



EMPLOYEE INVENTORS, THE DUAL LADDER,
AND THE USEFUL ARTS:
FROM THOMAS PAINE TO THE “DILBERT BOYCOTT”

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Abstract

To address limitations on the promotion of the progress of the useful arts, the Framers provided a Constitutional grant in the Patent Clause. They did so despite Thomas Jefferson’s concerns. However, limitations on the promotion of the useful arts continue today, often in very subtle ways. The evolution of dual-ladder corporate organizations as described in *Martens* has given rise to one such limitation—the phenomenon identified as the “Dilbert boycott.” Also, financially lucrative markets can give rise to abusive limitations on the promotion of the useful arts as in *Synthroid*. Combining these limitations with Thomas Jefferson’s fears of even limited monopolies points to the need for vigilance in insuring that the rights and policies behind the Constitutional grant are not eroded. Starting with the ideas of Thomas Paine, an inventor and contemporary of the Framers, this Comment identifies five key principles underlying the Constitutional grant in the Patent Clause. To apply these principles, there must be a high degree of definiteness where ideas are exchanged for rights in intellectual property, particularly in the context of technical employment agreements.

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EMPLOYEE INVENTORS, THE DUAL LADDER, AND THE USEFUL ARTS: FROM THOMAS PAINE TO THE “DILBERT BOYCOTT”

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Natural rights are those which appertain to man in right of his existence. Of this kind are all the intellectual rights, or rights of the mind, and also all those rights of acting as an individual for his own comfort and happiness, which are not injurious to the natural rights of others.¹

INTRODUCTION

A long established national comic strip features a detective named Dick Tracy. With the help of futuristic high-tech gadgets, detective Tracy creatively has fought crime for decades. Detective Tracy’s two-way wrist radio foreshadowed today’s miniature wireless telephone, and to millions of people, the Dick Tracy comic strip has promoted the exciting and useful application of new scientific ideas.

Today, instead of Dick Tracy and his high-tech gadgets, many national newspapers feature another comic strip about a high-tech employee, “Dilbert.” This mundane engineer is stuck in a dual-ladder organization representative of modern corporate technical employment. If “Dilbert” is like most technical employees today, then he is bound by a vague and indefinite employment contract.

The tone of the “Dilbert” comic strip is one of frustration and cynicism, where the promotion of new futuristic gadgets is not to be found. “Dilbert” is seemingly indifferent to the promotion of new useful ideas, a subject of great importance to the Framers of the United States Constitution. In the Constitution, the Framers expressly provided for the promotion of the progress of the useful arts, and surely the Framers would be concerned if “Dilbert’s” attitude resulted from limitations on this Constitutional grant. To figure out what is going on with “Dilbert,” we begin with the Framers.

Thomas Jefferson was the sole Framer to write extensively on intellectual property law.² Yet, his contemporary, Thomas Paine, promoted freedom and individual rights while he promoted his iron bridge invention.³ With the support of

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¹ THOMAS PAINE, COLLECTED WRITINGS: COMMON SENSE, THE CRISIS, AND OTHER PAMPHLETS, ARTICLES, AND LETTERS, THE RIGHTS OF MAN, THE AGE OF REASON 464 (Eric Foner ed., Literary Classics of the U.S. 1995).

² Edward C. Walterscheid, *The Use and Abuse of History: The Supreme Court’s Interpretation of Thomas Jefferson’s Influence on the Patent Law*, 39 J.L. & TECH. 195, 195 (1999).

³ PAINE, *supra* note 1, at 425. Thomas Paine’s June 13, 1803 letter to Congress entitled “The Construction of Iron Bridges” presented his iron bridge invention to Congress. *Id.* at 422. Paine explained he had to interrupt the development and promotion of his invention when he wrote, “I

the Framers, Paine addressed limitations on personal freedom in *The Rights of Man*. Paine's writing serves as a basis for understanding limitations on the promotion of the progress of the useful arts through an understanding of the relationship between natural rights⁴ and intellectual property.

Throughout history different types of limits restrained the promotion of the progress of useful scientific ideas. In 1633, about a century before Thomas Paine and, indeed, most of the Constitutional Framers were born, Rome summoned Galileo to explain his teachings about heliocentrism, a new scientific idea which placed the Sun at the center of the solar system and not the Earth.⁵ The Inquisition found Galileo guilty of "vehement suspicion of heresy" and coerced Galileo to sign a recantation in June 1633.⁶ Finally, in 1992, 359 years after Galileo's condemnation as a heretic, the Vatican apologized for limiting the astronomer's findings.⁷

Limits on the promotion of the progress of useful scientific ideas are not isolated to past history. In the 1990's, Betty Dong, a professor of clinical pharmacology at the University of California at San Francisco, led a team of scientists and found generic drugs to be just as effective as a brand-name thyroid drug.⁸ Dong wanted to publish

therefore ceased my work on the bridge and employ myself on the more necessary work, *Rights of Man*, in answer to Mr. Burke." *Id.* at 425.

Paine authored a number of significant writings which reflected ideas embraced by the Framers and the public in general. *See generally* PAINE, *supra* note 1 (including two of Paine's more predominate writings which are *Common Sense* and *The Rights of Man*).

⁴ Because the term "natural rights" can have different meanings, some confusion over this term may exist. 16A AM. JUR. 2D *Constitutional Law* § 389 (1998). Possible confusing uses of the term "natural rights" include reference to rights created in individuals because they are born into society, or rights created at birth through parentage. PAINE, *supra* note 1, at 516-19. Parentage rights were a common way of acquiring power in Europe prior to the revolutions in America and Europe. *Id.* In this context, "rights" can be passed from generation to generation, a practice that was repugnant to Paine and the Framers. *Id.* These types of rights are better described as "inherited rights." *Id.* In addition, some "right to life" issues are framed as "natural rights." 16A AM. JUR. 2D *Constitutional Law* § 390 (1998). This Comment follows the definition of "natural rights" provided by Paine, which is more consistent with viewing natural rights as inalienable rights. PAINE, *supra* note 1, at 506 (quoting NATIONAL ASSEMBLY OF FRANCE, DECLARATION OF THE RIGHTS OF MAN AND OF CITIZENS). *See generally* Suzanna Sherry, *The Founders' Unwritten Constitution*, 54 U. CHI. L. REV. 1127 (1987) (discussing the relationship between natural rights and the Constitution); Suzanna Sherry, *Natural Law in the States*, 61 U. CIN. L. REV. 171 (1992) (examining natural rights in early state constitutions and courts).

⁵ Timothy Moy, *Science, Religion, and the Galileo Affair*, SKEPTICAL INQUIRER, Sept.-Oct. 2001, at 43. Galileo originally went to Rome in 1616 to defend his writing, which promoted heliocentrism. *Id.* at 43. In the midst of the Protestant Reformation, the Church was particularly concerned about arguments over authority. *Id.* at 45. With the support of some powerful and liberal theologians, the Church and Galileo reached a compromise. *Id.* at 44. Galileo agreed to discuss heliocentrism only hypothetically until it could be proved definitively that the Earth revolves around the Sun. *Id.* Galileo thought he had the proof in 1632 when he published *Dialogue on the Two Chief World Systems*. *Id.* The following year Rome summoned Galileo. *Id.*

⁶ *Id.* For the last decade of his life, Galileo remained under house arrest and under injunction not to write about physics. *Id.* at 44-45.

⁷ *Heretic Honored as Martyr*, CHI. TRIB., Feb. 20, 2000, § 1, at 13; *see also Vatican Science Panel Told by Pope: Galileo Was Right*, N.Y. TIMES, Nov. 1, 1992, § 1, at 15.

⁸ Douglas M. Birch & Gary Cohn, *Standing up to Industry: As Corporations Increasingly Hold Their Purse Strings, Many Researchers Feel Pressed to Deliver Favorable Results*, BALTIMORE SUN, June 26, 2001, at 1A. A brand-name thyroid drug was estimated to cost Americans annually about

the results, but under the terms of a confidentiality agreement, the manufacturer that funded the research blocked publication for years.⁹ Upon publication of the Dong study, the manufacturer faced a class action suit for the fraudulent suppression of the results.¹⁰ The Seventh Circuit affirmed a \$135 million settlement against the manufacturer.¹¹

Because of organization structure, other limits to the promotion of the progress of useful scientific ideas within modern technically driven businesses are often less obvious. For example, dual-ladder corporate organizational structure provides separate career paths for technical employees “who choose to pursue their career in a purely technical environment.”¹² In a suit over the equitable treatment of technical-ladder employees, John Martens, one of 3M’s most distinguished and respected technical employees, with over twenty patents to his name, sued 3M because of an apparent high level of frustration over differences in technical and administrative ladders.¹³

\$356 million more per year than generic drugs. *Id.* Pressure from the Food and Drug Administration eventually forced Knoll Pharmaceutical Co. to permit publication of the results. *Id.*

Thyroid drugs are used to treat hypothyroidism, which occurs when the thyroid gland fails to produce sufficient hormones. *In re Synthroid Marketing Litigation*, 264 F.3d 712, 714 (7th Cir. 2001). If left untreated, people who are afflicted with the ailment suffer hair loss, limb numbness, depression, and mental confusion. *Id.* Synthroid® is the brand name for an orally administered thyroid drug, which was originally introduced in the 1950s. *Id.*

⁹ *Synthroid*, 264 F.3d at 746. Finally, after Dong battled the drug company for seven years, the *Journal of the American Medical Association* published the study. *Id.* This Comment refers to the study as eventually published as the Dong study. Betty J. Dong et al., *Bioequivalence of Generic and Brand-name Levothyroxine Products in the Treatment of Hypothyroidism*, 277 JAMA 1205 (1997); see also David V. Eakin, M.D., *The International Conference on Harmonization of Pharmaceutical Regulations: Progress or Stagnation?*, 6 TULSA J. COMP. & INT’L L. 221, 241-42 (1999). The manufacturing company threatened legal action for four out of the seven years the dispute raged, and Dong ended up losing her position with the university. *Id.*

¹⁰ *Synthroid*, 264 F. 3d at 714. See generally *In re Synthroid Marketing Litigation*, 110 F. Supp. 2d 676 (N.D. Ill. 2000) (approving settlement of class action suit).

¹¹ *Synthroid*, 264 F. 3d at 715-17 (affirming the settlement of \$135 million).

¹² *Martens v. Minn. Mining & Mfg. Co.*, 616 N.W.2d 732, 735 (Minn. 2000) (en banc). Minnesota Mining and Manufacturing Co. (“3M”), a typical company that employs a large number of scientists and engineers, “designed and developed” a dual-ladder system to advance and reward employees. *Id.* at 735-36. A typical corporate dual-ladder system as represented by 3M is a worldwide organization in which an employee can follow a career in either management or in pursuit of technical interests. *Id.* at 735. The technical side of the ladder allows scientist and engineers to “delve into a [technical] field of special interest” without having to deal with management responsibilities and formalities. *Id.* at 736. Under dual-ladder systems, there are supposedly equivalent or comparable opportunities for advancement. *Id.* at 748.

The peculiar characteristic of dual-ladder systems is that they resonate the old “separate but equal” doctrine of segregation. See generally, *Brown v. Bd. of Educ.*, 347 U.S. 483 (1954) (rejecting “separate but equal” doctrine). Although beyond the scope of this Comment, the nexus between natural rights related to inventing, a classification of technical employees, who may be stereotyped as “nerds” or “geeks” (or just simply “Dilberts”), and a “separate but equal” work environment poses some interesting issues.

¹³ See *Martens v. Minn. Mining & Mfg. Co.*, No. C0-98-2303, 1999 LEXIS 641 (Minn. Ct. App. June 8, 1999), *rev’d* 616 N.W.2d 732 (Minn. 2000) (en banc). Martens alleged that representations made by 3M in the company newspaper and a promotional brochure about the benefits of 3M’s dual-ladder organization constituted a unilateral contract offer. *Martens*, 616 N.W.2d at 737. Martens

Such instances lead to a growing workplace cynicism, raising questions of doubt regarding the sincerity of representation of the benefits of dual-ladder systems.¹⁴ So pervasive, the cynicism regarding the dual-ladder system gave birth to “Dilbert,” a comic strip, and what is now known as the “Dilbert Principle.”¹⁵

Not surprisingly, the introduction of dual-ladder systems and their profound effect on corporate structure coincided with the emergence of the mandatory employment contract for technical employees.¹⁶ Typically, these contracts, which involve the exchange of scientific ideas for property rights, lack a high degree of definiteness. A lack of definiteness can lead to inventor cynicism, which can ultimately operate to limit the progress of useful scientific ideas. Likewise these contracts conflict with public policy concerns related to the rights of scientists as individuals or to potential anti-competitive effects.

