knows the negative effect of the overburdened patent examination corps on the *pro se* applicants; it is most likely worse than the problems faced by inventors represented by patent law professionals.

II. THE INTENT OF THE USPTO CONCERNING *PRO SE* APPLICATION

The Manual of Patent Examining Procedure²³ lays out guidelines for examiners, patent attorneys and *pro se* applicants. A less known section of the Manual is *pro se* friendly in its intent.²⁴ The relevant section including sub-section titles, which addresses *pro se* applications, is reproduced below:

I. INVENTOR FILED APPLICATIONS

When, during the examination of a *pro se* application it becomes apparent to the examiner that there is patentable subject matter disclosed in the application, the examiner should draft one or more claims for the applicant and indicate in his or her action that such claims would be allowed if incorporated in the application by amendment.

This practice will expedite prosecution and offer a service to individual inventors not represented by a registered patent attorney or agent. Although this practice may be desirable and is permissible in any case deemed appropriate by the examiner, it will be expected to be applied in all cases where it is apparent that the applicant is unfamiliar with the proper preparation and prosecution of patent applications.

II. ALLOWABLE EXCEPT AS TO FORM

When an application discloses patentable subject matter and it is apparent from the claims and applicant’s arguments that the claims are intended to be directed to such patentable subject matter, but the claims in their present form cannot be allowed because of defects in form or omission of a limitation, the examiner should not stop with a bare objection or rejection of the claims. The examiner’s action should be constructive in nature and, when possible, should offer a definite suggestion for correction. Further, an examiner’s suggestion of allowable subject matter may justify indicating the possible desirability of an interview to accelerate early agreement on allowable claims.

²² See NRC, *supra* note 1, at 1.

²³ MPEP, *supra* note 5.

²⁴ *Id.* § 707.07(j).

If the examiner is satisfied after the search has been completed that patentable subject matter has been disclosed and the record indicates that the applicant intends to claim such subject matter, the examiner may note in the Office action that certain aspects or features of the patentable invention have not been claimed and that if properly claimed such claims may be given favorable consideration.

If a claim is otherwise allowable but is dependent on a canceled claim or on a rejected claim, the Office action should state that the claim would be allowable if rewritten in independent form.

III. EARLY ALLOWANCE OF CLAIMS

Where the examiner is satisfied that the prior art has been fully developed and some of the claims are clearly allowable, the allowance of such claims should not be delayed.²⁵

The above quote from the MPEP is friendly to *pro se* applicants, practical and doable. In unambiguous terms it requires the following seven actions from the examiners in conducting a fair and fast examination of *pro se* applications:

- 1) Draft one or more claims when justified
- 2) Indicate such claims will be allowed if incorporated
- 3) Do not stop with bare rejection of claims but office actions should be constructive
- 4) Offer definite suggestions for correction
- 5) Indicate desirability of an interview
- 6) Note in actions that certain features have not been claimed
- 7) State dependent or canceled claims will be allowed if written as independent claims²⁶

The above list of required actions derived from the noted section of MPEP could form the basis of evaluating and judging the quality of examination faced by *pro se* applicants; such an evaluation is done (see Exhibit 1) as an illustration for the case described later.

A. The clash of intent and practice at the USPTO

From the above lengthy quote from the MPEP it is reasonably clear that the intent of the USPTO is to assist the *pro se* applicants and move their applications along quickly to allow meritorious claims. But, how is it being implemented? Are all examiners aware of the above provisions recommending active assistance to *pro se* applicants? Does the USPTO know and keep track of what is really happening to *pro se* applications and applicants in their encounter with the USPTO examination

²⁵ *Id.*

²⁶ *Id.*

process? How much legitimate feedback from *pro se* applicants does the USPTO gather, process, use in training, and publish? The answers to these questions is “none,” or at best, unknown. What is notable is that USPTO does conduct or enable many other studies while ignoring studies of value to the *pro se*; could this be another sign of the neglect of the *pro se*?

Powerful industry associations representing the biotechnology industry, the software industry, etc., which are economically and politically more powerful than any *pro se* applicant, have a bigger voice and platform to express their concerns about the USPTO. At the *2009 Bio International Conference*, as a participant in a panel session entitled, “A Model Patent Office for the Future – Promoting and Protecting Investments in Innovation,” Sherry Knowles, Vice President of Corporate Intellectual Property at GlaxoSmithKline Biopharmaceuticals, Inc. noted that: “cooperation between the USPTO and its stakeholders had reached an all-time low,”²⁷ and she described the USPTO to be a “hospital that hates patients.”²⁸ In this context, if powerful industry groups are displeased with the USPTO, at least they can make much noise through their industry associations; this is not the case for *pro se* applicants.

Mr. Todd Dickenson, Executive Director of the American Intellectual Property Law Association (“AIPPLA”), and a former USPTO Director, also participated in the same panel and “discussed a number of challenges that will confront the next Director, including the application backlog, application pendency, the current revenue shortfall, examiner attrition, and examination quality.”²⁹ Examination quality is a problem that can be particularly poisonous to the *pro se* application community; it can kill off the citizen-inventors in this country. They do not have the wherewithal to fight back poor quality work at the PTO. To encourage more citizen-inventors to submit their *pro se* applications, PTO must provide honest, fair, transparent and good quality examinations. A *pro se* applicant could be easily discouraged by careless and poor quality examinations at the PTO. Some specific recommendations to the USPTO are offered later in the Conclusions section of this article to improve the working relationship with *pro se* applicants.

If the powerful biotech industry, the association of patent attorneys, and a former Director of the USPTO complain about the quality of work performed by USPTO,³⁰ logically, this must be an even bigger problem for the *pro se*. The problem of poor quality work at USPTO must hit the *pro se* applicant a lot harder; a *pro se* applicant is more likely to be jerked around because the *pro se* is without legal representation. This situation is certainly detrimental to the grass-roots level innovativeness of the citizens, and ultimately to the U.S. economy.

Dickinson also “argued that examination quality was an issue that the USPTO needed to address, and one that patent reform (which has focused on downstream, litigation-related ‘reforms’) could not fix.”³¹ So, the bad news for *pro se* applicants is:

²⁷ Donald Zuhn, *Docs at BIO: Panel Offers Suggestion for Fixing the USPTO—Updated*, PATENT DOCS (May 20, 2009, 10:55 PM), <http://www.patentdocs.org/2009/05/docs-at-bio-panel-offers-suggestions-for-fixing-the-uspto.html>.

²⁸ *Id.* (quoting Sherry Knowles, Vice President of Corporate Intellectual Property at GlaxoSmithKline Biopharmaceuticals, Inc.)

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

the patent reforms being contemplated (downstream changes, and litigation) are less of a concern for *pro se* applicants, who face an uphill task getting patents allowed.

From the foregoing, one could conclude that the intent of MPEP § 707.07(j) to assist the *pro se* applicants is noble but the practice seems to fall short by a big margin. This conclusion is further reinforced by an illustrative case in a later section.

