Yale Journal of Law & Technology
Volume 27, Issue 2

Patenting the Taboo: Sex, Drugs, and Abortion

Andrew Gilden[*] **& Sarah R. Wasserman Rajec**[**]

The patent system provides a surprisingly rich archive of the interplay between social norms and technological change. Patent law requires applicants to publicly disclose the novelty and usefulness of their inventions, thereby bringing to light areas of innovation that may have previously lived in the shadows. In other words, patent law encourages public disclosure of technologies that are taboo—developed and practiced in secret, for reasons such as social approbation, illegality, or religious sanctity. To obtain a patent for a taboo technology, patentees must establish their legitimacy as innovators while navigating cultural norms that are hostile to their fields of innovation. As technology evolves and social norms shift over time, patents thus provide useful insight into how a technology might come to be seen as acceptable in the eyes of lawyers, patent examiners, government actors, and society at large.

This Article looks at the history of patenting within three realms of taboo technology: sexual devices, psychoactive drugs, and abortifacients. In each realm, the patented technology has existed along the boundaries of social acceptance and criminal law: unlawful in certain places and times, and lawful in others. Yet despite significant social and legal barriers to sexual

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[*] Professor of Law, Southwestern Law School.
[**] Professor of Law, William & Mary Law School. We are grateful to Nathan Cortez, Sarah Fackrell, Rebecca Curtin, Keith Hand, Camilla Hrdy, Peter Karol, Stacey Lantagne, Jake Linford, Nicholson Price, Alex Roberts, Mason Marks, Adam Muchmore, Jordan Paradise, Betsy Rosenblatt, Rachel Sachs, Karen Sandrik, Andres Sawicki, Cathay Smith, Sean Tu, Rebecca Tushnet, and participants in the following conferences and workshops for their insights: 2024 Petrie-Flom Center Annual Conference: Law and Policy of Psychedelic Medicine, Harvard Law School; Seasoned Regulation and Innovation in the Biosciences Conference 2024, University of Michigan Law School; UC Law San Francisco Faculty Workshop; FIU Law School Faculty Workshop; 2024 M3 Workshop, Suffolk Law School; Works in Progress in IP, Suffolk Law 2023; IP Scholars Conference 2023, Cardozo Law School.

autonomy, reproductive freedom, and mind-altering drug use, the patent system has long granted valuable property rights in each of these spaces. The patent registry provides numerous examples of inventors strategically describing taboo technologies in order to shift them out of the margins and into the mainstream marketplace.

*This Article analyzes over 600 patents issued during the past 150 years, closely examining how patentees have strategically navigated their inventions' potential associations with sexual desire, psychedelic experiences, women's pleasure and autonomy, and marginalized subcultures. It shows that patents lend scientific legitimacy to taboo technologies, and demonstrates that the patent system has forecasted favorable shifts in their legal treatment. Nonetheless, the patent system also provides warning signs that the legal tides can shift back towards prohibition, as has happened with abortion post-*Dobbs*, and as may happen again with psychoactive drugs and sexual technologies.*

Article Contents

Introduction

Patents are designed to drive innovation and its disclosure. Inventors who submit a detailed description of their technological advances are rewarded with a limited but strong right to exclude others from practicing the invention. The heady invocation that a patent may be granted for "anything under the sun that is made by man" contemplates a world awaiting discovery, invention, and knowledge-sharing.[1] But not all inventions are in socially acceptable—or even entirely legal—fields. And while patent theory is supported by notions of disclosure, some fields of innovation develop under the radar for years. The term *taboo*, first understood to refer to the unclean and sacrilegious,[2] and expanded in modern parlance to include things that are not socially acceptable topics of discussion, might be applied to a wide range of technologies that have developed outside of mainstream technological culture. And yet, there is patent activity in areas of taboo technological advancements, some of which pertains to the most controversial issues of the day. These patents and their disclosures serve as a lens for studying both social developments and these disparate technologies that often develop in communities that are not inherently patent-driven, allowing for a different view into taboo technologies and the ways they are seen by society.

Patents are a right to exclude, not a right to use, and for that and other reasons, patents may be granted on technologies of questionable legality or social approval.[3] Thus, despite heated debates about which reproductive technologies are protected post-*Dobbs*, whether psychedelic drugs should be decriminalized and approved for medical use, and whether sexual expression should be widely available to all, there has

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[1] Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) (citation omitted).

[2] Mary Douglas, PURITY AND DANGER: AN ANALYSIS OF THE CONCEPTS OF POLLUTION AND TABOO 10-11 (1966); Brennan T. Hughes, *Strictly Taboo: Cultural Anthropology's Insights into Mass Incarceration and Victimless Crime*, 41 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 49, 61 (2015) (citing ALBERT MUNTSCH, CULTURAL ANTHROPOLOGY 325 (2d ed. 1936)).

[3] *See infra* Part I.

been significant patenting activity in each of the spaces. Advances in women's health care has included new, medicinal abortifacients that facilitate early and safe access to abortion, though abortion has often been treated as a social taboo even during the fifty years in which there was federal protection for women to seek the procedure.[4] The drug mifepristone is at the center of current legal battles over access to abortion treatment, and it has been the target of anti-abortion activism for forty years.[5] Yet, beginning in the mid-1980s, the Patent Office granted a series of patents covering mifepristone, to little attention or controversy.[6] Psychedelics and other illicit drugs have their roots in traditional knowledge practices and have developed more recently through other, sub-cultural knowledge groups. Now, the FDA is considering whether to approve psychedelics for treatment of depression and PTSD,[7] and several states are grappling with whether to decriminalize a variety of psychoactive drugs.[8] Yet, the Patent Office has

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[4] Courtney Megan Cahill, *Abortion and Disgust*, 48 HARV. C.R.-C.L. L. REV. 409, 431-32 (2013) (linking social taboos and disgust as motivators for legislation restricting abortion access).

[5] *See* David S. Cohen, Greer Donley & Rachel Rebouche, *Abortion Pills*, 76 STAN. L. REV. 317, 328-33 (2024) (detailing the various challenges raised by abortion opponents to mifepristone access).

[6] *See infra* Part IV.

[7] *See* Sara Reardon, Feature, *The Science Behind Psychadelic Therapy*, 623 NATURE 22, 22 (2023) (discussing various clinical trials testing MDMA as a treatment for PTSD); Kai Kupferschmidt, *FDA Rejected MDMA-Assisted PTSD Therapy. Other Psychadelics Firms Intend to Avoid That Fate*, SCIENCE (Aug. 12, 2024, 9:00 AM), https://www.science.org/content/article/fda-rejected-mdma-assisted-ptsd-therapy-other-psychedelics-firms-intend-avoid-fate [https://perma.cc/5SWG-QXFD] (explaining that although a combination of psychotherapy and MDMA therapy was rejected by the FDA, several others trials are testing the use of MDMA and LSD, without psychotherapy, to treat anxiety and depression).

[8] *See* Conrad Wilson, *Oregon Pioneered a Radical Drug Policy. Now It's Reconsidering*, NPR (Feb. 7, 2024, 3:20 PM), https://www.npr.org/2024/02/07/1229655142/oregon-pioneered-a-radical-drug-policy-now-its-reconsidering [https://perma.cc/4UDM-AZGF] (describing backlash to the decriminalization of small amounts of hard drugs); Dani Anguiano, *California Nearly Decriminalizes Psychedelics –*

already issued dozens of patents covering psychedelic drugs that are classified as Schedule I controlled substances.[9] Various forms of sexual pleasure have been regulated and made taboo,[10] and anti-pornography activists have scored multiple legislative wins in restricting online access to materials relating to sexual pleasure.[11] Yet the Patent Office continues to grant exclusive rights in a broad range of interactive, networked sexual technologies.[12] Although often viewed as orthogonal to hot button political issues, patent law—and patents themselves—offer a distinct lens on the connection between law, social norms, and these taboo technologies.

In previous work, we highlighted the patent register as an underappreciated archive of evolving social norms around sexuality and technology.[13] In that work, we closely examined hundreds of patents issued since the 1960s covering a variety of technologies officially classified as "massage for the genitals" or "devices for improving sexual intercourse."[14] We found in these "pleasure patents" a surprisingly rich body of narratives about why improving sexual pleasure was important—i.e., had

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But Governor Hits Brakes, GUARDIAN (Oct. 7, 2023, 6:05 PM), https://www.theguardian.com/us-news/2023/oct/07/california-governor-vetoes-bill-to-decriminalize-natural-psychedelic-drugs [https://perma.cc/9HC7-GDKZ] (describing a vetoed California bill that would have decriminalized possession of psychadelics and required formation of a group to study their therapeutic use).

[9] *See infra* Part III.

[10] David Cole, *Playing by Pornography's Rules: The Regulation of Sexual Expression*, 143 U. PA. L. REV. 111, 116 (1994) (discussing the relationship between regulation of sexual expression and taboo in the context of the first amendment).

[11] *See, e.g.*, Hannah Schoenbaum, *North Carolina legislature cracks down on pornography sites with new age verification requirements*, AP NEWS (Sept. 22, 2023), https://apnews.com/article/north-carolina-minors-age-verification-pornography-a877f746377b5b81869c239c71986011 [https://perma.cc/X6NX-EGP6]; Jasmine Mithani, *The 19th Explains: Why some states are requiring ID to watch porn online*, THE 19TH (Jan. 29, 2024), https://19thnews.org/2024/01/states-age-verification-adult-content-online/ [https://perma.cc/5KUW-PSDK].

[12] See *infra* Part II.

[13] Andrew Gilden & Sarah R. Wasserman Rajec, *Pleasure Patents*, 63 B.C. L. REV. 571 (2022).

[14] *Id.* at 573.

"utility," within the language of patent law—at particular moments in time. We showed, entirely within the text of granted patents, an evolution from sexual technologies being framed largely instrumentally—as facilitating healthy marriages, addressing sexual dysfunctions, or limiting exposure to STIs—to being framed intrinsically for their direct pleasure-inducing capacities.[15] These changing patent narratives mapped quite directly onto shifting contemporaneous trends in marriage, gender equality, sexual health, and LGBTQIA+ rights.[16] The Patent Office thus emerged, historically, as a surprising refuge for sexual innovation and overt discussions of contemporaneous sexuality. Innovation in sexual technologies was criminally risky, but it was nonetheless recognized as a valuable activity by the Patent Office.[17]

In this Article, we broaden our sociolegal analysis of patent law to examine other areas of innovation where there is potential friction between the patentability of a particular type of technology and the legality of its use and manufacture. In doing so, we raise even more important questions about the relationships between the patent system, criminal law, innovation, and majoritarian social norms. For example, is there something about patent law or policy that renders it more socially progressive than other areas of law? Does patent law merely reflect the prevailing social norms at the time, or might it also help facilitate changes in those norms by legitimizing taboo technologies? If patents do help set and shift social norms, what are the drawbacks to legitimizing technologies through property rights, market exclusivity, and government bureaucracy?

This Article places sexual technologies alongside two additional domains where patent law and evolving social norms have been out of sync with criminal law's treatment of new technologies. The first additional domain is the growing body of patents covering the production and use of cannabis, psychedelics, and other psychoactive drugs. These often-"recreational" drugs are illegal under federal law,

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[15] *Id.* at 591-92.
[16] *Id.* at 585, 589.
[17] *Id.* at 575.

notwithstanding partial legalization in some states and rapidly shifting cultural views on their use.[18] Prospective patentees accordingly need to navigate some potentially treacherous waters—they must accurately disclose innovations that address demand in illicit markets while strategically presenting their innovations in a way that shows utility beyond facilitating criminal activity.[19]

As we show below, patentees have emphasized the potentially therapeutic value of currently-illicit drugs, and they have largely downplayed their pleasure-inducing qualities. This remains true even in patents that cover fairly undeniably recreational uses, such as frozen cannabis push-pops[20] or "cannabinoid enriched personal lubricant."[21] And to the extent that patentees acknowledge that their inventions will be appealing to "recreational" pleasure seekers, this appeal is often buried in a kitchen sink of parallel "therapeutic" benefits. Perhaps due to the relative novelty of socially and legally acceptable drug use, patentees generally have refrained from exalting the intrinsic benefit of drug-induced pleasure. Through illicit drug patents, we are able to observe in real time the strategies by which patentees legitimize their innovations against the backdrop of an otherwise hostile legal system.

The second additional domain we investigate is the patenting of abortifacient technologies throughout the 19th and 20th centuries. From the early 19th century until *Roe v. Wade* in 1973, the termination of a pregnancy was illegal in

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[18] *See generally* Dustin Marlan, *Beyond Cannabis: Psychedelic Decriminalization and Social Justice*, 23 LEWIS & CLARK L. REV. 851, 853-56 (2019) ("despite the persisting stigma of hedonism, rebellion, and social upheaval surrounding them, public support for psychadelics is growing").

[19] There remains some debate about whether patents may issue for inventions that are *per se* illegal. *See William J. McNichol, Jr., The New Highwayman: Enforcement of U.S. Patents on Cannabis Products,* 101 J. PAT. & TRADEMARK OFF. SOC'Y 24, 32-39 (2019) (arguing that "the requirement that an invention have legal utility in order to be eligible for patenting still has vitality.").

[20] *See* U.S. Patent No. 11,178,893 (issued Nov. 23, 2021).

[21] *See* U.S. Patent No. 11,529,301 (issued Dec. 20, 2022).

many states,[22] yet advances in abortion technologies—drugs, devices, and procedures—continued rapidly throughout this period, and were the subject of several patents that were issued during this time.[23] Patentees in this domain, as in the sex toy and illicit drug domains, deployed a variety of strategies to downplay the potential criminal applications of the disclosed technologies and to connect them to less controversial ends such as relief from miscarriages, menstruation aids, and general-purpose gynecological instruments.[24]

The abortion patents, however, provide a potentially cautionary tale about the narrative strategies that have been deployed to legitimize taboo technologies within the patent system—and perhaps the limits of using the patent system as a lever for broader policy change. Most significantly, the Supreme Court's decision in *Dobbs v. Jackson Women's Health Organization* demonstrates the dangers of framing a legal right to a taboo technology in coded or euphemistic terms. By framing the utility of abortifacients broadly in terms of general gynecological healthcare or the doctor-patient relationship, in both patent *and* constitutional law, it becomes more difficult to advocate for these technologies where there is not a compelling health-related interest at stake.[25] Whether inside or outside the

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[22] For example, in 1821, Connecticut criminalized the intentional termination of a pregnancy post-quickening. CONN. STAT. tit. 22, §§ 14, 16, at 152, 153 (1821). Other states soon followed with criminal penalties pre-quickening as well. *See, e.g.*, ILL. REV. CODE § 46, at 131 (1827) (criminalizing attempt to induce abortion); N.Y. REV. STAT. pt. IV, ch. I, tit. II, §§ 8, 9, at 550 (1828) (criminalizing attempt to induce abortion at any stage of the pregnancy); OHIO GEN. STAT. ch. 35, §§ 111, 112, at 252 (1841) (criminalizing any attempt to abort unless necessary to preserve the mother's life); ALA. PENAL CODE ch. 6 § 2, at 238 (1841) (criminalizing attempts to induce miscarriage).

[23] *See, e.g.*, Uterine Curette, U.S. Patent No. 618,521 (issued Jan. 31, 1899); Abortion Facilitating Device and Process, U.S. Patent No. 3.848,602 (issued Nov. 19, 1974).

[24] *See* Kara W. Swanson, *Patents, Politics, and Abortion* 12 n.63 (Ne. U. Sch. of L. Rsch. Paper No. 161-2013, 2013) ("between 1850 and 1970 . . . the patent office issued virtually no patents on inventions specifically described as related to intentional pregnancy termination.").

[25] Ruth Colker, *Overmedicalization?*, 46 HARV. J. L. & GENDER 205, 256-62 (2023) (critiquing overmedicalization of abortion technologies).

patent system, abortion-related technologies are rarely presented as connected to an agentic, pleasurable sex life and the common desire to separate sexual activity from reproduction and parenthood.[26] To the extent that we observe parallels in how patentees describe the utility of sex toys, recreational drugs, and abortifacients, the rise and fall of abortion rights in the United States suggests that the increased social acceptance of sex and drugs reflected in the patent system may be less durable than they might otherwise seem.

We proceed as follows. Part I provides background on foundational principles of patent law and the patent registration process, showing how core principles of patent law—especially its broad conception of "utility"—create unique space for innovation in taboo markets. It also examines conceptual approaches to patent law that might explain the legitimating function of the granted patents. Part II expands on our previous work to demonstrate some of the ways in which patents disclosing sexual technologies have navigated sexual taboos and the legally marginal status of sex toys. Part III examines the growing body of illicit drug patents to see how patent applicants are navigating the criminalization and social taboos still largely associated with recreational drug use. Part IV examines patents issued for abortifacients. We conclude with some overarching observations about how the patent system brings legitimacy to taboo technologies as well as some potential limits and costs of such legitimacy.

I. Patents, Utility, and Morality

The United States Patent Office (USPTO) issues patents to

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[26] *Id.* at 260-61 (critiquing *Dobbs* for what it leaves out when describing abortion as merely a health and safety measure, and noting that "[w]e hear nothing about pregnancy, childbirth, or raising children. We hear nothing about the financial impact of pregnancy in a society in which paid family leave is not even mandatory. The pregnant person is reduced to a uterus whose treatment can be entirely controlled by the state as a 'health and safety measure.' . . . Terminating a pregnancy is not merely a medical procedure: it is a profound decision about how one wants to live one's life.").

any invention shown to be new, nonobvious, and useful.[27] An issued patent document contains drawings and written narrative that describe the nature and scope of the invention, the field to which the invention contributes, and how the invention responds to extant problems acknowledged by those in the field.[28] A patent applicant demonstrates novelty and nonobviousness through evidence that the claimed invention has not been publicly disclosed prior to the patent application.[29] The third requirement—usefulness or utility—is generally a low threshold in modern patent law.[30]

At first glance, the judge-made doctrine of "moral" utility that ostensibly banned the patenting of deceptive or inherently immoral inventions[31] would seem to have great relevance to patents in taboo fields of technology. For example, patent applications were rejected or patents invalidated for "immoral" inventions such as lottery devices,[32] gambling machines,[33] and a variety of other "deceptive" inventions.[34] However, the requirement became less stringent over the years

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[27] 35 U.S.C. § 101.

[28] *See, e.g.*, U.S. Patent No. 11,178,893 (issued Nov. 23, 2021) (showing the components of a granted patent application).

[29] 35 USC §§ 102, 103.

[30] Michael Risch, *Reinventing Usefulness*, 2010 BYU L. REV. 1195, 1197 (2010) (suggesting that utility has become a "toothless and misunderstood . . . doctrine, which requires that patents only have a bare minimum potential for use."). *But see* Sean B. Seymore, *The Teaching Function of Patents*, 85 NOTRE DAME L. REV. 621, 629 (2010) (arguing that the practical utility doctrine has been applied in a way that constitutes a more serious bar to patentability in chemical fields as well as other unpredictable fields or new technologies that are not yet well understood).

[31] Lowell v. Lewis, see 15 F. Cas. 1018, 1019 (C.C.D. Mass. 1817) (No. 8,568) ("All that the law requires is, that the invention should not be frivolous or injurious to the well-being, good policy, or sound morals of society. The word 'useful,' therefore, is incorporated into the act in contradistinction to mischievous or immoral.").

[32] Schultze v. Holtz, 82 F. 448, 449 (C.C.N.D. Cal. 1897) (invalidating a patent for a fortune-telling lottery device).

[33] Brewer v. Lichtenstein, 278 F. 512, 513 (7th Cir. 1922) (invalidating a patent for a device with "a concealing means . . . to enable the gambling instinct of purchasers to be appealed to in promoting the sale of merchandise").

