
Licensing, Patent Exhaustion, and Self-Replicating Technologies: A Case Study

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The pending petition for certiorari filed in *Bowman v. Monsanto Co.*¹ highlights the interplay between licenses and the patent exhaustion/first sale doctrine in the context of self-replicating technology. Monsanto's genetically modified seed that reproduces when planted may be the quintessential self-replicating technology. Biotechnology involves much self-replicating technology, beyond transgenic seeds to DNA sequences, virus strains, microorganisms, and cell lines. Some types of computer software, including some computer viruses, are self-replicating. Nano-medical robots or organic computers may soon be feasible. Self-replicating technology presents a case study of the appropriate limits of patent rights which has broad implications.

This article discusses the background of a series of cases involving Monsanto's transgenic seed technology that has led to the petition in *Bowman*, outlines the Supreme Court and Federal Circuit cases that establish the current contours of the patent exhaustion/first sale doctrine, and examines the *Bowman* case and the questions it raises. *Bowman* also may be a case study of slighting license drafting and contracts in overreliance on patent rights.

Monsanto's Policy against Saved Seed

Monsanto was a pioneer in transgenic seed technology, perfecting a trait that enabled plants to be resistant to certain herbicides, particularly Monsanto's Roundup Ready® herbicide. Plants with the herbicide-resistant trait would be unaffected when sprayed with Roundup

Ready® herbicide, while surrounding weeds would be eliminated. The trait was so successful that soybeans and corn with the trait now comprise the majority of US soy and corn crops.

Monsanto developed an elaborate licensing and distribution structure for its technology. It licensed seed manufacturers to develop seed with the patented trait and to sell the seed to licensed seed dealers. Licensed seed dealers were authorized to sell the seed only to farmers who accept a license from Monsanto. The farmers' licenses prohibited them from saving any seed from resulting crops for replanting or from supplying seed for replanting. Farmers may sell the resulting crops to grain elevators.

For some crops, farmers commonly save some of the harvest to be the next generation seed for the next crop, instead of selling the entire harvest. Some farmers bought Monsanto's genetically modified seed, planted the seed, and used some of the saved seed from the resulting crop to plant the next crop, in breach of Monsanto's license. Monsanto sued offending farmers for patent infringement.

The key question in these cases is whether the use of saved seed is patent infringement. If there is patent infringement in the context of saved seed descended from seed purchased from an authorized source, then contracts prohibiting the use of saved seed might be considered simply an express statement that there is no patent license extended beyond the original seed to the next generation saved seed. On the other hand, if there is no patent infringement in this context, then a contract prohibiting the use of saved seed would be fully subject to the antitrust laws, to the standard of whether there has been an unreasonable restraint of trade. Whether there is infringement turns on whether there was patent exhaustion or a first sale.

Patent Exhaustion/First Sale

The first sale doctrine is based on the common law doctrine against restraints on alienation of chattels. The buyer of an article covered by intellectual property rights has the right to use the article, but

not the right to make another article covered by those IP rights. Thus, in the copyright context, the buyer of a copyrighted book may sell the book, cut it up or repair it, but may not make a copy of it. The principle was established for copyright in *Bobbs-Merrill Co. v. Straus*,² and codified in 17 U.S.C. §109.

Similarly, the owner of a patented object may sell, destroy, or repair it, but may not rebuild/remanufacture it, reverse engineer it, or make a copy of it. The classic case establishing the principle for patents is *Adams v. Burke*,³ where patented coffin lids were licensed to coffin makers to incorporate into coffins to sell within designated territories. However, the coffins were being used by buyers outside the designated territories. The Supreme Court found that the patent holder may restrict where the coffin lids are made and sold, but may not restrict where the lids are used once they are sold.

The two most recent Supreme Court decisions on patent exhaustion/first sale are *United States v. Univis Lens Co.*⁴ and *Quanta Computer, Inc. v. LG Electronics, Inc.*⁵

Univis involved a patent covering specialized lens blanks and a process to grind and polish those lens blanks into finished eyeglass lenses. Univis established a system of licenses to lens blank makers, lens finishers, and to eyeglass retailers, setting sales prices at each level, though Univis collected revenues only from lens blank makers. The only function of those lens blanks were to be ground into eyeglass lenses and incorporated into eyeglass frames. The Supreme Court therefore found that the sale of the lens blanks exhausted all the patent rights in the blanks, and Univis could not under the patent law control subsequent sales of the blanks, even as those blanks were processed under the patent into eyeglass lenses. The system of licenses controlling sales prices through production and distribution was struck down under the Sherman Act, as per se illegal vertical price fixing.⁶

It was over 40 years later before the Supreme Court revisited patent exhaustion. In the interim, the Federal Circuit in a series of decisions appeared to shape patent exhaustion as being triggered only when there has been an unconditional sale of the patented item. In *Mallinckrodt, Inc. v. Medipart, Inc.*,⁷ which involved a patented medical apparatus marked with the notice "Single Use Only" that hospitals had reconditioned to enable reuse, the Federal Circuit found that

[i]f the sale of the UltraVent was validly conditioned under the applicable law such as the law governing sales and licenses, and if the restriction on reuse was within the scope of the patent grant or otherwise justified, then

violation of the restriction may be remedied by action for patent infringement.

