

OBTAINING MARIJUANA PATENTS

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Abstract: In the midst of a boom in the marijuana industry, marijuana breeders and companies have increasingly sought protection of their unique marijuana strains through patents. Their success, however, is limited given the fact that marijuana remains illegal under federal law and the United States Patent and Trademark Office has been reluctant to grant such patents. This article explores the current patentability of marijuana strains, discusses the difficulties marijuana breeders and companies face in patenting their product, and introduces successful marijuana-related patent applications.

I. INTRODUCTION TO THE MARIJUANA RETAIL INDUSTRY AND MARIJUANA RELATED PATENTS

In 2012, Colorado and Washington became the first two states to legalize the recreational use of marijuana. Alaska, California, Maine, Massachusetts, Nevada, Oregon, Washington, and Washington, D.C. have since followed suit.¹

Recreational and medical marijuana sales have proved quite profitable. Nevada dispensaries raked in \$27 million during the state's first month of recreational marijuana sales, Colorado boasted \$127 million in revenue from medical and recreational marijuana sales in just May of this year (and over half a billion dollars since January 2014), and Washington expects to gain \$730 million from legalized marijuana sales over the next two years.^{2, 3, 4} Elsewhere, in states like Massachusetts where retail locations have yet to

¹ See Melia Robinson, *It's 2017: Here's Where You Can Legally Smoke Weed Now*, BUS. INSIDER (Jan. 8, 2017, 11:00 AM), <http://www.businessinsider.com/where-can-you-legally-smoke-weed-2017-1>.

² See Eli McVey, *Chart: Record first month of recreational marijuana sales in Nevada*, MARIJUANA BUS. DAILY (Oct. 9, 2017), <https://mjbizdaily.com/chart-record-first-month-recreational-marijuana-sales-nevada/>.

³ See Debra Borchardt, *Colorado Hits Another Cannabis Milestone With Half A Billion In Tax Revenue*, FORBES (Jul. 19, 2017, 1:35 PM), <https://www.forbes.com/sites/debraborchardt/2017/07/19/colorado-hits-another-cannabis-milestone-with-half-a-billion-in-sales/#2918a9f36d63>.

open, the marijuana business looks poised for a similar boom. On June 24, 2015, scores of customers in Salem, Massachusetts lined up outside of Alternative Therapies Group, Inc., the first medical marijuana dispensary to open in the state.⁵ There are now twelve registered and operating dispensaries in Massachusetts, with several more vying for registration.⁶

Given the surge of the industry and its lucrative prospects, many entities have also attempted to plant a prominent spot in the marijuana business by obtaining patents over unique strains of marijuana. While the United States Patent and Trademark Office (“USPTO”) has in the past shown reluctance to grant trademarks and service marks related to the sale and distribution of marijuana, recent decisions granting patents for marijuana strains are a welcome sign for marijuana breeders and businesses looking to protect their product.

This article addresses the patentability of marijuana strains, and evaluates successful marijuana-related applications and the difficulties marijuana breeders and businesses may face in attempting to patent their product. In light of the industry’s exceptional growth in recent years, these breeders and businesses have strong reason to secure patent protection over their unique marijuana strains now, while the process remains generally limited to small and mid-sized companies. With the impending advent of large pharmaceutical companies asserting their dominance in the world of marijuana

⁴ See David Gutman, *Is marijuana money the answer to fund Washington schools?*, SEATTLE TIMES (Jan. 21, 2017, 8:00 AM), <https://www.seattletimes.com/seattle-news/politics/state-weighs-using-pot-revenue-to-plug-school-funding-gap/>.

⁵ See Kay Lazar & Virgie Hoban, *At Salem medical marijuana dispensary, a sense of relief*, BOS. GLOBE (Jun. 24, 2015), <https://www.bostonglobe.com/metro/2015/06/24/patients-line-first-medical-marijuana-dispensary-opens/ocV8KMa9oVpYNvAhZwhqWJ/story.html>.

⁶ *RMDs Currently Dispensing Marijuana for Medical Use*, MASS.GOV, <http://www.mass.gov/eohhs/gov/departments/dph/programs/hcq/medical-marijuana/dispensing-rmds.html>.

cultivation and dispensing, small to mid-sized companies will likely struggle to maintain their footing in the industry. These companies are thus wise in to dedicate their efforts to patenting various strains. Doing so will enable them to solidify their own patenting process and to cultivate a prominent reputation and standing in the industry, which could help protect against competition from large companies.

II. APPLYING THE USPTO'S TREATMENT OF MARIJUANA TRADEMARKS TO MARIJUANA PATENTS

The USPTO reviews patent applications and grants three different types of patents: utility, design, and plant.⁷ Per the USPTO guidelines, “utility patents may be granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof.”⁸ Given the therapeutic and medicinal properties of marijuana, a patent for a particular strain of marijuana arguably falls under this category. The USPTO has also approved marijuana-related plant patents. Plant patents are patents that “may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.”⁹ The USPTO defines asexually propagated plants as “those that are reproduced by means other than from seeds, such as by the rooting of cuttings, by layering, budding, grafting, inarching, etc.” The Supreme Court has also recognized the patentability of newly developed plant breeds.¹⁰ For a plant to be patentable, the plant must not have

⁷ U.S. PATENT & TRADEMARK OFF., GENERAL INFORMATION CONCERNING PATENTS, (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents#heading-1>.