B. The cost of delaying and denying legitimate pro se patents

The full impact of delaying and denying legitimate patents to *pro se* applicants is something we will never know without related data collection at the USPTO. It is also difficult to assess how much the economy is set back as a result of *pro se* applicants being denied legitimate patents; it is generally believed that growth in innovation would boost economic activity.³² This being the case, it is wise to make the patenting process more “pro-se-friendly.” A list of potential consequences of undue delay and denial of legitimate patents to *pro se* applicants is offered below:

1. Discourages future patent applications from serial inventors, and worse, may discourage them from inventing altogether.
2. Discourages *pro se* applicant from filing improvement applications with the USPTO.
3. Delays the invention from reaching production, and job creation.
4. Delays income to the *pro se* from his/her invention, if the invention turns out to be an income producing one. Large corporations have multiple income producing patents but a *pro se* seldom has more than one income-producing invention. Therefore the delayed cash flow from inventions could mean greater financial distress for the *pro se* applicant.
5. Increases the out-of-pocket cost for the inventor before commercializing the invention.
6. Increases the risk to the inventor because, after spending time and money, there is no guarantee of an issued patent until it is allowed.
7. Discourages future patent applications for legitimate patentable inventions from the *pro se* application; it also reduces income to the USPTO from patent application fees from potential *pro se* applicants when the USPTO is coping with reduced income.
8. Burdens the *pro se* applicant, who is least able to afford the cost and time escalation.

³² See Mandel, *supra* note 21, at 40.

III. AN ILLUSTRATIVE CASE OF A *PRO SE* APPLICATIONA. *The “rumbling strip” patent application*

The author’s *pro se* application for a patent was filed with the USPTO on October 17, 2007.³³ The application’s Specification, Drawings, draft Claims and all other sections were prepared by the applicant; an experienced patent attorney at a large Atlanta law firm read the entire application and refined the Claims alone (for a fee). The applicant slightly altered the claims (applicant accepts responsibility for errors in the claims due to the alterations) before submitting the provisional application to the USPTO on October 19, 2006.³⁴ A simultaneous *pro se* application under PCT was filed for the protection of worldwide rights.³⁵

1. *USPTO’s Office actions, etc. in chronological order*³⁶

The numbered items below summarize each of the three USPTO office actions, one interview with the examiner and its summary, and one office advisory. Further, each is evaluated for compliance with MPEP § 707.07(j) using “yes” or “no” entries in appropriate columns in Exhibit 1, which compares PTO actions with said MPEP requirements. A “yes” entry means the office action, etc. complied with a specific requirement derived from the relevant section of MPEP.

1. First Office Action was dated July 3, 2008; all nineteen claims were rejected (non-final).³⁷
 - a. All nineteen claims were rejected (under 35 U.S.C. § 102(b), and § 103(a)) as anticipated by Young (U.S. patent 5,242,242) and obvious based on Jackson (U.S. patent 5,775,834) in view of Young.³⁸ In Exhibit 1, this office action earned seven “no” entries with no “yes” entries.

³³ U.S. Patent Application No. 11/907,834 (filed Oct. 17, 2007) (claiming priority to U.S. Patent Application No. 60/853,145 (filed Oct. 19, 2006) (provisional)).

³⁴ U.S. Patent Application No. 60/853,145 (filed Oct. 19, 2006). Twenty-five months after the non-provisional application, the patent was issued effective December 1, 2009. U.S. Patent No. 7,625,152 (filed Oct. 17, 2007) (issued Dec. 1, 2009).

³⁵ P.C.T. Patent Application No. WO 2008/051449 (filed Oct. 18, 2007).

³⁶ The author being the applicant, he offers this caveat. This section is a critical assessment of the examination as evidenced in the office actions and advisories from the USPTO, and other documented evidences pertaining to this case. He acknowledges that he has no knowledge of all the constraints faced by the examiner, his workload, deadlines, training and other matters that may materially impair his work. Further, the author has no evidence to say another examiner at the USPTO would have done a superior job. Therefore, the reader is encouraged to view the criticisms as directed at the USPTO and not at the examiner in question. The problem at the USPTO appears to be more organic and not examiner specific because the applicant had at least two conversations over the phone (December 2008 and April 2009) with the examiner’s supervisor with little positive effect on the course of the application.

³⁷ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, APPLICATION NO. 11/907,834, OFFICE ACTION COMMUNICATION, at 1 (July 3, 2008) [hereinafter FIRST OFFICE ACTION].

³⁸ *Id.* at 5.

- b. The inventor requested an interview with the examiner and met with him at the USPTO offices on August 24, 2008 for clarification accompanied by a patent attorney, who is a friend, to observe and advise. The interview was cordial, and the examiner helped draft a revision to the only independent Claim 1 to overcome his objections in the rejection letter. ***The examination process was transparent to the applicant at the conclusion of the meeting.*** The examiner's summary (PTOL-413) mailed to the applicant on August 27, 2008 is quoted below.³⁹ The interview earned six "yes" and two "no" entries in Exhibit 1 (the only action of USPTO evaluated in The Exhibit to comply with the MPEP requirements occurred in the presence of a patent attorney).

Language regarding strip being bonded adjacent the edge of a roadway to produce a rumble strip was discussed as distinguishing the present invention from the temporary configurations of the relied upon art, as well as from the traffic calming devices/speed bumps. While further consideration will be needed in order to determine patentability, the examiner agreed that the suggested changes to the claims would overcome at least the relied upon art and devices positioned as speed bumps.⁴⁰
 - c. Using the interview and the above summary as the basis, the inventor submitted a response to the office action in late Fall 2008.⁴¹ In the response, Claim 1 was amended to conform to the wordings suggested by the examiner during the meeting, one secondary claim was deleted (total claims reduced to eighteen), and non-substantive changes were made to a few dependent claims to address the issues in the rejection letter.⁴²
2. Second PTO office action dated January 5, 2009 contained *final rejection* of all claims including the Amended Claim 1.⁴³
 - a. The *rejection of all claims* including amended Claim 1 was baffling and puzzling for the *pro se* applicant. This *final rejection* is based on the examiner's assertion that under 35 U.S.C. § 102(b) the present invention is anticipated by Solon

³⁹ U.S. PAT. & TRADEMARK OFFICE, U.S. DEPT' OF COMMERCE, APPLICATION NO. 11/907,834, SUMMARY OF RECORD OF INTERVIEW REQUIREMENTS (Aug. 27, 2008) [hereinafter SUMMARY INTERVIEW].

⁴⁰ *Id.* This is important to the applicant because a speed bump reference was cited in the First Office Action as cause for the rejection. FIRST OFFICE ACTION, *supra* note 37, at 5; *see* U.S. Patent No. 5,775,834 (filed Aug. 14, 1995) (issued July 7, 1998).

⁴¹ U.S. PAT. & TRADEMARK OFFICE, U.S. DEPT' OF COMMERCE, APPLICATION NO. 11/907,834, REPLY TO OFFICE ACTION COMMUNICATION OF JULY 3, 2008 (Sept. 15, 2008).

⁴² *Id.* at 8.

⁴³ U.S. PAT. & TRADEMARK OFFICE, U.S. DEPT' OF COMMERCE, APPLICATION NO. 11/907,834, OFFICE ACTION COMMUNICATION, at 1 (Jan. 5, 2009) [hereinafter SECOND OFFICE ACTION].

