

PATENT EXHAUSTION AND THE FEDERAL CIRCUIT'S DEVIANT CONDITIONAL SALE DOCTRINE: *BOWMAN V. MONSANTO*

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I. INTRODUCTION

Both patent law and antitrust law were created with a similar motive—the maximization of consumer surplus.¹ Yet, these bodies of law come into direct tension because of the means employed by each. Whereas antitrust law operates to curtail the evils of anticompetitive conduct, intellectual property law attempts to incent innovation by restricting competition and harnessing the benefits of monopolistic pricing.² In fact, patent law creates a private right of action, allowing a patent owner to bring suit³ against anyone who “without authority makes, uses, offers to sell, or sells any patented invention.”⁴ Although patent law allows individuals to capture monopolistic profits, these government-endorsed monopolies do not run unchecked.⁵ Patents are limited in duration⁶ and once the monopoly period has lapsed, the

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1. See Seungwoo Son, *Selective Refusals to Sell Patented Goods: The Relationship Between Patent Rights and Antitrust Law*, 2002 U. ILL. J.L. TECH. & POL'Y 109, 110 (discussing how antitrust law attempts to “foster[] a competitive marketplace” and intellectual property law “promotes innovation by granting a patent or copyright holder the right to limit competition”); but see generally ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1978) (arguing that antitrust law should focus on maximizing total surplus as opposed to preferencing consumer welfare over producer welfare, an idea associated with the Chicago School tradition of antitrust).

2. Son, *supra* note 1, at 110.

3. See 35 U.S.C.A. § 281 (West 2013) (“A patentee shall have remedy by civil action for infringement of his patent.”).

4. 35 U.S.C.A. § 271(a) (West 2013).

5. See Nicholas Economides & William N. Hebert, *Patents and Antitrust: Application to Adjacent Markets*, 6 J. TELECOMM. & HIGH TECH. L. 455, 456 (2008) (discussing how patent law grants “legal monopolies” that are limited in duration).

6. *Id.* (“Patent rights for most inventions, including [certain] processes or methods . . . , last for twenty years from the date of filing.”).

patented innovation enters the public domain.⁷ Moreover, legal doctrines like patent exhaustion restrict the scope of patent monopolies.⁸

Under the patent exhaustion doctrine, an authorized sale exhausts the patent monopoly,⁹ giving the buyer the right to “use it, repair it, modify it, discard it, or resell it, subject only to overriding conditions of the sale.”¹⁰ In this way, patent exhaustion works to counterbalance the patentee’s monopoly power and prevent anticompetitive abuse.¹¹ The Federal Circuit, however, has developed an opposing doctrine, the conditional sale doctrine, under which a patentee may use an enforceable contract to restrict the rights of a buyer using a patented article, even after a subsequent sale.¹² The conditional sale doctrine could prove particularly important in the arena of self-replicating technologies. Because self-replicating technologies are capable of generating multiple, matching copies of the product *after* an authorized sale, such technologies create a wrinkle in patent jurisprudence by allowing consumers to circumvent the manufacturer’s monopoly.¹³ Whereas under the exhaustion doctrine the seller would be left without a remedy to protect his innovation, under the conditional sale doctrine the seller could prevent the buyer from replicating his innovation.

Only by achieving the right balance between antitrust law and intellectual property law will we truly maximize long-term consumer surplus. The Supreme Court has the opportunity to achieve such a

7. See *Brulotte v. Thys Co.*, 379 U.S. 29, 33 (1964) (explaining that in the “post-expiration period” the patent enters “the public domain”).

8. Curtis R. Wright, *Quanta of Solace?: The Patent Exhaustion Doctrine and Method Patents After Quanta Computer, Inc. v. L.G. Electronics, Inc.*, 30 U. LA VERNE L. REV. 494, 500 (2009) (“The purpose of the patent exhaustion doctrine is to act as a counterbalance to monopoly powers granted to patent owners in order to prevent anticompetitive abuse.”). The patent exhaustion doctrine is also known as the first sale doctrine. Yee Wah Chin, *Inexhaustible: Patents on Self-Replicating Technologies*, 3 LANDSLIDE 12, 13 (2011).

9. John W. Osborne, *Justice Breyer's Bicycle and the Ignored Elephant of Patent Exhaustion: An Avoidable Collision in Quanta v. LGE*, 7 J. MARSHALL REV. INTELL. PROP. L. 245, 249 (2008).

10. *Jazz Photo Corp. v. Int’l Trade Comm’n.*, 264 F.3d 1094, 1102 (Fed. Cir. 2001).

11. Wright, *supra* note 8, at 500.

12. See *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 709 (Fed. Cir. 1992) (holding that if a “device is validly licensed for only a single use, any reuse is unlicensed and an infringement”).

13. See Jeremy N. Sheff, *Self-Replicating Technologies*, 16 STAN. TECH. L. REV. 229, 229 (2013) (commenting that “self-replicating technologies pose a challenge to the legal regimes we ordinarily rely on to promote a balance between innovation and competition”).

balance in the upcoming case *Bowman v. Monsanto Co.*,¹⁴ where the Court may decide whether the patent exhaustion doctrine prevents patentees from claiming infringement when a purchaser of self-replicating seeds uses those seeds to plant subsequent generations.¹⁵ The Supreme Court has yet to endorse the Federal Circuit's conditional sale doctrine and it is unlikely to do so in *Bowman*. Yet, the Court can still hold for Monsanto and exempt self-replicating technologies from the patent exhaustion doctrine by treating subsequent generations of seeds as impermissible reconstructions that infringe the patent.

