PATENT EXHAUSTION IN CASES OF RECYCLING AND REPAIR OF GOODS*

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ABSTRACT

Everyone knows that recycling and repairing can generally reduce resource consumption and waste production. Additionally, their economic benefits entice consumers to repair and recycle goods. However, in cases of patented goods, these activities may collide with exclusive rights of patentees.

According to the patent system, a patent is granted to an inventor with a set of exclusive rights to prevent third parties from making, using, offering for sale, selling or importing a patented product within a limited period of time. Nevertheless, under the exhaustion doctrine, such an exclusive right is consumed when the patented product has been legitimately sold in order to limit an exploitation of the patent and to support free circulation of goods. Thus, purchasers can use or resell it without permission from the patentees. However, the purchasers cannot construct a new article in place of the original one. Recycling the used goods into the recycled goods to serve its initial utility, *e.g.*, recycled ink cartridges, and repairing of damaged goods, falls in between the realm of permissibility under patent exhaustion and infringement of patent protection. The extent of the act in which purchasers are able to commit on the patented goods might be questioned. With the unpredictability of the scope of rights, purchasers who merely recycle or repair may be liable for patent infringement, which could cause some enterprises not to engage in recycling businesses.

Additionally, the patentee may create post-sale restrictions on use of their goods, such as using a “Single Use Only” sign, to avoid exhaustion of the patent right. If such restrictions, are allowed to be enforceable, perhaps it could hinder purchasers and consumers in using the goods under normal social convention.

This article will present laws and court decisions from United States and Japan, which provide a repair defense as an extension of the exhaustion doctrine and have established their own standards for distinguishing permissible recycling/repair from reconstruction. It also provides an analysis of posted problems from the inadequate provision in Thai Patent Act to deal with these matters. Moreover, a recommendation will be proposed to resolve such problems.

Keywords: recycling and repair, exhaustion doctrine, and patent infringement

บทคัดย่อ

เป็นที่ทราบกันว่าการรีไซเคิลและการซ่อมแซมสินค้าสามารถช่วยลดการใช้ทรัพยากรธรรมชาติและการเพิ่มขึ้นของขยะได้ รวมทั้งผู้บริโภคยังได้ประโยชน์ทางเศรษฐกิจจากการรีไซเคิลและซ่อมแซมสินค้าอีกด้วย แต่ในกรณีของสินค้าที่มีสิทธิบัตรนั้นการกระทำดังกล่าวอาจเป็นการขัดแย้งสิทธิของเจ้าของสิทธิบัตรได้

ภายใต้แนวคิดของกฎหมายสิทธิบัตร สิทธิบัตรจะถูกมอบให้แก่ผู้คิดค้นซึ่งสิทธิแต่พียงผู้เดียวในการผลิต ใช้ เสนอขาย ขาย หรือ นำเข้า ผลิตภัณฑ์ที่ได้รับความคุ้มครองตามสิทธิบัตร เพื่อตอบแทนการเผยแพร่ข้อมูลของสิ่งประดิษฐ์และคุ้มครองสิทธิแต่เพียงผู้เดียวในการหาประโยชน์จากสิ่งประดิษฐ์ดังกล่าว ภายในระยะเวลาที่กฎหมายกำหนด อย่างไรก็ตาม ภายใต้หลักการสิ้นสิทธิ เมื่อผลิตภัณฑ์ดังกล่าวถูกขายแก่ผู้ซื้อ สิทธิแต่เพียงผู้เดียวของเจ้าของสิทธิบัตรจะหมดลงเพื่อจำกัดการหาประโยชน์เหนือสิ่งประดิษฐ์ที่ถูกขายไปแล้วเพื่อสนับสนุนการไหลเวียนโดยเสรีของสินค้า ดังนั้น ผู้ซื้อสามารถใช้และขายสินค้าดังกล่าวโดยไม่ต้องขอความยินยอมจากเจ้าของสิทธิบัตรอีก แต่กระนั้น ผู้ซื้อไม่สิทธิสร้างสินค้าดังกล่าวขึ้นมาใหม่จากสินค้า

