
No. 23-5159

IN THE
**United States Court of Appeals
for the District of Columbia Circuit**

MATTHEW D. GREEN, ANDREW
“BUNNIE” HUANG, and ALPHAMAX, LLC,

Plaintiffs-Appellants,

v.

THE UNITED STATES DEPARTMENT OF JUSTICE, LIBRARY
OF CONGRESS, U.S. COPYRIGHT OFFICE, CARLA HAYDEN,
SHIRA PERLMUTTER, and MERRICK B. GARLAND,

Defendants-Appellees.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

**BRIEF OF PUBLIC KNOWLEDGE, THE DIGITAL RIGHT TO REPAIR
COALITION, SOFTWARE FREEDOM CONSERVANCY, IFIXIT, THE
OPEN SOURCE HARDWARE ASSOCIATION, AND SCHOLARS OF
PROPERTY AND TECHNOLOGY LAW AS *AMICI CURIAE* IN SUPPORT
OF PLAINTIFFS-APPELLANTS**

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), *amici curiae* certify as follows.

(A) Parties and Amici. Except for the following, all parties, intervenors, and *amici* appearing before the district court and in this Court are listed in the Brief for Plaintiffs-Appellants, Brief for Accessibility and Security Fair Users, and Brief for Legal Scholars.

- Public Knowledge
- The Digital Right to Repair Coalition
- Software Freedom Conservancy
- iFixit
- The Open Source Hardware Association
- Jonathan Askin
- Charles Duan
- Aaron Perzanowski
- Anthony Rosborough

Pursuant to Federal Rule of Appellate Procedure 26.1 and Circuit Rule 26.1(a), the *amici* represent that they have no parent corporations and that no publicly-held company has a 10% or greater ownership interest in them.

Pursuant to Circuit Rule 26.1(b), the *amici* are organizations and legal scholars focusing on the consumer interest relating to technology.

(B) Rulings Under Review. References to the rulings at issue appear in the Brief for Plaintiffs-Appellants, Brief for Accessibility and Security Fair Users, and Brief for Legal Scholars.

(C) Related Cases. To the knowledge of counsel, other than any cases listed in the Brief for Plaintiffs-Appellants, Brief for Accessibility and Security Fair Users, and Brief for Legal Scholars, the case on review was not previously before this Court or any other court, and there are no other related cases currently pending in this Court or in any other court.

Dated: December 6, 2023

/s/ Charles Duan

Charles Duan

Counsel for amici curiae

CERTIFICATE ON CONSENT TO FILE AND SEPARATE BRIEFING

Pursuant to Federal Rule of Appellate Procedure 29(a), all parties received appropriate notice of and consented to the filing of this brief. Pursuant to Rule 29(c)(5), no counsel for a party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of the brief. No person or entity, other than *amici*, their members, or their counsel, made a monetary contribution to the preparation or submission of this brief.

Pursuant to Circuit Rule 29(d), counsel endeavored to contact all other potential *amicus* parties and counsel in advance of the deadline for briefing. The undersigned counsel certifies that a separate brief is necessary to represent the distinct and unique interests of the consumer and right-to-repair organizations and scholars, which differ from those of the parties or other *amici*, and to advise this Court of relevant issues regarding conflicts between consumer interests and the copyright statute at issue.

Counsel would like to thank John Seager of American University Washington College of Law for contributing to the writing of this brief.

Dated: December 6, 2023

/s/ Charles Duan

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GLOSSARY

DMCA: Digital Millennium Copyright Act

DRM: Digital Rights Management

TPM: Technological Protection Measure

XCP: Extended Copy Protection

INTEREST OF *AMICI CURIAE*

Amici curiae are diverse organizations and scholars with a shared concern for promoting the interests of consumers of technology devices, and ensuring that laws like § 1201 are developed consistent with those interests. Legal scholars joining this brief are listed in the Appendix.

Public Knowledge is a non-profit public interest organization that promotes balanced intellectual property policies in the public interest, by ensuring that rights granted to creators are balanced with consumer interests.

The Digital Right to Repair Coalition is a non-profit organization that represents more than 400 member companies across a variety of industries. It advocates for responsible public policy on issues related to repair.

Software Freedom Conservancy is a charity dedicated to helping people take control of their computing experience by supporting, creating and defending free and open-source software.

iFixit is the free repair manual that anyone can edit, with over 100,000 online repair guides on everything from iPhones to toasters to tractors, and a community of millions of users around the world.

The Open Source Hardware Association aims to be the voice of the community of open source hardware, namely hardware whose design is made publicly available so that anyone can study, modify, distribute, make, and sell it.

SUMMARY OF ARGUMENT

Despite its modern name, § 1201 of the Digital Millennium Copyright Act (“DMCA”) has dramatically affected an ancient legal right: property ownership. Since the statute took effect in 1998, billions of consumer devices—computers, cars, tractors, refrigerators—have been laden with software giving manufacturers ongoing control over the devices and denying consumers their right to enjoy what they own. Interference with property rights is so prevalent that scholars have called the present era “The End of Ownership.”¹

Ownership need not end. Property rights are sufficiently expansive that they even inform the First Amendment questions before the Court in this case. For centuries, property law has abhorred dead-hand control in which sellers of goods dictate what consumers do with them. Those ancient tenets inform and limit even the most modern technological laws like § 1201.

I. Section 1201 repeatedly interferes with ownership of technological devices. The statute gives backing to “technological protection measures,” or TPMs, by imposing powerful civil and criminal penalties against those who circumvent such measures or traffic in circumvention tools.² The statute intended that TPMs serve to protect copyrighted digital media—encryption of a digital video disc, for

¹AARON PERZANOWSKI & JASON SCHULTZ, *THE END OF OWNERSHIP: PERSONAL PROPERTY IN THE DIGITAL ECONOMY* (2016).

