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Right to Repair: Analysis from the Perspective of Patent Law

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Abstract: At present, the global movement for right to repair is thriving. Represented by the United States, the European Union and Australia, each country has formulated relevant legislation based on its own national conditions. Without replacing the components, the right to repair does not lead to patent infringement. But further discussion is needed when components need to be replaced. Firstly, it should be clarified that the principle of patent exhaustion can provide a legitimate basis for the right to maintenance. Moreover, indirect patent infringement is based on the existence of direct infringement. After that, this article categories the resources of components and analyzes three types of sources for obtaining components separately, which will all lead to the risk of patent infringement in the maintenance.

1. Introduction

The right to repair is not an innonative concept. The concept of repair had emerged as soon as tools were invented by mankind, which refers to means of maintaining the operability and saving resources. Right to repair refers to the right of consumers to have their goods repaired at the repair shop they want to go to.

According to the principle of patent exhaustion, when a patented product is first put on the market by the patentee or their authorized person, some of the economic rights in the patent have been exhausted, and the patentee has no right to prohibit the continued circulation of the product in the market. During the use of the product, it is inevitable that damage will occur, and some components may not be able to function properly at all. At this point, the product owner has the right to perform necessary repairs on the product to enable it to function as it should.

However, in the modern society, if the product owner wants to repair the product, they face difficulties such as a lack of technology and limitations on repair providers. Besides, more and more products are installed with specific software that may be protected by patents. For example, computer manufacturers only sell computers (including other hardware components such as hard drives or keyboards), but do not sell the Windows operating system, which must be purchased separately by the buyer. Secondly, if third-party manufacturers manufacture and sell components in patented products, they may also be subject to the constraints of the patent holder.

The fundamental purpose of the patent holders' prohibition on reproducing or even repairing is not to restrict consumers from reasonable maintenance and modification of the product, but to

prevent the relevant repair industry from repairing damaged products[3]. The patent holder's restriction is based on economic considerations. By repairing damaged patented products and providing spare components, they will gain huge economic benefits. Besides, for patent holders, in order to drive the upgrade cycles of their products, they apparently prefer replacement over repair[6]. Nowadays, if a patented product has any problems, regardless of whether consumers or repairers have the professional ability to handle such issues, or whether third-party component manufacturers have the ability to manufacture spare components in patented products, any repair of products protected by patented technology may cause patent infringement disputes. Therefore, patent holders can easily use their patent rights to weaken or conceal consumers' right to repair.

Apart from economic harm to consumers, the decision to replace rather than repair also has a profound impact on environmental protection and conservation of resources. Take mobile phones for example. According to incomplete statistics, over 1.5 million phones sold in one year worldwide, causing an amount of more than fifty million tons of electronic waste. These electronic waste not only threaten human health, but also increase the resource waste for shipping and disposal[1].

In conclusion, motivated by economic and environmental justice imperatives, the right to repair movement is expanding worldwide[11]. At the same time, effective resistance has occurred from device makers and patent holders. Such situation has pressured the authorities to realize the current legal loopholes and take measures such as legal interpretation and legislation.

Part 1 of this article focuses on the current legislation situation worldwide, in which details of America is specially presented since it is the origin of the right to repair movement. Part 2 will discuss the potential conflict between repair behavior and patent law and drives a sub-conclusion that there is no conflict when the components are not replaced. Part 3 of this Article details the legal basis of right to repair and the subordination of indirect infringement. After that, it categories the resources of components and analyzes three types of sources for obtaining components separately, which will all lead to the risk of patent infringement in the maintenance.

2. Legislation Status Worldwide

This part will separately discusses the current legislation status in America, Australia and Europe.

2.1 American Legislation Status

In 2012, Massachusetts enacted the Motor Vehicle Owners' Maintenance Rights Act (signed into law in 2013). The bill stipulates that car manufacturers must provide spare components and repair information to consumers and repairers. Moreover, maintenance tools must also be provided by the manufacturer. Manufacturers should also build a platform that provides in vehicle diagnostic and maintenance information. The Massachusetts bill soon pose an effect to the automobile maintenance industry nationwide. Soon after that, the automakers and repair providers reached an agreement that, contracting parties are bound to the bill[10]. Since then, there has been several attempts to enact broad legislation targeted at repairs in a variety of industries at the federal and state level. However, these attempts face a huge amount of resistance from device makers.

