This Article posits that the right to repair equipment purchased by consumers from equipment manufacturers is an implicit right afforded to the consumer by virtue of the equipment purchase. Limitations imposed by manufacturers on the operability, maintenance, and repair of equipment violate the rights of consumers, and the ongoing push by equipment manufacturers to control the maintenance of equipment post-sale runs afoul of the goals of intellectual property law, common law contract and property considerations, and public policy considerations. This Article seeks to highlight the arguments of both consumers and equipment manufacturers, examine the relationship that intellectual property laws play in the fight for the right to repair, and evaluate pending legislation targeting the right to repair.

Table of Contents

Introduction ................................................................. 126

I. Introduction to the Right to Repair ................................. 129
   A. The Right to Repair.................................................. 129
   B. History of the Right to Repair.................................... 130
   C. Consumers’ Approach to the Right to Repair............... 133
   D. Manufacturers’ Approach to the Right to Repair........... 134

II. Legal Introduction to the Right to Repair......................... 136
   A. Freedom of Disposition, Restrains on Alienation, and Common Law Considerations........................................... 136
   B. Patent Law Considerations........................................ 137
   C. Copyright Law Considerations.................................... 141
   D. Trademark Law Considerations.................................. 144
   E. Contract Law Considerations..................................... 148

III. Agriculture and the Right to Repair............................... 150
   A. Introduction.......................................................... 150
   B. John Deere and the Right to Repair............................. 152
   C. Current and Pending Lawsuits against John Deere Related to the Right to Repair.................................................. 153

IV. Federal and State Law Considerations .............................. 154
A. State Law Approach to Right to Repair ........................................ 154
B. Federal Law Approach to Right to Repair ...................................... 155
C. Issues Presented by the American Dual Federalism Structure ........... 157

V. Potential Solutions ................................................................. 158
A. Restatement of Issues, Considerations, and Opposing Interests .......... 158
B. Balancing the Interests of Right to Repair Reform ........................... 158
C. Multi-Layered Approach to Right to Repair Reform ....................... 159

VI. Conclusion .............................................................................. 163

Introduction

Farming equipment is expensive; it is expensive to purchase, it is expensive to operate, and it is expensive to maintain. But imagine a small-town farmer who spent over $1,000,000 on a new combine (or other piece of farming equipment) and this machine was the only thing standing between feeding his family and selling his farm.1 And then imagine that it suddenly breaks down or perhaps needs routine maintenance. Should he not have the ability to repair and maintain the equipment in the most cost-effective way possible?

But then also imagine that the combine manufacturer requires any farmer who seeks to maintain or repair the combine have a specially licensed software tool.2 The software tool provides codes necessary to access various diagnostic features built into the farming equipment.3

Consider the plight of a farmer in rural America. Changing weather has left him with only forty-eight hours to harvest hundreds of acres of corn, and his expensive new John Deere combine is inoperable due to a low-voltage fault in a sensor.4 Because controls are put in place by the

3 See id.
combine manufacturer, he is unable to replace the sensor or clear the Central Processing Unit (“CPU”) code to turn on and operate his combine. As a result of this seemingly insignificant issue, his crops begin to rot in the field, the corn turns hard and starchy, and he loses nearly $1,000 per acre in gross harvest profit. All for lack of a software tool.

Unfortunately, this is a situation all too familiar to the American farmer. Every year, farmers and equipment operators are left stranded by otherwise functional equipment rendered inoperable due to systemic lock-outs and exorbitantly priced or unavailable diagnostic tools. Furthermore, issues like the one above, are not relegated exclusively to the agriculture industry. Today, nearly every device sold encompasses some type of software, proprietary technology, or systemic lock-out that prevents the everyday consumer from utilizing the device to its full capacity.

Now enter the right to repair. This movement, although not new, has garnered significant traction in the last several years. The right to repair, as the name suggests, is the right of consumers to repair a device on their own or have a technician of their choosing repair the device. The right to repair is a familiar concept to most older Americans and those who are accustomed to working on old things; however, in the modern, tech-focused, and disposable world of 2022, the intricacy of components, the lack of aftermarket information regarding the devices, and the software-centric nature of the devices essentially eliminate the possibility of repair by the everyday consumer.

To be clear, neither state nor federal statute make it illegal to repair equipment, and courts’ subsequent interpretations further support this conclusion. However, this is not the whole story. Despite the legality of repairing purchased equipment, the right to repair is useless without the concomitant ability to repair. Instead, the right to repair movement seeks to level the playing field between consumers and device manufacturers,
making available the requisite tools, knowledge, parts, and information necessary to facilitate the repair of devices.\textsuperscript{12}

Big tech companies, automobile manufacturers, and agriculture equipment manufacturers, to name a few, vehemently oppose allowing consumers to repair and modify their produced devices.\textsuperscript{13} The companies, primarily the large technology companies like Apple and Microsoft, argue that permissive right to repair legislation would “let pirates rip off intellectual property and expose consumers to security risks.”\textsuperscript{14} Furthermore, companies like John Deere require would-be purchasers of their equipment to sign and adhere to prohibitive license agreements and terms of service that prevent tampering with the “security measures” on embedded software.\textsuperscript{15}

Farming equipment, and more specifically tractors, harvesters, and combines, which historically have been simple machines comprised of steel, hydraulics, and rubber, are becoming increasingly more advanced; today, tractors are “slowly becoming more of a software device than a hardware device.”\textsuperscript{16} Therefore, device manufacturers consistently rely on purported fears of theft and misuse, backed by the force of federal intellectual property protection, to fight off right to repair legislation and maintain control of their equipment post-sale.\textsuperscript{17}

This Article calls into question the alleged risks and concerns put forward by device manufacturers and argues that the benefits of permitting the repair of equipment by consumers will not be a significant detriment to device manufacturers. Further, a more permissive right to repair framework will also reduce waste, promote innovation, and abide by the spirit of intellectual property law in the United States.

This Article does not seek to undermine the capitalistic framework of the open market. Instead, this Article calls into question select practices


\textsuperscript{16}Id.

of device manufacturers, which seem to run afoul of the spirit of open competition, policies underlying intellectual property protections, and controls put in place related to antitrust. It should also be noted that the Author opposes enactment of federal legislation to control enterprise; however, the driving forces behind the right to repair movement are public policy considerations which seek to preserve the free movement of labor, the right to work, and the ability to compete in the marketplace. Furthermore, this Article seeks to discuss the pending and proposed legislation related to the right to repair movement and offer commentary on its perceived effectiveness and likelihood of success in promoting consumer rights, particularly in the agriculture industry.

This Article begins with a discussion and description of the right to repair movement, its history, and the positions taken by both consumers and device manufacturers. The Article continues with an explanation and evaluation of the legal structures related to the right to repair. Next, the Article discusses right to repair as it relates to the agriculture industry followed by an assessment of state and federal laws targeting the right to repair. The Article concludes with a proposed right to repair framework, accounting for the various competing interests and comporting with property and contract law, intellectual property law, and public policy considerations.

I. Introduction to the Right to Repair

A. The Right to Repair

The right to repair is not a novel concept. From the conception of tools by mankind, the repair of these tools has been necessary to maintain their operability and promote the furtherance of technological innovation. Right to repair, a slogan used to describe the age-old practice of “self-repair,” is quite simple. The essential premise is that a consumer has purchased a device, the consumer owns the device, and accordingly, the consumer should have the right to use, maintain, and repair the device in the way the consumer deems most appropriate. Though deeply-rooted in the history of tools and innovation, codification of these rights has been

18 See The Repair Ass’n, supra note 12.
20 See id.
21 Mark, supra note 13, at 386.
nearly non-existent in American jurisprudence.\textsuperscript{23} Scattered case law has hinted at the presence of this right, but the political and market influences of large device manufacturers and the ever-growing reliance upon intellectual property protection by inventors and manufacturers has successfully stayed the push for codification and national acceptance of the right to repair.\textsuperscript{24}

\section*{B. History of the Right to Repair}

Beginning in the twentieth century and with the onset of the Industrial Revolution and the breakthrough in interchangeable parts, manufacturers realized “that product durability often wasn’t in their economic self interest . . . So [they] found ways to induce consumption and discourage repair. As early as the 1920s, firms were exploring the strategies that would eventually become known as ‘planned obsolescence.’ By the 1950s, those techniques were cornerstones of consumer economy.”\textsuperscript{25}

Today, companies that do not engage in “planned obsolescence,” restrictive licensing, and post-sale control of their devices place themselves at a significant disadvantage.\textsuperscript{26} Companies do not want their consumers to repair their devices; they want consumers to buy new devices.\textsuperscript{27} However, if a repair is required, the companies want, and sometimes require, that consumers use their repair networks and branded, original equipment to maintain a monopoly on repair.\textsuperscript{28} By maintaining a policy favoring replacement over repair, companies are able to exert control over the

\begin{flushright}
\textsuperscript{24} Id.
\textsuperscript{25} AARON PERZANOWSKI, \textit{THE RIGHT TO REPAIR: RECLAIMING THE THINGS WE OWN} 49 (2022); see generally id. at 50–148 (discussing the history of the right to repair movement and intellectual property considerations related to right to repair).
\textsuperscript{26} See id. at 56 (describing the economic incentives to planned obsolesce).
\textsuperscript{27} Valerie Vande Panne, \textit{Fight for Your Right . . . to Repair}, SALON (Feb. 27, 2019, 4:00 AM), http://www.salon.com/2019/02/27/fight-for-your-right-to-repair_partner [https://perma.cc/HU2L-VT8H].
\textsuperscript{28} Nathan Proctor, \textit{Corporations Are Co-Opting Right-to-Repair}, WIRED (Mar. 16, 2019 8:00 AM), http://www.wired.com/story/right-to-repair-co-opt/ [https://perma.cc/L65F-TLDB] (discussing the variety of tactics companies undertake to block access to repair including the practice of not making available replacement parts or selling replacement parts at high markups, limiting access to repair information, and systematic lock-outs to void unauthorized repairs).
\end{flushright}
entire life-cycle of the device—they control the purchase, use, repair, disposal, and upgrade of said devices.\textsuperscript{29}