II. FACTUAL BACKGROUND

At issue in *Bowman* are two patents owned by Monsanto that protect Monsanto's Roundup Ready® soybean seeds, genetically modified to be resistant to glyphosate herbicides like the commonly used Roundup® product.¹⁶ Monsanto's 605 patent protects the use of the cauliflower mosaic virus as a vector for transforming foreign genetic material into plant cells¹⁷ and the 247E patent protects the use of the cauliflower mosaic virus transformation process to genetically modify plants to express glyphosate-tolerant 5-enolpyruvylshikimate-3-phosphate synthases (EPSPS),¹⁸ creating the glyphosate resistance prized in Monsanto's Roundup Ready® soybean seeds.¹⁹ Since 1996, Monsanto has licensed producers to sell Roundup Ready® soybean seeds to individual farmers for planting.²⁰ Because the glyphosate-resistant seeds are self-replicating, and succeeding generations express the patented glyphosate-resistant trait (the EPSPS technology trait), Monsanto restricts the purchaser's use to a single growing season.²¹

14. *Bowman v. Monsanto Co.*, No. 11-796 (U.S. argued Feb. 19, 2013).

15. Although *Bowman* involves self-replicating seeds, the holding may apply to all self-replicating technologies, including self-replicating nanotechnologies like DNA innovations. *Supreme Court Case Puts Cutting-Edge Innovation at Stake*, INNOVATION AT STAKE (Jan. 17, 2013), <http://www.innovationatstake.com/supreme-court-case-puts-cutting-edge-innovation-at-stake/>.

16. *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1343 (Fed. Cir. 2011), *cert. granted*, 133 S. Ct. 420 (2012).

17. *Id.*

18. *Id.* at 1343–44.

19. *Id.* at 1344.

20. *Id.*

21. *Id.* at 1345.

All individual purchasers are subject to the Monsanto Technology Agreement, under which each individual purchaser agrees: (1) “to use the seed containing Monsanto gene technologies for planting a commercial crop *only in a single season*”; (2) “to not supply any of this seed to any other person or entity for planting”; (3) “to not save any crop produced from this seed for replanting, or supply saved seed to anyone for replanting”; and (4) “to not use this seed or provide it to anyone for crop breeding, research generation of herbicide registration data, or seed production.”²²

Although individuals cannot use second-generation glyphosate-resistant seeds for replanting, the Monsanto Technology Agreement does permit the sale of second-generation seeds to grain elevators for use as commodity seed—a mixture of undifferentiated seeds harvested from multiple suppliers.²³ Under the Monsanto Technology Agreement, individuals are not required to place restrictions on the grain elevator’s subsequent resale of the seeds.²⁴ If Monsanto had blocked the resale of commodity seed, often purchased by animal feeding operations,²⁵ Monsanto would have decimated the commodity soybean market by reducing the available supply by approximately ninety-four percent.²⁶ The unforeseen result of permitting resale, however, was that by 2007 ninety-four percent of Indiana’s planted soybeans exhibited the patented trait and were therefore immune to glyphosate-based herbicide.²⁷

Defendant-appellant Bowman purchased Roundup Ready® seeds from Pioneer Hi-Bred and signed the Pioneer Hi-Bred Technology Agreement, which presented identical language to the Monsanto

22. *Id.* at 1344–45 (emphasis added).

23. *Id.* at 1345.

24. *Id.* (“Monsanto authorizes growers to sell second-generation seed to local grain elevators as a commodity, without requiring growers to place restrictions on grain elevators’ subsequent sales of that seed.”).

25. See Dennis Crouch, *U.S. Government Brief: Farmer Who Purchases Commodity Soybeans Cannot Replant Those Beans Without Committing Patent Infringement*, PATENTLYO (Jan. 22, 2003), <http://www.patentlyo.com/patent/2013/01/us-government-brief-farmer-who-purchases-commodity-soybeans-cannot-replant-those-beans-without-committing-patent-infringemen.html> (discussing the normal use of commodity seed).

26. See *Bowman*, 657 F.3d at 1345 (highlighting that ninety-four percent of Indiana’s planted soybeans exhibited glyphosate resistance).

27. See *id.* (noting that “[c]ommodity seeds are a mixture of undifferentiated seeds harvested from various sources, including from farms that grow Roundup Ready® soybeans and those that do not, although nearly ninety-four percent of Indiana’s acres of soybeans planted in 2007 were planted using herbicide resistant varieties”).

Technology Agreement.²⁸ Bowman planted glyphosate-resistant seeds for his first crop in Knox County, Indiana each year from 1999 through 2007,²⁹ and never saved any seeds from his first crop.³⁰

In 1999, Bowman purchased commodity seed for a second crop.³¹ Bowman considered the second crop to be riskier, and consequently purchased the cheaper commodity seed instead of Pioneer's Roundup Ready® seed, which is significantly more expensive.³² To determine whether his second crop was glyphosate resistant, Bowman applied glyphosate-based herbicide to his fields.³³ Many of the plants exhibited glyphosate resistance, and unlike with his first crop, Bowman saved the glyphosate-resistant seeds from his second crop.³⁴ Bowman used these saved seeds from 2000 to 2007 for his second crop, supplemented with additional seeds from the grain elevator.³⁵ A Monsanto-driven investigation concluded that the second-crop seeds contained the patented EPSPS technology.³⁶ Because the Monsanto Technology Agreement only applied to seeds purchased from either Monsanto or a Monsanto-licensed dealer, Bowman's use of the commodity seed and its progeny did not strictly fall within the four-corners of the agreement.³⁷

III. LEGAL BACKGROUND

There is widespread debate about the extent to which patent holders can enforce downstream, post-sale restrictions upon purchasers of the patented product,³⁸ fueled by seemingly divergent legal precedent arising from the Supreme Court and the Federal Circuit.³⁹ Whereas the Federal Circuit has strengthened post-sale

28. *Id.*

29. *See id.* (noting that Bowman purchased "seeds containing the Roundup Ready® technology each year, beginning as early as 1999" and that "Bowman planted Roundup Ready® seeds as his first-crop in each growing season during the years 1999 through 2007").

30. *Id.*

31. *Id.*

32. *Id.*

33. *Id.* at 1345–46.

34. *Id.* at 1346.

35. *Id.*

36. *See id.* (remarking that in 2007 "Monsanto investigated eight of Bowman's fields, totaling 299.1 acres, and confirmed that Bowman's second-crop soybean seeds . . . contained the patented Roundup Ready® technology").

