

Impact of Expressions Limiting Environment of Use on Claim Construction

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On 21 December 2006, the Beijing No. 2 Intermediate People's Court accepted *Epson v. Guangzhou Maipu Science & Technology Co., Ltd.*, a case of patent infringement involving matters of how to construe claims containing expressions limiting the environment in which a device is used, how to determine essential technical features and how to apply the estoppel doctrine. This article is meant to further explore these issues.

I. Review of the case

Epson was the owner of the Chinese Patent 200410001693.2 granted on 16 August 2006 for the invention of "ink-jet printing apparatus and ink cartridge therefor." Epson held that the 11 types of MIPO brand ink cartridge products made and marketed by Maipu and sold by the Chaoyang Department Store had infringed its patent right, and sued them in the Court. In this case, claim 1 on the basis of which the scope of protection for said patent was determined went like this:

1. An ink cartridge for detachably mounting on a carriage of an ink jet printing apparatus to supply ink to a print-head of the printing apparatus through an ink supply needle, said carriage having a lever with a concave portion formed thereon, said ink cartridge comprising:

an ink container for containing ink to be supplied to the printhead, said ink container having a bottom wall and side wall;

an ink supply port for receiving said ink supply needle when said ink cartridge is mounted on the carriage, and the position formed on the bottom wall is closer to one side wall, rather than the other sidewall; a circuit board installed on said one side wall;

a plurality of electric contacts provided on said circuit

board, when said ink cartridge is mounted on the carriage, for electrically connecting contract (29) of the printing apparatus;

and an overhanging member for engaging with concave portion of the lever of the ink jet printing apparatus, said overhanging member extending, at the location further away from the bottom wall than the circuit board, from said one side wall in a direction away from said other side wall, so that it overhangs said circuit board.

Amendments were made to claim 1 of the text of the granted patent on the basis of the initial text of the application; one of the most important amendments was the added definition of the carriage for mounting the ink cartridge in the preamble of the claim¹, namely "said carriage having a lever with a concave portion formed thereon".

Upon hearing the case, the first-instance court held that said patent related to an ink cartridge mounted on a carriage of a specific ink jet printing apparatus, namely, claim 1 not only defined the structure of the ink cartridge, but also clearly described the structure of the carriage engaged with it while the alleged infringing products only had the structure of the ink cartridge, without the technical feature of the carriage. Accordingly, the court held that the alleged infringing products did not constitute an infringement of Epson's patent.

II. How to construe the claim

Article 56, paragraph one, of the Chinese Patent Law provides: "the extent of protection of the patent right for invention or utility model shall be determined by the terms of the claims. The description and the appended drawings may be used to interpret the claims". Under this provision, scope of protection of the claims of the present case should be determined on the basis of claim 1 of the text of the granted patent. Since the applicant had amended claim 1 in the course of patent applica-

tion prosecution, it was necessary to consider the impact of said amendment on the claim construction.

1. Point at issue in the present case

The preamble of the text of the granted patent was: “an ink cartridge for detachably mounting on a carriage of an ink jet printing apparatus to supply ink to a printhead of the printing apparatus through an ink supply needle, said carriage having a lever with a concave portion formed thereon.”

If it had only been stated in claim 1 that “an ink cartridge for detachably mounting on a carriage of an ink jet printing apparatus, said ink cartridge comprising ...”, we might have construed that said claim sought to protect an ink cartridge used under the environment of “mounting on a carriage of an ink jet printing apparatus”. Then, it was impossible to be concluded that definition of the structure of the carriage was also one of the ink cartridge, or it constituted the technical feature of the ink cartridge.

But claim 1 of the granted patent contained the definition of the structure of the carriage, namely, “said carriage having a lever with a concave portion formed thereon”. Did such definition constitute a technical feature of the ink cartridge, or the environment under which it was used? To what extent it impacted and acted on the scope of protection of said patent? This is vital to patent infringement establishment, and the views held by the plaintiff and the defendants stood in sharp opposition. For the plaintiff, the definition of the structure of the carriage was description of the environment of use, and did not constitute a technical feature of the ink cartridge whereas the defendants argued that it constituted a technical feature of the ink cartridge. If the definition of the structure of the carriage constituted a technical feature of the ink cartridge, then it would be easy to determine whether the alleged infringing article fell within the scope of protection; hence this was a “matter of life and death”, for which both parties had to stand fast, and would not yield a single step.

