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COMMENT: Secondary Effects: The First Amendment and Defective 3D Firearm Files

Liam Casey

COMMENT

Secondary Effects: The First Amendment and Defective 3D Firearm Files

*LIAM CASEY**

INTRODUCTION

"Institutions will try to preserve the problem to which they are the solution."

—Clay Shirky

How comfortable would you feel test-firing a gun created in your neighbor's garage? Additive manufacturing, or three-dimensional (3D) printing, uses plastic[1] and computer code to create physical objects.[2] Three-dimensional printing brought the factory inside the home, thus leaving behind traditional government oversight and industry safeguards common to the free market.[3] Anyone in the world with a 3D printer can produce a functional firearm, and most adult citizens in the United States

* J.D. Candidate, May 2022, Golden Gate University School of Law, San Francisco, California. B.A. 2019, Legal Studies, University of California Santa Cruz, Porter College. Member of the Golden Gate University School of Law and *GGU Law Review* Editor-in-Chief. The author would like to thank Professor Nicholas Baran for his support and feedback during the drafting of this Comment. The author would also like to extend special thanks to: Dr. James Casey, Dolan Casey, Caitlin Casey, June Casey, James Casey, Esq., Kellie McFarland, Alexandra Mills, Tom Dana, and LS3.

[1] *See generally* Jason Griffey, *The Plastics of 3D Printing,* AMERICAN LIBRARY ASSOCIATION, https://www.ala.org/tools/article/ala-techsource/plastics-3d-printing (last visited Mar. 1, 2022) ("[The filament used in 3D] printers [is] almost exclusively some form of [plastic].").

[2] *See What is Additive Manufacturing? Definition, Types, and Processes*, TWI, https://www.twi-global.com/technical-knowledge/faqs/what-is-additive-manufacturing (last visited Mar. 16, 2022).

[3] *See* Peter Jensen-Haxel, 3D Printers, Obsolete Firearm Supply Controls, and the Right To Build Self-Defense Weapons Under Heller, 42 GOLDEN GATE U. L. REV. 447, 448 (2012) (citing A Factory on Your Desk, ECONOMIST TECH. Q. (Sept. 3, 2009), www.economist.com/node/14299512.

of America may do so legally.[4] While 3D printing has demonstrated its utility,[5] novel issues such as commercial liability and broad access to computer code for 3D-printable guns remain in the technology's legal periphery.[6]

This Comment examines one legal issue surrounding the computer code that allows the owner of a 3D printer to create a functional firearm (3D firearm files). Consumers lack s legal remedy for consumers injured by negligently designed 3D gun codes. Consumers who have access to 3D printers that can print firearms may be at risk of that firearm exploding during use.[7] A consumer who obtains 3D firearm files and uses a 3D printer to create a firearm has no way of knowing whether the filament[8] they are using meets the tensile strengths[9] required for a functional firearm, as intended by the code's creator. As a larger American demographic begins to utilize 3D printing technology, the danger presented by negligently designed 3D gun codes—the potential to injure users through explosive malfunctions—poses an increased risk to consumers.[10]

This Comment analyzes *Washington v. Defense Distributed*, in which the United States Department of State (State Department) attempted to prevent an online organization known as Defense Distributed from posting printable 3D firearm files online.[11] Cody Wilson created

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[4] Lucas S. Osborn, *Regulating Three-Dimensional Printing: The Converging Worlds of Bits and Atoms*, 51 SAN DIEGO L. REV. 553, 556-66 (2014) (discussing 'Project Shapeshifter, a website that allows anyone either (1) to download the file—perhaps for a fee—and print it at home"); *see also, infra* Footnote 10.

[5] *See generally* Yu Ying Clarissa Choong, et al., *The Global Rise of 3D Printing During The Pandemic.,* NAT REV. MATER (Aug. 12, 2020), https://www.nature.com/articles/s41578-020-00234-3.

[6] Choong, Y.Y.C., Tan, H.W., Patel, D.C. et al., *The global rise of 3D printing during the COVID-19 pandemic*, NAT. REV. MATER. 5, 637, 637 (Sep. 2020), https://doi.org/10.1038/s41578-020-00234-3 ("The broad spectrum of 3D-printing applications in the fight against COVID-19 includes personal protective equipment (PPE), medical, and testing devices, personal accessories, visualization aids and emergency dwellings.").

[7] *See* Simon Sharwood, '*Catastrophic Failure' of 3D Printed Gun in Oz Police Test*, THE REGISTER (May 24, 2013, 5:32 AM), https://www.theregister.com/2013/05/24/liberator_3d_printed_gun_catastrophic_failure/ (showing a video of a 3d printed liberator pistol exploding when firing a round).

[8] *See* Tony Hoffman, *3D Printer Filaments Explained,* PCMAG (May 24, 2018), https://www.pcmag.com/how-to/3d-printer-filaments-explained (explaining that filament is the string-like plastic material that a 3D printer uses to create objects[provide citation to info).

[9] *See Strength at Break (Tensile)*, OMNEXUS, https://omnexus.specialchem.com/polymer-properties/properties/strength-at-break-tensile#:~:text=Yield%20Strength%20is%20the%20stress,pulled%20before%20failing%20or%20breaking (last visited Feb. 4, 2021) (noting tensile strength is the resistance of a material to breaking under tension or use).

[10] Lucas Mearian *Feds say 3D printed guns expode, can injure users*, COMPUTERWORLD (Nov. 14, 2013), https://www.computerworld.com/article/2485929/feds-say-3d-printed-guns-explode--can-injure-users.html.

[11] Letter from Glen E. Smith, Chief, Enforcement Division, United States Department of State, to Cody Wilson, Founder, Defense Distributed at 2 (May 8, 2013), https://

Defense Distributed,[12] and it provided the first 3D printable firearm file online, known as "the Liberator."[13] In 2013, the United States government, acting through the State Department, directed Mr. Wilson and Defense Distributed to remove public access to the Liberator.[14] In 2015, Mr. Wilson and Defense Distributed sought a preliminary injunction in federal court against the State Department's request, which was denied.[15] In September 2016, the United States Court of Appeals for the Fifth Circuit upheld the lower court's ruling.[16] Defense Distributed then appealed to the Supreme Court, which was denied.[17] Then, the State Department offered to settle, and Defense Distributed was able to publish its files on June 29, 2018.[18] Thereafter, multiple state attorneys general challenged this settlement on varying national security grounds in *Washington v. United States Department of State*.[19] The United States District Court for the Western District held in part that the State Department's settlement was arbitrary and capricious because " the agency failed to identify . . . evidence in the administrative record explaining a change of position that necessarily contradicts its prior determinations and findings regarding the threats posed by the subject [3D firearm] files."[20] *Washington v. Defense Distributed* was ultimately dismissed when the United States Court of Appeals for the Ninth Circuit (Ninth Circuit) denied Defense Distributed's appeal, holding that "no present controversy exists as to which any effective relief may be granted to appellants."[21] Then, in 2021, the Ninth

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upload.wikimedia.org/wikipedia/commons/0/04/Letter-from-Department-of-State-to-Defense-Distributed.pdf.