“Device makers rely on an assortment of economic, technological, and legal techniques to curtail repair.”\textsuperscript{30} For example, the cost of repair services is priced to encourage the replacement of devices; marketing strategies emphasize incremental feature improvements in new devices to drive short upgrade cycles; and product designs incorporate components that are difficult to replace or require expensive tools to repair.\textsuperscript{31} Some devices, for all practical purposes, are impossible to repair.\textsuperscript{32}

Until the mid-2000s, scant state or federal legislation had been presented to combat this multi-layered control approach taken by device manufacturers.\textsuperscript{33} However, in 2012, Massachusetts passed the first right to repair legislation in the United States.\textsuperscript{34} While this legislation only applies in Massachusetts, it has set the stage for the consideration of complementary legislation by other states while simultaneously laying the important groundwork for pending federal legislation.\textsuperscript{35} The Massachusetts state legislation requires automobile manufacturers to provide manuals and replacement parts to consumers for the purpose of repair.\textsuperscript{36} The legislation prompted acquiescence by several automakers, who signed a national memorandum, making the terms of the Massachusetts bill applicable nationwide.\textsuperscript{37} As a result, there is evidence that the legislation significantly increased the number and market share of small auto repair shops in the state, thus providing consumers with alternative, and often less expensive, means for repairing and servicing their vehicles.\textsuperscript{38}

At the time of drafting this Article, three important steps have been taken on the national level related to the right to repair. The first step

\textsuperscript{30} \textit{Id.} at 363.
\textsuperscript{31} \textit{Id.} at 368.
\textsuperscript{32} See Jeff Suovanen et al., \textit{AirPods Pro Teardown}, iFixit (Oct. 31, 2019), https://www.ifixit.com/Teardown/AirPods+Pro+Teardown/127551 [https://perma.cc/5YKZ-9ZNG] (discussing the sixteen steps and twelve tools needed to disassemble, service, and attempt to repair the Apple AirPod Pro in-ear headphones).
\textsuperscript{34} \textit{Id.}
\textsuperscript{35} \textit{See id.}
\textsuperscript{36} \textit{See id.}
\textsuperscript{37} \textit{Id.}
came in the form of a bill proposed in the House of Representatives, which sought “[t]o require original equipment manufacturers of digital electronic equipment to make available certain documentation, diagnostic, and repair information to independent repair providers.”\(^{39}\) Despite the inability of this bill to leave the House, it began the conversation on the national stage.\(^{40}\)

The second step was an Executive Order from President Biden on July 9, 2021, which called upon the Federal Trade Commission (“FTC”) to limit anticompetitive practices of large companies and promote economic growth within the United States.\(^{41}\) Within the following year, “[t]he FTC voted unanimously to adopt this [O]rder [sic] and to ramp up law enforcement against repair restrictions.”\(^{42}\) Unlike the prior proposed House bill, this Executive Order has garnered outward acceptance on the national level among legislators and within several federal agencies.\(^{43}\)

Lastly, and most recently, on February 1, 2022, Senator Jon Tester (D-MT) introduced proposed legislation to the Senate floor aimed at the agriculture industry.\(^{44}\) Senate Bill 3549, known as the Agriculture Right to Repair Act, seeks “[t]o require original equipment manufacturers to make available certain documentation, parts, software, and tools with respect to electronics-enabled implements of agriculture.”\(^{45}\)

This Bill takes notice of the arguments put forth by agriculture device manufacturers and establishes “fair and reasonable” exceptions to existing intellectual property laws for the purposes of diagnostics, maintenance, upgrading, reprogramming, repair, interoperability, and research, to name a few.\(^{46}\)

The right to repair movement has thus taken several significant steps forward in the last decade. However, these steps have not stopped device manufacturers from attempting to quell the movement and place further restrictions upon consumers. Therefore, this Article argues that until further steps are taken to protect consumers’ right to repair, device manufacturers will continually pursue further restrictions in the pursuit of increasing revenue and exercising control over their customers.


\(^{40}\) See id.


\(^{43}\) Klosowski, supra note 19.

\(^{44}\) Agriculture Right to Repair Act, S. 3549, 117th Cong. (2022).

\(^{45}\) Id.

\(^{46}\) Id. at § 3(c)(1).
C. Consumers’ Approach to the Right to Repair

The everyday consumer has an expectation that, upon the purchase of a device or piece of equipment, an implicit right exists which permits unrestricted access to the functionality, operability, and sustainability of the device or equipment.47

Proponents of the right to repair movement “advocate that current practices [by device manufacturers] are anti-competitive and inefficient.”48 Further, proponents also argue that the current “throw-away” culture is unsustainable and produces a tremendous amount of waste, especially “e-waste.”49 Lastly, “proponents maintain that the right to repair fits within the historical framework of intellectual property law.”50

Right to repair advocates seek four primary objectives.51 These objectives include: (1) make information available as it relates to “manuals, schematics, and software updates”; (2) make the parts and tools necessary to repair available to individuals and third parties; (3) allow “unlocking, adapting, or modifying a device, so an owner can install custom software”; and (4) require that manufacturers design products and devices that are capable of being repaired.52

Consumers want to exercise dominion over the things they own.53 However, device manufacturers intentionally design products that are difficult or impossible to repair and thus encourage replacement in favor of repair.54 Presumably, consumers would reward device manufacturers who support permissive repair of their devices through additional and future patronage. Additionally, device manufacturers would likely see an increase in their goodwill, sales, and acceptance in the marketplace if permissive repair policies were adopted. However, while the wants of the consumers do not seem outlandish, as with all movements, compromise is necessary to balance the opposing interests of the consumers and the device manufacturers.

47 Montello, supra note 22, at 166–67.
48 Montello, supra note 22, at 177.
50 Montello, supra note 22, at 177.
51 Klosowski, supra note 19.
52 Id.
53 Perzanowski, supra note 29, at 394.
54 Id. at 361–63.
D. Manufacturers’ Approach to the Right to Repair

Manufacturers do not want consumers to utilize the full potential of equipment functionality, as the more rights a consumer has over the repair, maintenance, and use of equipment, the less profit the manufacturer can generate.\textsuperscript{55} As an overarching principle, “[o]pponents of right to repair maintain that repairs made outside of manufacturers’ authorized repair networks will lead to complications.”\textsuperscript{56} These alleged complications may include “cybersecurity risks, corporate liability and consumer safety concerns, and warranty issues.”\textsuperscript{57} Furthermore, opponents of right to repair legislation continually fall back on intellectual property law as a basis for their position.\textsuperscript{58} Manufacturers believe that permissive right to repair legislation “will infringe on manufacturers’ intellectual property rights” including utility and design patent, trademark, copyright, and trade secret protections.\textsuperscript{59}

In addition to these arguments, some manufacturers also maintain that consumers do not actually own the products; instead, what consumers deem the purchase of the product is merely the manufacturer’s grant of a license to use the product.\textsuperscript{60} Several manufacturers, especially in the technology and agriculture industries, require that customers agree to restrictive End User License Agreements (“EULAs”) and/or Terms of Service (“TOSs”) which forbid the unauthorized use of hardware or software in conjunction with the device, forbid the second-hand sale of used devices, and restrict the actions of the consumer post-sale.\textsuperscript{61}

However, lurking beneath these justifications is a dominant driver—corporate profit.\textsuperscript{62} Although the manufacturers never state this explicitly, it is an unavoidable aspect of commercial enterprise.\textsuperscript{63} It is no secret that companies need to make money. If companies do not make money, they will not be able to operate or produce the products upon which consumers desperately rely. “Manufacturers want to monopolize repair services because monopolizing repair is extremely profitable.”\textsuperscript{64} In

\textsuperscript{55} See Montello, supra note 22, at 176.
\textsuperscript{56} Id. at 174.
\textsuperscript{57} Id.
\textsuperscript{58} Id.
\textsuperscript{59} Id.
\textsuperscript{61} Id.
\textsuperscript{62} Montello, supra note 22, at 176.
\textsuperscript{63} Id.
\textsuperscript{64} Id.
addition to the profits generated from repair, manufacturers have determined that even more profits can be generated from replacement. While repairs are lucrative, they require input from the manufacturer. Companies must produce additional replacement parts, establish repair networks, and constantly update repair protocols, methods of analyzing claims, and pay technicians to perform the repairs. Instead, companies tend to prioritize, and oftentimes forcibly encourage, a scheme of replacement and upgrade over repair.

