Featured Article

Interpreting the Background Technology Exclusion Rule: the Framework, Case Discussions, and Practical Insights

In the *Paper Roll Sealing Device* case, the Supreme People's Court unequivocally stated that if a person skilled in the art, after comprehensively reading the claims, specification, and drawings, concludes that one of the objectives of the patent-in-suit is to overcome a technical defect in a piece of background technology, and that this objective is achieved by abandoning the technical solution of that background technology, then the scope of patent protection shall not be extended through the doctrine of equivalents to encompass technical solutions that contain said defect. This established the Background Technology Exclusion Rule in patent infringement adjudication. Subsequently, Article 10 of the "Interpretation (III) of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Patent Infringement Dispute Cases (Draft for Comments)" released on December 20, 2025, stipulates: "Where the alleged infringing technical solution possesses the defect of the prior art that is intended to be overcome as recorded in the specification, the people's court shall determine that it does not fall within the scope of patent protection." This draft interpretation further clarifies that under such circumstances, the people's court *shall* determine non-infringement, no longer premised on the doctrine of equivalents, thereby expanding the rule's applicability.

I. Introduction

The patent system, in essence, represents a delicate transaction—an inventor discloses their technical solution to the public in exchange for a period of exclusive rights. Within this transaction, the definition of "background technology" plays a pivotal role, demarcating the boundary between the public domain and private property, and determining the foundation upon which the inventor claims innovation. In recent years, the establishment and continuous expansion of the "Background Technology Exclusion Rule" in judicial practice have profoundly reshaped the boundaries of patent protection, exerting a far-reaching impact on the innovation ecosystem.

The so-called Background Technology Exclusion Rule dictates that in infringement proceedings, a patent applicant or patentee cannot assert patent rights over technical content that they have explicitly stated as belonging to the background technology during patent prosecution or invalidation proceedings. This rule stems from the specific application of the principles of good faith and prosecution history estoppel in patent law.

The *Summary of Key Points of Judgments from the Intellectual Property Tribunal of the Supreme People's Court (2022)*explicitly points out that if a person skilled in the art, after comprehensively reading the claims, specification, and drawings, concludes that one of the objectives of the patent-in-suit is to overcome a technical defect in a piece of background technology, and that this objective is achieved by abandoning the technical solution of that background technology, then the scope of patent protection shall not be extended through the doctrine of equivalents to encompass technical solutions that contain said defect.

With the deepening of judicial practice, the applicability of the Background Technology Exclusion Rule is becoming broader. Article 10 of the "Interpretation (III) of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Patent Infringement Dispute Cases (Draft for Comments)" released by the Supreme People's Court on December 20, 2025, stipulates: "Where the alleged infringing technical solution possesses the defect of the prior art that is intended to be overcome as recorded in the specification, the people's court shall determine that it does not fall within the scope of patent protection." This indicates that the draft interpretation further clarifies that under such circumstances, the people's court *shall* determine that the alleged infringing technical solution does not fall within the scope of patent protection, no longer requiring the doctrine of equivalents as a prerequisite, thereby making its scope of application more extensive.

Understanding and applying the above rules is of paramount importance for the parties involved. However, the application

of these rules is often directly tied to the specific technical solutions and factual circumstances of each case, necessitating further understanding and mastery of the boundaries and conditions for their application through rulings in individual cases.

In this article, the author aims to analyze several recent cases adjudicated by the people's courts, exploring the underlying connotations behind the literal meaning of these rules, with the hope of enabling readers to gain a deeper understanding and utilize these rules to protect their legitimate rights and interests.

II. Analysis of Typical Cases

2.1 The Paper Roll Sealing Device Case [1]

(1) The Patent-in-Suit

The patent-in-suit relates to a utility model device for sealing paper rolls by mechanical pressing (Utility Model Patent No. ZL201621299560.2).

The background technology section of the specification of this utility model describes a method that uses clamps to directly clamp and press on the circumferential surface of the paper roll, causing the tail of the paper and one or several outer layers of the paper roll to form a pressed portion protruding from the circumferential surface, thereby completing the sealing. The sealing quality of this method depends entirely on whether the clamp can press out a protruding portion on the circumferential surface, a factor highly influenced by the distance between the clamp and the center of the paper roll, making it extremely difficult to control. Consequently, the sealing quality of this method is highly unstable, and achieving the ideal sealing effect where the paper tail is pressed with only a single layer of paper is almost impossible.

The objective of this utility model is to provide a device for sealing paper rolls by mechanical pressing to overcome the defects in the aforementioned prior art.