37. *Id.*

38. Erin Julia Daida Austin, Note, *Reconciling the Patent Exhaustion and Conditional Sale Doctrines in Light of Quanta Computer v. LG Electronics*, 30 CARDOZO L. REV. 2947, 2947–48 (2009).

39. *Id.* at 2948.

rights to the patent holder via the conditional sale doctrine,⁴⁰ the Supreme Court's recent holdings have restricted patentee rights.⁴¹ Recently, the debate has centered on whether the patent exhaustion doctrine should be applied in the realm of self-replicating technologies.

A. *The Supreme Court's Early Forays into Patent Law*

Article I, Section 8 of the United States Constitution enables Congress “[t]o promote the progress of science and useful arts, by securing for limited time to authors and inventors the exclusive right to their respective writings and discoveries.”⁴² Congress has since imposed four requirements for patentability: (1) patentable subject matter, (2) usefulness, (3) novelty, and (4) nonobviousness.⁴³ Under this rubric, six types of patents have arisen,⁴⁴ including utility patents, which are “[i]ssued for the invention of a new and useful process, machine, manufacture, or composition of matter, or a new and useful improvement thereof.”⁴⁵

The doctrine of patent exhaustion has existed for over 150 years.⁴⁶ In 1873, the Court applied the doctrine in *Adams v. Burke*,⁴⁷ a case concerning a patent on coffin-lids. There, the patentee prevented the original purchaser from using the coffin-lids within a certain location.⁴⁸ The Court found that once the coffin-lids had been subsequently sold the use restriction had been exhausted.⁴⁹ The Court noted that, “in the essential nature of things, when the patentee . . .

40. See *id.* at 2948–49 (discussing the difference between the patent exhaustion and conditional sale doctrines).

41. Kyle M. Costello, *The State of the Patent Exhaustion Doctrine, Post-Quanta v. LG Electronics*, 18 TEX. INTELL. PROP. L.J. 237, 238 n.1 (2010).

42. U.S. CONST. art. I, § 8, cl. 8.

43. See Tun-Jen Chiang, *The Rules and Standards of Patentable Subject Matter*, 2010 WIS. L. REV. 1353, 1361 (discussing the “criteria of novelty, usefulness, and nonobviousness”); *id.* at 1354 (arguing that the “doctrines on patentable subject matter are difficult to apply”).

44. *Types of Patents*, U.S. PATENT AND TRADEMARK OFFICE, <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/patdesc.htm> (last updated Mar. 14, 2013).

45. *Id.* Method patents fall under the category of utility patents, *id.*, and are patents of “an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state of things,” *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972).

46. Brief for Knowledge Ecology International at 2, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. Dec. 10, 2012).

47. 84 U.S. 453 (1873).

48. *Id.* at 455–56.

49. *Id.* at 457 (“[W]e hold that in the class of machines or implements we have described, when they are once lawfully made and sold, there is no restriction on their use to be implied for the benefit of the patentee or his assignees or licensees.”).

sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use.”⁵⁰

Almost seven decades later, in *United States v. Univis Lens Co.*,⁵¹ the Court again rejected a patent infringement claim under the patent exhaustion doctrine.⁵² There, a patentee sold its patented lens blanks to a wholesaler who, in order to market the product, was required to first grind the blanks to finish the lenses.⁵³ *Univis* implicated antitrust law as well because the licensed wholesalers were required to sell the finished lenses at a price fixed by the patentee.⁵⁴ The Court, applying the patent exhaustion doctrine, held that the patentee could not dictate the resale price of the completed lenses.⁵⁵ It reasoned that “where one has sold an uncompleted article which, because it embodies essential features of [the] patented invention, is within the protection of [the] patent, and has destined the article be finished by the purchaser in conformity to the patent, he has sold his invention.”⁵⁶ The Court ruled that exhaustion applied whether the patentee sold the patented article “in its completed form,” or in an uncompleted form “for the purpose of enabling the buyer to finish and sell it.”⁵⁷

B. A Brief History of the Patent Act

In 1952, Congress enacted a comprehensive patent protection scheme in Title 35 of the United States Code, otherwise known as the Patent Act.⁵⁸ Section 271(a) of the Act defines infringement broadly: “[W]hoever without authority makes, uses, offers to sell, or sells any patented invention . . . infringes the patent.”⁵⁹ Whereas reconstructing a patented item violates § 271(a), because it is considered an

50. *Id.* at 456.

51. 316 U.S. 241 (1942).

52. *Id.* at 250 (“[S]ale of [a patented article] exhausts the monopoly in the article and that patentee may not thereafter, by virtue of his patent, control the use or disposition of the article.”).

53. *Id.* at 244.

54. *Id.* at 245.

55. *Id.* at 251.

56. *Id.* at 251–52.

57. *Id.* at 252.

58. Patent Act, ch. 950, 66 Stat. 792 (1952). The 1952 Act was by no means Congress’ first attempt at creating a federal patent system. *See e.g.*, Patent Act of 1790, ch. 7, 1 Stat. 109 (1790) (repealed 1793); Patent Act of 1836, ch. 357, 5 Stat. 117 (1836). The current Act was amended in 2011, though the subsequent changes are not relevant to this discussion. *See Leahy-Smith America Invents Act*, Pub. L. No. 112-29, 125 Stat. 284 (2011) (imposing a first-to-file-or-first-to-publicly-disclose system).

59. 35 U.S.C.A. § 271(a) (West 2013).

impermissible making, simply repairing an item does not.⁶⁰ Rather problematically, courts have abandoned attempts to create a clear framework of rules, instead choosing to rely on a case-by-case approach.⁶¹ Furthermore, patent infringement can occur beyond America's borders; under § 271(f), “[w]hoever without authority supplies or causes to be supplied *in or from the United States* all or a substantial portion of the components of a patented invention . . . in such manner as to actively induce the combination of such components” infringes the patent.⁶²

Section 154(a)(1) of the Patent Act grants patentees “the right to exclude others from making, using, offering for sale, or selling the invention.”⁶³ When a patent is infringed, § 281 of the Act provides the patentee with a civil remedy⁶⁴ in federal court.⁶⁵ The Court of Appeals for the Federal Circuit retains exclusive jurisdiction over federal patent law appeals from the district courts,⁶⁶ and has, in recent years, developed the conditional sale doctrine in an attempt to strengthen patentee protection.