Permissive right to repair requirements and legislation could significantly impact the bottom-line of companies. Requiring the disclosure of proprietary information, eliminating artificially created monopolies on repairs, and reducing the number of consumers replacing their devices will result in less corporate profits.

However, advocates for a more permissive right to repair framework in the United States point to a key inconsistency in the “mindset” of many large companies. As put forward by the 2021 Edelman Trust Barometer, consumer trust in companies is approaching an all-time low. “Trust . . . has always been the most sacred coin of corporate currency.” However, many companies are no longer taking active steps to rebuild or inspire confidence despite the fact that many consumers refuse to buy products from companies that they do not trust and are willing to openly criticize these companies to others. Although instilling trust and confidence in their customers would likely increase sales, revenue, and market share, companies often do not focus on increasing goodwill due to its perceived input costs and the difficulty associated with measuring a rate of return from their efforts. Instead, companies focus

65 Id. at 177.
66 Perzanowski, supra note 29, at 365.
67 See generally id. (summarizing various obstacles to repair by manufacturers, consumers, or independent repair shops).
68 Id. (touching on three strategies companies use for frustrating repair: design patents, trademarks, and trade secrets).
69 Cf. Montello, supra note 22, at 176–77 (limiting restrictions on repairs will limit a profitable revenue stream for manufacturers).
71 DIX & EATON, supra note 70.
72 Id.
73 Cf. id. (noting the long road to rebuilding trust comes with risk, but the ability to rebuild trust is critical to the overall health of the company).
on limiting global competition, managing increasing costs, and limiting the repairability of their devices.\textsuperscript{74} Through these current practices, companies have determined that they can generate an adequate rate of return on their investments and will continue to pursue their current practices until an external force alters this course.

Therefore, the following sections attempt to expand upon the approaches taken by consumers and manufacturers related to the right to repair, intellectual property considerations implicated by the right to repair, and potential solutions to ease the tension that exists between consumers and device manufacturers.

\textbf{II. Legal Introduction to the Right to Repair}

\textbf{A. Freedom of Disposition, Restrains on Alienation, and Common Law Considerations}

The primary common law doctrine relevant to the right to repair is property law. Although property law frequently relates to real property (i.e., fixed property, commonly in the form of land and buildings), the principles of freedom of disposition and unlawful restraints on alienation seem to apply to the right to repair movement.\textsuperscript{75} The freedom of disposition, a concept cemented in the American law of succession, relates to the fact that “a property owner [has the right] to dispose of his or her property on terms that he or she chooses.”\textsuperscript{76} A parallel can be drawn to the right to repair movement. A consumer, the de facto owner of said device upon purchase, should be permitted to use and ultimately dispose of the property as the consumer chooses. However, due to the codification of certain intellectual property laws, discussed below, and the emergence of restrictive agreements perpetuated by manufacturers, this is unlikely to be the case.

Another related concept is that of restraints on alienation. Like the freedom of disposition, alienation is a concept rooted in property law.\textsuperscript{77} However, parallels exist which are relevant to the right to repair movement. In essence, restraints on alienation are explicit restrictions on

\textsuperscript{74} Perzanowski, supra note 29, at 381.

\textsuperscript{75} See generally Robert H. Sitkoff, Trusts and Estates: Implementing Freedom of Disposition, 58 St. Louis U. L.J. 643 (2014) (discussing freedom of disposition and unlawful restraints on alienation as they pertain to trusts and estates).

\textsuperscript{76} Id. at 644.

future conveyances (i.e., transfers) of real property. Restraints on alienation have been traditionally disfavored by courts and, as such, are generally only upheld if the restraint is not unreasonable. An aggrieved farmer could argue that the restraints placed upon these products by equipment manufacturers are in essence restraints on alienation. EULAs, which prohibit certain uses and resale of products, run afoul of these traditional notions of the freedom of disposition and may, by analogy, amount to unreasonable restraints on the alienation of the customer’s property.

Even though these may be colorable arguments, courts are unlikely to view this parallel between property law and the right to repair movement as a valid cause of action and, as such, challenges premised upon these notions will likely be unsuccessful in a court of law. Therefore, the following sections will discuss current intellectual property laws and contract considerations related to the right to repair movement.

B. Patent Law Considerations

Patent law in the United States draws its roots directly from the United States Constitution. Article I, Section 8 of the United States Constitution authorizes Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Patent law is exclusively under the control and jurisdiction of the United States Federal Government, the provisions of which are codified in 35 U.S.C. 81

Title 35 of the United States Code provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent therefor.” As per § 271, patents grant a limited monopoly to the patentee over the invention and prohibit others, without authority from the patentee, from “mak[ing], us[ing], sell[ing], and offer[ing] to sell any patented invention, within the United States” or from importing the patented invention into the United States for the term of the patent. Title 35 § 271 is the basis for infringement actions maintained by patentees over alleged infringers. The current patent system provides for three types of patents; however,
only two types of these patents, which include utility patents and design patents, are relevant to the discussion of the right to repair.\textsuperscript{85} Although patent protection is not unlimited, the length of protection offered by the grant of a patent is of key significance to both consumers and device manufacturers. The term of a utility patent begins “on the date on which the patent issues and [ends] 20 years... from the date on which the earliest such application was filed.”\textsuperscript{86} By contrast, “[p]atents for designs shall be granted for the term of 15 years from the date of grant.”\textsuperscript{87} While similar in structure, the two forms of patents apply somewhat differently. “In general terms, a ‘utility patent’ protects the way an article is used and works, while a ‘design’ patent protects the way an article looks.”\textsuperscript{88} As such, inventors and device manufacturers will seek the greatest protection for their devices; often, these entities will seek utility patents to protect the functionality and design patents to protect the ornamentality of their products.\textsuperscript{89}

The United States patent system was “designed to create economic incentives.”\textsuperscript{90} “In exchange for market exclusivity, inventors devote time and capital to developing new technologies. The resulting inventions are then shared with the public...”\textsuperscript{91} With very few exceptions, the unauthorized use of patented inventions constitutes infringement.\textsuperscript{92} “As a result, patent holders wield considerable power over the manufacture and sale of products embodying their inventions, as well as their use—even for private, non-commercial purposes.”\textsuperscript{93} However, this limited monopoly does come at a significant cost to manufacturers and inventors. Although the price varies considerably depending on the complexity of the invention and the size of the entity, out-of-pocket expenses, which include attorney fees, for design patents can creep upwards of $3,500, and out-of-pocket expenses, which also include attorney fees, for utility patents can range anywhere from $6,000 to in excess of $45,000.\textsuperscript{94} Based on these numbers, the patent market is evidently big business; due to companies’ investment in research and development and the costs associated with patenting and

\textsuperscript{86} 35 U.S.C. § 154(a)(2).
\textsuperscript{87} 35 U.S.C. § 173.
\textsuperscript{89} See id.
\textsuperscript{90} PERZANOWSKI, supra note 25, at 124.
\textsuperscript{91} Id. at 124–25.
\textsuperscript{92} 35 U.S.C. § 271.
\textsuperscript{93} PERZANOWSKI, supra note 25, at 125.
maintaining these technologies, enforcement is critical. Furthermore, the patent system is a form of social contract, in that the inventors receive a limited monopoly for a set period of time in exchange for making their inventions public and, as such, dedicated to the public following the expiration of the patent term.95

A leading case on the right to repair in patent law is Aro Manufacturing Co., Inc. v. Convertible Top Replacement Co., Inc. (Aro I).96 In this case, the United States Supreme Court recognized a key distinction related to the rights of a patentee.97 In Aro I, an action was brought for infringement of a combination patent on a convertible folding top for automobiles.98 The Court rearticulated a long-standing doctrine which asserts that the repair of a patented manufacture is permissible, while the reconstruction constitutes infringement.99 Additionally, the Court went on to state that “a license to use a patented combination includes the right to ‘preserve its fitness for use so far as it may be affected by wear or breakage’” and relied on a test put forward by Judge Learned Hand that “[t]he [patent] monopolist cannot prevent those to whom he sells from . . . reconditioning articles worn by use, unless they in fact make a new article.”100

Many years later in 2008, the Supreme Court took up another issue related to patent infringement in Quanta Computer, Inc. v. LG Electronics, Inc.101 In this case, the Court analyzed the longstanding “doctrine of patent exhaustion [which] limit[s] the patent rights that survive the initial authorized sale of a patented item.”102 The doctrine of patent exhaustion “provides that the initial authorized sale of a patented item terminates all patent rights to that item” and is similar to copyright exhaustion, as

96 See generally Aro Mfg. Co. v. Convertible Top Replacement Co. (Aro I), 365 U.S. 336 (1961) (discussing whether the replacement of the fabric on a convertible folding top was infringing on the convertible folding top patent).
97 Id. at 338–39.
98 Id.
99 Id. at 342 (citing Wilson v. Simpson, 50 U.S. 109, 123 (1850)).
100 Id. at 343, 345–46 (first quoting Leeds & Catlin Co. v. Victor Talking Mach. Co., 213 U.S. 325, 336 (1909); then quoting United States v. Aluminum Co. of Am., 148 F.2d 416, 425 (2d Cir. 1945)).
101 See generally Quanta Computer, Inc. v. LG Electronics, Inc., 553 U.S. 617 (2008) (examining the applicability of the patent exhaustion doctrine to the sale of individual components of a patented system that must be combined with other components in order to practice the patented methods).
102Id. at 621.
embodied in the first sale doctrine, which is codified at 17 U.S.C. § 109. In sum, the holding of the Court reaffirmed that “the personal property rights of the owner of the physical product trump the intellectual property rights of the patent holder.”