[12] Nathan Mattise, *At Defense Distributed, Few Glimpses of Life After Cody Wilson*, CONDÉ NAST (Oct. 8, 2019 3:15, AM), https://arstechnica.com/tech-policy/2019/08/at-defense-distributed-there-have-been-few-glimpses-of-life-after-cody-wilson/.

[13] Andy Greenberg, *Meet The 'Liberator': Test-Firing The World's First Fully 3D-Printed Gun*, FORBES (May 5, 2013, 5:30 PM) https://www.forbes.com/sites/andygreenberg/2013/05/05/meet-the-liberator-test-firing-the-worlds-first-fully-3d-printed-gun/?sh=7e0704e952d7.

[14] Letter from Glen E. Smith, Chief, Enforcement Division, United States Department of State, to Cody Wilson, Founder, Defense Distributed at 2 (May 8, 2013) https://upload.wikimedia.org/wikipedia/commons/0/04/Letter-from-Department-of-State-to-Defense-Distributed.pdf.

[15] Defense Distributed v. U.S. Dept. of State, 121 F.Supp.3d 680, 686 (W.D. Tex. 2015).

[16] Defense Distributed v. U.S. Dept. of State, 838 F.3d 451, 460 (5th Cir. 2016).

[17] Abraham Gutman, 3D printed guns: *How did we get here and what can we do? — Opinion*, THE PHILADELPHIA INQUIRER (Aug. 1, 2018), https://www.inquirer.com/philly/opinion/commentary/3d-printing-guns-liberator-cody-wilson-defense-distributed-defcad-20180801.html (noting the procedural history of Defense Distributed from 2012-2018).

[18] Clif Burns, *Why Was the State Department Ever Involved With the Debate Over 3D-Printed Guns?*, THE SLATE GROUP (Aug. 2, 2018), https://slate.com/technology/2018/08/defense-distributed-why-the-state-department-was-involved-with-3d-printed-guns.html.

[19] *Id*.

[20] Washington v. United States Department of State, 420 F.Supp.3d 1130, 1146 (W.D. Wash. 2019).

[21] *See* State v. Def. Distrib., No. 20-35030, 2020 WL 4332902, at *1 (9th Cir. July 21, 2020) (holding that Defense Distributed's appeal was moot because no present controversy existed).

Circuit overturned an injunction issued by a federal judge in March 2020 and effectively allowed the 3D firearm files to be shared online.[22]

This Comment specifically proposes that while the Ninth Circuit's dismissal in *Washington v. Defense Distributed*[23] was the correct conclusion because the State Department's 2013 action directing Defense Distributed to de-list 3D firearm files was arbitrary and capricious,[24] Congress and the judiciary have failed to provide adequate legal guidelines to address commercial liability for defective 3D firearm files.[25] This Comment attempts to navigate latent First Amendment concerns inherent to 3D firearm file regulation, as Defense Distributed had noted that these files represented speech,[26] and precedent holds that computer code is speech.[27]

Part I of this Comment provides an overview of 3D printing technology. Part II examines *Washington v. Defense Distributed*, and the ongoing, unaddressed concerns related to the access and use of 3D gun code and the potential for irremediable injuries. Part III proposes a basis to regulate not the speech of 3D firearm files but instead their harmful secondary effects.[28] Part IV discusses the need for congressional action since pressures exerted by bullets that 3D firearms are designed to shoot[29] pose dangerous secondary effects[30] and merit regulation through the secondary effects doctrine. Alternatively, these dangerous effects could be regulated by the Consumer Product Safety Commission (CPSC).[31]

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[22] Nicholoas Iovino, *Ninth Circuit Lifts Ban on 3D-Printed Gun Blueprints*, COURTHOUSE NEWS SERVICE (Apr. 27, 2021), https://www.courthousenews.com/ninth-circuit-lifts-ban-on-3d-printed-gun-blueprints/; *see generally* State v. United States Department of State, 996 F.3d 552, 564-565 (9th Cir. 2021).

[23] State of Washington v. Defense Distributed No. 20-35030, 2020 U.S. App. 9th Cir. WL 4332902, at *1 (Jul. 21, 2020) (holding that Defense Distrbuted' appeal was moot because no present controversy existed).

[24] Washington v. U.S. Dep't of State, 420 F.Supp.3d at 1146.

[25] *See generally* Vanesa Listek, *U.S. Representatives Reintroduce Bill Against 3D Printed Gun Blueprints*, 3DR HOLDINGS (Jul. 7, 2021), https://3dprint.com/283029/u-s-representatives-reintroduce-bill-against-3d-printed-gun-blueprints/.

[26] Washington v. U.S. Dep't of State, 420 F.Supp.3d at 1147.

[27] *Id.* at 1147-1148; *see also* Bernstein v. U.S. Dept. of State, 974 F. Supp. 1288, 1303 (N.D. Cal. 1997) (explaining that computer source code is considered free speech).

[28] *See* Sharwood, *supra* note 7 (showing a video of a 3d printed liberator pistol exploding when firing a round).

[29] *See* John Holbrook, *Rimfire vs. Centerfire Ammo*, TARGET BARN (Feb. 6, 2020), https://www.targetbarn.com/broad-side/rimfire-vs-centerfire/ (explaining that center-fire rounds are the type of mass-produced bullets commonly associated with guns).

[30] *See* Sharwood, *supra* note 7.

[31] *See About CPSC*, CPSC, https://www.cpsc.gov/About-CPSC (last visited Nov. 22, 2020) (noting "The CPSC is charged with protecting the public from unreasonable risks of injury or death associated with the use of the thousands of types of consumer products under the agency's jurisdic-

Ultimately, 3D firearm filesharing has become permeated with the potential to generate an inequitable tort-like gossamer of irremediable injury to American consumers.[32] This Comment concludes that imposing products liability on distributors of 3D firearm files through the secondary effects doctrine is a logical and legally palpable measure that would redress injuries from defective firearm files that are presently unrecoverable.

I. OVERVIEW: 3D FIREARM PRINTING

A. WHAT IS 3D PRINTING?

Three-dimensional printing is possible because of computer code known as the standard tessellation language (STL).[33] STLs allow a user to simplify a virtual object with triangles so that a 3D printer can understand the desired result and print the shape accordingly.[34] Many materials may be printed[35] by feeding thin filaments into a 3D printer, and these filaments range in tensile strength. [36] Although many filaments[37] appear to have high tensile strengths,[38] it is easy to weaken these materials, and thus weaken the printed object. [39] Long exposure to ultraviolet

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tion. Deaths, injuries, and property damage from consumer product incidents cost the nation more than $1 trillion annually.").

[32] *See* Sharwood, *supra* note 7.

[33] *See What Is An STL File?*, 3DSYSTEMS, https://www.3dsystems.com/quickparts/learning-center/what-is-stl-file (last visited Nov. 22, 2020) (noting "[the STL] format approximates the surfaces of a solid model with triangles . . . and the larger the STL file, the more triangles placed on the surface of the model.").