(abandoned U.S. Patent Application Pub. No. 2003/0194271).⁴⁴ What is remarkably worrisome about this Solon reference is that it is another traffic calming/speed bump which contradicted the wordings, “the examiner agreed that the suggested changes to the claims would overcome at least the relied upon art and devises positioned as speed bumps” in the summary of the meeting prepared by the examiner.⁴⁵ The *pro se* applicant sensed that the application was going backwards for non-understandable reasons. It was a mystery as to why Amended Claim 1, conforming to the draft suggested during the interview, was rejected with all other claims. ***At this point, the patent examination process becomes non-transparent to the applicant.*** This office action earned eight “no” entries in Exhibit 1.

- b. On March 3, 2009, without changing the claims, the inventor submitted a response to the final rejection because of what is described in 2(a) above.⁴⁶
3. Office Advisory dated April 2, 2009 (PTOL-303) confirmed the final rejection of all eighteen claims.⁴⁷
 - a. The advisory earned eight “no” entries in Exhibit 1.
 - b. After receiving this advisory letter confirming the final rejection of all claims, the applicant consulted an acquaintance, a former PTO examiner and a current senior official in the USPTO, about the application. He read the documents in the Public PAIR system and recommended a minor change to the wording of the Amended Claim 1 to satisfy the examiner. His suggestion was used to amend the Amended Claim 1, and a Request for Continued Examination (“RCE”) for a \$405 fee was filed on April 5, 2009 with all eighteen claims.⁴⁸
4. Office Action dated May 27, 2009 in response to RCE.⁴⁹ The non-final rejection of all 18 claims and a new reference was provided to the applicant as a cause for the rejection.⁵⁰
 - a. The rejection states, “Claims 1-18 are rejected under 35 U.S.C. [§] 103(a) as being unpatentable over Solon . . . in view of Murray (U.S. Patent 5,582,490).”⁵¹ Murray’s patent is for a machine that cuts or mills rumble-causing grooves (called “rumble strips”) in-

⁴⁴ *Id.* at 2.

⁴⁵ SUMMARY INTERVIEW, *supra* note 39 (emphasis added).

⁴⁶ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, APPLICATION NO. 11/907,834, REPLY TO OFFICE ACTION COMMUNICATION OF JAN. 5, 2009 (Mar. 3, 2008).

⁴⁷ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, APPLICATION NO. 11/907,834, ADVISORY ACTION BEFORE THE FILING OF AN APPEAL BRIEF COMMUNICATION (Apr. 2, 2009) [hereinafter ADVISORY ACTION].

⁴⁸ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, APPLICATION NO. 11/907,834, AMENDMENT AND RESPONSE TO ADVISORY ACTION BEFORE THE FILING OF AN APPEAL BRIEF OF APR. 2, 2009 WITH PTOL-303 (Apr. 5, 2009).

⁴⁹ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, APPLICATION NO. 11/907,834, OFFICE ACTION COMMUNICATION (May 27, 2009) [hereinafter RESPONSE TO RCE].

⁵⁰ *Id.* at 1.

⁵¹ *Id.* at 4.

situ below the paved road surface.⁵² The author's invention is an over-the-pavement, durable pre-manufactured strip that is bonded to the pavement by an adhesive.⁵³ Murray is a baffling reference to cite independently or in conjunction with another prior art as a cause for rejection of the author's invention. It is easy for one ordinarily familiar with this product to notice the non-analogous nature of Murray's invention to the author's invention. The readers are encouraged to compare Figure 1 (author's invention) and Figure 2 (Murray's invention) to form their own opinion—the pictures are worth a thousand words. The prior art in one cannot be the basis for rejecting the other. This office action earned “no” entries on ALL eleven items in Exhibit 1 signaling total non-compliance with MPEP requirements.

- b. On page 5 of the Office Action the examiner states, “[I]t is the opinion of the examiner that the present application does not include patentable subject matter, regardless of claims which might be used.”⁵⁴ This is a clear case of backtracking by the examiner because the summary of the meeting with the examiner quoted above does not state that the “subject matter is not patentable.”⁵⁵ If this was brought up by the examiner during the interview, the entire meeting would have been devoted to ascertaining and establishing the patentability of the subject matter. Instead, the meeting devoted almost all its time to rewording Claim 1 (the only independent claim) to the satisfaction of the examiner, and focused on establishing that speed bumps and traffic-calming devices do not constitute a valid basis for rejecting this invention.
 - c. On August, 25 2009, the applicant submitted to the USPTO an amended application of Amended Independent Claim 1 with cosmetic changes and without three of the dependent claims; total claims submitted were fifteen.⁵⁶ On the cover page, the applicant requested the supervisor also to examine the application.⁵⁷
5. Notice of Allowance (“NOA”) was mailed by the USPTO on October 8, 2009 accepting all fifteen claims, as is.⁵⁸ In the spirit of MPEP § 707.07(j), at no point before the final acceptance did any of the prior office actions indicate that one independent and fourteen dependent claims (essentially the same as the original) will be allowed, and that

⁵² U.S. Patent No. 5,582,490 col.8 l.67 to col.9 l.11 (filed Sept. 22, 1994) (issued Dec. 10, 1996).

⁵³ U.S. Patent Application No. 11/907,834, at 4 (filed Oct. 17, 2007).

⁵⁴ RESPONSE TO RCE, *supra* note 49, at 5.

⁵⁵ SUMMARY INTERVIEW, *supra* note 39.

⁵⁶ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, APPLICATION NO. 11/907,834, AMENDMENT AND RESPONSE TO OFFICE ACTION OF MAY 27, 2009, at 3 (Aug. 27, 2009).

⁵⁷ *Id.* at 1.

⁵⁸ U.S. PAT. & TRADEMARK OFFICE, U.S. DEP'T OF COMMERCE, APPLICATION NO. 11/907,834, NOTICE OF ALLOWANCE AND FEE(S) DUE (Oct. 8, 2009).

four of the dependent claims should be dropped. Given that all fifteen allowed claims are similar to the claims submitted originally, or after the interview, the applicant remains puzzled that the office actions never offered any hope of allowing the fifteen claims in multiple office actions and advisories that summarily rejected all claims. Only the applicant's strong belief that all references supplied by the examiner were weak, irrelevant or non-analogous motivated the *pro se* applicant to keep prosecuting the application until the patent was allowed. The average *pro se* applicant might have chosen premature abandonment of the application when multiple office actions fail to mention any likelihood of the allowance of one or more claims. Therefore, although the original claims were substantially allowed, multiple office actions failed to live up to MPEP § 707.07(j); it is hoped that this case with Exhibit 1 would alert policy makers and USPTO management to the fact that the recommended actions in the said section of MPEP are not being taken seriously at the USPTO; there are 36 "no" entries and only six "yes" entries in Exhibit 1 measuring the compliance of the examination process against MPEP requirements. The instances of compliance occurred only in the presence of an attorney during the interview. What does this tell us? Regardless of MPEP § 707.07(j), an attorney's presence is essential to smoothen the prosecution of *pro se* patent applications at the PTO.

B. Issues that may cause premature abandonment of pro se applications

The above office actions and responses bring to the surface some issues about the examination that may cause the *pro se* to abandon an application prematurely:

1. **Rejections accompanied by insufficient body of arguments and inappropriate references.** The examiner failed to explain satisfactorily why he rejected (Office Actions January 5, 2009; April 2, 2009; and May 27, 2009) the Amended Claim 1 that was drafted based on the meeting with him.⁵⁹ Solon was cited as the reason for rejecting (January 5, 2009; and April 2, 2009) Amended Claim 1 that was developed in his office during the meeting.⁶⁰ In the summary of the meeting dated August 27, 2008, he wrote, "*the examiner agreed that the suggested changes to the claims would overcome at least the relied upon art and devices positioned as speed bumps.*"⁶¹ The rejection based on Solon contradicts the meeting summary because Solon's invention is a speed bump too.⁶² Repeated re-examinations failed to provide a non-contradictory, cogent body of arguments and references to justify the

⁵⁹ SECOND OFFICE ACTION, *supra* note 43; ADVISORY ACTION, *supra* note 47; RESPONSE TO RCE, *supra* note 49.