Finally, in 2017, the Supreme Court, in its decision of Impression Products, Inc. v. Lexmark International, Inc., reevaluated the exhaustion doctrine as it relates to the rights of a patentee post-sale. The Court held that “[a] patentee’s decision to sell a product exhausts all of its patent rights in that item, regardless of any restrictions the patentee purports to impose. . . .” Therefore, even if the terms of a patentee’s contract with a customer are “clear and enforceable under contract law, . . . they do not entitle Lexmark [as patentee] to retain patent rights in an item that it has elected to sell.”

Furthermore, the exhaustion rule marks the point where patent rights yield to the common law principle against restraints on alienation. The Patent Act “promote[s] the progress of science and the useful arts by granting to [inventors] a limited monopoly” that allows them to “secure the financial rewards” for their inventions. . . . [O]nce a patentee sells an item, it has “enjoyed all the rights secured” by that limited monopoly. Because “the purpose of the patent law is fulfilled . . . when the patentee has received his reward for the use of his invention,” that law furnishes “no basis for restraining the use and enjoyment of the thing sold.”

The Lexmark decision reaffirmed the “centuries-old principle” of the exhaustion doctrine and “recognized an inherent right to repair.” However, companies have continued their practices of restrictive contracts and license agreements despite these Court decisions, and device manufacturers continually rely on their market power and rights in replacement parts to “starve repair providers of the replacement parts

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103 Id. at 625; see also 17 U.S.C. § 109.
104 PERZANOWSKI, supra note 25, at 126.
105 See generally Impression Prods., Inc. v. Lexmark Int’l, Inc., 581 U.S. 360 (2017) (deciding whether a “a patentee that sells an item under an express restriction on the purchaser’s right to reuse or resell the product may enforce that restriction through an infringement lawsuit”).
106 Id. at 366.
107 Id. at 370.
109 PERZANOWSKI, supra note 25, at 126.; see also cases cited supra note 109.
essential to their services” or charge exorbitant prices that discourage third-party repairs.\(^\text{110}\)

Design patents may also enable sellers to limit repairs on their products. To prove infringement of a design patent, a patentee “must show that ‘an ordinary observer, taking into account the prior art, would believe the [defendant’s] design to be the same as the patented design.’”\(^\text{111}\)

Modern trends in the United States Patent and Trademark Office (“USPTO”) have seen an uptick in design patent grants, and the progressively broadened scope of these design patents have allowed patentees to protect external and internal components as ornamental.\(^\text{112}\) This recent shift is ever-present in the automotive industry, wherein manufacturers have been successful in securing design patent protection for otherwise functional equipment like headlights, turn signals, and bumpers.\(^\text{113}\) Therefore, patentees “have the power to deny . . . parts to owners and repair providers, to charge unreasonably high prices, or to condition access to parts on other onerous terms” based on the rights afforded to design patentees.\(^\text{114}\)

Despite the decisions by the Courts related to the exhaustion doctrine, the implicit right to repair, and the repair versus reconstruction dichotomy, patentees still maintain the ability to condition access to their products and prevent consumers from manipulating the products post-sale.

C. Copyright Law Considerations

Much like patent law, copyright law draws its roots directly from Article I, Section 8, of the United States Constitution.\(^\text{115}\) Per 17 U.S.C. § 102(a), “[c]opyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.”\(^\text{116}\) Unlike patent law, copyright law, in select instances, and trademark law, discussed in more detail below,\(^\text{117}\) appear in two aspects: common law and statutory law. The instant an original work of authorship is fixed in a

\(^{110}\) Perzanowski, supra note 29, at 372.

\(^{111}\) PERZANOWSKI, supra note 25, at 133 (quoting Egyptian Goddess, Inc. v. Swisa, Inc., 543 F.3d 665, 682 (Fed. Cir. 2008)).

\(^{112}\) PERZANOWSKI, supra note 25, at 138–39.

\(^{113}\) See id.

\(^{114}\) Id. at 134.

\(^{115}\) U.S. CONST art. I, § 8, cl. 8.

\(^{116}\) 17 U.S.C. § 102(a).

\(^{117}\) See discussion infra Section II.D.
tangible medium, a common law copyright is created.\textsuperscript{118} The rights afforded to the author are limited under common law, but these rights do provide for several causes of action related to infringement.\textsuperscript{119} However, many of these common law considerations were preempted in 1976 with the enactment of the Copyright Act of 1976; now, to receive the breadth of copyright protection, an author will likely register their work(s) with the United States Copyright Office in accordance with 17 U.S.C. § 412.\textsuperscript{120}

Although registration is not required under the current copyright framework of the United States, registration offers several additional protections to the author, primarily the ability to maintain an infringement action against an alleged infringer in federal courts under 17 U.S.C. § 501.\textsuperscript{121} Furthermore, both common and statutory law copyright protections prevent consumers from reproducing the works, preparing derivative works, and distributing copies of the works to the public by sale or other transfer of ownership.\textsuperscript{122}

As enumerated in 17 U.S.C. § 102, copyright protection is afforded to numerous types of authorship.\textsuperscript{123} As it relates to equipment manufacturers, software code and manuals qualify for copyright protection under 17 U.S.C. § 102(a)(1) as literary works.\textsuperscript{124} A U.S. copyright generally “endures for a term consisting of the life of the author and 70 years after the author’s death.”\textsuperscript{125} However, in the case of corporate copyrights emanating from works for hire, “the copyright endures for a term of 95 years from the year of its first publication, or a term of 120 years from the year of its creation, whichever expires first.”\textsuperscript{126} Therefore, for all practical purposes, a copyright on software and manuals lasts well past the useful life of the device itself. In the modern era, device manufacturers consistently assert copyright protection over part numbers, repair manuals, software code, and the like.\textsuperscript{127}

In 1998, Congress enacted the Digital Millennium Copyright Act (“DMCA”), which added 17 U.S.C. § 1201, forbidding the circumvention of technological protections applied to works protected under copyright.\textsuperscript{128} In essence, the DMCA “makes it illegal to circumvent DRM

\textsuperscript{118} Id. § 301.
\textsuperscript{119} Id.
\textsuperscript{120} See id. § 412.
\textsuperscript{121} See id. § 501(b).
\textsuperscript{122} See id. § 106.
\textsuperscript{123} See id. § 102(a)(1)–(8).
\textsuperscript{124} Id. § 102(a).
\textsuperscript{125} Id. § 302(a).
\textsuperscript{126} Id. § 302(c).
\textsuperscript{127} See generally PERZANKOWSKI, supra note 25 (describing the ways device manufacturers use copyright protections to assert control over various aspects of the repair process).
\textsuperscript{128} 17 U.S.C. § 1201.
[Digital Rights Management] or traffic in tools that enable circumvention.\textsuperscript{129} Although intended to thwart the pirating of CDs and DVDs, the inherent ambiguity contained within the DMCA has been exploited by device manufacturers in their fight to limit the right to repair.\textsuperscript{130}

Forbidden by these anti-circumvention protections in the DMCA, access to copyrighted works are restricted by DRM and other technological protection measures ("TPMs").\textsuperscript{131} "Device makers routinely use TPMs to limit access to the software code that control devices . . . [t]hat code is often necessary to diagnose and repair devices."\textsuperscript{132} Device makers, like John Deere, go as far as to use proprietary software tools to authenticate and calibrate replacement parts, making it nearly impossible to diagnose the problem and use third party parts to repair the equipment without creating several counts of copyright infringement liability.\textsuperscript{133}

However, several exceptions exist to pierce the dense layer of copyright protection provided to device manufacturers. To begin, copyright protection "extends only to an author’s unique expression of an idea, not the underlying idea itself."\textsuperscript{134} Additionally, copyright law only protects creative elements and, as such, excludes protection for functional components of the article.\textsuperscript{135} In addition to these basic constrains on copyrightability, the Librarian of Congress has adopted exceptions to the provisions of the DMCA several times since its enactment to allow consumers the ability to repair certain software-embedded devices without committing copyright infringement.\textsuperscript{136}

While narrow in scope, these exemptions provide a glimmer of hope to right to repair advocates. However, the glimmer of hope is somewhat shadowed by the framework of the DMCA; § 1201 provides permanent exemptions which permit TPM circumvention, but these exemptions only apply in specific cases related to non-profits, museums, education, and law enforcement.\textsuperscript{137} Further, the DMCA provides the possibility for enactment of temporary exemptions.\textsuperscript{138} However, these exemptions may only be renewed every three years, require an onerous requesting procedure, and may be denied by the overseeing federal

\textsuperscript{129} Moore, \textit{supra} note 8, at 512.
\textsuperscript{130} See Montello, \textit{supra} note 22, at 168.
\textsuperscript{131} Perzanowski, \textit{supra} note 29, at 370.
\textsuperscript{132} \textit{Id}. at 370–71.
\textsuperscript{133} \textit{Id}. at 371–72.
\textsuperscript{134} \textit{Perzanowski}, \textit{supra} note 25, at 112.
\textsuperscript{135} \textit{Id}.
\textsuperscript{136} See Montello, \textit{supra} note 22, at 168.
\textsuperscript{137} 17 U.S.C. § 1201.
\textsuperscript{138} \textit{Id}.
agencies. Lastly, these exemptions, whether permanent or temporary, do not compel manufacturers to “provide repairers access to manuals, parts, or software tools to circumvent these restrictions for the purpose of repair.”