Separated by almost four centuries, limitations on the promotion of the progress of the useful arts may be more subtle today than those faced by Galileo, but they are nonetheless present. Today, an inventor’s ideas are not broadly limited by a label of “heretic.” Rather, the promotion of the progress of useful scientific ideas is limited by the indefinite language in technical employee contracts. Any limitation on promoting

lost his breach of contract claim for lack of “statements sufficiently specific and definite to rise to the level of an offer for a unilateral contract.” *Id.* at 745.

¹⁴ Lisa A. Burke & Jo Ellen Moore, *Contemporary Satire of Corporate Managers: Time to Cut the Boss Some Slack?*, BUSINESS HORIZONS, July-Aug. 1999, 63, 64-65. Contemptuous humor is linked to workplace cynicism. *Id.* at 65. Employee cynicism most likely results from a breach of “psychological contracts.” *Id.* Cynical employees “are less likely to behave as good organizational citizens.” *Id.* Cynical employees believe “the firm lacks integrity,” have “negative emotions toward the firm,” and tend “to exhibit disparaging and critical behaviors.” *Id.* Cynicism can “lead to a generalized . . . disparagement of management . . . direction[.]” *Id.*; see also M. Jones, *Dissecting Dilbert*, PSYCHOLOGY TODAY, Jan-Feb. 1998, at 16.

¹⁵ SCOTT ADAMS, THE DILBERT PRINCIPLE 14 (1996). The “Dilbert Principle” states “that the most ineffective workers are systematically moved to the place where they can do the least damage: management.” *Id.* Higher compensation to “ineffective workers” is a likely source of the cynicism held by technical ladder employees. In *Martens*, a case about the inequities of a dual-ladder system, “[t]he management side of the ladder on a regular basis received bonuses, stock options, and higher salaries that are alleged to have been systematically denied to the technical employees.” *Martens*, 616 N.W.2d at 750 (Gilbert, J., dissenting). Workplace cynicism can lead to the “denigration of the leadership and mission of the enterprise.” Burke & Moore, *supra* note 14, at 65. If the mission of the enterprise is new inventions, then workplace cynicism, or more likely its underlying causes, will be a limitation on the promotion of the progress of the useful arts.

¹⁶ In 1950, 3M “designed and developed” the technical ladder “to recruit and retain employees by providing opportunities for advancement for those who choose to pursue their career in a purely technical environment rather than in the corporation’s administrative structure.” *Martens*, 616 N.W.2d at 735. The use of employment contracts for technical employees became increasingly mandatory when institutional research and development was transformed after World War II. Ann Bartow, *Inventors of the World Unite! A Call for Collective Action by Employee-Inventors*, 37 SANTA CLARA L. REV. 673, 686-87 (1997). Today, technical employees, such as engineers and scientists in both industry and academia, are required to enter into employment contracts, especially recent college graduates with specific educational training who are hired into technical positions. *Id.* at 688. See generally 7B AM. JUR. LEGAL FORMS 2D *Employment Contracts* § 99.43 (1998) (contract form entitled “Employment of Technological Employee”).

the progress of useful scientific ideas requires an examination of the underlying legal principles and societal policy considerations.¹⁷

This Comment addresses the limitations imposed by technical employment contracts on the promotion of the progress of the useful arts and scientific ideas. Part I includes an overview of a typical technical employment contract with specific examples of indefinite contract language. To understand the impact of indefiniteness on inventor's rights, this section also looks at the Framers' prospective on both the inventor's natural rights, and the public policies important to the promotion of scientific ideas. This Part also examines the fundamental and inherently indefinite nature of scientific ideas. Part II examines the operation of an inventor's natural right in the conception and disclosure of ideas; the exchange of natural rights for the grant of a property right in a patent; and the retention of natural rights. Besides the inventor's natural rights, Part II also examines historical policy concerns about monopolies, and the heightened importance of definiteness in contracting for scientific ideas. Part III combines the natural rights of the inventor with policy considerations to show the important protections provided in a common law approach to technical employment contracts. To further insure the protection of identified inventor rights and public policies, which are offered by the common law, and to further promote the progress of scientific ideas, this Comment proposes that technical employment contracts be written with a high degree of definiteness, and with a more direct linking of patent benefits to the inventor.

I. SELECTED BACKGROUND ON CONTRACTS, THE FRAMERS, AND SCIENTIFIC IDEAS

To analyze modern controls or limits on the promotion of the progress of useful scientific ideas, one must consider both the modern technical employment contract, and the Framers' view of rights and policies as they pertain to inventing. This Part begins with a review of the terms in a typical modern technical employee contract. It is followed by a review of the Framers' view of an inventor's or a scientist's rights, the Framers' view of patents and concerns about the effects of monopolies, and Thomas Jefferson's understanding of the indefinite nature of scientific ideas.

¹⁷ See generally DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 42-80 (2d ed. 2001) (discussing the philosophy and economics of patent law). For example, the limitations on the disclosure of information must be balanced against the value of the information to society. *Id.* Other policy related considerations include the ownership of intellectual property rights and the granting of monopolies. *Id.*

Currently, the balancing of these policies with regard to industry and academic cooperation is being debated. "The proliferation of ownership claims [by industry of academic research] threatens not only to stifle the free exchange of ideas but also to impede economic growth." Eyal Press & Jennifer Washburn, *The Kept University*, ATLANTIC MONTHLY, March 2000, at 48. As industry "impose[s] disclosure restrictions on [academic] work they fund . . . more and more scientific information of potential benefit to many facets of the economy is withheld from the public domain." Richard Florida, *The Role of the University: Leveraging Talent, Not Technology*, ISSUES IN SCI. & TECH., Summer 1999, at 73.

A. *The Technical Employee Contract*

Traditionally, employment contracts, which govern the inventive activities of technical employees, deal with the disclosure and assignment of patentable inventions, in addition to the confidentiality obligations associated with trade secrets.¹⁸ Since contract provisions address inventive activities of the technical employee, these contracts directly effect the promotion of the progress of the useful arts and scientific ideas.¹⁹ The following are examples of the indefinite language

¹⁸ A typical employment contract for scientists and engineers hired to invent may include ten separate sections which describe the rights and obligations of the employee. The ten sections of a typical technical employee contract are:

<i>Section</i>	<i>Heading</i>	<i>Description</i>
	Recitals	Employee understands employer owns past, present, and future information, inventions, discoveries, and improvements.
1	Employment	Scope of employment.
2	Ownership	Employer as exclusive owner of all ideas and trade secrets.
3	Confidentiality and Nondisclosure	Limits employee disclosure of information.
4	Noncompetition	Employee agrees not to compete with employer.
5	Copyright	Employee is "employee for hire" for copyright purposes.
6	Patent	Employee to disclose and assign inventions to employer.
7	Patent, Trademark, and Copyright Notices	Employee to mark all work Trademark, and product as employer-owned.
8	Performance and Indemnification	Employee will indemnify employer for breach.
9	No Agency	Employer is not employee's agent.
10	General	Whole agreement effective on execution, and small matters like employee agreeing to immediate injunction upon breach.

Employment Contracts, *supra* note 16.

In addition, the agreement includes two Schedules, which are attachments to the body of the agreement. A brief description of each Schedule follows.

Schedule A	Scope of employment and compensation. Referred to in Section 1 of the agreement.
Schedule B	Definition of Trade Secrets. Referred to in Section 2 of the agreement.

Id.

¹⁹ The sections more directly related to the promotion of the progress of useful scientific ideas address: the scope of employment; the ownership of the inventor's work product, including ideas; the disclosure of ideas and patentable inventions; the assignment of patentable inventions; and the confidentiality obligations associated with trade secrets. In general, employment agreement language is very broad and often uses vague and indefinite terms or descriptions.

found in different parts of a written employee contract, which is often signed by an technical employee without a clear understanding of the specific provisions.²⁰

- Recitals

The employer wants to protect “technical and non-technical information in the various existing and *projected fields* of the employer’s business”²¹

- Section Two—Ownership

The employer is the “exclusive owner of *all rights* . . . to confidential *ideas* and trade secrets concerning the *operations of employer*, all employee’s output, and . . . derived or *to be derived* from employee’s output”²²

- Section Three—Confidentiality and Nondisclosure

The employer gets perpetual silence because the “employee shall not, during or *at any time subsequent* to employment . . . disclose or use trade secret information”²³

- Section Six—Patent

“Employee shall promptly disclose to employer all inventions, discoveries, and improvements . . . related to the *business activities* of the employer.”²⁴

- Schedule B

“Trade secret information includes, but *is not limited to*, . . . research and development . . . customers . . . third-party” information.²⁵

These examples of vague or broad language lead to indefiniteness or ambiguity when interpreting the contract terms. Indefiniteness and ambiguity in a contract with a technical employee involved in the development of new technology effects on the promotion of useful scientific ideas. The impact of this indefiniteness and ambiguity must be analyzed to ascertain any limits inconsistent with the Constitutional grant to promote the progress of the useful arts.

B. Thomas Paine, Inventor and Frammer

The modern technical employee contract must be evaluated against the stated Constitutional purpose and grant to promote the progress of the useful arts.

²⁰ See *supra* note 18 (providing brief descriptions of the sections of a technical employee contract).

²¹ *Employment Contracts*, *supra* note 16 (emphasis added).

²² *Id.* (emphasis added).

²³ *Id.* (emphasis added).

²⁴ *Id.* (emphasis added).

²⁵ *Id.* (emphasis added).

Understanding the Constitutional purpose requires an assessment of the Framers' intent.²⁶ Historically, the Court relied on Thomas Jefferson as an authority on intellectual property rights.²⁷ Yet, the writings of Thomas Paine, an inventor²⁸ and notable contemporary of the Framers, including Jefferson, provide valuable insight to the understanding of the fundamental nature of inventor's rights because of the

²⁶ Walterscheid, *supra* note 2, at 195. The Supreme Court frequently turns to extrinsic evidence when in search of legislative intent and when trying to determine the Framers' intent. *Id.* The reasons for this are varied. *Id.* at 195-96. In reviewing the constitutional issues related to patent law, the Court has turned to Thomas Jefferson as an authoritative extrinsic source. *Id.* at 196-99. Of all the Framers, Jefferson is known to have written extensively on patent law and is essentially the sole Framers to have done so. *Id.* at 198. However, it was not until 1938 "that any member of the Supreme Court deemed Jefferson worthy of citation." *Id.* at 198-99.

²⁷ In 1966, the Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), "without dissent . . . relied almost entirely on Jefferson as [the] authority" on key patent-related issues. Walterscheid, *supra* note 2, at 200. In this landmark case, the Supreme Court established a test for patent rejection on the grounds of obviousness, an idea that the Court attributed directly to Jefferson. *Graham*, 383 U.S. at 9-10, 17. The Court relied on Jefferson's writings to implement the Framers' stated purpose of Article I, Section 8, Clause 8 of the Constitution. *Id.* at 6-8. In dicta, the court also stated that Jefferson "rejected a natural-rights theory in intellectual property rights and clearly recognized the social and economic rationale of the patent system." *Id.* at 8-9.

These out-of-context comments do not fully explain the role of natural rights in relationship to intellectual property rights. "[T]o the extent that Jefferson's views are relevant, the Court, through its use of excerpts, not infrequently taken out of context, has significantly misrepresented those views." Walterscheid, *supra* note 2, at 222. Thus, a closer look at natural rights is warranted, other than the Court's sole interpretation of one line in a letter from Jefferson.

²⁸ Thomas Paine invented a single-arch iron bridge, and in 1787, he visited France to promote this invention. THOMAS PAINE, COMMON SENSE & THE RIGHTS OF MAN x (Tony Benn ed., Phoenix Press 2000). The following year, he promoted his invention in England while visiting his mother. *Id.* Paine's inventive work actually began in 1786 with the construction of a model of the bridge, which he demonstrated to Benjamin Franklin and David Rittenhouse. PAINE, *supra* note 1, at 841. Before going to Europe with his idea, Paine unsuccessfully tried to secure funds for construction of a bridge in Pennsylvania. *Id.*

intellectual or thought processes involved with scientific ideas.²⁹ Thomas Paine openly discussed his ideas on natural rights with Thomas Jefferson.³⁰

Paine's *The Rights of Man*³¹ serves as a basis for understanding the Framers' intent because of its wide acceptance.³² The writings of Paine broadly challenged the suppression of ideas.³³

²⁹ Before looking at Paine's writings in more detail and reconciling them with Jefferson's comments in his letter to Isaac McPherson, it is important to put Paine's work into historical perspective. In 1776, the United States of America declared independence, Paine enlisted in the American Army, and Paine's *Common Sense* was published. PAINE, *supra* note 28, at ix. Congress elected Paine to serve as Secretary to the Committee of Foreign Affairs from 1777-79. *Id.* The Revolutionary War ended in 1782. *Id.* at x. Paine traveled to France in 1787, and then to England in 1788, while in America, the Constitution of the United States was approved and became effective. DAAN BRAVEMAN ET AL., *CONSTITUTIONAL LAW: STRUCTURE OF RIGHTS IN OUR FEDERAL SYSTEM* 6 (4th ed. 2000). The French Revolution started with the storming of the Bastille in 1789. PAINE, *supra* note 28, at x. The Patent Act of 1790 became one of the first laws passed by Congress. *Graham*, 383 U.S. at 6.