2. Law provisions on and previous practice in claim construction in China

The aforesaid “on the basis of the content of the claims” is the basic principle for claim construction in China. A case of patent infringement is generally heard based on the independent claim having the broadest scope of protection, and the independent claim is drafted in such a way as specified in Rule 22, paragraph one, of the Implementing Regulations of the Patent Law: “an independent claim of an invention or utility model shall contain a preamble portion and a characterising

portion, and be presented in the following form:

(1) a preamble portion: indicating the title of the claimed subject matter of the technical solution of the invention or utility model, and those technical features which are necessary for the definition of the claimed subject matter but which, in combination, are part of the most related prior art;

(2) a characterising portion: stating, in such words as ‘characterised in that ...’ or in similar expressions, the technical features of the invention or utility model, which distinguish it from the most related prior art. Those features, in combination with the features stated in the preamble portion, serve to define the scope of protection of the invention or utility model.”

It is thus made clear that to implement the principle of “on the basis of the content of the claims”, both the “preamble portion” and “characterising portion” should be taken into account together under Rule 22 of the Implementing Regulations of the Patent Law to determine the scope of protection accordable to an invention or utility model.

Rule 21 of the Implementing Regulations of the Patent Law² has provided that the basic element of an independent claim is the essential technical feature. But, for various reasons in practice, it is still possible for a patentee to incorporate a non-essential technical feature in the independent claim. In the past, a “non-essential technical feature” was believed to be the “redundant designation”. In construing claims, features of “redundant designation” may not be taken into account. This view is known as the “redundant designation doctrine” in the IP community. According to this view, when construing a claim, the court should first make clear whether an independent claim contains any non-essential technical feature.

The “redundant designation doctrine” is meant to seek substantial justice or fairness; it was justifiable, and made it possible for the court to flexibly decide a case under this doctrine in the early days when the patent system was just put in place in China. But the “redundant designation doctrine” has much of its own drawbacks. The content of the claims of a granted patent are still under constant change, and need to be adjusted by the court. Claims which are not certain would affect the authority of the patent system, and diametrically different views are held on the issue in the IP community. Regarding this, the Supreme People's Court expressly noted in a case of review in 2005³: “it should be held that all the technical features a patentee puts in the independent claim are essential technical features that should not be

disregarded, and all be incorporated in the technical features. This Court is against rashly drawing on and applying the so-called ‘redundant designation doctrine’.

As for the present case, the consensus may be arrived at under the Implementing Regulations of the Patent Law and the Supreme People’s Court’s judicial view: the definition of the “carriage” in the present case should be taken into account in determining the scope of protection of the patent in suit.

3. How to deal with the impact the “carriage” in the preamble had on the determination of the scope of protection

As discussed above, the limitations contained in the claims should all be taken into account in determining the scope of protection of a patent. In the present case, the lawyer of the patentee noted that the “carriage” in the “ink cartridge for detachably mounting on a carriage of an ink jet printing apparatus” as described in claim 1 merely showed the environment of use, and the claimed subject matter was nothing but a “ink cartridge”, the relations among the “printing apparatus”, the “carriage” and the “ink cartridge” should be duly figured out. Obviously, the “carriage” and the “ink cartridge” are both parts of the “printing apparatus”, and the “carriage” should not be detached from the “printing apparatus”, and it should be put together with the “ink cartridge”. This view of global construction of claims is also confirmed in the patent system in the United States.

§2111.02 of the US Manual for Patent Examination is concerned with the impact of the “purpose” and “use” limitation in the preamble on claims construction. In *Catalina Mktg. Int’l v. Coolsavings.com, Inc.*, the USPTO noted: “the determination of whether a preamble limits a claim is made on a case by case basis in light of the facts in each case”⁴. The key lies in the analysis of the contents contained in the preamble to find out whether it had any substantial impact on the determination of the scope of protection.

In *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, the US CAFC noted: “if the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is ‘necessary to give life, meaning, and vitality’ to the claim, then the claim preamble should be construed as if in the balance of the claim”.⁵ And in *Kropa v. Robie*⁶, the court noted: “we hold that it (abrasive article) is a limitation which is material to the issue, and must be observed.” The court further pointed out: “the introductory clause merely recites a property inherent in the old composition defined by the remaining part of the claim. In a process

claim, where every physical step is anticipated by a reference, the introductory clause stating the purpose of the process is not a limitation, as it is immaterial what purpose the patentee had in mind.”

Anyway, for the US Court, purpose or environment of use as stated in the preamble must be evaluated in the examination to see whether it had caused any structural difference between a claimed invention and the prior art (for a process claim, whether there would be any operational difference), if there are, it shows that it limits the claim.