⁸ *Id.*

⁹ *Id.*

¹⁰ *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124 (2001).

“been patented, in public use, on sale, or otherwise available to the public prior to the effective filing date of the patent application with certain exceptions.”¹¹

In April 2010, the USPTO created a new trademark category for “processed plant material for medicinal purposes, namely medical marijuana.”¹² However, three short months later, it removed the new category.¹³ The USPTO then instructed its attorneys reviewing patent applications to ask applicants whether the goods or services at issue in the application violated the Controlled Substances Act (“CSA”).¹⁴ Under the CSA, marijuana is classified as a Schedule I drug, which the CSA defines as a drug that has a high potential for abuse and no currently accepted medical use.¹⁵ The directive to its reviewing attorneys suggests that the USPTO reversed its decision due to the fact that even though the cultivation, distribution, and use of medical marijuana is legal in some states, it remains illegal under federal law. It further suggests that the USPTO is reluctant to recognize the trademark rights of goods or services that are illegal under federal law.

A decision by the USPTO Trademark Trial and Appeals Board (the “Board”) last year further supports the notion that goods illegal under federal law, such as marijuana, cannot obtain protection under intellectual property law. The Board considered whether to allow the registration of the mark “HERBAL ACCESS” for “retail store services featuring herbs” in *In Re Morgan Brown*.¹⁶ The applicant was located in the State of Washington, where recreational marijuana was legal. The initial attorney reviewing the

¹¹ *General information concerning patents*, *supra* note 7.

¹² Rebecca Gan, *INTELLECTUAL PROPERTY LAW: Protection for Marijuana Trademarks*, 32 GP Solo (2015), https://www.americanbar.org/publications/gp_solo/2015/november-december/intellectual_property_law_protection_marijuana_trademarks.html.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ 21 USC §§ 812, 841(a)(1), 844(a).

¹⁶ *In re Morgan Brown*, 110 U.S.P.Q.2d (BNA) 1350 (T.T.A.B. 2016).

application had refused the registration of the applicant's mark on the basis that the "herbs" the store featured included marijuana, the distribution of which is illegal under federal law. The Board held that "the fact that the provision of a product or service may be lawful within a state is irrelevant to the question of federal registration when it is illegal under federal law."¹⁷ To qualify for federal mark registration, the Board noted, "the goods or services for which the mark is used must not be illegal under federal law."¹⁸ Because the distribution of marijuana is illegal under federal law and the mark attempted to cover a federally illegal good, the Board affirmed the refusal to register the mark "HERBAL ACCESS."¹⁹

It would appear likely, then, that the USPTO would use this same rationale in its evaluation of applications for patents concerning marijuana. In 2003, however, the USPTO approved an application by the federal government for a patent on certain cannabis plant compounds known as cannabinoids.²⁰ The patent noted that cannabinoids are "useful in the treatment and prophylaxis of wide variety of associated diseases, such as ischemic, age-related, inflammatory and autoimmune diseases."²¹ Cannabinoids, the application added, "have particular application as neuroprotectants, for example in limiting neurological damage following ischemic insults, such as stroke and trauma, or in the treatment of neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease and HIV dementia."²² Thus, the federal government rejects any potential medical use of marijuana by classifying it as a Schedule I drug, yet justified its patent application

¹⁷ *Id.* at 2.

¹⁸ *Id.*

¹⁹ *Id.* at 9.

²⁰ *See* Cannabinoids as Antioxidants and Neuroprotectants, U.S. Patent No. 6,630,507 (filed Feb. 2, 2001).

²¹ *Id.*

²² *Id.*

by noting the medicinal and healing properties of marijuana's unique chemical compounds.

III. PATENTING UNIQUE MARIJUANA STRAINS

Marijuana breeders have long attempted to improve and perfect various marijuana strains by determining ideal environmental conditions and developing efficient growing techniques. Each strain of marijuana is genetically unique, possessing at least a few genes that no other strain has.²³ Through asexual production, a marijuana plant can be reproduced from just a single cell, and valued traits can be preserved and multiplied to ensure consistency among the new clones.²⁴ Environmental conditions such as disease, however, can affect the development of an entire population of marijuana plant clones.²⁵

There are two main subspecies of marijuana: *Cannabis indica* and *Cannabis sativa*.²⁶ Both are composed of cannabinoids, chemical compounds unique to marijuana plants.²⁷ Given that *Cannabis sativa* plants have a greater concentration of tetrahydrocannabinol ("THC"), the primary psychoactive cannabinoid in marijuana plants, it is the more popular of the two subspecies.²⁸ *Cannabis sativa* is composed of over 426 chemical compounds, approximately 60 of which are cannabinoids,²⁹ and the level of psychoactivity (the "high") a particular marijuana strain produces is dependent

²³ ROBERT CONNELL CLARKE, MARIJUANA BOTANY, AN ADVANCED STUDY: THE PROPAGATION AND BREEDING OF DISTINCT CANNABIS (1981).