[34] *See infra* Part III.

as courts recognized that inventions with some immoral applications might have perfectly acceptable uses, too.[35] Ultimately the United States Court of Appeals for the Federal Circuit essentially rejected the moral utility requirement entirely, explaining that even inventions with a deceptive purpose might have social value.[36] Today, the USPTO generally recognizes the patentability of inventions so long as the disclosed invention is not illegal in all fifty states.[37]

The dominant theory underlying the patent system is that the rights granted by a patent provide investment incentives that allow patent holders "to reap rewards proportional to the value of their inventions for the term of the patent."[38] Moreover, the disclosures in a patent are valuable to other innovators, who can learn from and improve upon the invention.[39] The theory of this balance between innovation and disclosure centers on economic incentives, but it does little to connect patents with social norms or explain how patents might factor into their evolution. Incentives theory is helpful to explain how inventors might reap the benefits of existing markets, but it does little to explain how the patent system might *change* market preferences towards new technologies. While it is true that patent disclosures are valuable as disclosures to the relevant scientific and entrepreneurial

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[35] *See Ex parte* Murphy, 200 U.S.P.Q. (BNA) 801, 802, 1977 WL 22879 (B.P.A.I. Apr. 29, 1977) (observing that gambling had been legalized in various states and holding that as long as an invention was "susceptible of good uses," utility could be found).

[36] Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364, 1367 (Fed. Cir. 1999) (giving examples of gold leaf, synthetic fabrics, imitation leather, and cubic zirconium as deceptive—but socially valuable and—inventions).

[37] *But see* discussion *infra* Section III on patents for cannabis and psychedelic drugs.

[38] Sarah R. Wasserman Rajec, *Infringement, Unbound*, 32 HARV. J.L. & TECH. 117, 127 (2018); *see also* Harold Demsetz, *Information and Efficiency: Another Viewpoint*, 12 J.L. & ECON. 1, 11-14 (1969) (discussing the economic rationale for the indivisibility of property rights in innovative research and the profits deriving from it).

[39] Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 541 (2009) (patent disclosures "reveal[] the invention's design so that others can use it fruitfully when the patent term expires and design around, improve upon, or be inspired by the invention, even during the patent term.").

communities[40] and as persuasive documents to the USPTO during patent prosecution and courts during patent litigation,[41] we count ourselves among the scholars who believe that "patents can disclose more than the traditional story suggests."[42]

There are two main threads to the analysis of patents as something other than scientific disclosure and persuasive documents. The first is that patents can serve as signals to various third parties for purposes other than merely teaching about new technologies.[43] The other is that patents are texts that can be interpreted as such, reflecting the social context in which their inventions are introduced.[44]

The first line of the scholarly literature explores how patents can serve as signals to investors, employees, consumers, and inventors themselves. In this vein, Clarissa Long laid out how patents have force as signals.[45] Long argued that patents serve as a means of credibly publicizing information about innovations and reducing information asymmetries, conveying information about the value of a firm more generally.[46] Clark Asay has expanded on this to show how patents also provide information to labor and product markets about the nature of a firm.[47] Jason Rantanen and Sarah Jack focus on the signal a

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[40] Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 731 (2002) ("A patent holder should know what he owns, and the public should know what he does not.").

[41] Dan L. Burk & Jessica Reyman, *Patents as Genre: A Prospectus*, 26 LAW & LITERATURE 163, 172-73 (2014).

[42] Gilden & Wasserman Rajec, *supra* note 13, at 574.

[43] *See generally* Clarissa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002).

[44] *See generally* Burk & Reyman, *supra* note 41.

[45] Long, *supra* note 43.

[46] *Id.* at 628–29, 647 (2002); *see also* Stuart J.H. Graham, Robert P. Merges, Pam Samuelson & Ted Sichelman, *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1306-07 (2009) (arguing that startups value their patent portfolios because they signal investors about the discipline and quality of the enterprise).

[47] Clark D. Asay, *The Informational Value of Patents*, 31 BERKELEY TECH. L.J. 259, 265, 279-82 (2016) (arguing that in the pledging context, patents can signal an ability "to recruit talented employees, collaborate with competitors, and attract investment" even if exclusivity is waived).

patent sends to its inventor, satisfying a desire to be recognized as an inventive person[48] and be granted a document by the same office that issued patents to Thomas Edison.[49] Greg Reilly cautions about the ways that patents can provide misleading signals and be misused to imply government endorsement.[50] Moreover, Reilly argues that patents can provide a (false) signal that a highly controversial tech is "morally legitimate."[51]

Others have suggested ways that we can draw insight from patents as texts. Dan Burk and Jessica Reyman have explained how patents comprise their own genre of writing, complete with its own style, conventions, and audiences to which it is aimed.[52] In other work, Burk argued that the incentive and disclosure arguments miss the point of patents' actual role, describing them more broadly as "public manifestations of social practices related to innovation."[53] In his analysis of this role, Burk looks at the "rhetorical action"[54] of patents, and notes that they can do many things, including, inter alia, excluding readers, blackboxing facts, closing off dissent, and settling controversies over questions about inventorship.[55] We have built on these studies of patents as texts, examining how inventors' descriptions of their contributions reflect social understandings of what is worth inventing.[56] The utility section, in particular, gives insight into how the inventor views their

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[48] Jason Rantanen & Sarah E. Jack, *Patents as Credentials*, 76 WASH. & LEE L. REV. 311, 320 (2019) (patents "provide a measure of societal validation of an individual's contribution").
[49] *Id.* at 350.
[50] Greg Reilly, *Misleading Patent Signals*, HARV. J. L. TECH. 107, 141 (2024) ("observers perceive patented status as government endorsement of the underlying technology area or field of research, providing technological and normative legitimacy even if unearned.").
[51] *Id.*
[52] Burk & Reyman, *supra* note 41, at 175 (listing the various communities interacting with the patent system, including "federal bureaucrats," "technology transfer officers," "visual artists," "judges," "lawyers," "patent trolls," and "scholar").
[53] Dan L. Burk, *Patents in Action*, 63 JURIMETRICS J. 221, 222 (2023).
[54] *Id.* at 223.
[55] *Id.* at 260.
[56] *See generally* Gilden & Wasserman Rajec, *supra* note 13, at 574.

innovative contribution. Utility, as we have previously explained, "is a concept tightly interwoven with the society in which it is being measured."[57] As a result, patents can be studied as reflections of contemporaneous social values surrounding the inventions to which they relate.[58]

Our research further builds on these studies, suggesting that patents do not only provide signals or act as texts. They also shape and reflect the political landscape around a particular technology. Despite a reputation for being apolitical and making decisions purely, and objectively, based on the science disclosed in the patent, the Patent Office's decisions on whether to grant exclusive rights to a particular entity are inherently political, in that they shape power and privilege around the deployment of a culturally significant technology. Kara Swanson has argued that the USPTO is political in that the actions it takes feed into power hierarchies.[59] Thus, the apolitical face of the patent office can also hide the ways that patents "communicate signals of morality"[60] and may serve as gatekeepers to different communities.[61] Similarly, Timothy Holbrook offers a note of caution about how the expressive side of patents can harm groups by granting a government imprimatur to scientific and sociological explanations that are a combination of offensive and inaccurate.[62]

There are elements to the expressive nature of patents that may be liberalizing, allowing for development in fields that are

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[57] *Id.* at 612.

[58] *See, e.g.*, Kara W. Swanson, *Getting a Grip on the Corset: Gender, Sexuality, and Patent Law*, 23 YALE J.L. & FEMINISM 57, 57, 74 (2011) (discussing how at the turn of the twentieth century, the utility of the corset, a patented technology, was to achieve the "ideal feminine form" of the time).

[59] Swanson, *supra* note 24, at 2.

[60] Timothy R. Holbrook, *The Expressive Impact of Patents*, 84 WASH. U.L. REV. 573, 597 (2006).

[61] Rantanen & Jack, *supra* note 48, at 321 (arguing that patents can preserve existing castes and restrict opportunities for those that lack access to them).

[62] Holbrook, *supra* note 60, at 577-81 (explaining how patents that treat conditions such as deafness, high-functioning autism, or homosexuality as pathological conditions to be cured "expressively harm" those groups, particularly to the extent that they send a signal that the USPTO—and thereby the U.S. government—agrees with that assessment).

of questionable legality, because inventors are able to describe the social value before that value is widely recognized. This is consistent with Burk's argument that patents do not simply describe the state of the world, but "enable social activity around the device."[63] The taboo nature of sexual technologies, drug use, or abortive care meant that all of these technologies were practiced in ways that prevented outsiders from gaining knowledge of them, as they would if the technology could be accessed in mainstream channels of commerce. Thus, issued patents may signal that the government has opened the door to previously taboo activities, demonstrating that there are reputable, knowledgeable industry actors willing to put time and energy into a particular field despite laws and norms that might otherwise stand in the way. Commercialization of a new technology is no longer a total pipedream, and in turn can be an effective (though hardly unproblematic) way of normalizing previously taboo activities.[64]

Still, in the most taboo and controversial of issue areas, some uses may be hidden from view, for example by careful language choices that strategically elide the full range of uses for a particular technology.[65] These choices can leave us with an incomplete record of the medical landscape at any particular time. However, it may also protect the space for development of taboo technologies that live partly in and partly outside the shadows of the legitimacy of the U.S. patent system.

There is accordingly an increasing awareness within IP scholarship that patents are both the product and triggers of complex social practices related to technology and innovation. Nonetheless, scholarship outside the field of IP has paid very little attention to the work that patents might be doing in highly contested spaces to help shift law, norms, and marketplaces.

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[63] Dan L. Burk, *Patent Performativity*, 29 J. INTELL. PROP. L. 280, 301 (2022).

[64] *Cf.* MICHAEL BRONSKI, THE PLEASURE PRINCIPLE: SEX, BACKLASH, AND THE STRUGGLE FOR GAY FREEDOM (1998) 146-47 ("The increased social standing implicitly promised by the gay market was equated with access to political power. They gay vote was now being courted by politicians the same way that the gay consumer was targeted by large corporations.").

[65] *See* discussion *infra* Part III.E.

Our work seeks to bridge this gap by showing a dynamic interplay between the patent system and sociolegal treatment of taboo technologies.

II. Patenting Sexual Technologies

Sexuality research has rarely intersected with scholarship on the patent system, but the patent/sexuality interface is a rich source of material for those interested in the relationship between law, technology, and sexuality. In *Pleasure Patents*, we closely examined over 400 patents, granted between 1935 and 2019, that explicitly described inventions classified as, for example, "massage for the genitals" or "improving sexual intercourse."[66] We referred to these patents as "pleasure patents"; for purposes of our analysis here, we will refer to them as "sexual pleasure patents."

The Patent Office's issuance of sexual pleasure patents is in stark contrast with the tight legal restrictions on sexual commerce in most other contexts. For example, sexual technologies were frequently seized under the Comstock Act during the late 19th century, were the subject of numerous obscenity prosecutions throughout the 20th century, and remain illegal to sell in a few states even today.[67] In light of these obstacles, patentees have needed to strategically describe their contributions in a way that resonates with government officials tasked with assessing and rewarding innovation, while skirting concerns over the technology's legality. As norms around sexuality and gender shifted since the 1960s, patentees adopted rhetorical frameworks that harnessed these cultural shifts, allowing them a foothold in gradually liberalized sexual marketplaces. This section first highlights some key

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[66] Gilden & Wasserman Rajec, *supra* note 13, at 573; *see Cooperative Patent Classification: A61H19/00*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/web/patents/classification/cpc/html/cpc-A61H.html [https://perma.cc/7JWV-Q9AW] (summarizing classifications of many sexual devices and methods).

[67] Gilden & Wasserman Rajec, *supra* note 13, at 598-608; AMY WERBEL, LUST ON TRIAL: CENSORSHIP AND THE RISE OF AMERICAN OBSCENITY IN THE AGE OF ANTHONY COMSTOCK 78 (2018); HALLIE LIEBERMAN, BUZZ: THE STIMULATING HISTORY OF THE SEX TOY 42-43 (2017).

observations from our prior studies that speak to patentees' strategic navigation of evolving cultural norms, and then examines an additional year of patenting activity to show the continuation of several significant rhetorical strategies.

A. Rhetorical Frames

In examining the rhetoric of sexual pleasure patents, we have identified several notable connections between the disclosed utility of sexual innovation and shifting norms around gender and sexuality from the mid-20th century through today. In the earliest patents in our dataset, patentees often framed their technologies as promoting heterosexual marriage, in particular by overcoming wives' "frigidity"—a woman's perceived aversion to vaginal intercourse, lack of emotional warmth, and difficulty in reaching orgasm.[68] For example, U.S. Patent No. 2,024,983 disclosed a ring-like stimulation device "for promoting marital accord between married couples, the object . . . being to provide means for stimulating nerves of the female during intercourse, thus tending to overcome frigidity in the wife."[69] Another patent disclosed a stirrup and shoulder support device to reduce physical exertion during sex; the patentee emphasized that "[n]ormal sexual activity between husband and wife in a marital union is a very important ingredient for the promotion of marital accord."[70] Rhetoric about marriage and women's sexual dysfunction never disappeared from our database, but it became far less prevalent over time, corresponding to substantial shifts in societal views on extramarital sex.[71]

In the 1980s and 1990s, sexual pleasure patents reflected

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[68] Gilden & Wasserman Rajec, *supra* note 13, at 580-585.

[69] U.S. Patent No. 2,024,983 col. 1, l. 1-6 (issued Dec. 17, 1935); *see also, e.g.,* U.S. Patent No. 2,559,059 col. 1, l. 1-4 (issued July 3, 1951) (disclosing a "device for promoting marital felicity, and more particularly . . . for stimulating the wife during intercourse to overcome shyness and frigidity.").

[70] U.S. Patent No. 3,896,787 col. 1, l. 11-14 (issued July 29, 1975); *see also, e.g.*, U.S. Patent No. 4,488,541 col. 1, l. 11-14 (issued Dec. 18, 1984) ("Sexual intercourse is generally regarded as being necessary for the normal enjoyment of life and is particularly important in the maintenance of a happy and healthy relationship being married people.").

[71] Gilden & Wasserman Rajec, *supra* note 13, at 584-85.

several important shifts in the landscape of gender and sexuality. First, as divorce rates hit an all-time high in the late 1970s, patentees emphasized the benefit of their inventions for single and divorced people. For example, one patent disclosed an "artificial penis" attached to a mechanized rail system, which was framed as a "therapeutic apparatus for relieving sexual frustrations in women without sexual partners." [72] Second, the HIV/AIDS epidemic highlighted the potential utility of sexual devices as a form of safer sex: "Recently, the increase in serious sexually transmitted diseases such as AIDS has made the use of phallic devices even more common . . . in safe sex practices."[73] Third, patentees began to increasingly frame their innovation in terms of facilitating nontraditional forms of sexual and gender expression, for example by addressing "difficulties . . . within female same-sex couples related to difficulty achieving orgasm . . . For example, during face-to-face positions."[74]

In more recent years, we observed a noticeable shift away from instrumental framings of sexual pleasure patents in terms of marriage, health, and identity and towards the intrinsic value of—especially women's—pleasure. Most directly, U.S. Patent No. 6,224,541 states, "[a]ddressing women's sexuality concerns is no longer taboo."[75] Indeed, many patentees now frankly and explicitly discuss pleasure, for example within masturbation or

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[72] U.S. Patent No. 4,722,327 (issued Feb. 2, 1988); see also, e.g., U.S. Patent No. 5,725,473 col. 1, l. 37-38 (issued Mar. 10, 1998) ("Women, for one reason or another, are not always successful in finding partners who satisfy their sexual drive.").

[73] U.S. Patent No. 5,690,604 col. 1 l. 15-18 (issued Nov. 25, 1997); *see also, e.g.*, U.S. Patent No. 5,127,396 col. 1 l. 37-39 (issued July 7, 1992) ("With the onslaught of venereal diseases such as herpes and AIDS, phalluses substitute for the male reproductive organ as part of safe sex practices.").

[74] U.S. Patent No. 8,109,869 col. 1, l. 19-20 (issued Feb. 7, 2012); *see also, e.g.*, U.S. Patent No. 5,853,362 col. 1, l. 39-43 (issued Dec. 29, 1998) ("Dildos . . . are used by individuals of either sex, by transgendered (sex-changed) persons, and by couples (both heterosexual and homosexual"); U.S. Patent No. 6,142,929 col. 1, l. 38-40 (issued. Nov. 7, 2000) (disclosing a "machine for sexual satisfaction" for use "by a woman alone; a woman with a male partner; a woman with a female partner; a man alone; or a man with a male partner.").

[75] U.S. Patent No. 6,224,541 col. 1, l. 17-18 (issued May 1, 2001).

after menopause, including detailed explanations of ways to increase vaginal and clitoral stimulation.[76] In other patents, the utility of sexual pleasure is simply taken as a given.[77] We noted that as the number of sexual pleasure patents issued per year skyrocketed in the 2000s and 2010s, so too did the frequency of an intrinsic pleasure framework. As such, the patent register reflected changes occurring in the marketplace. As summarized by one patentee, "[p]eople are continually striving to devise more creative activities for deriving pleasure. The sexual device industry is fast becoming a significant market force[.]"[78]

We observed a few additional recurrent narratives, two of which bear noting here.[79] First, we noted that, especially earlier in our dataset, "numerous patents subsume sexual pleasure within medical narratives. Rather than place sexuality front and center with respect to a device that massages the genital area, patentees present their inventions primarily as a way of addressing nonsexual medical needs, such as urinary incontinence." [80] We observed a repeated medical and therapeutic subterfuge within sexual pleasure patents, which we deemed a "Sharper Image" approach to sexual technologies.[81]

Second, we observed a recurrent narrative involving the history of sex toys. Patentees mentioned that sexual aids have

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[76] *See, e.g.*, U.S. Patent No. 8,033,985 col. 1, l. 12-16 (issued Oct. 11, 2011) ("The present invention relates to a sexual stimulation apparatus . . . designed for use by women to increase their personal comfort when using the sexual stimulation apparatus during masturbation."); U.S. Patent No. 7,166,072 col. 1, l. 60-61 (issued Jan. 23, 2007) ("In the past, vibrators were frequently phallic-shaped to simulate the movement of the husband's sexual organ. This kind of vibrator is possibly the result of male understanding of the process of the female orgasm").

[77] *See, e.g.*, U.S. Patent No. 6,863,649 (issued Mar. 8, 2005) ("In addition, an object is to improve a felling of sexual pleasure given to a female.").

[78] U.S. Patent No. 20080017764 1, ¶ 0002 (issued Jan 24, 2007).

[79] We also observed repeated discussion of disability and crime reduction throughout our dataset. Gilden & Wasserman Rajec, *supra* note 13, at 594-98.

[80] *Id*. at 597.

[81] *Id*. at 597-98. This label reflecting a marketplace tendency to sell vibrators under the label of "personal massagers." *Id.*

been used "since the dawn of man" and "from time immemorial." Patentees traced sex toys historically through ancient Greece and cross-culturally, for example in "cultures where hymenal blood was considered evil or dangerous."[82] We observed that although such citations might diminish the novelty of the claimed invention, they might nonetheless help "legitimize the field of invention" with Patent Office examiners.[83]

B. Updated Dataset

As part of our research for this Article, we added an additional year of sexual pleasure patents to our dataset. We examined every patent issued from October 2022 to October 2023 that would have fallen within the parameters of our earlier research. [84] These patents generally bolstered our earlier observations, fitting into the trends we previously observed.