²Digital Millennium Copyright Act (DMCA), 17 U.S.C. § 1201(a)(1)(A), (a)(2)(A); *see* DMCA § 1203(b) (civil penalties); *id.* § 1204(a) (criminal penalties).

example. But TPMs today are ubiquitous, even in copyright-irrelevant devices. TPMs are found in cars, phones, medical devices, refrigerators, dishwashers, cat feeders, coffee machines, and numerous other products.

When consumers buy these products, they own them, enjoying the full bundle of rights of property law. Yet in striking examples, § 1201-backed TPMs have deprived consumers of all the major rights of ownership:

- *The right to repair*: TPMs block third-party parts or fixes, monopolizing the repair market or forcing consumers to throw away near-working devices.
- *The right to exclude*: TPMs spy on consumers and open insecure backdoors on their computers, allowing malicious software to enter from anywhere.
- *The right to use*: TPMs prevent consumers from using their devices as they wish. A coffee machine's TPM may prohibit the brewing of other companies' coffee pods, for example.
- *The right to possess*: Device manufacturers have leveraged TPMs to dispossess consumers of their purchases, without legal justification.

Section 1201 enables this anti-ownership behavior, by giving legal force to TPMs and criminalizing consumers' efforts to protect their ownership rights against device manufacturers' intrusions. The harms to consumer ownership rights are severe, longstanding, and only getting worse.

II. It is concerning enough that § 1201 has created a generation of consumer devices that undermine basic property ownership rights. More importantly, though, these concerns inform the statute's constitutionality under the First Amendment.

First, they render § 1201 content-based and not content-neutral. If TPMs undermine property, then tools for circumventing them can advise consumers on how and why to protect their property. What § 1201 prohibits in many cases, then, is educational, instructional material. By giving legal benefits to anti-ownership TPM software but criminalizing pro-ownership software, § 1201 discriminates based on content.

Second, the effects on ownership rights render the statute insufficiently tailored. The connection between TPMs and copyright protection is often evanescent at best. Devices like refrigerators have TPMs not to stop rampant refrigerator copyright piracy, but so manufacturers can maintain market dominance, block competition, and force wasteful consumerism that boosts those manufacturers' bottom lines. When § 1201 prohibits circumvention of these sorts of TPMs, it advances not copyright policy but rather corporate interests in denying consumers their rights to use and enjoy what they own. The statute goes far afield of its intended purpose, and cannot satisfy its constitutional limits.

ARGUMENT

I. SECTION 1201 HARMS TECHNOLOGY CONSUMERS BY UNDERMINING BASIC TENETS OF PROPERTY OWNERSHIP

Ownership of technology devices with computing power—phones, cars, game consoles, garage door openers, printers, household appliances, and more—is nearly universal today.³ Many such devices include § 1201-backed TPMs. But rather than primarily protecting copyrighted works, these TPMs work to cut off consumers’ rights in the things they own. Indeed, every one of the traditional sticks in the bundle of rights has been a target of § 1201 subversion.

A. THE RIGHT TO REPAIR

A consumer’s right to repair purchased goods, the “right of care which every one may use to give duration to that which he owns,” is a longstanding, basic incident of property ownership.⁴ The right to repair enables consumers to enjoy the full value of those devices, helps them learn about and possibly improve upon them,⁵ creates jobs in the repair aftermarket, and protects the environment

³See MICHAEL MARTIN, U.S. CENSUS BUREAU, ACS-49, COMPUTER AND INTERNET USE IN THE UNITED STATES: 2018, at 2 (Apr. 2021), *available online*. Locations of authorities available online are shown in the Table of Authorities.

⁴*Wilson v. Simpson*, 50 U.S. (9 How.) 109, 123 (1850), *quoted in Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 343 (1961).

⁵See Leah Chan Grinvald & Ofer Tur-Sinai, *Intellectual Property Law and the Right to Repair*, 88 FORDHAM L. REV. 2085, 96 (2019).

through reduction of electronic waste.⁶ A recent report of the Federal Trade Commission further found that the right to repair enhances competition, empowers communities of color, and supports students' education.⁷

Yet “product longevity is often at odds with the economic interests of device makers.”⁸ Rather than letting a consumer fix a cracked smartphone screen, many manufacturers would prefer that the consumer throw the phone away and buy a new one, or at least would prefer to monopolize the screen repair market.⁹ And many of their anti-repair strategies depend on § 1201.

Take tractors. It would seem common sense that a farmer can replace a broken transmission or part in the staple piece of farm machinery—so thought Kevin Kenney, a farmer in Nebraska.¹⁰ Yet John Deere's tractors are locked together with onboard software that, besides spying on farmers' usage operations, disables the tractors upon detecting aftermarket repair parts.¹¹ “You want to replace

⁶See AARON PERZANOWSKI, *THE RIGHT TO REPAIR: RECLAIMING THE THINGS WE OWN* 14–48 (2021).

⁷See FED. TRADE COMM'N, *NIXING THE FIX: AN FTC REPORT TO CONGRESS ON REPAIR RESTRICTIONS* 3–5 (May 2021), *available online*.

⁸PERZANOWSKI, *supra* note 6, at 75.

⁹See, e.g., LUCAS ROCKETT GUTTERMAN, U.S. PIRG EDUC. FUND, *FAILING THE FIX: GRADING LAPTOP AND CELL PHONE COMPANIES ON THE FIXABILITY OF THEIR PRODUCTS* 12–14 (Feb. 2023), *available online*.

¹⁰See Peter Waldman & Lydia Mulvany, *Farmers Fight John Deere Over Who Gets to Fix an \$800,000 Tractor*, BLOOMBERG NEWS (Mar. 5, 2020), *available online*.