C. *The Federal Circuit and the Conditional Sale Doctrine*

The Federal Circuit's 1992 decision in *Mallinckrodt, Inc. v. Medipart, Inc.*⁶⁷ marked the beginning of its campaign to provide more rights to patent holders by supplementing the traditional patent exhaustion doctrine with a newly established conditional sale doctrine.⁶⁸ In *Mallinckrodt*, the plaintiff held a patent on a medical device that delivered therapeutic material to a patient's lungs in aerosol mist form.⁶⁹ The product was packaged and sold to hospitals

60. See Mark D. Janis, *A Tale of the Apocryphal Axe: Repair, Reconstruction, and the Implied License in Intellectual Property Law*, 58 MD. L. REV. 423, 425–26 (1999) (discussing the repair-reconstruction dichotomy).

61. See *id.* at 426 (discussing the application of the repair-reconstruction dichotomy).

62. 35 U.S.C.A. § 271(f)(1) (West 2013) (emphasis added).

63. 35 U.S.C.A. § 154(a)(1) (West 2013).

64. 35 U.S.C.A. § 281 (West 2013).

65. 28 U.S.C.A. § 1338 (West 2013).

66. See 28 U.S.C.A. § 1295(a)(1) (West 2013) (“The United States Court of Appeals for the Federal Circuit shall have exclusive jurisdiction . . . in any civil action . . . arising under any Act of Congress relating to patents . . .”).

67. 976 F.2d 700 (Fed. Cir. 1992).

68. See Saami Zain, *Quanta Leap or Much Ado About Nothing? An Analysis on the Effect of Quanta vs. LG Electronics*, 20 ALB. L.J. SCI. & TECH. 67, 91 (2010) (“In *Mallinckrodt, Inc. v. Medipart, Inc.*, the Federal Circuit directly assailed the first sale doctrine, interpreting established Supreme Court cases in a manner as to lessen its effectiveness and thereby permit patentees to control downstream use of articles embodying their inventions.”).

69. *Mallinckrodt, Inc.*, 976 F.2d at 701.

with a label stating “single use only.”⁷⁰ Notwithstanding the single-use condition, purchasers of the product employed Medipart to recondition the used devices, allowing hospitals to use the products multiple times.⁷¹ The Federal Circuit held that the single-use restriction was enforceable, and noted that the condition was “reasonably within the patent grant” and related to the “subject matter within the scope of the patent claims.”⁷² In reaching its decision, the Federal Circuit relied on Supreme Court precedent holding that “private parties retain the freedom to contract concerning conditions of sale,” and that such conditions will be valid unless they violate “some other law or policy.”⁷³

Strengthening the conditional sale doctrine further, in *Jazz Photo Corp. v. International Trade Commission*⁷⁴ the Federal Circuit considered the previously unexplored issue of foreign patent exhaustion.⁷⁵ There, the patentee owned patents on lens-fitted film packages used in disposable cameras, and sold the film packages domestically and internationally.⁷⁶ After the disposable cameras were turned in for development abroad, the defendants refurbished and resold them to customers in the United States.⁷⁷ Applying the conditional sale doctrine, the Federal Circuit held that the defendants’ actions were “[p]ermissible repair[s],”⁷⁸ emphasizing that a purchaser of a patented article has “the right to use it, repair it, modify it, discard it, or resell it, subject only to *overriding conditions of sale*.”⁷⁹ The court distinguished between “the patentee’s sole right to make or renew the entire machine,” and “the right of a purchaser of a patented machine to replace the machine’s [parts],” finding that the conduct at issue fell into the latter category.⁸⁰

70. *Id.* at 702.

71. *Id.*

72. *Id.* at 708.

73. *See id.* (interpreting the Supreme Court’s patent exhaustion doctrine precedent narrowly).

74. 264 F.3d 1094 (Fed Cir. 2001).

75. Michele L. Vockrodt, *Patent Exhaustion and Foreign First Sales: An Analysis and Application of the Jazz Photo Decision*, 33 AIPLA Q.J. 189, 190 (2005).

76. *Jazz Photo*, 264 F.3d at 1098.

77. *Id.*

78. *Id.* at 1110–11.

79. *Id.* at 1102 (emphasis added).

80. *Id.* at 1103; *see id.* at 1102 (noting that “the rights of ownership do not include the right to construct an essentially new article on the template of the original, for the right to make the article remains with the patentee”).

D. *The Supreme Court's Inclination to Weaken Patent Protection*

Despite the broad language in the Patent Act, and in direct contrast to the Federal Circuit's emphasis on patentee protection, the Supreme Court has narrowly interpreted patentee rights, primarily through maintaining a robust patent exhaustion doctrine. In *Microsoft Corp. v. AT&T Corp.*,⁸¹ AT&T owned a patent for a speech-processing method expressed in software code,⁸² comparable "to a blueprint."⁸³ AT&T claimed that Microsoft had infringed its patent when Microsoft's Windows software, which incorporated the speech processing function, was copied onto other foreign hard drives.⁸⁴ The Court found that the act of selling the software code did not meet 35 U.S.C. § 271(f)'s requirement that a patented invention's components be sold for combination abroad,⁸⁵ "[b]ecause no physical object originating in the United States was combined with [the foreign] computers."⁸⁶ Although the Federal Circuit had previously only applied § 271(f) to exclusively international conduct,⁸⁷ the Court clarified that § 271(f)(1) does not provide an exception to the general presumption that "no infringement occurs when a patented product is made and sold in another country."⁸⁸ The Court noted in dictum that a "machine for making sprockets might be used by a manufacturer to produce tens of thousands of sprockets an hour," but this would not "make the machine a 'component' of the tens of thousands of devices in which the sprockets are incorporated."⁸⁹

In 2008, the Court in *Quanta Computer, Inc. v. LG Electronics, Inc.*⁹⁰ reaffirmed that "[t]he longstanding doctrine of patent exhaustion provides that the initial authorized sale of a patented item terminates all patent rights to that item."⁹¹ There, LG Electronics held patents for computer processing methods licensed to Intel.⁹² Intel incorporated LG's processing methods into microprocessors and

81. 550 U.S. 437 (2007).