⁶⁰ SECOND OFFICE ACTION, *supra* note 43, at 2–3; ADVISORY ACTION, *supra* note 47, at 2.

⁶¹ SUMMARY INTERVIEW, *supra* note 39 (emphasis added).

⁶² *See id.*; U.S. Patent Application Pub. No. 2003/0194271 (pub. Oct. 16, 2003).

repeat rejections of all claims. For the applicant, the examination process was progressively getting inscrutable, nontransparent and puzzling; a typical *pro se* might have abandoned the application prematurely.

2. **All claims are being rejected repeatedly.** All claims were rejected four times (nineteen claims faced one rejection, and eighteen claims were rejected three times) before fifteen claims (three were deleted by the author voluntarily) were accepted.⁶³ It causes the *pro se* applicant to wonder if the application is worthless when all claims are rejected four different times in a row. This repeated undue rejection of fifteen, eventually allowed claims, could be immensely discouraging to a *pro se* applicant, who may be driven to the point of abandoning the application prematurely.
3. **Who can fathom the examiner?** To add to further confusion, all claims, including Amended Claim 1, submitted with the RCE were rejected (Office Action, May 27, 2009) by the examiner.⁶⁴ The applicant's puzzlement was enhanced because the amendment to the wording of Amended Claim 1 was suggested by a senior official at the USPTO and a former examiner, an acquaintance of the applicant. When a senior official of the USPTO and former examiner cannot fathom what this examiner wanted, it could cause the *pro se* to abandon the application prematurely.
4. **Why is the examination moving away from the core substance of the invention?** Murray's invention,⁶⁵ cited (Office Action of May 27, 2009) as a reason for rejecting all claims,⁶⁶ is so far off the subject matter, the examination process seems to have gone off the track (compare Figures 1 and 2 at the end of the paper). The Murray reference introduced by the examiner is *non-analogous* and takes the arguments and discussions away from the core substance of this invention. Murray's invention is considered non-analogous because someone ordinarily skilled in the art would not consider Murray's invention at all while inventing or developing the author's invention.⁶⁷ The use of a non-analogous invention to reject all the claims could be the last straw that could push *pro se* applicants to abandon their applications.
5. **The applicant is expected to guess what's in the mind of the examiner.** In rejecting all claims including Amended Claim 1 based on the examiner's suggestion during the meeting in August 2008 (rejections dated January 5, 2009; April 2, 2009; and May 27, 2009), the examiner took the applicant along one path and then closed it shut without a sound explanation.⁶⁸ The applicant is left guessing, "what is in the

⁶³ See discussion *supra* Part II.A.1.

⁶⁴ RESPONSE TO RCE, *supra* note 49, at 1.

⁶⁵ U.S. Patent No. 5,582,490 (filed Sept. 22, 1994) (issued Dec. 10, 1996).

⁶⁶ RESPONSE TO RCE, *supra* note 49, at 4–5.

⁶⁷ See *In re Clay*, 966 F.2d 656, 658–59 (Fed. Cir. 1992).

⁶⁸ See discussion *supra* Part II.A.1.

mind of the examiner?” This could push the average *pro se* to abandon the application prematurely.

6. **Where is the examination headed?** The examiner states in the fourth communication to the applicant, Office Action dated May 27, 2009, that the application “**does not include patentable subject matter**,”⁶⁹ after never mentioning the lack of a “patentable subject matter” during the interview, in the meeting summary, or in previous Office Actions. After four rejections of all claims, the prosecution is moving backwards; this could cause the typical *pro se* to abandon the application prematurely.
7. **Are examiners too dependent on the applicant’s attorney’s work and arguments?** By repeating in the office action of May 27, 2009 (originally included in the first office action), the words, “Applicant is advised to secure the services of registered patent attorney or agent to prosecute the application,”⁷⁰ is the examiner attempting to help the applicant or is the examiner uneasy about allowing a patent without a patent attorney closely examining the application? Have examiners come to lean too heavily on applicant’s patent attorneys’ effort and rigor? If true, the *pro se* applicant would not succeed in getting the patent allowed; abandonment of the application is only a matter of time.
8. **What are the collateral costs?** The less than serious examination⁷¹ of this *pro se* application at the USPTO prolonged the examination process resulting in multiple rejections of all claims. The collateral costs to the applicant included the decision to abandon international rights under PCT that were secured originally through an application (including appropriate fees)⁷² submitted at the same time the non-provisional was filed with the USPTO.⁷³ The reason for abandoning international rights is not difficult to see given that the application with the USPTO had no more than repeated “rejection” of ALL claims on the date when the time-window for international patent applications under PCT in Europe, Japan, Canada, and other countries was due to close.⁷⁴ Thus, international rights were allowed to lapse because the prosecution of the application at the USPTO was slow, and rejected every claim multiple times.⁷⁵ The abandonment of international patent applications have negative consequences for the applicant and the U.S. economy; the U.S. economy benefits when U.S.-patented technology transfers abroad in return for cash flows to the U.S. in the form of royalties to U.S.-based inventors; or a U.S. made product, protected by patents abroad, is

⁶⁹ RESPONSE TO RCE, *supra* note 49, at 5.

⁷⁰ *Id.* at 2; FIRST OFFICE ACTION, *supra* note 37, at 2.

⁷¹ See Lemley, *supra* note 4, at 1495.

⁷² P.C.T. Patent Application No. WO 2008/051449 (filed Oct. 18, 2007).

⁷³ U.S. Patent Application No. 11/907,834 (filed Oct. 17, 2007).

⁷⁴ See Patent Cooperation Treaty, r. 2.4(a), June 19, 1970, 28 U.S.T. 7645, 1160 U.N.T.S. 231, available at http://www.wipo.int/pct/en/texts/rules/r2.htm#_2_4 (“Whenever the term ‘priority period’ is used in relation to a priority claim, it shall be construed as meaning the period of 12 months from the filing date of the earlier application whose priority is so claimed.”); P.C.T. Patent Application No. WO 2008/051449 (filed Oct. 18, 2007).

