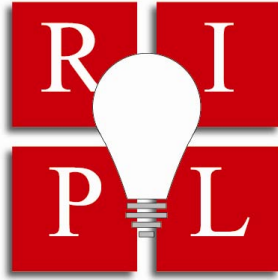


THE JOHN MARSHALL REVIEW OF INTELLECTUAL PROPERTY LAW



AVOIDING THE CHAOS OF MARYJANE - A CONVENTIONAL APPROACH TO INTELLECTUAL PROPERTY PROTECTION OF MARIJUANA

KAYLEE WILLIS

ABSTRACT

Whether you are considering the ever-popular recreational use, or recent medicinal developments, marijuana is a highly discussed controversial substance. With revenue from marijuana into the billions of dollars, it is no wonder it has been trying to reach into the intellectual property arena. This comment specifically looks into the patent arena and the obstacles that come with an attempt to seek, and enforce protection of marijuana-based patent applications. With the USPTO's plant and utility patent options, there is perhaps more than one way to pass marijuana-based substances as patent-eligible subject matter. The largest obstacle for this type of intellectual property comes from marijuana's reign as a Schedule I substance.

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KAYLEE WILLIS*

It is only a matter of time before cannabis goes the way of pornography and speakeasies, goods and services once viewed as pernicious and illegal but later decriminalized and deemed worthy of federal protection.¹

I. INTRODUCTION

From rituals thousands of years ago, to our present day, marijuana has been consistently involved in human lives.² Its presence can be traced back throughout time³ and amongst nearly all cultures spreading across the globe.⁴ Marijuana made its first appearance in Northern America sometime in the 1500s.⁵

There are now millions of people throughout the world who have reported using marijuana.⁶ Encompassing more than just traditional smoking,⁷ the various uses of marijuana have resulted in an industry worth close to three billion dollars in just

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¹ Rebecca Gan, *Intellectual Property Law: Protection for Marijuana Trademarks*, in 32 LANDSLIDE 18 (May/June 2015).

² MARTIN A. LEE, *SMOKE SIGNALS* 3-4 (SCRIBNER, A Division of Simon & Schuster, Inc. 2012). Lee discusses the earliest uses of marijuana, dating back to the Neolithic period – 10,000 years ago. At this time, nearly every part of the marijuana plant was used either for food, to make clothing, or for medical purposes.

³ *Id.* at 4. Many areas of academia indicate marijuana's presence throughout history. ("archaeology, history, anthropology, geography, botany, linguistics, and comparative mythology").

⁴ *Id.* The marijuana plant is native to Central Asia. It then spread across Eurasia and into Northern Europe while simultaneously spreading across India, the Middle East and Africa.

⁵ *Id.* at 15. Marijuana was introduced to the western hemisphere through the slave trade in the sixteenth century.

⁶ *The Truth About Marijuana: International Statistics*, FOUND. FOR A DRUG FREE WORLD, <http://www.drugfreeworld.org/drugfacts/marijuana/international-statistics.html> (last visited Oct. 7, 2016) ("According to the United Nations, 158.8 million people around the world use marijuana—more than 3.8% of the planet's population").

⁷ LEE, *supra* note 2, at 15-16. Aside from medical marijuana, the plant also has many practical uses thanks to its fibrous stems and roots, more commonly known as hemp. Lee describes hemp as "marijuana's durable, nonpsychoactive twin, which doesn't easily rot or wear." *Id.* at 15. Hemp's use was vast with early American farmers. ("[They] wore garments made from hemp, wiped their hands with hemp towels and hemp handkerchiefs, inscribed words on hemp paper, and sewed with hemp yarn.") *Id.* at 16.

medical marijuana alone.⁸ With its popularity continuously increasing, by the end of 2016 the legal marijuana market sales are expected to surpass seven billion dollars.⁹

With this industry only increasing in value, marijuana businesses and their consumers are seeking protection of their products. But with federal protection still out of reach, “budding pot barons” are required to look elsewhere and otherwise anticipate how to protect their green.¹⁰ However, this anticipation should not be taken seriously *merely* by marijuana businesses and consumers; the federal government should be on alert as well. With the direction marijuana is headed,¹¹ full speed, the United States Patent and Trademark Office (USPTO) needs to get ready for the flood of protection that marijuana connoisseurs will be entitled to if and when the plant is federally legalized. A recommendation of preparation is what this comment will address.

Part II will discuss the process of obtaining a patent for plant matter. It will address the current difficulties as well as successful ways of obtaining a grant. Specifically, this comment will look to plant seeds and strains, as well as methods of medical use. Part II will also discuss the potential problems that will arise if and when marijuana becomes federally legalized. These problems will encompass the race to file with the USPTO, as well as trouble with defining various patent-related terms on the subject of marijuana. Some of these key terms may include defining “prior art,”¹² “non-obvious,”¹³ and “novelty”¹⁴ as they relate to the marijuana industry. Some successful patents encompassing plant matter will then be analogized to possible marijuana patents in Part III.

Part IV will discuss suggestions for solving these problems. It will suggest what Congress should do by providing a legislative solution.¹⁵ It will also suggest what the courts should do by providing an interpretive solution.¹⁶

⁸ Rebecca Gan, *Intellectual Property Law: Protection for Marijuana Trademarks*, in 32 LANDSLIDE 18 (May/June 2015) (“Medical marijuana is now legal in 23 states and Washington, D.C., making it an estimated \$2.7 billion industry”).

⁹ ArcView Market Research & New Frontier, *Overview: National Market Growth Remains Strong*, THE STATE OF LEGAL MARIJUANA MARKETS, 9 (4th ed. 2016). ArcView concluded that legal marijuana sales rose to \$5.7 billion in 2015. This was an increase of over a billion dollars in sales compared to 2014. ArcView expected sales to rise even further in 2016. Resulting in a 26% increase from 2015, resulting in a market worth \$7.1 billion.

¹⁰ Gan, *supra* note 1, at 4. Marijuana businesses are currently at a clear disadvantage with a lack of federal protection. They have therefore had to look elsewhere to “a variety of common law, state, and federal strategies” *Id.*

¹¹ *Id.* (“It is only a matter of time before cannabis goes the way of pornography and speakeasies, goods and services once viewed as pernicious and illegal but later decriminalized and deemed worthy of federal protection.”).

¹² 1 DONALD S. CHISUM, CHISUM ON PATENTS, Glossary Patent Terms (2015). (“The prior art constitutes those references which may be used to determine the novelty and nonobviousness of claimed subject matter in a patent application or patent.”).

¹³ *Id.*

One of three basic conditions of patentability, the nonobviousness requirement precludes a patent if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the pertinent art.

¹⁴ *Id.* (“One of three basic conditions of patentability, the novelty requirement precludes any claim that is anticipated by any single reference in the prior art.”).

¹⁵ U.S. CONST. art. I, § 1. The legislative power is vested in Congress.

II. BACKGROUND

The popularity and pop culture that surrounds marijuana goes far beyond the literal plant material. Weed, cannabis, ganja, grass, reefer, maryjane, kouche, 4/20, joint, and blunt are just a few of the dozens of slang terms that have become associated with this infamous plant.¹⁷

A. Marijuana 101

The main component in this infamous plant that has led to its current status is called tetrahydrocannabinol, or THC.¹⁸ This is what gives recreational marijuana users a “high.”¹⁹ On the other end of the spectrum there is cannabidiol, or CBD.²⁰ The main difference between THC and CBD is their effect on the body: THC gives you a high and CBD does not.²¹

Marijuana is a Schedule I drug under the Controlled Substances Act.²² For the purpose of this comment, marijuana’s Schedule I status will consider the plant “illegal.” Tetrahydrocannabinols are also listed separately as a Schedule I drug.²³ This does vary substantially from marijuana regulation at *some* state levels.²⁴ At the

¹⁶ U.S. CONST. art. III, § 1. The judicial power is vested in the courts.