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เดิมได้ การรีไซเคิลสินค้าที่ใช้แล้วให้กลับมาใช้ได้ใหม่เหมือนเดิม เช่น แท่นหมึกปริ้นเตอร์ และการซ่อมแซมสินค้าที่เสียหายหรือใช้การไม่ได้อาจถูกตีความว่าเป็นการกระทำที่ยอมรับได้ตามหลักการสิ้นสิทธิ หรืออาจเป็นการกระทำที่ละเมิดสิทธิบัตรก็ได้ จึงเกิดเป็นปัญหาว่าผู้ซื้อมีสิทธิกระทำการดังกล่าวได้แค่ไหนเพียงใดจึงจะไม่ละเมิดสิทธิของเจ้าของสิทธิบัตร นอกจากนี้ภายใต้ความไม่แน่นอนในของเขตของสิทธิ ผู้ซื้อที่ต้องการเพียงแค่ทำให้สินค้าที่ใช้แล้วหรือเสียหายกลับมาใช้ใหม่ได้อาจต้องมีความผิดฐานละเมิดสิทธิบัตรและผู้ประกอบการด้านการรีไซเคิลสินค้าอาจขาดความมั่นใจในการประกอบธุรกิจของตน

อีกทั้ง เพื่อเป็นการหลีกเลี่ยงการสิ้นสิทธิในสิทธิบัตรของตน เจ้าของสิทธิบัตรอาจกำหนดเงื่อนไขการใช้สินค้าที่มีสิทธิบัตรที่ตนได้ขายไปแล้วได้ เช่น การอนุญาตให้ใช้แค่ครั้งเดียวหรือห้ามการนำสินค้าที่หมดไปกลับมาใช้ใหม่ ซึ่งหากข้อกำหนดดังกล่าวมีผลบังคับใช้ ผู้ซื้อและผู้บริโภคอาจถูกจำกัดสิทธิในการใช้สินค้าที่มีอยู่ตามสมควร

บทความนี้จะอธิบายถึงกฎหมายและคำพิพากษาของศาลในประเทศสหรัฐอเมริกาและญี่ปุ่นที่ได้มีการกำหนดข้อยกเว้นเรื่องการซ่อมแซมสินค้าภายใต้หลักการสิ้นสิทธิ และจัดให้มีมาตรฐานในการแบ่งแยกระหว่างการรีไซเคิลหรือซ่อมแซมสินค้าที่ยอมรับได้ตามหลักการสิ้นสิทธิกับการสร้างสินค้าขึ้นมาใหม่อันเป็นการละเมิดสิทธิบัตร นอกจากนี้จะมีการวิเคราะห์ถึงปัญหาของการที่ไม่มีบทบัญญัติเพียงพอในการตีความเพื่อใช้กับข้อเท็จจริงในเรื่องดังกล่าว และท้ายสุดได้แสดงความคิดเห็นเป็นข้อเสนอแนะในการปรับปรุงกฎหมายดังกล่าวต่อไป

คำสำคัญ: การรีไซเคิลและการซ่อมแซม, หลักการสิ้นสิทธิ, การละเมิดสิทธิในสิทธิบัตร

BACKGROUND OF PATENT PROTECTION AND EXHAUSTION DOCTRINE

A patent is a set of exclusive rights granted by a state to an inventor to make, use, or sell an invention for a certain number of years.[1] Without patent protection, any person can create and sell any inventions that others have spent time, money and knowledge to develop or make, with neither permission nor compensation. Pursuant to four major theories for patent protection, the patent system was

[1] World Intellectual Property Organization, WIPO Intellectual Property Handbook: Policy, Law and Use 17 (2008).

created to protect inventors' natural property rights in their thoughts, to reward inventors who create beneficial things, to urge the inventors to produce useful works and to stipulate disclosure of the inventions to society.[2] Any person who commits these activities without authorization from a licensing agreement or given consent from the owner shall generally be held liable for patent infringement.