In 1791, after living in France during the revolution, Paine moved to England and published Part I of *The Rights of Man*. PAINE, *supra* note 28, at x. Paine addressed Part I directly to President George Washington. *Id.* at 57. Also in 1791, the Bill of Rights became part of the Constitution of the United States, and the "Church and King" riots occurred in England. *Id.* at x. In 1792, while still in England, Paine published Part II of *The Rights of Man*. *Id.* England charged Paine with sedition, but fearing imprisonment, Paine escaped to the continent. *Id.* Paine returned to the United States in 1802, retired, and lived in New Rochelle, New York until his death in 1809. *Id.* at xi. Jefferson wrote his letter to Isaac McPherson in 1813. *Graham*, 383 U.S. at 8.

³⁰ PAINE, *supra* note 1, at 368-69. In February 1788, Thomas Paine specifically wrote a letter to Thomas Jefferson to present his thoughts on natural rights and to solicit comments. *Id.*

³¹ PAINE, *supra* note 28, at ix. Paine published *The Rights of Man* in 1791 largely in response to Edmund Burke's writings, which "bitterly denounce[d]" the French Revolution and expressed "contempt for the common people." *Id.* at xiv. In response, Paine vigorously defended both the American and French revolutions and set out ideas for a modern republic based on democracy and a constitution. *Id.* Paine absolutely rejected inherited power and denied the legitimacy of the British Crown. *Id.* He also opposed the House of Lords and the established Church for the same principles of inherited power. *Id.* at xv. For publishing *The Rights of Man*, the English government charged him with treason, and he fled to France in 1792. *Id.* at iii. Paine also believed in the rights of all people and wrote for the abolishment of slavery and in support of women's rights. *Id.* at iv.

The Rights of Man "is one of the most important texts in the long history of popular struggle; it has had an immense influence on the thinking of people all over the world since its first publication over two hundred year ago." *Id.* at xiii.

³² See generally PAINE, *supra* note 1 (including a number of important correspondences written by Thomas Paine to George Washington, Thomas Jefferson and Samuel Adams). George Washington read Paine's works and held Paine in great esteem. PAINE, *supra* note 28, at 279-80. In a letter to Paine dated July 29, 1791, not only did Thomas Jefferson note his interest in *The Rights of Man*, but he also mentioned that Paine's work was widely read and accepted. *Id.* at 280-81. Jefferson further noted the acceptance of *The Rights of Man* to John Adams in an August 1791 letter. *Id.* at 281-82. Again in 1792, and after Part II of *The Rights of Man* was published, Jefferson noted the wide general acceptance of Paine's ideas when he wrote to Paine "[t]he printers season every newspaper with extracts from your last, as they did before from your first part of the Rights of man." *Id.* at 282. Thus, there is substantial evidence that Paine's writings and ideas were widely known and accepted generally by the public and more specifically by the Framers.

³³ The historic context and acceptance, particularly by the Framers, of Thomas Paine's writings provide valuable insight into the understanding of the relationship between natural rights and intellectual property at the drafting of the Constitution. At that time, persecution of scientific ideas continued or was within the memorable past, such as Galileo's recant only 150 years earlier. In Europe, there were still strong ties between Church and State (i.e., the King). Galileo's recant

In his publication, *The Rights of Man*, Thomas Paine explained the relationship between natural rights and intellectual property rights.³⁴ Because of the wide acceptance of Thomas Paine's writings, his works serve as the foundation for a different, arguably more accurate, look at natural rights and intellectual property.³⁵ Paine's writings provide a framework for analyzing the relationship between inventors' rights to the disclosure of an idea or invention, the assignability of ideas, and the granting of patents. This framework follows from an understanding of the underlying natural rights and related civil rights. Beginning with a natural-rights view as explained by Thomas Paine, combined with policy considerations about patents in general, several important legal principles about inventing may be ascertained.

C. *The Tyranny of Patents*

Patents pose a public policy problem because of their monopolistic and anti-competitive effect. Jefferson recognized this problem and feared it because of a long history of abuse.³⁶ Because of his grave concerns, Jefferson felt compelled to express his fears³⁷ to James Madison, who played a central role in the Constitutional Convention.³⁸

occurred about one-and-a-half centuries before the creation of the United States of America and the Constitution. This time frame is approximately the same time frame as the United States Civil War is to today.

³⁴ PAINE, *supra* note 1, at 431.

³⁵ In contrast to Paine's writings, in *Graham*, the Supreme Court stated that "Jefferson's philosophy on the nature and purpose of the patent monopoly is expressed in a letter to Isaac McPherson (Aug. 1813)." *Graham*, 383 U.S. at 8. The Court interpreted the Framers' view of the relationship of intellectual property and natural rights from an excerpt from a sole letter by Jefferson. As noted in *Graham*, only a portion of Jefferson's letter was set out in the margin in footnote. *Id.* at 8 n.2. A reading of the whole letter, including portions that the Court left out, only leads one to the conclusion that Jefferson only makes the distinction that a natural right is not a property right without explaining how these rights are related. Reading the whole Jefferson letter leads to questions about the relationship between ideas and property. See Edward C. Walterscheid, *Patents and The Jeffersonian Mythology*, 29 J. MARSHALL L. REV. 269, 304-05 (1995) (reproducing the complete August 1813 letter from Jefferson to Isaac McPherson).

³⁶ See generally Walterscheid, *supra* note 35 (including many writings of Thomas Jefferson).

³⁷ *Id.* at 274. Thomas Jefferson said that "the benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression." *Id.* After expressing pleasure that nine states ratified the Constitution, in July 1788 Jefferson expounded on his concern about monopolies to Madison as follows:

It is a good canvas, on which some strokes only want retouching. What these are, I think sufficiently manifested by the general voice from North to South, which calls for a bill of rights. It seems pretty generally understood that this should go to [among other things] . . . Monopolies. . . . It is better . . . to abolish . . . Monopolies, in all cases, than not to do it in any. . . . The saying there shall be no monopolies lessens the incitements to ingenuity, which is spurred by the hope of a monopoly for a limited time, as of 14 years; but the benefit even of limited monopolies is too doubtful to be opposed to that of their general suppression.

Id. at 274.

³⁸ BRAVEMAN ET AL., *supra* note 29, at 413-14. At the time of the Constitutional Convention, Thomas Jefferson was in Paris as the United States Ambassador to France. *Id.* at 4.

Not long thereafter, one of the first acts of the newly formed Congress was the introduction of the Copyright and Patents Bill on June 23, 1789.³⁹ Congress, through the introduction of this legislation, created an association between the promotion of science and the useful arts, and the granting of copyrights and patents.⁴⁰

Historically, patents were a tool to promote the economy,⁴¹ and were not necessarily limited to promoting useful arts.⁴² The use of grants of patent monopolies spread into four categories:⁴³

- (1) grants to domestic inventors and for the importation of foreign inventions;⁴⁴
- (2) grants for the exclusive exercise of established trade;⁴⁵
- (3) grants of supervision of trade or industry including the right of search, seizure, and arrest;⁴⁶ and
- (4) grants of special licenses as exceptions under rigid commodity import, export or transportation regulations.⁴⁷

The widespread use of patent monopolies led to abuses. Primarily, the granting of patents for established trades, and the supervision of trade or industry, became so objectionable as to generate the general grievance against monopolies.⁴⁸ This led to

³⁹ H.R. 10, 1st Cong. (1789), *reprinted in* EDWARD C. WALTERSCHEID, TO PROMOTE THE PROGRESS OF USEFUL ARTS: AMERICAN PATENT LAW AND ADMINISTRATION, 1798-1836, at 433 (1998). This Bill created an association between promoting the useful arts and the granting of patents. The preamble of the bill begins, “[a] Bill to promote the Progress of Science and Useful Arts.” *Id.*

⁴⁰ *See Graham*, 383 U.S. at 6. From a grant in the Constitution, Congress selects the policy which in its best judgment aligns with the Framers’ intended purpose. *Id.* Because not all specific rights are enumerated in the Constitution, the delineation of specific rights is not static. *Id.*

The Intellectual Property Clause uses general language typical of other Constitutional grants, and it is up to Congress to write the specific statutes. *See id.* Specifically, the Constitution does not define useful arts or its promotion, but Congress does. *See id.* The Constitution does not mention patents or the use of limited monopolies for the financial benefit of inventors, and so it is up to Congress to decide. *See id.*

⁴¹ Patents are related to the monopolies and the granting of exclusive rights by governments to generate revenues. HAROLD G. FOX, MONOPOLIES AND PATENTS: A STUDY OF THE HISTORY AND FUTURE OF THE PATENT MONOPOLY 19 (1947). As early as 347 B.C., Aristotle noted the use of monopolies in transportation, banking, and commodities such as lead. *Id.* n.2. Both the Egyptians and the Romans used monopolies. *Id.* at 20. The granting of monopolies in Europe by a sovereign to an individual first came in use in thirteenth century. *Id.* at 24. The recorded use of monopoly patents for the manufacture and sale of paper in Berne date to as early as 1467. *Id.* at 26. Patents were initially for the protection of industrial monopolies, and the use of patent to protect inventions did not appear until about 1600. *Id.* at 27.

⁴² As early as 1331, patents were used in Europe for economic development or trade protection. Specifically, patents were used to encourage the introduction of new industries, and for the protection of domestic manufacturing. *Id.* at 43. As trade between countries in Europe grew, the use of patent monopolies grew dramatically. *Id.* at 65. As deemed necessary, countries justified the use of patents to regulate or simulate industries. *Id.* at 65-66.

⁴³ *Id.* at 62.

⁴⁴ *Id.* at 63.

⁴⁵ *Id.*

⁴⁶ *Id.* at 64.

⁴⁷ *Id.*

⁴⁸ *Id.* at 63-64.

the anti-monopoly enactment of the Statute of Monopolies in 1624, but substantial abuse of patents continued into the mid-1700s.⁴⁹

The Framers feared the monopolist impact of patents because of their common use.⁵⁰ When the Constitution was drafted, patents and the granting of monopolies had a long history of known abuses.⁵¹ Although the Framers were familiar with patents, the absence of any patent provisions in the Constitution, and the narrow granting of patents only for inventions, likely reflect the Framers' general distrust of these instruments.⁵²

D. Jefferson and the Indefinite and Ubiquitous Properties of Scientific Ideas

The granting of a patent for an invention requires the inventor to “point[] out and distinctly claim[]” the invention.⁵³ This definiteness requirement for the granting of a patent for a new invention “is a fundamental rule, [with] which all others must be consistent.”⁵⁴

⁴⁹ *Id.* at 115, 157. Because of provisions in the statute for patents of new inventions, it is considered the starting point of modern patent systems for inventions. *Id.* at 124. Unfortunately, this statute did not end the abuses of granting patents. *Id.* at 126. Patents continued to be granted in direct violation of the statute. *Id.* at 127. The statute did not end the Crown's granting of patents and related abuses, and effective control over patents did not begin to develop until 1766. *Id.* at 119, 157; see also, Suzanna Sherry, *Implied Limits on the Legislative Power: The Intellectual Property Clause as an Absolute Constraint on Congress*, 2000 U. ILL. L. REV. 1119, 1142-53.

⁵⁰ CHISUM, *supra* note 17, at 15-16.

⁵¹ PAINE, *supra* note 1, at 471. In his rebuke of monopolies, Paine notes that “[t]he French constitution says, . . . there shall be no monopolies of any kind—that all trade shall be free, and every man free to follow any occupation by which he can procure an honest livelihood, and in any place, town or city throughout the nation.” *Id.*

As to the widespread abusive use of monopolies, Paine wrote:

[W]ith respect to monopolies, the country is cut up into monopolies. Every chartered town is an aristocratical monopoly in itself; and the qualification of electors proceeds out of those chartered monopolies. Is this freedom? . . .

In these chartered monopolies, a man coming from another part of the country, is hunted from them as if he were a foreign enemy. An Englishman is not free of his own country: every one of those places presents a barrier in his way, and tells him he is not a freeman—that he has no rights. Within these monopolies, are other monopolies. A city, such for instance as Bath, which contains between twenty and thirty thousand inhabitants, the right of electing representatives to parliament is monopolised into about thirty-one persons. And within these monopolies are still others. A man even of the same town, whose parents were not in circumstances to give him an occupation, is debarred, in many cases, from the natural right of acquiring one, be his genius or industry what it may.

Id.

⁵² *Id.* Even so, the Constitutional grant to promote the progress of science and the useful arts is broadly written and does not specifically limit the use of patents. U.S. CONST. art. I, § 8, cl. 8.