¹⁷ URBAN THESAURUS, <http://urbanthesaurus.org/synonyms/marijuana> (last visited Oct 6, 2016).

¹⁸ *Science: Marijuana*, ENCYCLOPEDIA BRITANNICA, INC. (2016). <https://www.britannica.com/science/marijuana> (last visited Oct. 6, 2016). This active ingredient is present throughout the marijuana plant, in both the male and female parts. Its concentration level varies throughout the plant and is responsible for the potency of the particular piece or strand of marijuana. The more potent the marijuana, the more THC is present, and the greater “high” the user receives.

¹⁹ *Id.*

²⁰ *CBD: Everything You Need to Know About Cannabidiol*, HERB, <http://herb.co/2016/07/26/everything-you-need-to-know-about-cbd/> (last visited Oct. 7, 2016). Cannabidiol is a compound that is found inside the female parts of a cannabis or marijuana plant. It is a member to a larger group of compounds called cannabinoids. Cannabinoids are classified as substrates that can bind to specific receptor cells in the human body, allowing the compound to have an effect on the human body.

²¹ *Id.* CBD was overlooked in marijuana for a long time, as THC took “center stage” because of its psychoactive effects. While THC may get you “high” or “stoned” and send you on a “cerebral adventure,” CBD is used for medical purposes. It has been used to “[stop] epileptic seizures, [calm] psychotic patients, and [soothe] those in chronic pain.” *Id.*

²² 21 U.S.C. § 812(c)(10) (2016). There are five different schedules of controlled substances (I, II, III, IV, and V). *Id.* at § 812(a). There are three requirements for a drug to be considered a Schedule I drug. *Id.* at § 812(b)(1). First, “[t]he drug or other substance [must have] a high potential for abuse.” *Id.* at § 812(b)(1)(A). Second, “[t]he drug or other substance [must have] no currently accepted medical use in treatment in the United States.” *Id.* at 812(b)(1)(B). And third, “[t]here [must be] a lack of accepted safety for use of the drug or other substance under medical supervision.” *Id.* at § 812(b)(1)(C).

²³ 21 U.S.C. § 812(c)(17).

²⁴ Douglas C. Throckmorton, M.D., *FDA Regulation of Marijuana: Past Actions, Future Plans*, FOOD AND DRUG ADMINISTRATION, ICSB/ASP Joint Meeting, April 2016, at 6. Currently, 23 states recognize the use of medical marijuana. Four states recognize the use of recreational marijuana. 13 states recognize just the use of CBD for medical marijuana.

federal level it is the Food and Drug Administration (FDA) that does the regulating.²⁵ Marijuana has quite the history when it comes to FDA regulation. Marijuana has been involved in scheduling discussions since the Controlled Substances Act of 1970 was enacted; and discussions have casually popped up since then, the most recent being in 2011.²⁶

Contrary to its intersection with criminal law, marijuana has had a very positive and rather successful history with pop culture. Perhaps one of the most iconic instances was Woodstock in 1969.²⁷ Many more followed afterwards across films, music, merchandise, satire and the like; as American society became increasingly more comfortable with the taboo that is marijuana. Some of these popular items may be Cheech and Chong's various films,²⁸ "Fast Times at Richmond High,"²⁹ and a young Matthew McConaughey and Ben Affleck in "Dazed and Confused."³⁰ Amidst all of these pop culture references the various forms of marijuana have towered into an empire. This empire contains billions of dollars of revenue, merchandise, ideas, and inventions—all of which many argue should be afforded intellectual property protection. With marijuana's net worth only expected to increase, this protection may come sooner than we think.³¹

B. What is a Patent?

Patents can come in many shapes and sizes. However, one of the keys to the success of a patent is usefulness.³² Patents are meant to further society and culture by providing the public with new and useful inventions.³³ Patents are also meant to reward the inventors by giving them an exclusive right to the patented material for a

²⁵ *Id.* at 15. The FDA plays a scientific role in regulating marijuana. They provide an 8-factor analysis to decide the appropriate controls (or schedules) that should be placed on the drug.

²⁶ *Id.* at 21. When the Controlled Substances act was enacted in 1970, marijuana was a Schedule I drug. The FDA reiterated its recommendation that marijuana remain a Schedule I drug both in 2001 and 2006. In 2009 a petition was filed with the DEA requesting that marijuana be removed from Schedule I. In 2011 both Rhode Island and Washington re-petitioned the DEA to lower marijuana from a Schedule I to a Schedule II drug.

²⁷ *Marijuana In America: History, Culture And People*, CNBC, Woodstock <http://www.cnbc.com/2010/04/19/Marijuana-In-America:-History,-Culture-And-People.html?slide=5> (last visited Oct. 5, 2016).

²⁸ *Id.* at Cheech and Chong. They produced comedies in the 1970s and 1980s such as "Up in Smoke" and "Big Bambu."

²⁹ *Id.* at Fast Times at Richmond High.

³⁰ *Id.* at Dazed and Confused.

³¹ ArcView, *supra* note 9, at 10.

³² 1 CHISUM, *supra* note 12, § 1.01 (2015). ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title." citing 35 U.S.C. § 101).

³³ *Id.* Patents are limited only to usefulness by the Constitution and statute. However, the traditional categories of patentable subject matter have become flexible with the times. "They have been interpreted so as to cover most of the new technologies that evolved during the last 200 years." *Id.* (citing E. Kitch and H. Perlman, *Legal Regulation of the Competitive Process* 642 (1972)).

designated amount of time.³⁴ This right to the patented material is a right to exclude others, not the right to make or use the invention oneself.³⁵

The process of obtaining a patent (or better yet, attempting to obtain a patent) is often a lengthy and expensive one. The first step before filing with the USPTO is to decipher whether you need a patent, trademark, trade secret or copyright (or a combination) in order to protect whatever it is you have invented.³⁶ Next, if going the patent route, you will need to determine if the invention you have is even patentable.³⁷ This question may examine: whether inventions are already in the public domain or are already patented, the costs that will be associated with applying for a patent, and whether the invention falls under a category that is patentable.³⁸ There are several types of patents within patent law, so you will also have to determine what kind of patent you require.³⁹

Once all of this is done, you can get ready to apply.⁴⁰ This is when you should budget your funds and decide whether you want to hire a patent agent or attorney to assist with the application process.⁴¹ After which, you can submit your application to the USPTO.⁴² After your initial application is submitted, you will want to work with the examiner that has been assigned to your application.⁴³ If all goes well, you will receive a granted patent for your invention.⁴⁴

This extensive process may take years, and not all applications will end up granted. Yet another obstacle, is a delay in filing application.⁴⁵ While you are not

³⁴ Luke Zimmerman, *Intellectual Property: Cannabis and Patents*, DOPE MAG. 2 (2016). (“The amount of time where no one else can use the patented technology is 14 years for a design patent, and 20 years for a utility or plant patent.”).