¹¹See *id.*; Nicholas A. Mirr, *Defending the Right to Repair: An Argument for Federal Legislation Guaranteeing the Right to Repair*, 105 IOWA L. REV. 2392, 2397–98 (2020).

a transmission and you take it to an independent mechanic,” Kevin explained, but the software locks mean that the mechanic “can put in the new transmission but the tractor can’t drive out of the shop.”¹² And backing that software are § 1201’s civil and criminal penalties that prevent would-be repairers from modifying the software to enable tractor repairs.¹³

Or take cardiac defibrillators, like the one implanted inside Karen Sandler. A software malfunction on the device misinterpreted her pulse, causing it to shock her heart unnecessarily while she was pregnant.¹⁴ Yet the defibrillator’s TPM kept Karen, an expert programmer, from even finding the bug in the software, let alone repairing it, leaving her at the mercy of the device’s manufacturer to stop the erroneous shocks.¹⁵

These are only two examples of anti-repair TPMs. Smartphones cut off functionality after an aftermarket replacement screen is installed; computer systems in cars block replacement parts.¹⁶ Repair-preventing TPMs are found in refrigera-

¹²See Jason Koebler, *Why American Farmers Are Hacking Their Tractors with Ukrainian Firmware*, VICE: MOTHERBOARD (Mar. 21, 2017), *available online*. “Digital Rights Management,” or “DRM,” is a term that largely overlaps with TPM.

¹³See Paul Roberts, *In Recorded Conversation, a John Deere Dealer Talks up Predatory Design*, FIGHT TO REPAIR (Sept. 6, 2023), *available online*.

¹⁴See Amanda Brock, *What Happens when Software Becomes a Matter of Life and Death?*, THE ARTICLE (Feb. 14, 2019), *available online*.

¹⁵See Joe Uchill, *What New DMCA Rules Mean for Medical Device Research*, CHRISTIAN SCI. MONITOR (Oct. 30, 2015), *available online*.

¹⁶See FED. TRADE COMM’N, *supra* note 7, at 23.

tors, thermostats, and lamps.¹⁷ Without circumventing these TPMs and violating § 1201, owners of these commonplace devices cannot give longevity to them, despite the traditional ownership right to do so.

In 2018, the Library of Congress recognized the absurdity of a digital copyright protection law prohibiting people from repairing their refrigerators, and renewed its limited, partial exemption for repair purposes.¹⁸ Yet that exemption must be renewed every three years to remain in force.¹⁹ That owners of devices must ask a government agency for permission to exercise their traditional right to repair demonstrates how far § 1201 has overreached.

B. THE RIGHT TO EXCLUDE

“To the world: Keep off X unless you have my permission, which I may grant or withhold.”²⁰ The right of an owner to lawfully exclude others has been called “one of the main rights attaching to property,”²¹ “one of the most essential

¹⁷See U.S. COPYRIGHT OFF., SECTION 1201 RULEMAKING: SEVENTH TRIENNIAL PROCEEDING TO DETERMINE EXEMPTIONS TO THE PROHIBITION ON CIRCUMVENTION 193 & n.1193 (Oct. 2018).

¹⁸See Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 54010, 54030 (Libr. of Cong. Oct. 26, 2018).

¹⁹See Digital Millennium Copyright Act (DMCA), 17 U.S.C. § 1201(a)(1)(D).

²⁰Felix S. Cohen, *Dialogue on Private Property*, 9 RUTGERS L. REV. 357, 374 (1954), *quoted in* *Jacque v. Steenberg Homes, Inc.*, 209 Wis. 2d 605, 618 (1997).

²¹*Rakas v. Illinois*, 439 U.S. 128, 143 n.12 (1978).

sticks,”²² and “one of the most treasured strands in an owner’s bundle of property rights.”²³ Loss of the right to exclude is so severe an invasion of ownership that the Supreme Court has held even minimal losses to require just compensation.²⁴

In the digital age, the right to exclude is especially meaningful as consumers’ smartphones, computers, and other devices store notes, sensitive personal information, and even the physical locations and movements of their owners.²⁵ Just as car owners rightly object to miscreants taking unauthorized joyrides, device owners rightly object to unauthorized third parties snooping through text messages, manipulating their bank account apps, or rifling through their emails.

Device manufacturers, however, have repeatedly built their products with little concern for those device owners’ right to exclude. Privacy-invasive software is baked into smartphones, computers, televisions, fitness trackers, even cars.²⁶ This software props open the “back door” to the device, letting the manufacturer enter at will regardless of the owner’s consent—and perhaps letting malicious third parties enter as well.²⁷

²²*Kaiser Aetna v. United States*, 444 U.S. 164, 176 (1979).

²³*Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435 (1982).

²⁴*See, e.g., Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2074 (2021).

²⁵*See Carpenter v. United States*, 138 S. Ct. 2206, 2218 (2018).

²⁶*See Paul Ohm & Nathaniel Kim, Legacy Switches: A Proposal to Protect Privacy, Security, and the Environment from the Internet of Things*, 84 OHIO STATE L.J. 101, 110–11 (2023).

²⁷*See THE INTERNET OF THINGS: SEIZING THE BENEFITS AND ADDRESSING THE CHALLENGES* 18–19 (Organisation for Econ. Co-operation & Dev., OECD Digital

Not infrequently, the software programs breaching the right to exclude—the software propping the back door open perhaps to anyone—are TPMs installed under the aegis of § 1201. Perhaps the most infamous example occurred in 2005, when major music label Sony BMG distributed 2 million compact discs loaded with TPM software called Extended Copy Protection, or XCP.²⁸ Upon installation on a CD purchaser's computer, the software embedded itself into the computer's operating system, rewriting parts of low-level operating system code to avoid detection or removal.²⁹ Computer security researchers discovered that XCP spied on users' private listening habits, consumed excessive computing power, and crashed computers.³⁰

Most troublingly, XCP created an exploitable, invisible backdoor to millions of consumers' computers, giving Sony BMG ongoing access to the internal in-

Economy Paper No. 252, 2016), *available online*; Ohm & Kim, *supra* note 26, at 111.