⁵³ 35 U.S.C. § 112 (2000). The second paragraph of § 112, which is called the definiteness requirement, is: “The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” *Id.*

⁵⁴ ROBERT C. FABER, *LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING* § 1 (4th ed. 2000). Claim definiteness is fundamental because it is a statutory requirement under section 112, paragraph 2 of the Patent Act. 35 U.S.C. § 112.

The definiteness requirement for a patent points to the inherent indefiniteness of scientific ideas. In an August 1813 letter to Isaac McPherson, Thomas Jefferson alluded to this point when he wrote about scientific ideas in relation to property.⁵⁵ Jefferson distinguished the uncertain and indefinite nature of ideas from the “stable” or more certain nature of property.⁵⁶ Jefferson pointed to the inherent indefiniteness of ideas when he wrote that ideas are the “fugitive fermentation of the individual brain.”⁵⁷

Although ideas tend to be indefinite, inventors still have a natural right to protect their ideas through silence.⁵⁸ Jefferson explained that “an idea, which an individual may exclusively possess as long as he keeps it to himself,” is controlled through the right of silence.⁵⁹

Finally, Jefferson mentioned the profound nature of ideas when he drew an analogy between ideas and the shared light from a taper, the wax-coated wick used to light a number of candles.⁶⁰ Similar to the easy and quick spreading of light by a taper, Jefferson seemed awed by the very nature of how ideas can be communicated with ease, and how they can quickly spread around the world.⁶¹ Jefferson pointed out that this specific aspect of scientific ideas “seems to have been peculiarly and benevolently designed by nature,”⁶² and he implied that the natural purpose of ideas is to be shared.⁶³

In summary, Jefferson pointed out the fickle and fugitive nature of scientific ideas, which are inherently indefinite, in contrast to the certainty of property. A good idea once disclosed is very hard to contain.⁶⁴ Finally, although scientific ideas are inherently indefinite and can be easily disseminated over a wide area, there is a natural right to protect them with silence. Because scientific ideas are a product of the intellect and related to an inventor’s natural rights, the character of scientific ideas is an important factor in the analysis of the interrelation of scientists’ or inventors’ rights relating to disclosure of ideas or inventions, the assignability of ideas, and the granting of patents.

II. INVENTOR’S RIGHTS AND POLICIES GOVERNING THE PROMOTION OF THE PROGRESS OF THE USEFUL ARTS

Because the Constitution provides for the promotion of the progress of the useful arts, any limitations to this grant must be analyzed with an understanding of rights and policies directly related to scientific ideas and inventing. In the Constitution, the

⁵⁵ *Graham*, 383 U.S. at 8 n.2.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

⁶⁴ Using a scientific concept to explain this tendency, it is as if disclosure is the preferred state of scientific ideas or inventions, and it takes effort to contain and control ideas in secrecy.

Framers gave Congress the power to establish the granting of exclusive property rights to inventors to promote science and the useful arts.⁶⁵ Invention and the granting of a patent involve both individual and societal rights, as well as public policy considerations, but the Framers left little guidance on the underlying rights or policy considerations because of an almost total absence of discussion of the Intellectual Property Clause at the Constitutional or ratifying conventions.⁶⁶ Due to this lack of guidance, the analysis that follows turns to extrinsic sources for the key rights and policies, many of which are related to the Constitutional grant for the promotion of useful scientific ideas.⁶⁷ The analysis looks to the views of the Framers and their contemporaries and provides a framework for the operation and exchange of rights consistent with important policy considerations.⁶⁸

A. Natural Rights

Natural rights are “those which appertain to man in right of his existence, [including] intellectual rights, or rights of the mind”⁶⁹ Thomas Paine provided this definition, which is the starting point for analyzing inventor’s rights. Because invention, the generation of scientific ideas, and the mental processes of scientific discovery are intellectual functions of the mind, these activities are a natural right.

⁶⁵ The specific enumerated grant, which is known as the Intellectual Property Clause, is: “The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” U.S. CONST. art. I, § 8, cl. 8.

When drafting this grant, the Framers were “referring to works of authors and inventors when they used the terms ‘Science’ and ‘useful Arts.’” CHISUM ET AL., *supra* note 17, at 16-17 n.64. There is an operational relationship between the terms in this clause. *Id.* “Science,” “Authors,” and “Writings” relate to copyrights. *Id.* “Useful Arts,” “Inventors,” and “Discoveries” relate to patents for inventions. *Id.* The focus of this Comment is on the portion of the Constitutional grant related to patents, and copyrights are not specifically addressed.

This Comment uses the term “useful arts” although it is somewhat archaic; however, terms such as “useful scientific ideas” are also used in a more modern sense of innovative and practical technical ideas. In general, where the word “science” and its derivatives are used in this Comment, they are directed more to the modern concepts of useful science as opposed to copyrights.

⁶⁶ WALTERSCHEID, *supra* note 39, at 55. No delegate left any record as to the meaning or the policies behind this clause. *Id.* at 59.

⁶⁷ See generally Sherry, *supra* note 49, at 1119-42 (looking to the history and structure of the Constitution to discover rights and policies of constitutional significance). Often the Supreme Court must determine underlying policies in evaluating specific Constitutional rights by determining the Framers’ purpose from extrinsic evidence. Walterscheid, *supra* note 2, at 195. The correct interpretation of extrinsic evidence is critical in determining the Framers’ purpose. See *id.*

⁶⁸ Thomas Jefferson provided the sole Framers’ insight into the relationship of scientific ideas, natural rights, and property rights. In his August 1813 letter to Isaac McPherson, Jefferson writes, “[i]t would be curious . . . if an idea . . . of natural right, be claimed in exclusive and stable property.” *Graham*, 383 U.S. at 8 n.2. However, it is Thomas Paine who explains how a natural right, such as keeping an idea silent, can gain the stability of a property right if the natural right is exchanged for a civil right such as grant of a patent for the disclosure of the idea. In other words, no natural right in an idea generates the property right directly.

⁶⁹ PAINE, *supra* note 1, at 464. The full definition is given in the introductory quote for this Comment.

This may seem obvious in our free and high technology society of today, but this was a developing concept when the Framers drafted the Constitution.⁷⁰ At the time, inventors and scientists still faced opposition to new ideas, albeit not the degree or severity faced by Galileo.⁷¹ Even Thomas Paine alluded to the problem of continued suppression of scientific ideas. He wrote that “the improvements in agriculture, useful arts, manufactures, and commerce, have been made in opposition to the genius of its Government, which is that of following precedents.”⁷² The enlightened view of intellectual rights as natural rights contributed to the elimination of the prosecution of new ideas, both political and scientific.⁷³

The intellectual process of inventing gives rise to a variety of other natural rights.⁷⁴ These additional rights come from intellectual processes and are related to legal concepts of patent and trade secret law.⁷⁵ The intellectual process of scientific thought gives rise to both certain and uncertain ideas, or uncertain ideas that ultimately mature into certain and useful inventions.⁷⁶ Once an idea or invention exists, at least in the mind of its creator, the inventor has choices. These choices include: 1) the right to disclose the idea and make it public; or 2) the right not to disclose the idea and keep it as a secret.⁷⁷

When an idea matures into a definite and useful invention, and if an inventor decides to keep the idea secret, then there are additional natural rights.⁷⁸ These additional natural rights include either: a) a right to seek the protection through a property right granted by society in terms of a patent, a limited monopoly, before

⁷⁰ *Cf. id.* at 582-84 (arguing for a constitution and against the existing doctrine of precedents and its limits on the promotion of new technologies).

⁷¹ *Heretic Honored as Martyr*, *supra* note 7, at 13. Finally, after 359 years, the Church’s condemnation of Galileo in 1633 and the formal suppression of his ideas ended in 1992, but only after a thirteen-year investigation by the Pontifical Academy of Sciences. *Id.*

⁷² PAINE, *supra* note 1, at 584 n.*. The footnote from the chapter entitled Ch. IV, *Of Constitutions*, is included as part of Paine’s sharp criticism of relying on precedent to determine law. *Id.* at 582-84. The entire footnote reads:

In England the improvements in agriculture, useful arts, manufactures, and commerce, have been made in opposition to the genius of its Government, which is that of following precedents. It is from the enterprise and industry of the individuals, and their numerous associations, in which, tritely speaking, Government is neither pillow nor bolster, that these improvements have proceeded. No man thought about Government, or who was in, or who was out, when he was planning or executing those things; and all he had to hope, with respect to Government, was that it would let him alone. Three or four very silly ministerial newspapers are continually offending against the spirit of national improvement, by ascribing it to a minister. They may with as much truth ascribe this book to a minister.

Id. at 584 n.*.

⁷³ *Cf. id.* at 572-96 (explaining the right to make constitutions which allow for the free debate of ideas in the operation of government).

⁷⁴ *Id.* at 464 (defining intellectual rights or rights of mind as natural rights).

⁷⁵ *See id.*

⁷⁶ *Cf. id.* (characterizing the intellectual processes related to inventing as natural rights).

⁷⁷ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1989). As held by the Supreme Court, it is the inventor’s right to decide whether to disclose the idea or “to keep his invention secret and reap its fruits indefinitely.” *Id.*

⁷⁸ *See PAINE*, *supra* note 1, at 464.

making the invention public; or b) a right to keep the invention as a trade secret.⁷⁹ The former choice is the basis of the existing patent system.

B. The Exchange of Rights and the Constitution

In *The Rights of Man*, Thomas Paine explains the concepts of natural rights and civil rights, and their interrelation.⁸⁰ The two concepts easily explain the relationship of scientific ideas, inventing, the disclosure of ideas or inventions, and intellectual property.⁸¹ An explanation of the relationship between natural rights and civil rights follows.

An understanding of civil rights explains that the relationship of the natural right of silence about a given invention to the property right of a patent is actually an exchange of a natural right for a civil right.⁸² In addition to certain natural rights, all members of society, including inventors, have civil rights.⁸³ As Paine explains:

Civil rights are those which appertain to man in right of his being a member of society. Every civil right has for its foundation some natural right pre-existing in the individual, but to [the enjoyment of] which his individual power is not, in all cases, sufficiently competent. Of this kind are all those which relate to security and protection.⁸⁴

Paine further concludes: “That every civil right grows out of a natural right; or, in other words, is a natural right exchanged.”⁸⁵

An inventor does have a natural right to protect an invention through silence, but if the inventor wants to disclose an invention or idea he can only protect the invention with the help of society.⁸⁶ For an inventor to protect a useful idea, the inventor must exchange a natural right for a civil right.⁸⁷

An analogous exchange exists for the rest of society. Other citizens have a natural right to free trade and competition unrestrained by monopolies.⁸⁸ However, citizens can exchange a collective natural right in free trade with a civil right by the granting of a limited monopoly for the disclosure of an invention.⁸⁹ Because of anti-competition concerns, society is not interested in protecting technical know-how unless there is a benefit to society.⁹⁰ Again, this is simply an exchange of a natural right for a civil right.

⁷⁹ See *id.* at 464-66.

⁸⁰ *Id.*

⁸¹ *Cf. id.* (treating disclosure as a natural right and granting of a patent as provided in the Constitution as a civil right).

⁸² *Cf. id.* at 464. (treating the intellectual process of silence as a natural right).

⁸³ *Id.* at 464-66.

⁸⁴ *Id.* at 464-65.

⁸⁵ *Id.* at 465.

⁸⁶ *Cf. id.* (characterizing patent protection as a civil right).

⁸⁷ See *id.*

⁸⁸ *Cf. id.* (characterizing patent protection as a civil right involving an exchange of rights).

⁸⁹ See *id.*

⁹⁰ See *id.*

Although civil or societal rights stem from natural rights,⁹¹ civil rights relate to being part of society.⁹² Paine explains how natural and civil rights operate in society⁹³ through a constitution, which “is a thing *antecedent* to a government.”⁹⁴ A few insightful paragraphs of Paine’s writings set the foundation of the Constitution and the blueprint for its operation.⁹⁵ This same foundation can be used to understand legal rights and policies related to scientific ideas and invention because these are natural and civil rights.⁹⁶ Examples include the right to disclosure or secrecy of scientific ideas, or the policy governing the availability of scientific ideas for the benefit to society through technological advancement. More importantly, this foundation must be used because it is only through the Constitution that natural and civil rights are exchanged.⁹⁷ Thus, the natural and civil rights expressed in Paine’s writings, although not specifically enumerated, are ultimately related to constitutional rights.⁹⁸

⁹¹ Paine’s definition of “natural rights,” which include intellectual rights, is as follows:

A few words will explain this. Natural rights are those which appertain to man in right of his existence. Of this kind are all the intellectual rights, or rights of the mind, and also all those rights of acting as an individual for his own comfort and happiness, which are not injurious to the natural rights of others.

Id. at 464.

⁹² “Civil rights” are related to the security and protection of being part of society although the rights are founded on natural rights. Paine explains:

Civil rights are those which appertain to man in right of his being a member of society. Every civil right has for its foundation some natural right pre-existing in the individual, but to [the enjoyment of] which his individual power is not, in all cases, sufficiently competent. Of this kind are all those which relate to security and protection.

