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Analysing Supreme Court cases on the doctrine of equivalents

Feng Zheng of Wanhuida Peksung analyses a number of Supreme Court rulings on the doctrine of equivalents, including those concerning the all element rule and process patents

To find out whether a technical solution falls within the scope of protection of a patent, literal infringement and the doctrine of equivalents are the major rules to consider. Literal infringement is easy to understand – the accused technical solution falls within the scope of protection of a patent if its features are identical to every feature of a patent claim. The doctrine of equivalents means that a technical solution falls within the scope of protection of a patent if its features are not identical to, but are equivalent to every feature of a patent claim. The doctrine of equivalents grants the patentee broader protection, but determining what is equivalent can be complex. As there are no explicit provisions in patent law, China's doctrine of equivalents is established through judicial practice and was first provided as a uniform rule by the judicial interpretation issued by the Supreme People's Court (the court) in 2001. To determine equivalence, courts will examine each technical feature of the accused technical solution and ascertain whether they use substantially the same means, perform substantially the same function and produce substan-



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tially the same effect so much so that it can be contemplated by a person of ordinary skill in the art without inventive effort.

Despite the uniform rule of the doctrine of equivalents, lots of questions still remain unsolved. For instance, how does one coordinate this doctrine with other rules about limitation to patent protection scope? How does one apply the doctrine of equivalents in different scenarios? What are the limitations for the application of the doctrine of equivalents? These questions are answered or remain to be answered in judicial practice. We have selected several cases decided by the Supreme Court to illustrate some of these rules.

The *Zhilian Heat Supply* case – coordination of the all elements rule and the doctrine of equivalents

The *Zhilian Heat Supply* case discussed the coordination of the all elements rule and the doctrine of equivalents. In the early years of judicial practice, there has been little discussion on how to coordinate the doctrine of equivalents with other rules on limitations to the scope of protection of a patent claim. Courts usually only assess whether the accused technical solutions are of substantially equivalent means, function and effect as that of the patent. This case, for the first time, clarified how to coordinate the doctrine of equivalents and the all element rule.

The all element rule requires that for a finding of infringement, the alleged infringing technical solution must have all the technical features recorded in the patent claim. It was widely held that if an accused technical solution contains most of the technical features of the patent claim with only some features missing or revised to make the technical effect less superior to that of the patent, courts should still apply the doctrine of equivalents and find infringement. In the *Zhilian Heat Supply* case, the court clarified the boundary of the doctrine of equivalents and the all element rule.

The patent at issue covered a device for supplying heat. This device used an automatic air exchange device so that normal air pressure was maintained in the system, even if the system was

not running smoothly; it also adopted a water seal method to achieve system sealing and to reduce system oxygenation.

The defendant who was an ex-employee of the patentee invented the accused heat supplying device based on the patent at issue. The accused heat supplying device adopted a gravity seal method to achieve system sealing and to reduce system oxygenation. It had most of the features of the patent claim except for two features related to two of many parts of the device. Lacking these features, the accused device sometimes was unable to maintain normal air pressure. Therefore, it did not perform as well as that of the patent at issue.

The lower courts found that the defendant was acquainted with the patent and the removal of two technical features from the accused device was done to avoid infringement. The two missing technical features made the accused device exhibit an inferior technical effect, but it still had an equivalent function and effect to that of the patent. The lower courts thus found infringement based on the doctrine of equivalents.

The Supreme Court disagreed. The court took the all element rule into consideration to determine whether the doctrine of equivalents should apply. The court held that if the alleged infringing technical solution lacks one or more technical features of the patent claim, or the technical solution has one or more technical features that are neither identical nor equivalent to the corresponding technical features in the claims, courts shall not find infringement because the all element rule is not satisfied. Whether the lack of a patented technical feature in the alleged infringing technical solution leads to deterioration of technical function or technical effect is not a factor to be considered. Since the accused heat supplying device lacked two technical features of the patent claim, the doctrine of equivalents did not apply.

The case was selected as an exemplary case of 2009 due to its breakthrough finding that if the all element rule is not satisfied, the doctrine of equivalents should not apply.

The *Hot Water Bag* case – the doctrine of equivalents and process patents

The *Hot Water Bag* case discussed the application of the doctrine of equivalents for process patents. A process patent claim often consists of steps, one following another in sequence. The sequence of steps is usually viewed as limitation to the scope of protection of the patent. If the patent is silent over whether some of the steps could be switched in the sequence, it becomes an unsolved issue as to whether change of the step sequence still falls within the patent scope due to the application of the doctrine of equivalents.