[34] *Id.*

[35] *See 3D Printer Filament Comparison Guide*, MATTER HACKERS https://www.matterhackers.com/3d-printer-filament-compare (last visited Nov. 22, 2020) (describing the variety of printer filaments commercially available).

[36] Common filaments include: (1) Polylactic Acid (PLA) with an approximate strength of 7,250 pounds per square inch (psi); (2) Acrylonitrile Butadiene Styrene (ABS), with a 4,700 psi rating; polycarbonate, at 7,000 psi; (3) Thermoplastic Polyurethane at 5076 psi; and (4) Nylon at 7,000 psi; *see What is the Strongest 3D printer Filament?*, AIRWOLF3D (July 24, 2017), https://airwolf3d.com/2017/07/24/strongest-3d-printer-filament/#:~:text=PLA%20is%20an%20environmentally%20friendly,It's%20also%20pretty%20strong.&text=truth%20be%20told%2C%20we%20were,this%20is%20a%20strong%20material.

[37] *See* Jackson O'Connel, *Is PLA Actually Biodegradable?,* ALL3DP, (Sept. 14, 2021), https://all3dp.com/2/is-pla-biodegradable-what-you-really-need-to-know/ (explaining that polylactic acid is an organic acid that is used in 3D printing).

[38] *See What is the Strongest 3D printer Filament*?, AIRWOLF3D (Jul. 24, 2017), https://airwolf3d.com/2017/07/24/strongest-3d-printer-filament/#:~:text=PLA%20is%20an%20environmentally%20friendly,It's%20also%20pretty%20strong.&text=truth%20be%20told%2C%20we%20were,this%20is%20a%20strong%20material.

[39] *See* 3D Printer Geeks, *How Long Will a PLA Printed Object Last?*, 3D PRINTER GEEKS, (Oct. 21, 2019), https://3dprintergeeks.com/pla-3d-printed-object-durability/.

(UV) rays, or heat in excess of 150 degrees Celsius may lead to rapid failure of polylactic acid (PLA)[40] filament.[41] In contrast, Acrylonitrile Butadiene Styrene (ABS) filament [42] has a weaker tensile strength, but may withstand long exposure to UV rays, and temperatures up to 210 degrees Celsius.[43] Virtually all 3D firearm files can be printed with these materials,[44] but it may not be clear to the consumer of a 3D firearm file that the filament is weak, or the resulting print is not strong enough for the intended purpose of firing ammunition.[45]

B. CONSTITUTIONAL RIGHT TO DISTRIBUTE FIREARM FILES

In the United States, computer code is generally considered speech.[46] Thus, for commercial distributors of 3D firearm files, 3D gun codes are protected by the First Amendment, as it is akin to other forms of speech.[47] Further, if consumers share these files within the United States, this would also be protected by the First Amendment.[48] For example, if a consumer shares a written message through email, this would be protected by the First Amendment.[49] Similarly, since the information for 3D firearm files is contained in an STL file, which is a collection of certain characters that a 3D printer reads,[50] this should also fall under the blanket of First Amendment expression,[51] because an STL file is simply

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[40] Polylactic acid is an organic acid that is used in 3D printing.

[41] *See Is PLA UV Resistant? Including ABS, PETG, & More*, 3D PRINTERLY, https://3dprinterly.com/is-pla-uv-resistant-including-abs-petg-more/ (last visited Nov. 22, 2020); *see also* Tony Rogers, *Everything You Need To Know About Polylactic Acid* (PLA), CREATIVE MECHANISMS BLOG (Oct. 7, 2015), https://www.creativemechanisms.com/blog/learn-about-polylactic-acid-pla-prototypes ("Thermoplastic materials become liquid at their melting point (150-160 degrees Celsius in the case of PLA.").

[42] *See generally* Lego*, Materials in LEGO® Elements,* LEGO SYSTEMS A/S, https://www.lego.com/ms-my/sustainability/product-safety/materials/ (last visited May 20, 2022). (acrylonitrile butadiene styrene is a common plastic used in 3D filament and goods such as Legos).

[43] *See Filament Play vs. ABS - a comparison*, SCOOBE 3D (last visited Nov. 22, 2020), https://scoobe3d.com/en/filament-pla-vs-abs-ein-vergleich/ (noting that: PLA's melting point is between 150-160 degrees Celsius, ABS's melting point is between 210-240 degrees Celsius).

[44] *Id.*

[45] *See generally* Sharwood, *supra* note 7.

[46] Bernstein v. U.S. Department of State, 974 F. Supp. 1288, 1303 (N.D. Cal. 1997) (explaining that computer source code is considered free speech).

[47] *Id*.

[48] *Id*.

[49] *See* David L. Hudson Jr., *Spam,* FREEDOM FORUM INSTITUTE, https://www.freedomforuminstitute.org/first-amendment-center/topics/freedom-of-speech-2/internet-first-amendment/spam/ (last updated Sept. 18, 2017).

[50] *See generally What Is An STL File?*, 3DSYSTEMS, https://www.3dsystems.com/quickparts/learning-center/what-is-stl-file (last visited Nov. 22, 2020).

[51] *See generally* Bernstein, 974 F. Supp. at 1303 (explaining that computer source code is considered free speech).

a book in the matrix. Logically, there is a constitutional right through the First Amendment to distribute, share,[52] and even sell 3D firearm files in the United States.[53]

C. PRODUCTS LIABILITY

Lose a finger? Call your lawyer. Products liability refers to the liability of any or all parties along a product's chain of manufacture for damage caused by that product.[54] Products liability claims can be based on negligence, strict liability or breach of warranty and may involve design defects, manufacturing defects, or defects in warning or marketing.[55] Design defects refer to flaws in a product that existed before the product was manufactured, which make the product unreasonably dangerous to use.[56] Warning defects occur when the manufacturer of a product fails to include proper instructions regarding latent dangers in a product.[57] A prima facie products liability claim must demonstrate that: (1) the defendant sold a product that the plaintiff used; (2) the defendant is a commercial seller of that product; (3) the plaintiff suffered an injury after using the product; (4) when the defendant sold the product, the item was defective; and (5) the defect was an actual and proximate cause of the plaintiff's injury[58]— do not forget Mrs. Palsgraf at the station. Actual cause is determined using a but-for test: but-for the defect, the resulting injury to the plaintiff would not have happened.[59] Proximate cause is the idea that the plaintiff's injuries were the natural, direct, and necessary consequence of the event—in this case, a defective product.[60] Strict liability applies to "[o]ne engaged in the business of selling products who sells a defective product that causes harm to persons or property caused by the defect." [61]

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[52] *Id*.

[53] *See generally* State v. U.S. Department of State, 996 F.3d 552, 564-565 (9th Cir. 2021).

[54] *Products Liability*, CORNELL L. SCH.: LEGAL INFO. INST., https://www.law.cornell.edu/wex/products_liability (last visited Feb. 4, 2021).