However, once the patented protection has been sold, these exclusive rights conferred by a patent will be consumed under the exhaustion doctrine.[3] Procedurally, the doctrine of exhaustion is an affirmative defense asserted by the purchaser against infringement concerning the sale or use of the patented article after it has been authorized for sale by the patentee.[4] Supported by two general reasons, the exhaustion of patent right, firstly, separates the patent right from being a transferred subject matter of patent, and secondly, does not allow the patentee to extract revenue twice.[5] To use or sell the said transferred goods, the purchaser or whoever else obtained it does not need to request a permission from the patentee. The exhaustion, however, is not absolute. Amongst all exclusive rights conferred by a patent, only the rights which are of an exclusively commercial nature involve exhaustion as a consequence of the sale, whereas, other rights concerning manufacturing or physical product handling, *e.g.*, producing, reconstructing, etc., do not exhaust.[6]

In general, exhaustion of patent rights applies when products embodying an invention patent have been authorized for sale.[7]

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[2] Janice Mueller, An Introduction to Patent Law 26 (2nd ed. 2006).
[3] Nuno Pires de Carvalho, the TRIPS Regimes of Patent Rights 108 (2nd ed. 2005).
[4] William Cornish and David Llewellyn, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* 251-252, 258-259 (6th ed. 2008); cited in Vijay Kumar Himanshu, *Patent Monopoly and Doctrine of Exhaustion: Limits on Exclusive Right*, 16 JIPR 453-462 (2011).
[5] *Carvalho*, *supra* note 3, at 108-109.
[6] *See* Arthur Miller and Michael Davis, Intellectual Property – Patents, Trademarks, and Copyright in a Nutshell 135-137 (1990).
[7] Amber Hatfield Rovner, *Practical Guide to Application of (or Defense against) Product-Based Infringement Immunities under the Doctrines of Patent Exhaustion and Implied License,* 12 Tex. Intell. Prop. L.J. 227, ¶ 246 (2004).

However, there are two conflicting notions of patent exhaustion.[8] On the one hand, in cases where patent exhaustion is considered as a mandatory rule, a patent right becomes exhausted once it has been legitimately sold, regardless of whether or not the patentee subjects the sale to express patent restrictions. On the other hand, the exhaustion doctrine may be treated as a default rule, a patent is exhausted only when the sale of that patented product was unconditional. In the latter rule, the patentee can avoid exhaustion of patent rights by imposing restrictions to control the resale or use of goods in aftermarkets.[9]

Legal problems concerning recycling and repair of patented goods

The acts of recycling and repairing of goods have benefits on both the environment and economy. Full allowance of all extent to which those acts can be committed surely meets the need for ecological development and a sustainable economy in modern times. However, in the case of patented products, the existence of recycled or repaired goods probably reduces the sale of original goods and competes with the patentee or authorized sellers. One might say that those acts can be the potential interference to the interests of the patentee and decrease the incentive to invent new technology. On the other hand, if the scope of permitted recycling and repair is improperly narrow, patent rights will be expanded to aftermarket and the right of downstream users to recycle and repair patented products will be limited.

Without the clear definition of permissible recycling and repair of patented products, this study will focus on the extent to which the acts should be permitted in accordance with exhaustion of patent right. Moreover, whether the exhaustion doctrine should be considered as a mandatory rule that applies even on conditional sales, or a default rule which applies only when the sale has no condition or restriction on the post-sale use of goods that may play a role in consideration of this matter. In order to catch up with environmental conservation, it is essential to revive patent laws that balance between the incentives for

[8] Wentong Zheng, *Exhausting Patents*, 63 UCLA L. Rev. 122, 128 (2016).
[9] *Id.* at 128-138.

inventors to develop new technologies and the interests of the public in practicing the patented goods in post-sale.[10]

FOREIGN LAWS CONCERNING EXHAUSTION OF PATENT RIGHTS ON RECYCLED AND REPAIRED GOODS

Neither the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), an international agreement administered by the World Trade Organization (WTO), address or harmonize national legislation on the issue of exhaustion of intellectual property rights. On account of the complexity of legal and economic aspects having yet to be fully assessed, each of the member states are free to establish their own regime for exhaustion without challenge, unless a dispute arises under provisions of other WTO Agreements, *e.g.*, GATT.[11]