³⁵ *General Information Concerning Patents*, U.S. PAT. & TRADEMARK OFFICE, <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> (last visited Nov. 29, 2017).

The right conferred by the patent grant is, in the language of the statute and of the grant itself, ‘the right to exclude others from making, using, offering for sale, or selling’ the invention in the United States or ‘importing’ the invention into the United States. What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention.

citing 35 U.S.C § 154 (a)(1).

³⁶ *Patent Process Overview*, U.S. PAT. & TRADEMARK OFFICE, <https://www.uspto.gov/patents-getting-started/patent-process-overview#step4> (last visited Oct. 7, 2016). Step 1: Determine the type of Intellectual Property protection that you need. You may need a combination of patent, trademark, copyright, marketing plan, or trade secret protection.

³⁷ *Id.* Step 2: Determine if your invention is patentable.

³⁸ *Id.*

³⁹ *Id.* Step 3: What kind of patent do you need? (“There are three types of patents – Utility, Design, and Plant.”).

⁴⁰ *Id.* Step 4: Get ready to apply. Questions at this stage include: “How much is this going to cost?”; “How long will this take?”; and “Should you hire a Patent Attorney or Agent?”.

⁴¹ *Id.*

⁴² *Patent Process Overview*, U.S. PAT. & TRADEMARK OFFICE; Step 5: Prepare and submit your initial application.

⁴³ *Id.* Step 6: Work with your examiner. Examiners will notify inventors or their attorneys if and when the application(s) is incomplete or has been accepted as complete. If the application is incomplete, the examiner will deliver an Office Action that allows the inventor/attorney to make modifications that will hopefully change the application to a complete status.

⁴⁴ *Id.* Step 7: Receive your approval.

⁴⁵ 2 CHISUM, *supra* note 12, § 6.02.

required to apply for a patent if you meet all the necessary criteria, you may miss out on a chance to protect your invention if you do not.⁴⁶ This is especially prevalent in cases surrounding times of “booming” fields where many similar inventions are simultaneously seeking protection.⁴⁷ This concept emphasizes the importance of due diligence when contemplating applying for a patent.⁴⁸

C. Patents and Plants

There are three kinds of patents: utility, design, and plant.⁴⁹ Here, we focus on plant and utility patents. Seeking a patent for plant matter has a particularly difficult obstacle to overcome in that nothing naturally occurring in nature can be patented.⁵⁰ However, “naturally occurring” is not to be confused with cultivating or creating new strains of something that *was* naturally occurring in its original sense.⁵¹

In this way, plant patents are sometimes analogized to chemical compound patents.⁵² Both categories start out with things found in nature: in plant patents, a plant that grows in nature; in chemical compound patents, the elements that comprise them are naturally occurring. In both instances, to be eligible for patent protection, these chemical compounds or plants require modification by the hands of man (the inventor(s)), and these modifications must be useful to meet the USPTO’s standards.⁵³

To aid in looking at the possibilities of successfully patenting marijuana strands, this comment will explore granted utility and plant patents of other plant matter as well as the minimal selection of actual marijuana patents that have been granted. A granted patent or published application has a variety of sections to look at in the

⁴⁶ *Id.* (“an inventor who delays filing an application also risks being subordinated to the rights of a second inventor”).

⁴⁷ *Mason v. Hepburn*, 13 App. D.C. 86, 95 (D.C. Cir. 1898). Resulting in the *Mason v. Hepburn* doctrine, the court declared that a secondary inventor of an invention that is worthy of patent protection may be regarded as the “real” inventor and receive the patent. The court establishes this precedent for when a secondary inventor has pursued his efforts valiantly and in good faith without any knowledge of the primary inventor’s discovery. Also, the primary inventor deliberately concealed his invention and his knowledge of it from the public domain.

⁴⁸ *Pfaff v. Wells Elecs.*, 525 U.S. 55, 61 (1998). (“In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.”).

⁴⁹ *See supra* note 39.

⁵⁰ *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013) (holding that a naturally occurring DNA segment was not eligible for patent protection when all that was “invented” was that the particular DNA segment had been isolated).

⁵¹ 35 U.S.C. § 161 (2016). Plant patents are attainable when the inventor “asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings”.

⁵² 8 CHISUM, *supra* note 12, § 24.02. (“A plant patent is closely analogous to one on a new chemical compound.”).

⁵³ *In re Bergy*, 596 F.2d 952, 1000-1001 (C.C.P.A. 1979). (“The chemist who invents the composition of matter must avail himself of the physical and chemical qualities inherent in the materials used and of the natural principles applicable to matter.” This is also true for a plant breeder. A plant breeder, “avails himself of the natural principles of genetics and of seed and bud variations.”).

specification for comparison and analysis.⁵⁴ The claims of the patent are also arguably the most important part in analogizing patents, and getting patents allowed or granted.⁵⁵

Currently there are two relevant utility marijuana patents that have actually been granted by the USPTO. The first is titled: PLANT EXTRACT FROM LOW-THC CANNABIS FOR THE TREATMENT OF DISEASE.⁵⁶ The second is titled: CANNABINOIDS AS ANTIOXIDANTS AND NEUROPROTECTANTS.⁵⁷ This is the vast minority compared to the thousands that are sitting as pending applications. These two patents relate more to medicinal marijuana use. This is contrary to many of the pending applications that are merely marijuana strains or seeds. Two of these such pending utility applications include: CANNABIS PLANT NAMED 'AVIDEKEL'⁵⁸ and CANNABIS PLANT NAMED EREZ.⁵⁹

Comparing the claims of these granted patents and pending applications may offer some insight into why it is so difficult to get marijuana-based patent applications allowed. What also may be helpful is comparing these marijuana patents to other legal plant matter patents and litigation. Lastly, comparing the substance of marijuana patents to the federal rules and regulations that control and govern marijuana usage may also offer insight into why it is so difficult for the USPTO to grant patents of this matter. In unveiling these comparisons and conflicts, the evidence should present enough detail so that the federal government can

⁵⁴ *Application for Patent*, U.S. PAT. & TRADEMARK OFFICE, <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents#heading-12> (last visited Oct. 4, 2016). When filing a patent application with the USPTO, the application must include: a description and claims, drawings if necessary, an oath of declaration, and the necessary fees.

⁵⁵ *Id.*

⁵⁶ U.S. Patent No. 8,337,908 (filed Sept. 26, 2008). This patent relates to an extract from a cannabis/marijuana plant. The extract has a very low THC content and thus does not produce any (or very minimal) psychoactive effects. The extract is geared towards treating disease. The patent only has 1 claim, and no drawings or figures. The claim provides details of the composition of the extract variety from a marijuana strain called Futura 75. It describes what areas of the plant need to be obtained to create the extract, as well as the resulting THC content which should be between 0.1 wt. % and 0.2 wt. %. This patent was granted by the USPTO on December 25, 2012.

⁵⁷ U.S. Patent No. 6,630,507 (filed Apr. 21, 1999). This patent relates to cannabinoids and their usefulness in treatment of various diseases. It specifically focuses on the treatment of "ischemic, age-related, inflammatory and autoimmune diseases." *Id.* at Abstract. This patent has 26 total claims, with three independent claims. The claims essentially encompass various methods involving NMDA receptors that bind to a variety of different cannabinoid compounds. This patent was granted by the USPTO on October 7, 2003.