In *B. Braun Medical, Inc. v. Abbott Laboratories*,⁸ which involved a medical valve sold on condition that it will be used for only one purpose, the Federal Circuit reiterated that

[t]his exhaustion doctrine, however, does not apply to an expressly conditional sale or license. . . . violation of valid conditions entitles the patentee to a remedy for either patent infringement or breach of contract.

As a result, a patentholder may by contract impose post-sale restrictions that can be enforced under patent law. When a patented item has been sold subject to conditions, breaches of the conditions may be patent infringement, which carries greater remedies than breach of contract.

In *Quanta*, the Supreme Court unanimously found that the authorized sale of a patented item exhausted the patent holder's patent rights in the particular item. Arguably contract remedies remain available for any breaches of the conditions of sale.⁹ The situation was similar to that in *Univis*, with the patented item being chipsets to be incorporated into computers. LG licensed Intel to sell chipsets manufactured under LG's patents with notice to buyers that separate licenses were required from LG to incorporate the chipsets with non-Intel products. Quanta did not get a separate license from LG to incorporate its Intel chipsets into computers, arguing that LG's patent rights in those chipsets were exhausted when Quanta bought them from Intel with the requisite notice. The Federal Circuit found no patent exhaustion/first sale, so Quanta infringed LG's patents. The Supreme Court reversed. It found that the chipsets substantially embodied all the patented technology. There was no other use for the chipsets except to be incorporated into computers under LG's patents. Intel's sales to Quanta were undisputedly in compliance with the license from LG. Therefore, the authorized sales of the chipsets to Quanta exhausted LG's patent rights in those chipsets and LG had no patent rights in any products containing those chipsets.

Patent Exhaustion/First Sale and Self-Replicating Technology

In the context of self-replicating technology, the issue of patent exhaustion/first sale is unsettled not so much

as to the actual patented item that was sold, but as to the copy of itself that the patented item is meant to create as a self-replicating technology. In non-self-replicating technology contexts, it is clear under patent exhaustion/first sale that the buyer of a patented item may repair the item but may not copy or remanufacture the item; there is no question of any rights in a replication. The Supreme Court has yet to address the question of the rights of the buyer of the patented self-replicating item, in the replication.

The situation of genetically-modified seeds highlights the issue. It is clear that if someone stole some patented seed, planted it, and then used the resulting second generation seed, there has been patent infringement in both the planting of the stolen seed and the creation and use of the second generation seed. It also is clear that the authorized sale of a patented seed exhausts the patentholder's patent rights in that seed. However, while the buyer may plant the seed, consume or destroy it, it is unclear what the buyer may do under the patent laws with second generation seed if the purchased seed is planted.

The Supreme Court has not addressed the question of the patentholder's patent rights in the descendants of seed purchased in an authorized sale. In the case of Monsanto's transgenic seeds, the Federal Circuit held in *Monsanto Co. v. McFarling*¹⁰ and *Monsanto Co. v. Scruggs*¹¹ before *Quanta*, and reaffirmed in *Monsanto Co. v. Bowman*¹² after *Quanta*, that Monsanto has full patent rights in the second generation seed in all cases and may recover for patent infringement for unauthorized use of saved seed.

In both *McFarling* and *Scruggs*, the farmers bought genetically modified seed from licensed seed dealers, and planted and used saved seed. The Federal Circuit reasoned that the second generation, saved seed was never sold by farmers planting their saved seed and therefore there was no sale triggering patent exhaustion/first sale cutting off Monsanto's patent rights in those particular seeds. Moreover, under *Mallinckrodt* and *B. Braun*, saved seed restrictions in Monsanto's licenses to farmers may be enforced under patent law, because they were conditions on the sales of the seed to the farmers. Therefore, farmers' use of saved seed in breach of the saved seed restrictions is patent infringement. The Supreme Court denied certiorari in both *McFarling* and *Scruggs*, in the case of *McFarling* after receiving the Solicitor General's view that the case was correctly decided on the facts and it was premature for the Court to consider the issue of patent exhaustion in the context of self-replicating technology.

Bowman v. Monsanto

Bowman may be the 21st century iteration of the 6th century dispute between St. Finian and St. Columba, over Columba's unauthorized copying of a manuscript that Finian owned. The dispute went before King Diarmait, who declared: "Wise men have always described the copy of a book as a child-book. This implies that someone who owns the parent-book also owns the child-book. To every cow its calf, to every book its child-book. The child-book belongs to Finian."¹³ In *Bowman*, is it Bowman in Finian's position, or Monsanto?