Similar to the above US views, Section 3.11, Chapter 2 of Part 2 of the Guidelines for Examination in China makes the point quite clear: “for a product claim the subject matter title of which contains definition by use, the definition by use shall be taken into account in determining the scope of protection of the product claim. However, the actual definitive effect of the use definition shall depend on the impact it had on the claimed product *per se*. for example, a claim the subject matter title of which is a “mould for molten steel, wherein the use definition “for molten steel” has definitive effect on the subject matter “mould”. Therefore “a plastic ice cube tray” with a melting point much lower than that of “mould for molten steel” would not come within the claim, because it is impossible to be used as a mould for molten steel. However, if the definition such as “used for ...” has no impact on the claimed product or device *per se* and is only a description of the use or manner of use of the product or device, then it has no influence in determining for example whether the product or device has novelty or involves an inventive step. Another example is a “compound X for use in ...”. If the phrase “for use in ...” has no influence on the compound X *per se*, then the use definition “for use in ...” has no definitive effect in the determination of whether or not the compound X has novelty or involves an inventive step”.

As for the impact of description stating the intended purpose and mode of use of a product or device in the claim, considerably consistent view is held in China and the U.S.: in claim construction, the impact of expressions used should be considered. If the description is material to the scope of protection, then it limits the claim.

III. Analysis of and reflection on limitation of the structure of carriage

1. Limiting structure of carriage is an “essential technical feature”

In the present case, the fact worthy noting is that in the text of the application, the “carriage” is present in the title of the subject matter as the installation environment: “an ink cartridge for mounting on a carriage of an ink jet printing apparatus”. But in the text on which the patent in suit was granted appeared the definition of “said carriage having a lever with a concave portion formed thereon” as in the amended claim. Why did the applicant put the definition of specific structure of carriage in the claim? The most common reason is for making it possible for the technical solution claimed in the claim to meet the requirement of novelty and inventiveness and sufficient disclosure and for the application to be granted the patent right. In other words, without such definition, it is quite unlikely for the application to be granted the patent. For that matter, regardless of whether the amendment was made by the applicant on its own initiative or passively as required by the examiner, importance should be attached to this amendment and the amendment should be respected in the follow-up proceedings. The basic principle of “on the basis of the content of the claims” is a requirement concerning the public, and, as well, means “estoppel” to patentees.

The description of “an ink cartridge for mounting on a carriage of an ink jet printing apparatus” showed that the claimed “ink cartridge” was to be mounted on the “carriage” for it to work properly. If said ink cartridge were mountable on a carriage of any printing apparatus, then limiting the environment of use would be quite unnecessary. But the definition of “said carriage having a lever with a concave portion formed thereon” was given later on, which showed that if the carriage did not have the feature of “said carriage having a lever with a concave portion formed thereon”, it then would be impossible for the ink cartridge to be mounted on the printing apparatus. Further, the definition of the carriage was involved in two places in the subject matter portion of claim 1; one was that “an ink supply port for receiving said ink supply needle when said ink cartridge is mounted on the carriage”; the other was “a plurality of electric contacts provided on said circuit board, when said ink cartridge is mounted on the carriage, for electrically connecting contract of the printing apparatus”. It was thus shown that the ink cartridge and the carriage were so closely related that they had a bearing on whether the ink cartridge could work normally. Lack of a carriage having the specific structure would affect the ink supply and the electric contacts of the contacts. Therefore, under Rule 22 of the Implementing Regulations of the Patent Law or according to the

US experience, limiting the structure of the carriage was both essential technical features.

2. Understanding of the concept of “essential technical feature”

In its Judgment⁷, the first-instance court made a detailed analysis of whether the carriage was an essential technical feature. It is argued in this article that the court actually examined the essential technical feature in the civil procedure under the influence of the redundant designation doctrine, and this practice is open to question.

The concept of “essential technical feature” was originated from the provision of Rule 21 of the Implementing Regulations of the Patent Law, which provides that the “essential technical feature” is the basic construct “globally reflecting the technical solution of an invention or utility model and stating the technical problem said invention or utility model is intended to resolve. This shows that “the essential technical feature” is closely related to “the technical problem to be resolved”, with different essential technical feature directed to different technical problem. But the “technical problem to be resolved” is something subjectively recognized by an inventor. For example, an inventor may think his technical solution can resolve two technical problems. When the examiner has searched the closest reference and believes that one of the technical problems has already been resolved, then the inventor would step back and redefine the “technical problem to be resolved”, then the essential technical features would change correspondingly in number and in meaning. It is worth noting that if a technical solution lacks essential technical feature, then it would not achieve the goal for the invention to resolve the target technical problem, or not vise versa, if a technical solution resolves a target technical problem, it does not mean that all the technical features are essential in the technical solution. There must be some features that are “added for even better result”. In the practice of examination, if the essential technical feature is missing in a technical solution according to the technical problem an invention is intended to resolve, the examiner is obliged to clearly point it out in the office action; but in the presence of an essential technical feature in a technical solution, the examiner is not obliged to point out the presence of any “non-essential technical features” in the technical solution. For they would not affect the grant of the patent right.