Within the thirty-seven patents issued during this period, we observed several of the rhetorical frames that appeared in our earlier dataset. Two of the patents are expressly directed at "female sexual dysfunction."[85] One patent frames its utility in terms of healthy relationships; it discloses "teledildonics" devices as a way to "help couples in experiencing sexual pleasures even though they are physically distant."[86] Several patents emphasize the therapeutic potential of their disclosed invention, for example by "promoting frequent ejaculation" which studies had found to correlate with "a reduced risk of prostate cancer."[87] Another patent emphasizes the use of a

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[82] *Id.*
[83] *Id.*
[84] *Id.* at 578.
[85] U.S. Patent No. 11,484,464 (issued Nov. 1, 2022); U.S. Patent No. 11,759,388 (issued Sept. 19, 2023).
[86] U.S. Patent No. 11,503,384 col. 1, l. 21-23 (issued Nov. 15, 2022).
[87] U.S. Patent No. 11,642,275 col. 1, l. 11-14 (issued May 9, 2023); *see also* U.S. Patent No. 11,564,861 col. 1, l. 29-32 (issued Jan. 31, 2023) ("Scientific evidence has demonstrated the benefits of having a healthy sex life some of which include having less stress and tension, sleeping better, increasing self-esteem, and having a more positive outlook on life.").

sexual device as a safer form of sex.[88] And other patents highlight the benefit of the disclosed invention for minority subcultures, for example a "bodily insertion device with a tail attachment" aimed at the "furry subculture."[89]

Nonetheless, the large majority of these recent sexual pleasure patents take as given the intrinsic value of sexual pleasure and disclose inventions that will help their users explore their own capacities for pleasure. Several patentees situate themselves in a "field of sexual stimulation"[90] and introduce a variety of improvements over the prior art with respect to, for example, grips,[91] tip adapters,[92] automation,[93] and virtual and augmented reality.[94] Several patents disclose "smart" devices that utilize an internet connection that connects users to each other to allow users to participate in augmented reality systems, and to collect and analyze data about the users' sexual wellness.[95] These patents signal a robust and diverse marketplace for sexual technologies, and reflect a growing consumer interest in understanding and

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[88] U.S. Patent No. 11,642,239 col. 2, l, 4-8 (issued May 9, 2023) ("Despite its fundamental roles, benefits, and desirability, sexual activity raises the prospect for various types of hazards, including physical, biological, interpersonal, emotional, developmental, ethanol, religious, and legal hazards.").

[89] U.S. Patent No. 11,607,367 col. 1, l. 14-18 (issued Mar. 21, 2023) ("The furry subculture is interested in fictional anthropomorphic animal characters with human personalities and characteristics."); *see also* U.S. Patent No. 11,478,399 (issued Oct. 25, 2022) (disclosing a sexual aid system designed for use by two female users).

[90] U.S. Patent No. 11,737,948 col. 1, l. 13-14 ("Adult toys are devices designed for sexual stimulation of a user").

[91] *See, e.g.*, U.S. Patent No. 11,576,838 (issued Feb. 14, 2023) (improved grip).

[92] *See, e.g.*, U.S. Patent No. 11,679,058 (issued June 20, 2023) (universal tip adapter).

[93] *See, e.g.*, U.S. Patent No. 11,759,388 (issued Sept. 19, 2023) ("the field of sexual stimulation devices"); U.S. Patent No. 11,590,052 (automated generation of control signals);

[94] U.S. Patent No. 11,691,073 (issued Jul. 4, 2023) (augmented and virtual reality tool for sexual stimulation).

[95] *See, e.g.*, U.S. Patent No. 11,534,364 col. 1, l. 21-23 (issued Dec. 27, 2022) ("The present invention provides a vaginal probe having stimulatory characteristics and also data capture and transmission characteristics.").

optimizing their own sexual pleasure.[96]

C. Takeaways and Concerns

Our updated research on sexual pleasure patents provides a few insights about the relationship between moral utility, legal regulation of sexual technologies, and evolving norms of gender and sexuality. As to the connection between sexual pleasure patents and the moral utility doctrine, we have not observed any significant shift in the number of issued patents—or the rhetoric used in those patents—following the Federal Circuit's rejection of a moral utility requirement in *Juicy Whip*.[97] Although the number of sexual pleasure patents grew significantly in the 2000s, it also grew significantly in the 1990s prior to *Juicy Whip*.[98] We observe even less of a connection between sexual pleasure patents and the regulation of sexual commerce outside the patent system: as the Patent Office granted patents on sexual technologies, the federal government seized many sexual devices and prosecuted their purveyors.[99] Moreover, sexual pleasure patents embraced the

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[96] *See* Gina Cherelus, *Can You Optimize an Orgasm?*, N.Y. TIMES (Feb. 9, 2024), https://www.nytimes.com/2024/02/09/style/smart-sex-toys-data.html [https://perma.cc/275Y-MEA3]; *see generally* Jenny Sundén, *Play, Secrecy, and Consent*: *Theorizing Privacy Breaches and Sensitive Data in the World of Networked Sex Toys*, 26 SEXUALITIES 926 (2020) (analyzing privacy issues in the context of digitized and recorded sexual intimacy).

[97] Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364 (Fed. Cir. 1999).

[98] It is possible that the increased issuance of sexual pleasure patents in the 1970s could be explained by an unannounced shift in policy within the Patent Office itself during that timeframe. *See, e.g.,* Swanson, *supra* note 24, at 12-14 (hypothesizing that the Patent Office rejected all abortion-related patent applications under a moral utility theory until 1970, when "abruptly, and without any public discussion, abortion patents began to issue from the patent office" after the American Medical Association formally reversed its anti-abortion stance). Unfortunately, this explanation is difficult to prove conclusively because patent applications were not published until 2000, so there is very little publicly available data on which patents were *rejected* before that year.

[99] *See* Gilden & Wasserman Rajec, *supra* note 13, at 601-03; *see also* United States v. P.H.E., Inc. 965 F.2d 848, 850 (10th Cir. 1992) (outlining the FBI's "coordinated, nationwide prosecution strategy against companies that sold obscene materials); PHE, Inc. v. U.S. Dep't of Just., 743 F. Supp. 15, 18 (D.D.C. 1990) (same).

utility of queer and nonmarital sexual activity long before landmark constitutional law decisions such as *Lawrence v. Texas* and *Obergefell v. Hodges*.[100]

If there is any noticeable connection between the legal treatment of sexual technologies in and outside of the Patent Office, it is the similarity between the rhetoric of sexual pleasure patents in the 1970-80s and the rhetoric of public law decisions that came much later. For example, a few courts have struck down state laws criminalizing the sale of sexual devices on medical privacy grounds, and in doing so, cited testimony by doctors and therapists that closely mirrored the narratives set forth by patentees as far back as the 1930s. The Kansas Supreme Court cited testimony about "difficulty in marital relationships," and the use of vibrators to treat "urinary stress incontinence."[101] The Louisiana Supreme Court cited to the use of "genital vibrators for the treatment of sexual dysfunction."[102] A federal district court in Alabama cited testimony that sexual devices were used by individuals who feared "contracting or spreading AIDS or another sexually transitted disease" and to obtain sexual satisfaction despite "the unavailability of a spouse or lover."[103] In other words, sexuality narratives in patent law anticipated sexuality narratives that eventually emerged in constitutional law. While the data does not show direct influence by patent rhetoric on later court decisions on constitutional rights, the societal changes reflected in those court decisions are surfaced earlier in the patent rhetoric. The forward-looking nature of innovation thus appears to encompass social change as well as scientific progress.

Our examination of sexual pleasure patents accordingly highlights the patent system as a uniquely innovative space—both technologically *and* rhetorically. Rather than narrowly frame their inventions to avoid moral utility concerns—or

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[100] Lawrence v. Texas, 539 U.S. 558 (2003); Obergefell v. Hodges, 576 U.S. 644 (2015).
[101] State v. Hughes, 792 P.2d 1023, 1025 (Kan. 1990).
[102] State v. Brenan, 772 So. 2d 64, 75 (La. 1990) (citations omitted).
[103] Williams v. Pryor, 41 F. Supp. 2d 1257, 1267 (N.D. Ala. 1999), *rev'd*, 240 F.3d 944 (11th Cir. 2001).

liability risks outside the patent system—patentees instead pull from contemporaneous shifts in social norms so as to place their inventions squarely within or even ahead of the cultural zeitgeist. The patent system provides a unique space within law and public policy where sexual pleasure can be openly presented as a societal good, and celebrated especially for women and sexual minorities.[104] We are unaware of any other area of law that is even arguably as sex-positive as patents.

Nonetheless, there are reasons to be concerned about the seeming sex positivity of the patent system and what it portends for the legal regulation of law & sexuality. First, we have previously raised concerns that the majority of the inventors in our dataset are men, meaning that, despite the repeated celebration of female and queer sexual pleasure, the technologies that are supposed to facilitate such pleasure remain controlled by male inventors and/or their corporate assignees.[105] Our updated dataset bolsters this concern. Of the thirty-seven sexual pleasure patents we analyzed, at least twenty-six were invented solely by individuals with commonly male names, and only one was invented solely by an individual with a commonly female name.[106] While we of course cannot draw any definitive conclusions about the gender, sexuality, or politics of any of these individuals, we are nonetheless concerned that the communities alleged to benefit from sexual pleasure technologies are not the communities controlling the commercialization of such technologies.

Second, even though rhetoric connecting sexual devices with marriage, medicine, therapy, and health has been embraced by other areas of law—and despite the seeming normalization of a sex toy marketplace—sexual technologies remain on the legal margins. No judicial opinion has gone so

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[104] *See generally* Margo Kaplan, *Sex-Positive Law*, 89 NYU L. Rev. 89 (2014).

[105] Gilden & Wasserman Rajec, *supra* note 13, at 621.

[106] The remaining ten patents either listed a mix of commonly male and female names, or listed names that we could not comfortably associate with any gender. To determine likely gender of inventors, we matched the practitioner and examiner names to WIPO's WGND 1.0 worldwide gender-name dictionary obtained from the Harvard University Dataverse (https://dataverse.harvard.edu/dataverse/WGND).

far as to emphasize the value of sexual devices in terms of sexual pleasure, even while striking down statutes limiting their sales.[107] Moreover, several state prohibitions on sexual devices have been upheld, even following the Supreme Court's decision in *Lawrence v. Texas*.[108] And in light of recent decisions, including *Dobbs*, *Lawrence* and other decisions protecting sexual liberty are on newly shaky jurisprudential footing.[109] Moreover, despite the growing popularity of "smart" sex toys, sexual commerce continues to be a focus of conservative lawmakers. Several states have imposed new restrictions on access to sexual content,[110] and conservative activists have successfully pressured online payment processors to restrict services to adult businesses.[111] Major e-commerce platforms, most notably Etsy, have accordingly prohibited the sale of sexual pleasure technologies, such as dildos and

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[107] *See* Andrew Gilden, Reliable Consultants, Inc. v. Earle (USA): *Reimagining the Sex Toy Cases, in* QUEER JUDGMENTS PROJECT 161, 164 (Nuno Ferreira, Maria Moscato & Senthorun Raj, eds. 2025) (discussing cases striking down sex toy prohibitions solely based on privacy and medicine concerns).

[108] *Id*. at 161 (discussing, e.g., Williams v Pryor, 240 F.3d 944, 949 (11th Cir. 2001)).

[109] *Id*. at 164 ("The *Lawrence* Court expressly relied upon *Roe* in articulating a constitutional liberty interest in private intimacy.").

[110] *See* Age Verification Bill Tracker, FSC ACTION CENTER, https://action.freespeechcoalition.com/age-verification-bills/ (last visited Aug. 18, 2025).

[111] Jonathan Ore, *How an Anti-Porn Lobby on Payment Processors Censored Thousands of Video Games*, CBC (Jul. 31, 2025, 4:00 AM), https://www.cbc.ca/radio/day6/steam-itch-takedowns-credit-cards-1.7597563 [https://perma.cc/423T-62P4]. *See also* Samantha Cole, *The Crusade Against Pornhub Is Going to Get Someone Killed*, VICE (Apr. 13, 2021, 11:57 AM), https://www.vice.com/en/article/n7bj9w/anti-porn-extremism-pornhub-traffickinghub-exodus-cry-ncose [https://perma.cc/429R-RNX8] (describing the intersection between violent white nationalist rhetoric and anti-porn activism); James Factora, *Sex Workers Say Mastercard's Adult Content Policy Is Making Their Jobs More Dangerous*, THEM (Aug. 30, 2023), https://www.them.us/story/sex-work-mastercard-aclu-ftc-discrimination [https://perma.cc/G9BS-W62Z] (reporting that sex worker-led organizations have urged the FTC to investigate Mastercard's adult content policy as an unfair business practice).

vibrators.[112]

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Our analysis of sexual pleasure patents accordingly reveals a rich archive of evolving social norms, and a unique discursive space for inventors to set forth a diverse range of policy arguments on behalf of pleasure-producing technologies. And it reveals the potential for those arguments to be taken up by other areas of law concerning the regulation of these technologies. Nonetheless, we are cautious about overstating the potential for the patent system to forecast a durable shift in the landscape of gender and sexuality. We now turn to other taboo technologies to see how the patent system connects with—and potentially influences—law and associated norms in other controversial spaces.

III. Patenting Illicit Drugs

A. Overview

Although this paper is primarily a qualitative analysis of illicit drug patents, it is nonetheless useful to observe general trends in how illicit drugs have been described in patents over time. For our analysis, we used Google Patents to search granted U.S. patents with abstract sections containing at least one of the following terms: cannabis, cannabinoid, marijuana, marihuana, psilocybin, psilocin, psychedelic, and MDMA. Our search produced 1,120 results as of March 12, 2024, of which we closely reviewed the disclosure sections for a sample of 147 patents.[113]

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[112] *See* Anna Iovine, *Etsy to Ban Sale of Most Sex Toys, Explicit Content, and More*, MASHABLE (Jun. 28, 2024), https://mashable.com/article/etsy-to-ban-sale-of-most-sex-toys-explicit-content [https://perma.cc/GAH4-K22B].

[113] We reviewed every patent issued before Jan. 1, 2000 (n=34). For patents issued after Jan. 1, 2000 (n=1,086), due to the large sample size, we manually reviewed the title section of each patent and, if possible, categorized each patent as relating to "Cannabis," "MDMA," "Psilocybin" or "Other Psychedelic." We were unable to categorize 332 patents solely based on the title section. For these uncategorized patents, we consulted patent data

The oldest patent in the dataset was granted in 1972 for a "[b]reath test for marijuana smokers and apparatus therefor."[114] Indeed, nine of the twelve patents issued between 1972-1990 were aimed at facilitating the detection of cannabis use, an activity that was "illegal in the United States."[115] Two of these patents disclosed ostensibly purely therapeutic applications of cannabis for the treatment of glaucoma, anxiety, high blood pressure, and other ailments.[116] These patents were issued notwithstanding the illegality of the cultivation, sale, and possession of marijuana throughout the United States.[117]

Among the twenty-two patents issued between 1990-2000, just over half disclosed a method for detecting cannabis use or treating drug addiction, while the remainder disclosed some

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compiled by Psychedelic Alpha and categorized 8 patents as MDMA, Psilocybin, or Other Psychedelic. For the remaining 324 uncategorized patents, we analyzed the abstract sections of a random sample of 30 and categorized as appropriate. Ultimately, for patents issued in the post-January 1, 2000 period, we reviewed all patents categorized as MDMA, Psilocybin, or Other Psychedelic (n=46) as well as 67 of the 745 patents categorized as Cannabis.

This sample is underinclusive in several ways. It captures only those patents which mention an illicit drug in the abstract, not those where an illicit drug is mentioned elsewhere in the disclosure. It does not capture all new psychedelic drugs currently in development, but instead focuses on drugs that are classically associated with taboo recreational uses. It also does not capture all devices, such as vaporizers or nasal delivery devices, that are used for administering both legal and illicit drugs. Those may represent areas for future research, but as a first step, our data set is sufficient to observe shifts in how illicit substances have been presented to the Patent Office over time.

[114] U.S. Patent No. 3,676,072 (issued July 11, 1972).

[115] U.S. Patent No. 3,715,189 (issued Feb 6, 1973).

[116] U.S. Patent No. 4,189,491 (issued Feb 19, 1980) ("a method for alleviating the symptoms of glaucoma."); U.S. Patent No. 4,179,517 col. 2, l. 26-28 (issued Dec. 18, 1979) (for the "treatment of disorders such as glaucoma, high blood pressure, states of anxiety, insomnia, allergy, asthma, epilepsy, nausea, ulcers, pain (including migraine)").

[117] On the history of legal treatment of marijuana, *see* JAY WEXLER, WEED RULES 15-37 (2023).

therapeutic use of cannabis.[118] The increased prominence of medicinal marijuana patents corresponded with the legalization of medicinal marijuana in five states (Alaska, California, Maine, Oregon, and Washington) and the District of Columbia.[119]

After 2000, the number of issued patents in the dataset grew substantially: 118 issued between 2000-20009; 395 issued between 2010-2019; and 573 issued just between January 2020-March 12, 2024. Our review of a representative sample of these patents indicates several patterns.[120]

In the 2000s, at the same time that eight additional states legalized medicinal marijuana, numerous patents disclosed a diverse range of medical uses, ranging from treatments for everything from coughs to indigestion to cancer to a variety of

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[118] *See, e.g.*, U.S. Patent No. 5,440,052 (issued Aug. 8, 1995) ("compositions which have a good binding affinity for the cannabinoid receptor and thus, can be used as cannabinoid receptor probes"); U.S. Patent No. 5,532,237 (issued July 2, 1996) ("indole derivatives having activity on the cannabinoid receptors . . . for lowering intra ocular pressure and treating glaucoma); U.S. Patent No. 5,596,106 (issued Jan. 21, 1997) ("cannabinoid receptor antagonists"); U.S. Patent No. 5,618,955 (issued Apr. 8, 1997) (to "inhibit the specific binding of a cannabinoid probe to synaptosomal membranes"); U.S. Patent No. 5,624,941 (issued Apr. 29, 1997) ("compounds possessing an affinity for the cannabinoid receptor are useful as Immunomodulators and psychotropic agents, in thymic disorders, vomiting, myorelaxtion, various types of neuropathy, memory disorders, dyskinesia, migraine, asthma, epilepsy and glaucoma or else in anticancer chemotherapy, in ischemia and angor, in orthostatic hypotension and in cardiac insufficiency"); U.S. Patent No. 5,925,768 (issued Jul. 20, 1999) ("novel pyrazole derivatives which possess a very good affinity for the peripheral cannabinoid receptors"); U.S. Patent No. 5,939,429 (issued Aug. 17, 1999) ("cardiovascular uses of cannabinoid compounds"); U.S. Patent No. 5948777 (issued Sept. 7, 1999) ("cannabinoid receptor agonists); U.S. Patent No. 5,990,170 (issued Nov. 23, 1999) ("a therapeutic method for the treatment of diseases connected with the modulation of cannabinoid peripheral receptor.");.

[119] Leslie Shapiro & Kate Mettler, *U.S. Marijuana Laws: A History*, WASH. POST (Apr. 20, 2018), https://www.washingtonpost.com/graphics/health/marijuana-laws-timeline/ [https://perma.cc/CUE5-UEWZ].

[120] *See supra* note 113 for methodology.

inflammatory conditions.[121] The owners of these therapeutic cannabis patents included some of the largest pharmaceutical companies, including Merck,[122] Pfizer,[123] and Eli Lilly.[124] In this same time period, other illicit drugs, such as MDMA, appear within issued patents, but only in connection with inventions aimed at drug testing and detection.[125]

In the 2010s, the patents in our databases again overwhelmingly concerned therapeutic uses of cannabis, including a wide variety of delivery mechanisms—e.g., edibles,[126] vaporizers,[127] creams,[128] and patches.[129] A few therapeutic uses of other illicit drugs also appear in this time

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[121] *See, e.g.*, U.S. Patent No. 7,271,266 (issued Sept. 18, 2007) (compounds "useful in the treatment, prevention and suppression of . . . psychosis, memory deficits, cognitive disorders, migraine, meuropathy, neuro-inflammatory disorders . . ., cerebral vascular accidents, and head trauma, anxiety disorders, stress, epilepsy, Parkinson's disease, movement disorders, . . . schizophenia[,] . . . substance use disorders, . . . obesity or eating disorders, . . . asthma, constipation, chronic intestinal pseudo-obstruction, and cirrhosis of the liver."). *See also* U.S. Patent No. 4,279,824 (issued July 21, 1981) ("The end product which may be obtained pursuant to the present process, delta-9 tetrahydrocannabinol, is useful in the treatment of glaucoma, the harmful side effects of chemotherapy utilized in the treatment of cancer, hypertension and other illnesses where an analgesic or smooth muscle relaxant is required.").