²⁸See generally Deirde K. Mulligan & Aaron K. Perzanowski, *The Magnificence of the Disaster: Reconstructing the Sony BMG Rootkit Incident*, 22 BERKELEY TECH. L.J. 1157, 1158 (2007); J. Alex Halderman & Edward W. Felten, *Lessons from the Sony CD DRM Episode*, 15 USENIX SEC. SYMPOSIUM 77, 79–90 (2006), *available online*; Megan M. LaBelle, *The Rootkit Debacle: The Latest Chapter in the Story of the Recording Industry and the War on Music Piracy*, 84 DENV. U. L. REV. 79, 81 (2006).

²⁹See Halderman & Felten, *supra* note 28, at 87 (citing Mark Russinovich, *Sony, Rootkits and Digital Rights Management Gone Too Far*, SYSINTERNALS (June 26, 2009), *available online*).

³⁰See *id.*; Mulligan & Perzanowski, *supra* note 28, at 1167–68.

frastructure of private property.³¹ In fact, giving anyone else access—malicious third parties could and did attach their own software to XCP, intruding upon consumers’ computers even further.³² Major antivirus firms and a division of the Department of Homeland Security declared XCP a “rootkit,” a term reserved for particularly invasive threats to computer security.³³

Sony BMG’s dangerous and trespassory rootkit was “buttressed in part by the Digital Millennium Copyright Act’s anti-circumvention rules.”³⁴ The statute put consumers, and the security researchers who identified these problems, at risk of federal criminal charges for circumventing or removing such software, even if they did so only to protect themselves and their property.³⁵ Companies like Sony BMG exploited § 1201 as a blank check to override computer owners’ right to exclude.

While other manufacturers have not invaded consumers’ computers so ham-handedly, they often use TPMs for surreptitious trespass and invasions of privacy.

³¹See Mulligan & Perzanowski, *supra* note 28, at 1166–67.

³²See Halderman & Felten, *supra* note 28, at 87.

³³See *First 4 Internet XCP DRM Vulnerabilities*, U.S. COMPUT. EMERGENCY READINESS TEAM (Nov. 17, 2005), *available online*; Steve Dispensa, *Microsoft to Remove Sony’s DRM Rootkit*, ARS TECHNICA (Nov. 13, 2005), *available online*. Rootkits are programs that “modify the internal functionality of the OS to conceal their existence,” thereby “making it difficult for antivirus products, administrators, and security analysts to discover malicious activity.” MICHAEL SIKORSKI & ANDREW HONIG, PRACTICAL MALWARE ANALYSIS 221 (2012).

³⁴Mulligan & Perzanowski, *supra* note 28, at 1197.

³⁵See LaBelle, *supra* note 28, at 124–30.

Many TPMs “phone home,” connecting over the Internet to a manufacturer’s servers while the device is active, as part of a supposed copyright verification check.³⁶ Aside from raising technological questions (what happens if the server stops running?³⁷), this clandestine messaging can expose sensitive data about the device owner’s activities.³⁸ It also opens a channel between the private device and the public Internet, with negative privacy and security consequences.³⁹ TPMs under the aegis of § 1201 force owners of these devices to open their electronic doors to visitors at all hours, denying them the right to exclude.

C. THE RIGHT TO USE

Usufruct—the right to enjoy the benefits of one’s possessions—is yet another classic stick in the bundle of property rights.⁴⁰ The owner of a tree has the right to harvest the fruits and eat, sell, or dispose of them however the owner wishes. Sir Edward Coke, in his great treatise on land tenures, saw the right to use as so intrinsically tied to property as to be inseparable, so if a landowner “granteth to

³⁶See Joshua J. Dubbelde, *A Potentially Fatal Cure: Does Digital Rights Management Ensure Balanced Protection of Property Rights?*, 2010 U. ILL. J.L. TECH. & POL’Y 409, 424–25; Chris Jay Hoofnagle et al., *The Tethered Economy*, 87 GEO. WASH. L. REV. 783, 798–801 (2019).

³⁷See *infra* Section I.C.

³⁸See Hoofnagle et al., *supra* note 36, at 822–24.

³⁹See *id.* at 824–27.

⁴⁰See Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1365–66 (1993); Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 36–737 (1998).

another the profits of those lands, . . . the whole land it selfe doth passe, for what is the land, but the profits thereof.”⁴¹

Consumers (mostly) do not “profit” from their technological possessions in the sense of selling produce, but they do exercise their right to use those devices for efficiency, professional achievement, and entertainment. Many device manufacturers, however, try to dictate how consumers use devices, in order to guarantee profits for the manufacturers at the expense of ownership rights. And TPMs enabled under § 1201 are frequently the vehicle of control.

Digital cameras exemplify this disruption of usufructuary rights. In 2005, the digital camera company Nikon released two professional-level cameras, the D2X and D2HS. But camera owners became “furious with the company” when it was discovered that the popular photo-editing program Adobe Photoshop could not access the white-balance data of the cameras’ raw image files.⁴² Nikon had programmed the cameras to encrypt that data, which photographers use to make ad-

⁴¹1 EDWARD COKE, INSTITUTES OF THE LAWES OF ENGLAND ch. 1, sec. 1, at 4b (1628), *available online*.