In the United States, the exhaustion doctrine or first sale doctrine has no origin from statutory law but was developed through the Supreme Court's decisions,[12] such as in *Univis Lens*.[13] In this case, the Court ruled that "the patentee cannot control the resale price of patented articles which he has sold, either by resorting to an infringement suit, or…by stipulating for price maintenance by his vendees."[14] Nevertheless, in cases where the patentee restricts the purchaser or imposes conditions on use and disposal of the patented article, the violation of these restrictions has a negative impact on the authorization of the sale. By virtue of the violation of valid restrictions, the sale of patented articles becomes unauthorized. Without an authorized sale, the exhaustion doctrine therefore shall be inapplicable.[15] Affirmed by the e*n banc* Federal Circuit's decision in

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[10] AIPPI, *Working Guidelines*, Question Q205 Exhaustion of IPRs in case of recycling and repair of goods, *available at* http://www.aippi.org
[11] *Carvalho, supra* note 3.
[12] The United States Group, *United States Group Report*, Question Q205 Exhaustion of IPRs in cases of recycling or repair of goods, *available at* https://www.aippi.org
[13] United States v. Univis Lens Co., 316 U.S. 241 (1942)
[14] *Univis*, 316 U.S. at 250.
[15] John Gladstone Mills, Patent Law Fundamentals § 20:40:50 (2nd ed. 2002).

Lexmark v. Impression,[16] the court ruled in *Mallinckrodt* that the patentee can condition the sale of patented goods with a restrictive notice and thereby restrict the disposition of the goods by the purchasers, with the exception of antitrust law violations, such as price-fixing and tie-in restrictions, or violations of other law or policy.[17] Therefore, downstream users can be limited to recycle or repair the damaged or used patented products so as to use it again by the patentee's restrictions on post-sale use of goods, *i.e.*, a "Single Use Only" sign on the product's package.[18]

The U.S. Supreme Court also set up repair defense as an extension of first sale doctrine and established the standard for distinguishing permissible repair from infringing reconstruction by considering the 'spentness' of the whole product in *Aro I.*[19] The Court ruled that repair of a patented product is permitted until the whole article has been spent by reasoning that "in order to call the monopoly, conferred by the patent grant, into play for a second time, it must, indeed, be a second creation of the patented entity."[20] According to that, repair and reconstruction dichotomy, downstream users can recycle or repair even the essential part of patented inventions until the whole product becomes spent. However, the patentee is allowed to impose the condition of sale to avoid patent exhaustion and prevent the users from the acts.

In Japan, no provision of the Japanese Patent Act refers to the exhaustion doctrine. The exhaustion of patent rights, however, has been recognized under court decisions, even if the doctrine is not codified in the statute. The Japanese Supreme Court in the *BBS* case recognized the exhaustion doctrine of patent right and reasoned that "*(i)* if the patentees' approval must be required anytime the patented products are assigned or otherwise disposed of, the free circulation of goods on the market will be prevented, and (*ii)* it is unnecessary to let

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[16] Lexmark v. Impression, 816 F.3d 721, at 726 (Fed. Cir. 2016).
[17] Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, at 708 (Fed. Cir. 1992).
[18] *See Mallinckrodt*, 976 F.2d at 702.
[19] Aro Manufacturing Co. v. Convertible Top Replacement Co., 365 U.S. 336 (1961).
[20] *Aro*, 365 U.S. at 346.

the patentee exploit his invention twice in the stream of commerce."[21] Moreover, the Grand Panel of Intellectual Property High Court ruled in the *Canon* case in 2006 that "[i]n light of the fact that an exhaustion of a patent is admitted from the perspective of harmonization between the protection of inventions under the Patent Act and social and public interest, exhaustion of a patent should not be prevented by the patentee's intention."[22] In comparison with the U.S. Federal Circuit's ruling in *Mallinckrodt*, a patentee in Japan is not able to limit patent exhaustion by making any agreement. Thus, in Japan, the restriction on use of the patented product, once it has been sold, shall be ineffective to override exhaustion doctrine.

Although, Japan is classified as a civil law legal system country, the legal system in the field of intellectual property is an exception. Common law system aspects have been adopted in combination with the traditional civil law system in order to form reliable rules and ensure consistency of judicial decisions.[23] Although it is not binding to subsequent courts, the decisions of the Japanese Grand Panel of IP High Court have utmost persuasive authority which other courts are reluctant to overrule, unless there is a more reliable reason.