[122] *See, e.g.,* U.S. Patent No. 7,271,266 (issued Sept. 18, 2007) (owned by Merck).

[123] *See, e.g.,* U.S. Patent No. 7,247,628 (issued July 24, 2007) (owned by Pfizer).

[124] *See, e.g.,* U.S. Patent No. 5,596,106 (issued Jan. 21, 1997) (owned by Eli Lilly).

[125] *See, e.g.*, U.S. Patent No. 7,060,847 (issued June 13, 2006) ("for the detection of ecstasy-class compounds in biological fluids"); U.S. Patent No. 7,217,802 (issued May 15, 2007) ("[m]ethod and kit for detecting, or determing, [MDMA]").

[126] *See, e.g.*, U.S. Patent No. 8,906,429 (issued Dec. 9, 2014) ("Medical cannabis lozenges and compositions thereof"); U.S. Patent No. 10,028,987 (issued July 24, 2018) ("Cannabis-infused milk").

[127] *See, e.g.*, U.S. Patent No. 8,490,629 (issued July 23, 2013) ("Therapeutic smoking device").

[128] *See, e.g.*, U.S. Patent No. 8,425,954 (issued Apr. 23, 2013) ("Canna and Shea topic cream").

[129] *See, e.g.*, U.S. Patent No. 8,735,374 (issued May 27, 2014) ("Oral mucoadhesive dosage form").

frame. For example, U.S. Patent No. 9,481,767, discloses a safer form of GHB—commonly known as "liquid ecstasy and liquid X"—that could be used to address "cataplexy and narcolepsy, sedative, and treatment of alcoholism."[130] U.S. Patent No. 10,519,175 discloses a preparation of psilocybin—the active ingredient in magic mushrooms—"in the treatment of depression, particularly, drug resistant depression."[131] During this timeframe, several additional states legalized medicinal uses of marijuana.[132] The federal government did not alter marijuana's Schedule I status, though Congress and the Department of Justice did take action to soften federal policy with respect to medical marijuana.[133] For example, under the 2018 Farm Bill, Congress removed hemp from the definition of marijuana under the Controlled Substance Act, opening up legal avenues to produce, sell, and research cannabis derivatives, such as CBD, that lack the psychoactive components of marijuana.[134]

Nonetheless, in the 2010s, there also emerged some patents that recognized the potential recreational uses of cannabis-related inventions, corresponding with the enactment of recreational marijuana laws in eleven states. For example, U.S. Patent No. 9,023,322, which discloses "[c]hewing gum compositions comprising cannabinoids," acknowledges that "[c]annabis has long been used for medicinal purposes and as a recreational drug."[135] U.S. Patent No. 9,095,554 states, after summarizing the historical legal treatment of cannabis in the

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[130] U.S. Patent No. 9,481,767 col. 1, l. 50-51, 30-32) (issued Nov. 1, 2016).
[131] U.S. Patent No. 10519175 col. 3, l. 42-43 (issued Dec. 31, 2019).
[132] WEXLER, *supra* note 117, at 24.
[133] Under the Obama Administration, the Department of Justice officially deprioritized marijuana prosecutions in states that adopted a comprehensive regime to regulate legalized marijuana. *See* Press Release, Dep't of Just., *Justice Department Announces Updates to Marijuana Enforcement Policy* (Aug. 29, 2013), https://www.justice.gov/opa/pr/justice-department-announces-update-marijuana-enforcement-policy [https://perma.cc/K9MQ-PMQ7].
[134] *Hearing on Hemp Production and the 2018 Farm Bill: Hearing Before the Committee on Agriculture, Nutrition, and Forestry*, 116th Cong. 10-11 (2019) (statement of Amy P. Abernethy, Principal Deputy Comm'r of Food and Drugs, U.S. Food and Drug Admin).
[135] U.S. Patent No. 9,023,322 col. 1, l. 13-14 (issued May 5, 2015).

United States, that "despite the official position of the U.S. Federal Government, and as recognized by the states that have legalized it, cannabis has been shown to provide substantial benefits for medical and recreational uses."[136] Other patents disclose inventions that improve the evaluation, consumption, or production of cannabis-related products, irrespective of their medical or recreational uses.[137] We did not encounter any patents disclosing the recreational use of other illicit drugs from 2010-2019.

In the 2020s, our data set contained a growing body of cannabis patents that either expressly contemplated recreational uses, or disclosed an invention without indicating whether it is for recreational or therapeutic use.[138] For example, U.S. Patent No. 11,346,051 discloses a cannabis-infused rolling paper, which can produce "physiological effects elicited by the combination of cannabinoids and terpenes."[139] U.S. Patent No. 10,830,780 discloses a new classification system for "medical and recreational cannabis" that would better "distinguish between strains with different colors, shapes, and 'highs.'"[140] In this time period several additional states legalized recreational and medical marijuana, resulting in

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[136] U.S. Patent No. 9,095,554 col. 2, l. 25-28 (issued Aug 4, 2015) (cleaned up). *See also, e.g.*, U.S. Patent No. 9,913,868 col. 1, l. 15-18 (issued Mar 13, 2018) ("Currently, patients with a valid prescription can obtain medicinal cannabis from licensed dispensaries. Furthermore, recreational use of cannabis has become legal in certain jurisdictions.").

[137] *See, e.g.,* U.S. Patent No. 9,632,069 col. 1, l. 45-47 (issued Apr. 25, 2017) ("Most states where cannabis products can be legally obtained, have no means for ensuring that the plants are grown under controlled environments."); U.S. Patent No. 9,649,349 (issued May 16, 2017) (disclosing a method for producing terpene-enhanced cannabinoid, irrespective of recreational or medical use); U.S. Patent No. 9,937,147 col. 2, l. 9 (issued April 10, 2018) (disclosing "culinary applications" of a novel base for a cannabis edible); U.S. Patent No. 11,252,878 (issued Feb. 22, 2022) (disclosing a novel, at-home cannabis cultivation and storage system).

[138] *See, e.g.,* U.S. Patent No. 10,898,463 (issued Jan 26, 2021) (disclosing "[h]igh-strength oral cannabinoid dosage forms"); U.S. Patent No. 10,942,113 (issued Mar. 7, 2019) (disclosing systems of improved cultivation of cannabis crops).

[139] U.S. Patent No. 11,346,051 col. 3, l. 33-34 (issued May 31, 2022).

[140] U.S. Patent No. 10,830,780 col. 18, l. 65-66 (issued Nov. 10, 2020).

twenty-four states with recreational marijuana laws and forty states with medical marijuana laws.[141] The Schedule I status under federal law remains unaltered,[142] although in August 2023, the Department of Health and Human Services recommended that the Drug Enforcement Agency reschedule marijuana.[143]

Since 2020, we also observed a significant uptick in patenting activity around the therapeutic use of other illicit drugs, most prominently MDMA, psilocybin, LSD, and other psychedelics. We observed twenty patents that expressly disclosed the use of these illicit substances to treat a wide range of conditions and illnesses, including severe depression, obsessive compulsive disorder, anxiety disorder, bipolar disorder, schizophrenia, post-traumatic stress disorder, ADHD, epilepsy, Huntington's disease, Alzheimer's disease, Parkinson's disease, eating disorders, chronic pain, and food allergies.[144] This patenting activity follows the advent of the

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[141] *State Medical Cannabis Laws*, Nat'l Conf. of State Legs., https://www.ncsl.org/health/state-medical-cannabis-laws [https://perma.cc/A2A3-WXN6].

[142] *Drug Scheduling*, U.S. Drug Enforcement Admin., https://www.dea.gov/drug-information/drug-scheduling [https://perma.cc/3KM6-CVST].

[143] Joseph Choi, *HHS Sends Recommendation to DEA on Rescheduling Marijuana*, THE HILL (Aug. 30, 2023), https://thehill.com/policy/healthcare/4179304-hhs-sends-recommendation-to-dea-on-rescheduling-marijuana/ [https://perma.cc/M26C-MVA8].

[144] *See* U.S. Patent No. 10,729,706 (issued Aug. 4, 2020) (depression, schizophrenia, anxiety disorders, ADHD, Huntington's disease, Alzheimer's disease, Parkinson's disease); U.S. Patent No. 10,933,073 (issued Mar. 2, 2021) (psychological and mood disorders); U.S. Patent No. 11,000,534 (issued May 11, 2021) (anxiety and depression, obsessive-compulsive disorder, alcoholism and nicotine addiction, cluster headaches, autism); U.S. Patent No. 11,045,454 (issued June 29, 2021) (food allergies); U.S. Patent No. 11,312,684 (issued Apr. 26, 2022) (neurological injury, inflammatory conditions, chronic pain, psychological conditions); U.S. Patent No. 11,324,762 (issued May 10, 2022) (mood, psychiatric disorders); U.S. Patent No. 11,344,564 (issued May 31, 2022) (mood, psychiatric disorders); U.S. Patent No. 11,364,221 (issued June 21, 2022) (anxiety, depression, addiction, personality disorders, cluster headaches, migraines);

modern "psychedelic revolution," which has seen a major increase in funded clinical research on substances such as psilocybin, LSD, MDMA, and DMT, which had seen little research and development activity since being strictly restricted under the Controlled Substances Act.[145]

B. Rhetorical Frames

As the treatment of illicit drugs under state and federal criminal laws increasingly diverges, and as a patchwork of regulation develops across state lines, efforts to patent these substances creates complex ethical and strategic challenges for inventors and their attorneys. This section provides an overview of the rhetorical strategies patentees have adopted to thread the needle between extolling the benefits of cannabis and psychedelics, on one hand, while signaling sufficient fealty to the criminal status of many of the activities claimed in the patent. We observe several frameworks that repeatedly emerge within illicit drug patents: (a) medical/therapeutic; (b) pharmaceutical; (c) wellness; and (d) historical/cultural. A fifth

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U.S. Patent No. 11,419,829 (issued Aug. 23, 2022) (epilepsy); U.S. Patent No. 11,427,604 (issued Aug. 30, 2022) (psychological disorders, neurological disorders); U.S. Patent No. 11,441,164 (issued Sept. 13, 2022) (personality disorders, anxiety disorders, depression, addiction); U.S. Patent No. 11,471,439 (issued Oct. 18, 2022) (psychological disorders, mood disorders); U.S. Patent No. 11,478,449 (issued Oct. 25, 2022) (depression, anxiety, migraines, addiction, dementia, Alzheimer's disease, eating disorders, obsessive disorders, palliative care); U.S. Patent No. 11,564,935 (issued Jan. 31, 2023) (anxiety disorders, eating disorders, headache disorders); U.S. Patent No. 11,590,120 (issued Feb. 28, 2023) (age or trauma-related neuropathologies); U.S. Patent No. 11,660,305 (issued May 30, 2023) (neuronal disorders); U.S. Patent No. 11,667,607 (issued June 6, 2023) (post-traumatic stress disorder and treatment resistant depression); U.S. Patent No. 11,701,348 (issued July 18, 2023) (dementia, Alzheimer's); U.S. Patent No. 11,717,517 (issued Aug. 8, 2023) (anxiety, depression, addiction, personality disorder); U.S. Patent No. 11,766,445 (issued Sept. 26, 2023) (obsessive compulsive disorder, depression, pain, irritability, fibromyalgia, post-traumatic stress disorder, cluster headaches, paranoia, psychosis, anxiety, panic attacks, flashbacks, smoking addiction, alcohol addiction, drug addiction, and cocaine addiction).

[145] *See generally* Nabil Al-Khaled, Note, *MDMA and Psilocybin for Mental Health: Deconstructing the Controlled Substances Act's Usage of "Currently Accepted Medical Use,"* 99 WASH. U. L. REV. 1023, 1029 (2021).

framework—a "pleasure" framework—at least arguably emerges in a few recent patents. Each of these frameworks connects with broader advocacy strategies in favor of drug legalization and decriminalization,[146] again suggesting an important connection between the politics of patenting and the broader regulatory ecosystem.

1. Therapeutic Frame

Similar to what we observed with sexual pleasure patents, patentees of illicit drugs often emphasize the medical and therapeutic value of their claimed inventions and distance them from recreational or purely pleasurable uses. Medical cannabis is associated with the treatment of pain, anorexia, asthma, glaucoma, arthritis, spasms, anxiety, substance withdrawal, autism, and numerous other conditions.[147] Psychedelics are similarly presented largely in terms of their potential to treat serious psychiatric and physiological

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[146] *See, e.g.*, Marlan, *supra* note 18, at 856 (discussing four justifications for decriminalization of psychedelics: medical applications, religious freedom, cognitive liberty, and social justice); Quentin Barbosa, *America is Tripping: Psychedelic Pharmaceutical Patent Reforms Fostering Access, Innovation, and Equity*, 88 BROOK. L. REV. 1129, 1139-49 (2023) (setting forth taxonomy of policy approaches including (1) pharmaceutical development, (2) decriminalization, (3) comprehensive regulatory schemes).

[147] *E.g.*, U.S. Patent No. 10,898,463 col. 1, l. 16-19 (issued Jan. 26, 2021) ("Medical cannabis is used for treating and alleviating symptoms associated with a growing number of indications, including pain, anorexia, asthma, glaucoma, arthritis, spasms, anxiety, and substance withdrawal."); U.S. Patent No. 10,625,177 col. 1, l. 18-22 (issued Apr. 21, 2020) ("The CB2 receptor enhancements demonstrate that the endocannabinoid system is involved in the maintenance of autism. According to the findings, the endocannabinoid system may represent a novel treatment opportunity for cannabis therapy with autistic minds."). *See also* U.S. Patent No. 11,364,505 col. 1, l. 14-16 ("In recent years, the study of cannabis for medical applications has been rapidly growing with new indications and territories of use added at high pace."); U.S. Patent No. 7,928,134 (issued Apr. 19, 2011) col. 1, l. 50-55 ("Ample evidence exists that cannabinoid receptor agonists have therapeutic possibilities as appetite stimulants, enti-emetics, analgesics, anti-glaucoma agents . . ., and agents for the treatment of neurodegenerative disorders, including multiple sclerosis and Alzheimer's disease").

disorders.[148]

To the extent that any of these substances might be seen as desirable for inducing a subjectively pleasing state of mind—as might be expected from recreational use—patentees reframe psychoactive outcomes as unwanted side effects.[149] For example, U.S. Patent No. 10,323,014 discloses a method for extracting cannabinoids (e.g. THC) from the cannabis plant; the patentee observes that "[w]hile some components of Cannabis have medically useful characteristics, other compounds result in the undesirable psychoactive and narcotic effects that limit the medical usefulness of Cannabis in many applications and patients."[150]

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[148] *See, e.g.*, U.S. Patent No. 11,427,604 col. 2, l. 46-49 (issued Aug. 30, 2022) ("psychadelic drugs may potentially provide the next-generation of neuropathics, where tretament resistant psychiatric and neorlogical diseases, e.g., depression, post-traumatic stress disorder, dementia and addiction, may become treatable"); U.S. Patent No. 11,441,164 col. 1, l. 40-43 (issued Sept 13, 2022) ("Psilocybin has been increasingly evaluated for treating mental health problems. Such mental health disorders include: personality disorders, anxiety disorders, major depressions, and various addictions."); U.S. Patent No. 11,478,449 col. 2, l. 14-18 (issued Oct. 25, 2022) ("The therapeutic implications of psilocybin are broad with active clinical studies targeting depression, anxiety, migraines, addiction, dementias, Alzheimer's disease, eating disorders, obsessive compulsive disorder, and palliative care."); U.S. Patent No. 11,590,120 col. 2, l. 40-45 (issued Feb. 28, 2023) ("The present nootropic invention can benefit those suffering from age or trauma related neuropathologies including but not limited to tinnitus, organophosphates and other toxic compounds, heavy metals, prions, amyloid plaque formation, demyelination, nerve signaling, neurotoxic viruses, stress and numerous other agents causing neuropathies.").

[149] U.S. Patent No. 7,297,796 col. 1, l. 31-33 (issued Nov. 20, 2007) ("Separation between the clinically undesirable psychotropic effects and the therapeutically desirable effects on the peripheral nervous systems, the cardiovascular system, the immune and endocrine system is problematic."); U.S. Patent No. 10,933,073 col. 2, l. 13-15 (issued Mar. 2, 2021) ("Formulated and administered correctly, psilocin and psilocybin provide fast-acting and long-lasting changes to a person's mood. These effects can be accomplished with only minor side effects").

[150] U.S. Patent No. 10,323,014 col. 1, l. 35-39 (issued June 18, 2019). Another patentee expresses a similar concern with respect to psychedelics:

Patentees often expressly distance their invention from recreational drug use, and from the associations of recreational use with addiction or abuse. For example, U.S. Patent No. 5,990,170's purported novelty was its ability to separate a drug's therapeutic effects from its ability to cause "psychoactive effects at a central level and the relevant side effects . . . such as habit and addiction."[151] Likewise, U.S. Patent No. 11,000,534 discloses "deuterated derivatives of psilocybin and uses thereof,"[152] one advantage of which is that "the labeled nature of the substance will allow healthcare providers and law enforcement to distinguish . . . use of the regulated drug product containing the substance from illegal uses, e.g., the consumption of mushrooms containing psilocybin."[153] U.S. Patent No. 11,590,120 was designed to *dissuade* recreational use: by adding the vitamin niacin to psilocybin, the disclosed invention would both blunt the psychoactive effects and intentionally cause the user to experience the unpleasant side effects of niacin.[154]

Within a therapeutic framework, recreational or other pleasure-motivated uses remain unacknowledged, even for inventions where pleasure is a major ingredient in its

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"Although psychedelics (e.g., psilocybin derivatives, LSD, DMT, and other tryptamines) have significant potential for treating many mood disorders, such treatment options often have side-effects which can be generally categorized as 'dysphoria.'" U.S. Patent No. 11,471,439 col. 3, l. 57-61 (issued Oct. 18, 2022).

[151] U.S. Patent No. 5,990,170 col. 3, l. 35-39 (issued Nov. 23, 1999). *See also* U.S. Patent No. 6,017,919 col. 1, l. 10-17 (issued Jan 25, 2000) (disclosing a "novel compound which selectively acts on a cannabinoid receptor . . . that causes less central side effects and which exhibits immunoregulating action, anti-inflammatory action, antiallergic action and nephritis therapy effect, and to pharmaceutical use thereof."); U.S. Patent No. 4,179,517 col. 1, l. 26-28 (issued Dec. 18, 1979) (According to the present invention there are provided novel compounds wherein the undesired "cannabis" effect is practically eliminated.").

[152] U.S. Patent No. 11,000,534 (issued May 11, 2021); *see also* U.S. Patent No. 11,324,762 col. 1, l. 45-51 (issued May 10, 2022) (same).

[153] U.S. Patent No. 11,000,534 col. 1, l. 38-43 (issued May 11, 2021).