⁴²See Michael Reichmann, *The Raw Flaw*, LUMINOUS LANDSCAPE (May 2005), *available online*. “Raw” image files are camera-specific file formats that capture the maximum information from a camera; they are usually the preferred format for professionals. See ADOBE INC., DIGITAL NEGATIVE (DNG) SPECIFICATION 10 (version 1.7.0.0 June 2023), *available online*; J.D. Biersdorfer, *Professional Tools to Elevate Your Photo Skills*, N.Y. TIMES, Jan. 11, 2023, at B5, *available online*.

justments to photograph coloration.⁴³ As a result, photographers were required to use Nikon's software to read and process raw image files, despite many of them being dissatisfied with that software.⁴⁴ The Adobe engineer who created Photoshop reported that the "risk of getting sued under the DMCA prevents Adobe from fully supporting the raw file format of Nikon's top professional camera."⁴⁵

Nikon contended that the encryption of its raw image files was necessary to protect Nikon's intellectual property.⁴⁶ Indeed, Nikon had to make that argument if the encryption was to qualify as a TPM.⁴⁷ But the logic doesn't add up. Factual information about a photo's coloration is not copyright-protectable subject matter.⁴⁸ Copyright protection subsists in the photo itself, but the photographer owns that copyright, not Nikon.

Instead, the likely reason behind Nikon's TPM was business: Nikon wanted to lock consumers into the camera manufacturer's editing software and out of competitive products.⁴⁹ Nikon invoked § 1201 not to protect intellectual property

⁴³See *Nikon Encrypts White Balance Data*, DIGIT. PHOTOGRAPHY REV. (Apr. 19, 2005), *available online* (citing *Nikon Encrypts D2X White Balance Metadata*, PHOTOSHOP NEWS (Apr. 17, 2005), *available online*).

⁴⁴See, e.g., David Pogue, *Pixels and Protocol*, N.Y. TIMES (May 5, 2005), *available online*.

⁴⁵*Nikon Encrypts D2X White Balance Metadata*, *supra* note 43.

⁴⁶See Pogue, *supra* note 44.

⁴⁷See Digital Millennium Copyright Act (DMCA), 17 U.S.C. § 1201(a)(3)(B).

⁴⁸See *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344 (1991).

⁴⁹See *Nikon Encrypts White Balance Data*, *supra* note 43; Pogue, *supra* note 44.

rights of substance, but to preserve market control by denying camera owners the unfettered right to use their own photographs.

Exploitation of TPMs to control markets and eliminate consumer choice is ubiquitous today. Coffee machines use TPMs to lock consumers into preferred brands of coffee pods,⁵⁰ printers have TPMs for ink cartridges,⁵¹ automatic juicers have them for fruit packs,⁵² cat litterboxes for cat litter,⁵³ refrigerators for water filters,⁵⁴ dishwashing machines for detergent.⁵⁵

Sometimes the stakes of terminating the right to use can be especially high. Medical devices frequently include TPMs to prevent patients from accessing their own health data about themselves.⁵⁶ This has left patients like Hugo Campos in

⁵⁰See Fred Barbash, *Keurig's K-Cup Screw-up and How It K-Pitulated to Angry Consumers*, WASH. POST (June 4, 2015), *available online*.

⁵¹See Sean Hollister, *HP Has Found an Exciting New Way to DRM Your Printer!*, THE VERGE (May 25, 2023), *available online*.

⁵²See Joel Hruska, *Investors Backing Juicero and Its \$400, DRM-Laden Juicer Surprised to Discover They Were Fleeced*, EXTREME TECH (Apr. 20, 2017), *available online*.

⁵³See Jorge Lopez, *The Future: A Cat Litter Box and DRM*, MEDIUM (Oct. 20, 2016), *available online*.

⁵⁴See Thomas Claburn, *Someone Got so Fed up with GE Fridge DRM—Yes, Fridge DRM—They Made a Whole Website on How to Bypass It*, THE REGISTER (June 13, 2020), *available online*.

⁵⁵See Dan Maloney, *Detergent DRM Defeated on Diminutive Dishwasher*, HACKADAY (Apr. 16, 2021), *available online*. See generally Rebecca Wexler, *The Private Life of DRM: Lessons on Information Privacy from the Copyright Enforcement Debates*, 17 YALE J.L. & TECH. 368, 375–76 (2015) (more examples).

⁵⁶See Naihua Duan et al., *Personalized Data Science and Personalized (N-of-1) Trials: Promising Paradigms for Individualized Health Care* 31–32, in 2022 HARV. DATA SCI. REV. spec. iss. 3, *available online*.

the dark about how best to care for themselves.⁵⁷ Device manufacturers have no copyright interests in patient data, and yet § 1201 makes them gatekeepers to patients' health.

These TPMs have the most tenuous connections to protecting intellectual property rights, and everything to do with controlling consumer choice and denying device owners their rights to use their possessions as they please. By giving these TPMs the force of civil and criminal law, § 1201 has spawned a generation of business models that profit off of denying consumers' rights to use and enjoy their technological possessions.

D. THE RIGHT TO POSSESS

The right of possession is another key element of property ownership. Law school textbooks teach first possession as a basis for ownership.⁵⁸ Coke wrote that “the house of every one is to him as his castle and fortress”;⁵⁹ scholars from Blackstone's day forward have called possession “the origin of property.”⁶⁰

⁵⁷See Hugo Campos, *I Can't Access the Data Generated by My Implanted Defibrillator. That's Absurd*, SLATE (Mar. 24, 2015), *available online*; Amy Standen, *Patients Crusade for Access to Their Medical Device Data*, NPR (May 28, 2012), *available online*.

⁵⁸See, e.g., JOHN G. SPRANKLING & RAYMOND R. COLETTA, PROPERTY 8–13 (5th ed. 2021) (discussing *Pierson v. Post*, 3 Cai. 175 (N.Y. Sup. Ct. 1805)).

⁵⁹*Semayne's Case*, 77 Eng. Rep. 194, 195, 5 Coke 91a, 91b (K.B. 1604).