⁵⁸ U.S. Patent App. No. 14/193,252 (filed Feb. 28, 2014). This patent application relates to a new cultivar of cannabis/marijuana that the inventor has entitled "Avidekel." This cultivar has 16.3% CBD, and a low level of THC at 0.8%. There is only one claim in this application and various figures that depict Avidekel at various stages in the growth process. The claim encompasses the name 'Avidekel' in relation to the relevant percentages of high CBD (at least 16%) and low THC (less than 1%). This application has been pending with the USPTO since September 11, 2014.

⁵⁹ U.S. Patent App. No. 14/193,197 (filed Feb. 28, 2014). This patent application relates to a new cultivar of cannabis/marijuana that the inventor has entitled "Erez." This cultivar has greater than 16% of CBD, and approximately 23% of THC. There is only one claim in this application and various figures that depict Erez at various stages throughout the growth process. The claim encompasses the name 'Erez' in relation to the relevant percentages of high CBD (greater than 16%) and high THC (about 23%).

adequately prepare to handle the intellectual property chaos that may develop if and when marijuana patents are no longer crippled by federal regulations.

III. ANALYSIS

Human interference seems to be the general consensus that allows plant materials of all shapes and sizes the capability of being patented.⁶⁰ However, with this consensus comes a more complicated debate over the specifics of terminology⁶¹ and the categories of protection that are out there. With the differences between plant patents under the Plant Patent Act (PPA),⁶² and utility patents⁶³—an inventor’s rights may be vastly different.⁶⁴ These rights and differences are something Courts must decipher⁶⁵ when dealing with plant patent cases, a complication that will be equally as prevalent in marijuana patent cases.

A. When is the Plant Variety Protection Act a better option for your green?

There are many plant patentees whose “inventions” cannot pass muster on § 161’s requirements.⁶⁶ For them, there may be another option for some protection under the Plant Patent Act (PPA)⁶⁷ and the Plant Variety Protection Act (PVPA).⁶⁸ There are several key requirements that go into the PVPA.⁶⁹ The first, and probably the most popularly discussed, is the concept of asexual reproduction.⁷⁰ As this concept was added to the Patent Act, it was meant to exclude many anticipated plant

⁶⁰ J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc., 534 U.S. 124, 130 (2001). In deciding whether living things, in the case plants, is patentable, “the relevant distinction [is] not between living and inanimate things, but between living products of nature, whether living or not, and human-made inventions” (citing *Diamond v. Chakrabarty*, 447 U.S. 303, 313 (1980)).

⁶¹ *Pioneer*, 534 U.S. at 130. In discussing statutory language in the patent statute (35 U.S.C. § 101), Congress chose to use expansive terms such as “manufacture” and “composition of matter” for the purpose of anticipating a “wide scope” for patent law.

⁶² 35 U.S.C. § 161.

⁶³ 53 U.S.C. § 101.

⁶⁴ *Pioneer*, 534 U.S. at 133. Plant patents under the Plant Patent Act have less coverage and less stringent requirements as compared to the coverage and requirements for utility patents.

⁶⁵ *Marbury v. Madison*, 5 U.S. 137, 177 (1803) (“It is, of course, correct that Congress, not the courts, must define the limits of patentability; but it is equally true that once Congress has spoken it is the province and duty of the judicial department to say what the law is”).

⁶⁶ 35 U.S.C. § 161.

⁶⁷ *Pioneer*, 534 U.S. at 132. Plants were “explicitly” brought into the realm of patent protection with the Plant Patent Act in 1930.

⁶⁸ 7 U.S.C. § 2531 (2017).

⁶⁹ *Imazio Nursery, Inc. v. Greenhouses*, 69 F.3d 1560, 1567 (Fed. Cir. 1995) (“Under the PVPA, the U.S. Department of Agriculture issues certificates of plant variety protection to the ‘breeder of any novel variety of sexually reproduced plant (other than fungi, bacteria, or first-generation hybrids) who has so reproduced the variety’)” citing 7 U.S.C. § 2402(a).

⁷⁰ *Id.* at 1566. Asexual reproduction in plants refers to reproducing a specific plant by either grafting, budding, cuttings, layering, or division. Sexual reproduction in plants refers to reproducing a specific plant by seeds. Citing MPEP (9th ed. Rev. 7, Nov. 2015), § 1601.

patent applications.⁷¹ However, protection under the PVPA would not be out of the question.⁷² Take two certificates for example, some genetically appealing soybeans.⁷³

These Plant Variety Protection certificates do not contain detailed claims like a traditional utility patent, rather they are a step by step history of the genetic make-up of the soybean variety.⁷⁴ The exhibits begin with a P cross (parental generation) and the resulting F₁ through F₅ generations (offspring generations).⁷⁵ The sexually reproduced crosses are analyzed and segregated for uniformity by disclosing the method to get this specific soybean variety.⁷⁶ Lastly, a miniscule “prior art” analysis is disclosed at the end by comparing these soybeans with their closest related relatives.⁷⁷

In terms of exclusive rights reserved to these soybean inventors, with plant variety certificates, research and marketing is encouraged. The inventor/farmer may sell his soybeans.⁷⁸ He also may even sell his soybean seeds.⁷⁹ Further, he may sell even a limited number of his soybean seeds for reproduction.⁸⁰

Further, while the PVPA may be a sufficient option in some cases, there will also be inventions that will not be allowed this protection either. An example of this would be two very genetically appealing oak trees.⁸¹ Here, the primary issue

⁷¹ *Id.* At the time of enacting this requirement, Congress knew that this asexual reproduction prerequisite of the Plant Patent Act vastly narrowed the scope of protection of plant patents. However, they found this prerequisite necessary in order to guarantee that the precise characteristics of the plant to be patented were maintained.

⁷² *Id.* at 1567 (“The Plant Variety Protection Act of 1970 (PVPA) provides ‘patent-like protection to novel varieties of sexually reproduced plants (that is, plants grown from seed), which parallels the protection afforded asexually reproduced plant varieties (that is, varieties reproduced by propagation or grafting) under Chapter 15 of the Patent Act”) Citing *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 181 (1995).

⁷³ *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179 (1995). This case involves an infringement action where the petitioner is the owner of two valid Plant Variety Protection Certificates for sexually reproduced soybeans.

⁷⁴ Plant Variety Certificate No. 008100082, Variety Name A1937, Crop Name Soybean.

⁷⁵ *Id.* at Exhibit A.

⁷⁶ *Id.* Preliminary Yield tests were conducted. A particular variety was selected because of yield, stand ability, and disease resistance. This chosen variety was crossed to show uniformity and zero segregation from the desired characteristics.

⁷⁷ *Id.* at Exhibit B. Containing a novelty statement comparing and contrasting the A1937 soybeans to the closest resembled varieties called Weber and Swift. The differences are articulated in the flower and hilum colors of the varieties (A1937 flower color is purple, while Weber and Swift’s flower colors are white. A1937 hilum color is buff, while Weber and Swift’s hilum colors are black). *See generally supra* note 74.

⁷⁸ *Asgrow Seed Co.*, 513 U.S. at 192. The Plant Variety Protection Act provides “adequate encouragement for research, and for marketing when appropriate, to yield for the public the benefits of new varieties” Citing 7 U.S.C. § 2581.

⁷⁹ *Id.*

⁸⁰ *Id.* at 190. The PVPA “allows seed that has been preserved for reproductive purposes (‘saved seed’) to be sold for such purposes . . . this authorization does *not* extend to saved seed that was grown for the very purpose of sale (‘marketing’) for replanting.” (emphasis added).