[154] U.S. Patent No. 11,590,120 col. 1, l. 26-32 (issued Feb 28, 2023)("By adding niacin into a psilocybin-centered . . . medicine in sufficient quantities to cause extreme discomfort for those who might try to [the medicine], this invention . . . prevent[s] potential abuse by those wishing to get 'high.'")

innovation. For example, US Patent No. 11,364,221 discloses a method for providing a positive therapeutic experience with a psychedelic by "inducing a positive psychological state in an individual" via 20-200mg dose of MDMA (i.e., ecstasy) alongside the psychedelic.[155] In other words, the therapy will be received more positively by the patient, and will therefore be more effective, when the (definitely-not-recreational) ecstasy administered ahead of time quells the "acute anxiety" that can accompany LSD-assisted psychotherapy. [156] U.S. Patent No. 9,480,647 discloses single-serve containers for brewing cannabis beverages, which are desirable because "[m]arijuana . . . is often used as a medicine for the treatment of a variety of conditions." [157] Similarly, in disclosing cannabis-infused coffee beans, another patentee emphasizes that cannabis "has been used to alleviate stress and other illnesses caused by posttraumatic stress disorder, seizures, epilepsy, multiple sclerosis, and the like."[158]

By patenting, and presumably commercializing, a method of using cannabis or psychedelics, the patentee in this framework is providing a new way of treating an existing illness, allowing an ailing patient to return to a normal, healthy state of mind and body. Within this therapeutic perspective, a consumer of an illicit substance is not an otherwise-healthy person seeking some new elevated state of euphoria. The focus remains on providing much-needed attention to sick, vulnerable patients who will be carefully monitored and supervised by medical professionals. [159] Although certain

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[155] U.S. Patent No. 11,364,221 (issued June 21, 2022).

[156] *Id.* at col. 1, l. 29-49 ("The induction of an overall positive acute response to the psychadelic is critical because several studies showed that a more positive experience is predictive of a greater therapeutic long-term effect of the psychadelic.").

[157] U.S. Patent No. 9,480,647 col. 1, l. 20-21 (issued Nov. 1, 2016).

[158] U.S. Patent No. 11,266,159 col. 1, l. 21-22 (issued Mar. 8, 2022).

[159] U.S. Patent No. 11,000,534 col. 23, l. 25-30 (May 11, 2021) ("It will be understood that the total daily usage of the pharmaceutical composition described herein may be decided by an attending physician within the scope of sound medical judgment"). *See also* Amy L. McGuire, Holly Fernandez

psychedelics do appear to hold great promises for psychiatric uses, this framework nonetheless downplays the potential benefits that psychedelics might hold for psychologically "healthy" people.[160]

2. Pharmaceutical Frame

Related to the medical framework, which frames illicit drugs as treating some illness, is a pharmaceutical framing of the disclosed invention. Within the pharmaceutical framework, patentees emphasize the genesis of the claimed invention within the mainstream processes of research, development, and commercialization. Psychedelics, for example, are positioned as "the next-generation of neurotherapeutics" that provide effective treatment where conventional antidepressants, antipsychotics, and opioids have proven inadequate or harmful.[161] Drug formulations that contain cannabis, LSD, MDMA, or psilocybin are just the next steps in mainstream pharmaceutical drug development.

Patentees in a pharmaceutical framework are not claiming a set of innovations that originated in longstanding indigenous practices, or in underground club scenes, but instead in scientific labs and clinical trials. For example, U.S. Patent No. 10,833,073 acknowledges that "so-called 'magic mushrooms' are taken recreationally by millions of people in the United States," but maintains that "virtually no work has been done formulating psilocybin or studying the pharmacology of psilocybin" and that doing so "would provide significant benefits in treating mood and neurological disorders, such as depression, attention deficit hyperactivity disorder, compulsive

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Lynch, Lewis A. Grossman & I. Glenn Cohen, *Pressing Regulatory Challenges for Psychedelic Medicine*, 380 SCIENCE 347, 348 (Apr. 28, 2023) (emphasizing that the "therapeutic context is critical" in order to avoid "risk that vulnerable patients will be exploited").

[160] Marlan, *supra* note 18, at 876.

[161] See, e.g., U.S. Patent No. 11,427,604 col. 2, l. 45 (issued Aug. 30, 2022) ("These, previously under-researched, psychedelic drugs may potentially provide the next-generation of neurotherapeutics, where treatment resistant psychiatric and neurological diseases, e.g., depression, post-traumatic stress disorder, dementia and addiction, may become treatable with attenuated pharmacological risk profiles.").

disorder and/or anxiety disorder."[162]

Through a pharmaceutical framework, patentees are medicalizing cannabis and psychedelics, but, importantly, they are doing so in a specifically modern way. According to one patentee, "without isolated and purified compounds of medicinal value from Cannabis, pharmaceutical usage of specific Cannabis-derived compounds is greatly limited."[163] Other patentees similarly emphasize the qualitatively different nature of the knowledge their patent discloses from previous recreational or non-pharmaceutical uses. For example, U.S. Patent No. 11,717,517 notes that "desired therapeutic effects cannot be ascertained from prior experiential use of LSD because the LSD has been produced illicitly and sold in units lacking analytical identity information and in non-defined amounts without clear dose uniformity[.]"[164]

A key ingredient to the pharmaceutical framing of drug innovation is the use of controlled clinical studies demonstrating safety and effectiveness in some recognized area of medical treatment. For example, numerous patents provide extensive summaries of recent human studies showing promise in addressing disorders ranging from depression to alcoholism to cluster headaches.[165]

3. Wellness Frame

Several scholars have acknowledged a significant shift in cultural understandings about the role that medicine and

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[162] U.S. Patent No. 10,933,073 col. 1, l. 66-67, col. 2, l. 21-22, col. 3, l. 8-11 (issued March 2, 2021); *see also* U.S. Patent No. 11,629,159 (issued Apr. 18, 2023) ("This invention relates to the large-scale production of psilocybin for use in medicine."). This factual assertion that there has been "virtually no work" in in psilocybin pharmacology and formulation is highly questionable. *See, e.g.,* Marlan, *supra* note 18, at 860-61 (summarizing psilocybin research).

[163] U.S. Patent No. 10,323,014 col. 1, l. 47-49 (issued June 18, 2019).

[164] U.S. Patent No. 11,717,517 col. 1, l. 24-28 (issued Aug. 8, 2023).

[165] *See, e.g.*, U.S. Patent No. 11,427,604 col. 5, l. 19-24 (issued Aug. 30, 2022) ("Recent developments in the field have occurred in clinical research, where several double-blind placebo-controlled phase 2 studies of psilocybin-assisted psychotherapy in patients with treatment resistant, major depressive disorder and cancer-related psychosocial distress have demonstrated unprecedented positive relief of anxiety and depression.").

prescription drugs are supposed to play in contemporary life. Rather than treat a particular disease, as a therapeutic framework would suggest, drugs are increasingly understood as improving an individual's overall "wellness": cognitive ability, strength, endurance, memory, and other useful personal qualities.[166]

A particular medicine, procedure, or dietary supplement may not be strictly necessary under a wellness framework, but "wellness" remains conceptually distinct from "recreation" in that it facilitates activities that are correlated with success and prosperity in Western cultures.[167] Some examples of wellness interventions include ADHD medications to facilitate academic success, or Viagra to facilitate a successful reproductive life. [168] In the context of cannabis, non-psychoactive cannabinoids such as CBD have been held out for their wellness potential, for example in massage oils or as a sleeping aid. In the psychedelics context, drug developers have emphasized the potential of "microdosing" substances, such that the quantity consumed would be sufficient to activate the therapeutic aspects of drugs like psilocybin (i.e., increased productivity, creativity, focus, and energy) without triggering

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[166] *See, e.g.*, Matt Lamkin, *Legitimate Medicine in the Age of Consumerism*, 53 U.C. DAVIS L. REV. 385, 405-06 (2019) ("As medicine has increasingly become a consumer product, it has come to encompass endlessly proliferating methods of using biomedical technology to help patients satisfy personal goals beyond physical health, nrarowly construed.")

[167] *See* Margit Anne Petersen, Lotte Stig Nørgaard & Janine M. Traulsen, *Pursuing Pleasures of Productivity: University Students' Use of Prescription Stimulants for Enhancement and the Moral Uncertainty of Making Work Fun*, 39 CULT MED. PSYCHIATRY 665, 667 (2015) (describing the increased blurring between illness and well-being); NIKOLAS ROSE, THE POLITICS OF LIFE ITSELF: BIOMEDICINE, POWER AND SUBJECTIVITY IN THE TWENTY-FIRST CENTURY 16 (2007) (describing "technologies of optimization" which no longer seek solely to cure illness, but also to control mind and body processes).

[168] *See* Lamkin, *supra* note 166, at 387, 388 n.8, 406; Petersen, Stig Nørgaard & Traulsen, *supra* note 167, at 4; KANE RACE, PLEASURE-CONSUMING MEDICINES: THE QUEER POLITICS OF DRUGS 5, 8 (2009).

their hallucinogenic properties.[169] In other words, several advocates have touted the possibility of non-psychoactive psychedelics: all the benefits, and none of the trip.

Several illicit drug patents adopt what could be seen as a "wellness" framework. U.S. Patent No. 11,766,445 discloses an oral soft gel containing a psychedelic to be used in a "method of improving creativity, boosting physical energy level, attaining emotional balance, improving the mood, and/or increasing performance on problems-solving tasks."[170] Another patentee acknowledges that "Cannabis indica, Cannabis sativa and Cannabis ruderalis are on the brink of becoming 'health food.'"[171] Another patentee discloses the use of cannabis as part of a daily oral hygiene routine.[172] Given that several of the beneficial cannabinoids present in the cannabis plant lack psychoactive properties—most notably, CBD—many cannabis patentees are particularly able to trumpet the wellness-enhancing benefits of their inventions while steering clear of taboos concerning recreational uses.[173]

Moreover, in line with the emerging association between psychedelic microdosing and wellness practices, several recent psychedelic patents highlight their microdosing potential.[174] One patentee explains the "new dosing paradigm for psychedelics" known as microdosing: "Under this paradigm,

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[169] *See* Mason Marks, I. Glenn Cohen, Jonathan Perez-Reyzin & David Angelatos, *Microdosing Psychedelics Under Local, State, and Federal*, 103 B.U. L. REV. 573, 611 (2023) (explaining that people choose to microdose to improve cognitive function, promote creativity, and enhance mental or physical wellbeing).

[170] U.S. Patent No. 11,766,445 col. 1, l. 44-47 (issued Sept. 26, 2023).

[171] U.S. Patent No. 11,547,669 col. 2, l. 28-30 (issued Jan. 10, 2023).

[172] U.S. Patent No. 10,933,013 (issued Mar. 2, 2021) ("Accordingly, one objective is to provide oral hygiene compositions that include as an active ingredient essential extracts from Cannabis plant material").

[173] U.S. Patent No. 10,736,869 col. 6, l. 12-15 (issued Aug. 11, 2020) ("The formulation optionally further includes THC, but preferably lacks detectable levels of THC or has an insubstantial amount of THC (for example, a non-psychoactive amount)").

[174] *See, e.g.*, U.S. Patent No. 11,850,254 col. 2, l. 22-28 (issued Dec. 26, 2023) ("The combination of sub-hallucinogenic "microdoses" . . . can be used to treat a variety of neuronal disorders or enhance cognition and sensory motor neuron functioning.").

sub-perceptive doses of the serotonergic hallucinogens, approximately 10% or less of the full dose, are taken on a more consistent basis of once each day, every other day, or every three days, and so on."[175] Another patentee similarly explains, by using psilocin or psilocybin in "microdoses," a person can realize the wellness-enhancing effects of the drugs with "no noticeable consciousness altering effects on the person ingesting."[176]

By emphasizing microdosing, patentees are able to distinguish their invention from stigmatized recreational uses, much like they would in a therapeutic or pharmaceutical frame; however, they are also able to frame their invention as having a much broader commercial appeal than medical innovations that must be funneled through a pipeline of doctors and pharmacies. According to U.S. Patent No. 11,478,449:

> Microdosing has been reported to have the beneficial therapeutic effects of improving mood, intellectual focus, energy levels, and creativity without the disabling hallucinogenic effects. . . . Treatments that are devoid of psychedelic effects would make the administration of the drugs in a clinical setting unnecessary, opening more traditional, flexible, and affordable drug regimens.[177]

Through microdosing, patentees identify a market of consumers who want to harness psychedelics' performance and mood-enhancing effects without experiencing the mind-altering effects associated with illicit recreational uses. A patent in such a wellness market could be extremely economically valuable, due to the broad base of potential demand, while avoiding the existing stigmas associated with the use of psychedelics.

4. Historical/Cultural Frame

In seeming tension with the Patent Act's requirements that

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[175] U.S. Patent No. 11,427,604 col. 8, l. 29-34 (issued Aug. 30, 2022).
[176] U.S. Patent No. 11,701,348 col. 4, l. 62-66 (issued July 18, 2023).
[177] U.S. Patent No. 11,478,449 col. 3, l. 23-26, 34-37 (issued Oct. 25, 2022).

an invention be novel and nonobvious, several patentees openly acknowledge that cannabis and psychedelics have been in use for centuries. One cannabis patent recognizes that "[c]annabis use for medicine purposes dates back at least 3,000 years."[178] Another patentee explains in detail how the disclosed plant had been "used for centuries by the Tupi-Guarani Indians who inhabit Brazil and take advantage of their properties to produce sweat and saliva."[179] Another patentee emphasizes that "knowledge of the therapeutic activity of cannabis dates back to the ancient dynasties in China," and that the use of cannabis for asthma, migraine, and some gynecological disorders "became so established that about in 1850 cannabis extracts were included in the US Pharmacopaeia and remained therein until 1947."[180] A similar narrative appears in psychedelic patents. U.S. Patent No. 11,427,604 explains, "Psychedelics are one of the oldest classes of psychopharmacological agents known to man . . . Their origin predates written history, and they were employed by early

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[178] U.S. Patent No. 10,413,578 col. 1, l. 21-22 (issued Sept. 17, 2019). *See also* U.S. Patent No. 5,440,052 col. 1, l. 6-7 (issued Aug. 8, 1995) ("Various preparations of the plant Cannabis sativa have been used since ancient times for their behavioral and pharmacological properties."); U.S. Patent No. 5,596,106 col. 1, l. 25-29 (issued Jan. 21, 1997) ("Both the uses and abuses of marijuana are recorded from the earliest human records. Marijuana based medicants have been known for centuries and have been a mainstay of many folk, herbal remedies."); U.S. Patent No. 11,547,669 col. 1, l. 22-23 (issued Jan. 10, 2023) ("*Cannabis indica, Cannabis sativa* and *Cannabis ruderalis* have had a long history, from very early human horticulture.").

[179] U.S. Patent No. 10,933,113 col. 1, l. 66 (issued Mar. 2, 2021).

[180] U.S. Patent No. 5,990,170 col. 1, l. 22-27 (issued Nov. 23, 1999). *See also* U.S. Patent No. 5,948,777 col. 1, l. 17-21 (issued Sept. 7, 1999) ("Knowledge of the therapeutic activity of cannabis dates back to the ancient dynasties of China, where, 5,000 years ago, cannabis was used for the treatment of asthma, migraine and some gynaecological disorders."); U.S. Patent No. 11,547,669 col. 1, l. 23-27 (issued Jan. 10, 2023) ("From thousands of years ago, to more recent prescriptions by Queen Victoria's physician, to the 2018 Farm Bill, there is a growing awareness everywhere of the power and strength of cannabinoids as active agents."); U.S. Patent No. 11,235,014 (issued Feb. 1, 2022) (combining "select Chinese herbs and strains of *Cabbanis* . . . for treatment of headache pain).

cultures in many sociocultural and ritual contexts."[181]

These acknowledgements of longstanding and ongoing uses of cannabis and psychedelics mirror regulatory strategies outside the Patent Office, which provide some carveouts for traditional or religious uses of otherwise illicit drugs.[182] Although psychedelics such as peyote and mescaline are Schedule I drugs unavailable for research or use by the vast majority of Americans, a separate, distinct legal regime exists for certain indigenous, non-Western practices.[183]

Similar to what we observed with the citation to historical practice in the sexual pleasure context, patentees are citing to historical and non-Western uses of cannabis and psychedelics for a variety of strategic reasons. Although it may seem that the use of cannabis or psychedelics for centuries by indigenous people would anticipate and preclude a patent for a large pharmaceutical company, it is nonetheless possible to conceptually segregate traditional uses from modern innovations in a way that seemingly signals respect for cultural traditions while allowing large-scale commercialization efforts to continue. Patentees can simultaneously alleviate concerns that the Patent Office is facilitating a socially disruptive technology while providing enough cultural and scientific distance with these practices to signal a meaningful—and patentable—innovation.

5. Pleasure Frame

A few patents issued in the past decade arguably move away from any explicitly therapeutic, pharmaceutical, or wellness framing of illicit drug innovation and embrace more overtly recreational, pleasure-focused narratives. U.S. Patent No. 9,629,886, for example, details the many pleasurable potential effects of cannabis consumption, including "feelings

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[181] U.S. Patent No. 11,427,604 col. 2, l. 6-7, 15-17 (issued Aug. 30, 2022).

[182] *See* Gonzales v. O Centro Espírita Beneficente União do Vegetal, 546 U.S. 418 (2006) (holding that the Religious Freedom Restoration Act created an exception to the Controlled Substance Act for sacramental use of ayahuasca tea).

[183] *See generally* Victoria Litman, *Psychedelic Policy, Religious Freedom, And Public Safety: An Overview*, 21 OHIO ST. J. CRIM. L. 293 (2024) (analyzing religious freedom exemptions to controlled substances laws).

of well-being, relaxation or stress reduction, increased appreciation of humor, music . . . increased libido, and creativity." [184] That patent discloses a powderized form of cannabis in order to "provide a more socially acceptable, easier, and more convenient way to consume cannabis than smoking it." [185] U.S. Patent No. 11,529,301 discloses a cannabinoid-infused lubricant, asserting that there "is a need in the art to develop water soluble personal lubricant formulations . . . for the purposes of increasing sexual pleasure and addressing sexual dysfunction."[186] While stress, libido, and well-being could plausibly be framed as both medical and recreational concerns, the broader understanding of the potential benefits of cannabis, and the blurring of the medical/recreational distinction, nonetheless provide a notable shift in the rhetoric of cannabis innovation.

Within a pleasure framework, the consumption of legalized, recreational cannabis is taken as a given, and patentees who improve that experience—for example, through improved taste, more efficient home cultivation, or heightened potency—appear to be increasingly explicit as to the nature of their innovation.[187] One patentee discloses to the Patent Office what

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[184] U.S. Patent No. 9,629,886 co. 2, l. 38-44 (issued Apr 25, 2017).
[185] *Id.* col. 1, l. 32-33.
[186] U.S. Patent No. 11,529,301 col. 1, l. 55-59 (issued Dec. 20, 2022).
[187] See, e.g., U.S. Patent No. 11,000,856 col. 1, l. 19-22 (issued May 11, 2021) ("Thus, the development of new, scalable refinement and extraction techniques in order to propose products with fewer impurities to the consumers, different flavors or new ways of consumption, is important for the *cannabis* industry."); U.S. Patent No. 11,083,211 col. 1, l. 20-22 (issued Aug. 10, 2021) ("Cannabis consumption, particularly in states that allow recreational use is a rapidly growing market and consumers are eager to try new cannabis based products."); U.S. Patent No. 11,097,201 col. 2, l. 29-30 (issued Aug. 24, 2021) ("Terpenes may for example add flavor to the cannabinoid concentrate or enhance the effects of the concentrate."); U.S> Patent No. 11,252,878 col. 1, l. 34-37 (issued Feb. 22, 2022) ("[O]ver 17 states to date and counting allow individuals to 'home grow' their own marijuana. Accordingly, an improved plant cultivation solution may be beneficial."); U.S. Patent No. 11,346,051 col. 3, l. 29-34 (issued May 31, 2022) ("[C]annabinoids applied onto paper products . . . [allow] a modulated physiological effect elicited by the combination of the cannabinoids and terpenes. . .").

might otherwise appear to be a sales pitch to a recreational marijuana user: "[t]he aroma and flavor of 'LW-BB1' is also unique. It has a dank, earthy, almost woody smell (like a forest floor) that is accentuated by a subtle berry sweetness."[188] Another patentee describes in slow detail the process by which cannabis leaves are chilled, then ground, then shaken, then stored in a dry, dark room[189]—not unlike a fine wine or a premium roast coffee. Rather than obfuscate the reasons why many consumers might be drawn to cannabis innovations, some patentees appear to be promoting consumer pleasure explicitly.