⁶⁰Carol M. Rose, *Possession as the Origin of Property*, 52 U. CHI. L. REV. 73, 74 (1985) (citing WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENG-

One might think that the electronic mechanisms of TPMs could not cut off possessory rights in a physical, purchased device. Yet in striking examples, consumers of technology devices have discovered otherwise.

In 2009, high school senior Justin Gawronski was working on a book report. He had purchased and was reading the book on his Amazon Kindle e-reader device, on which he had taken “copious notes.”⁶¹ Unbeknownst to him, Amazon had received a demand to stop selling the book, and in blind compliance Amazon not only removed the book from its store, but also deleted the book from all its consumers’ devices, including Justin’s.⁶²

Amazon’s repossession of Justin’s book was enabled by the TPM that Amazon had installed on every Kindle device.⁶³ That repossession was also not legitimate copyright enforcement. If Justin had purchased a physical copy of the book, the first sale doctrine would prohibit Amazon, the publisher, or anyone else from

LAND *8 (1765) (“[O]ccupancy gave also the original right to the permanent property . . .”).

⁶¹Complaint at para. 28, at 6, *Gawronski v. Amazon.com, Inc.*, No. 2:09-cv-1084 (W.D. Wash. July 30, 2009); Mark Milian, *Kindle Teen Tattles on Amazon for Losing His Homework*, BRAND X (July 31, 2009), *available online*.

⁶²See Complaint at paras. 16–19, at 4, *Gawronski*, No. 2:09-cv-1084; Brad Stone, *Amazon Erases Orwell Books from Kindle*, N.Y. TIMES (July 18, 2009), *available online*.

⁶³See Mariel L. Belanger, *Amazon.com’s Orwellian Gaffe: The Legal Implications of Sending E-Books Down the Memory Hole*, 41 SETON HALL L. REV. 361, 365–66 (2011).

leveraging copyright protection against Justin as the legal owner of the copy.⁶⁴ Nor was it alleged that Justin was pirating or infringing the book.⁶⁵ The TPM served only to turn book consumers into pawns in a corporate dispute, disposing of those consumers' possessory rights in the process.

The book that Amazon's TPM exercised this omnipresent control over was George Orwell's classic novel of totalitarian surveillance, *1984*.⁶⁶

Justin's loss of possession arose out of Amazon's intentional acts, but TPMs can dispossess consumers of property even by mere negligence or forgetfulness. Many video game discs and cartridges include TPM software made by the company Denuvo.⁶⁷ In August 2021, Denuvo accidentally misconfigured its "phone-home" server, so that when game players tried to load the games they had bought, the online TPM verification check failed through no fault of the purchasers.⁶⁸ To be clear, these gamers lawfully purchased and possessed physical copies of the

⁶⁴See 17 U.S.C. § 109(a); *Kirtsaeng v. John Wiley & Sons, Inc.*, 568 U.S. 519, 538–39 (2013).

⁶⁵To be sure, the reason for Amazon's removal was that the Kindle e-book was allegedly an unauthorized copy. See Stone, *supra* note 62. That might render Amazon liable for copyright infringement, but not Justin. Copying and distribution can constitute infringement, but not mere receipt or possession. See 17 U.S.C. § 106.

⁶⁶See Carolyn Kellogg, *Amazon to Pay \$150,000 over Kindle Eating Orwell—and Teen's Homework*, L.A. TIMES (Oct. 1, 2009), *available online*.

⁶⁷See Debarshi Das, *What Is Denuvo and Why Do Some Gamers Hate It?*, MAKE USE OF (Mar. 25, 2022), *available online*.

⁶⁸See Mollie Taylor, *A Great Day for DRM as Denuvo Lapse Renders Tons of Games Temporarily Unplayable*, PC GAMER (Nov. 8, 2021), *available online*.

game software. But a carelessly implemented TPM had eviscerated their possessory right.

Denuvo is far from alone in frustrating consumers' right to possess. Other gaming consoles also require fragile phone-home TPM verification.⁶⁹ Consumers have had e-book purchases stripped from them when the seller turned off its TPM verification servers.⁷⁰ Even physical home devices like dryer monitors and lights have been inoperably "bricked" when manufacturers chose to turn off their servers, rendering those devices no more useful than a cinderblock.⁷¹

So much property has been dispossessed due to TPM verification server shutdowns, that the Register of Copyrights was forced to conclude in 2015 that "the inability to circumvent the TPM would [be] a significant adverse effect."⁷² That § 1201 empowers device manufacturers to circumvent property owners' rights of possession is indeed a significant adverse effect.

⁶⁹See Dean Takahashi, *Microsoft Confirms Xbox One Will Require a Network Connection Once a Day*, VENTUREBEAT (June 6, 2013), *available online*.

⁷⁰See Josh Axelrod & Lulu Garcia-Navarro, *Microsoft Closes the Book on Its E-Library, Erasing All User Content*, NPR (July 7, 2019), *available online*.

⁷¹See Alex Hern, *Revolv Owners Furious as Google Shuts Down Smart Home Company*, THE GUARDIAN (Apr. 5, 2016), *available online*; Kevin Purdy, *SmartDry's Useful Laundry Sensor to Be Cloud-Bricked Next Month*, ARS TECHNICA (Aug. 30, 2022), *available online*.

⁷²Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65944, 65957 (Libr. of Cong. Oct. 28, 2015); see Andrew Heinzman, *What Happens to Your Digital Property when a Company Goes out of Business?*, HOW-TO GEEK (Feb. 6, 2019), *available online*.