82. *Id.* at 449.

83. *Id.* at 550.

84. *Id.* at 442.

85. *Id.* at 449.

86. *Id.* at 462.

87. Viki Economides, Note, *Tianrui Group Co. v. International Trade Commission: The Dubious Status of Extraterritoriality and the Domestic Industry Requirement of Section 337*, 61 AM. U. L. REV. 1235, 1246–47 (2012).

88. *Microsoft*, 550 U.S. at 441.

89. *Id.* at 451.

90. 553 U.S. 617 (2008).

91. *Id.* at 625.

92. *Id.* at 621–24.

chipsets, which it subsequently sold to computer manufacturers.⁹³ One of the licensing terms stipulated that Intel's customers could not combine Intel products containing LG's patented methods with non-Intel components.⁹⁴ The Court rejected LG's argument that patent exhaustion should not apply to method patents, and found that there had been no infringement,⁹⁵ because "methods nonetheless may be 'embodied' in a product, the sale of which exhausts patent rights."⁹⁶

Quanta chipped away at the Federal Circuit's conditional sale doctrine by reaffirming that patents are susceptible to the patent exhaustion doctrine.⁹⁷ The Court took a pragmatic approach to intellectual property protection, wary that otherwise "[p]atentees seeking to avoid patent exhaustion could simply draft their patent claims to describe a method rather than an apparatus."⁹⁸ In the interest of maintaining a robust patent exhaustion doctrine, the Court was unwilling to exempt method patents.

E. Precedent Governing Self-Replicating Biotechnologies

The issue of self-replicating patented seeds that arises in *Bowman* is not one that has been thoroughly fleshed out by either the Supreme Court or the Federal Circuit. Though the Supreme Court has considered the issue of patented plant seeds, it has not yet issued a decision addressing the problems posed by *self-replicating* patented plant seeds under the patent exhaustion doctrine. In *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*,⁹⁹ a case concerning hybrid corn seeds, the Court held that genetically modified plant breeds are patentable subject matter.¹⁰⁰ Thus, a purchaser could not "use a protected plant variety to produce a hybrid for commercial sale," because this conduct would infringe the patent.¹⁰¹ It was unnecessary for the Court to address the issue of patent exhaustion to dispose of the case.¹⁰²

93. *Id.* at 623–24.

94. *Id.*

95. *Id.* at 630.

96. *Id.* at 628.

97. *Id.* ("Eliminating exhaustion for method patents would seriously undermine the exhaustion doctrine.")

98. *Id.*

99. 534 U.S. 124 (2001).

100. *See id.* at 130–31 (holding that "living things [are] patentable").

101. *Id.* at 143.

102. In fact, nowhere did the Court mention the issue of patent exhaustion.

The Federal Circuit has also dealt with cases involving the replication of patented seeds, most notably in *Monsanto Co. v. Scruggs*¹⁰³ and *Monsanto Co. v. McFarling*.¹⁰⁴ In both cases, the court issued favorable rulings to Monsanto, the patentee.¹⁰⁵ In *McFarling*, the defendant saved bushels of Monsanto's patented glyphosate-resistant soybean seeds and used them for replanting in subsequent years.¹⁰⁶ The court made three findings: first, that the patent exhaustion doctrine was not applicable to future generation seeds where a previous generation had not been sold; second, that the purchase price of the seeds reflected only the value of the use rights; and third and most importantly, that the "original sale of the seeds did not confer a license to construct new seeds."¹⁰⁷ Similarly, in *Scruggs*, the defendant purchased Monsanto's patented glyphosate-resistant cotton seeds, but without first signing the licensing agreement, and then saved seeds to grow in subsequent years.¹⁰⁸ The court observed that "[t]he fact that a patented technology can replicate itself does not give a purchaser the right to use replicated copies of the technology."¹⁰⁹ Applying the patent exhaustion doctrine "to subsequent generations of self-replicating technology would eviscerate the rights of the patent holder."¹¹⁰

IV. RULING BELOW

The United States District Court for the Southern District of Indiana found Bowman liable to Monsanto, and held "that patent exhaustion [did] not apply to Bowman's accused second-crop plantings."¹¹¹ The Federal Circuit upheld the ruling in favor of Monsanto on appeal.¹¹² Judge Richard Linn, writing for the court, turned to *McFarling* and *Scruggs*, two previous Federal Circuit cases

103. 459 F.3d 1328 (Fed. Cir. 2006).

104. 302 F.3d 1291 (Fed Cir. 2002).

105. In *McFarling*, the court declared that "Monsanto had a reasonable likelihood of success on the issues of infringement and breach of contract, and that it was unlikely that an antitrust violation would be found." 302 F.3d at 1299. In *Scruggs*, the Federal Circuit held that infringement had occurred and that "Scruggs had no implied license to use Monsanto's patented biotechnology." 459 F.3d at 1336.

106. *McFarling*, 302 F.3d at 1293.

107. *Id.* at 1299.

108. *Scruggs*, 459 F.3d at 1333.

109. *Id.* at 1336.

110. *Id.*

111. *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1349 (Fed. Cir. 2011), *cert. granted*, 133 S. Ct. 420 (2012).

112. *Id.*

that grappled with the planting of second-generation, glyphosate-resistant seeds, and noted that in both cases “the doctrine of patent exhaustion did not bar the infringement claims.”¹¹³

Judge Linn, citing *Jazz Photo Corporation v. International Trade Commission*, applied the principle that the right to plant the glyphosate-resistant seeds “d[id] not include the right to construct an essentially new article on the template of the original, for the right to make the article remain[ed] with the patentee.”¹¹⁴ By spraying his second crop to create glyphosate-resistant seeds, Bowman constructed newly-infringing articles. The court rejected Bowman’s argument that an individual seed “substantially embodies” all future generation seeds, and that the sale of second-generation seed to grain elevators thus exhausted the patent.¹¹⁵ Rather, the court found, pursuant to *Quanta Computer, Inc. v. LG Electronics, Inc.*, “nothing in the record indicates that the ‘only reasonable and intended use’ of commodity seeds is for replanting them to create new seeds.”¹¹⁶ Moreover, the court pointed out that “[a]pplying the first sale doctrine to subsequent generations of self-replicating technology would eviscerate the rights of the patent holder.”¹¹⁷ The court was concerned with the practical consequences of inadequate patent protection for self-replicating technologies and construed patent exhaustion precedent narrowly.