⁸¹ *In re Beineke*, 690 F.3d 1344 (Fed. Cir. 2012). This case involves an appeal from the United States Patent and Trademark Office for two patent applications filed by petitioner for two white oak trees. *See* Patent App. No. 10/919,574 (filed Aug. 17, 2004); Patent App. No. 10/919,902 (filed Aug. 17, 2004).

requirement arose in regard to cultivation.^{82,83} A premium plant that upon first instance is found in nature will not qualify for PVPA protection.⁸⁴ This is regardless of whether this plant can be reproduced asexually or sexually.⁸⁵ Essentially, if nature did the work, then nature deserves the credit.⁸⁶

B. Green for Green: When is it worth the money to seek a utility patent for your marijuana?

Aside from the differences in reproduction methods already mentioned, with a utility patent comes a higher degree of protection.⁸⁷ They are more sophisticated than a certificate from the PVPA. It therefore follows that if given the opportunity to attain not only a plant variety certificate, but also a utility patent,⁸⁸ the patent is often much more exclusive and valuable than the certificate.⁸⁹

While courts have held this as true, it has been debated in litigation whether this exclusivity for utility patents is diminished when the patented material is a plant that is also subject to the PVPA.⁹⁰ The questions that often come up in this litigation relates to comparison of the times, technological advances, and how loosely or tightly certain terminology should be defined.⁹¹

⁸² *Beineke*, at 1346. The patent applications for the oak trees were rejected because they were found in an uncultivated state.

⁸³ *Id.* (“After reviewing the legislative history of the [patent] statute, the [board of patent appeals] focused on the ‘cultivated’ language and concluded that ‘compliance with the cultivated requirement of [the statute] is determined by whether the existence or condition of the found plant itself has been affected by human activity (i.e. cultivation)’”) Citing *Ex parte Beineke* (“2011 – 1459 Initial Decision”), No. 2007-3882, 2008 Pat. App. LEXIS 5994, 2008 WL 2942147, 4 (2008).

⁸⁴ *Beineke*, 690 F.3d at 1345-46. If the inventor/farmer wishes to prove that their plant was in fact created in a cultivated state, evidence such as records describing the cultivation needs to be included in the application and/or responses.

⁸⁵ *Id.* Here, the inventor planted acorns from these superior oak trees. After observing the offspring and isolating the traits he desired from the two original trees, he asexually reproduced the trees consistent with the qualities of the first two. This was not sufficient for certificate or patent protection.

⁸⁶ *Id.* at 1352 (“This history demonstrates that the 1930 Act was not meant to include plants discovered by chance by plant explorers and the like”).

⁸⁷ *Bowman v. Monsanto Co.*, 133 U.S. 1761, 1767 (2013) (“only a patent holder (not a certificate holder) [can] prohibit [a] farmer who legally purchases and plants’ a protected seed from saving harvested seed ‘for replanting’”) Citing *Pioneer*, 534 U.S. at 140.

⁸⁸ *Pioneer*, 534 U.S. at 143. Discussing how the two statutes governing coverage for plants (utility patents and PVP coverage) can mutually coexist. Having one does not preempt the inventor from obtaining the other.

⁸⁹ *Id.* at 142 (“It is much more difficult to obtain a utility patent for a plant than to obtain a plant variety certificate because a utility patentable plant must be new, useful, and nonobvious.”) citing 35 U.S.C. §§ 101-103.

⁹⁰ *Id.* at 128. Respondent argues, and fails, by maintaining, “that the Plant Protection Act of 1930 (PPA) and the Plant Variety Protection Act (PVPA) set forth the exclusive statutory means for the protection of plant life because these statutes are more specific than [35 U.S.C.] § 101”; *Id.* at 133 (These additions were, “merely a housekeeping measure that did nothing to change the substantive rights or requirements for a plant patent”).

⁹¹ *Id.* at 135 (discussing various alleged limitations on plant breeding in the statute, “reflects the reality of plant breeding in 1930” – the year the plant act was added to the patent statute).

The purpose behind the asexual and sexual distinction was originally due to the impossibility of attempting to control sexual reproduction in plants.⁹² In addition, the purpose behind the addition of the PPA was originally created to encourage farmers and plant breeders in the same way that patents encourage scientists and engineers—to create advancements.

C. A look at the potentials

From the record so far, there are three options for the reefer here: no protection at all, some protection under the PVPA, or the ultimate protection with a utility or plant patent. Looking at the two pending marijuana patents for CANNABIS PLANT NAMED AVIDEKEL (AVIDEKEL)⁹³ and CANNABIS PLANT NAMED EREZ (EREZ),⁹⁴ the structure of these two applications very accurately mimics the structure of utility patent application WHITE OAK TREE NAMED AFT-O3 (OAK TREE),⁹⁵ and plant patent HEATHER NAMED ERICA SUNSET (ERICA);⁹⁶ both of which have been subjects of litigation.⁹⁷ However, OAK TREE has not granted,⁹⁸ but ERICA is a granted plant patent.⁹⁹

Looking at AVIDEKEL and EREZ, they both contain only one claim – a claim for a strain of *Cannabis Sativa L. ssp. indica* plant, having certain unique and particular characteristics in relation to THC and CBD content.¹⁰⁰ Looking at ERICA, this plant patent also contains only one claim—for a strain of *Heather persoluta* plant, having certain unique and particular characteristics in relation to production of blooms and stem length.¹⁰¹ ERICA also contains photographic figures of the patented plant.¹⁰²

⁹² *Id.* at 135-136. At the time Congress enacted the addition of § 101 to the patent statute, the only means of reproducing true type plants was via asexual reproduction. It follows as the reasoning for the exclusivity of sexual reproduction as a requirement in the statute. Further, in the 1930s and 40s there was no need to protect seed breeding as there is today, because there were hardly any markets for seeds at the time – farmers received their seeds from the government.

⁹³ U.S. Patent App. No. 14/193,252 (filed Feb. 28, 2014).

⁹⁴ U.S. Patent App. No. 14/193,197 (filed Feb. 28, 2014).

⁹⁵ U.S. Patent App. No. 10/919,574 (filed Aug. 17, 2004).

⁹⁶ U.S. Patent No. Plant 5,336 (filed Mar. 25, 1983).

⁹⁷ *Beineke*, 690 F.3d at 1344 (discussing WHITE OAK); *Imazio Nursery, Inc.*, 69 F.3d at 1560.

⁹⁸ *Beineke*, 690 F.3d at 1352. *Beineke* could not demonstrate that the white oak trees were eligible for patent protection.

⁹⁹ U.S. Patent No. Plant 5,336 (filed Mar. 25, 1983), (granted Nov. 13, 1984).

¹⁰⁰ U.S. Patent App. No. 14/193,252 (filed Feb. 28, 2014); Claim 1 (“1. A new and distinct *Cannabis Sativa L. ssp. indica* plant named Avidekel, characterized by a high amount of Cannabidiol of greater than approximately 16% and a very low amount of THC of less than 1%, as illustrated and described herein”); *See* Patent App. No. 14/193,197 (filed Feb. 28, 2014); Claim 1 (“1. A new and distinct *Cannabis Sativa L. ssp. indica* plant named Erez, characterized by a high amount of Cannabidiol of greater than approximately 16% and a higher amount of THC of about 23%, as illustrated and described herein”) (emphasis in original).