II. SUBVERSION OF CONSUMERS' OWNERSHIP RIGHTS INFORMS THE FIRST AMENDMENT ISSUES IN THIS CASE

Beyond simply demonstrating the law to be a troubling incursion upon consumers' property rights, the above facts and examples inform the disposition of Appellants' First Amendment challenge in at least two ways. First, they show that the statute discriminates based on content, favoring software contrary to consumer ownership rights and disallowing software advancing ownership rights. Second, they show that the law is not narrowly tailored to the copyright-based interests that it is intended to serve.

A. PROHIBITING OWNERSHIP-FAVORING SOFTWARE, WHILE PROTECTING OWNERSHIP-ADVERSE SOFTWARE, IS NOT CONTENT-NEUTRAL

In determining whether § 1201 is unconstitutional under the First Amendment, it is first necessary to determine what level of scrutiny applies. If a regulation “applies to particular speech because of the topic discussed or the idea or message expressed,” then the regulation is facially content-based and strict scrutiny applies.⁷³ A municipal code that distinguishes between “Ideological Signs” and “Directional Signs” is content-based;⁷⁴ so is a trademark registration requirement that prohibits disparagement in favor of “happy-talk.”⁷⁵ By contrast,

⁷³See *City of Austin v. Reagan Nat'l Advert. of Austin, LLC*, 142 S. Ct. 1464, 1471 (2022) (quoting *Reed v. Town of Gilbert*, 135 S. Ct. 2218, 163 (2015)).

⁷⁴See *Reed*, 135 S. Ct. at 164.

⁷⁵*Matal v. Tam*, 582 U.S. 218, 246 (2017) (plurality op.).

a regulation that does not discriminate based on content, say one that only requires that signage be placed in certain locations, is content-neutral and subject to a lower degree of scrutiny.⁷⁶

This Court previously accepted that circumvention software was speech, but nevertheless held that § 1201 was likely content-neutral.⁷⁷ Underlying that holding was an assumption that the software's sole functional purpose is illegal circumvention.

But the facts belie that assumption: That software also serves the important purpose of *enabling consumers to protect their property rights*. A farmer might circumvent a TPM to repair a tractor. A music CD buyer might circumvent a TPM to uninstall Sony BMG's malicious rootkit. A Nikon camera owner might circumvent a TPM to edit the photographs she herself took. Justin Gawronski might circumvent a TPM on his Kindle to defend against Amazon dispossessing him of his purchased copy of *1984*.

If circumvention of TPMs protects consumers' property, then circumvention software programs are educational instructions on how to protect one's property rights. Although the level of constitutional protection for instructional speech

⁷⁶See *City of Austin*, 142 S. Ct. at 1471.

⁷⁷See *Green v. U.S. Dep't of Just.*, 54 F.4th 738, 745 (D.C. Cir. 2022).

is unsettled,⁷⁸ academic freedom is “a special concern of the First Amendment,”⁷⁹ and courts and scholars generally agree that the First Amendment is more solicitous toward “dual-use” speech with lawful, socially valuable uses, than it is toward speech with no purpose other than illegal conduct.⁸⁰ In other contexts, educational software can be especially useful for enhancing individual rights.⁸¹ And courts have overturned or constrained bans on posting of instructional and factual information (including software), where the information had legitimate purposes.⁸²

Circumvention software is dual-use in that it that helps consumers understand their ownership rights and protect their possessions, frequently in ways

⁷⁸See *Stewart v. McCoy*, 537 U.S. 993, 995 (2002) (Stevens, J., respecting denial of certiorari).

⁷⁹*Keyishian v. Bd. of Regents*, 385 U.S. 589, 603 (1967); see *Sweezy v. New Hampshire*, 354 U.S. 234, 250 (1957).

⁸⁰See, e.g., *Ashcroft v. Free Speech Coal.*, 535 U.S. 234, 252–53 (2002); *Fla. Star v. BJJF*, 491 U.S. 524, 539 (1989); *Brandenburg v. Ohio*, 395 U.S. 444, 447 (1969); *Rice v. Paladin Enters., Inc.*, 128 F.3d 233, 266 (4th Cir. 1997); Eugene Volokh, *Crime-Facilitating Speech*, 57 STAN. L. REV. 1095, 1127, 1146–48 (2005); Andrea M. Matwyshyn, *Hacking Speech: Informational Speech and the First Amendment*, 107 NW. U. L. REV. 795, 816 (2013); Ashutosh Bhagwat, *Details: Specific Facts and the First Amendment*, 86 S. CAL. L. REV. 1, 48 (2012).

⁸¹See, e.g., *Intell. Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1322–25 (Fed. Cir. 2016) (Mayer, J., concurring); Andrew Guthrie Ferguson & Richard A. Leo, *The Miranda App: Metaphor and Machine*, 97 B.U. L. REV. 935, 978–79 (2017).

⁸²See, e.g., *United States v. Raymond*, 228 F.3d 804, 815 (7th Cir. 2000); *Ostergren v. Cuccinelli*, 615 F.3d 263, 271–72 (4th Cir. 2010). See generally Matwyshyn, *supra* note 80, at 830–40.

that are fair use or otherwise not copyright-infringing.⁸³ Indeed, those who create circumvention software often post it publicly specifically to criticize the TPM and § 1201.⁸⁴ The importance of TPM circumvention to ownership rights confirms that circumvention software-based speech “can be relevant to policy debates” and thus “deserves the same sort of protection that other policy-related speech gets.”⁸⁵

Not only does § 1201 burden software that defends consumer property, it bankrolls TPM software that undermines consumer property. Section 1201 gives the latter anti-ownership software legal immunity, while rendering contrary pro-ownership instructional material criminal.⁸⁶ A law that disfavors software that educates and aids consumers on how to protect their property, while uplifting contrary software that subverts consumer ownership, is not content-neutral.