V. ARGUMENTS

Bowman argues for the application of a strict exhaustion doctrine while Monsanto urges the Court to consider the economic consequences of applying such a doctrine to self-replicating technologies. Additionally, Monsanto contends that the exhaustion doctrine should not apply because Bowman’s infringement occurred in subsequent generations to the initial seeds sold.¹¹⁸

113. *Id.* at 1347.

114. *Id.* at 1348 (quoting *Jazz Photo Corp. v. Int’l Trade Comm’n.*, 264 F.3d 1094, 1102 (Fed. Cir. 2001)).

115. *Id.*

116. *Id.* (quoting *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 631 (2008)).

117. *Id.*

118. Both parties also make statutory interpretation arguments regarding the meaning of the word “make[]” in 35 U.S.C. § 271(a), which are not discussed here. The Supreme Court is unlikely to hold on statutory interpretation grounds alone in light of the pragmatic approach it has been taking to deciding issues arising under patent law, such as in *Quanta*.

A. Arguments for Petitioner, Bowman

Bowman's arguments rely heavily on older Supreme Court cases creating a strong patent exhaustion doctrine, and also on its recent decision in *Quanta*.¹¹⁹ Bowman argues that selling the seeds to the grain elevator was an authorized sale that extinguished the patent holder's rights¹²⁰ and that Monsanto did not include language in the Monsanto Technology Agreement that created a reversionary interest.¹²¹ Once the farmer grows progeny seeds, the farmer is authorized to sell the seeds to grain elevators,¹²² and the selling farmers are not required to place any restrictions on these sales.¹²³ The Monsanto Technology Agreement also permits grain elevators to sell the patented, progeny seeds as an undifferentiated commodity.¹²⁴ Bowman argues that, analogous to *Adams v. Burke*, where the purchaser also intended to use a patented product in a way that the patentee claimed to be unauthorized,¹²⁵ the authorized sale to the grain elevator afforded a subsequent purchaser full use rights.¹²⁶

Bowman claims that patent "exhaustion has only one requirement—an authorized sale," and that this principle remains true "even if the sale is to a person who intends to use the patented article in a manner that is not authorized by the patentee."¹²⁷ Because seeds are self-replicating, successive generations of seeds are embodied in earlier generations and are therefore protected by the patent. Pursuant to *Quanta*, the "sale of a self-replicating product embodying an invention exhausts patent rights to subsequent generations that are

119. See Brief for Petitioner at 11, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. Dec. 3, 2012) (maintaining that *United States v. Unis Lens Co.*, 316 U.S. 241 (1942) and *Adams v. Burke*, 84 U.S. 453 (1873) support Petitioner's arguments); *Univis Lens Co.*, 316 U.S. at 250 ("[S]ale of [a patented article] exhausts the monopoly in the article and that patentee may not thereafter, by virtue of his patent, control the use or disposition of the article."); *Adams*, 84 U.S. at 456 ("[I]n the essential nature of things, when the patentee, or the persons having his rights, sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use.").

120. See Brief for Petitioner, *supra* note 119, at 14 ("By authorizing the sale of patented seeds, Monsanto has authorized the sale of a product that can be used for practicing the patents and therefore has parted with all ability to restrict such use under the patent laws.").

121. *Id.* at 30.

122. *Id.* at 31.

123. *Id.* at 32.

124. *Id.*

125. See *Adams v. Burke*, 84 U.S. 453, 456–57 (1873) (finding that where a contract prevented the patent assignee from using the patented coffin-lids within a specific radius, a subsequent sale exhausted this condition).

126. Brief for Petitioner, *supra* note 119, at 33.

127. *Id.* at 13.

embodied in the product sold.”¹²⁸ Monsanto could have restricted the ability to sell the second-generation seeds for use as a commodity by simply modifying the Monsanto Technology Agreement.¹²⁹

Bowman highlights the schism in jurisprudence between the Federal Circuit and the Supreme Court, contending that the Federal Circuit improperly held in *Mallinckrodt, Inc. v. Medipart, Inc.* that patent exhaustion does not apply to “an expressly conditional sale.”¹³⁰ Bowman argues that *Mallinckrodt* failed to appreciate that the Supreme Court has applied patent exhaustion to any and all authorized sales.¹³¹

Bowman rejects the contention that even if exhaustion did not apply,¹³² he would still be liable under the reasoning that, as “the next generation of seed develops, the grower has created a newly infringing article.”¹³³ Bowman argues that the planting of the second-generation seeds was not a “reconstruction” because a reconstruction necessitates that patented articles become worn out or broken, and Bowman used the seeds without repairing them.¹³⁴

Finally, Bowman rejects the Federal Circuit’s claim that “[a]pplying the [patent exhaustion] doctrine to subsequent generations of self-replicating technology would eviscerate the rights of the patent holder,” because patentees can enforce use restrictions through contracts.¹³⁵ Bowman contends that the lower court’s ruling effectively created an exception to the patent exhaustion doctrine. If Congress thought it appropriate to create an exception for self-replicating technologies, as it has in other fields, it could legislate on the matter.¹³⁶

128. *Id.* at 14.

129. *Id.* at 16.

130. *Id.* at 22–23.

131. *Id.* at 24.

132. *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1347–48 (Fed. Cir. 2011), *cert. granted*, 133 S. Ct. 420 (2012).

133. *Id.* at 1348.

134. Brief for Petitioner, *supra* note 119, at 14.

135. *Monsanto*, 657 F.3d at 1348 (quoting *Monsanto Co. v. Scruggs*, 549 F.3d 1328, 1336 (Fed. Cir. 2006)) (internal quotation marks omitted).