The final protections offered to shield a consumer from infringement liability of copyrighted works are the first sale doctrine, codified at 17 U.S.C. § 109, and fair use exceptions, codified at 17 U.S.C. § 107. The first sale doctrine in copyright law is the complement to the exhaustion principle of patent law. Essentially, once the copyright owner places the work in the stream of commerce, the owner exhausts its exclusive statutory right to control its distribution. Additionally, the fair use exceptions allow for the unlicensed use of copyright-protected works in certain circumstances like scholarship, research, criticism, and teaching. When taken together, these two statutory protections lay the framework to create an implicit right to repair in some copyright-protected media. However, both are exceptions and taking advantage of them will likely prove an uphill battle for consumers, especially small, independent repairers.

D. Trademark Law Considerations

Unlike patent law and copyright law, trademark law in the United States does not explicitly find its origin in the United States Constitution. Trademark law protections date back to at least ancient Greece and have found their way into American jurisprudence through the Commerce Clause.

Traditionally, trademarks were affixed to products made by craftsmen, guilds, and artisans to “guarantee the quality of the goods as well as identify the manufacturer.” In essence, trademark law has developed to protect consumers from confusion and protect mark holders

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139 Id.
140 Montello, supra note 22, at 168.
144 See generally PERZANOWSKI, supra note 25, at 152 (describing legality of resale markets and connection to right to repair).
146 THE L. OFFS. OF KONRAD SHERINIAN, supra note 146.
from deceptive reproductions, fraud, and unfair competition in the marketplace.  

Today, trademark protections exist in two forms: common law and statutory protections. Like common law copyrights, common law trademarks provide for several causes of action related to infringement, which are found within the Lanham Act, specifically, § 43(a). Furthermore, persons may also secure either or both state and federal registrations for their marks. While issues of federal preemption may arise in specific instances, state and federal statutory protections help in providing a seemingly impenetrable blanket of protection to mark holders.

Mark holders may register their marks with the USPTO and upon registration are provided with continuous protection of the mark, subject to the conditions of its continued use of the mark in commerce and payment of maintenance fees. Additionally, registration of marks with the USPTO affords mark holders additional means of protection in the form of maintaining infringement actions in federal courts under 15 U.S.C. § 1114.

In contrast to patent and copyright protections, trademark protections do not serve a primary purpose of “provid[ing] economic incentives for creative or innovative products. Instead, [they] serve[] two other purposes—promoting fair competition and protecting consumers from unscrupulous sellers.” With that being said, device manufacturers also rely on trademark protection (i.e., protection for a recognizable identifier of a good or service) and trade dress protection (i.e., protection for the design and/or shape of materials used in the packaging of goods) to limit a consumer’s right to repair. Manufacturers have been successful in securing trademarks affixed to their products and have claimed trade dress protection for “iconic” (i.e., distinctive) features of their products.

151 Id.
154 PERZANOWSKI, supra note 25, at 144.
Although trademarks cannot protect functional features of components, manufacturers have largely been able to avoid this issue by instead claiming trade dress protection on how these functional or semi-functional components look. Therefore, even if trademark protection is not available, trade dress protection permits a device manufacturer to assert protection over the way in which the goods are packaged, presented to the consumer, or encountered in the marketplace.

Because trademark protection lasts ad infinitum, so long as the mark owner continues to use it in commerce, the mark does not fall trap to genericide, and for registered marks, if the appropriate maintenance fees are paid, manufacturers have determined that when they affix their marks to OEM or replacement parts, they can prevent the unauthorized use of their marked products by others. Furthermore, the mark owners can prohibit repairers from using the marked products in addition to thwarting competitive look-alike parts from entering the United States under trade dress protection.

Lastly, several manufacturers use trademark law “to prevent the importation of replacement parts that contain manufacturer’s trademarks or appear similar to the part that is registered as a trademark.” “Since repair providers often cannot acquire parts directly from device makers, they are forced to rely on the grey market” to acquire the requisite repair parts. “A grey market is created by the unauthorized importation of legitimately trademarked goods which enter the United States against the wishes of the domestic trademark owner.” “In order to invoke trademark law to clamp down on the grey market”, some companies, like Apple, “include[ ] its logo on internal parts like batteries, processors, and cables. Most consumers never set eyes on these internal components and almost certainly don’t take notice of the logos, some no bigger than a grain of rice.”

Since U.S. trademark law affords broad rights to mark holders, companies “rely on the ambiguous origins of some grey market goods to seize lawful parts imported by repair providers” through nonjudicial

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156 Grinvald & Tur-Sinai, supra note 17, at 116.
157 PERZANOWSKI, supra note 25, at 148.
158 See Selinsky, supra note 156.
159 See generally Perzanowski, supra note 29, at 373–74 (discussing trademark protection of nonfunctional parts and use of trademark law to seize imported parts).
161 Grinvald & Tur-Sinai, supra note 17, at 117.
162 Perzanowski, supra note 29, at 374.
164 Perzanowski, supra note 29, at 374.
processes. Therefore, companies can maintain dominion over the entire repair market via control of trademarked replacement parts. Furthermore, these companies ensure that only authorized repairers (i.e., repairers within the company’s approved network or a subsidiary of the company itself) have access to the necessary parts by restricting access to the parts both domestically and internationally.

However, exceptions and carveouts do exist to protect consumers and ensure that these limited and de facto monopolies do not exist unfettered. To begin, the resale of authentic (i.e., genuine) goods bearing registered marks is generally lawful under the first sale doctrine. However, unlike copyright law, which codifies the first sale doctrine in “17 U.S.C. § 109, the Lanham Act includes no explicit ‘first sale’ defense.” In general, the fair use defense is applicable to resellers of goods that bear a registered mark, so long as the refurbished parts do not mislead consumers into thinking they are new and original. This means that qualifying refurbished goods are not considered “counterfeits” and are able to be sold in commerce without violating the Lanham Act. However, this is not the whole story. If the product bearing the mark cannot be repaired due to the unavailable nature of proprietary repair tools, repair manuals, and the like, the refurbishing and repair of that product is likely impracticable or impossible.

Gray market goods, which are goods manufactured by or with the permission of the trademark owner and intended for sale outside the United States, bear authentic trademarks but enter the United States through unauthorized distribution channels. While gray market goods are indeed genuine and the sale of these trademarked goods are legal, Titles 15 and 19 of the United States Code all but prohibit the importation of such goods into the United States. If the trademarked goods enter the United States through unauthorized distribution channels, 15 U.S.C. § 1124 bars admission of these goods at any customhouse of the United

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165 Id.
166 Id.
167 See id.
168 Id.
169 See Grinvald & Tur-Sinai, supra note 17, at 75
171 Grinvald & Tur-Sinai, supra note 17, at 118; see Champion Spark Plug Co. v. Sanders, 331 U.S. 125, 130–31 (1947).
172 Grinvald & Tur-Sinai, supra note 17, at 118.
States and 19 U.S.C. § 1526(b) authorizes the seizure of these goods. Therefore, even if the gray market goods were legally acquired and the sale is authorized in countries other than the United States, resellers are unable to sell them within the United States without authorization or prior approval of the manufacturer.

Despite these limited exceptions, companies still rely upon trademark and import control laws to thwart the importation and proliferation of refurbished original parts, replacement parts, and gray market goods with some degree of success.

E. Contract Law Considerations

Device manufacturers do not rely exclusively on intellectual property protections to snuff out the repair of their products. Contract law plays a significant role in this scheme, primarily in the forms of license agreements and terms of service. While exceptions in intellectual property law sometimes prevent device manufacturers from exerting control over their products after a first sale or an initial use in commerce, contracts provide a more malleable structure for device manufacturers to exert post-sale control.

Restrictive licensing comes in many forms including: (1) EULAs; (2) licensing of proprietary information; and (3) granting licenses exclusively to repair facilities in a company’s authorized network. EULAs are “a type of contract[] between software publishers and end users, which govern[s] the end user’s right to use software,’ and are thus extremely important as they prescribe what consumers may and may not do with the product.” For example, “[t]he John Deere EULA, which farmers are required to sign, ‘forbids nearly all repair and modification to farming equipment.’” Because of these restrictive agreements, consumers are essentially barred from modifying their equipment on their own and, as such, must make use of the avenues put in place by the device

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176 Liebeler, supra note 164, at 757.
177 Grinvald & Tur-Sinai, supra note 17, at 118–19.
178 Perzanowski, supra note 29, at 370.
179 See id.
181 Mirr, supra note 181, at 2397.
182 Id.
manufacturers to see that their equipment is repaired. Through this scheme, the manufacturers are put in a place of near total control. The manufacturers have the ability to authorize or deny repair services to the consumer. If the manufacturer does not provide the requisite tools or knowledge to repair the devices and chooses not to create avenues for authorized repair, the manufacturers effectively can force consumers to replace the part in its entirety or ultimately render the entire product inoperable, forcing the consumer to either upgrade the equipment or purchase a new piece of equipment to meet their needs.