Claim 1 of this utility model is as follows:

"A device for sealing a paper roll by mechanical pressing, comprising a first pressing member and a second pressing member, wherein a part of the paper material on the circumferential surface of the paper roll is pressed together by the first and second pressing members, characterized by further comprising:

a pressing mechanism for pressing the paper roll against the edge of the first pressing member, the pressing force applied by the pressing mechanism to the paper roll being sufficient to cause the circumferential surface of the paper roll to form a step-like deformation consisting of a recessed portion and a non-recessed portion at the edge of the first pressing member;

the relative position of the second pressing member to the first pressing member is such that the second pressing member can press the non-recessed portion of the step-like deformation onto the first pressing member, forming a pressed portion that bonds the papers together."

(2) Disputed Issue

In the alleged infringing product, the pressing mechanism presses the paper roll against the edges of both the first and second pressing members, causing the circumferential surface of the paper roll to form a step-like deformation at the edges of both pressing members.

In contrast, the pressing mechanism defined in the patent-in-suit is for pressing the paper roll against the edge of the first pressing member only, causing the circumferential surface to form a step-like deformation consisting of a recessed portion and a non-recessed portion at that edge.

The focal point of the dispute in this case was whether the pressing mechanism of the alleged infringing product could be deemed to fall within the scope of protection of this utility model patent through the application of the doctrine of equivalents.

(3) Judicial Reasoning

The court held that the technical solution of the patent-in-suit constituted an improvement over the technical means described in the background technology, which involved creating deformation at the edges of two clamps. Specifically, the patented solution achieved this by applying pressure via a pressing mechanism at the edge of the first pressing member to form the step-like deformation. In other words, the patented solution was precisely an improvement made based on that background technology. On the other hand, the pressing mechanism of the alleged infringing product pressed the paper roll against the edges of both the first and second pressing members to create the deformation, showing no substantive difference from the technical means of the background technology which created deformation at the edges of two clamps. Therefore, the alleged infringing product employed technical means that contained the technical defect recorded in the background technology of the patent-in-suit.

Ultimately, the court ruled that if the technical problem addressed by the patent-in-suit is raised precisely to overcome a technical defect existing in a piece of background technology, and its technical solution is an improvement made based on that background technology, and the alleged infringing technical solution shows no substantive difference from the solution of the background technology, then it is generally inappropriate to find infringement under the doctrine of equivalents.

2.2 The Screw Compressor Case [2]

(1) The Patent-in-Suit

The patent-in-suit relates to an invention concerning a screw compressor (Invention Patent No. ZL201280070723.8).

The background technology section of the specification of this invention describes a screw compressor wherein the motor shaft of the drive motor is directly or indirectly (e.g., via a drive belt or gears) connected to the rotor shaft of a compressor rotor. The rotor shaft of such compressors must be adequately sealed, as the compressor housing is under a certain pressure supplied by the screw compressor, which must be separated from compressor components not under that pressure or from ambient pressure. For such applications, "contact seals" are frequently used.

However, the involved rotor shaft of the compressor rotor rotates at very high speeds, causing this type of seal to result in significant power loss during the operation of the screw compressor, thereby reducing its efficiency. Furthermore, such "contact seals" are prone to wear, and if not carefully installed, are very susceptible to leakage.

The objective of this invention is to provide a robust and structurally simple screw compressor, thereby keeping the risk of wear and leakage to a minimum, enabling bearing lubrication and component cooling to be achieved in a very simple manner, and consequently allowing for better recovery of generated heat loss.

Claim 1 of this invention is as follows:

"A screw compressor, the screw compressor comprising at least the following parts:

- a compression chamber formed by a compression housing, in which a pair of intermeshing helical compressor rotors in screw form are mounted rotatably, said helical compressor rotors having rotor shafts extending in mutually parallel first and second axial directions;

- a drive motor provided with a motor chamber formed by a motor housing, in which a motor shaft is mounted rotatably, said motor shaft extending in a third axial direction and driving at least one of the pair of intermeshing helical compressor rotors,

characterized in that: said compression housing and said motor housing are directly connected to each other to form a compressor housing, whereby said motor chamber and said compression chamber are not sealed from each other, the screw compressor is a vertical screw compressor, and when the screw compressor is operating normally, the rotor shafts of the helical compressor rotors and the motor shaft extend in an axial direction forming an angle with or perpendicular to the horizontal plane;

where in the compression housing forms the base or bottom part of the compressor housing, and the motor housing forms the head or top part of the compressor housing;

where in the compression chamber is provided with an inlet for sucking in air, said inlet being arranged near the low-pressure end of the helical compressor rotors, which is the end of the helical compressor rotors closest to the head of the compressor housing, and the compression chamber is further provided with an outlet for discharging compressed air, said outlet being arranged near the high-pressure end of the helical compressor rotors, which is the end of the helical compressor rotors closest to the base of the compressor housing;

where in a fluid is provided in the screw compressor, said fluid cooling and/or lubricating both the drive motor and the helical compressor rotors;

where in the screw compressor is provided with a cooling circuit for cooling both the drive motor and the screw compressor, said fluid being able to flow from the head to the base of the compressor housing through said cooling circuit; said cooling circuit comprising cooling channels and the compression chamber itself, said cooling channels being provided in the motor housing;

where in the fluid is driven to flow through the cooling channels under the compressor pressure generated by the screw compressor."