136. Brief for Petitioner, *supra* note 119, at 52 (noting that Congress passed the Visual Artists Rights Act, allowing artists to retain attribution rights and prohibit destruction of their artworks regardless of ownership of economic rights).

B. Arguments for Respondent, Monsanto

Monsanto makes two primary arguments. First, Monsanto claims that a conditional sale doctrine is necessary, highlighting the pragmatic implications of coupling a strict patent exhaustion doctrine with the economic realities underlying self-replicating technologies,¹³⁷ particularly the deleterious impact on incentives to innovate.¹³⁸ Second, Monsanto argues that Bowman violated § 271(a) of the Patent Act by creating newly infringing articles.¹³⁹

Monsanto maintains that the “[patent exhaustion] doctrine does not apply to the *new* soybeans [that Bowman] made,” because they were neither subjected to sale nor authorized for sale by Monsanto.¹⁴⁰ Patent exhaustion permits the purchaser to use and resell the particular article purchased, but the doctrine does not grant the purchaser the right to make new copies of the invention.¹⁴¹ Monsanto emphasizes that in past Supreme Court patent exhaustion cases—including *Quanta*, *United States v. Unis Lens Co.*, and *Adams*—the Court “has never wavered from the principle that patent exhaustion applies only to the specific article that was sold in an authorized sale.”¹⁴² Because the second-generation seeds were not originally sold to Bowman, the exhaustion doctrine does not apply to those seeds.¹⁴³ Accordingly, each soybean produced with the Roundup Ready® trait was a unique infringing article embodying the protected invention.¹⁴⁴

137. See Brief for Respondents at 45, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. Jan. 16, 2013) (arguing that if a farmer is permitted to produce more seeds containing the patented trait, the “result would be both undesirable and impracticable,” and “in all likelihood, Monsanto would be unable to bring its invention to market”).

138. *Id.* at 15.

139. See *id.* at 14–15 (“[Bowman’s] contention fundamentally misapprehends the doctrine, which applies only to the specific article sold, not to *new* articles embodying the patented invention.”).

140. *Id.* at 10.

141. See *id.* at 15 (“Patent exhaustion, where it properly applies, allows the purchaser of an article embodying an invention to use and resell *that particular article*—but it does not confer the right to make, use, or sell the invention *generally*.”). See also 35 U.S.C.A. § 154(a)(1) (West 2013) (defining the contents of a patent and the rights of the patentee, and nowhere conferring on the purchaser the right to make new copies of a patented invention).

142. Brief for Respondents, *supra* note 137, at 15–16.

143. *Id.* at 37–38; see also *Keeler v. Standard Folding-Bed Co.*, 157 U.S. 659, 663 (1895) (holding that the owner’s rights to a patented machine are exhausted when a patent owner “has himself constructed a machine, and sold it without any conditions”); *Mitchell v. Hawley*, 83 U.S. 544, 548 (1872) (holding that patent exhaustion is triggered “where the sale is absolute, and without any conditions”).

144. Brief for Respondents, *supra* note 137, at 18.

Moreover, patentees may furnish certain use rights and not others when commercializing their product.¹⁴⁵ The reproduction of the Roundup Ready® trait violated the terms of the Monsanto Technology Agreement, which only provided Bowman with the license to use the patented technology for one growing season.¹⁴⁶ The price paid by Bowman would be trivial if Bowman could use the Roundup Ready® technology into perpetuity.¹⁴⁷ If any farmer could reproduce the technology at will, Monsanto would have to charge an astronomical sum to first-generation users in order to recover research and development costs.¹⁴⁸

Monsanto contends that holding for Bowman “would be particularly devastating to innovation in biotechnology.”¹⁴⁹ Inventors would lack incentive to undertake long-term, expensive research endeavors, because their inventions would not receive sufficient protection against replication.¹⁵⁰ Contractual remedies are insufficient to provide the proper incentives because it would be impossible, as a matter of practice, to establish contractual privity with everyone who might misappropriate the protected technology.¹⁵¹

VI. ANALYSIS

The Supreme Court should hold for Monsanto and recognize Monsanto’s patent rights in subsequent generations of the self-replicating seeds. This will both incentivize investment in biotechnology by assuring patentees that their innovation will be adequately protected, and improve efficiency by making it profitable for patentees to sell their seeds at lower prices. The Court can do so without eroding the patent exhaustion doctrine by characterizing Bowman’s opportunistic actions, in spraying his second crop to create seeds exhibiting glyphosate-resistance, as an impermissible making under the Patent Act. Moreover, the Court can distinguish this case from *Quanta* because the restrictions at issue here are procompetitive.

145. *Id.* at 37–38.

146. *Id.* at 34.

147. *Id.* at 35.

148. *See id.* at 44–45 (highlighting that farmers have the ability to “create millions of copies within a few years,” and thus “Monsanto would quickly lose the ability to commercialize its invention . . . [and] would be unable to bring its invention to market”).

149. *Id.* at 31.

150. *Id.* at 31–32.

151. *See id.* at 51 (claiming that it would be an “impossible task” to contract with all parties that could potentially infringe on the patent holder’s rights).

A. *Incentivizing Innovation and Increasing Efficiency*

Providing the proper incentives for private investment in biotechnology is especially important because of rapid global population growth¹⁵² and increased desertification.¹⁵³ The coupling of increased food demand and decreased arable land is creating a need for high-yielding agriculture. In 2010, private firms invested \$3.5 billion for research and development in the seed industry alone.¹⁵⁴ Seed innovation is beneficial to farmers as well; they experienced a \$3.3 billion increase in soybean-related income in 2010.¹⁵⁵ Adequately protecting patentee rights in seed technology will help ensure that companies continue to invest in new agricultural innovation and that farmers have a healthy supply of affordable, high-yielding seed.