Id. at 464-65.

⁹³ *Id.* at 465. Paine explains that natural rights are never lost but may be exchanged for civil rights:

From this short view it will be easy to distinguish between that class of natural rights which man retains after entering into society and those which he throws into the common stock as a member of society.

The natural rights which he retains, are all those in which the *power* to execute is as perfect in the individual as the right itself. Among this class, as is before mentioned, are all the intellectual rights, or rights of the mind: consequently, religion is one of those rights. The natural rights which are not retained, are all those in which, though the right is perfect in the individual, the power to execute them is defective. They answer not his purpose. A man, by natural right, has a right to judge in his own cause; and so far as the right of the mind is concerned, he never surrenders it: but what availeth it him to judge, if he has not power to redress? He therefore deposits this right in the common stock of society, and takes the arm of society, of which he is a part, in preference and in addition to his own. Society *grants* him nothing. Every man is a proprietor in society, and draws on the capital as a matter of right.

Id.

⁹⁴ *Id.* at 467.

⁹⁵ *Id.* at 465-68.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.* An alternate view of an inventor’s rights was argued by attorney Daniel Webster, one of the most eminent trial attorneys in the United States in the early to mid 1800’s. WALTERSCHEID, *supra* note 39, at 74. Mr. Webster tried many patent cases and argued in favor of inherent rights of

C. Retained Right and the “Dilbert Boycott”

The granting of a property right by society is consistent with other natural rights associated with an invention.⁹⁹ The underlying natural rights are never extinguished, as explained by Paine when he wrote:

The natural rights which he retains are all those in which the *power* to execute is as perfect in the individual as the right itself. Among this class, as is before mentioned, are all the intellectual rights, or rights of the mind.¹⁰⁰

Civil rights come from natural rights. Civil rights become effective through the aggregation of natural rights, but civil rights do not diminish the quality of underlying or retained natural rights.¹⁰¹

For all enumerated powers, including those relating to inventions and other useful arts, the Constitution governs this exchange of rights.¹⁰² Thus, as Paine

inventors in their inventions. *Id.* In 1829, Mr. Webster argued for the exclusive natural rights of the inventor in *Pennock v. Dialogue*, 27 U.S. (2 Pet.) 1 (1829). DANIEL WEBSTER, LEGAL PAPERS, VOL. 3, THE FEDERAL PRACTICE, PART III 859 n.1 (Andrew J. King ed., University Press of New England 1989). Mr. Webster continued to advocate a natural right to the exclusive use of an invention when in 1852 he stated:

The Constitution does not attempt to give an inventor a right to his invention, or to an author a right to his literary productions. No such thing. But the Constitution recognizes an original, pre-existing, inherent right of property in the invention, and authorizes Congress to secure to inventors the enjoyment of that right. But the right existed before the Constitution and above the Constitution, and is, as a natural right, more clear than that which a man can assert in almost any other kind of property. What a man earns by thought, study and care, is as much his own, as what he obtains by his hands. It is said that by the natural law, the son has no right to inherit the estate of his father—or to take it by devise. But the natural law gives a man a right to his own acquisitions, as in the case of securing a quadruped, a bird, or a fish by his skill, industry, or perseverance. Invention, as a right of property, stands higher than inheritance or devise, because it is personal earning. It is more like acquisitions by the original right of nature. In all these there is an effort of mind as well as muscular strength.

FOX, *supra* note 41, at 200-01.

⁹⁹ PAINE, *supra* note 1, at 465.

¹⁰⁰ *Id.*

¹⁰¹ *Id.* Paine effectively summarized the quality of retained natural rights and those exchanged for civil rights when he wrote:

First, That every civil right grows out of a natural right; or, in other words, is a natural right exchanged.

Secondly, That civil power, properly considered as such, is made up of the aggregate of that class of the natural rights of man, which becomes defective in the individual in point of power, and answers not his purpose; but when collected to a focus, becomes competent to the purpose of every one.

Thirdly, That the power produced from the aggregate of natural rights, imperfect in power in the individual, cannot be applied to invade the natural rights which are retained in the individual, and in which the power to execute is as perfect as the right itself.

Id. (emphasis added).

explained, a civil right can only exist if there is an exchanged natural right. The natural right changes its form but is never extinguished. More specifically, the Constitution provides for the specific exchange of the natural right to keep an invention secret for the civil right of a patent, which is a property right recognized by the courts of the United States.¹⁰³ So, it is only through the Constitution that a natural right can be exchanged for a civil right, but such an exchange cannot be used to invade or limit the natural rights of the inventor.

How these rights are exercised impacts the promotion of the progress of useful scientific ideas. Jefferson and Paine exercised their rights in a significantly different manner than today's technical employee who is in a dual-ladder organization and is bound by an employment contract.

Thomas Jefferson argued against an exchange of rights required to patent an invention because he felt the evils of monopolies were just too great.¹⁰⁴ True to his convictions, Jefferson never sought any patents, although he invented a variety of useful devices.¹⁰⁵ Jefferson exercised his rights in a way which promoted the progress of useful scientific ideas without seeking the disclosure protection of patents.¹⁰⁶

Similar to Jefferson, and for reasons not specifically documented, Thomas Paine felt compelled not to seek a patent for his invention.¹⁰⁷ At a time when the construction of bridges was becoming increasingly important, Paine exercised his rights by disclosing and not patenting his iron bridge invention.¹⁰⁸

¹⁰² *Id.* at 466-68 (applying the principles of natural and civil rights to the operation of government through a constitution).

¹⁰³ *Id.*

¹⁰⁴ Walterscheid, *supra* note 35, at 274. Patent systems already existed within several states, and the Framers proceeded to set forth language in the Constitution for the granting of patents. *Id.* at 272. If Thomas Jefferson had attended the constitutional convention, he would have opposed the Congressional power to grant patents for new inventions. WALTERSCHEID, *supra* note 39, at 56. Walterscheid infers this view of Jefferson from a letter, which Jefferson wrote to a French inventor, who was interested in selling his invention to the United States government. *Id.* In the letter, Jefferson writes, "[t]hrough the interposition of government, in matters of invention, has its use, yet it is in practice so inseparable from abuse, that they think it better not to meddle with it." WALTERSCHEID, *supra* note 39, at 55-56.

¹⁰⁵ STEVE MIRSKY, *Founding Father of Invention*, SCI. AM., Oct. 2000, at 104. Jefferson invented an improved plow, a wheel cipher used for encoding secret messages, and revolving bookstand. *Id.* Jefferson never patented his inventions, but he supported the patent system, and as Secretary of State under George Washington, Jefferson helped set up the U.S. Patent Office in 1790. *Id.* Jefferson even tested some of the new devices for which patents were sought. *Id.* At first glance, Jefferson's involvement with the patent office seems inconsistent with his distrust of patents and his own lack of seeking patent protection for his inventions. A plausible inference is Jefferson's fear of patents drove him to participate directly in the patent system to prevent abuse. His direct involvement in the high scrutiny of inventions and the early operation of the patent office seems to be consistent with a policy of limiting patents.

¹⁰⁶ *Id.*

¹⁰⁷ PAINE, *supra* note 1, at 422-28. So as "not to take up the time of congress with a description of words," Paine presents two working models of his bridge design to Congress in a letter dated June 13, 1803, and entitled "The Construction of Iron Bridges." *Id.* at 422.

¹⁰⁸ *Id.* at 422. Paine gifted his invention to the Congress, and the People of the United States, just as construction of one of his iron bridges in Philadelphia was begun. *Id.* In 1803 and after a long and distinguished career, Paine wrote a letter presenting his invention to Congress. *Id.* In his letter, Paine wrote, "as I do not intend to take any patent right for it." *Id.*

In today's technically driven society, inventors who are bound by technical employment contracts face circumstances which are vastly different and more complicated than the inventive environment at the infancy of the Industrial Revolution. Employment contracts control the flow of scientific ideas in dual-ladder organizations faced with a growing cynicism.¹⁰⁹ Cynicism of corporate technical employees is linked to a perceived, if not a real, dual set of promotion criteria in the dual-ladder system. So pervasive, it is memorialized in the "Dilbert" comic strip.¹¹⁰

"Dilbert"-type cynicism can disparage the mission of an enterprise.¹¹¹ Regardless of specific contract provisions, technical employees, as portrayed in the comic strip, can exercise their rights through a "Dilbert boycott." In a "Dilbert boycott," employees exercise "strategic control" of the disclosure of ideas by a variety of means, including just plain silence. Hence, scientists and engineers in large technical organizations exercise their rights through the "Dilbert boycott," which does little for promoting the progress of useful scientific ideas. Despite these mandatory employment contracts, disclosure remains a natural right and should be recognized as such—consistent with the views of inventor Thomas Paine. Although the recognition of an inventor's natural rights is an important consideration, there are also important policy considerations for the promotion of the progress of useful arts.

D. Framers' Policy to Limit the Use of Patents

The monopolistic and anti-competitive effect of patents was a major policy consideration of the Framers.¹¹² The Framers knew of patents through their use by the King of England in colonial America.¹¹³ Besides royal patent grants, individual

¹⁰⁹ Burke & Moore, *supra* note 14, at 65. Recently, the dual-ladder system, and specifically the compensation and promotion representations of the technical ladder, was at issue in *Martens v. Minnesota Mining and Manufacturing Co.*, 616 N.W.2d 732, 735 (Minn. 2000) (en banc). In *Martens*, two long-term technical employees sued under contract theory, promissory estoppel, and fraud over alleged compensation and promotion representations for technical ladder employees. *Id.* The significantly split en banc court found no breach of alleged contract representations for lack of definite contract language. *Id.* at 742-43. In his dissent, Justice Gilbert emphasized that the corporate administration or management ladder "generally offered greater compensation and opportunities for promotion," while "3M derived significant benefits from encouraging" scientists and engineers to move to the technical ladder. *Id.* at 750 (Gilbert, J., dissenting).

¹¹⁰ *Id.*

¹¹¹ *Id.* Although a technical employee's contract requires disclosure of inventions and discoveries, there is no way to control the quality, or quantity of disclosures. Also, management is often ill-equipped to effectively evaluate the disclosures, because management, by definition, is not on the technical ladder. In addition, employees can boycott the inventive process by remaining totally silent or offering only limited disclosure of important information. This natural right of the inventor is defined here as the "Dilbert boycott."

¹¹² See discussion *supra* Part I.C.

¹¹³ WILLIAM EDGAR SIMONDS, A SUMMARY OF THE LAWS OF PATENTS FOR USEFUL INVENTIONS WITH FORMS 2 (Fred B. Rothman & Co. 1995) (1883). An example of a petition for Pennsylvania to recognize a patent grant from the Crown is:

Thomas Masters, of Philadelphia, who, in A.D. 1717, petitioned William Keith, Lieutenant Governor of Pennsylvania, setting forth that his majesty had graciously granted to his wife, Sybella Masters, two patents, one for curing corn,

colonies (such as Connecticut) enacted statutes for granting patents as early as 1672.¹¹⁴ After the United States declared Independence, individual states provided for the granting of patents, a practice known to Framers such as Benjamin Franklin and George Washington.¹¹⁵ The continued use of patents by states extended beyond inventions, as is evidenced in the historic 1824 case of *Gibbons v. Ogden*.¹¹⁶

Following a long history of abuse of patent grants by governments in Europe and the American colonies, the Intellectual Property Clause in the Constitution narrowly limits the use of patents to the promotion of the useful arts.¹¹⁷ In 1796, a congressional committee emphasized the limited power of Congress to grant patents *only* for inventions.¹¹⁸ In so doing, the Congress limited the use of patents to one of

and another for weaving chip hats, and praying that the same might be recorded in Pennsylvania, which prayer was granted.

Id. at 2 n.1.

¹¹⁴ *Id.* at 2 n.2. A colonial Connecticut statute of 1672 was essentially a patent law: "It is ordered that there shall be no monopolies granted or allowed among us but of such new inventions as shall be judged profitable to the country and for such time as the general court shall deem meet." *Id.*

"As early as 1716 the colony [of Connecticut] granted to Ebenezer Fitch of Suffield a monopoly of slitting mills for fifteen years." *Id.* Afterward, the colony "kept up what was for those times an active business in granting patents of this sort, sometimes advancing to the grantee the funds necessary to put his invention into practice." *Id.*

In addition, another colony, Massachusetts, granted a patent in 1641 to Samuel Winslow for a monopoly on his method of salt making for ten years. *Id.*

¹¹⁵ *Id.* at 2. An example of a post-Independence patent grant by a state, with the noted involvement of the Framers, is:

New Hampshire, in 1786, granted to Benjamin Dearborn, a virtual patent for a printing press and for a book printed on it called the "Pupil's Guide." The next year Dearborn procured another exclusive grant covering a water throwing engine and weighing scales. John Fitch, from Philadelphia, and James Rumsey, from Virginia, contended before several of the state legislatures for the exclusive rights to propel boats by steam. There was no need of a contest from our modern stand point for the two systems were as different as could well be: Fitch had paddles at the sides of his boat worked by an engine within, while Rumsey attained propulsion by forcing a stream of water out at the stern and against the water of the river.