[55] *Id.*

[56] *Id.*

[57] *Id.*

[58] *See Proximate Cause*, CORNELL L. SCH.: LEGAL INFO. INST., https://www.law.cornell.edu/wex/proximate_cause (last visited Feb. 4, 2021).

[59] *Id.*

[60] *Id.*

[61] James M. Beck & Matthew D. Jacobson, *3D Printing: What Could Happen to Products Liability When Users (and Everyone Else in Between) Become Manufacturers*, 18 MINN. J.L. SCI. & TECH. 143, 154 (2017) (quoting RESTATEMENT (SECOND) OF TORTS § 402A (AM. L. INST. 1965)).

D. PRODUCTS LIABILITY ISSUES THAT ARISE IN 3D PRINTING

Presently, the creator of an STL file may not be held accountable under a strict liability theory of recovery, as "publishers cannot be liable for informational defects in published material pursuant to the First Amendment."[62] Limited authority, such as *ClearCorrect Operating, LLC v. Intl Trade Commission*,[63] stand for the proposition that 3D models are not products, and by extension, physical harm from STL files is irremediable.[64] Thus, the products liability law discussed above cannot be applied to redress injury from negligently coded 3D firearm files. The Ninth Circuit suggested in *Winter v. G.P. Putnam's Sons*[65] that "products for the purpose of products liability law. . . [may in the future include c]omputer software that fails to yield the result for which it was designed."[66] But the sentiment underpinning this dicta has apparently been left in the past.[67] Therefore, there are two issues in this products liability analysis that must be balanced: free speech and how to best protect American consumers.

I. ENTER DEFENSE DISTRIBUTED

A. *STATE DEPARTMENT V. DEFENSE DISTRIBUTED*

There has been a marked absence of dicta and binding law from the judicial and legislative systems regarding product liability for 3D firearm files. This truancy is notable in the following proceedings. Defense Distributed was founded in 2012 as a "non-profit, private defense firm" that would be the first to supply free STL files of firearms that users could download and 3D print.[68] Defense Distributed exists entirely online.[69] So does my life. In 2013, Mr. Wilson, the owner and founder of Defense Distributed, launched DEFCAD.org,[70] a for-profit domain dedicated to research and public access to STL firearm files.[71] In May 2013, Mr. Wil-

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[62] *Id.* (citing James M. Beck, *On Suing Publishers*, DRUG & DEVICE L. (Apr. 7, 2011), https://www.druganddevicelawblog.com/2011/04/on-suing-publishers.html).

[63] ClearCorrect Operating, LLC v. Intl Trade Commn., 819 F.3d 1334 (Fed. Cir. 2016).

[64] *See Id.*

[65] Winter v. G.P. Putnam's Sons, 938 F.2d 1033 (9th Cir.1991).

[66] *Id.* At 1036.

[67] *Id.* (this case was decided in 1991).

[68] *See* Gutman, *supra* note 17.

[69] *Id.*

[70] *See The World's Largest 3D Gun Repository*, DEFCAD https://DEFCAD.com/ (last visited Feb. 3, 2022) (showing Cody Wilson's website launched in 2013, and the DEFCAD archive).

[71] *See* Andy Greenberg, *3D-Printible Gun Project Announces Plans For A For-Profit Search Engine Startup*, FORBES (Mar. 11, 2013) https://www.forbes.com/sites/andygreenberg/2013/03/11/3d-printable-gun-makers-announce-plans-for-a-for-profit-search-engine-startup/?sh=3954eae03b0a.

son uploaded STL files of a printable handgun, called "the Liberator,"[72] which is designed to be 3D printed from plastic and used to shoot a live round.[73] Two days after Defense Distributed initially posted the STL Liberator files, the State Department sent a letter requesting that Mr. Wilson remove the STL firearm files from the internet.[74]

Legal disputes surrounding the constitutionality of Defense Distributed's actions quickly followed.[75] These proceedings, extending from 2012-2021, turned on whether the State Department violated the Administrative Procedure Act (APA).[76] The State Department failed to give Congress adequate notice[77] before removing firearm STL files from the list of restricted exports under International Traffic in Arms Regulations (ITAR),[78] known as the U.S. Munitions List.[79] Three-dimensional firearm files were restricted from export under ITAR up until the State Department amended the list of restricted technical data exports.[80] The State Department argued that by uploading the files to the internet, Mr. Wilson violated ITAR.[81] The State Department threatened Defense Distributed with legal action if the STL files were not removed.[82]

In 2015, Defense Distributed sued the State Department,[83] arguing that forcing the removal of the firearm files infringed on Mr. Wilson's First Amendment rights.[84] That same year, a federal judge ruled against Defense Distributed, noting that "public interest of national security outweighs [Defense Distributed's] interest in protecting their constitutional rights."[85] In 2016, the United States Court of Appeals for the Fifth Cir-

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[72] Gutman, *supra* note 17.

[73] *Id.*

[74] *Id.*

[75] *Id.*

[76] Gutman, *supra* note 17; *see* Summary of the Administrative Procedures Act, EPA.GOV, https://www.epa.gov/laws-regulations/summary-administrative-procedure-act (last visited Mar. 1, 2022) (explaining the Administrative Procedures Act governs the process that federal agencies must follow when they develop and issue new regulations).

[77] Washington v. U.S. Dep't. of State, 420 F.Supp.3d at 1146.

[78] *See* Jeff Peters, *What is ITAR and Compliance Definition and Regulations*, VARONIS (Oct. 10, 2018), https://www.varonis.com/blog/itar-compliance. (ITAR is the United States regulation that controls the manufacture, sale, and distribution of defense (read: weapons) related articles, and technical data).

[79] *See* 22 C.F.R. § 121.1(a) ("U.S. Munitions List. In this part, articles, services, and related technical data are designated as defense articles or defense services pursuant to sections 38 and 47(7) of the Arms Export Control Act and constitute the U.S. Munitions List (USML).").

[80] Gutman, *supra* note 17.

[81] *Id.*

[82] *Id.*

[83] Def. Distrib. v. U.S. Dept. of State, 121 F.Supp.3d at 686.

[84] Gutman, *supra* note 17.