⁷⁵ See discussion *supra* Part II.A.1.

exported to countries that cannot produce the patented product indigenously because of international patent protection.⁷⁶

9. **The examination does not conform to MPEP §707.07(j).** Exhibit 1 shows a tool for measuring the quality of the examination faced by a *pro se* applicant at the PTO. There are eleven items in the measure; the first eight are directly derived from the wordings of MPEP 707.70(j), and items nine through eleven complement the first eight.⁷⁷ The columns refer to office actions, advisories or interviews, and interview summaries accessible on the USPTO's PAIR system.⁷⁸ A "yes" entry in a cell denotes that the "action" by the examiner was consistent with the said section of MPEP, "no" denotes that it does not, and a blank indicates neither. The summary in the Exhibit 1 shows thirty-six "NO" and six "YES" entries.⁷⁹ Clearly, the examination process overwhelmingly contradicts the intent of the said section of MPEP. The Exhibit is evidence that the examination process is showing the door to the *pro se* applicant; **the average *pro se* applicant might have abandoned the application.** The good intentions of MPEP § 707.70(j) are meaningless unless they are backed by a mechanism or tool to monitor, measure, and improve the examination process. The form in Exhibit 1 is a viable and practical tool for the USPTO to use for monitoring, measuring and improving the examination of *pro se* applications in the future.
10. **The examiner tends to abide by MPEP when an attorney is present.** Exhibit 1 shows that all the "YES" entries occur in the meeting with the examiner in the presence of an attorney friend of the *pro se*.⁸⁰ All other office actions lack "YES" entries.⁸¹ What could be the reason? Does the presence of the attorney make the examiner abide by the intent of MPEP? If examiners abide by MPEP only when an attorney is involved, *pro se* applicants face an uphill task at the USPTO. If true, the abandonment of the *pro se* applications is only a matter of time.

⁷⁶ See Howard A. Kwon, *Patent Protection and Technology Transfer in the Developing World: The Thailand Experience*, 28 GEO. WASH. J. INT'L L. & ECON. 567, 573–74 (1995) (discussing the benefit to foreign investors in the context of technology transfers from the investors to developing countries).

⁷⁷ Ex. 1 *infra*.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

IV. A CONTRIBUTED SECTION BY A.J. GOKCEK, J.D.⁸²*A. Introduction*

Upon a request from the inventor/author, I studied the application and office actions as of July 2009 and offer the following comments as a licensed patent attorney:

Section 103(a) of title 35 of the U.S. Code forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”⁸³

The determination of obviousness under 35 U.S.C. § 103(a) is a legal conclusion based on underlying facts.⁸⁴ The factual inquiries relevant to obviousness are:

1. The scope and content of prior art;
2. The differences between the prior art and the present claims;
3. The level of ordinary skill in the relevant art (no more than an undergraduate academic degree in the present case, and possibly only a high school degree);
4. Any objective indicia (factors) of non-obviousness, such as commercial success, long-felt unmet need, and failure of others.⁸⁵

B. The Obviousness Issue

The following paragraphs explain why the prior art references, combined by the examiner appear, or appear unlikely to render the claims of this invention (“Swamidass invention”) obvious. Some of the key reasons are:

1. None of the references teach, disclose, explain or discuss (by themselves or in combination)⁸⁶ an add-on, above-the-pavement, rumble strip that is attached to the pavement surface by an adhesive on the outer edge of the road or shoulder parallel to the traffic to alert an exceptional vehicle leaving the pavement. The references, the primary reference being Solon, do not teach or describe this limitation—Solon’s device is laid perpendicular to the traffic with a traffic-slowing or traffic-calming effect on ALL vehicles forming the traffic.⁸⁷
2. The Swamidass invention is intended to prevent “single vehicle run off-the-road” (SVROTR; see Background Section of the patent

⁸² J.D., Registered Patent Attorney, Associate Director Intellectual Property, Office of Technology Transfer, Auburn University.

⁸³ 35 U.S.C. § 103(a) (2006).

⁸⁴ *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17 (1966).

⁸⁵ *Id.* at 17–18.

⁸⁶ See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

⁸⁷ U.S. Patent Application No. 10/118,935, at 3 (filed Apr. 10, 2002).

- application),⁸⁸ which is not taught by any of the references except Murray (addressed below).
3. Every element of the Swamidass invention is not taught or discussed in prior art.
 4. With the exception of Murray (addressed below), unlike the Swamidass invention, the prior art references teach above-the-pavement strips installed perpendicular to the traffic.⁸⁹
 5. Murray does not teach a physical “strip” that is an add-on to the pavement surface. Murray teaches cutting/milling grooves on the pavement surface made of concrete or blacktop by employing an in-situ milling process using a large motorized machine.⁹⁰
 6. Differences between the prior art and the Swamidass invention are:
 - a. Prior art teaches strips laid on the path of the traffic to form “speed bumps” to slow or calm the traffic;⁹¹
 - b. Main prior art reference (Solon) teaches bumps installed perpendicular to the traffic;⁹²
 - c. Rumbles of Solon reference are not caused by the strip alone but by the tire alternating between the “high” strip and “low” pavement.⁹³

C. *The Non-obviousness Issue*

Non-obviousness can also be shown when prior art references provided by the examiner teach away from the claimed invention or from each other.⁹⁴ The following arguments lead to an inference of non-obviousness based on teaching away:

1. One key objective of Solon is the easy removal of the strip from the pavement non-destructively.⁹⁵ The key purpose of Murray, however, is to develop an efficient machine to cut rumble strips into existing paved road shoulder.⁹⁶ It is obvious that Murray and Solon teach away from each other. The prior art references of Solon and Murray cannot be combined as they attempt to solve completely different problems and go a divergent way from each other.⁹⁷

⁸⁸ U.S. Patent Application No. 11/907,834, at 1 (filed Oct. 17, 2007).

⁸⁹ *Compare id.* at 1 (teaching linear installation), *with* U.S. Patent Application No. 10/118,935, at 3 (filed Apr. 10, 2002) (teaching perpendicular installation).

⁹⁰ U.S. Patent No. 5,582,490 col.8 l.67 to col.9 l.11 (filed Sept. 22, 1994) (issued Dec. 10, 1996).

⁹¹ U.S. Patent Application No. 10/118,935, at 1 (filed Apr. 10, 2002).

⁹² *Id.* at 3.

⁹³ *Id.* at 2.

⁹⁴ *See KSR Int'l*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 51–52 (1966)).

⁹⁵ U.S. Patent Application No. 10/118,935, at 1 (filed Apr. 10, 2002).

⁹⁶ U.S. Patent No. 5,582,490 col. 2 ll. 49–53 (filed Sept. 22, 1994).

⁹⁷ *See In re Clay*, 966 F.2d 656, 658–59 (Fed. Cir. 1992).

2. Solon teaches reversible, non-destructively removable strip from the surface of the pavement,⁹⁸ whereas Murray teaches below-the-pavement, irreversible strip.⁹⁹
3. The outcome of the combination of Solon and Murray would lead to an inoperable result—one is reversible and the other is not; one is above the pavement surface, and other is not.
4. Solon is laid on the traffic lane at 90 degrees perpendicular to Murray's grooved strip on the outer edge of the road.¹⁰⁰
5. Solon needs the road surface to alternate with the strip to produce the rumble where as Murray does not;¹⁰¹
6. The purpose of all the references except Murray is to slow or calm the traffic;¹⁰²
7. Neither Solon nor other references teach the application of their strip at 90-degrees inclination to their original intended use;
8. While Murray teaches cutting grooves on the pavement along the edge or shoulders of roadways,¹⁰³ he does not teach an add-on, above the pavement, physical strip; actually, he teaches away from such a device;
9. Murray further teaches away from Solon because Murray's solution requires no adhesive while Solon does.¹⁰⁴
10. In summary, Murray and Solon teach away from each other and, thus, a person having ordinary skill in the art would not have combined the two.¹⁰⁵

D. Objective Indicia

A strong, long-felt need for this invention is well laid out in the Background Section (please read paragraphs 0001 through 0018).¹⁰⁶ One-third of all fatalities in the U.S. are attributed to SVROTR crashes (Background paragraph 0007).¹⁰⁷ Due to

⁹⁸ U.S. Patent Application No. 10/118,935, at 1–2 (filed Apr. 10, 2002).