Rumsey founded a *Rumseian Society* with Benjamin Franklin as president, procured the endorsement of Gen. Washington and generally prevailed over Fitch.

Id. at n.3.

¹¹⁶ 22 U.S. (9 Wheat.) 1 (1824). Although not the deciding issue, the granting of patents by a state was at issue in *Gibbons*, a key case in the judicial interpretation of the grant of power to Congress as provided in the Constitution. *Id.* at 186-223. Once Chief Justice Marshall decided the case based on the Constitutional grant of power to Congress under the Commerce Clause, he found it unnecessary to examine the power of Congress to grant patents. *Id.* at 221. *See generally supra* note 98 (arguing for *Gibbons* was attorney Daniel Webster).

¹¹⁷ WALTERSCHEID, *supra* note 39, at 78.

¹¹⁸ *Id.* at 79. Historically, patents were used to regulate trade and the economy, but often with detrimental effects. *Id.* at 55-65. The Framers had firsthand knowledge of the benefits and disadvantages of patent monopolies. *Id.* Fearful of the abuses, the Framers balanced a narrow use of patents as an economic incentive to promote new inventions against a hoped-for economic gain for the rest of society. *Id.* Some Framers, such as Jefferson, saw the risk of abuse as being too great and would have eliminated the use of patents for inventions. *Id.* Most Framers saw value in balancing the use of patents for the benefit of society, but only in the very narrow application for

four historic uses.¹¹⁹ The exclusion of the use of patents for the importation of new, but existing, foreign technology further narrowed the granting of patents to only new inventions.¹²⁰ Besides limits on the monopolistic use of patents, another important policy consideration is related to contract principles of definiteness.

*E. Inherently Indefinite Scientific Ideas Require Contracts
with a High Standard of Definiteness*

Jefferson pointed to the indefinite nature of scientific ideas when he described “an idea, [as] the fugitive fermentation of an individual brain.”¹²¹ In contrast, definiteness and certainty are important concepts in patent law¹²² as well as contract law.¹²³

A key requirement in obtaining a patent is that the invention must be definite.¹²⁴ The Patent Act requires that the patent specification should “distinctly claim[] the subject matter which the applicant regards as the invention.”¹²⁵ The requirement of definiteness provides a standard for determining when inventive ideas, which are indefinite by nature, become definite and patentable inventions.¹²⁶

Besides being a statutory patent requirement, definiteness is important for the purpose of contract. Without definiteness, “no contract is formed” if contract content

new inventions. *Id.* Overall, the Framers greatly restricted the use of patents, and this policy position should continue to be an overriding consideration. *Id.*

¹¹⁹ See discussion *supra* Part II.C.

¹²⁰ WALTERSCHEID, *supra* note 39, at 80. The rejection of import patents eliminated this means to meet expanding economic needs for recently developed foreign manufacturing technology. *Id.* A policy to use patents specifically for inventions impacts the sharing of ideas and scientific principles. There are legislative controls over the disclosure, and assignability of patent. A highly restrictive patent policy could limit disclosure or dictate assignability to the detriment of the natural flow of ideas. A contrary argument is that the elimination of patents and trade secrets would increase the natural flow of ideas. Thus, the patent policy can be used to balance the flow of ideas and the promotion of science and the useful arts.

¹²¹ WALTERSCHEID, *supra* note 35, at 304. Scientific thoughts or ideas by their very nature tend to start out as indefinite and uncertain. At some point in the inventive process an indefinite idea matures into a definite invention. *Id.* at 305.

¹²² 35 U.S.C. § 112 (2000) (providing that an application must adequately describe the invention).

¹²³ JOHN D. CALAMARI & JOSEPH M. PERILLO, THE LAW OF CONTRACTS § 2.9, at 50 (4th ed. 1998).

¹²⁴ “If the claims do not particularly point out and distinctly claim that which applicants regard as their invention, the appropriate action by the examiner is to reject the claims” MANUAL OF PATENT EXAMINING PROCEDURE § 2171 (7th Ed. 2000).

¹²⁵ 35 U.S.C. § 112.

¹²⁶ Similar to the high definiteness standards required by the Patent Act for the granting of a property right in a patent based on scientific ideas, a technical employee contract, particularly terms therein which establish property rights derived from scientific ideas, should require a high standard of definiteness.

is unduly indefinite.¹²⁷ If a contract “is not *reasonably* certain as to its *material* terms there is a fatal indefiniteness and the [contract] is void.”¹²⁸

A recent decision in *Martens v. Minnesota Mining and Manufacturing Co.*¹²⁹ by the Minnesota Supreme Court provides a specific example of how a court applies definiteness in a dispute over an alleged technical employee contract. Just as the court in *Martens* required definiteness in an alleged implied technical contract, the same definiteness standards must apply in formal written technical employment contracts, which create property rights from scientific ideas.¹³⁰

Further, the character of modern companies substantially complicates the interpretation of vague and indefinite contract terms. Typical employers of scientists and engineers are large businesses with a broad range of activities.¹³¹ Thus, the complex nature of today’s technically driven companies demand very definite contract terms.¹³²

In essence, contract law requires definiteness, as does the patent law. Patent law requires a high degree of definiteness because the granting of defined property rights is based upon scientific ideas, which are inherently indefinite by nature. The

¹²⁷ CALAMARI & PERILLO, *supra* note 123, at 50.

¹²⁸ *Id.* Indefiniteness is a matter of degree. *Id.* Although there is not a precise definition given the infinite number of contracts, material terms include subject matter and work to be done. *Id.* Indefinite terms may become definite based on trade usage. RESTATEMENT (SECOND) OF THE LAW OF CONTRACTS § 33 (1981) cmt. a (1981).

¹²⁹ 616 N.W.2d 732 (Minn. 2000) (en banc). *Martens* lost his alleged contract because the court found because the expressions of general concepts of career opportunities were “too vague and indefinite.” *Id.* at 744.

¹³⁰ *Id.* Employment agreements for technical employees include a number of references to invention, trade secrets, discoveries and improvements. Most of these topics involve scientific ideas, and are related to property rights without any specific definiteness requirement as to their description. *See generally Employment Contracts, supra* note 16.

Another example of indefiniteness is in the patent disclosure language of the employment contract of a technical employee. The contract requires a scientist or engineer to disclose “any and all inventions . . . related to the business or activities of the employer.” *Id.* This description of the employer’s business is vague, as is the reference to related business or activities. This is vagueness on top of vagueness.

¹³¹ *See Bartow, supra* note 16, at 691. A major part of a corporation’s business may cover hundreds or thousands of products, which can involve activities of sales, marketing, manufacturing, and research and development. *See id.* In addition, a corporation’s activities might include a company cafeteria, health benefits, company cars, employee cell phones, employee computers, the support of the community, or college scholarships. *See id.* All the possible business activities are just too broad to be referred to vaguely in a technical employment contract. *See id.*

The potential suppression of inventions outside a company’s core businesses out of inadvertence or neglect because employers do not recognize the value of an invention to other industries is a problem related to very broad corporate activities. *Id.*

¹³² At the dawn of the industrial revolution, the relative concern by the Framers of the potential monopolist and anti-competitive impact of vague and broad language dealing with intellectual property would be less than today. However, times changed and will continue to change with an ever-increasing technological complexity encroaching on human activities. An ever-increasing spread of technology implies an ever-increasing need for more specificity in agreements dealing with intellectual property rights related to scientific ideas.

stringent standard for definiteness in the granting of patents must be the same standard applied to technical employment contracts.¹³³

F. Five Rights and Policies for Promoting the Progress of the Useful Arts

The analysis of the rights and policies behind the promotion of the progress of the useful arts points to five important legal principles or policies. First, inventing is a natural right with the associated natural rights to use, disclose, or keep any indefinite scientific ideas or useful inventions secret. Second, the natural right to keep an invention secret is exchanged under a Constitutional grant for a property right in the form of a patent, a limited monopoly. Third, the inventor retains natural rights that are not exchanged for property rights in a patent. Today, in spite of employment contracts, scientists and inventors continue to exercise control over disclosure, through the use of the “Dilbert boycott.” Fourth, the Framers feared the tyrannical use of patents and allowed only a very limited use of patents for new inventions. Today’s employment contracts should strive to avoid the tyrannical limits on the flow of scientific ideas. Fifth, scientific ideas are inherently indefinite and thus require special contract considerations.

In the next Part, this Comment discusses how the recognition of these five rights and policies, in combination with the common law, eliminates the limitations on the promotion of the progress of the useful arts.

III. A PROPOSED NEW LOOK AT THE COMMON LAW AND DEFINITENESS

The extensive use by companies of employment contracts for jobs requiring technical skills began near the end of World War II.¹³⁴ Before the war, the common law determined the existence of inventor rights and “allowed an inventor to retain title to his creations unless he had developed them at the specific direction of his employer.”¹³⁵ Common-law courts maintained incentives for both the employer and employee, and appeared to produce results consistent with the constitutional grant to promote the progress of useful scientific ideas.¹³⁶ When employers realized the common law could be modified by contract, employment contracts upon initial employment of technical employees became the norm.¹³⁷

¹³³ Because of the indefinite nature of scientific ideas, and because of a natural right to think inventive thoughts about whatever activity or business with which one comes in contact, the likelihood of contract indefiniteness where dealing with inventions can only be overcome with a great deal of specificity.

¹³⁴ Jay Dratler, Jr., *Incentive for People: The Forgotten Purpose of the Patent System*, 16 HARV. J. ON LEGIS. 129, 131 (1979).

¹³⁵ *Id.*

¹³⁶ *Id.* at 140.

¹³⁷ *Id.* at 131. Courts routinely uphold assignment clauses in technical employment contracts, and thus employers avoid the allocation of patent rights dictated by the common law. Bartow, *supra* note 16, at 682. One interpretation of this result is that courts view technical employment contracts only from an economic regulation of property rights. If technical employment contracts

Since the common law prevailed before the extensive use of technical employee contracts and dual-ladder organizations, a logical starting point for proposed changes to these contracts comes from the common law. The common law can serve as a starting point to elucidate the necessary changes in technical employee contracts, but it is only the start. The importance of a higher standard of definiteness must also be incorporated. The common law must be applied in such a way as to include the five identified rights and policies, which recognize an inventor's natural rights and address the potential inequitable results caused by contract indefiniteness and any monopolistic tendencies of large financially driving business.

A. The Common Law and Inventor's Rights

There are three key inventors' rights that must be considered in technical employee contracts. These are: 1) inventing as a natural right; 2) the exchange of rights required to patent an invention; and 3) any natural rights not exchanged for a property right in a patent are retained by the inventor. Recognition of inventors' rights is aimed at promoting the progress of useful scientific ideas by reducing "Dilbert"-type cynicism. Thus, it is important to know whether the common law recognized these rights.

Under the common law, the employment of a scientist or engineer to make a particular invention bound the employee to assign his invention to the employer.¹³⁸ Thus, the common law clearly recognized a scientist's or engineer's right to invent, and in fact allowed for the contracting and assignment of this right.

The principal difference in the common law and in today's technical employment contract is the treatment of retained rights. Under the common law, if an employee conceived of an invention during performance under a more general employment contract, then "the contract is not so broadly construed as to require an assignment of the patent."¹³⁹ Although the common law recognizes retained rights, the "Dilbert boycott" is an indirect manifestation of retained rights that developed out of a lack of recognition of retained rights in modern technical employment contracts.

B. Indefinite Nature of Scientific Ideas Requires Highly Definite Contracts

The common law also drew a distinction between employment "to design, or to construct or to devise methods of manufacture" and employment specifically to invent.¹⁴⁰ Under the common law, mere ideas are not inventions, because there is no

involve an exchange of natural rights, which involve the right to free trade, a higher degree of scrutiny of assignments is warranted.

¹³⁸ *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 187, *amended by* 289 U.S. 706 (1933).

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 188.