[85] *Id.* (quoting Defense Distributed v. U.S. Dept. of State, 121 F.Supp.3d 680 (5th Cir. 2015).

cuit affirmed the lower court's decision.[86] In response, Defense Distributed appealed to the Supreme Court of the United States, which denied certiorari.[87] Then, on June 29, 2018, the State Department settled their case with Defense Distributed. [88] Thereafter, Defense Distributed uploaded 3D firearm files to the internet.[89]

B. EIGHT STATES VERSUS DEFENSE DISTRIBUTED

In 2019, eight states and the District of Columbia brought action under the APA against the State Department, seeking an injunction to enjoin Defense Distributed from uploading firearm STL files online.[90] The plaintiffs' injunction was granted by the District Court for the Western District of Washington.[91] Defense Distributed appealed this ruling,[92] and in 2020, the Ninth Circuit dismissed Defense Distributed's appeal.[93] The Ninth Circuit's ruling effectively upheld lower court rulings that the State Department violated the APA by allowing Defense Distributed to host global access to its 3D firearm files online.[94] However, in a lengthy 2021 opinion, the Ninth Circuit undid its prior ruling and allowed 3D firearm files to be shared online.[95] Thereafter, Defense Distributed began selling access to these files to U.S. citizens for a fifty-dollar subscription fee.[96]

In the eight years of proceedings involving Defense Distributed, no court addressed the potential for irremediable damages produced by negligently coded STL files sold as subscriptions through Mr. Wilson's DEFCAD.org domain. Defense Distributed is allowed to provide the Liberator and publish other 3D firearm files to American consumers.[97] I definitely downloaded some 3D firearm files during my research.

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[86] Def. Distrib. v. U.S. Dep't. of State, 838 F.3d at 453.

[87] Gutman, *supra* note 17.

[88] Burns, *supra* note 18.

[89] Gutman, *supra* note 17.

[90] *See generally* Washington v. U.S. Dep't. of State, 420 F.Supp.3d at 1130.

[91] *Id.* at 1148.

[92] State of Washington v. Defense Distributed No. 20-35030, 2020 U.S. App. 9th Cir. WL 4332902, at *1 (Jul. 21, 2020).

[93] *Id.*

[94] Washington v. U.S. Dep't. of State, 420 F.Supp.3d at 1135-37.

[95] Nicholas Iovino, *Ninth Circuit Lifts Ban on 3D-Printed Gun Blueprints*, COURTHOUSE NEWS SERVICE (April 27, 2021), https://www.courthousenews.com/ninth-circuit-lifts-ban-on-3d-printed-gun-blueprints/; *see generally* State v. United States Department of State, 996 F.3d 552, 564-565 (9th Cir. 2021).

[96] *See* Add Robertson *Defense Distributed's 3D-printed gun files are back online. But only for US residents. . .officially,* THE VERGE (Mar. 30, 2020), https://www.theverge.com/2020/3/30/21199519/defense-distributed-DEFCAD-3d-printed-gun-library-launch-vetting.

[97] Def. Distrib. v. U.S. Dep't. of State, 838 F.3d at 472.

II. REGULATING 3D FIREARM FILES

A. LOCK STOCK AND MOLTEN PLASTIC: THE PROBABILITY OF MALFUNCTION IN A 3D PRINTED FIREARM

The Liberator 3D firearm file was first intended to be printed and used with a .380 Automatic Colt Pistol (ACP) round.[98] This is a commonly available round used by many firearms currently in production.[99] These rounds are fired using a device known as a center fire cartridge.[100] A center-fire cartridge employs a pressure sensitive cap on the base of the casing that, when struck, ignites powder inside the cartridge creating pressure that forces the round to separate and exit down the barrel of the firearm.[101] A .380 ACP round creates barrel pressures of up to 21,500 psi.[102] While common center-fire rounds such as nine-millimeter create barrel pressures of 35,000 psi, larger calibers such as five-point-five-six NATO create barrel pressures approximating 55,000 psi.[103] These threshold pressures require that traditional gun barrels are machined from stainless steel,[104] or lightweight alloys such as titanium-cobalt, not printable plastics.[105] Firearm manufacturers employ corrective and preventative action (CAPA)[106] processes throughout the entire manufacturing scheme in order to systematically identify and control manufacturing de-

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[98] *See* Mat Smith, *The Liberator, the First Completely 3D-Printed Gun, Gets Test-Fired (Video)*, ENGADGET (May 6, 2013), https://www.engadget.com/2013-05-06-the-liberator-the-first-completely-3d-printed-gun-gets-fired.html (noting "[a] .380 caliber bullet [is] fired by the liberator").

[99] *See* John Holbrook, Rimfire vs. Centerfire Ammo, TARGET BARN (Feb. 6, 2020), https://www.targetbarn.com/broad-side/rimfire-vs-centerfire#:~:text=both%20centerfire%20and%20rimfire%20ammunition,the%20center%20of%20the%20cartridge. (noting: "a centerfire round contains the primer in the center of the cartridge. Therefore, the power ignites when the firing pin of the firearm strikes the center of the cartridge.").

[100] *Id.*

[101] *Id.*

[102] *See* Calculating Barrel Pressure and Projectile Velocity in Gun Systems, CLOSE FOCUS RESEARCH (Feb. 13, 2012 5:23 pm), http://closefocusresearch.com/calculating-barrel-pressure-and-projectile-velocity-gun-systems (noting that .380 ACP produces barrel pressures of 21,500 psi).

[103] *Id*. (noting that 5.56 creates barrel pressures of 55,000 psi).

[104] *See Revolver*, MADE HOW, http://www.madehow.com/Volume-1/Revolver.html (last visited Nov. 22, 2020) ("The major components of most revolvers begin as a group of steel or stainless-steel blanks that are forged into close approximations of the desired parts.").

[105] *See* Flowforming Gun Barrels and Similar Tubular Devices, GOOGLE PATENTS https://patents.google.com/patent/US20100236122A1/en (last visited Nov. 22, 2020) (noting use of cobalt superalloys in gun barrels due to ability to "withstand high temperatures").

[106] *See* Quality Management for the Firearms Industry, TIP TECH https://www.tiptech.com/blog/quality-management-for-the-firearms-industry/ (last visited Nov. 22, 2020) (noting CAPA systems are used for quality control in firearms manufacturing).

fects in components.[107] Such controls are not in place for publishers of 3D firearm files.

PLA filament has a tensile strength of 7,250 psi.[108] Acrylonitrile butadiene styrene filament (ABS) has a 4,700 psi rating; polycarbonate filament, 7,000 psi, and nylon filament at 7,000 psi.[109] Comparing these tensile strengths of 3D printing filaments, it appears that even the strongest 3D filaments cannot handle the pressures exerted by common centerfire rounds.[110] Mathematically, this means that pressures exerted by rounds for firearm files on Defense Distributed's website would cause 3D printed guns to explode from the inside-out.[111] The least restrictive means of remedying the lack of warning regarding tensile weaknesses of 3D filaments used to print 3D firearm files is to place the burden on businesses such as Defense Distributed. This might involve adequate warnings in tandem with the material it publishes. The alarming lack of dicta addressing the injurious potential of defective STL files from lower courts in the eight years of legal proceedings reifies the absence of product liability remedies for consumers injured by negligently designed STL firearm files. This is compounded by an alarming lack of congressional action regarding this matter as well. [112]

B. APPLYING THE SECONDARY EFFECTS DOCTRINE

As the distribution of 3D firearm files is protected by the First Amendment,[113] and Defense Distributed is protected by the Communications Decency Act, it is possible that legislation imposing products liability on commercial publishers of STL firearm files would be challenged as restricting free speech.[114] Prior restraint refers to regulations that serve to restrain free speech.[115] However, congressional regulation of STL firearm files could avoid prior restraint issues if the regulation does not "exercise excessive discretion"; and reasonable standards that are "narrowly drawn . . . guide the licensor in order to avoid unbridled discretion . . .