Enacted in 1998, the Digital Millennium Copyright Act (DMCA) includes various updates to copyright law and patent law to better facilitate the robust development. However, scholars take the position that, “[i]ndeed, a right to repair may not be easily reconcilable with the United States’ far-reaching intellectual property rights regime”[5].

2.2 European Legislation Status

The EU sets the goal of establishing maintenance rights on environmental protection. The purpose of environmentalist is that, by expanding the use of maintenance, the usage time of electronic devices can be extended, ultimately reducing the generation of electronic waste. They believe that it will not only reduce the waste generated during the production of new products, but also reduce the costs of waste disposal logistics, labor, and so on. The EU has introduced regulations on electronic device maintenance, requiring manufacturers to provide spare components for these devices for at least seven years from the date of purchase. The EU's approach is to reduce obstacles to maintenance, so that consumers can choose economical and environmentally friendly maintenance methods. And over the years, repair cafes has become increasingly popular in Europe[8]. The repair cafe is a place where there are volunteers with various repair skills. People can bring things that need to be repaired there in order to get free repair services.

2.3 Australian Legislation Status

In Australia, there has been growing attention to right to repair concerning policies and litigation. Amoung all, the filed of agricultural machinery is the point[9]. The use of agricultural machinery is mainly in the rural and suburban areas, where it is inconvenient to get repair services. Once the machinery breaks down, it is difficult to obtain timely repair, leading to a decrease in farmers' income. Thus, the Australian Competition and Consumer Commission (ACCC) is required to offer services about repair learning and components necessary. However, the ACCC seems to not agree so. It claims that unprofessional maintenance will lead to more environmental pollution and delay farming. The right to repair movement in Australia calls for more systematic reforms.

3. Potential Conflicts between Repair Behavior And Patent Law

For the purpose of argumentation, it is assumed here that the replaced new component itself is not a patented product, and the technical features of the patented method or patented product that the repair agent is accused of implementing fall completely within the scope of protection of the patent claims. The product owner can repair the product in two ways, as discussed below:

3.1 Situations Where Components Are Not Replaced

Although patent law poses no prohibition to consumers to repair their own products, it does give device makers ways for curtailing repair. According to the principle of patent exhaustion, the patent holder can not claim patent infringement after the patent products are sold. In other words, the product holders can repair their own product with no replacement of components within non independent patent if they want. In this case, the repair behavior of the product and the reconstruction behavior for non production and business purposes by all parties do not constitute patent infringement. For example, a person can remake a water dispenser purchased for personal use in any form, and a company can use the purchased water dispenser for office use and repair it. Of course, such behavior by enterprises is likely to involve the determination of "repair", which should be analyzed on a case by case basis based on multiple factors such as the claims and the product's service life. However, due to the fact that this repair behavior does not replace components, and most cases involving disputes over the definition of "repair" and "reconstruction" involve factual repairs of components in combination patented products, it has little value in this rare case of reconstruction behavior by the actor.

3.2 Situations Where Components Are Replaced

When existing components malfunction or become unusable, the owner needs to repair the product by replacing the components. It goes without saying that if everyone purchases components and repair products solely for non production and business purposes with no infringement of patent rights. But the principle of patent exhaustion is not applied to the manufacturing of a new device, which means patent dispute arises when the repair for the device are deemed to be a reproducing. From the perspective of the theory of balance of interests, the repair of patented products should not decrease the price of the patented products, and the patentee can still recover their investment in intellectual activities, which is a reasonable basis for acknowledging that the repair of patented products. But if the legitimacy of reproducing is recognized, it will indirectly encourage free riding behavior, resulting in patented technology or products being freely used by anyone[2]. The market competitiveness and profits of patented products lacking legal protection are declining, which will inevitably affect the creative passion of patent holders.

4. Further Analysis on the Situation of Replacing Components

To analyse this question clearly，this chapter will first clarify the connection between the principle and right to repair by exploring the legal basis of the principle. Then it will explain that the indirect infringement is subordinate. After clarifying the above basic theories, this article divides the source of components into three categories and discusses them separately.

4.1 The Principle of Patent Exhaustion and Right to Repair

The principle of patent exhaustion, also known as exhaustion of rights or first sale doctrine in America, refers to patent exhaustion on a single product after putting the patented product into circulation in the market. When others sell, rent, or import the product again, the patentee has no right to interfere. Its purpose is forming a balance between the private interests of patent holders and public interests the modern system of intellectual property aims to achieve.