Bowman's certiorari petition to the Supreme Court raises the issue of patent exhaustion/first sale of self-replicating technology outside the context of a purchase specifically of Monsanto's genetically modified seed, which brings it outside the fact pattern of *McFarling* and *Scruggs*. Farmer Bowman bought commodity soybean seed from a grain elevator. Commodity seed is a random mix of seed purchased by the grain elevator from many sources, and in Bowman's case included saved seed sold by farmers who purchased and planted Monsanto's seed. Monsanto's licenses allow sales of saved seed to grain elevators and for the sale by grain elevators of saved seed mixed with other seed. It was undisputed that Bowman's grain elevator seed purchases were authorized sales by the grain elevator that were not subject to a license agreement between Monsanto and Bowman. Bowman planted his purchased commodity seed and saved seeds from the resulting crops for replanting. Therefore, parts of Bowman's crops had Monsanto's patented traits.

Monsanto sued Bowman for patent infringement for the unauthorized planting of commodity and saved seeds that included some with Monsanto's patented traits. Bowman argued that there was patent exhaustion/first sale when seed with Monsanto's technology was sold to the grain elevator that barred any patent claims on succeeding generation seeds. Monsanto won summary judgment at the district court, with judgment for over \$84,000.¹⁴ The judgment was affirmed by the Federal Circuit.¹⁵

Following its reasoning in *McFarling*, the Federal Circuit found that the sale of second generation seed to grain elevators and subsequent sale of that seed mixed with other seed by grain elevators to Bowman were authorized but concluded that because Bowman's saved seed was not sold in any authorized sale there was no patent exhaustion/first sale in that saved seed. It cited the Supreme Court's decision in *Quanta* for the proposition that a seed "substantially embodies" later generation seeds so that patent exhaustion might apply to the later generation seed, but only if "the 'only

reasonable and intended use' of commodity seeds is for replanting them to create new seeds."

The Federal Circuit found that, even if there was an authorized sale that exhausted the patent rights in the commodity seeds that were sold to Bowman, it was unclear that the "only reasonable and intended use" of commodity seeds was planting; the seeds might be used for feed, for example. The Federal Circuit reasoned that "even if Monsanto's patent rights in the commodity seeds are exhausted, such a conclusion would be of no consequence because once a grower, such as Bowman, plants the commodity seeds containing Monsanto's Roundup Ready® technology and the next generation of seed develops, the grower has created a newly infringing article." It stated that the "fact that a patented technology can replicate itself does not give the purchaser the right to use replicated copies of the technology." Farmers "have the right to use commodity seeds ... for any other conceivable use, [but] they cannot 'replicate' Monsanto's patented technology by planting it in the ground to create newly infringing" articles. The Federal Circuit cited *Scruggs* that finding patent exhaustion in "subsequent generations of self-replicating technology would eviscerate the rights of the patent holder." Therefore, buyers infringe Monsanto's patents if they plant commodity seeds containing Monsanto's technology and in that way replicate the technology without license.

Under *Bowman*, the right of an authorized buyer to use patented seed does not extend to planting it without specific license from the patentholder. The Federal Circuit effectively determined whether a next generation seed is an infringement is based on its use instead of the circumstances of its creation. It is difficult to discern any principled basis for that standard.¹⁶

The Supreme Court has requested the Solicitor General's views on Bowman's certiorari petition. The questions presented in Bowman's petition are: Whether the Federal Circuit erred (1) by refusing to find patent exhaustion in patented seeds even after an authorized sale, and (2) by creating an exception to the doctrine of patent exhaustion for self-replicating technologies?

Licenses of Self-Replicating Technology

If the Supreme Court grants certiorari in *Bowman* and decides *Bowman* on the merits, the ramifications of its decision may be far reaching, given the growth in self-replicating technology.

If a buyer such as Bowman may be subject to patent infringement claims for replicating a self-replicating object, buyers and sellers of patented self-replicating

objects may need to develop different business strategies. In that event, it may behoove businesses such as grain elevators and farmers each to require representations, warranties, and indemnities from their suppliers, regarding the presence of any patented items in the purchase and the existence of any conditions placed by the patent holder on sales of the patented items that may be included in the sale.

Conversely, if patent exhaustion/first sale is found to cut off patent claims in replications of the patented self-replicating objects purchased by buyers, then patent holders may need to develop a different business model. Patent holders such as Monsanto may try to recover the full value of the patent in the item in the first transaction.¹⁷ They may still attempt to control the distribution of the patented items by contract.¹⁸ Those contracts would be subject to scrutiny under the antitrust laws, and contract remedies will be available for any breaches of conditions that withstand antitrust scrutiny. This may be the appropriate result even though patent remedies are stronger than contractual remedies, providing treble damages in certain circumstances, for example.