Furthermore, paragraph [0015] of the specification states that the compressor housing and the motor housing are directly connected to each other, the motor driving the compressor is integrated into the compressor, and the compressor housing is a single unit. Paragraph [0016] states that, unlike what is common in known screw compressors where a part of the connection between the motor shaft and the compressor rotor is at ambient pressure and requires a structure passing through different pressure zones. Paragraph [0057], which states "Compared with embodiments of known screw compressors, there is no sealing part for separating the motor chamber and the compression chamber from each other," further clarifies the compressor structure defined by "not sealed from each other."

(2) Disputed Issue

The alleged infringing product featured a shaft seal on the shaft connecting the motor chamber and the compression chamber vertically. This shaft seal prevented gas and fluid from the compression chamber from leaking into the motor chamber, making the compression chamber a sealed, isolated space relative to the motor chamber, so that gas and fluid from the compression chamber could not enter the motor chamber.

In contrast, Claim 1 of the patent-in-suit explicitly defines that "said motor chamber and said compression chamber are not sealed from each other."

The focal point of the dispute in this case was whether the shaft seal in the alleged infringing product could be deemed to fall within the scope of protection of this invention patent through the application of the doctrine of equivalents.

(3) Judicial Reasoning

The court held that spatial communication between the motor chamber and the compression chamber was not achieved in the alleged infringing product. Although an oil drain pipe connected the motor chamber and the compression chamber, the check valve prevented fluid from flowing back into the motor chamber, meaning the spaces of the motor chamber and the compression chamber were not interconnected and were under different pressures. In the alleged infringing product, the motor chamber and the compression chamber were spatially isolated from each other by sealing components such as the shaft seal, which was clearly contrary to the inventive concept of the patent-in-suit. This technical solution represented precisely the defect in the prior art that the patent-in-suit aimed to overcome.

Ultimately, the court ruled that the technical means of employing a "contact seal" and achieving "not sealed from each other" were different, as were the technical effects achieved; therefore, they did not constitute equivalent technical features. Consequently, the alleged infringing product did not fall within the scope of protection of the claims of the patent-in-suit.

2.3 The Anti-burst Seed Tape Weaving Machine Case [3]

(1) The Patent-in-Suit

The patent-in-suit relates to a utility model device for an anti-burst seed tape weaving machine (Utility Model Patent No. ZL201520591610.3).

The background technology section of the specification of this utility model describes an existing seed tape weaving machine wherein the seed plate has a vertical structure, making it prone to seed bursting at the corner wheels, leading to uneven seed spacing in the woven tape. Additionally, because the weaving paper is too thin, it is prone to bursting at the corners. If thicker weaving paper is chosen, it is not easily decomposed after the seeds are sown.

The objective of this utility model is to provide an anti-burst seed tape weaving machine. By changing the seed plate to a horizontal, corner-free installation method, it aims to prevent seed bursting at the corners, thereby improving sowing level and quality, and enhancing agricultural production efficiency.

Claim 1 of this utility model is as follows:

"An anti-burst seed tape weaving machine, its structure comprising a frame, a frame platform horizontally arranged on the frame, on which are installed:

a seed plate assembly for placing seeds at intervals on a film tape,

a weaving assembly for performing spaced winding and weaving of seeds falling onto the film tape,

a winding assembly for winding the woven seed tape,

a thread-shifting assembly for reciprocally moving the woven seed tape along the axis of the winding assembly,

and a metering assembly for recording the rotation turns of the winding assembly and measuring the length of the seed tape;

the above-mentioned weaving assembly, metering assembly, thread-shifting assembly, and winding assembly are sequentially connected by the seed tape;

said seed plate assembly comprises a seed plate and a seed plate motor, the seed plate is horizontally installed on one side of the frame platform, the seed plate motor is installed on the frame, and the seed plate motor drives the rotational movement of the seed plate via a belt transmission mechanism."

(2) Disputed Issue

In the alleged infringing product, seeds are placed in a paper tape. In contrast, Claim 1 of the patent-in-suit defines placing seeds in a film tape.

The focal point of the dispute in this case was whether the "paper tape" in the alleged infringing product constituted an equivalent technical feature to the "film tape" in the patent-in-suit.