“application in practice.”¹⁴¹ However, if an employee reduces an idea to practice “during his hours of employment, working with his master’s materials and appliances” and secures a patent, the employee must grant the employer a non-exclusive license for the invention.¹⁴²

At common law, the Supreme Court strictly applied indefiniteness in employment contracts related to technological improvements. The Court held that “if the [employment] contract be vague or uncertain, or the evidence to establish it be insufficient, a court” will not enforce it.¹⁴³ This same strict requirement must apply to employment contracts for technical employees. If contract terms, specifically those related to technical ideas, are indefinite or without very specific claims, then any ideas generated by the employee fall within his retained rights.¹⁴⁴

An example of the importance of employment contract definiteness is the recent divided en banc Minnesota Supreme Court decision in *Martens v. Minnesota Mining and Manufacturing Co.*¹⁴⁵ There, a highly educated and intelligent engineer, who was one of 3M’s most highly qualified and honored technical employees, sued for an alleged breach of contract.¹⁴⁶ The court decided that Martens failed in his breach of contract claim against 3M over representations of the dual-ladder organization for lack of definiteness.¹⁴⁷

The *Martens* case stands for the importance of definiteness in the technical employment relationship.¹⁴⁸ Consistent with this approach, all technical contracts must be scrutinized for a high degree of definiteness. However, when dealing with

¹⁴¹ *Id.* This seems to imply that ideas generated at work fell outside the realm of the employment agreement to invent because they were too indefinite to define, or not specifically related to the inventive activity. *See id.*

¹⁴² *Id.* This right is commonly known as the employer’s shop right, and it reflects an application of the principles of equity, because the employee used the employer’s time, facilities and material. *Id.*

¹⁴³ *Dalzell v. Dueber Watch-Case Mfg. Co.*, 149 U.S. 315, 326 (1893). A company hired a toolmaker to improve a watch-making process. *Id.* at 320. The toolmaker patented the improvement while being paid, and using the company’s tools and materials. *Id.* at 324. The company also paid for the filing patents. *Id.* at 324-25. Although the circumstances tended to support the company’s position, the Supreme Court held an employment agreement unenforceable because it was too indefinite. *Id.* at 326.

¹⁴⁴ In other words, what the employer does not specifically claim cannot be claimed later. This is similar to the “complete bar” approach used in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.* to eliminate uncertainty or indefiniteness in what is claimed in a patent. 234 F.3d 558, 577 (Fed. Cir. 2000), *cert. granted*, 533 U.S. 915 (2001). “A complete bar, unlike a flexible bar, thus lends certainty to the process of determining the scope of protection afforded by a patent.” *Id.* It is suggested that this is not only to define what the employer owns, but also to define where the employee’s retained rights are.

¹⁴⁵ 616 N.W.2d 732 (Minn. 2000) (en banc).

¹⁴⁶ *Id.* at 737-38. While employed by 3M “for nearly 30 years . . . [Martens] had achieved the corporate scientist level, the highest position on the technical side of the ladder.” *Id.*

¹⁴⁷ *Id.* at 745.

¹⁴⁸ The *Martens* decision arguably weakens the representations made to technical employees with regard to dual-ladder organizations. In fact, in Minnesota, the representations are not binding on the employer. The Minnesota Supreme Court decision arguably eviscerates the alleged incentives for the technical side of dual-ladder organizations. It seems likely that the *Martens* decision will fan the fires of cynicism within technical-ladder employees, and will accelerate the use of the “Dilbert boycott.” Ultimately, the promotion of the progress of the useful arts will suffer because of indefiniteness.

intellectual property rights, the indefinite nature of scientific ideas demands an even higher degree of definiteness in technical employee contracts.¹⁴⁹

C. Limit Tyranny by Recognizing Inventor Rights

Large lucrative product markets, dominance in a market, and the need for scientific research is a formula for abuse.¹⁵⁰ The case *In re Synthroid Marketing Litigation*, in which an estimated \$600-million annual market for synthetic thyroid drugs was at stake, further points to such abuse when the relative research costs are miniscule.¹⁵¹ The grant for the evaluation of thyroid drugs given to Professor Betty Dong totaled only \$250,000.¹⁵² The drug manufacturer in *Synthroid* did not own a

¹⁴⁹ Two examples of the requirement of definiteness where dealing with scientific ideas include the patenting of inventions, and the publishing of articles in technical journals. Before a patent is issued, inherently indefinite ideas must be refined into a definite invention through a reduction of the ideas to practice. Congress set a high standard of definiteness because a patent is a property right, and as a property right, its boundaries need to be clearly defined.

For the publication of academic research, a researcher must subject her research to a peer-review process, which is used to critically examine the experimental data and scientific inferences or ideas. Definite and certain ideas would not require such a review because the results could speak for themselves. However, the indefinite nature of scientific ideas could lead to multiple interpretations, which can only be reconciled by knowledgeable reviewers. *See generally Editorial: Thyroid Storm*, 277 JAMA 1238 (1997). Before publishing the Dong paper, JAMA sent the manuscript out to five expert reviewers, who included consultants of the drug manufacturer who sponsored the study. *Id.* at 1239. The manufacturer unfavorably reviewed the results, and there is an inference of a subjective basis affecting the review. The manufacturer's effective argument against the results can be thought of as a manifestation of the inherently indefinite nature of scientific ideas.

¹⁵⁰ *See generally In re Synthroid Marketing Litigation*, 110 F. Supp. 2d 676 (N.D. Ill. 2000). "The manufacturer wag[ing] an energetic campaign to discredit the study and prevent publication . . . [was] an unprecedented intrusion upon academic freedom." *Thyroid Storm*, *supra* note 149, at 1238-39. The manufacturer also advertised Synthroid[®] as superior to other substitute drugs despite the Dong study, and had an employee, who was an editor of a new medical journal, publish an article which discredited the Dong study. *Id.* at 1239-40; *see also* Knoll Pharm. Co. v. Auto. Ins. Co. of Hartford, 152 F. Supp. 2d 1026, 1036-38 (N.D. Ill. 2001). *See generally*, Florida, *supra* note 17, at 67 (discussing disclosure restrictions created when "the Patent and Trademark Act of 1980, otherwise known as the Bayh-Dole Act, permitted universities to take patents and other intellectual property rights on products created under federally funded research and to assign or license those rights to others, frequently industrial corporations"); Press & Washburn, *supra* note 17, at 42 ("[C]orporate sponsors are manipulating manuscripts before publication to serve their commercial interests.").

¹⁵¹ *Thyroid Storm*, *supra* note 149, at 1238. The manufacturer also had significant market power with a market share of seventy to ninety percent during the period at issue in the case. *Synthroid*, 110 F. Supp. 2d at 679. The economic stakes for the manufacturer were high because "[t]he authors [Dong et al.] calculated that if the generics or the other brand-name preparations were substituted for Synthroid, \$356 million might be saved annually." *Thyroid Storm*, *supra* note 149, at 1239.

¹⁵² Anjana Ahuja, *When Corporate Cash Corrupts*, THE TIMES (London), May 7, 2001, Times2, at 10. A barrier, which companies claim limit investment in research and development to advance technology, is the high cost. Although the cost of research may be high, the benefit of this research can be gargantuan compared to the cost of the research.

patent, but had a dominant market position.¹⁵³ In order to maintain its dominant market position, the drug manufacturer abusively limited the disclosure of the Dong study, which in turn limited the promotion of the progress of the useful arts because the benefits identified in the study were suppressed.¹⁵⁴ From this behavior, it can be inferred that patents, which allow for limited monopolies, when combined with a business' preference for complete market dominance, provide a significant potential for the abuse of inventors' rights. Such fears comport with the views of Jefferson, even though patents grant only a limited monopoly.¹⁵⁵

The abuse of a scientist's rights is also being felt in academic circles as a threat to the historic absolute freedom to publish academic research.¹⁵⁶ Although "[t]he National Institutes of Health recommends that universities allow corporate sponsors to prohibit publication for no more than one or two months . . . lengthier delays are becoming standard."¹⁵⁷ Just on the basis of existing academic rights to publish, it is suggested the absolute restriction on employee disclosure is an abuse of an inventor's rights.¹⁵⁸

The natural rights of scientists never disappear, and in response to a perceived abuse of their rights, a potential boycott, or rather the natural right not to disclose ideas, of academic publication is under consideration.¹⁵⁹ In addition, the prolonged

¹⁵³ *Synthroid*, 110 F. Supp. 2d at 679.

¹⁵⁴ *Knoll Pharm. Co.*, 152 F. Supp. 2d at 1036-39.

¹⁵⁵ See discussion *supra* Part I.C. A related problem is the suppression or delay in marketing inventions that compete with existing profitable "status quo" products and existing investment. Bartow, *supra* note 16, at 690.

¹⁵⁶ *Thyroid Storm*, *supra* note 149, at 1239 (quoting the University of California contract manual: "Freedom to publish is fundamental to the university and is a major criterion of the appropriateness of a research project").

¹⁵⁷ Press & Washburn, *supra* note 17, at 41. Jefferson "argued that universities ought to be engaged in the world, and that knowledge exists to be put to use," and considering his concern regarding monopolies, he probably would object to disclosure limits on academic research. *Id.* at 39.

¹⁵⁸ At least three distinct levels of permissible disclosure of scientific ideas are identifiable. First, there is an academic right of freedom to publish with very short time limits for disclosure. This approach favors the scientist's natural right in the disclosure of his scientific ideas. This aggressive disclosure standard is backed by large academic institutions, which argue in support of the right to freely publish. *Thyroid Storm*, *supra* note 149, at 1239. For example, the University of California views the right to freely publish as fundamental, and a major factor in research. *Id.*

A second level of disclosure occurs in industry between two knowledgeable parties who freely negotiate disclosure terms. Typically, disclosure obligations vary from five to twenty-five years after the effective date of agreement or from the time of the last disclosure between the companies. Each company may have the right to use the information or idea, but they may not disclose it to the public or a third party for the negotiated time period. Although it may be coincidental, negotiated disclosure terms tend to consider either directly or indirectly the twenty-year statutory term for a patent. See 35 U.S.C. § 154 (2000). This term tends to provide a standard for setting an upper time limit on the disclosure of jointly owned confidential information.

Finally, technical employee contracts require an absolute ban on the disclosure of an idea conceived by an inventor out of his own intellect during employment. When compared with the two other disclosure standards, an absolute ban on disclosure seems inequitable. The company could use the inventor's work product for perpetuity while the inventor could never use his own ideas.

¹⁵⁹ Amy Harmon, *In the Idea Wars, a Fight to Control a New World Currency*, N.Y. TIMES, Nov. 11, 2001, § 3, at 7. Because of a concern about delayed or controlled distribution of taxpayer supported research, "more than 26,000 scientists, including several Nobel laureates, have vowed to

non-recognition by companies of a technical employee's natural rights leads to cynicism,¹⁶⁰ and ultimately to a more subtle boycott called the "Dilbert boycott."¹⁶¹ For example, there is "The Joy of Bad Ideas."¹⁶² In this situation, an employee is encouraged to blurt out bad ideas during a meeting.¹⁶³ One can spew "bad ideas all day because no one can tell the difference between a great idea and a bad idea."¹⁶⁴

What is really at work in the technical employee contract, through its use of indefinite language, is the tyrannical abuse of an inventor's natural rights. The abuse of inventor rights in turn gives rise to the "Dilbert boycott," which is nothing more than the exercise of the inventor's rights as explained by Thomas Paine. The technical employee now exercises his rights in such a way as to limit the promotion of the progress of the useful arts. Thus, limiting the scientist's natural rights limits the promotion of the progress of the useful arts. The limits on the inventor's rights and the associated limits on the promotion of the progress of the useful arts can be eliminated through the use of more definite contract language, as explained in the next Section.

D. Promoting the Progress of the Useful Arts Through Definitive Technical Employee Contracts

The natural rights of inventors, a policy of limiting the anti-competitive tyrannical behavior of companies, and the uncertain nature of scientific ideas are best dealt with by technical employee contracts that require a very high standard of definiteness. The proposed changes to employment contracts of technical employees focus on the definiteness needed to be consistent with the Constitutional grant for promoting the progress of useful scientific ideas. The following examples provide

boycott major scientific publishers after they rejected a petition demanding the journal article be turned over to a free, on-line [computerized] archive with six months of publication." *Id.*

¹⁶⁰ Burke & Moore, *supra* note 14, at 64-65.

¹⁶¹ Employers may argue that technical employees are hired to invent, and the employment itself is the consideration for being hired. Thus, employers would also argue boycotting or a lack of performance is grounds for dismissal. This point is not disputed, but what is at stake here is the promotion of the progress of useful arts. If the "Dilbert boycott" is widespread, then no one wins. If the employee is fired, then the employer will face the same problem with the presumed replacement. The overall effect is that the advancement of science stagnates, a result that in effect is really not substantially different than the arrest of and suppression imposed on Galileo; i.e., his freedom to work and ideas were suppressed to the detriment of science.

¹⁶² See generally SCOTT ADAMS, THE JOY OF WORK: DILBERT'S GUIDE TO FINDING HAPPINESS AT THE EXPENSE OF YOUR CO-WORKERS 76 (1998).

¹⁶³ *Id.*

¹⁶⁴ *Id.* The profoundly cynical nature of the "Dilbert boycott" is evident where the author states: "The most entertaining ideas are the kind that make your co-workers do unnecessary work. Try to limit your ideas to ones that sound logical on some level but are clearly failures waiting to happen." *Id.* at 77.