¹⁰¹ U.S. Patent No. Plant 5,336 (filed Mar. 25, 1983); Claim 1 (“A new variety of *Heather persoluta*, substantially as herein shown and described, particularly characterized by its profuse production of blooms over the entire length of the stem beginning early in December.”).

¹⁰² *Id.* at Fig. 1; *Id.* at Fig. 2.

AVIDEKEL and EREZ also contain several figures that are actual photos of the plant seeking to be patented.¹⁰³

ERICA indicates that its origination came from a discovery in a cultivated field which was reproduced via cutting.¹⁰⁴ While AVIDEKEL and EREZ do indicate that their origin came from selective breeding via cutting, they do not indicate the precise geographic origin of the strains.¹⁰⁵ One commonality amongst all four examples (ERICA, AVIDEKEL, EREZ, WHITE OAK) is that the parentage origin is unknown.¹⁰⁶ The significant difference between WHITE OAK and ERICA is the cultivated status of the location where parental plants were initially found.¹⁰⁷

D. The Lone Survivors

Despite the overwhelming amount of marijuana patents that are essentially knocking on the abandonment door, there are two marijuana patents that have successfully made it to grant. The first is a patent titled: PLANT EXTRACT FROM LOW-THC CANNABIS FOR THE TREATMENT OF DISEASE (PLANT EXTRACT), granted December 25, 2012.¹⁰⁸ The second is titled: CANNABINOIDS AS ANTIOXIDANTS AND NEUROPROTECTANTS (CANNABINOIDS), granted October 7, 2003.¹⁰⁹

PLANT EXTRACT is similar to AVIDEKEL, EREZ, ERICA, and WHITE OAK in that the patent is comprised of only one singular claim.¹¹⁰ However, it boasts no images or figures, and of course, PLANT EXTRACT is actually granted (as compared to AVIDEKEL, EREZ, and WHITE OAK).

¹⁰³ U.S. Patent App. No. 14/193,252 fig.1-4 (filed Feb. 28, 2014); *See also* U.S. Patent App. No. 14/193,197 fig.1-4 (filed Feb. 28, 2014).

¹⁰⁴ U.S. Patent No. Plant 5,336 col. 1 l. 1-5 (filed Mar. 25, 1983). (“This new heather variety [ERICA] was discovered by [the inventor] in 1978 as a seeding of unknown pollen parentage growing in a cultivated field”).

¹⁰⁵ U.S. Patent App. No. 14/193,252, at [0008] (filed Feb. 28, 2014); Patent App. No. 14/193,197, at [0008] (“present plant was developed over 3 years through selective breeding from parents of unknown province in Birya, Israel”).

¹⁰⁶ U.S. Patent No. Plant 5,336 col. 1 l. 4 (filed Mar. 25, 1983) (“unknown pollen parentage”); U.S. Patent App. No. 14/193,252, at [0008] (filed Feb. 28, 2014) (“from parents of unknown province”); U.S. Patent App. No. 14/193,197, at [0008] (filed Feb. 28, 2014) (“from parents of unknown province”); U.S. Patent App. No. 10/919,574, at [0002] (Aug. 17, 2004) (“Both parents are unknown”).

¹⁰⁷ U.S. Patent App. No. 10/919,574, at [0006], [0007] (Aug. 17, 2004) (Here, the ‘inventor’ discovered his oak trees in the front yard of someone’s home in Indiana. He merely observed that the trees looked superb and then began the process to asexually reproduce the superb characteristics).

¹⁰⁸ U.S. Patent No. 8,337,908 (filed Sept. 26, 2008).

¹⁰⁹ U.S. Patent No. 6,630,507 (Apr. 21, 1999).

¹¹⁰ U.S. Patent No. 8,337,908 col. 12 l. 38-44 (filed Sept. 26, 2008)

The invention claimed is:

1. A composition consisting essentially of 0.1-5 grams/liter of an extract from at least one of the flowers, flower-proximal leaves, stalks, roots, and seeds of *Cannabis sativa* subspecies *sativa* variety Futura 75, isopropanol and sodium chloride, wherein the *Cannabis sativa* subspecies *sativa* variety Futura 75 has a THC content from 0.1 wt. % to 0.2 wt. %.

PLANT EXTRACT is somewhat similar to EREZ and AVIDEKEL in that the marijuana-like focus is on both CBD and THC content.¹¹¹ While PLANT EXTRACT does mention cultivation, the patent merely acknowledges the fact that marijuana is considered to be a plant that is readily cultivated.¹¹² What PLANT EXTRACT does, is provide detailed historical facts, accompanied by real-world application and research results.¹¹³ PLANT EXTRACT continuously discusses its purpose for disease treatment throughout the patent.¹¹⁴ It also does not use the marijuana plant as a whole. Rather, PLANT EXTRACT extracts certain things from the plant and further modifies these extracts to get to the disease-fighting result.¹¹⁵

The other granted marijuana patent, CANNABINOIDS, is more comprehensive with a whopping 26 claims and seven figures to accompany them.¹¹⁶ CANNABINOIDS also boasts an applicability to various diseases and treatments, much like PLANT EXTRACT.¹¹⁷ This disease treatment component seems to be the overwhelming similarity between these two solo-granted marijuana utility patents.

Aside from AVIDEKEL and EREZ which are seeking patent protection for only particular marijuana strains, another type of pending marijuana patent to look at and compare would be one more analogous to the granted patents. One of these is titled: CANNABIS SATIVA PLANTS RICH IN CANNABICHRMENE AND ITS ACID, EXTRACTS THEREOF AND METHODS OF OBTAINING EXTRACTS THEREFROM (CANNABICHRMENE).¹¹⁸ Similar to PLANT EXTRACT, this CANNABICHRMENE patent application boasts a large number of claims (27) and focuses on cannabis extract rather than the marijuana plant in its entirety.¹¹⁹

While CANNABICHRMENE does not focus on its THC content like AVIDEKEL and EREZ, it also does not focus on disease treatment like our two granted patents do. CANNABICHRMENE does represent that the cannabis plants used as cultivated, and they were “self-fertilized” indicated asexual production.¹²⁰ Of course none of these patents and potential patents are exactly alike (otherwise none of them would ever get granted), but what the potential patents seem to be missing is an explicit application to disease treatments.

After exploring case law, granted patents and pending patents (both related to legal and illegal plant matter, and utility and plant patents), there is not one definitive or obvious reason for why so few marijuana patents get granted. Despite a thorough analysis into the complete prosecution history of all the above examples,

¹¹¹ *Id.* at col. 3 l. 15-21. Discussing the “low-tetrahydrocannabinol (THC) variety” for this invention.

¹¹² *Id.* at col. 1 l. 20, 21.

¹¹³ *See generally id.* at col. 1. The patent discusses the history of cannabis as a renewable resource – including the hemp part of the plant, its pest-resistant qualities, and the anatomy of the cannabis plant.

¹¹⁴ *Id.* at col. 4 l. 8-13. The patent lists treatment applications such as skin atrophy, Crohn’s disease, ulcerative colitis, bronchial asthma, and rosacea – just to name a few.

¹¹⁵ *Id.* at col. 1 l. 1. The patent discusses how this treatment only involves extract from a cannabis plant – rather than claiming the cannabis plant as a whole.

¹¹⁶ U.S. Patent No. 6,630,507 (filed Apr. 21, 1999).