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[107] *Id.*

[108] MATTER HACKERS, *supra* note 35.

[109] AIRWOLF3D, *supra* note 38.

[110] *Id.*; *see also Calculating Barrel Pressure and Projectile Velocity in Gun Systems*, CLOSE FOCUS RESEARCH (Feb. 13, 2012, 5:23 pm), http://closefocusresearch.com/calculating-barrel-pressure-and-projectile-velocity-gun-systems (noting that .380 ACP produces barrel pressures of 21,500 psi).

[111] Sharwood, *supra* note 7.

[112] *But see* 3D Printed Gun Safety Act H.R. 4225, 117 Cong. § 2 (2021).

[113] *See generally* Bernstein, 974 F. Supp. at 1310.

[114] *Id.*

[115] *Prior Restraint*, CORNELL L. SCH.: LEGAL INFO. INST., https://www.law.cornell.edu/wex/prior_restraint (last visited Feb. 4, 2021).

[and] arbitrary application."[116] Specifically, the issue of prior restraint might be avoided by using the secondary effects doctrine from *Young v. American Mini Theatres*. [117] In *Young*, the city of Detroit enacted zoning ordinances that restricted adult businesses from operating within 1,000 feet of any other book store, dance hall, or hotel and 500 feet from any residential area.[118] The United States Court of Appeals for the Sixth Circuit held that the ordinances constituted a prior restraint on constitutionally protected communication."[119] The Supreme Court granted certiorari and held, in part, that the ordinances did not violate the First Amendment since it was "the secondary effect . . . which these zoning ordinances attempt to avoid, not the dissemination of 'offensive' speech."[120] Thus, legislation could be designed to curtail the harmful secondary effects of defective STL files to end users; furthermore, it is conceivable that with this legislation in place publishers would be more cautious in producing and distributing these files without infringing on the free speech of the computer code itself.

C. Concerns Related to the Imposition of Products Liability

Those who may disagree with the utility of imposing products liability law on commercial STL firearm file publishers may note that the suggestion of regulating businesses engaged in the sale of STL firearm files appears to implicate prior restraint issues.[121] This argument would be overcome by the secondary effects approach as in *Young*, and tort law has already been imposed on various forms of speech.[122] For instance, "[a] physician who gives an inaccurate diagnosis, or a manufacturer who inaccurately instructs a consumer on the safety of a product is likely to be held liable for resulting injury with little thought given to the fact that an element of the tort is speech."[123] Additionally, in a 2018 United States International Trade Commission decision,[124] the court demonstrated that semiconductors that are encoded with patented information about the vis-

[116] Def. Distrib. v. U.S. Dep't. of State, 838 F.3d at 472 (Jones, J., dissenting) (quoting FW/PBS, Inc. v. City of Dallas, 493 U.S. 215, 225 (1990); Catholic Leadership Coalition, 764 F.3d 409, 437 (2014); and Forsyth Cnty., Ga. v. Nationalist Movement, 505 U.S. 123, 133).S.Ct. 2395, 2402–03, 120 L.Ed.2d 101 (1992)).

[117] *See generally* Young v. American Mini Theatres, Inc. 427 U.S. 50, 63 (1976).

[118] *Id.* at 50.

[119] *See* American Mini Theatres, Inc. v. Gribbs, 518 F.2d 1014, 1020 (1975).

[120] *See* Young 427 U.S. at 71 n.34.

[121] *See generally* Bernstein, 974 F. Supp. at 1310 (explaining that computer source code is free speech).

[122] David A. Anderson, *Tortious Speech*, 47 Wash. & Lee L. Rev. 71, 75 (1990).

[123] *Id.*

[124] In the Matter of Certain Non-Volatile Memory Devices and Products Containing the Same, USITC Inv. No. 337-TA-1046, 2018 WL 6012622 (Oct. 26, 2018).

ual appearance of the semiconductor can be restricted from importation into the United States if the patented information on the semiconductor constitutes an infringement or unfair trade practice.[125] This example presents another argument that the First Amendment is not boundless. Therefore, Congress could enact legislation that imposed strict liability on publishers of 3D firearm files because these files have the potential to harm consumers if they are negligently coded. Watertight argument? Probably not, but it's intriguing to discuss.

III. THE NEED FOR CONGRESSIONAL ACTION TO ENSURE RECOVERY FOR 3D GUN FILE INJURIES

A. EXISTING FEDERAL LAW

Legislation exists that holds traditional manufacturers of firearms liable for certain products liability violations—this is known as the Protection of Lawful Commerce in Arms Act (The Act). [126] The Act, codified in 15 U.S. Code § 7903(5)(A)(v), reads in part:

> [A]n action for death, physical injuries or property damage resulting directly from a defect in design or manufacture of the product, when used as intended or in a reasonably foreseeable manner, except that where the discharge of the product was caused by a volitional act that constituted a criminal act, then such act shall be considered the sole proximate cause of any resulting death, personal injuries or property damage.[127]

This type of legislation is an ideal model for legislation that would hold the publisher of STL firearm files liable for defects in the code on its files.[128]

B. THE USE OF CONSTITUTIONAL PROVISIONS TO REGULATE FIREARM FILES

If Congress were to model STL publisher liability akin to 15 U.S. Code § 7903(5)(A)(v), courts would determine the legality of such legis-

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[125] *See generally* In the Matter of Certain Non-Volatile Memory Devices and Products Containing the Same, USITC Inv. No. 337-TA-1046, 2018 WL 6012622 (Oct. 26, 2018).

[126] *See* Protection of Lawful Commerce in Arms Act, 15 U.S.C. § 7903(5)(A)(v) (while this legislation would prevent the public from suing firearms manufacturers for events such as mass shootings, it does not prevent recovery for injuries produced through defective design, manufacturing, or warnings of firearms).

[127] Protection of Lawful Commerce in Arms Act, 15 U.S.C. § 7903(5)(A)(v).