The percolation of a pleasure framework within recent patents, especially with regard to cannabis, potentially hints at a new willingness by drug legalization activists to affirmatively extoll the pleasure-enhancing potential of certain illicit drugs. Professor Jay Wexler recently has critiqued the dominant public health approach to cannabis policy as "incomplete because it largely fails to appreciate the full and often ineffable value that many users get from marijuana."[190] Rather than "grudgingly tolerate" legal cannabis, Wexler advocates a public policy model of "careful exuberance."[191] Wexler observes that "joy" has largely been absent from discourse surrounding cannabis legalization,[192] and warns that this is a "grave mistake."[193] According to Wexler, "[i]f we're going to legalize marijuana, we should recognize the innumerable benefits of that policy and celebrate them."[194] Despite the discourses of health and disease that have dominated drug policy debates, "most people just use [marijuana] because it

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[188] U.S. Plant Patent No. PP30,434 col. 6, l. 1-3 (issued Apr. 23, 2019).
[189] U.S. Patent No. 11,000,856 col. 1, l. 62-65 (issued May 11, 2021).
[190] WEXLER, *supra* note 117, at 10. *See also* Geoffrey Hunt & Kristina Evans, *"The Great Unmentionable": Exploring the Pleasures and Benefits of Ecstasy from the Perspectives of Drug Users*, 15 DRUGS (ABINGDON ENG.) 329, 330 (2008)("The absence of any significant discourse about pleasure within drug research means that a central component about why people use mind-altering substances is ignored.").
[191] WEXLER, *supra* note 117, at 10-11, 64.
[192] *Id.* at 60-61.
[193] *Id.* at 11.
[194] *Id.*

makes them feel great."[195]

The patent system may be one of the few contexts that is already receptive to Wexler's "careful exuberance." To the extent that a few patentees are willing to explain publicly how their innovations can make someone "feel great," we potentially see in the drug context something akin to what we observed with sexual pleasure patents: an open embrace of physical and emotional pleasures as socially valuable and as legitimate objects of innovation. We hesitate to overstate this normative shift, however, especially given that we have only observed express pleasure narratives in the cannabis context.[196] We generally have not yet seen a shift in other illicit drug patents, despite the real-world blending of therapy and recreation of drugs like MDMA and psilocybin, as discussed below. For psychedelics and other illicit psychoactive drugs, the social value of the innovation remains framed largely in biomedical terms.[197] Nonetheless, given the shift from medical frameworks to pleasure frameworks in a far more socially and legally normalized drug, and with the sexual pleasure patents, a similar evolution is plausible as patenting activity in

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[195] *Id.* at 63.

[196] One psychedelic patent does set forth a list of "good drug effects" including "oceanic boundlessness, experience of unity, spiritual experience, blissful state, insightfulness, connectedness, mystical experiences, mystical-type effects, positive mood, transcendence of time/space, ineffability, well-being, trust, feelings of love, feeling open, peak experience, and combinations thereof." U.S. Patent No. 11,364,221 col. 3, l. 43-50 (issued June 21, 2022). But these good drug effects are ultimately tied to the desired therapeutic benefits of psychedelic treatment: "The present invention also provides for a method of treating a patient by enhancing the mood of the patient prior to psychedelic treatment." *Id.* at col. 6, l. 51-53.

[197] Arguably, the closest we have seen to a pleasure frame in the psychedelic patents is U.S. Patent No. 10,729,706 (issued Aug. 4, 2020), which discloses a combination of cannabis and psilocybin. The patentee almost defiantly critiques the dominant perspective on these substances: "Despite the strong prejudice against cannabis and psilocybin/psilocin, the applicant believes there is significant credible evidence supporting the use of certain cannabinoid based medicines in combination with psilocybin/psilocin." *Id.* at col. 6, l. 56-59. However, this critique is ultimately aimed only at medical, not recreational, use.

psychedelics accelerates.[198]

C. Strategic Considerations

The narrative framing of illicit drug patents quite closely tracks, and likely anticipates, changes in a drug's regulatory landscape. As states began to legalize medical marijuana in the 1990s and 2000s, and recreational marijuana in the 2010s, patentees increasingly emphasized, respectively, therapeutic and recreational uses. As a few jurisdictions begin to grapple with the legalization of psychedelic therapies, and the FDA considers approving certain psychedelics,[199] the patent system already is home to a variety of therapeutic applications of psilocybin, MDMA, LSD, and other psychedelics. There is nothing in the Patent Act that requires applicants to tell a compelling story about an invention, or to narratively place it in a broader social and historical context,[200] but the richness of the patent narratives with respect to illicit drugs hints at a broader set of concerns than just obtaining the patent itself.

The patent system provides a useful step—both strategically and economically—towards the regulatory approval and ultimate commercialization of currently-illicit drugs. Obtaining a patent is significantly less expensive than undergoing clinical trials, or obtaining FDA approval,[201] or

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[198] Though this evolution is by no means certain, given the recent setbacks to psychedelic legalization and drug decriminalization. *See* Oshan Jarow, *Psychedelics Are About to Become a Casualty of Oregon's Opioid Crisis*, VOX (Mar. 16, 2024, at 8:00 AM EDT), https://www.vox.com/future-perfect/24102102/psychedelics-oregon-opioid-crisis-decriminalization-war-drugs-fentanyl-house-bill-4002 [https://perma.cc/7GYE-L6Q9].

[199] *See* Daniel Gilbert & David Ovalle, *FDA to Review MDMA-Assisted Therapy, a Milestone for Psychedelics*, WASH. POST (Dec. 12, 2023), https://www.washingtonpost.com/business/2023/12/12/mdma-therapy-fda-maps/ [https://perma.cc/YA3M-8SXD].

[200] *See* Burk & Reyman, *supra* note 41, at 181.

[201] *See How Much Does a Drug Patent Cost? A Comprehensive Guide to Pharmaceutical Patent Expenses*, DRUG PATENT WATCH (July 27, 2025) https://www.drugpatentwatch.com/blog/how-much-does-a-drug-patent-cost-a-comprehensive-guide-to-pharmaceutical-patent-expenses [https://perma.cc/TB7T-ZNSR] (estimating the cost of obtaining a US drug patent as $30,000-70,000 compared with $2.6 billion bringing a new prescription drug to market).

funding a ballot initiative, or lobbying lawmakers across the country. Accordingly, the Patent Office may be an early opportunity to unveil and test arguments that an applicant can pursue before voters, lawmakers, the FDA, and the Attorney General.[202] And if the applicant succeeds at the PTO, and the substances at issue are ultimately rescheduled and legalized, the granted patent may prove extremely valuable within the transformed marketplace that would likely follow.[203]

From the perspective of a patent applicant seeking to maximize their chances of obtaining and capitalizing upon a valuable property right, it makes sense to downplay the recreational potential of illicit drug innovation and emphasize its potential therapeutic benefits. After all, only a small number of jurisdictions in the US have decriminalized the possession of drugs such as psilocybin and MDMA,[204] which are classified federally as Schedule I drugs with "no currently accepted medical use and a high potential for abuse."[205] Accordingly, by

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[202] Jennifer S. Seidman, Note, *Tripping on Patent Hurdles: Exploring the Legal and Policy Implications of Psilocybin Patents*, 108 CORNELL L. REV. 1017, 1032 (2023) (arguing that patenting might facilitate FDA approval of psilocybin therapies).

[203] *See* Barbosa, *supra* note 146, at 1153.

[204] *See, e.g.*, Nicole Chavez & Ryan Prior, *Denver Becomes the First City to Decriminalize Hallucinogenic Mushrooms*, CNN (May 9, 2019, 4:25 PM EDT, https://www.cnn.com/2019/05/08/us/denver-magic-mushrooms-approved-trnd [https://perma.cc/8H6K-YR2J] (discussing decriminalization of psilocybin in Denver, CO); Kristian Foden-Vencil, *Oregon Voters Legalize Therapeutic Psilocybin*, OREGON PUB. BROADCASTING (Nov. 4, 2020, 1:18 PM), https://www.opb.org/article/2020/11/04/oregon-measure-109-psilocybin/ [https://perma.cc/W5VA-2V4W] (discussing Oregon's adoption of Measure 109, legalizing supervised psilocybin treatment, and Measure 110, decriminalizing the possession of small quantities of all illicit drugs).

[205] *Drug Scheduling*, U.S. Drug Enforcement Admin., https://www.dea.gov/drug-information/drug-scheduling [https://perma.cc/3KM6-CVST]. The Food and Drug Administration designated MDMA as a "breakthrough therapy" for PTSD in 2017, and in 2018 and 2019 the agency similarly designated psilocybin for treatment-resistant depression and major depressive disorder. Allison A. Feduccia et al., *Breakthrough for Trauma Treatment: Safety and Efficacy of MDMA-*

asking the Patent Office to acknowledge the utility of innovation in an illicit space, patent applicants are pushing back on the Schedule I designation by indicating that some scheduled drugs have significant potential for medical use in the future. Nonetheless, these patentees are demonstrably aware of the taboo around recreational uses and careful to firmly center their innovation outside that taboo space.

The patent register reflects the practical reality that any road towards full legalization likely hinges on the success of a medicalization narrative.[206] Given that scheduling decisions are in practice entirely based on "accepted medical use in treatment,"[207] it makes sense that patentees would center the medical benefits of the drug and downplay their recreational appeal. For example, marijuana was placed on Schedule I largely based on evidence that in practice, it was used largely outside medical supervision, i.e., because "Americans use it on their own initiative rather than on the basis of medical advice."[208] (This is, of course, circular reasoning: if it is illegal to prescribe a drug, then *none* of its uses could be medically supervised, and *all* would be abusive).

Against this backdrop, it would seem to be in the interests of patentees to recast pleasurable, recreational experiences in terms of some treatable disorder. For example, rather than present a psychedelic as helping people feel greater joy in social settings, a patentee might prefer to disclose its usefulness in treating social anxiety associated with various mental health

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Assisted Psychotherapy Compared to Paroxetine and Sertraline, 10 FRONTIERS PSYCHIATRY 1, 1-2 (2019); Rachel Feltman, *The FDA Is Fast-Tracking a Second Psilocybin Drug to Treat Depression*, POPULAR SCI. (Nov. 26, 2019, 4:07 PM EST), https://www.popsci.com/story/health/psilocybin-magic-mushroom-fda-breakthroughdepression [https://perma.cc/V5CG-V6US].

[206] *See generally* DAVID POZEN, THE CONSTITUTION OF THE WAR ON DRUGS (2024) (examining failed efforts to use constitutional law to protect the right to use drugs responsibly outside a medical framework).

[207] Lamkin, *supra* note 166, at 394.

[208] *Id.* at 435-36; see Lisa Scott, *The Pleasure Principle: A Critical Examination of Federal Scheduling of Controlled Substances*, 29 SW. U. L. REV. 447, 457 (2000) ("This legal standard, therefore, allows the Attorney General to make a determination that a drug has a potential for abuse simply because people are using it to experience pleasure.").

conditions.[209] However, by trumpeting the potential "medical use" of Schedule I drugs, many patentees largely concede the "abusive"[210] nature of non-medical (recreational) uses.[211] In doing so, they erase a huge swath of non-medical, yet nonetheless responsible, recreational drug uses.[212]

Ultimately, patents on cannabis and psychedelics are designed both to give the patentee a foothold in a nascent market and to shift social norms in a way that will give this nascent market a greater degree of social legitimacy. These patents appear to be part of a strategy to "usher[] psychedelics legally back into aboveground society through the government-sanctioned door of medicalization."[213]

D. Pleasure Parallels

Our study of illicit drug patents ultimately reveals several important parallels with our study of sexual pleasure patents. First, as with sexual pleasure patents, we are unable to

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[209] Lamkin, *supra* note 166, at 440-41 (suggesting that the current Scheduling regime might push advocates to conjure new illnesses like "Openness Deficiency Disorder" that could be treated with MDMA).

[210] Under the CSA, "abuse" is *not* the same as "addiction." The law defines "addict" as "any individual who habitually uses any narcotic drug so as to endanger the public morals, health, safety, or welfare, or who is so far addicted to the use of narcotic drugs as to have lost the power of self-control with reference to his addiction." 21 U.S.C. § 802(a)(1). By contrast, the House Committee report accompanying the Controlled Substances Act provided four legal standards for the meaning of "abuse," one of which indicating that a substance has potential for abuse if "[i]ndividuals are taking the drug or drugs containing such a substance on their own initiative rather than on the basis of medical advice from a practitioner licensed by law to administer such drugs in the course of his professional practice." H.R. Rep. No. 1444, at 4601 (1970). *See also* Grinspoon v. Drug Enforcement Admin., 828 F.2d 881, 893 (1st Cir. 1987) (discussing this definition); Lamkin, *supra* note 168, at 404 (indicating that abuse does not necessarily endanger public morals, health, safety or welfare).

[211] Scott, *supra* note 208, at 455-56.

[212] See Pozen, *supra* note 206, at 10 ("What emerged instead after the tumultuous drug battles of the 1970s was . . . an epistemic contract of responsible-drug-use erasure[.]").

[213] Claudia Schwarz-Plaschg, *Socio-psychedelic Imaginaries: Envisioning and Building Legal Psychedelic Worlds in the United States*, 10 EUR. J. FUTURES RSCH. 1, 2 (2022).

detect any doctrine internal to patent law—for example the moral utility doctrine—that appears to be shaping the evolving rhetoric of cannabis and psychedelics. Any changes in the patent rhetoric instead track much more closely to the changing landscape of drug legalization and accompanying social norms. For example, as cannabis shifts from being fully illicit, to lawful medically, to lawful recreationally, the emphasis of cannabis patents shifts from drug testing to medicine to wellness to pleasure.

Second, although the evolving rhetoric of illicit drug patents does seem to correlate with the changing regulatory landscape more closely than did the sexual pleasure patents, in both contexts we see the patent system at the front edge of legal change. While a majority of states did not legalize medicinal marijuana until 2016,[214] the Patent Office has granted patents on therapeutic uses of cannabis since the 1980s and recreational uses of cannabis for at least the past decade. As in the sexual pleasure context, the last fifty years of drug policy entail a regulatory system that is gradually catching up with patent law.

Third, strategic narratives can be deployed in ways that allow patentees to obtain ownership and control over subcultural practices that they are not a part of. In the sexual pleasure context, our concern is the control male patentees hold over the market for women's pleasure. In the illicit drug context, our concern is that innovations in non-Western cultures—and Western subcultures—are being erased and then coopted by drug developers.[215] Innovations in cannabis and psychedelics that emerged outside mainstream research and

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[214] Christopher Ingraham, *Marijuana Wins Big On Election Night*, WASH. POST (Nov. 8, 2016), https://www.washingtonpost.com/news/wonk/wp/2016/11/08/medical-marijuana-sails-to-victory-in-florida/.

[215] *See* Marlan, *supra* note 18, at 875 (describing "very real chance" of psychedelics becoming a "cash crop for pharmaceutical industry"); Mason Marks & I. Glenn Cohen, *Patents on Psychedelics: The Next Legal Battlefront of Drug Development*, 135 HARV. L. REV. F. 212, 229 (2022) ("Indigenous communities argue that companies patenting psychedelic substances are exploiting practices they have developed over centuries for use in healing and religious ceremonies.").

development streams are unlikely to appear as "prior art" in the Patent Office,[216] allowing sophisticated patent applicants to exploit gaps in the official knowledge base and appropriate methods of treatment that have been in use for decades, if not longer.[217] For example, U.S. Patent No. 11,471,439 rather boldly asserts, "[c]urrently the state of the art for psilocybin technology is not advanced."[218]

Fourth, by emphasizing the therapeutic and wellness potential of cannabis and psychedelics, patentees distance their invention from the hedonistic associations of recreational uses. Although the line between therapy and recreation pervades both drug policy and popular discourse, a wide range of scholars have nonetheless demonstrated that the distinction is based less on the chemical effects of the drug and more on the social value placed on a particular use.[219] For example, when a stimulant like Adderall is used to treat a psychiatric condition

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[216] Reilly, *supra* note 50, at 126 (noting that patent examiners lack access to real-world uses of claimed inventions); Barbosa, *supra* note 146, at 1158-59 (noting prior art problems with several recent psychedelic patents); Marks & Cohen, *supra* note 215, at 220 ("A lack of examiners with detailed knowledge of psychedelic compounds, and their history of Indigenous and underground use, could allow bad patents to breeze through the PTO without opposition."); Seidman, *supra* note 202, at 1029-30 (documenting underground use of psilocybin on Reddit boards).

[217] *See* Barbosa, *supra* note 146, at 1156 (collecting examples of "bad" psychedelic patents); Andrew Kingsbury, *Patenting Pot: The Hazy Uncertainty Surrounding Cannabis Patents*, 106 CORNELL L. REV. 1061, 1075 (2021) (discussing difficulty of producing prior art that anticipates claimed cannabis strains).

[218] U.S. Patent No. 11,471,439 (issued Oct. 18, 2022).

[219] *See* Lamkin, *supra* note 166, at 406 ("[M]any ostensibly therapeutic interventions increasingly resemble 'recreational' practices. When drugs are routinely prescribed to enhance quality of life—in particular, to produce mental states that individuals find desirable in the absence of any illness—it becomes difficult to distinguish medical practices from illegitimate drug use."); Patricia J. Zettler, *The FDA's Power Over Non-Therapeutic Uses of Drugs and Devices*, 78 WASH. & LEE L. REV. 379, 392-93 (2022); Kiran Pienaar, Dean Murphy, Kane Race & Toby Lea, *"To Be Intoxicated Is Still To Be Me, Just a Little Blurry": Drugs, Enhancement, and Transformation in LGBTQ Cultures*, in CULTURES OF INTOXICATION, at 15 (Fiona Hutton ed. 2020) ("[I]licit drugs can be used therapeutically, just as pharmaceutical drugs can be used recreationally.").

or to help a student focus on their studies, it is embraced as a legitimate medicine; when it is used at a dance party, it becomes a pathology.[220] By downplaying pleasure within illicit drug patents, patentees can better ensure that their disclosed innovation falls on the respectable side of the therapy/recreation binary.

Fifth, although therapeutic and wellness narratives provide a palatable entrypoint for taboo technologies—whether sexual or psychoactive—once the technology becomes more normalized, pleasure narratives emerge as a way to meaningfully distinguish newer inventions from the prior art. If the value of cannabis is limited to, say, reducing symptoms of glaucoma, there will be a limit to how much better a new strain will be in reducing those symptoms. On the other hand, if the value of cannabis is expanded to a broad range of positive subjective experiences, then changes in taste, smell, uplifting effect, calming effect, or dosing method can provide endless opportunities to invent something recognizably useful, new, and nonobvious. Pleasure narratives surrounding drugs and sex may carry a great deal of stigma, but more recent cannabis and sexual pleasure patents reveal a wide range of innovation that opens up alongside them.