⁸³See U.S. COPYRIGHT OFF., SECTION 1201 OF TITLE 17, at 90 (June 2017), *available online*; Pamela Samuelson, *Freedom to Tinker*, 17 THEORETICAL INQUIRIES L. 563, 569–70 (2016).

⁸⁴See, e.g., Maloney, *supra* note 55; Claburn, *supra* note 54.

⁸⁵Volokh, *supra* note 80, at 1154.

⁸⁶This, of course, assumes that a TPM is speech. But not all software is necessarily speech. See *Bernstein v. U.S. Dep’t of Just.*, 176 F.3d 1132, 1145 (9th Cir. 1999). In particular, TPMs are proprietary, often kept secret, not intended to educate others, and valuable only in their operation and not in their execution, all of which potentially weigh against First Amendment protection. See Matwyshyn, *supra* note 80, at 830–31.

B. ASSERTIONS OF SECTION 1201 OFTEN HAVE LITTLE TO DO WITH COPYRIGHT PROTECTION, RENDERING THE STATUTE NOT NARROWLY TAILORED

Regardless of whether § 1201 is content-neutral, the law’s “incidental restriction” on speech must be “no greater than is essential.”⁸⁷ While the statute need not be the least speech-restrictive means available, it “may not regulate expression in such a manner that a substantial portion of the burden on speech does not serve to advance its goals.”⁸⁸

Here again, the statute fails this constitutional requirement, because many TPMs have virtually nothing to do with the statutory goal of preventing copyright piracy.⁸⁹ When device manufacturers use TPMs to lock consumers into photography software, coffee pods, or ink cartridges, they do so not to protect any copyrighted works but to monopolize markets and stymie competition.⁹⁰ The same may be said of TPMs that block repairs. Tractor manufacturers are not concerned with piracy of internal device software; they use TPMs to force con-

⁸⁷*Turner Broad. Sys., Inc. v. Fed. Comm’ns Comm’n*, 512 U.S. 622, 662 (1994).

⁸⁸*Ward v. Rock Against Racism*, 491 U.S. 781, 799 (1989) (citing *Frisby v. Schultz*, 487 U.S. 474, 485 (1988)).

⁸⁹See also Madison Bower, *Keeping the DMCA Away from Functional Use*, 35 BERKELEY TECH. L.J. 1067, 1082–83 (2020).

⁹⁰See, e.g., Erik Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 ARIZ. L. REV. 925, 942–43 (2010).

sumers to use the manufacturer's preferred repair providers, or perhaps to force consumers to throw away their unrepairable devices and buy new ones.⁹¹

Indeed, when manufacturers of home appliances, printers, or other TPM-laden software are asked what purposes those TPMs serve, copyright protection is rarely their lead argument. Sometimes they have bluntly asserted that “the DMCA eliminated all existing consumer expectations about the public's rights to use purchased products.”⁹² Alternatively, they contend that their technological protection measures are for user safety, cybersecurity, and avoidance of product liability.⁹³ Laudable goals, perhaps, though questionable given the many security and safety lapses found in TPMs.⁹⁴ But these are goals wholly unrelated to the

⁹¹See FED. TRADE COMM'N, *supra* note 7, at 11–16.

⁹²*Chamberlain Grp. v. Skylink Techs., Inc.*, 381 F.3d 1178, 1198 (Fed. Cir. 2004). To be sure, *Chamberlain* and other courts have held that § 1201 benefits only TPMs with “a reasonable relationship to the protection that the Copyright Act otherwise affords.” *Id.* at 1203; see also *Lexmark Int'l v. Static Control Components*, 387 F.3d 522, 549 (6th Cir. 2004). But others have disagreed, opening the door to copyright-irrelevant assertions of § 1201. See *MDY Indus., LLC v. Blizzard Ent., Inc.*, 629 F.3d 928, 952 (9th Cir. 2010); U.S. COPYRIGHT OFF., *supra* note 83, at 42.

⁹³See, e.g., Comment of Motor and Equipment Manufacturers Association, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65944 (Libr. of Cong. May 1, 2015) (No. 2014-07), *available online*; see also U.S. COPYRIGHT OFF., *supra* note 83, at 29–30; Paul Ohm & Blake Reid, *Regulating Software When Everything Has Software*, 84 GEO. WASH. L. REV. 1672, 1686 (2016).

⁹⁴See, e.g., *supra* Section I.B.

copyright-specific purposes underlying § 1201.⁹⁵

Even where TPMs do protect underlying copyrighted content, the manufacturers often use those protection measures to non-copyright, anti-ownership ends. Consumers' digital purchases become unusable because a company shuts down its TPM server, even though copyright law theoretically guarantees those consumers' rights of possession.⁹⁶ Sony BMG's copy protection software gave the company valuable, privacy-invasive data about consumers' listening habits.⁹⁷

When consumers seek to circumvent TPMs to protect their property interests, fight back against anticompetitive monopolization, or preserve their privacy, their efforts have everything to do with protecting individual consumer rights and virtually nothing to do with copyright.⁹⁸ By preventing consumers from expressing information about this lawful behavior, § 1201 burdens substantial individual speech without advancing the statute's goals. The law fails the First Amendment even under intermediate scrutiny.

⁹⁵See Ohm & Reid, *supra* note 93, at 1686 (citing NAT'L TELECOMMS. & INFO. ADMIN., SIXTH TRIENNIAL SECTION 1201 RULEMAKING 5 (Sept. 18, 2015), *available online*); U.S. COPYRIGHT OFF., *supra* note 83, at 29–30.

⁹⁶See *supra* Section I.D.

⁹⁷See *supra* note 31 and accompanying text.

⁹⁸See *supra* note 84 and accompanying text.

CONCLUSION

For the foregoing reasons, the decision of the district court should be reversed.

Respectfully submitted,

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APPENDIX A
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CERTIFICATE OF COMPLIANCE

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