[128] 15 U.S. Code § 7903(5)(A)(v).

lation by applying one of three different tests. These three tests are strict scrutiny, intermediate scrutiny, and the rational basis test.[129] Not the normal one. Strict scrutiny applies to government action that infringes on a fundamental liberty. [130] Although fundamental liberties have evolved over the course of American history, laws that curtail expressly fundamental rights, such as free speech, have typically been afforded strict scrutiny review.[131] Courts apply intermediate scrutiny to laws that affect certain protected classes,[132] and the court in *Young* applied intermediate scrutiny to Detroit's challenged ordinances.[133] In contrast, courts will apply a rational basis review to government action that does not infringe on a fundamental liberty.[134] Strict scrutiny places[135] the burden on the government to demonstrate that the legislation serves a compelling governmental purpose that is narrowly tailored to achieve the government's objective.[136] Under intermediate scrutiny, the government has the burden of proving that the challenged legislation furthers an important governmental interest, and does so by means that are substantially related to that interest.[137] With a similar codification of 15 U.S. Code § 7903(5)(A)(v), Congress could perhaps regulate STL firearm files under its powers granted by the Commerce Clause and Necessary and Proper Clause of the Constitution. Through the Commerce Clause, Congress may regulate channels, instrumentalities, and articles that have a substantial effect on interstate commerce.[138] The Necessary and Proper Clause empowers Congress to take legislative action that is necessary and proper for carrying out other enumerated powers granted to Congress by the Constitution.[139] The Necessary and Proper Clause has been paired with the Commerce Clause to provide the constitutional basis for a wide variety of federal laws.[140] In part, under the Commerce Clause, Congress can

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[129] *Rational Basis Test*, CORNELL L. SCH: LEGAL INFO. INST., https://www.law.cornell.edu/wex/rational_basis_test (last visited Feb. 3, 2022).

[130] *Strict Scrutiny*, CORNELL L. SCH: LEGAL INFO. INST., https://www.law.cornell.edu/wex/strict_scrutiny https://www.law.cornell.edu/wex/strict_scrutiny#:~:text=to%20pass%20strict%20scrutiny%2C%20the,the%20constitutionality%20of%20governmental%20discrimination. (last visited Apr. 6, 2022).

[131] *Id.*

[132] *Intermediate Scrutiny*, CORNELL L. SCH: LEGAL INFO. INST., https://www.law.cornell.edu/wex/intermediate_scrutiny (last visited Feb. 3, 2022).

[133] *See generally* Young 427 U.S. at 50.

[134] CORNELL L. SCH: LEGAL INFO. INST., *supra* note 130.

[135] CORNELL L. SCH: LEGAL INFO. INST., *supra* note 131.

[136] *Id*.

[137] CORNELL L. SCH: LEGAL INFO. INST., *supra* note 133.

[138] *See* United States v. Lopez, 514 U.S. 549, 558-59 (1995).

[139] *See* M'Culloch v. Maryland, 17 U.S. 316, 323-24 (1819).

[140] *See generally* Stephen Gardbaum, *Rethinking Constitutional Federalism* , 74 TEX. L. REV. 795, 800-801 (1996).

regulate economic activities.[141] An economic activity is one that involves an exchange like the sale of a good or service, or an activity that is an essential part of a larger economic enterprise.[142] When Congress regulates an economic activity, the Court applies the rational basis test to determine if Congress could rationally have concluded that the regulated activity has a substantial effect on interstate commerce.[143] This test shows a high degree of deference to Congress's judgement and allows Congress to aggregate the effect on interstate commerce.[144] The Supreme Court has sustained congressional power to regulate any activity, local or interstate, that either in itself or in combination with other activities has a "substantial economic effect upon," or "effect on movement in," interstate commerce.[145] When Congress attempts to regulate intrastate activity, the activity must be economic or commercial in nature, and the court can conceive of a rational basis on which Congress could conclude that the activity in aggregate substantially affects interstate commerce.[146] Congress could likely regulate the secondary effects of 3D firearms, and in doing so, the legislation would avoid free speech concerns and having to withstand SS. Instead, IS would be applied, and the legislation would be upheld by a finding that there is an important govt interest in protecting consumers from defective firearm sales. We gesture vaguely and say, "*Young v. American Mini theatre*," sprinkle some Commerce Clause with N&P, hopefully woo intermediate scrutiny, and thus have a better chance of a realistic argument. 2003 Lebron James chalk toss.[147]

C. THE USE OF EXISTING AGENCIES TO REGULATE FIREARM FILES

In addition to congressional action to impose strict liability on commercial sellers of STL firearm files, Congress could amend the authority of existing agencies, such as the Consumer Product Safety Commission (CPSC), to regulate the products of organizations like Defense Distributed.[148] The CPSC is an independent federal regulatory agency tasked

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[141] Gonzales v. Raich, 545 U.S. 1, 3 (2005).

[142] *Id*. at 2.

[143] *Id*.

[144] Raphael Holoszyc-Pimentel, Note, *Reconciling Rational-Basis Review*: *When Does Rational Basis Bite*?, 90 N.Y.U. L. REV. 2070, 2070 (2015).

[145] Wickard v. Filburn, 317 U.S. 111, 124 (1942).

[146] Gonzales 545 U.S. at 2.

[147] *See* Advait Jajodia, *Lebron James Chalk Toss: Why and When did Lakers Superstar Begin His Pre-Game Chalk Toss Ritual*, SPORTSRUSH (Oct. 13 2021), https://thesportsrush.com/nba-news-lebron-james-chalk-toss-why-and-when-did-lakers-superstar-begin-his-pre-game-chalk-toss-ritual/.

[148] *Consumer Product Safety Commission*, USAGOV, https://www.usa.gov/federal-agencies/consumer-product-safetycommission#:~:text=the%20Consumer%20Product%20Safety%20Commission,hazard%20or%20can%20injure%20children (last visited Apr. 8, 2022).

with protecting the public from unreasonable risks of injury and death from consumer products.[149] The CPSC protects the public from unreasonable risks by "[administering] and [enforcing] several federal laws."[150] The agency may order mandatory labelling requirements for products.[151] It permits warning labels on products deemed hazardous.[152] The Consumer Product Safety Improvement Act increased civil and criminal penalties for violations of the Consumer Product Safety Act. [153] Indeed, "Congress may use its article I lawmaking powers . . . to enumerate the powers, duties, and functions exercised by agencies" in addition to "[establishing] individual offices within those agencies, [and] design agencies' basic structures and operations." [154] Under its constitutional lawmaking powers,[155] Congress could task the CPSC with requiring organizations like Defense Distributed to include mandatory warning instructions on all sales of STL firearm file subscriptions. This probably is not the strongest alternative, since there may be an issue with the CPSC regulating an intangible like STL files.

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[149] U.S. CONSUMER PROD. SAFETY COMM'N, FISCAL YEAR 2020 PERFORMANCE BUDGET REQUEST TO CONGRESS 3 (2019), https://www.cpsc.gov/s3fs-public/FY%202020%20Congressional%20Justification.pdf?2rDJohfEbN6lAgu5l_kLtcV3W1W_JNqo.

[150] *See Regulations, Laws, & Standards*, U.S. CONSUMER PROD. SAFETY COMM'N, https://www.cpsc.gov/Regulations-Laws—Standards (last visited Nov. 22, 2020) (including: Children's Gasoline Burn Prevention Act; Labelling of Hazardous Art Materials Act; Federal Hazardous Substances Act; Consumer Product Safety Improvement Act).

[151] *See* 15 U.S.C. § 2063(a)(1)(A)-(B) ("[E]very manufacturer of a product which is subject to a consumer product safety rule under this chapter . . . and which is imported for consumption or warehousing or distributed in commerce . . . shall issue a certificate which— (A) shall certify, based on a test of each product or upon a reasonable testing program, that such product complies with all rules, bans, standards, or regulations applicable to the product under this Act or any other Act enforced by the Commission; and (B) shall specify each such rule, ban, standard, or regulation applicable to the product.").