In the *Hot Water Bag* case, the Supreme Court addressed this issue and held that the technical

function and technical effect should be considered when looking at the switched order of steps. This case was selected as an exemplary case of 2013.

The patent at issue covered a process for manufacturing a hot water bag. The patent claim at issue consisted of steps of the manufacturing process in sequence. The steps in dispute focused on step 6, adhering the bag mouth to the plug of the bag body through thermal bonding, and on step 7, trimming the outer shape of the bag body. The process sued in this case had the same steps in the exact sequence as that of the patent claim except for step 6 and step 7. It reversed the sequence of step 6 and step 7.

The defendant argued that his arrangement of sequence had a better technical effect. It could save space occupied by the processed products in the subsequent steps, which is convenient for rapid processing. It also improved processing quality and enabled the products to enter the inspection process directly.

The Supreme Court disagreed. The court found there was little technical effect claimed by the defendant. The main purpose of trimming in step 7 was to make the hot water bag body look presentable and close to an end product. The trimming in step 7 had a very limited technical effect to save space occupied by the processed product as claimed by the defendant, and putting step 7 ahead of or after step 6 did not have substantial influence on step 6. The court thus found that changing the sequence of step 6 and step 7 had no substantial influence on the whole process. The switch of these two steps had substantially equivalent technical function and technical effect, and thus the doctrine of equivalents should apply.

In the *Hot Water Bag* case, the court summarised the rule for process patents. The court will not necessarily take sequence of steps in process patents as limitations to the scope of patent protection, but rather, the court will evaluate whether the steps must be implemented in a specific order and whether switching steps will cause



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substantial differences to technical functions or technical effects to determine whether the doctrine of equivalents should apply.

The *Automatic Steam Exhaust Valve* case – stricter limitations to application of the doctrine of equivalents

The *Automatic Steam Exhaust Valve* case comprehensively discussed the limitation to the doctrine of equivalents, and the court applied a stricter rule for the application of the doctrine of equivalents in this case.

The patent at issue covered a structure for an anti-blocking automatic steam exhaust valve used for plumping for the purpose of preventing the leaking of water during the heat supply process. The dispute focused on a feature that “the upper surface of the cap is tapered”; in the accused infringing product, the corresponding structure was “flat”. The defendant argued that according to the patent, the tapered surface of the cap was to increase the sensitivity of the switch to prevent the water leaking, but the flat surface of the cap had no such function.

The lower court found that the doctrine of equivalents should apply because the defendant’s product was of substantially equivalent means, function and effect to that of the patent claim at issue.

The Supreme Court disagreed. The court found that the two structures around the disputed feature at issue (“the upper surface of the cap is tapered” and “the upper surface of the cap is flat”) were two technical means already commonly known by a person skilled in the art when the patent was filed. The patentee chose to limit the patent claim to the “tapered surface” rather than “flat surface”. This means that the patentee had excluded the latter feature from the protection scope of its patent. The doctrine of equivalents should not apply here, otherwise without certainty and predictability on the scope of patent protection, the public interest would be prejudiced. The court’s stand indicated a much more conservative rule: if a technical feature existed prior to the patent filing date but was not in-

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cluded in the patent claim, the patentee cannot ask for it back by claiming equivalence.

The court also discussed the rationale for the doctrine of equivalents. The doctrine of equivalents is to find a balance between reasonable protection to the patentee and the public interest. On the one hand, given that new technology might emerge after the patent filing date, when the infringement occurs, it would be unfair to the patentee if the infringer could circumvent infringement

liability by simply replacing some technical features of the patent with new technology without inventive effort. On the other hand, the public rely on the patent claims to exercise limitation to the patent scope, and the doctrine of equivalents should not be abused to harm the public reliance interest. The doctrine of equivalents should not be abused and the application of this doctrine should be considered in concert with other rules like the all element rule, dedication to the public and estoppel in order to reasonably balance the patentee’s interest and the public interest.

The *Automatic Steam Exhaust Valve* case is also a turning point in the court’s attitude to the doctrine of equivalents. The court reviewed past judicial practice and found that along with the development of a patent regime in China, quality of patent drafting has been improved, and the patent office now applies stricter requirements to patent drafting. Therefore, the need for the doctrine of equivalents to provide fair protection to poorly drafted patents has waned. The application of the doctrine of equivalents should be more rigid and cautious.

As a result of its comprehensive consideration of the application of the doctrine of equivalents, this case was selected as one of the exemplary cases of 2015.

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