The legal basis of the principle of patent exhaustion includes both respect for patent rights and consideration of social welfare in commercial circulation[7]. After the sale of patented products, the patentee cannot restrict the reasonable maintenance and use of the products. This is out of respect for the ownership of the property owner. However, the exhaustion of the patent holders' rights is subject to conditional limitations. The patentee does not exhaust all rights, but only the right to sell and the right to promise to sell. The manufacturing rights are not exhaustive. Therefore, even after the patented product is sold, the product holder still cannot copy or reproduce the product.

4.2 Subordination of Indirect Infringement

Direct patent infringement refers to the act of a person directly causing infringement of another person's patent rights without the intervention of any other person's actions. Indirect patent infringement refers to the act of intentionally inducing, encouraging, or inciting others to implement a patent by indirectly providing non patented products related to the substantive features of the patent, rather than directly implementing the patented technology of the patentee, in order to create conditions for the occurrence of direct infringement. Establishing an indirect infringement system expands the scope of patent protection to components that are not protected by their own claims.

There are two different theoretical views on the relationship between direct infringement and indirect infringement: one is the subordination theory, which holds that the establishment of indirect patent infringement must be based on the occurrence of direct infringement; Another is the

independence theory, which holds that indirect infringement is an independent infringement, and the existence of direct infringement does not affect the recognition of indirect infringement[4]. Currently, the majority of scholars hold the view of subordination theory, as the system of indirect infringement has developed from joint infringement. China also adopts the theory of subordination. The indirect infringement system has not been directly introduced yet, but such behavior is generally defined as a form of joint infringement, where the direct infringement of a patent and the inducer or helper take joint responsibility. In this case, the actions of the component supplier do not constitute patent infringement.

4.3 Specific Discussion on Different Maintenance Entities

Owners can purchase new components in three ways: one is from the product patent owner or authorized distributor, one is self manufactured by 3D printing, and the third is from an independent manufacturer. The nature of the behavior of third parties also needs further exploration.

4.3.1 Getting Components from the Patent Holder or Authorized Distributor

The interests of patent holders mainly manifest in the monopoly benefits they enjoy from their patents. Usually, the real purpose of preventing reproducing behavior is not to restrict buyers of patented products from repairing them, but to prohibit other companies from producing products and buyers from repairing patented products, replacing damaged or malfunctioning components. As for the first purchasing method, if consumers purchase from the product patent holder or authorized distributor, it means that the profits from the repair stage of the product, directly or indirectly, ultimately flow to the patent holder. In this situation, regardless of the factual composition, the monopoly interests of the patent holder have been substantially protected, and there will not be a foolish patent holder who will sue the court to determine that their company has infringed.

4.3.2 3D Printing during Self Manufacturing

Traditionally, manufacturing any product (even just one) requires significant costs, and based on this cost and difficulty, traditional patent law believes that personal manufacturing for non production and business purposes will not have a particularly significant impact on the interests of the patent holder. But with the help of 3D printers, consumers can also replicate any part or all of the product themselves without investing too much effort. Especially when patented products are durable goods, the economic benefits that can be obtained by providing new components may even exceed the benefits brought by the sale of patented products themselves. If 3D printing technology is combined at this point, everyone can supplement consumable components based on personal use purposes, which greatly damages the interests of the patent holder. In this context, simply applying the model of "legal repair, illegal reconstruction" is obviously unreasonable. Regarding the regulation of patent law on this, an open attitude should be maintained to seek a better balance between patent holders and public interests under the new manufacturing model.

4.3.3 Getting Components from Independent Manufacturers

If everyone purchases components from an independent manufacturer to repair the product, whether the supplier of the components constitutes indirect infringement? It is worth exploring whether the supplier of the component constitutes indirect infringement and whether it is based on the premise of repair infringement by all parties. If everyone directly infringes, it naturally constitutes one of the prerequisites for indirect infringement by the components supplier, and in this case, it goes without saying. If the maintenance behavior of all parties is not for profit, according to

the exhaustion of rights theory, the patentee also has no right to request a third party to bear infringement liability. As mentioned earlier, the subordination theory should be adopted. Therefore, when the reproducing behavior of the product owner is not for profit, the component supplier constitutes indirect infringement.

5. Conclusion

It is unfair that the consumers can only choose the manufacturer designated repairer and pay a higher price when their own products are at fault. So it is necessary to pay attention to the recognition of right to repair. Without replacing the components, exercising this right by consumers will not result in any patent infringement. When replacing components, there is a risk of infringement as long as they are not purchased from the source specified by the manufacturer. Unified legislation is still needed to achieve top-level design for the protection of maintenance rights and interests.

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