Patent protection in the arena of self-replicating seeds is particularly important. Whereas developing beneficial seed traits is extremely costly, the patented traits are easily reproduced once developed because the seed's progeny contains the desired traits and can thus be proliferated rapidly. Consequently, if the exhaustion doctrine applied to self-replicating technologies, a patentee would be economically compelled to charge an individual farmer the full value of the invention upfront in order to recoup research, development, and production costs.¹⁵⁶ This financial burden would be nearly impossible for any individual farmer to bear, and would decimate the demand for these seeds.

In addition, faithfully applying the exhaustion doctrine would exacerbate the very anticompetitive effects that the exhaustion doctrine attempts to circumvent.¹⁵⁷ Under Monsanto's current

152. See Kenneth R. Weiss, *Fertility Rates Fall, but Global Population Explosion Goes on*, L.A. TIMES (July 22, 2012), <http://www.latimes.com/news/nationworld/world/population/la-fg-population-matters1-20120722-html,0,7213271.htmlstory> (discussing global, exponential population growth).

153. See generally Hari Eswaren et al., *Global Desertification Tension Zones*, NATURAL RES. CONSERVATION SERV. (1998), <http://soils.usda.gov/use/worldsoils/papers/tensionzone-paper.html> (last accessed Feb. 8, 2013) (examining population growth, desertification, and current agricultural strain); Ha-Lin Zhao et al., *Effects of Desertification on Soil and Crop Growth Properties in Horgin Sandy Cropland of Inner Mongolia, North China*, 87 SOIL & TILLAGE RESEARCH 175 (2006), <http://www.sciencedirect.com/science/article/pii/S0167198705001182> (same).

154. Brief Amicus Curiae of the American Seed Trade Association in Support of Respondents at 17, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. Jan. 23, 2013).

155. Brief of Economists as Amici Curiae in Support of Respondents at 3, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. Jan. 23, 2013).

156. *Id.* at 5.

157. See *id.* ("Such high upfront costs would be problematic for farmers with highly variable

business model, farmers purchase new seeds every year because they are prohibited from reusing second-generation seeds. This provides flexibility, because no individual farmer needs to make a long-term investment in any single seed variety; rather, farmers have the freedom to easily change suppliers, increasing avenues for desirable competition.¹⁵⁸ Monsanto's current business model improves efficiency by allowing the second-generation seeds to be used as commodity seed instead of forcing the seed to go to waste.

B. Construing Bowman's Actions as an Impermissible Making

Under a faithful construction, the patent exhaustion doctrine applies exclusively to the seeds purchased directly from Monsanto. The seeds Bowman used for his second crop were not the same seeds that were purchased via an authorized sale.¹⁵⁹ Additionally, Bowman's purposeful spraying of his crop to retain only the herbicide-resistant seeds was opportunistic, as it was intended to create a fully-resistant progeny to be used in subsequent years. The Supreme Court can hold in favor of Monsanto without eroding the patent exhaustion doctrine by ruling that Bowman's actions were an impermissible making under 35 U.S.C. § 271(a). Under the rule articulated in *Jazz Photo*, Monsanto can furnish Bowman with the right to use the protected seeds without conferring the right to "construct" further seeds; when Bowman sprayed his commodity crop with herbicides with the intent of creating glyphosate-resistant seeds, he impermissibly constructed the patented article.¹⁶⁰

C. Distinguishing Quanta

Bowman's reliance on *Quanta* is misguided. The post-sale restriction LG Electronics was attempting to use in *Quanta* restricted

income, requiring long-term borrowing at higher interest rates.").

158. *Id.* (noting that high upfront costs would lock farmers into particular seed choices, stifling competition among seed manufacturers "that occurs as farmers seek out the best new seed varieties from season to season"). See *Standard Oil Co. v. FTC*, 340 U.S. 231, 248 (1950) (discussing why competition is desirable and claiming that "[t]he heart of our national economic policy long has been faith in the value of competition").

159. See *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1345 (Fed. Cir. 2011), *cert. granted*, 133 S. Ct. 420 (2012).

160. See *Jazz Photo Corp. v. International Trade Comm'n*, 264 F.3d 1094, 1102 (Fed. Cir. 2001) (discussing the difference between a permissible repair and a prohibited reconstruction); *Mitchell v. Hawley*, 83 U.S. 544, 548 (1872) (finding that one who purchases a machine "for the purpose of using it in the ordinary pursuits of life . . . does not acquire any right to construct another machine . . . for his own use").

competition and was therefore anticompetitive,¹⁶¹ whereas Monsanto's restriction increases the ability for competition in the seed marketplace and is therefore procompetitive. Moreover, the *Quanta* Court explicitly cabined the holding to apply only to "the sale of components of a patented system that must be combined with additional components in order to practice the patented methods."¹⁶² The seeds Bowman used for his second crop did not require additional components and were not protected by a method patent, rendering *Quanta*'s holding inapplicable to the facts in *Bowman*. Accordingly, due to the nature of the biotechnology industry as requiring strong patent protection, the ability to characterize Bowman's actions as an impermissible reconstruction, and the factual differences between *Quanta* and the case at hand, the Court should hold for Monsanto.

VII. CONCLUSION

The Supreme Court likely granted certiorari in this case to address the Federal Circuit's deviant strain of precedent, and will use the case as a canvas on which to diminish the conditional sale doctrine. By holding that the creation of second-generation seeds was an impermissible making, the Court will not need to apply the patent exhaustion doctrine. This will allow the Court to maintain a strong exhaustion doctrine while still upholding a decision protecting patentee rights. The Court's decision in this case will likely have a significant impact on innovation incentives throughout the entire biotechnology sector. If the Court holds for Bowman, scientists attempting to sell specific gene sequences may not be able to financially recoup their research and development costs; if the genes they design can simply be replicated and resold, a patentee's rights to receive lasting supracompetitive profits will be destroyed. In order to protect and bolster this important sector in the national economy, the Court should exempt self-replicating technologies from the exhaustion doctrine by construing subsequent generations as reconstructions.

161. See *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 630 (2008) (employing a practical approach to the patent exhaustion doctrine as applied to method patents). LG Electronics' restriction in *Quanta* prevented the purchaser from combining the patented product with another non-Intel product. *Id.* at 624.

162. *Id.* at 621.