Other subtle examples of a "Dilbert boycott" are in "Strategy 1 [in Boss-Managing Strategies]: Withholding Information." *Id.* at 17-19. "Give your boss 'issues,' but never give any information about the project." *Id.* at 19. "Use the power of 'big words' to obscure any meaningful content" in status reports." *Id.* At staff meetings laden your report "with excruciating detail about trivial elements." *Id.* at 20. "Deluge your boss with so much information that the real messages gets lost or ignored." *Id.* at 21.

suggested revisions to eliminate contract indefiniteness in previously identified indefinite language¹⁶⁵ from different key sections of a typical technical employee contract.¹⁶⁶

- Recitals¹⁶⁷

The employer wants to protect “technical and non-technical information in the various existing and *projected fields* of the employer’s business”¹⁶⁸

Proposed changes: “Projected fields” is prospective and too indefinite and must be replaced with a specific description of the employer’s business or even better, the specific area of inventive work.¹⁶⁹

- Section Two—Ownership

The employer is “exclusive owner of *all rights* . . . to confidential *ideas* and trade secrets concerning the *operations of employer*, *all* employee’s output, and . . . derived or *to be derived* from employee’s output”¹⁷⁰

Proposed changes: Because of an inventor’s natural rights, such as those exercised through the “Dilbert boycott,” an employer can never be the exclusive owner of all rights to ideas, and thus “all rights . . . to confidential ideas” must be changed to refer to only specific inventions or trade secrets. “Operations of employer” need to be specifically defined.¹⁷¹ Any “derived” employee output is too speculative given the indefinite nature of scientific ideas and must be eliminated.

- Section Three—Confidentiality and Nondisclosure

The employer gets perpetual silence because the “employee shall not, during or *at any time subsequent* to employment . . . disclose or use trade secret information”¹⁷²

Proposed changes: Perpetual silence is inequitable and should be changed to reflect a more appropriate academic or industry standard.¹⁷³

¹⁶⁵ See *supra* Part I.A (identifying indefinite language in a typical technical employment contract).

¹⁶⁶ See *supra* note 18 (providing brief descriptions of the sections of a technical employee contract).

¹⁶⁷ As a starting point, the Recitals section of the employment contract should reflect the common-law approach to the employment contract along with the underlying rights and policies for the promotion of the progress of the useful arts.

¹⁶⁸ *Employment Contracts*, *supra* note 16 (emphasis added).

¹⁶⁹ Specific amendments, which adequately describe changes in areas of inventive work, should be made routinely to the agreement. At a minimum, this area of inventive work needs to be reviewed annually.

In addition, the common law needs to be stated in such a manner that unless the employer’s rights are specifically defined, all rights are retained by the employee, except for an appropriate shop right granted to the employer.

¹⁷⁰ *Employment Contracts*, *supra* note 16 (emphasis added).

¹⁷¹ Per the common law, only employee work product specifically contracted for becomes the property of the owner. Dratler, *supra* note 134, at 131.

¹⁷² *Employment Contracts*, *supra* note 16 (emphasis added).

- Section Six—Patent

“Employee shall promptly disclose to employer all inventions, discoveries, and improvements . . . related to the *business activities* of the employer.”¹⁷⁴

Proposed changes: Business activities which involve technical employees include, but are not limited to, new and existing products, manufacturing, and fundamental research, just to name a very few. Again, business activities or are of specific inventive work must be defined in great detail.¹⁷⁵

- Schedule B

“Trade secret information includes, but *is not limited to* . . . research and development work[,] . . . names and identities of . . . customers[, and] confidential information reveal . . . by third party . . . which employer is obligated to keep confidential.”¹⁷⁶

Proposed changes: Similar to the proposed changes for Section Six, each business activity which relates to a trade secret, and each piece of trade secret information must be specifically delineated.¹⁷⁷

In today’s highly technical society, business is not static, and the technical employment contract should not be a static instrument. Technology and work assignments routinely change with time. The indefinite nature of scientific ideas results in old ideas giving way to new ideas as more facts are revealed about a problem or a new technology. A technical employment contract may become vague or indefinite as objectives are met or theories change, so changing circumstances

¹⁷³ See *supra* note 158. The industry standard should be based on typical non-disclosure term negotiated by highly knowledgeable parties.

¹⁷⁴ *Employment Contracts, supra* note 16 (emphasis added).

¹⁷⁵ See *supra* notes 130, 131. Employers will argue that they need to move employees around to meet changing business needs, and a broad description of business activities is the most efficient way to protect their rights and allow them to move employees. However, the issue is not the short-term efficiency within a particular company, but the long-term promotion of the progress of the useful arts. Because broad descriptions of business activities should be considered indefinite from a contract point of view, and an abusive limit on inventor’s natural rights, they must not be permitted.

¹⁷⁶ *Employment Contracts, supra* note 16 (emphasis added).

¹⁷⁷ See *infra* note 130. In addition to defining specific trade secrets, the agreement must specify the time limits for the use or disclosure by the employee of specific secrets contributed by the employee’s specific work product. The standard for determining the time limits should be what are customary limits which are freely negotiated by two knowledgeable parties.

Employers will likely argue that giving employees the rights to trade secrets will eviscerate trade-secret law. This is not the case because employees will only acquire rights based on their own work product, and not on other employees’ work product which contribute to the employer’s business activity. The employer is still protected because many technologies are based on a wide number of trade secrets developed by many different individuals. Therefore, in terms of all the employer’s trade secrets, a specific right to a technical employee’s work product is a very narrow grant. Thus, any comprehensive application by an individual of a former employer’s technology would still require a substantial misappropriation. Trade secret law would continue to protect against such misappropriation.

demand that the technical employment contract be kept up-to-date. Thus, an annual update of the technical employee's contract eliminates contract indefiniteness that can develop over time.¹⁷⁸ Beyond the continual elimination of contract indefiniteness, other factors such as the assignment of patents, as discussed next, provide a further opportunity to recognize inventor rights and thus promote the progress of the useful arts.

E. Assignment of Inventions

The common law allows for the assignment of a patent that results from a specifically contracted-for invention, but this may be much. Some foreign patent systems recognize inventor rights by allowing for the ownership by the inventor of the contracted-for inventions with a right of assignment to the employer.¹⁷⁹ This practice could be viewed as a guarantee, which is the recognition of inventor rights, by making the employee-inventor the rightful owner of the patent, but giving the employer a right of first refusal on the assignment of the patent.¹⁸⁰ Only after a reasonable royalty is determined and paid to the employee may the patent assigned

¹⁷⁸ Besides being a good practice, an annual update of the technical employee contract should not be overly burdensome. Many large companies align annual employee performance evaluations with strategic planning goals. Jim Clark & Richard Koonce, *Engaging Organizational Survivors*, TRAINING & DEVELOPMENT, Aug. 1995, 22, 26. A survey of 1,000 large corporations indicates "organizations derive the greatest benefit from linking career development initiatives to specific business objective." *Id.* Typically, an objective of strategic plans is the allocation of limited research and development funds. *See id.* These funds are typically allocated on specific and detailed research projects based on detailed justifications of the inventive work to be specifically completed for the year. *See id.* The specific and detailed goals of funded research projects then become an integral part of a scientist's or engineer's performance goals. *See id.* These research goals could easily be used to update employee contract schedules which specify the planned work for that year in some detail. *See id.*

¹⁷⁹ *See* HEINZ GODDAR, OWNERSHIP AND EMPLOYEES' INVENTIONS: THE GERMAN APPROACH, reprinted in CHISUM, *supra* note 17, at 491-95. Under German law, "inventions made by employees first of all belong to them, and only by a special act and against a special remuneration can become the property of the employer." *Id.* at 491. Although this law is unique to Germany, harmonization of European patent laws, which is currently underway, will result in "similar provisions as they now exist in Germany." *Id.* at 495.

¹⁸⁰ *Id.* Both the employee and employer invest in the inventive process. *See* Bartow, *supra* note 16, at 674. The employer provides the facilities, background information, and pays the employee. *Id.* Clearly the employer has a right to the invention. *See id.* The employee on the other hand has "invested extraordinary amounts of time, education, [and] training," often including a substantial financial investment in a formal education. *See id.*

Arguably both the employer and the employee have a claim to inventions developed by the employee, but who, the employer or the employee, has a superior right? Without the employee, the employer's assets and investments would just sit there. *See id.* Laboratory equipment does not create inventions. *Id.* Like the catalyst in a chemical reaction, it is the creative genius of the inventor that creates the inventive products. *See id.* Thus, it is the inventive employee, as opposed to the employer, who has a superior role in inventing, and accordingly, this superior role should be recognized with a superior position in the initial ownership of a patentable invention. *See id.* This superior role is closely related to the inventor's natural right to invent, and it is really through this natural right that the inventor has a superior position.

to the employer.¹⁸¹ This approach provides an additional safeguard for recognizing an inventor's rights by insuring some reward being directly tied to her patentable inventions.

Although dual-ladder organizations developed as incentives to technical employees and could be considered an attempt to promote the progress of the useful arts, in reality these organizations create inequities and inefficiencies, which actually limit the promotion of the progress of the useful arts. Since the Constitutional grant to promote the progress of the useful arts allows for patenting inventions which are often the work product of an inventor, a more direct approach of providing technical employee incentives would be to pay a reasonable royalty directly to the inventor.¹⁸² In this situation, the employee shares in any direct financial rewards generated by his patent.¹⁸³

IV. CONCLUSION

Today, in many newspapers the feature comic strip is no longer Dick Tracy, but instead a popular new comic strip titled "Dilbert." A comically cynical engineer, "Dilbert" is lodged within a stifling and tyrannical inept corporate structure. Though laughable, "Dilbert" reflects the limitations on the promotion of the progress of the useful arts caused by corporate tinkering with inventor rights through dual-ladder

¹⁸¹ CHISUM, *supra* note 17, at 494. In Germany, the royalty paid to the inventor is determined by statute. *Id.*

¹⁸² Directly paying inventors a reasonable royalty could reduce any compensation inequities created by a dual-ladder system, which in turn may reduce the use of the "Dilbert boycott" by employees in response to such inequities, and thus reduce limitations on the promotion of the progress of the useful arts. Employers may argue that there will be no net effect because other compensation will be adjusted downward to keep total employee compensation the same. This may be true on the average, but exceptional inventors should fair better, which should help promote the progress of the useful arts.

¹⁸³ It is theorized that this situation will also improve the United States' technology and industrial competitiveness as follows:

The reason the United States is falling behind Japan and Germany in technology and industrial competitiveness may be because Germany and Japan have mandatory compensation for employed inventors, whereas in the United States, employed inventors are forced to sign contracts relinquishing any rights to their inventions. The scientist is a calculating man, just like the businessman or accountant, maybe even better with figures. He thinks, "What if I bust my neurons and come up with a great invention, like the light bulb or transistor? The most I could hope for from my tightwad employer would be a dollar as a legal consideration for assigning the invention. Maybe I should just take it easy and do basic research, or hack work in product and process improvement." This may be why Thomas Edison was drenched in perspiration 99 percent of the time (a patent every two weeks). Edison had incentives: He could earn a hundred grand or so from an invention—good money in those days. The reader might ponder whether it is more important to be first in science and technology, or in business management. The Gulf War demonstrated the efficacy of technological superiority. Perhaps the founding fathers were right in giving Congress the power to grant inventors the exclusive rights to their inventions, and perhaps it is time for Congress to exercise this prerogative.

Jim Benson, *Inventor Incentives*, CHI. SUN-TIMES, June 22, 1994, at 40.

organizations, which coincidentally came into existence during the widespread use of employment contracts for technical employees. Unfortunately, a fifty-year experiment with technical employee contracts and dual-ladder systems contributed to employee cynicism and the “Dilbert boycott,” with their limiting effect on the promotion of the progress of useful scientific ideas. The long-term debilitating effect of the “Dilbert boycott” will undoubtedly reduce the availability and benefits to society of advancements in technology.

Technical employee contracts must not be at odds either explicitly or inferentially with the Constitutional purpose of promoting the progress of the useful arts. Achievement of this goal requires that these contracts recognize the rights of inventors consistent with the views of Thomas Paine. These rights include an inventor’s natural rights in the conception and disclosure of scientific ideas, in the exchange of rights through the patenting of inventions, and in those retained rights which are exercisable through a “Dilbert boycott.” Further, the contracts must be structured to be consistent with policies against monopolistic tendencies, and for a high standard of definiteness when contracting for scientific ideas.

Technical employment contracts must reflect the common law in combination with a high standard of definiteness and specificity. The contracts must provide for the initial granting of the patent to the inventor with a right of assignment subject to a reasonable royalty. If necessary, the royalty should become a statutory requirement similar to the trends in Europe and Japan. Implementation of the proposed changes to the technical employee contract will promote the recognition of an inventor’s natural rights with the benefit of moving inventors away from the “Dilbert boycott” mentality and improving the promotion of the progress of the useful arts.