Furthermore, the Grand Panel of IP High Court in *Canon* held that the exhaustion of patent rights did not apply over the recycled ink cartridge and that it infringed the patent.[24] Establishing the repair-reconstruction distinction, the Court ruled that a patent right over a patented product, even once it has been sold, is not exhausted, if there are activities categorized into the following categories:[25]

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[21] BBS Kraftfahrzeugtechnik AG v. K.K. Racimex Japan (1997), 1612 Hanrei Jihō 3, at 8.
[22] Canon Inc. v. Recycle Assist Co., no. 2005 (Ne) 20021, at 22; the full case officially translated to English *available at* http://www.ip.courts.go.jp/app/files/hanrei_en/403/000403.pdf
[23] Kaoru Kuroda and Eiji Katayama, *Efforts to Establish Clear Standards for Exhaustion in Japan*, 7 Wash. J.L. Tech. & Arts 515, 534-535 (2012), *available at* http://digital.law.washington.edu/dspace-law/handle /1773.1/1133
[24] *Canon*, *supra* note 22, at 52.
[25] *Canon*, *supra* note 22, at 47.

(1) Where the patented product is reused or recycled after its utility (kôyô in Japanese) has been depleted by virtue of the expiration of the ordinary lifespan of the product, through examining whether the patented product has finished its service as a product, or;

(2) Where a third party has made processes or replacements to the whole or part of the components corresponding to the essential portion of the patented invention by focusing on, while evaluating, the invention protected by patent.[26]

The Court determined that the utility of ink cartridges has not been depleted under the First Category but under the Second Category the act of refilling the ink recreated essential features in claim 1 as the capillary forces at the interface between the two chambers and the pressure differential created by the ink-filled chamber is present again when refilling the ink. Hence, the patent over ink cartridges did not exhaust and the act that the defendant committed without the patentee's permission constituted infringement of patent right.[27]

It may be said that the application of patent exhaustion in respect to recycling and repair cases in United States is broader than in Japan. According to U.S. repair and reconstruction dichotomy, the boundary of permissible acts of recycling and repair of patented products tends to be more expanded. However, it should be noted that the U.S. patent law permits the patentee to avoid the patent exhaustion by imposing restrictions, *e.g.*, post-sale restriction or field-of-use restriction. In other words, the entitlement of users to repair, reuse, recycle, or other types of uses of the goods can be limited by any clause in the sale contract or even a label attached on the product package. On the other hand, the Japanese precedent prohibits the intention of the patentee from overriding patent exhaustion, although the permissibility of the recycling and repair of the goods under the repair-reconstruction test is narrower than in the U.S. The difference in enforceability of the contractual limitation of patent exhaustion may be

[26] *Canon*, *supra* note 22, at 47-48.
[27] *Canon*, *supra* note 22, at 52.

one of the substantial factors in considering the line drawn when distinguishing between permissible repair/recycling and infringing reproduction.

ANALYSIS ON THAI PATENT LAW CONCERNING EXHAUSTION OF PATENT RIGHTS ON RECYCLED AND REPAIRED GOODS

The provision of the exhaustion doctrine was added to the Thai Patent Act under Section 36 paragraph two (7) in order to harmonize domestic law with international obligations under TRIPs, it was one of the WTO agreements applied to Thailand as a WTO State Member. In addition, the provision is a benefit, which promotes research and invention of new products and processes.[28]

"The preceding paragraph [exclusive rights] shall not apply to…the use, sale, having in possession for sale, offering for sale or importation of a patented product when it has been produced or sold with the authorization or consent of the patentee."[29]

Once the patented product has been legitimately sold by the patentee or others with his permission or produced by other authorized persons, a patentee can no longer exercise his right to exclude others from the use, sale, possession for sale, offering for sale, or importation of a product covered by the product patent or produced by using a process patent. Nevertheless, the right to exclude others from producing the patented product or using a patented process to produce is not exhausted in accordance with this provision but still remains up to the patentee. Thus, the purchaser, who becomes the proprietor of a product, can exercise his proprietary right over the patented product as he wants but shall not have right to produce a new product identical or equivalent to the patented product that he purchased. If exaggerated, the exclusive right of the patentee to produce might be interpreted to include the act of reproduction of the product to be usable again. A person who reproduces a patented product, therefore, shall be liable for