⁹⁹ U.S. Patent No. 5,582,490 col. 2 ll. 49–53 (filed Sept. 22, 1994).

¹⁰⁰ *Compare* U.S. Patent Application No. 10/118,935, at 3 (filed Apr. 10, 2002) (teaching perpendicular installation), *with* U.S. Patent No. 5,582,490 figs. 1, 2 (filed Sept. 22, 1994) (teaching parallel installation).

¹⁰¹ *Compare* U.S. Patent Application No. 10/118,935, at 3 (filed Apr. 10, 2002) (intending installation of invention alternating with pavement spaces), *with* U.S. Patent No. 5,582,490 col. 2 ll. 14–22 (filed Sept. 22, 1994) (failing to require pavement spaces between invention placements).

¹⁰² *Compare* U.S. Patent No. 5,582,490 col. 2 ll. 14–22 (filed Sept. 22, 1994) (failing to include calming or slowing of traffic in the list of the inventions intended use), *with* U.S. Patent No. 5,242,242 col. 1 ll. 34–38 (filed Jan. 27, 1992) (indicating that an intended function of the invention is to slow traffic), *and* U.S. Patent No. 5,775,834 col. 1 ll. 7–11 (filed Aug. 14, 1995) (same), *and* U.S. Patent Application No. 10/118,935, at 1 (filed Apr. 10, 2002) (same).

¹⁰³ U.S. Patent No. 5,582,490 col. 1 ll. 7–10 (filed Sept. 22, 1994).

¹⁰⁴ *Compare* U.S. Patent Application No. 10/118,935, at 2 (filed Apr. 10, 2002) (requiring adhesive), *with* U.S. Patent No. 5,582,490 col. 1 ll. 7–10 (filed Sept. 22, 1994) (failing to require adhesive).

¹⁰⁵ *See* KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 416, 418 (2007) (citing United States v. Adams, 383 U.S. 39, 51–52 (1966)).

¹⁰⁶ U.S. Patent Application No. 11/907,834, at 1–3 (filed Oct. 17, 2007).

¹⁰⁷ *Id.* at 2.

prohibitive costs of Murray-style solution to SVROTR, thousands, if not millions of miles of U.S. roadways have no rumble strips to prevent SVROTR.¹⁰⁸ The following must be considered in the context of this unmet need:

1. Prior art is inadequate or fails to address the problem using above-the-pavement solutions, which Murray cannot and does not address;
2. There may be several alternatives to SVROTR problem—the Murray-style solution is one—but it does not exhaust all possible solutions. The Swamidass invention is one solution not taught by prior art including Murray.

E. Non-analogous Art

Murray may also be considered non-analogous art.¹⁰⁹ An ordinary rumble strip designer making above-the-pavement rumble strips would not require knowledge of the Murray reference which teaches milling machines that cut permanent rumble strips into existing paved road shoulders.¹¹⁰ In the opinion of this patent attorney, Murry should not have been used to make an obviousness rejection.

F. Additional comments by the Contributing Author

The examiner makes some contradictory statements. The summary of the interview on August 25, 2008, prepared by the examiner, says:

[The l]anguage regarding strip being bonded adjacent the edge of a roadway to produce a rumble strip was discussed as distinguishing the present invention from the temporary configurations of the relied upon art, as well as from the traffic calming devices/speed bumps. . . . ***[T]he examiner agreed that the suggested changes to the claims would overcome at least the relied upon art and devices positioned as speed bumps.***¹¹¹

The examiner's own words in this summary negate reliance on Solon, Jackson and other references concerning speed bumps. Jackson was one of the "relied upon art" that was "positioned as a speed bump" in the Interview Summary of August 27, 2008.¹¹² Yet, the Examiner relies on Jackson again in the most recent office action of May 27, 2009 in combination with Solon and Murray to make an obviousness rejection.¹¹³ This could unnecessarily confuse a *pro se* applicant, cause premature abandonment of the application by the *pro se*, or needlessly prolong the prosecution of the application.

¹⁰⁸ *Id.* at 3.

¹⁰⁹ *See In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

¹¹⁰ *See* U.S. Patent No. 5,582,490 col. 1 ll. 4–10 (filed Sept. 22, 1994).

¹¹¹ SUMMARY INTERVIEW, *supra* note 39 (emphasis added).

¹¹² *Id.*

¹¹³ RESPONSE TO RCE, *supra* note 49, at 4–5.

The last office action dated May 27, 2009, page 2, says, “An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. . . . Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application”¹¹⁴ This is a repeat of the advice given in the first office action dated July 3, 2008.¹¹⁵ However, the applicant has addressed all major and complex issues raised by the examiner in every office action up to the present. Failing to list out all eighteen claims in the last amendment is faulted by the examiner in page 5 of the office action dated May 27, 2009;¹¹⁶ this is a relatively “minor” error by the applicant. The repeat of the advice to seek a registered patent attorney is unwarranted, whether intended or not, it could have the effect of placing the inventor on the defensive, and attempts to lay the responsibility for the prolongation of the prosecution entirely upon the shoulders of the applicant.¹¹⁷

CONCLUSIONS

This paper’s conclusions cover, (A) reasons why USPTO examination may cause premature abandonment of *pro se* applications; (B) reasons why examiners may be too dependent of applicant’s attorneys, and (C) recommendations for improving the quality of the process for examining *pro se* applications. The illustrative case above offers some lessons. This single case cannot have the same impact of a large-scale empirical study; unfortunately, the USPTO does not collect and distribute data fit for large-sample empirical investigations of *pro se* applications. Yet, the case contains symptoms of potentially larger problems facing all *pro se* applications; a reader experienced in patent prosecution at the USPTO, and USPTO management should be able to detect troubling symptoms in the case documented above. Some of the significant lessons are addressed below.

A. USPTO examination may cause premature abandonment

Pro se applicants may abandon their application prematurely if the intent of MPEP § 707.07(j) is ignored during patent examination. The USPTO needs to examine the following factors that may, individually or collectively, lead to premature and undue abandonment of valid *pro se* applications:

1. PTO examiners may be moving the target with each subsequent office action; it can confuse and frustrate *pro se* applicants, and may cause them to abandon the application prematurely;
2. Repeated rejections of all claims backed by weak arguments and non-analogous references can be very perplexing to *pro-se* applicants and cause them to abandon their applications prematurely;

¹¹⁴ *Id.* at 2.

¹¹⁵ FIRST OFFICE ACTION, *supra* note 37, at 2.

¹¹⁶ RESPONSE TO RCE, *supra* note 49, at 5.

¹¹⁷ End of contributed section.

3. The “rational ignorance”¹¹⁸ argument says that the examiner does not do a serious job of examining patent applications and allows invalid applications. But, in the case of *pro se* applications, to err on the safe side (i.e., not allowing an invalid *pro se* application) examiners seem to engage in “irrational rejection;” the repeated rejections of all claims in the above case may be explained by this phenomenon. Consequently, a *pro se* applicant’s experience will be the polar opposite of the experience of patent attorneys prosecuting applications at the USPTO. The pressure to abandon a valid application that a *pro se* applicant may feel may not be shared by a patent attorney representing an inventor.