²⁴ *Id.*

²⁵ *Id.*

²⁶ See Zerrin Atakan, *Cannabis, a complex plant: different compounds and different effects on individuals*, 2 THERAPEUTIC ADVANCES IN PSYCHOPHARMACOLOGY, 241, 241-254 (2012), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3736954/>.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

on its cannabinoid concentration.³⁰ Breeders can attempt to manipulate the level of psychoactivity, however, to avoid undesirable side effects and optimize its medicinal properties by crossing various strains and meeting certain environmental conditions. Breeders can also cross strains to develop other qualities, such as various aromas and tastes.³¹ Much of this, however, is largely “subjective guesswork.”³² Thus, given that the breeding process is often time-consuming and one of trial and error involving numerous chemical and environmental elements, growers have an incentive to patent the “improved” strains they spend time and money developing. For a plant to be patentable, the plant must not have “been patented, in public use, on sale, or otherwise available to the public prior to the effective filing date of the patent application with certain exceptions.”³³

A cursory search of the USPTO database since 1976 for “cannabis” or “marijuana” in patent titles pulls up forty-four marijuana related patents, such as those for a “cannabis storing container” or extraction methods of cannabinoid compounds. However, few breeders have had luck in patenting specific marijuana strains. In 2015, the USPTO granted to Biotech Institute, LLC, a group of California breeders, the first patent for a marijuana strain with “significant amounts” of THC.³⁴ The patented invention “provides compositions and methods for the breeding, production, processing and use of

³⁰ *Marijuana Botany*, *supra* note 23.

³¹ *Id.*

³² *Id.*

³³ *General information concerning patents*, *supra* note 7.

³⁴ Breeding, Production, Processing and Use of Specialty Cannabis, U.S. Patent No. 9,095,554 (filed Aug. 4, 2015); Greg Walters, *What a Looming Patent War Could Mean for the Future of the Marijuana Industry*, VICE NEWS (Apr. 20, 2016, 12:55 PM), <https://news.vice.com/article/a-patent-for-cannabis-plants-is-already-a-reality-and-more-are-expected-to-follow>.

specialty *cannabis*.”³⁵ The patent purports to meet the “long-felt need” for “healthier *cannabis* for recreational use with reduced negative side effects from THC.”³⁶ Since then, Biotech Institute, LLC has obtained two additional patents on marijuana strains.³⁷ The company’s quasi monopoly over patents on unique marijuana strains has cemented its footing in the industry and likely its ability to submit additional successful applications in the future. It would behoove small to mid-sized companies, as a result, to capitalize on the current state of the market and patent their unique strains of marijuana before the rush of competition with established companies such as Biotech Institute, LLC renders them ineffectual competitors.

On December 20, 2016, Kubby Patent and Licenses, LLC was awarded the first ever *plant* patent for a new strain of marijuana. The inventors explained that the novel strain exhibits “energizing and motivating psychoactive effects as opposed to the lethargy normally associated with [*Cannabis indica*] and show[s] hypotensive effects.”³⁸ The breeding program of the inventors intended to create a strain that avoided the “lethargy, sleepiness, and increased food consumption” common to marijuana use while also having the medicinal effect of lowering blood pressure.³⁹

IV. CONCLUSION AND FUTURE IMPLICATIONS

Marijuana breeders and businesses have, particularly in recent years, recognized the value of navigating the marijuana dispensary and cultivation industry. Because of the potential for staunch competition between small businesses and large pharmaceutical

³⁵ *Id.*

³⁶ *Id.*

³⁷ See U.S. Patent Nos. 9,370,164 and 9,642,317.

³⁸ U.S. Patent No. PP27,475.

³⁹ *Id.*

companies once marijuana becomes legal under federal law, breeders and businesses have good reason to secure their interests now via patents.

Marijuana strains and related products can be patented via utility or plant patents. However, given that a patentable plant must not have been “in public use, on sale, or otherwise available to the public prior to the effective filing date of the patent application,” the current patent application process could prove quite frustrating to a marijuana breeder who already has a strain on the market.⁴⁰ It would also be frustrating to the breeder who refrains from selling a particular strain of marijuana in the hope of having it patented, only to find much later that the patent application was denied and his lost profits were in vain. But given that large pharmaceutical companies, which have traditionally dominated drug patents, have avoided involvement in patenting marijuana, this is a prime time for smaller breeding corporations to assert their patent rights.⁴¹ Small to mid-size breeders will likely lose their footing in the industry if medical marijuana becomes legal under federal law, thereby inducing the large pharmaceutical companies to join the rush for patentable marijuana strains.

⁴⁰ *General information concerning patents, supra* note 7.

⁴¹ See Julie Weed, *US Patent Office Issuing Cannabis Patents To A Growing Market*, FORBES (Jul. 24, 2017, 8:42 AM), <https://www.forbes.com/sites/julieweed/2017/07/24/us-patent-office-issuing-cannabis-patents-to-a-growing-market/#5b596b4a68d4>.