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[28] 116 Royal Thai Government Gazette Ch. 22 Gor., March 31, B.E. 2542 (1999).
[29] Thai Patent Act B.E. 2522 (1979) as amended by the Patent Act (No.2) B.E. 2535 (1992) and the Patent Act (No.3) B.E. 2542 (1999), § 36, ¶ 2 (7).

patent infringement. Although these seem simple to determine with common sense, how much an act in question is permissible to repair/recycle or infringe reproduction, should be distinguished by considering the balance of the interests of patentee and public.

The patent exhaustion provision, under Section 36 paragraph two (7) of the Thai Patent Act, is not sufficient to deal with this matter since no statutory definitions of the term 'repair' and 'recycling' are legislated under the Act. Both repair and recycling of the goods might be considered as the right to use of the patented product, that the patentee can no longer exercise, when it has been sold by himself or by others with his consent. However, the term use of the patented product and the scope of use permitted under the exhaustion doctrine are not laid down under the law. The absence of the definitions for 'repair' and 'recycling' is not only in the Thai Patent Act and subsequent legislation, *e.g.*, The Ministerial Regulations, but there are also no Supreme Court decisions that ruled for their definition or any permitted condition of the acts.

Should courts construe the patent's scope of protection which is defined in the claims of the patent specification and determine whether the accused device or process is literally identical or equivalent to the claims under the traditional patent infringement analysis? In my point of view, the acts of recycling and repair of the patented products are vulnerable to be determined to constitute patent infringement. Because such acts are committed solely with the intention of making the damaged or used product be useable in its initial purpose again, these are inherently inevitable to be determined identical to or equivalent to the prior product. This approach focuses solely on the patent protection aspect but may not consider whether the act is foreseeable under normal social convention. Moreover, it lacks balancing amongst the interests of patentee and interest of public or consumer to use the products. Since the acts are committed on the product which the patentee has enjoyed the reward for his creation, the interest of the patentee outweighs the right of purchaser to use the patented goods.

Aside from being able to grant others a license to exercise the exclusive right which the law allows a patentee to impose conditions or

restrictions pursuant to Section 39 of the Thai Patent Act, the patentee's right to impose post-sale restrictions upon the purchasers is questioned since the statutory law has never been clarified. In this matter, there are two legal opinions. The first opinion is of Professors Chavalit Uttasart and Nanadana Indananda, who both pointed out that restriction on post-sale use of the patented goods should not be considered an infringement under patent law when recycling or repair of the goods. Instead, it should be considered under the principle of contract law. In a case where the purchaser fully agrees with post-sale restrictions, the violation of such restriction may constitute a breach of contract.[30] The second opinion is of Professor Jakkrit Kuanpoth,[31] who addressed that the post-sale restriction on use of patented goods is void because such clause is contrary to the patent exhaustion provision under Thai Patent Act Section 36 paragraph two (7), which takes into account public order in the general view of contract law.[32] Even though the parties to the contract fully agreed, the post-sale restriction is ineffective.

If the exhaustion doctrine is treated as a mandatory rule as mentioned by Professor Jakkrit Kuanpoth, the marketing plan created by patentee would be limited. The patentee cannot impose any restriction on use of the goods. This may have environmental benefits because purchasers and downstream users would be capable of repairing and recycling the patented products. However, there probably are some marketing plans which are beneficial for environmental conservation, for example, the "Return Program Cartridges" in *Lexmark v. Impression*, where the manufacturer did not allow purchasers to reuse the products because they intended to recycle the cartridges marketed under the program themselves. In some situations, the allowance to impose restriction on the post-sale use of

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[30] *See* Chavalit Uttasart and Nandana Indananda, *Thailand Group Report,* Question Q205 Exhaustion of IPRs in cases of recycling or repair of goods, *available at* https://www.aippi.org

[31] Interview with Jakkrit Kuanpoth, Counselor of Tilleke & Gibbins's IP Group, in Bangkok, Thailand (June 29, 2015).