Nonetheless, we are hesitant to overstate the inevitable progression from medicine to wellness to commercialized pleasure, or the patent system's ability to usher in that change over time. Cannabis and psychedelics remain unlawful under federal law, and, although it appears that further liberalization of drug laws is likely, there is no guarantee that the political pendulum will not swing back towards prohibition. For example, Oregon, the only state to have decriminalized possession of all illicit drugs, recriminalized drug possession in light of persistently perceived associations between drug use,

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[220] *See, e.g.*, Petersen, *supra* note 167, at 676 (observing that the boundaries between recreational and study uses of Adderall are not always clear cut, especially in light of respondents' reports that the drug makes studying more enjoyable); João Florêncio, *Chemsex Cultures: Subcultural Reproduction and Queer Survival*, 26 SEXUALITIES 1, 8 (2021) (describing the socially constructed distinction between the use of stimulants for studying versus for sexual pleasure).

violent crime, and homelessness.[221] Moreover, the FDA *rejected* its first application for MDMA-assisted therapy for PTSD.[222] Patents may provide fuel for decriminalization and legalization campaigns, but they are one of many ingredients in legal reform. To examine the limits of looking to patents as predictors of legal reform, we turn to our final taboo technology: abortifacients.

IV. Patenting Abortifacients

A. Overview

For our analysis of patents related to abortifacient technologies, we used Google Patents to search granted US patents whose disclosures contained the following terms: abortion,[223] miscarriage, curette, emmenagogue, amenorrhea, and pessary. We cross-referenced our results with those of Kara Swanson and John Thomas, who have explored early patents on abortion-related technologies.[224] We eliminated many patents that, though they contained our keywords, were irrelevant, including those drawn towards the avoidance of "spontaneous" abortion, the medical term for a miscarriage in the first twenty weeks of gestation. This yielded a dataset of just under fifty patents as of September 2023.

The oldest patent on abortifacient medicinal treatment in our dataset is from 1870 and was drawn to Wasatch Salvia, a species of sage, for use as an emmenagogue when brewed in a

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[221] Noah Eckstein, *Oregon's Drug Decriminalization Reversal Reflects Global Trends*, SEMAFOR (Sep. 15, 2024, 3:59 PM), https://www.semafor.com/article/09/15/2024/oregons-drug-decriminalization-reversal-reflects-global-trends [https://perma.cc/H94X-PMFJ].

[222] Kupferschmidt, *supra* note 7.

[223] Because the term "abortion" has salience in other patent-rich fields (e.g., animal husbandry and computer science), we searched for instances when the word was paired with another reproductive health-related word.

[224] Swanson, *supra* note 24; John R. Thomas, *Liberty and Property in the Patent Law*, 39 HOUS. L. REV. 569 (2002) (suggesting that the exclusivity of patent rights can constitute a barrier to individual liberties, particularly in the area of abortion-related technology.).

hot tea.[225] The patent also claimed use of the herb as a stimulant and treatment for dyspepsia and dysentery, among other ailments. Emmenagogues—often herbal treatments—have been used to bring on menstruation in many cultures and for thousands of years.[226] These treatments were known to potentially cause abortion if taken while pregnant.[227]

The oldest patent on a device was from 1897 for a "curette" for "scraping the walls of the womb and removing the fetal matter and other foreign substances there from."[228] The description does not state that the invention would be used for induced abortions and instead likely refers to procedures for removing placenta or other remaining tissue after birth or a miscarriage. A patent two years later for a curette explicitly notes that it is "designed for use in facilitating removal of the placenta and membranes after an abortion or miscarriage occurring up to and including the fourth month of gestation."[229] However, due to changes in terminology, these inventors may also have been referring to pre-quickening miscarriage (often termed abortion) and later-term miscarriage, rather than induced abortion.[230]

Although the patents we examined that issued in the first

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[225] U.S. Patent No. 108,504 (issued Oct. 18, 1870).

[226] In Ancient Greece, Hippocrates' theory that ill health was the result of an imbalance in humors applied to women's health as well. Etienne van den Walle explains that at the time, "[u]ndesirable humors were expelled in various ways; the most common way for women was menstruation," and notes that Hippocratic medicine generally considered there to be danger in both the retention of menses and excessive menstruation, and that as a result, there were a number of "potions or suppositories" recommended to treat amenorrhea (the absence of menstruation) and menorrhagia (excessive menstruation). Etienne van de Walle, *Flowers and Fruits: Two Thousand Years of Menstrual Regulation*, 28 J. OF INTERDISCIPLINARY HIST. 183, 186 (1997).

[227] Olivia Campbell, *Abortion Remedies from a Medieval Catholic Nun(!)*, JSTOR DAILY (Oct. 13, 2021), https://daily.jstor.org/abortion-remedies-medieval-catholic-nun/ [https://perma.cc/QQ85-Y7YR].

[228] U.S. Patent No. 584,407 col. 1, l. 10-13 (issued June 15, 1897).

[229] U.S. Patent No. 618,521 col. 1, l. 10-14 (issued Jan. 31, 1899).

[230] *See* Reva B. Siegel & Mary Ziegler, *Abortion's New Criminalization: A History-and-Tradition Right to Healthcare Access After* Dobbs, 111 VA. L. REV. 413, 459-60 (2025) (discussing historical differentiation between pre- and post-quickening abortion and miscarriage).

half of the twentieth century were primarily for curettes, two patents in the 1930s covered pessaries, or intrauterine devices. Neither specifies use for induced abortion; instead, they explain that the inventions may stimulate uterine contractions. One patent describes the purpose of the claimed pessary as "causing the expulsion of stale venous blood from within the uterine walls and permit[ting] fresh blood to take its place," ultimately to treat irregular menstruation (amenorrhea) and "promot[e] conception in sterile females" inter alia.[231]

The 1970s and 1980s saw an increase in patents related to abortifacient technologies, including advances in devices related to the process of dilation[232] and vacuum curettage.[233] These patents spanned the years leading up to and directly following *Roe v. Wade*, and refer to induced abortion for the first time in our data set, whether as "elective abortions,"[234] or by reference to the new legality of the procedure.[235] There were also patents issued for abortifacient drugs during that time. In particular, there were patents on various prostaglandin formulations; one, assigned to Pfizer, claimed to serve as "anti-fertility agents for the induction of labor, as abortifacients," inter alia.[236] The most-used abortifacient today is a drug developed in the 1980s: The first of a family of patents on what was called RU486 and is now known by the generic drug name mifepristone issued in 1985.[237] Mifepristone can be used on its own or together with misoprostol to induce abortion in the first

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[231] U.S. Patent No. 1,896,071 col. 1, l. 10-13, 23-24 (issued Apr. 24, 1931). The other patent is also meant to treat dysmenorrhea and amenorrhea. U.S. Patent No. 2,122,579 (issued July 5, 1938).

[232] U.S. Patent No. 3,848,602 (issued Nov. 19, 1974) (abortion facilitating device and process).

[233] U.S. Patent No. 3,670,732 (issued June 20, 1972) (vacuum curette); U.S. Patent No. 3,542,031 (issued Nov. 24, 1970) (vacuum curette).

[234] U.S. Patent No. 3,774,613 col. 1, l. 9 (issued Nov. 27, 1973) (suction curettage).

[235] U.S. Patent No. 3,722,500 col. 1, l. 1-7 (issued Mar. 28, 1973) ("Legalized abortive methods have, for the most part, heretofore been performed by the duly authorized and properly registered physician through use of a curette or the like in the case of the nonviable embryo and other surgical instruments with respect to the viable fetus.").

[236] U.S. Patent No. 4,342,868 col. 9, l. 36-37 (issued Aug. 3, 1982).

[237] U.S. Patent No. 4,547,493 (issued Oct. 15, 1985).

trimester of pregnancy.[238]

B. Rhetorical Frames

The treatment of abortion technologies by the law has varied from silence to various levels of legality at the state and federal levels. Throughout, patents on these technologies have been presented as a part of reproductive and other health care. In other words, the frame has often been very broad and generalized, with little emphasis on the specific abortifacient capabilities of the technology. Many do not mention abortion explicitly, and the earliest patents that mention abortion are more likely referring to spontaneous abortion, rather than induced abortion. Nonetheless, we know that women were seeking—and obtaining—abortions at the time with the same types of drugs, devices, and methods.[239]

The utility of the inventions is frequently described in terms of fulfilling the need of regularizing menses or clearing out the womb for the continued health of a patient, regardless of why it is necessary (such as avoiding infection post-miscarriage). Moreover, many drugs with abortifacient properties that are patented are described in purely chemical and scientific terms, so that the utility of the patent is entirely about its formulation and not about what that formulation ultimately achieves.

Still, there are insights to be gleaned from the framing of these utility discussions. In particular, it is noteworthy on its own that patents on inventions with abortifacient qualities are generally framed in terms of therapeutic benefits, emphasizing their medical applications. The medical frame often does not focus on induction of abortion, but rather on more generalized health objectives, such as increasing menstrual regularity and avoiding infection. Another notable element of those patents that do discuss induced abortion is that several refer to time—

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[238] *Id.*

[239] LESLIE J. REAGAN, WHEN ABORTION WAS A CRIME: WOMEN, MEDICINE, AND LAW IN THE UNITED STATES, 1867-1973, 8-10 (2022) (explaining that women considered "restor[ing]" menses pre-quickening to be a normal part of women's health, and that women knew of—and used—abortifacients after quickening as well, albeit privately and without open discussion).

generally emphasizing how early in gestation the invention may be used to induce abortion. These narrative frameworks anticipated what would ultimately become the dominant legal framework for reproductive rights evaluation.

1. Therapeutic and Reproductive Frame

Similar to the pleasure patents and illicit drug patents, but perhaps less surprisingly, patents on abortifacients are described most frequently in medical terms. There is no pleasure or recreation to be had in these inventions. And, while the national conversation surrounding abortion often includes both medical justifications and autonomy considerations related to inducing abortion, the patents are framed only in reference to the former. Despite *Roe*'s vindication of women's right to choose induced abortion, patents from that period do not mention the woman's decision or agency, but rather focus only how the abortion might be carried out. This is true for applications before and after *Roe v. Wade* was decided.

However, it is of note that most drugs, pessaries, and devices with abortifacient applications have other medical applications as well. Thus, the therapeutic frame, which is shared by most of the patents, is often accompanied by a list of other health conditions treatable with the invention. In fact, many of the early patents on abortifacients do not explicitly address abortion at all, although the effects of the drugs or devices may be to induce an abortion. Instead, the patents are for treatments of adjacent health concerns, such as irregular or unhealthy menstruation or treatment following a miscarriage.

Herbal and drug treatments capable of inducing abortion are also described as emmenagogues that can induce menstruation for the treatment of amenorrhea.[240] The earliest patents we found focused on these reproductive-health-related utilities, together with other medical purposes entirely unrelated to reproductive health. Thus, many patents described treatment for varied medical conditions, such as

[240] U.S. Patent No. 108,504 (issued Oct. 18, 1870) ("The tonic and febrifuge will be formed in the aqueous decoction or extract; the vermituge in the oil and resin; and the emmenagogue and diaphoretic in the form of a hot tea, freshly prepared, and before the oil is expelled by too long boiling.").

ulcers and blood clotting, in addition to abortifacient utilities.[241] In the 1970s, various forms of prostaglandins were developed that have abortifacient properties, which were explicitly described.[242]

Pessaries and IUDs also treat several menstrual issues such as amenorrhea and dismenorrhoea in addition to aiding in post-miscarriage care. [243] The earliest pessary patent we reviewed, from 1933, does not mention induced abortion as a use, instead discussing treatment of these other menstrual conditions; however, the specification explains that introduction of the pessary stimulates uterine contractions.[244] Moreover, that patent is cited in many of the patents that do explicitly mention induced abortion, starting in the 1970s.[245]

The medical framing of curettes is unsurprising, as they are

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[241] U.S. Patent No. 4,304,907 (issued Dec. 8, 1981) ("These compounds are useful for a variety of pharmacological purposes, including anti-ulcer, inhibition of platelet aggregation, increase of nasal patency, labor inducement at term, and wound healing" and "is useful in place of or in combination with less than usual amounts of these known smooth muscle stimulators, for example, … to control or prevent atonic uterine bleeding after abortion or delivery, to aid in expulsion of the placenta, and during the puerperium").

[242] U.S. Patent No. 3,852,465 (issued Dec. 3, 1974) ("Pharmaceutical preparations of abortifacient PGE-type and PGFtype prostaglandins for injection directly into the uterine muscle of pregnant female mammals, including humans, and accomplishing a medical abortion.").

[243] U.S. Patent No. 1,896,071 (issued Feb. 7, 1933) ("When applied to pathological conditions as, metritis, amenorrhea, dismenorrhoea, venous congestion, cervical stenosis and malpositions of the uterus, tend to return it to its normal state of health."); U.S. Patent No. 2,122,579 (issued July 5, 1938) ("to provide an intrauterine device which relieves dysmenorrhoea and amenorrhea, tending to normalize menstruation, and to correct causes of faulty menstruation, or lack of menstruation, and to prevent retention or stasis, and to help eliminate pathological secretions as well as normal secretions of the uterus").

[244] U.S. Patent No. 1,896,071 (issued Feb. 7, 1933) ("when applied [the pessary] will stimulate uterine contractions, causing the expulsion of stale venous blood from within the uterine walls and permit fresh blood to take its place").

[245] U.S. Patent No. 3,810,456 (issued May 14, 1974) ("The invention relates to abortifacients and in particular to a device for insertion into the uterus for inducing an abortion, and to a method for making such a device, and to a method for inducing an abortion.").

surgical instruments. The earliest patent for a curette in our set, from 1897, did not explicitly reference abortion and may well have been contemplated for use following a miscarriage, describing its purpose as entering "the womb without causing undue expansion thereof," explaining that it "will by its operation after insertion automatically scrape the entire interior of the womb and dislodge and expel any particles of foreign matter that may be adhering to the walls or loose therein."[246] Other early curettes similarly describe removing foreign matter from the uterine walls.[247] A 1908 patent for a curette states as its only purpose the treatment of endometriosis,[248] though in form it was not significantly different from its contemporaries.

It is worth noting separately that many of these treatments are framed as serving to restore regular menstruation, preventing infection following miscarriage, and inducing labor at term—all of which enhance and facilitate fertility. The patent framing thus does not focus on abortifacient properties of the inventions—although we now recognize that as one of their functions. This framing of abortifacient treatment as an

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[246] U.S. Patent No. 584,407 col. 1, l. 44-45, 27-32 (issued June 15, 1897).

[247] U.S. Patent No. 618,521 col. 1, l. 11-13 (issued Jan. 31, 1899) ("designed for use in facilitating removal of the placenta and membranes after an abortion or miscarriage"); U.S. Patent No. 622,386 col. 1, l. 8-12 (issued Apr. 4, 1899) (relating to "to curettes to be worn upon the finger when exploring uterine cavities in gynecological and obstetrical work for removing parts of the placenta and other morbid matter from the Walls of the womb"); U.S. Patent No. 561,395 col. 1, l. 11-17 (June 12, 1900) ("the primary object in view is to provide a simple and effective device of this character that is easily insertible and withdrawable in and from the vagina and uterus without injury or excoriation and adapted for use in removing diseased tissues or remnants subsequent to abortion or miscarriage"); U.S. Patent No. 654,763 col. 1, l. 9-10 (issued July 31, 1900) ("for removing substances from the Walls of the uterus"); U.S. Patent No. 667,726 col. 1, l. 12-14 (issued Feb. 12, 1901) ("to separate an adhered placenta from the wall of a womb without scarifying or tearing healthy tissue"); U.S. Patent No. 839,641 col. 1, l. 20-24 (issued Dec. 25, 1906) ("which will act to effectively remove placenta or other fetal matter and substances without lacerating or inflaming intra-uterine tissue and without danger of producing new lesions").

[248] U.S. Patent No. 879,297 col. 2, l. 10-12 (issued Feb. 18, 1908) ("the instrument is manipulated in the well known manner to remove the morbid matter producing endometritis").

aspect of care tied to regularity of menses, fertility, and general health, is consistent with the understanding of these treatments at the time. Fertility enhancement can be found in some of the earliest recorded uses of products with abortifacient properties, supporting Etienne van de Walle's argument that there is no historical evidence that women frequently used abortifacients for abortive purposes.[249] Instead, van de Walle demonstrates that the textual record of early abortifacient use shows uses for fertility enhancement, post-miscarriage treatment, and inducement of labor at term.[250] The therapeutic and medical framing of patents with abortifacient potential demonstrate that induced abortion is never the only stated utility for these inventions. In many cases, future fertility is one goal of addressing menstrual irregularity or providing medical care to women post-miscarriage. In this vein, a pessary patent from 1931 states that it promotes fertility.[251]

Later patents note that in addition to induced abortion, there may be contraceptive utilities.[252] One patent blurs the two purposes by suggesting the drug to be a new and better "antifertility" agent that works because it has contragestative agents that can prevent implantation rather than requiring ingestion throughout the entire menstrual cycle. [253] The connection and dual utility of abortifacients as birth control and for induced abortion is evident in a 1985 patent covering RU486 (mifepristone) that claimed utility "as original

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[249] van de Walle, *supra* note 226, at 184 (arguing that abortifacient plant substance were primarily used "to stimulate the natural process of menstruation").

[250] *Id.*

[251] U.S. Patent No. 1,896,071 col. 1, l. 24 (issued Feb. 7, 1933) ("Also promoting conception in sterile females").

[252] U.S. Patent No. 3,954,741 col. 1, l. 35-42 (issued May 4, 1976) (Noting that in addition to addressing vasodepression and bronchodilation, prostaglandin has utility "in connection with the reproductive cycle . . . to induce labor, to induce therapeutic abortion and to be useful for control of fertility." (internal citations omitted)).

[253] U.S. Patent No. 4,073,899 col. 2, l. 32-38 (issued Feb. 14, 1978) ("[I]t is not necessary to administer these compounds on a day to day basis during most of the menstrual cycle in order to prevent pregnancy . . . these compounds can be effectively administered subsequent to conception and during the early stages of gestation.").

contraceptives or as interruption of pregnancy agents" (in addition to treatment of hypertension, atherosclerosis, osteoporosis, diabetes, and obesity).[254] The public perceived the drug strictly as an abortifacient, and backlash led Roussel Uclaf, the French company that developed it, to withhold the drug from the U.S. market out of concern that consumers might boycott their other products.[255] This led to calls to cancel or exercise compulsory licensing over the patent.[256] Eventually, the U.S. patent rights were assigned to a non-profit organization and mifepristone received FDA approval in September 2000.[257]

2. Time Frame

Gestational time is mentioned in a number of the patents that we identified. This is consistent with medical practice related to even the earliest records of herbal emmenagogues: medicines that regularize menstruation, induce labor, or expel the placenta following birth were safe to take at certain times in a pregnancy, but would induce abortion if taken at another. [258] The gestational timing issue is evident in the patents, depending on their stated use. For example, an 1899 patent on a curette describes that it can be used "after an abortion or miscarriage occurring up to and including the fourth month of gestation."[259]

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[254] U.S. Patent No. 4,547,493 col. 12, l. 51-52 (issued Oct. 15, 1985).
[255] Philip J. Hilts, *Group to Copy French Abortion Pill in Bid to Speed Its Sale in U.S.*, N.Y. TIMES (Apr. 2, 1993), at A16.
[256] Rep. Jerrold Nadler, Letter to the Editor, N.Y. TIMES (March 28, 1994), at A14.
[257] *Information about Mifepristone for Medical Termination of Pregnancy Through Ten Weeks Gestation*, FED. DRUG ADMIN. https://www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/information-about-mifepristone-medical-termination-pregnancy-through-ten-weeks-gestation [https://perma.cc/5VWL-T8WB].
[258] *See, e.g.,* van de Walle, *supra* note 226, at 194 (discussing Culpeper's *Complete Herbal*, a 1655 herbal medicine book recommending remedies to bring on menses, speed up delivery, and expel after-birth, specifying that these should not be taken during pregnancy "lest they procure abortion.").
[259] U.S. Patent No. 618,521 col. 1, l. 12-14 (issued Jan. 31, 1899).