[152] *See Federal Hazardous Substances Act (FHSA) Requirements*, U.S. CONSUMER PROD. SAFETY COMM'N, https://www.cpsc.gov/Business—Manufacturing/Business-Education/Business-Guidance/FHSA-Requirements (last visited Nov. 22, 2020) (noting that "the FHSA only covers products that, during reasonably foreseeable purchase, storage, or use, may be brought into or around a place where people live. Products used or stored in a garage, shed, carport, or other building that is part of the household are also covered.").

[153] *The Consumer Product Safety Improvement Act (CPSIA)*, CPSC, https://www.cpsc.gov/Regulations-Laws--Standards/Statutes/The-Consumer-Product-Safety-Improvement-Act (last visited Apr. 8, 2022).

[154] *See* U.S. CONSUMER PROD. SAFETY TODD GARVEY & DANIEL J. SHEFFNER, U.S. CONSUMER PROD. SAFETY CONGRESS'S AUTHORITY TO INFLUENCE AND CONTROL EXECUTIVE BRANCH AGENCIES 1 (2021), https://fas.org/sgp/crs/misc/R45442.pdf.

[155] *See generally* Buckley v. Valeo, 424 U.S. 1, 138-39 (1976) (per curiam) ("Congress may undoubtedly under the Necessary and Proper Clause create "offices" in the generic sense and provide such method of appointment to those offices as it chooses.").

D. TYING IT ALL TOGETHER

Based on the above authority, Congress could remedy the lack of guidance in defective STL files from the Ninth Circuit's decision in several ways. First, Congress could enact secondary effects-style regulations to restrict online businesses from selling 3D firearm files under Commerce Clause and Necessary and Proper Clause powers. As an interstate economic activity, Congress could regulate the sales of Defense Distributed's firearm file subscriptions that are downloaded throughout the United States as an activity that has a substantial effect on interstate commerce.[156] Additionally, Congress could find a substantial effect on interstate commerce through the diversion of consumers who would have purchased traditional firearms, but instead chose to subscribe to Defense Distrbuted's STL firearm service.[157] For example, there have been efforts to stifle the use and creation of 3D printed firearms and efforts to make them cheaper, more accessible and easier to manufacture.[158] Congress could determine that DEFCAD subscriptions and downloadable STL files have an established market.[159]Accordingly, the distribution of firearm STL files from Defense Distributed, and the payment from customers could fall under the purview of Congress's Commerce Clause power.

Alternatively, under Congress's Article I[160] and Commerce Clause[161] powers, Congress may amend the authority of the Consumer Product Protection Commission to require mandatory warnings accompanying the sale of STL files on Defense Distributed's website.[162] The CPSC has the power to impose criminal and civil penalties for violations of its labelling requirements.[163]

In addition, Congress could amend the scope of "manufacturer" in Title 18 of the U.S. federal criminal Code (Title 18)[164] to include Defense Distributed as a manufacturer of firearms because the business already "devotes time, attention and labor to [designing firearms] as a regular course of business . . . with the principal objective of livelihood

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[156] *See generally* Wickard 317 U.S. at 124.

[157] *Id*.

[158] ALL3DP, *3D Printed Guns in 2021: The Current Situation*, ALL3DP (Feb. 3, 2021), https://all3dp.com/1/3d-printed-gun-firearm-weapon-parts/.

[159] *See generally* Wickard 317 U.S at 124.

[160] *Id*.

[161] *See* U.S. CONST. art. I, § XIII, cl. III.

[162] *See* U.S. CONST. art I, § XIII, cl. XVIII.

[163] *See* Consumer Product Safety Commission, *Civil and Criminal Penalties,* CONSUMER PRODUCT SAFETY COMMISSION, https://www.cpsc.gov/Business--Manufacturing/Civil-and-Criminal-Penalties (last visited Mar. 1, 2022).

[164] *See* 18 U.S.C. §§ 921(a)(3)-(21)(A).

and profit through the sale" of subscriptions to its firearm STLs through DEFCAD. [165] If Congress successfully amended the definition, the Lawful Commerce in Arms Act's prohibition against civil actions for firearm defects would not prevent strict liability actions from defective 3D firearm files, as the Gun Control Act of 1968 does not criminalize homemade firearms.[166] Therefore, just because a consumer produced a 3D printed gun that led to an injury, it would not mean that said consumer cannot recover against Defense Distributed. Under this approach, the amendment would expand the context of "manufacturer" as used in Title 18[167]. If this legislation is challenged as infringing First Amendment rights, the government would argue that intermediate scrutiny applies. However, this Comment argues that the secondary effects doctrine would allow such legislation to survive for two reasons. First, such legislation would be further an important governmental interest,[168] of consumer protection. Second, it would do so by means that are substantially related to that interest by only imposing liability on commercial publishers of 3D firearm code like Defense Distributed.[169] This legislation would not ban STL firearm files, but rather, place liability on businesses such as Defense Distributed. This legislation would not ban STL firearm files, but rather, place liability on businesses such as Defense Distributed.

CONCLUSION

It is important to protect fundamental rights granted in the Constitution. The introduction of new technologies requires examination of established law. However, while the law must protect constitutional liberties, it should also be malleable enough to incorporate new technologies in the safest manner possible. Negligently coded STL firearm files present a danger to retail 3D printing consumers who may be interested in creating a firearm for their own use. Since the barrel pressures associated with commonly used bullets are greater than the average strengths of common 3D printer filaments, consumers may injure themselves if the resulting print explodes. One way to address the problem of negligently coded 3D firearm files is to hold publishers of those files liable under products liability law. This may ensure that those publishers take more caution in broadcasting files and would allow injured consumers to recover if they

[165] *Id*.

[166] Janet Portman, *Home Guns: Are They Legal? Must They Be Registered?* NOLO https://www.criminaldefenselawyer.com/resources/homemade-guns-are-they-legal-must-they-be-registered (last visited Nov. 22, 2020) (citing 18 U.S.C. § 921(a)(21)(C)).

[167] *See* 18 U.S.C. §§ 921(a)(3)-(21)(A).

[168] CORNELL L. SCH.: LEGAL INFO. INST., *supra* note 133.

[169] *Id.*

are harmed from negligently coded STLs. Since STL files are computer code, and computer code is considered free speech, regulating publishers of STL files like Defense Distributed may raise First Amendment concerns. One way to resolve these issues is to apply the secondary effects doctrine and target the harmful effects of negligently encoded 3D firearm files instead of the speech of the file itself. The secondary effects of negligently coded files could be regulated through Congress's Commerce Clause and Necessary and Proper Clause powers. This approach would avoid strict scrutiny, and instead would be subjected to intermediate scrutiny if the legislation was challenged as a prior restraint on speech. Alternatively, Congress's Article I powers could be used to expand the authority of executive agencies such as the CPSC.