[32] Thailand Civil and Commercial Code, § 150: *"An act is void if its object is expressly prohibited by law or is impossible, or is contrary to public order or good morals."*

goods is able to enhance the environmental responsibility of the patentee.

CONCLUSION AND RECOMMENDATIONS

In the case where goods are protected by invention patent, the provision under Section 36 paragraph two (7) of the Thai Patent Act is insufficient to clearly answer whether and to what extent the acts of recycling and repair of goods should be permitted in the scope of use under the doctrine of patent exhaustion. Moreover, no laws or guidelines explain whether patentees can or cannot avoid patent exhaustion by imposing the restrictions on post-sale use of goods.

After studying the patent laws in of the United States and Japan, a volume of cases in both countries have established diverse approaches for interpretation of their own national patent laws to apply to and have formulated criterions for the facts at issue. On the one hand, the case laws in the United States ruled that a patent right is not exhausted when recycling or repair of patented goods violated a valid restriction on post-sale use imposed by the patentee. If there is no such conditional sale, the acts of recycling and repair committed after the entity of the goods had already spent as a whole without the permission from patentee does not exhaust a patent right, but constitutes patent infringement under the repair and reconstruction dichotomy. On the other hand, the IP High Court's decision in Japan laid down the highly persuasive guideline concerning this issue by holding that the patentee's intention cannot control exhaustion of a patent. Also, the court formulated that a patent right covering a product basically exhausts once it has been sold, unless the product has been reused or recycled after product's lifespan expired under Category 1 of the repair-reconstruction test or unless its components corresponding to an essential part of the patented invention have been altered or replaced under Category 2 thereof.

Whereas the awareness of the environment and sustainability is increasingly growing, the Thai Patent law remains silent. This uncertainty is probably an underlying problem that renders any person who obtained the goods to be reluctant about exercising their rights of

ownership to recycle or repair the product; it also makes any private sector afraid to engage in the recycling business, and any patentee able to extend the exclusive right. Therefore, to catch up with the growth of the awareness of the environment and sustainability, it is essential to advance the Thai patent law.

As described by Professor Jakkrit Kuanpoth, the patent exhaustion provision under Section 36 Paragraph two (7) should be considered as a mandatory rule. No patentee should be allowed to override the exhaustion of a patent since the exhaustion doctrine is a purely legal concept without primary function to reward inventors. Furthermore, rather than allowing the Thai court to interpret the current inadequate provision that may lead to an undesirable guideline, Thailand should amend the Thai Patent Act through adding a provision that defines the terms permissible for repair and recycling of products protected by invention patent in order to clarify the patent exhaustion provision. To balance between the interest of patentee and the interest of the public and consumers to use the patented products, the heart of invention should be protected by patent protection, and the right to free use of goods should be a privilege of the public and consumers. This study proposes that the provision under Section 36 Paragraph two of the Thai Patent Act should be amended to add a new subsection (8) as the following detail:

> "The preceding paragraph [exclusive rights] shall not apply to… (8) The act of recycling or repair of a patented product, unless such an act involves replacement or reproduction of an essential component of the product in a commercial manner or for profits."

Plus, as to clarify the scope of both acts, Section 3 of the Act should be amended to include the definition of recycling and repair as follows:

> "Repair" includes maintenance work and minor interventions.
>
> "Recycling" means the act whereby the product embodying patent have served the use for which they were

conceived are reused without being reduced to their constituent ingredients.

According to the amendment, any person who obtained the patented goods can repair or recycle it for private use without the patentee's consent, even if the act has changed or reproduced its essential components. For recycling businesses, the act of recycling goods collected from the patentee's customers, by which the essential components are replaced or reproduced, which is found committed in a commercial manner or for profits constitute patent infringement. For patentees, their exclusive rights are not exhausted when there is an act by which an essential component of the product has been replaced or reproduced, unless the acts have been committed for private use. By this measure, the commercial benefit of patentees and the interest of the public and consumers to use patented goods will be reasonably protected simultaneously.

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