Even if there is patent exhaustion, a patent holder may sell or license sales of objects embodying its self-replicating technology under contracts that restrict the disposition of second-generation objects replicated from the purchased object, and enforce the restrictions under contract law. In a situation such as Bowman's, Monsanto could have permitted sales of seed embodying Monsanto technology on condition that the second-generation seed be either consumed or sold to buyers who agree to either consume the seed or isolate that seed from other seed and sell the seed only for consumption. Alternatively, Monsanto could require that second-generation seed be sold only to those approved buyers who have agreed to Monsanto's conditions. Monsanto might try to include in its licenses restrictions on sale of seed to grain elevators. It might also revise its licenses to compel segregation of Roundup Ready® crops from other crops. In all cases, Monsanto would have contract remedies for breach of the condition.

Regardless of the outcome in *Bowman*, such provisions may have been helpful to a patent holder such as Monsanto. Instead, Monsanto conceded that its licenses permitted unconditional sales to grain elevators and in turn to Bowman, and relied entirely on its patents to preserve its distribution scheme. With more comprehensively drafted licenses, Monsanto might rely on *Mallinckrodt* to recover for patent infringement of any breaches if there is no patent exhaustion, and recover contract remedies if there is patent exhaustion. Regardless of the Court's ruling, *Bowman* is a reminder to draft licenses more comprehensively.

1. *Bowman v. Monsanto Co.*, Docket No. 11-796.
2. *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339 (1908).
3. *Adams v. Burke*, 84 U.S. 453 (1873).
4. *United States v. Univis Lens Co.*, 316 U.S. 241 (1942).
5. *Quanta Computer, Inc. v. LG Electronics, Inc.*, 553 U.S. 617 (2008).
6. *Under State Oil Co. v. Khan*, 522 U.S. 3 (1997), and *Leegin Creative Leather Products, Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007), resale price agreements are now subject to the rule of reason and no longer per se illegal under the Sherman Act. Such agreements remain per se illegal under some state antitrust laws.
7. *Mallinckrodt Inc. v. Medipart, Inc.*, 976 F.2d 700, 709 (Fed. Cir. 1992).
8. *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (Fed. Cir. 1997).
9. Footnote 7 in *Quanta* states that "We note that the authorized nature of the sale to Quanta does not necessarily limit LGE's other contract rights. LGE's complaint does not include a breach-of-contract claim, and we express no opinion on whether contract damages might be available even though exhaustion operates to eliminate patent damages. See . . . (Whether a patentee may protect himself and his assignees by special contracts brought home to the purchasers is not a question before us, and upon which we express no opinion. It is, however, obvious that such a question would arise as a question of contract, and not as one under the inherent meaning and effect of the patent laws')." 553 U.S. at 637.
10. *Monsanto Co. v. McFarling*, 302 F.3d 1291 (Fed. Cir. 2002).
11. *Monsanto Co. v. Scruggs*, 459 F.3d 1328 (Fed. Cir. 2006).
12. *Monsanto Co. v. Bowman*, 657 F.3d 1341 (Fed. Cir. 2011).
13. Ray Corrigan, "Colmcille and the Battle of the Book: Technology, Law and Access to Knowledge in 6th Century Ireland," at 6 (GikII 2007) <http://www.law.ed.ac.uk/ahrc/gikii/docs2/corrigan.pdf> (visited July 9, 2012). See also, Ruth Suehle, "The story of St. Columba: A modern copyright battle in sixth century Ireland," June 8, 2011 <http://opensource.com/law/11/6/story-st-columba-modern-copyright-battle-sixth-century-ireland> (visited July 9, 2012).
14. *Monsanto Co. v. Bowman*, 686 F. Supp. 2d 834 (S.D. Ind. 2009).
15. *Monsanto Co. v. Bowman*, 657 F.3d 1341.
16. See Tod Michael Leaven, "Recent Development: The Misinterpretation of the Patent Exhaustion Doctrine and the Transgenic Seed Industry in Light of *Quanta v. LG Electronics*," 10 *N.C. J. L. & Tech.* 119, 137-139 (2008).
17. While the Federal Circuit was persuaded by Monsanto's argument that it is impossible as a practical matter to recoup its full investment in the first sale, at least in the context of transgenic seeds, so that a finding of first sale would "eviscerate" the value of the patent, that is an argument that also could have been made in *Univis* and *Quanta*.
18. *Quanta*, 553 U.S. at 637 fn. 7. It arguably means that, regardless of the availability of any infringement claim, patent holders may enforce contracts that include a saved-seed restriction, unless other laws, such as antitrust or state laws, bar the contract.

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