As stated by Professors Grinvald and Tur-Sinai,

[one possible way to deal with this is to look to certain contract law doctrines to strike down restrictions on repair, particularly when the contract at hand is a standard form contract, involving parties of unequal bargaining power, rather than an agreement between commercial parties dealing at arm’s length. Among such doctrines, the public policy exception to contract enforcement or the unconscionability doctrine may prove particularly relevant. The downside to simply relying on these doctrines is that there is a great uncertainty involved in their application, which leaves consumers exposed to potential liability. Moreover, in order to invalidate a contract, a consumer would need to be prepared to dispute the terms. Consumers are undoubtedly placed in a difficult position. They have unequal bargaining power with the manufacturers and effectively rely on the finite number of manufacturers to produce and supply required equipment.

Because nearly all consumers fall in line with the circumstances outlined above, they are left with few to no options. They can choose to either purchase old and outdated equipment in an attempt to meet their needs or succumb to the restrictive licensing practices of modern device manufacturers. In the competitive world, the former option is likely not an option at all. As such, consumers are essentially forced to purchase the new equipment and yield to the terms of the EULAs and TOSs in order to meet their modern needs.

183 See id.
184 Id.
185 Montello, supra note 22, at 170.
186 Grinvald & Tur-Sinai, supra note 17, at 102 (citations omitted).
187 See id.
188 See id. at 101–02.
III. Agriculture and the Right to Repair

A. Introduction

The John Deere brand is classic Americana and has been one of the most prominent names in agriculture since its founding. Most individuals, despite never having laid a hand on a tractor or piece of farming equipment, can readily identify the iconic green and yellow as part of the John Deere brand.

However, Deere & Company ("Deere") is not the only manufacturer of farming equipment. As of 2022, there are 1,191 tractor and agriculture machinery manufacturing businesses in the United States. However, over the last forty years, the agriculture industry has been dominated by a few key market players who have focused on consolidation, eliminating small and independent manufacturers, and establishing unfathomable brand loyalty.

In addition to their domination of the manufacturing sub-sector, many of these same companies have taken a similar approach to repair facilities, repair services, and dealerships. For example, as of 2022, the state of Montana has only three Deere dealerships remaining when compared to around thirty dealerships only two decades earlier. Rising prices of equipment and supplies, the COVID-19 pandemic, and the extreme market power of large agriculture companies have effectively eliminated meaningful competition in the marketplace to include local, mom-and-pop manufacturers, dealerships, and repair shops of old. With John Deere “controlling about 50% of the North American large tractor

190 Id.
192 Flowers, supra note 192.
193 Id.
194 See id.
and combine market,” a 68 billion dollar market in 2022, the scope of the issue may be better appreciated.\footnote{See Donnelle Eller, Iowa U.S. Farm Groups File a Federal Right to Repair Complaint Against Deere to Fix Their Own Tractors, \textit{Des Moines Reg.} (Mar. 3, 202203 AM), \url{https://www.desmoinesregister.com/story/money/agriculture/2022/03/03/iowa-u-s-farmers-seek-probe-over-right-repair-deere-tractors-combines-farm-equipment-agriculture/9356985002/} [\url{https://perma.cc/GN5N-NT3N}].}

The lack of dealerships essentially presents two options for farmers: either (1) travel great distances to seek repair of their machines at authorized dealerships; or (2) pay to have authorized technicians travel to their farms, evaluate the machinery, and perform the repairs.\footnote{Jason Koebler, \textit{Tractor-Hacking Farmers are Leading a Revolt Against Big Tech’s Repair Monopolies, Vice} (Feb. 14, 2018, 2:31 PM), \url{https://www.vice.com/en/article/kzp7ny/tractor-hacking-right-to-repair} [\url{https://perma.cc/G4Y3-2L5D}].} The former option often requires loading the heavy farming equipment onto trailers and towing it to repair facilities, resulting in a loss of operating time and immense costs associated with towing and transporting equipment.\footnote{Id.} However, in some instances, farming equipment is either too heavy or too wide to carry by road without special permits and licensing (i.e., wide load permits and commercial driver’s licenses).\footnote{See id.} Therefore, farmers must rely on the latter option. With this option, farmers must follow the artificial monopoly of authorized repair services offered by John Deere. For instance, a farmer may choose to contact a certified John Deere technician for the price of $130 per hour, purchase additional software and code reading technology from John Deere at an annual starting price of $1,200, purchase a Customer Service Advisor-Ag and Turf subscription for $2,400 per year per location, or attempt to circumvent the DRM controls put in place by the manufacturer, risking copyright infringement suits.\footnote{Jason Koebler, \textit{Why American Farmers are Hacking Their Tractors with Ukranian Firmware, Vice} (Mar. 21, 2017, 4:17PM) (noting the cost of service from a Deere technician) \url{https://www.vice.com/en/article/xykkkd/why-american-farmers-are-hacking-their-tractors-with-ukranian-firmware} [\url{https://perma.cc/ZUC5-BGGV}]; Lessiter, \textit{supra} note 4; Shea Swenson, \textit{John Deere to Sell Diagnostic Software Directly to Farmers, Modern Farmer} (Mar. 25, 2022) (identifying the costs of Deere’s Customer Service ADVISOR), \url{https://modernfarmer.com/2022/03/john-deere-to-sell-diagnostic-software/} [\url{https://perma.cc/WBX9-FVTM}].}

On first blush, it appears as though farmers have many options at their disposal. However, when factors like cost, time, parts, and availability are evaluated, farmers likely have few actual options.\footnote{See Koebler, \textit{supra} note 200.} Farmers can transport their machinery to authorized repair facilities, pay for authorized technicians to travel to their farms, or risk legal action for copyright...
infringement. None of these options are that appealing to farmers who often cannot tolerate the downtime of their machinery, cannot afford authorized repair services and technicians, or do not want to risk being sued in federal court by one of the largest companies in the world.

B. John Deere and the Right to Repair

Despite the allegations against Deere regarding restricting the right to repair, the company maintains that “we’re committed to keeping your machines up and running when you need them most.” Furthermore, Deere goes on to state that “[w]e also know you want to repair your own equipment in your own shop, and on your own time. That’s why Deere makes it easy for you to work on your machine’s parts and systems.”

Deere’s statements appear on an entire page on its corporate website dedicated to self-repair. The webpage touts an available-for-purchase diagnostic service tool known as the Customer Service ADVISOR, “the most responsive dealer network in the industry,” and eight catalogued sub-sections for “tools & resources to keep you running.” On the surface, Deere appears to provide customers with all of the tools and knowledge necessary to work on its products. However, this is again not the full story. Deere goes on to state that it does not “support customers modifying embedded software in our equipment [about 2% of the machine]. Doing so creates risks related to safe operation of the machine, emissions compliance, engine performance, data security, warranty validation, and resale value.”

In their various TOSs, protection plans, and repair plans, Deere maintains that all warranty-related repairs and maintenance of covered components “must be performed by an authorized John Deere dealer using genuine John Deere parts,” “[a]ll repairs must be authorized by the Administrator [Deere] prior to performance of work,” and, in the event that modification or alteration of equipment not approved by Deere is done or “[s]ervice or repair . . . is performed by someone other than an

201 Id. at 3.
203 Id.
204 Id.
205 Id.
206 Id.
authorized John Deere dealer,” the warranty, protection plan, or repair plan “terminate[s] immediately.”207

So, the truth of the matter is that Deere allows customers to repair their products so long as customers do not modify imbedded software, customers utilize approved Deere repair services, and both technicians and customers pay for additional add-on services when maintenance, repair, and diagnostics are required.208

C. Current and Pending Lawsuits against John Deere Related to the Right to Repair

Based on the positions taken by Deere, it is evident why the company has been a primary target of right to repair litigation. As of March 22, 2022, ten suits have been filed against Deere in the U.S. District Court for the District of Northern Illinois, one complaint has been filed with the FTC, and countless suits have been filed in state courts.209 Primarily, the complaints allege that Deere “deliberately monopolize[s]” the market for repair and maintenance services for their equipment, Deere’s actions violate the Sherman Antitrust Act, and Deere “deliberately engages in unfair and deceptive trade practice[s] by withholding the information and parts from equipment owners and small repair shops.210

At the time of drafting this Article, little information is available as to the status of these suits.211 Furthermore, Deere has not released information regarding settlements and has declined to comment on pending litigation.212 However, Deere has responded to several inquiries


208 See DEERE & CO., supra note 2 (prohibiting users from copying or modifying licensed materials).


211 See ONGOING COVERAGE: Right-to-Repair Impact on Dealers, Deere, Other OEMs, supra note 210.

212 Id.
related to the right to repair, maintaining their commitment to “customer’s right to safely maintain, diagnose, and repair their equipment.”

IV. Federal and State Law Considerations

A. State Law Approach to Right to Repair

Massachusetts, in 2012, was the first state to enact right to repair legislation. Although this state law exclusively applied to Massachusetts, it laid the groundwork for other states to join the conversation. In 2014, the Repair Association, an organization spearheading the consumer-based right to repair movement, put forward model legislation aimed at broadening the scope of state law consumer protections and facilitating right to repair within the states. Since the creation of the model legislation, thirty-four states “have begun working on Right to Repair legislation.”