¹¹⁷ *Id.* at Abstract; Discussing the newly found properties of cannabinoids in this patent that are useful for treatments of “ischemic, age-related, inflammatory and autoimmune diseases.”

¹¹⁸ U.S. Patent App. No. 12/936,947 (filed Apr. 9, 2009).

¹¹⁹ *Id.*

¹²⁰ *Id.*

comparing those granted to those still pending, it is relatively easy to find areas of strict comparison, and complete diversion.

Perhaps the best solution would be to redefine the Plant Patent Act to give it a more modern-day makeup of terminology. Maybe the differences between plant patents and utility patents across plant-based subject matter is too vague. Or, perhaps the best solution would be to create something akin to the PVPA that applies just to the marijuana industry. Whether definitive guidance is necessary is not the question, more so it is how this definitive guidance will be presented and given—and whether it will be followed. The answer has yet to come.

IV. PROPOSAL

For the United States to go green, several things need to happen. First, Congress needs to more concretely define what will and what will not be afforded patent protection when it comes to marijuana.¹²¹ Second, the Judiciary needs to establish how marijuana patents will be interpreted with marijuana's legality in question.¹²² Lastly, marijuana patent seekers need to avoid the obvious mistakes that will not get their patents allowed.¹²³

A. Congress

As the federal law stands on marijuana today, certain marijuana patents have no chance of getting allowed.¹²⁴ Therefore, if marijuana was legalized today, an abundance of submitted patent applications would all of a sudden break ground on the precise issue that has been holding them back. This issue hanging in limbo is an issue worth fixing before legalization takes place in order to prevent prejudice amongst all of these patents waiting allowance.

First and foremost, Congress should instruct the USPTO¹²⁵ to disregard the current federal illegality of marijuana when reviewing patent applications.¹²⁶ That way, applications like *AVIDEKEL*¹²⁷ and *EREZ*¹²⁸ (dealing with the full marijuana

¹²¹ U.S. CONST. art. I, § 1 (It is Congress' job and responsibility as the legislative branch to make the laws).

¹²² U.S. CONST. art. III, § 1 (It is the job of the courts as part of the judicial branch to interpret the laws).

¹²³ MPEP (9th ed. Rev. 7, Nov. 2015) § 1601. Plant Patents ("Whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent therefore, subject to the conditions and requirements of this title."); citing 35 U.S.C. § 161 (2017).

¹²⁴ Throckmorton, *supra* note 24, at 9. (Marijuana is an illegal Schedule 1 substance. It has been since the Controlled Substances Act was enacted in 1970 – the last attempt to change this was in 2011).

¹²⁵ 4 CHISUM, *supra* note 12, § 11.03 ("The Patent Act's Sections 131, 132, 133 and 134 direct the PTO to examine an application to determine whether "the applicant is entitled to a patent under the law").

¹²⁶ See Controlled Substances Act of 1970, Schedule I.

¹²⁷ U.S. Patent App. No. 14/193,252 (filed Feb. 28, 2014).

plant/strain) have an equal chance at being granted as compared to EXTRACT¹²⁹ (only dealing with marijuana plant extract). In doing this, Congress should indicate that the patentability of marijuana patents should be based on the novelty, nonobviousness, and usefulness requirements¹³⁰ that every other attempted patent is constantly subjected to.

As a threshold for dealing with the federal legality issues where marijuana stands today, Congress can impose a requirement that when filing a marijuana-based patent, the inventor is required to disclose the cannabinoids that are present in their marijuana invention (i.e.: especially THC versus CBD percentage content).¹³¹ That way, Congress can also establish a regulatory system to keep track of THC content in marijuana patents. Rather than simply deny marijuana patents because marijuana is currently illegal at the federal level,¹³² Congress can allow the marijuana patents if they meet all other requirements,¹³³ but still prohibit the exercise of the patented plant material that contain higher than a specified percentage of THC,¹³⁴ in all states where recreational marijuana is still illegal.¹³⁵ The results of these proposals should allow a significant reduction in the chaos when marijuana is federally legalized. This will avoid an overload of USPTO patent examination on all pending and/or future marijuana patents.

Lastly, Congress should address the issue of the PVPA versus utility patents. Rather than keep this distinction amongst litigation, Congress should indicate that the protection sought is the applicant's choice. Whether the application chose protection under neither, one, or both—it should be the applicant's choice and also their responsibility to indicate their choice. The laxer regulations that revolve around the PVPA should not prohibit an inventor from also receiving protection with a patent. This should reduce the chaos of marijuana federal legalization by avoiding frivolous lawsuits that may centralize around this issue.

B. The Judiciary

While congress creating more concrete guidelines on how to analyze marijuana patents will provide guidance, it won't fix everything. The courts also need to be

¹²⁸ U.S. Patent App. No. 14/193,197 (filed Feb. 28, 2014).

¹²⁹ U.S. Patent No. 8,337,908 (filed Sept. 28, 2008).

¹³⁰ 1 CHISUM, *supra* note 12 (discussing the three basic requirements for anything to be considered patentable).

¹³¹ *CBD: Everything You Need to Know About Cannabidiol*, HERB <http://herb.co/2016/07/26/everything-you-need-to-know-about-cbd/> (last visited Oct. 7, 2016); *Science: Marijuana*, ENCYCLOPEDIA BRITANNICA, INC. (2016), <https://www.britannica.com/science/marijuana> (last visited Oct. 6, 2016). (THC is the addictive part of marijuana that give its users a high. On the other hand, CBD is a non-addictive cannabinoid part of marijuana).

¹³² Controlled Substances Act of 1970, Schedule 1.

¹³³ 35 U.S.C. § 101 (patent requirements).

¹³⁴ *See* U.S. Patent App. No. 14/193,197 (filed Feb. 28, 2014) (Example: a cannabis plant containing greater than 16% CBD and approximately 23% of THC).

¹³⁵ Jonathan M. Purow, Gottlieb Rackman & Reisman PC, *Planting The Seeds For IP Protection Of Marijuana Brands*, LAW 360 (Dec. 22, 2015) (22 states still consider marijuana an illegal substance).

ready if marijuana is to become federally legalized.¹³⁶ With the net worth of the marijuana industry being so vast and expansive, litigation matters arising out of intellectual property protection are likely.¹³⁷ Specifically with patents, it is somewhat obvious to anticipate these matters originating from whether protection began before or after legalization.¹³⁸

The first issue that the courts may need to address is the issue of asexual reproduction. At the origination of the PPA,¹³⁹ the threshold of asexual reproduction was of much concern as sexual reproduction was too unknown and unpredictable when it came to plants.¹⁴⁰ However, it is no longer uncontrollable. Thus, when plant patents (specifically marijuana patents) become the subjects of litigation, the courts should have an analytical framework in place to aid in addressing the issue of asexual reproduction.

As a suggestion, when looking at marijuana patents, the question should not revolve around whether the plant(s) in question were asexually produced, but whether they are *capable* of being asexually reproduced. If the plant in question is only capable of being reproduced sexually, then its protection should be limited to the PVPA. However, if the plant in question is at least *capable* of asexual reproduction, then the plant should be able to retain the production of a patent.

The courts should be prepared for a threshold of comparison between CBD and THC content in marijuana patents. The courts should also be prepared for the increased litigation dealing with marijuana patents. With less precedent available at first, the courts should analogize the marijuana patent issues with comparable plant patent issues.¹⁴¹

C. *The Growers*

While the majority of conflicts that come with marijuana legalization should be addressed by our government, there is always more the patentees can do to help the process go more smoothly. With such an enormous obstacle that is marijuana

¹³⁶ *Marbury*, 5 U.S. at 153.