(3) Judicial Reasoning

The court held that the beneficial effects section of the patent specification only recorded that the patented technical solution overcame the problem of seed bursting at corners through structural improvement (changing the seed plate to a horizontal, corner-free installation method). It did not reflect any defect of the "paper tape" that the "film tape" overcame, or what beneficial effect replacing the "paper tape" brought. Although the background technology mentioned the defect of paper being too thin and prone to bursting, its focus was on structurally improving the seed tape weaving machine. It could not be determined that the "film tape" constituted an improved technical solution more conducive to preventing bursting compared to the "paper tape"; the "film tape" was not the inventive point distinguishing the patent from the prior art. Therefore, the "paper tape" and the "film tape" employed basically identical technical means, performed the same function, and achieved the same effect; they were equivalent. Consequently, the

alleged infringing product fell within the scope of patent protection.

This case is a typical example of accurately identifying the technical defect overcome by the patented technology in the determination of equivalence, thereby lawfully protecting the legitimate rights and interests of the patentee. Although the background technology section of the specification literally recorded two technical defects of the prior art, the beneficial effects section only recorded that the patented technical solution overcame one of these defects to achieve an improvement over the background technology. Therefore, whether the so-called other defect recorded in the background technology was overcome had no impact on achieving the patent's beneficial effects; that defect was not the one the patented technology aimed to overcome. Thus, possessing that defect did not preclude a finding of infringement under the doctrine of equivalents.

III. Practical Guidance

As discussed above, the Background Technology Exclusion Rule has been established in judicial practice, and its scope of application is becoming broader. Both patentees and alleged infringers should consciously strategize and manage risks surrounding the element of "the technical defect the patent aims to overcome" at various stages of the patent lifecycle.

Below, the author offers some practical suggestions from the perspectives of both the patentee and the alleged infringer, drawing on the aforementioned cases.

3.1 Practical Suggestions for Patentees

(1) When drafting a new application, the background technology section should not be overly detailed, nor should defects of the prior art be listed indiscriminately. In fact, each additional recorded defect may become grounds for the opposing party in a future infringement lawsuit to argue that the alleged technical solution possesses that defect.

Therefore, for patent applicants, it is crucial to draft the background technology prudently, recording only the technical defects that the patent genuinely aims to overcome, and avoid introducing existing technical problems unrelated to the inventive point of the patent, thereby preventing unnecessary admissions.

(2) During patent prosecution and invalidation proceedings, narrowing amendments to the claims or arguments made by the patent applicant or patentee may also constitute grounds for applying the Background Technology Exclusion Rule.

Therefore, when responding to office actions or invalidation requests, patent applicants or patentees should avoid overemphasizing that "a certain feature or features are key to distinguishing the patent from the prior art," as such

statements may be cited in infringement litigation to narrow the scope of protection or exclude the doctrine of equivalents.

(3) When the alleged infringer claims their technical solution is "the prior art that the patent-in-suit aims to overcome," the rights holder can attempt to argue from the following angle: that technical defect is not the target of the patent's improvement; it is merely an objectively described other problem in the background technology.

3.2 Practical Suggestions for Alleged Infringers

(1) Upon receiving a cease-and-desist letter, one can first read the background technology, technical field, and beneficial effects sections of the patent specification to identify the existing technical defects explicitly pointed out by the patent. Then, analyze whether the alleged infringing technical solution possesses that defect. If the answer is affirmative, one can argue that "the allegedly infringing technical solution possesses the defect of the prior art that the patent aims to overcome, and therefore does not infringe the patent right."

(2) During litigation, skillfully utilize the correspondence between the background technology and the beneficial effects. If the alleged technical solution possesses the defect indicated in the beneficial effects section of the patent, raise the "Background Technology Exclusion Rule" as an independent defense.

(3) Beyond the patent specification, statements made by the patentee during patent prosecution and invalidation proceedings, as well as the complaint or agency opinions in related cases, if they explicitly acknowledge that certain technology belongs to the prior art or possesses a certain defect, may all constitute grounds for applying the Background Technology Exclusion Rule. Therefore, alleged infringers should actively obtain these materials to vigorously assert that "the Background Technology Exclusion Rule should apply, and thus there is no infringement."

IV. Conclusion

In this article, the author has provided a detailed introduction and analysis of the establishment and expansion of the Background Technology Exclusion Rule in patent infringement adjudication.

Understanding and applying the above rules is of paramount importance for the parties involved. Therefore, the author hopes that through a comprehensive analysis of the relevant legal provisions and some recent cases from the people's courts, the underlying connotations behind the literal meaning of these rules can be explored, enabling readers to gain a deeper understanding and utilize these rules to protect their legitimate rights and interests.

Given the scope and limitations of this study, constructive feedback and critiques

from peers and experts in the field are warmly welcomed.

References

[1] (2021) Supreme People's Court IP Civil Final No. 860

[2] (2022) Supreme People's Court IP Civil Final No. 2438

[3] 2024 Typical Cases of Shandong Courts

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