In general, these proposals seek to amend current state laws regarding general business law, protections of consumers from unfair and deceptive practices, and empower the respective state attorney generals to enforce the laws and to issue fines. To date, the Repair Association has proven instrumental in promoting exemptions to the DMCA, engaging with the FTC to issue warnings against automobile manufacturers in violation of the Magnuson-Moss Warranty Act, and providing information for amicus briefs to the Supreme Court of the United States.

A primary goal of the Repair Association is to amend current state contract laws focused on protecting consumers from unfair and deceptive acts and practices. Instead of targeting the products of device manufacturers directly, the model legislation seeks to promote arms-length bargaining between the consumers and manufacturers while also “limit[ing] the damage done by unfair and deceptive contracts.”

Additionally, the model legislation seeks to promote the availability of “any documentation, parts, and tools, required for the diagnosis, maintenance, or repair of such digital electronic equipment”


214 Wiens, supra note 34.

215 Mark, supra note 13, at 390; THE REPAIR ASS’N, supra note 12.

216 Id.

217 Id.

218 See id.

219 Id.

220 Id.
upon “fair and reasonable terms” and permit access to the “documentation, tools, and parts needed to access and reset” electronic security locks or other security-related functions of equipment.221

B. Federal Law Approach to Right to Repair

In addition to the work being done on the state level, a key piece of federal legislation, as mentioned previously, is that of Senate Bill 3549, known as the Agriculture Right to Repair Act.222 The Bill, which was introduced by Senator Jon Tester (D-MT) on February 1, 2022, seeks to level the playing field between agriculture equipment manufacturers and consumers.223 The legislation requires manufacturers to make available, “on fair and reasonable terms, . . . any documentation, part, software, or tool required to diagnose, maintain, or repair digital electronic equipment for any electronics-enabled implement of agriculture,” and to also make available “any documentation, part, software, or tool required to disable or enable an electronic security lock or other security-related function of an electronics-enabled implement of agriculture.”224

Furthermore, the proposed legislation provides specific carveouts which allow copyright circumvention and ensure common availability of replacement parts to the consumer upon “fair and reasonable terms.”225

Lastly, the legislation provides for certain limitations and protections of the device manufactures including: (1) manufacturers need not divulge trade secrets; (2) existing agreements between manufacturers and authorized repair providers need not be altered; (3) documentation, parts, and tools need not be made available by authorized repair providers unless the authorized repair providers are also the manufacturer; (4) parts used solely in the development of products need not be made available; and (5) consumers are prevented from irreversibly altering equipment to permanently deactivate safety features or emissions controls, and making other illegal modifications.226

Evidently, this Bill gives numerous rights to the consumers at the expense of the device manufacturers. As of February 1, 2022, the Bill remains in the U.S. Senate and has been referred to the Committee on

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223 Id.
224 Id. at § 3(a)–3(b).
225 Id. at § 3(c).
226 Id. at § 6.
Commerce, Science, and Transportation for review.\textsuperscript{227} At this time, the likelihood of success of this Bill is unknown, but its future enactment into law is doubtful. The Bill was introduced by a single Senator with only one co-sponsor.\textsuperscript{228} Furthermore, the immense lobbying power of agriculture equipment manufacturers and the massive market size of both the repair and original equipment markets makes this Bill likely to stall in the Senate.

The Bill, although well-intentioned, will likely not solve the larger issues at hand. The Bill almost exclusively targets software-enabled agriculture devices, and thus does not address design patents, utility patents, trademarks, or the malleability of contract law.\textsuperscript{229} While copyright law plays a significant role in device manufacturers’ ability to thwart repairs by consumers, it is but one strand that makes up the web of protection. Therefore, even if certain circumventions of copyright laws are permitted by the passage of the Bill, device manufacturers are likely to place a greater emphasis on their other intellectual property rights, artificially inflate the “fair and reasonable” prices of their supporting equipment, tools, documentation, and software, and view the fines imposed by the FTC as costs of doing business rather than deterrence for their actions.

Lastly, and potentially the most glaring issue of the Bill, is contained in the limitations outlined in § 6.\textsuperscript{230} It states that original equipment manufacturers (“OEMs”) need not divulge trade secrets to an owner or an independent service provider.\textsuperscript{231} Trade secrets comprise “any confidential business information which provides an enterprise a competitive edge and is unknown to others.”\textsuperscript{232} By virtue of their secretive and confidential nature, trade secrets are often hard to identify, and thus, this exception may prove detrimental to the Bill and its intended goals.\textsuperscript{233} OEMs may claim all technological and commercial information needed by consumers for the repair of their devices as trade secrets, effectively limiting the scope of the Bill’s protections and shifting manufacturers away from public-benefiting protections like patents and copyrights to non-public modes of protection like trade secrets.\textsuperscript{234}

\textsuperscript{227} Id.
\textsuperscript{228} Id.
\textsuperscript{229} See id.
\textsuperscript{230} Id. at § 6.
\textsuperscript{231} Id.
\textsuperscript{233} See id.
\textsuperscript{234} See id.
In sum, although the Bill is a significant step forward in right to repair reform, its current construction and lack of apparent support render it effectively meaningless.

C. Issues Presented by the American Dual Federalism Structure

Since many of the protections afforded to device manufacturers are governed by federal law and not state law, the clever lawyer can spot the glaring issue. At this time, the only real right to repair protections come in the form of state law. Although device manufacturers must adhere to the various state laws, their federal protections often preempt these state laws, allowing the manufacturers to continue their practices of monopolizing repair of their devices under the doctrine of federal preemption.\textsuperscript{235} For example, the independent repair shop may be able to circumvent software controls to identify or diagnose a mechanical problem but may not be able to acquire the parts needed to fix the problem.\textsuperscript{236} And if they do, the repair shop may still face an infringement claim under the DMCA.\textsuperscript{237} While states may be able to enforce their specific laws against manufacturers within their jurisdiction, these fines will again likely be viewed as costs of doing business for the manufacturers. If the costs do rise to impose a significant burden upon the manufacturers, they may stop doing business in the given states that have enacted permissive right to repair legislation. While stopping business in a single state is not unfathomable, if the forty states that have considered permissive right to repair legislation enact such legislation, the story may change.\textsuperscript{238}

Furthermore, enforcement often requires filing a lawsuit. While some forms of enforcement may be granted to state agencies through specific legislation, as the laws currently stand, the majority of meaningful enforcement will likely be through the judicial system.\textsuperscript{239} Therefore, if consumers do not think they are likely to prevail, or do not have the means to bring suit, then enforcement is not likely to occur. This point is especially applicable to agriculture device consumers, as the job of the farmer is to focus on maintaining their land and producing crops rather than litigating for their rights in state and federal courts.


\textsuperscript{236} Perzanowski, \textit{supra} note 29, at 363.

\textsuperscript{237} 17 U.S.C. § 1201.

\textsuperscript{238} See \textit{The REPAIR ASS'N}, \textit{supra} note 12 (noting state control over general business law and contracts).

\textsuperscript{239} See \textit{id}.
V. Potential Solutions

A. Restatement of Issues, Considerations, and Opposing Interests

Consumers wish to repair their purchased devices at a reasonable price and in the manner they deem appropriate. They do not want to be limited by restrictions imposed by device manufacturers to repair devices and do not want to be forced to replace otherwise functional equipment due to lock-outs and a lack of replacement parts.

By contrast, device manufacturers would like to prevent consumers from manipulating, repairing, augmenting, and tampering with equipment post-sale. These device manufacturers make money by requiring certain repair avenues and limiting the availability of information, parts, and tools to repair the devices. Replacement of devices is incredibly lucrative, and as the current state of the law stands, device manufacturers have no incentive to change their approach.

B. Balancing the Interests of Right to Repair Reform

While some statutes on the state level guarantee a consumer’s right to repair devices for certain automotive applications, and pending federal legislation may expand these rights to electronics-enabled implements of agriculture, consumers are unlikely to feel a change. Consumers have significantly less bargaining power than these large device manufacturers. They do not spend billions of dollars per year lobbying legislators or have the resources to effectuate meaningful change. Furthermore, existing intellectual property laws seem to reward inventors, artists, and manufacturers to the detriment of consumers.

While this Article asserts that consumers have an implicit guarantee to the right to repair their purchased devices, existing law does not mirror this sentiment. External market forces and the size of these companies make it impossible for the everyday consumer to stand up for their implicit right. On the other hand, companies have invested immense monetary resources and time into the development of their products and should not be required to hand over their hard work to consumers without some form of reward structure. Additionally, companies, although not intrinsically malicious, will not willingly adopt a scheme in accordance with consumers’ wants without some external pressure, either in the form of

240 Mark, supra note 13, at 386.
241 Id.
242 Perzanowski, supra note 29, at 363.
243 Id.
244 See Grinvald & Tur-Sinai, supra note 17, at 102.
legislation or a massive shift in the form of consumer resistance. Acquiescence would be detrimental to their bottom lines. Even if the companies empathized with consumers’ needs, it would be disadvantageous to the companies to succumb. Furthermore, most of these large device manufacturers are structured as corporations; therefore, if the directors of these corporations pursue avenues that do not monetarily benefit the shareholders, they may be liable to the shareholders for a breach of fiduciary duties via derivative suits.245

C. Multi-Layered Approach to Right to Repair Reform

As discussed, no true solution to the right to repair problem has been devised. An effective solution is not as simple as a single state or federal law. Instead, the solution is nestled within existing laws and may be brought to fruition through alternative interpretations and applications of the existing legal framework. Until external pressure, likely in the form of legislation, is enacted, companies will not change their course of action, and consumers will continue to be beholden to the device manufacturers. However, changes can be made to the current framework that could somewhat level the playing field between the two camps.