This is the supreme court, and by reason of its supremacy must have the superintendence of the inferior tribunals and officers, . . . The second section of the third article of the constitution gives this court appellate jurisdiction in all cases in law and equity arising under the constitution and laws of the United States [] with such exceptions, and under such regulations as congress shall make.

¹³⁷ *ArcView*, *supra* note 9, at 9 (marijuana net worth expected to be around \$7.1 billions by the end of 2016 in the United States alone).

¹³⁸ 35 U.S.C. § 119 (2016) (outlining the 12-month priority date).

¹³⁹ 35 U.S.C. § 161 (the plant patent act originated in 1930).

¹⁴⁰ *Pioneer*, 534 U.S. at 133 (2001) (when deciding the issue of the asexual reproduction requirement, the court notes how “petitioners overlook the state of patent law and plant breeding at the time of the [Plant Protection Act]’s enactment.” Sexual reproduction (even if bred) at this time in plants was considered a part of nature and thus not patentable).

¹⁴¹ *Beineke*, 690 F.3d at 1344 (as an example for un-patentable plant matter); *See Pioneer*, 534 U.S. at 124 (as an example for plant matter that may pass muster for patentable subject matter).

legalization becoming more and more realistic,¹⁴² it would be a shame for those anxiously awaiting this moment to lose out on intellectual property protection just because of a technicality. Here, mainly being the cultivation requirement obstacle.¹⁴³

To further aid in reducing the chaos of federal legalization, marijuana patent seekers can do several things to help their chances in receiving the sought after granted patent. First, to avoid even having to settle for only PVPA protection,¹⁴⁴ patent seekers can increase their allowance chances by making sure to reproduce their patent material asexually. Second, to avoid patent rejection all together, patent seekers can be sure to meet the cultivation requirement.¹⁴⁵ Simply keeping track of the origination of the patent material should eliminate this potential rejection. Patentees should also of course look to sustain the general patent eligibility requirements.

Some may argue that federal de-regulation is an overly optimistic future for marijuana. After all, there have been multiple times before where a down-grade from labeling marijuana as a Schedule I substance has been attempted.¹⁴⁶ However, these attempts should not cloud over the success that marijuana has had in regard to legalization at the state level.¹⁴⁷

Even if marijuana is not on its way to federal legalization, the point of view that it may be, is a good public policy.¹⁴⁸ At the very least, this “how to” knowledge about processing marijuana patent applications is educational. In terms of federalism, knowledge of these practices makes it more probable for the federal government to follow in the states’ footsteps, rather than step on their toes and create a state versus federal debate.¹⁴⁹

¹⁴² Purow et. al., *supra* note 135 (The majority of Americans favor the decriminalization/legalization of marijuana. Four states now allow even recreational use of marijuana. Only 22 out of the 50 states still ban the drug under any and all circumstances).

¹⁴³ *Beineke*, 690 F.3d at 1344 (In order for a plant to be patentable, the inventor must overcome the cultivation requirement. Where two oak trees were discovered with desirable traits in a residential yard, and those traits were replicated in future generations, the cultivation requirement was not met).

¹⁴⁴ *Pioneer*, 534 U.S. at 139 (the PVPA allows for certain exceptions that patents do not: first, PVPA protected plants can be used freely for research. Second, farmers/growers that have purchased seeds/plants only protected by the PVPA can save the seeds and re-grow them without infringing on the plant certificate owner).

¹⁴⁵ *Beineke*. 690 F.3d at 1347 (where inventor merely “noticed” two superior white oak trees was not enough to satisfy the cultivation requirement to survive patent prosecution).

¹⁴⁶ Throckmorton, *supra* note 24 at 21. Marijuana’s status as a Schedule I controlled substance has been questioned in 2001, 2006, 2009 and 2011.

¹⁴⁷ *Id.* at 6. As of March 2016, 23 states now recognize medicinal use of marijuana and 4 states recognize recreational use.

¹⁴⁸ Nathan Rott, *Trump’s Choice For Top Law Enforcer Has Cannabis Proponents Fearing Future*, NPR (Nov. 20, 2016), <http://www.npr.org>.

¹⁴⁹ *McDonald v. City of Chi.*, 561 U.S. 742, 784 (2010) (discussing the importance of allowing useful state experimentation in order to respect federalism).

V. CONCLUSION

Marijuana is a part of our culture today. Be it in the entertainment industry,¹⁵⁰ personal life,¹⁵¹ law enforcement,¹⁵² or medical research and treatment,¹⁵³ it is fair to say that many people are somewhat involved (or at the very least) know of marijuana and its characteristics.¹⁵⁴ This involvement is going to keep marijuana in our society's future as well.¹⁵⁵

Marijuana has made its mark in our society, and therefore marijuana warrants a mark in our government as well. As the recent years and research have shown, this is definitely the direction we are headed in.¹⁵⁶ If congress and the judiciary prepare themselves, then the transition to a marijuana-friendly United States will be a much smoother hit.

¹⁵⁰ "Pineapple Express," IMDB, <http://www.imdb.com/title/tt0910936/business> (last visited Nov. 18, 2016) (discussing the film Pineapple Express from 2008, net gross of over \$80 million).

¹⁵¹ *The Truth About Marijuana: International Statistics*, FOUND. FOR A DRUG FREE WORLD, <http://www.drugfreeworld.org/drugfacts/marijuana/international-statistics.html> (last visited Nov. 16, 2016) ("According to the United Nations, 158.8 million people around the world use marijuana—more than 3.8% of the planet's population.").

¹⁵² *Marijuana Arrests by the Numbers*, ACLU, <https://www.aclu.org/gallery/marijuana-arrests-numbers> (last visited Nov. 18, 2016) ("Of the 8.2 million marijuana arrests between 2001 and 2010, 88% were for simply having marijuana").

¹⁵³ *Number of Legal Medical Marijuana Patients*, PROCON.ORG, <http://medicalmarijuana.procon.org/view.resource.php?resourceid=005889> (last visited Nov. 17, 2016) (As of March 1, 2016, 8.06 out of every 1,000 patients legally use medical marijuana as some form of treatment).

¹⁵⁴ *Marijuana: Brief Description*, NATIONAL INSTITUTE FOR DRUG ABUSE, <https://www.drugabuse.gov/drugs-abuse/marijuana> (last visited Nov. 10, 2016) ("Marijuana refers to the dried leaves, flowers, stems, and seeds from the hemp plant, *Cannabis sativa*. The plant contains the mind-altering chemical *delta-9-tetrahydrocannabinol* (THC) and other related compounds. Extracts with high amounts of THC can also be made from the cannabis plant") (emphasis in original).

¹⁵⁵ Purow et. al., *supra* note 135 ("Billions of dollars are being invested into the marijuana industry, tens of millions of dollars are being raised by states taxing its legal sales, and with all that money comes questions about the best means to protect intellectual property in marijuana brands and their related products." While not all patented inventions are considered "valuable" in terms of the revenue they bring in, the most notable patents are valuable. The value that marijuana already has only adds to the reasons why it should receive USPTO protection).

¹⁵⁶ ArcView, *supra* note 9 at 9 (marijuana use and revenue is only expected to increase).