More recently, the patents mentioning timing[260] are those issued after the Court decided *Roe v. Wade*, which held that a woman's right to terminate a pregnancy was strongest in the first trimester.[261] The timing question then became relevant in various legislative anti-abortion initiatives and judicial scrutiny thereof.[262] Only the RU486 patent explains that the drug may cause an abortion at any stage of gestation.[263]

C. Strategic Considerations

1. Legality and Timing

The legal and technological environments governing abortion have dramatically changed over the years in which

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[260] U.S. Patent No. 3,721,244 col. 1, l. 33-44 (issued Mar. 20, 1973) ("Such a system would also enable abortions to be performed at their earliest possible stage without the significant delay encountered with hospital abortions. Finally, it would enable the abortion to be performed by a system designed for the earliest stages of pregnancy where a lower aspiration pressure may be incorporated, thus, avoiding any dangers in the use of excessive, unnecessary pressure"); U.S. Patent No. 3,722,500 col. 4, l. 14-21 (issued Mar. 27, 1973) ("While it is not contemplated that the devices or methods above described will necessarily be satisfactory in an effort to effect miscarriage of the viable fetus beyond the first 12 to 28 weeks of gestation, its use to induce abortion of the nonviable embryo during at least the first 8 weeks of pregnancy will, in most cases, cause no ill effects"); U.S. Patent No. 3,774,613 col. 1, l. 4-10 (issued Nov. 27, 1973) ("easily portable apparatus by means of which the embryo, placenta and other matter can be safely and reliably removed from a female uterus in an elective abortion approximately ten weeks or less in gestation"); U.S. Patent No. 3,804,089 col. 1, l. 11-13 (issued Apr. 16, 1974) ("for performing abortions during the early months of pregnancy"); U.S. Patent No. 3,833,000 col. 1, l. 11-12 (issued Sept. 3, 1974) ("for performing abortions during the early months of pregnancy"); U.S. Patent No. 4,073,899 col. 2, l. 36-38 (issued Feb. 14, 1978) ("it has been discovered that these compounds can be effectively administered subsequent to conception and during the early stages of gestation.").

[261] Roe v. Wade, 410 U.S. 113, 163 (1973) (as opposed to later in the pregnancy, when the social value in prohibiting abortion is weightier).

[262] *See infra* Part IV.C.

[263] U.S. Patent No. 4,634,695 col. 39, l. 54-57 (issued Jan. 6, 1987) ("The antiprogrestomimetic compositions . . . may be equally used as agents to interrupt pregnancy since experiments with animals have demonstrated them to be abortive at any period of gestation.")

patents have been sought and granted on abortifacient technologies. The use of abortifacients has been legally permitted or restricted to widely varying degrees. As medical knowledge and treatments have become more sophisticated, the understanding of what "counts" as abortion has changed,[264] but even apart from this, the pendulum has swung in terms of the level of restriction imposed on induced abortive care. The following sections attempt to address legality and technological change separately, while acknowledging that the changing technology associated with medical care has allowed different understandings of, for example, when pregnancy starts, when a fetus may be considered viable, and what interventions are available in high-risk pregnancies.

Induced abortion was known and practiced by indigenous peoples and by women in early colonial America,[265] often through the use of plants and herbs.[266] Abortion was not widely regulated in early colonial history, consistent with its treatment in England.[267] Instead, the concerted effort to pass restrictions on induced abortions has been attributed to the formation of the American Medical Association in 1847 and its campaign to expand the role of established medicine by delegitimizing and marginalizing the role of midwives.[268] By the turn of the twentieth century, when the first patents mentioning abortion begin to appear, at least 40 states had anti-abortion laws.[269]

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[264] *See generally* Greer Donley & Caroline Kelly, *Abortion Disorientation*, 74 DUKE L.J. 1 (2024) (describing ambiguities in the term "abortion" and arguing that this may render state abortion bans unconstitutional for vagueness).

[265] *See*, Zolia Acevedo, *Abortion in Early America*, 2 WOMEN & HEALTH 159, 159-161 (1979) (detailing abortion practices in the 1600s in different populations in North America and noting their general legality prior to "quickening.").

[266] *Id.* at 160 (explaining that Indians of North American generally used medicines derived from "black root" and "red cedar," while colonial women generally used savin juniper, or sabina).

[267] *Id.* at 161 ("Before 1803, Great Britain did not treat abortion as a crime as long as the abortion was induced prior to 'quickening.'")

[268] Annalies Winny, *Brief History of Abortion in the United States*, Hopkins Bloomberg Public Health (2022), https://magazine.publichealth.jhu.edu/2022/brief-history-abortion-us [https://perma.cc/NGE4-K6S2].

[269] *Id.*

One issue that has consistently been relevant to determining when an induced abortion is legal (or whether it is even an abortion at all) is the stage of pregnancy at which it occurs. Historically, the treatments available to women who had not felt a fetus kick were different than those available later. Even—or perhaps especially—with greater scientific understanding of fetal development and the ability to detect pregnancy earlier, the focus on gestational timing continued in the major legal and regulatory developments surrounding induced abortion in the United States. This focus is reflected in the patents issued by the USPTO,[270] though it is unclear whether that is a reflection of inventor concerns about legality or a reflection of medical advances being tailored to what was understood at the time.

It was only beginning in the 19th century that there was any consideration of a fetus as a separate, human entity before the "quickening," or the child's first kick in the womb, which generally occurs between sixteen and twenty weeks of gestation.[271] Prior to that, Carla Spivack explains how before quickening, "a woman showing early signs of pregnancy could not be sure of what was really going on," and might instead be growing what midwives termed "moles," or "misshapen piece[s] of flesh without figure or order;" or that, alternatively, a woman might simply have an irregular period and be unsure as to pregnancy prior to the quickening.[272] As a result, in many cultures and for hundreds of years, induced abortion prior to quickening—when a woman first felt her fetus move—was not illegal.[273] In some contexts women were not considered

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[270] *See supra* Part IV.B.

[271] *See* Reagan, *supra* note 239, at 8 ("At conception and the earliest stage of pregnancy before quickening, no one believed that a human life existed; not even the Catholic Church took this view."(internal citations omitted.)).

[272] Carla Spivack*, To "Bring Down the Flowers": The Cultural Context of Abortion Law in Early Modern England*, 14 WM. & MARY J. WOMEN & L. 107, 125 (2007) (quoting JANE SHARP, THE MIDWIVES BOOK: OR THE WHOLE ART OF MIDWIFRY DISCOVERED 86 (Elaine Hobby ed., Oxford Univ. Press 1999) (1671)).

[273] Acevedo, *supra* note 265, at 161 ("Before 1803, Great Britain did not treat abortion as a crime as long as the abortion was induced prior to 'quickening.'")

pregnant prior to quickening at all, possibly for the reason that medically, there was no way to make the determination.

In *Roe v. Wade*, the Court stated that the State's interest in safeguarding health, medical standards, and the protection of potential life become sufficiently compelling "at some point in pregnancy" to allow "regulation of the factors that govern the abortion decision,"[274] teeing up decades of disputes over when in a pregnancy a state might regulate or outlaw abortion entirely. For example, the Court upheld a federal ban on the process of "intact dilation and extraction" in *Gonzales v. Carhart* in part because of that procedure being used after the twelfth week of gestation.[275] The patents that mention gestational timing may well do so for scientific reasons, disclosing the state of the treatment at the time of filing. However, it is also possible that applicants were conforming their applications to the legal landscape of the time and emphasizing the earliness of their interventions.

2. Medicalization and Location of Abortion Within Women's Healthcare

It was of particular interest how integrated the abortifacient properties of the inventions were with other healthcare purposes throughout the dataset. Drugs and devices that were meant to facilitate abortions have existed since ancient times, with the earliest known written record more than three thousand years old.[276] These treatments related to the menstrual cycle and reproductive health more generally were often grouped and referred to differently than they currently are. For example, in the eighteenth century, the term "abortion" referred to what we now call "miscarriage" when it happened later in the pregnancy—there was no human agency

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[274] Roe v. Wade, 410 U.S. 113, 154 (1973).
[275] 550 U.S. 124 (2007).
[276] The first written description of a facilitated abortion is in an Egyptian medical text, the Ebers Papyrus, from approximately 1550 BCE. *A Brief History of Birth Control*, TIME (May 3, 2010, 12:00 AM EDT), https://time.com/archive/6596992/a-brief-history-of-birth-control/ [https://perma.cc/D5S6-X2SU].

in its occurrence.[277] The term "miscarriage," in turn, referred to an earlier event that ended a pregnancy, whether natural or through human intervention, which we now call "abortion."[278] In addition, as discussed above, women were not always considered pregnant before quickening.

As a result of these differences in terminology and understanding, many of the herbal remedies that historians and scientists have termed "abortifacients" were considered to be in the class of emmenagogues, or treatments for irregular periods. While some historians have suggested that abortions were common, particularly early-term abortions, others have argued that written medical texts do not necessarily support this, noting that some historians have translated to English the word "abortion" when "expulsion" would be a better fit.[279] As a matter of modern terminology, these women may have used abortifacients that terminated pregnancies prior to quickening. In terms of the medical treatments of the day, however, the treatments were intended merely to bring on menstruation, which was important to the health of a woman and to her future reproductive capacities. There is disagreement about whether it was known that some of the women taking these remedies were in the early stages of pregnancy at the time. However, given that they were not considered to be pregnant, it makes sense that there is no careful parsing of that question. Instead, as van de Walle points out, midwives' manuals did warn against using certain herbs with abortifacient qualities after quickening because of the potential for miscarriage, indicating that

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[277] *See,* Carla Spivack, *supra* note 272, at 112 (quoting FRANCIS MAURICEAU, THE DISEASES OF WOMEN WITH CHILD, AND IN CHILD-BED 110 (Randolph Trumbach ed., Garland Publ'g 1985) (1710) ("When a Woman casts forth in the Beginning what she had retained by Conception in the Womb, 'tis called an Effluxion, or a sliding away of the Seeds, because they have not yet acquir'd any solid Substance: If they miscarry of a false Conception, which is ordinarily from the latter end of the first to the end of the second Month, it is called an Expulsion; but when the Infant is already formed, and begins to live, if it comes before the time ordain'd and prescrib'd by Nature, it is an Abortion . . .")).

[278] *Id*. Here, we use the terms' modern meanings unless quoting older texts.

[279] van de Walle, *supra* note 226, at 186.

induced abortion would be undesirable.[280]

Moreover, many historical abortifacient treatments were used to treat multiple maladies. This included expulsion of the placenta or fetal tissue following a miscarriage and treatment as an emmenagogue, but also treatment for non-reproductive maladies. For example, the 1870 patent on Wasatch (salvia or sage) as a medicine described it as an emmenagogue, but also "an excellent stimulant tonic . . . use[ful] as a tonic for dyspepsia, and in primary or advanced stages-of diarrhea and dysentery. It is a febrifuge, an anthelmintic, and a vermifuge[.]" [281] Similarly, modern abortifacients may have multiple uses in healthcare, as reflected in the patent documents. For example, mifepristone, the most-used abortifacient drug, was approved as a treatment for Cushing's syndrome for patients with Type 2 diabetes in 2012.[282]

What can we make of the multiple uses—both for reproductive health and for other health conditions—that many abortifacient patents claim? One is that as a matter of science and innovation, abortion is simply not exceptional. It is one result that can be induced with these innovations that serve different but related purposes when they are used prior to conception, post-conception, early in gestation, or to induce labor. In that sense, the legal landscape in which abortion exists and is regulated seems illogical. This view is illustrated by recent stories of women desiring to carry pregnancies to term who have instead endured significant health risks because abortion access has been limited post-*Dobbs* without much thought as to how the restrictions would apply in the many different situations in which pregnancies become nonviable.[283]

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[280] *Id.* 193-94.

[281] U.S. Patent No. 108,504 (issued Oct. 18, 1870).

[282] Anna Edney, *Corcept Wins FDA Approval for Cushing's Syndrome Drug*, BLOOMBERG NEWS (Feb. 17, 2012), https://www.bloomberg.com/news/articles/2012-02-17/corcept-wins-u-s-approval-for-first-drug-to-treat-cushing-s-syndrome.

[283] The most publicized such case to date is that of Kate Cox, who filed an emergency lawsuit against the state of Texas requesting to terminate a wanted-but-unviable pregnancy that put her at a high risk of gestational

Ruth Colker argues, convincingly, that the overmedicalization of abortion is in part responsible for the level of regulation that is allowed over the procedure,[284] but it isn't clear that the overmedicalization presents the same problem in patent law. Instead, the patent texts tend to reinforce the idea that abortion is an inseperable component of women's health care. The tools and treatments with abortifacient purposes also facilitate women's health and fertility. Moreover, many of the innovations with abortifacient applications have purposes that are not restricted to reproductive care, let alone women's health. This scientific reality may be one way that abortifacient treatments remain available—because of their application as birth control or to treat other conditions, for example.[285]

Conclusion

Our primary goal in this paper has been to raise the profile of the patent system as an important object of study for those interested in the relationship between law and social change, particularly in areas that are often shielded from public disclosure and where social acceptance may yet be subject to some reversal. The tension between the secret nature of development in areas considered taboo, on the one hand, and the disclosure function of patent law, on the other, make the patent record a unique lens through which to study the development of technologies that may begin in the shadows but

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hypertension, diabetes, complications from cesarean section, and harm to future fertility. Eleanor Klibanoff, *Texas Woman Asks Judge to Let Her Terminate Pregnancy After Lethal Fetal Diagnosis*, TEX. TRIBUNE (Dec. 5, 2023 2:00 PM), https://www.texastribune.org/2023/12/05/texas-abortion-lawsuit/ [https://perma.cc/SG7B-YEW2]. Ultimately, Cox traveled out of state to receive care. Eleanor Klibanoff, *Kate Cox's Case Reveals How Far Texas Intends to Go to Enforce Abortion Laws*, TEX. TRIBUNE (Dec. 13, 2023 5:00 AM), https://www.texastribune.org/2023/12/13/texas-abortion-lawsuit/ [https://perma.cc/GQT8-K2PT].

[284] Ruth Colker, *supra* note 25, at 256-62.

[285] Cohen, Donley & Rebouche, *supra* note 5, at 376 n.397, 385 (arguing that mifepristone may remain accessible because it can be used for miscarriage management and Cushing's syndrome, though dosing differences might present difficulties to those seeking to use it as an abortifacient).

ultimately be widely recognized for their value. The patent system is not exogenous to difficult, highly-charged debates about reproductive technologies, sexual autonomy, or the War on Drugs. It is instead highly sensitive to shifts in the cultural zeitgeist, as applicants weave together the technical specifications of their inventions with utility narratives that aim to persuade a Patent Examiner at a particular moment in time, while covering future uses that anticipate social change.

Patents are not purely technical documents that mechanically recite what is new about the disclosed inventions, and the Patent Office is not a mechanical bureaucracy rubber-stamping inventions based on mandates from the Executive Branch. Patents are political documents, and the Patent Office exerts its political power in ways that often do not directly align with other legal institutions. Moreover, patent law frequently anticipates later shifts in the social and legal landscape; we are unaware of any sphere in which the patent system noticeably trails the marketplace or "progressive" law reform.[286]

Our examination of patents covering sexual pleasure, illicit drugs, and abortifacients yields important insights into how taboo technologies might become increasingly mainstream over time. Most notably, medicalization serves as an effective discursive entry point for taboo technologies: to make a technology seem less disruptive, patentees downplay pleasure, joy, autonomy, and empowerment and instead recast their innovation as a therapy for a variety of deficiencies and impairments. A new technology doesn't heighten pleasure, or expand consciousness, or facilitate sexual agency and bodily autonomy above and beyond the status quo baseline; it instead treats some problem that is keeping the consumer from getting

[286] We note that this cutting-edge nature of patent law contrasts with the decidedly more conservative nature of trademark law. The Trademark Office still denies registrations to marks used in connection with marijuana or other "unlawful commerce," lacks classifications for sexual devices, and has a long history of denying registration of immoral, scandalous, or disparaging marks. *See generally* Robert A. Mikos, *Unauthorized and Unwise: The Lawful Use Requirement in Trademark Law*, 75 VAND. L. REV. 161 (2022).

to that baseline in the first place.[287]

Medicalization is ultimately a fragile strategy. It might open the door for full normalization of the technology in contemporary life, as perhaps has occurred with marijuana, but that door can swing shut again. Abortion patents might have become a step towards normalizing abortion as one of many tools available for navigating the risks and rewards of a life with pleasure—and the arrival of medication abortion could have been framed in terms of sexual wellness and the marketplace for autonomy—but abortion discourse remained lodged within the medical framework dominant between *Roe* and *Dobbs*.[288] The jurisprudence of sexual pleasure outside of the patent system still largely leans on medical privacy and related biomedical narratives, [289] meaning that the sex positivity seemingly taking hold in patent law is not guaranteed to become the mainstream approach to regulating sexual technology. And notwithstanding the increased patent activity in the world of psychedelics, and the legalization and/or decriminalization of psychedelics in some jurisdictions, the future of psychedelics is hardly certain.[290] Where the public discourse around a technology is framed in terms of therapy,

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[287] *See* Ruth Colker, *supra* note 25, at 207-08 (2023) ("Rather than being recognized as humans with a variety of needs, ideas, and capacities, the overmedicalization framework classified people as 'sick' or impaired individuals who require legal intervention").

[288] *Id.* at 256-62. *See also* Craig Konnoth, *Medicalization and the New Civil Rights*, 72 STAN. L. REV. 1165 (2020).

[289] *See* Gilden, *supra* note 107, at 164-65.

[290] For example, California Governor Gavin Newsom vetoed psychedelic legalization bills in California. *See* Anabel Sosa, *California Psychedelics Bill That Would Bring 'Magic Mushrooms' Into the Mainstream Fails – Again*, L.A. TIMES (May 16, 2024, 3:00 PM), https://www.latimes.com/california/story/2024-05-16/psychedelics-law-fails-again [https://perma.cc/YZ46-2DJL]. Oregon lawmakers are also likely to recriminalize at least some forms of drug possession in response to the rise of fentanyl marketplaces and increased rates of homelessness. Press Release, Drug Policy Alliance, *Oregon's Drug Recriminalization Will Cycle People in and Out of Jail Without Connection to Care, Failing to Deliver the Change it Promised* (Aug. 30, 2024), https://drugpolicy.org/news/oregons-drug-recriminalization-will-cycle-people-in-and-out-of-jail-without-connection-to-care-failing-to-deliver-the-change-it-promised/ [https://perma.cc/P3JL-4Z2F].

on one side, and abuse or addiction, on the other, it becomes difficult to speak in terms of laws that facilitate drug use outside the clinical setting—for recreation, wellness, or pleasure.

Where pleasure does eventually emerge as a legitimate and unremarkable object of innovation, the patent system at times models a seemingly low-judgment, high-information approach to pleasure, health, and risk. In order to differentiate newer pleasure products from legacy products, patentees often need to set forth insights into specific mechanisms of pleasure—whether biological, neurological, or social. In the patent register, we find detailed discussions of, for example, clitoral stimulation, cannabis taxonomies, and historical accounts of phalluses and psychedelics usage around the globe.

Once inventors can transparently discuss the full appeal of their inventions in their patent applications, we accordingly see some signs that disclosure theories of patents might be working. In order to obtain the benefits of market exclusivity, patentees are publicly disclosing their insights into how the body interacts with the external world in order to experience sensations of pleasure. Against the cultural backdrops of sex negativity, the War on Drugs, and ongoing attempts to restrict reproductive healthcare options, we shouldn't downplay the existence of an area of law that can provide frank and detailed information about some of the most taboo topics in our culture.