First, current intellectual property laws must be adjusted. The Framers of the United States Constitution sought an intellectual property regime that primarily favored progress and development over market monopolies.246 The intellectual property system has developed to provide incentives for such progress; the current incentives of limited monopolies offered by intellectual property protection dissuade others from using the technology to further progress and develop the technology to promote science and the useful arts.247 As such, the current limited monopolies of copyright law and design patents musts be altered to better reflect their value to society and provide more opportunity for use and development by others.

The right to repair movement may benefit from the shortening of copyright protection provided to authors. Current copyrights last an extremely long time, but this has not always been the case. Over the years, copyright protection has increased in duration from twenty-eight years in

[https://perma.cc/U39L-AZ9C].
1909 to now, the life of the author plus seventy years, in most instances.\textsuperscript{248} Evidently, copyrights last significantly longer than the useful life of nearly every end-product. Additionally, inventors and artists tend to prefer to protect software through copyright rather than patents for several reasons, which include the length of protection afforded by copyright law when compared to that of patent law, and the reluctance of the USPTO to grant patent protection for certain software technologies under the judicially created “abstract ideas” exception.\textsuperscript{249} With that being said, if the copyright protection duration was shortened to mirror the life-cycle of software, which is the primary lock-out related to the right to repair movement, then consumers would be able to access, distribute, and commercialize the copyrighted work during the life of their equipment.

However, the shortening of copyright protection is not as easy as amending a few statutes. The United States Copyright system has developed in accordance with other nations’ copyright laws and, as such, must comply with international treatises and conventions.\textsuperscript{250} Instead of amending the duration of copyright protection, an alternative may be to reevaluate how software and copyrights interact.

Since copyright protection is afforded to original works of authorship that embody a “modicum of creativity,” software may not actually meet these criteria.\textsuperscript{251} While software is indeed a form of authorship and may include a “modicum of creativity,” it does not fit squarely within the current copyright scheme of the United States.\textsuperscript{252} Because software is primarily functional, it may benefit from being protected under its own statutory regime, in which software undergoes a more evaluative application and registration process, and the protections afforded to the software are more in line with its life-cycle and intended purpose. Under this new regime, software would be viewed separately from other intellectual property and, therefore, would not need to be retrofitted into existing intellectual property laws. This legislative scheme may include specific statutes aimed at software, its duration, and avenues for fair use by the consumer.

As it relates to design patents, the USPTO’s modern trend, which favors the liberal granting of design patents, and the increased damages in

\textsuperscript{248} Copyright Act of 1909, Pub. L. No. 60-349, § 23; see also 17 U.S.C. § 302(a).
\textsuperscript{250} See 828 U.N.T.S. 221; see also 216 U.N.T.S. 132 (detailing universal copyright system to facilitate a wider dissemination of works).
\textsuperscript{252} See generally Tracy Reilly, Copyright and a Synergistic Society, 18 MINN. J.L. SCI. & TECH. 575, 584–85 (2017) (noting the basis of originality within copyright law).
design patent infringement suits has made those patents a key piece in thwarting the right to repair. Accordingly, Congress must reevaluate the purpose, duration, and scope of design patents. Courts have liberally expanded the scope of design patents from its original intent of protecting “articles of manufacture” to now protecting all parts, components, sub-components, and complex machines. Today, design patents are rarely rejected on substantive grounds and can be had for constituent parts of an article of manufacture. Furthermore, courts have degraded the ornamentality versus functionality distinction inherent in design patents, thereby granting design patents for components that are at least partially functional rather than exclusively ornamental. Therefore, to reduce the breadth of protection afforded by design patents, design patent protections must be brought back in line with their original interpretation of the statute, which prohibited the grant of design patents on functional and semi-functional components.

Next, state and federal laws must reevaluate the restrictive license agreements promulgated by device manufacturers. Contract law has consistently provided a means for circumventing certain intellectual property safeguards. Furthermore, contract law has been relied upon for exerting exorbitant control upon products post-sale despite direction otherwise from the Supreme Court.

A primary element of contract law is consideration. Consideration must be given by both parties to form a valid, enforceable contract. Part of the consideration prong is that of bargaining. These license agreements do not resemble a bargain between the parties. The customers are presented with a mere take-it-or-leave it situation. The parties also have an extreme and disproportionate difference in bargaining power, which can affect the level and type of consideration rendered in any particular instance. However, courts have been traditionally reluctant to find contracts of adhesion unenforceable, as the consumer ultimately has

253 PERZANOWSKI, supra note 25, at 134.
254 Id. at 135.
255 Id. at 137.
256 Id. at 139.
257 Id. at 140.
258 RUSTAD, supra note 181, at 618.
259 See Impression Prods., Inc. 581 U.S. at 376.
261 Id.
262 Id.
264 Id. at 1194.
the ability to read the contract and decide whether or not to agree to the terms.\textsuperscript{265}

To combat these positions taken by manufacturers, courts must be willing to find the terms of these “shrink-wrap” contracts unconscionable and thus unenforceable.\textsuperscript{266} Consumers are disproportionately less apt to advocate for their rights, and the device manufacturers know this. Device manufacturers will continue to enforce license agreements which limit the rights of consumers until consumers are willing to bring suit and courts are willing to invalidate these contracts on the basis of unconscionability, inadequate consideration, and findings of unenforceable contracts of adhesion.\textsuperscript{267}

The next step in the right to repair movement is to require manufacturers to build in a “degree of repairability” into their equipment, products, and devices.\textsuperscript{268} Currently, device manufacturers have a strong incentive, mostly monetary, to design products that cannot be repaired.\textsuperscript{269} Lawmakers must craft laws in such a way as to require a degree of repairability in products. Instead of using proprietary fasteners, glue in place of screws, or plastics as an alternative to metals, device manufacturers must be compelled to design and manufacture products that can be repaired.\textsuperscript{270} This is, however, a very unlikely solution. First, degree, like reasonableness, fairness, and a variety of other terms known all too well by lawyers, is an amorphous term. One’s interpretation of degree or reasonableness may not be that of another. Second, this approach is antithetical to the approach taken by the United States in nearly all matters. The United States often takes a position that businesses are free to operate in manners which they deem appropriate and refuses to interject unless public policy considerations or enacted legislation mandates. Therefore, legislation targeting a degree of repairability is likely not an option at all in the United States.

Lastly, and potentially most applicable, is the Sherman Act and antitrust considerations. Tech and agriculture manufacturing companies seem to resemble companies like Standard Oil more and more every day.\textsuperscript{271} Therefore, they should be treated as such. It is no secret that these companies focus on eliminating local and regional competition, attempt to control the entire supply and market chains, and expand their reach into

\textsuperscript{265}Id.
\textsuperscript{266}Id. at 1176.
\textsuperscript{267}See id. at 1209.
\textsuperscript{268}Mirr, supra note 181, at 2419.
\textsuperscript{269}Id.
\textsuperscript{270}Id. at 2421.
all supporting and secondary markets related to their products. Market competition in all sectors is shrinking dramatically, and customers do not have many choices regarding from whom they buy their products.

The Sherman Act was created to preserve free and unfettered competition in trade, commerce, and markets. Further developments in American antitrust regulation, in the form of the Federal Trade Commission Act and the Clayton Act, expanded federal oversight into businesses and helped to level the playing field among market participants. However, since its enactment, the Sherman Act, and subsequent antitrust legislation, has seen mixed interpretation by the courts and enforcement by the federal government. Much like the issues related to design patents and license agreements, until courts alter their interpretation of antitrust legislation or Congress amends the current legislation to make it more applicable to the modern monopolies of 2022, very little will change. Companies like Apple, Facebook, and John Deere will continue to exploit consumers for their monetary benefit.

Provided that antitrust legislation enforcement swings in favor of promoting free and unfettered competition in trade, these giant companies may be treated as monopolies, regulated as such, and have their ability to control every aspect of their products restricted. By doing so, the market may gradually expand, giving consumers more options and ultimately allowing other players to enter the field, offering less restrictive products and placing the choice back in the hands of consumers.

VI. Conclusion

In sum, the issues surrounding the right to repair movement are complex, nuanced, and difficult. Model and current legislation have attempted to balance the competing interests of consumers and manufacturers with limited success. The disparate bargaining power of these two camps makes it difficult for consumers to advocate on their behalf, and large companies will not acquiesce to the demands of consumers without outside pressure.

To combat the issue of the right to repair, lawmakers must amend current laws to provide specific carveouts for consumers, and future legislation must consider the response by device manufacturers. Until

272 Flowers, supra note 192.
274 Id.
275 Id.
276 See id. at 22–23.
277 See id.
antitrust enforcement is increased, intellectual property protections are attenuated, and unconscionable contracts are found unenforceable, the status quo is likely to continue. While unfortunate for the consumer, this is the way of the free market. It is as simple as basic economics. Where demand is immense and supply limited, the suppliers maintain the upper hand. If more suppliers enter the field and consumers are provided with other avenues to accomplish their intended goals, then the outlook of the right to repair movement may change for the better.