B. Examiners may be too dependent on applicants’ attorneys

The USPTO requires or advises its examiners to include the following statement in office actions sent to *pro se* applicants: “Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution.”¹¹⁹ This statement was included in two separate office actions in the illustrative case above.¹²⁰ Does this USPTO-approved statement provide an excuse or cover for the examiner to avoid sincere evaluations? Does it give an excuse to the examiners to blame all the problems with the examination on the *pro se* applicant? These questions deserve further investigation.

Speaking of the above case, in two separate office actions, the examiner asked the inventor-applicant to seek the help of a patent attorney by phrasing the words to sound, as though, it would help the applicant.¹²¹ The collective weaknesses of the references and arguments provided by the examiner raise the question, “Is the examiner unsure and unwilling to make an independent decision without input from the applicant’s attorney?” The evidence from the illustrative case indicates that there appears to be a desire on the part of the examiner to push the applicant to hire the services of a patent attorney. Could it be a way of compensating for the “less than serious”¹²² examination at the USPTO? After being used to depending on applicants’ attorneys, examiners may not feel confident enough making independent decisions (allowing and granting patents to *pro se* applicants) without the diligent work of, and input from applicant’s patent attorneys. If this were to be true, or even partially true, examiners would be prone to reject any application, or most applications, that are NOT researched and prepared by patent attorneys/agents. Consequently, an uphill task faces a *pro se* applicant at the USPTO; such an arduous task may cause them to abandon their valid applications prematurely.

¹¹⁸ See Lemley, *supra* note 4, at 1497.

¹¹⁹ RESPONSE TO RCE, *supra* note 49, at 2 (May. 27, 2009); FIRST OFFICE ACTION, *supra* note 37, at 2.

¹²⁰ RESPONSE TO RCE, *supra* note 49, at 2 (May. 27, 2009); FIRST OFFICE ACTION, *supra* note 37, at 2.

¹²¹ RESPONSE TO RCE, *supra* note 49, at 2 (May. 27, 2009); FIRST OFFICE ACTION, *supra* note 37, at 2.

¹²² See Lemley, *supra* note 4, at 1495.

The evidence from the case (Exhibit 1) indicates that the MPEP is adhered to by examiners when a patent attorney is involved (example, the interview with the examiner), but not when an attorney is not involved. Given all the evidence, a reasonable person may conclude, *a large proportion of pro se applications that are now being rejected or abandoned may deserve better.*

C. Recommendations for reforming the USPTO

Current measures of the quality of USPTO examinations centers on the validity of the patents issued.¹²³ The reasoning offered in this paper and the above case suggests the need for evaluating the quality of the examination of *pro se* applications vis-à-vis MPEP requirements. Particularly, examination quality must also address the question, “Is the *pro se* applicant subjected to a patent examination process that is consistent with the intent of MPEP § 707.07(j)?” Five recommendations for reforming the USPTO are offered below.

1. **Training of Examiners:** First, USPTO needs to be reorganized to create a division/section/subunit within its organization to work exclusively with *pro se* applicants by employing specially gifted and trained examiners. It is recommended that the USPTO develop a cadre of examiners who work only with *pro se* applicants by:
 - a. Training them for working exclusively with *pro se* applicants (the illustrative example in this paper could be used for training examiners);
 - b. Developing a “Code of Ethics” for training examiners working with the *pro se*;
 - c. Addressing examiners’ excessive dependence on applicant’s attorneys. Require additional training for patent examiners to give the examiners the needed assurance to make prompt decisions when attorneys are not associated with the application.
2. **Mandate Office Actions to include a section on MPEP § 707.07(j) compliance:** Second, in all office actions sent to the *pro se* applicant, require examiners to include a section titled, “With regards to MPEP § 707.07(j), the examiner suggests the following,” which may include suggestions for (1) revised claims; (2) new claims; (3) cancelled or disallowed dependent claims that may be allowed if written as independent claims; and (4) the desirability of an interview.
3. **Require pro se applicants to give feedback using Exhibit 1 or equivalent:** Third, ask *pro se* applicants (and supervisors) to complete a form similar to the form in Exhibit 1 (a blank version¹²⁴ of the form may be downloaded) for each office action and interview to ensure that examiners assist *pro se* applicants as required by MPEP Section 707.07(j) and to obtain feedback from the applicants. By electronically

¹²³ See *id.* at 1495.

¹²⁴ Download a blank copy from http://www.eng.auburn.edu/center/twc/techtransfer/For_pro_se_applicants.pdf.

capturing and storing this data in Exhibit 1 for each *pro se* application (allowed as well as abandoned), the USPTO could amass valuable data for evaluating and improving the examination process, and for training examiners assigned to *pro se* applications. Additionally, the completed form would be valuable in communicating to examiners and *pro se* applicants what to expect from USPTO examination, office actions and interviews. Over time, statistical processing of the data from the completed forms would enable USPTO to see how MPEP requirements are being met and what the trends are.

4. **Form a standing committee of former pro se applicants to get input to the USPTO:** It would be a good tool to have a small standing committee (with rotating members) made of *pro se* inventors with patent-prosecution experience to serve as a focus group to provide input to the USPTO now and in the future. Finding the right set of people for this committee is important—the USPTO needs people who can identify problems and communicate them effectively without getting bogged down with their own negative experiences with the USPTO.
5. **Capture, analyze and publish data on pro se applications:** Finally, the USPTO must electronically capture, store and analyze additional data to assess the rate of rejections, the number of office actions before abandonment or before allowance, time to allow a patent, the validity of allowed patents, and other data to monitor the quality of the examination of *pro se* applications and issued patents.

The fact the USPTO fails to collect or disseminate data on *pro se* applications is an indication that the *pro se* applicant community is ignored within the USPTO. By not collecting and publishing statistics about *pro se* applications, the inventing community and policy makers are in the dark. This needs to change for the good of the U.S. economy that needs to draw more out of all segments of its inventing community. Today, the USPTO cannot answer the question, “Do *pro se* applications face a disproportionately larger percentage of rejections compared to applications filed by attorneys/agents?” The “percent of applications rejected” statistics¹²⁵ used in evaluating the USPTO today does not tell us if *pro se* applicants are carrying a bigger load of rejections.

In summary, CEOs of corporate behemoths can directly lobby the White House through their joint letter cited earlier.¹²⁶ Further, powerful industry associations, mentioned earlier, can lobby the White House and the Congress.¹²⁷ Furthermore, patent attorneys and agents use law journals and reviews to bring attention to their problems with the USPTO, but *pro se* applicants have no such lobbying capability.

If a first-time *pro se* applicant succeeds in getting a patent, he/she may be inspired to invent more. In later iterations of the invent-patent cycle, a serial

¹²⁵ See PATENT STATISTICS 1963–2009, *supra* note 8 (listing patent applications filed and patent grants per year).

¹²⁶ See *Are Patent Problems Stifling U.S. Innovations?*, BUS. WK., Apr. 8, 2009, http://www.businessweek.com/innovate/content/apr2009/id2009048_138177.htm?chan=innovation_brending_other+innovation+and+design+stories (last visited May 18, 2010).