The concept of “essential technical feature” is a transitional tool in the phase of patent examination. Once a patent is granted, the concept of “essential technical feature” be-

come unnecessary. In other words, in patent infringement litigation, the court has to “base its decision on the content of the claims”, it is not empowered to find out which technical feature is, or is not, “essential” in the claims. What the first-instance court did has actually challenged the decision made by the patent administrative authority. But, within the civil law system, with division of the judicial and administrative power and function, the court is not empowered to review the administrative authority’s grant of a patent right. This is where the court are required to stay out. For that matter, Article 56 of the Patent Law does not provide that the scope of protection of an invention or utility model should be based on the “essential technical features of the claims”.

To conclude, the concept of “essential technical features” is one of the tools used during the patent examination. Once a patent is granted, all the technical features present in the claims are essential ones, and should be equally respected. Since they are all essential, it is unnecessary for the court to distinguish the essential technical features from non-essential ones in the claims in their trial of a case.

3. How patentees should take proper litigation strategy to make his claims

According to the preceding analysis, if the “carriage” is determined as an essential technical feature, then the ink cartridge the patentee claims was actually an “ink cartridge” used on a carriage of a particular structure. But the defendant’s ink cartridge under the notarised preservation did not relate to the “carriage”, which makes it very difficult to determine that the alleged infringing ink cartridge fell within the scope of protection of the patent in suit. Did this, however, mean that it was impossible for the plaintiff to cease the defendants’ act on the basis of its patent right. This is not necessarily so. During the first-instance trial, the defendants admitted that their products were compatible with the plaintiff’s patented products. If the plaintiff could find evidence and the ink cartridge mountable on the printing apparatus and compatible with the plaintiff’s patented product, and notarised it together with the printing apparatus, it would be possible to sue both the distributor of the printing apparatus and the ink cartridge manufacturer in the court. Then, the two defendants would find it difficult for them to make their defence on the ground that their ink cartridge had no carriage.

IV. Conclusion

This article has presented an analysis of the impact of

the expression limiting the environment of use in the preamble portion of the claim on the determination of the scope of protection of a patent. A claim should briefly and clearly show what basic constructs (namely technical features) constitute the solution claimed in the patent; hence most limitations of environment and field of use should be specified in the description. It is unnecessary to present all of them in the claims. In determining the scope of protection of a patent, account must be taken of the impact of the environment and field of use in the preamble portion on the scope of protection. Expressions that are merely descriptive would not have much impact on the scope of protection. If these expressions are added in the amendment to meet the requirement imposed during the patent examination, they generally constitute limitation to the technical features, and material to the determination of the scope of protection of the patent. ■

¹ There are three parts in a claim: a preamble, a transition, and a body. See Janice M. Miller, *A General Introduction to Patent Law*, the CITIC Publishing House, 2003, P.46.

² Rule 21 of the Implementing Regulations of the Patent Law provides: “the claims shall have an independent claim, and may also contain dependent claims. The independent claim shall outline the technical solution of an invention or utility model and state the essential technical features necessary for the solution of its technical problem.”

³ See the Supreme People’s Court’s Civil Judgement No. Mintizi 1/2005, <http://www.chinainrlaw.cn/file/200509135721.htm>.

⁴ See *Catalina Mktg. Int’l v. Coolsavings.com, Inc.*, 289 F.3d 801, 808, 62 USPQ2d 1781, 1785 (Fed. Cir. 2002).

⁵ See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).

⁶ See *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

⁷ See the Beijing No. 2 Intermediate People’s Court’s Civil Judgment No. Erzhongminchuzi 527/2007: “this court held that as said carriage has a lever with concave portion thereon is semantically construed, there is not any other expressions that have made the expression modify the ‘ink cartridge’ to show the use of the said ink cartridge. Therefore it is determined that this expression is parallel with ‘said ink cartridge comprising’; ...; As the 26 drawings of the description show, the carriage was directly and indirectly described in 19 places thereof. How to perform the technical function of the carriage in the present invention patent has been described many times in the embodiments of the description. For all the above factors, it is easy for a person skilled in the art to find out that the technical feature of the carriage is an important part of the technical solution of the present patent.” <http://bjgy.china-court.org/public/detail.php?id=61608>