¹²⁷ See *id.*

inventor may have the cash flow to hire the services of a patent attorney or agent. Therefore, promoting *pro se* applicants and their legitimate success with the USPTO would increase the level of innovation and patenting activity in the country among grass-roots citizen-inventors. Consequently, if the USPTO would reform itself to give a fair shake to *pro se* applicants, USPTO would increase its revenue from *pro se* applicant fees, energize grass-roots inventing community in the country, bring more business to the patent-law professionals, and eventually energize the economy through increased innovation.

The bad news for *pro se* inventor-applicants is that the patent reforms being considered in Washington do not address the challenges facing the *pro se* applicant discussed in this paper.¹²⁸ The on-going efforts in Washington to improve the U.S. patent system must pay more attention to the concerns of *pro se* applicants, and must consider reforming the USPTO along the lines suggested above. A message to the USPTO: For the economy's sake, encourage *pro se* inventor-applicants.

After seeing an earlier copy of this study, the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademarks Office has entrusted the responsibility of addressing the problems and recommendations in the paper to the Administrator of the Inventors Assistance Program ("IAP") of the USPTO. As of March 2010, the author is encouraged by the initial steps taken by the Administrator of the IAP.

¹²⁸ *E.g.*, S. 515, 111th Cong. (2010).

Exhibit 1**A measure to evaluate USPTO's Office Actions and interviews against the requirements of MPEP § 707.07(j)¹**

Code: No = did not adhere to MPEP; Yes = adhered to MPEP; Blank = N/A or neither yes or no.

	Action of the examiner in the context of MPEP 707.07(j)	Office action 1 7/3/08	Applicant requested Interview 8/24/08	Office action 2 1/5/09	Office advisory 4/5/09	Office action 3 5/27/09	Total "No"	Total "yes"
1	Draft one or more claims	No	yes	No	No	No	4	1
2	Indicate such claims will be allowed		yes					1
3	Do not stop with bare rejection of claims but actions should be constructive	No	yes	No	No	No	4	1
4	Offer definite suggestions for correction	No	yes	No	No	No	4	1
5	Indicate desirability of an interview	No		No	No	No	4	
6	Note in actions that certain features have not been claimed	No	No	No	No	No	5	
7	State dependent or canceled claims will be allowed if written as independent claims	No	No	No	No	No	5	

8	Actions consistent with the spirit of MPEP § 707.07(j)		yes	No	No	no	3	1
9	Provide non-contradictory statements that do not confuse the inventor		yes	No**	No**	No**	3	1
10	Recommend applicant to seek legal help only if justified	No				No	2	
11	Provide analogous art to reject claims					No***	1	
	TOTAL						36	6
Summary score: 36 NO, and 6 YES; <u>only the interview, with an attorney present, is consistent with MPEP requirements</u>; all column entries are based on office actions, etc. accessible through the USPTO's Patent Application Information Retrieval (PAIR) system.								

*Interview was requested by the applicant

**Contradicted interview summary

***Provided one non-analogous art in rejecting all claims (Compare Figures 1 and 2)

¹ Item 1-8 derived from **MPEP § 707.07(j)**; Items 9-11 complement items 1-8

Figure 1 (The invention in the illustrative case)



(19) **United States**
 (12) **Patent Application Publication** (10) **Pub. No.: US 2008/0095575 A1**
 Swamidass (43) **Pub. Date: Apr. 24, 2008**

(54) **CONTINUOUS INTEGRATED
 PREFABRICATED PLASTIC RAISED
 RUMBLE STRIPS + EDGE LINE FOR
 ROADWAYS**

Publication Classification

(51) **Int. Cl.**
E01F 9/047 (2006.01)
 (52) **U.S. Cl.** **404/16; 404/15**

(76) **Inventor:** Paul M. Swamidass, Auburn, AL (US)

(57) **ABSTRACT**

A roadway safety warning device, preferably in the form of a continuous, integrated, prefabricated, plastic, raised rumble strip (IPRRS), preferably pigmented to serve as edge lines as well as a continuous shoulder rumble strip (CSRS), for roadways, including but not limited to highways, county roads, and streets. It is preferably provided as a strip which has a series of first areas and second areas, the first areas having a first height, the second areas having a second height, and the second height being different than the first height. The first and second areas extend substantially across the width of the strip. The first and second areas alternate substantially along the length of the strip. The strip is made of an abrasion-resistant material and bonded to the pavement. The device warns the driver of the vehicle riding on it.

Correspondence Address:
Dr. Paul M. Swamidass
1529 Ferndale Drive
Auburn, AL 36832 (US)

(21) **Appl. No.:** 11/907,834
 (22) **Filed:** Oct. 17, 2007

Related U.S. Application Data

(60) Provisional application No. 60/853,145, filed on Oct. 19, 2006.

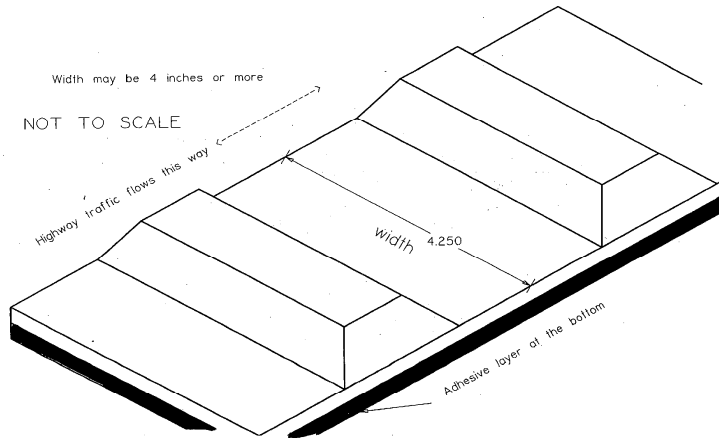


Figure 2 (Examiners' reference: Murray's invention)



United States Patent [19]
Murray

[11] Patent Number: 5,582,490
[45] Date of Patent: Dec. 10, 1996

[54] RUMBLE STRIP CUTTER WHEEL
[75] Inventor: Stuart W. Murray, Brentwood, Tenn.
[73] Assignee: Wirtgen America, Inc., Nashville, Tenn.
[21] Appl. No.: 310,638
[22] Filed: Sep. 22, 1994
[51] Int. Cl.⁶ E01C 23/00
[52] U.S. Cl. 404/90; 404/94
[58] Field of Search 404/90, 94

[57] ABSTRACT
A multi-sided wheel to replace one of the wheels of an existing cold milling machine. The wheel has a series of flat surfaces in spaced relationship. The flat surfaces allow the machine to drop its cutting drum relative to the surface over which the machine is traveling to cut a rumble strip. As the wheel rotates, it will support the machine on one of the points formed by the confluence of two adjacent flat surfaces, thereby raising the machine and causing it to raise its cutting drum out of the rumble strip that it has just cut. Because the flat surfaces are spaced apart, the cutting drum will be moved forward in a looping fashion as the wheel rotates before the wheel drops onto the next flat surface to lower the cutting drum for cutting the next, spaced rumble strip. Thus, the multi-sided wheel causes the machine to move up and down as it propels along its path of travel. A pentagonal wheel is the optimal design for use in conjunction with a Wirtgen® W500™ cold milling machine in order to cut rumble strips meeting the specifications of the New York Thruway Authority.

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Primary Examiner—William P. Neuder
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21 Claims, 3 Drawing Sheets

