

Patent Court Decision 2021Heo6177 of June 23, 2022

1. Case

Case No.: 2021Heo6177 Patent Canceled
Related Patent Applications: Patent No. 2, 146, 792
Decision Date: June 23, 2022

2. The Gist of the Decision

(1) Determining whether the present invention's inventive step is denied based on prior invention

In order to determine whether a particular invention's inventive step is denied based on prior invention, it is necessary to compare and judge the entire document of the prior invention that can be reasonably understood by the skilled person in the art and not to base the judgment solely on the selective descriptions that may serve as evidence to deny the inventive step. (Supreme Court Decision 019Hu12094 of Jan. 13, 2022)

(2) Assessing the Remarkability in Effect when Evaluating the Inventive Step

In determining whether the present invention has an inventive step, its unique effects should also be considered, as it is not easy to predict the effects of inventions solely based on its compositions, especially when they belong to the technical fields like chemistry and medicine.

Thus, in assessing whether the features of the present invention can be easily derived from the prior invention, the claimed invention's effects should be taken into account; and if they prove to be remarkable compared to the effects of the prior invention, its remarkability in effect will serve as strong evidence to support its difficulty of feature.

Even if it's difficult to judge whether the present invention shows difficulty of feature or not, the inventive step of the present invention cannot be denied if the invention shows remarkability in effect, either by proving to be different or quantitatively substantial. The remarkability in effect should be judged based on what's written in the invention's specification that can be inferred and understood by a skilled person in the art; and if the effects written therein are questionable, additional experimental data that does not exceed the scope of the contents of the description can be submitted after the filing date to specifically prove the effects of the invention. (Supreme Court Decision 2019 Hu10609 of April 8, 2021).

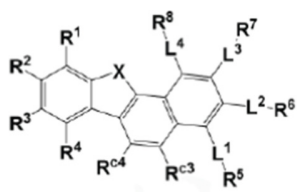
3. Details of the Case

(1) Factual Details

The defendant (applicant for revocation) filed a patent revocation claim, claiming that the patented invention in the following case could be easily invented from prior invention (Korean Patent Laid-open Publication No. 10-2013-002510).

In response, the plaintiff (patentee) submitted argument against the reason for cancelation while requesting correction on the scope of claim. The Intellectual Property Tribunal accepted the plaintiff's request for correction but cited the patent cancelation request on the grounds that the patented invention in this case can still be easily invented by the prior invention, and the plaintiff filed a lawsuit with the Patent Court for revocation of the trial decision.

The corrected invention of Claim 1 of this case (hereinafter, referred to as "the corrected invention") relates to a compound for an organic optoelectronic device



represented by the chemical formula having a parent structure of a heteroaryl ring. The corrected invention corrects "X is O, S, or CR^aR^b" to "X is O or S" by a request for correction.

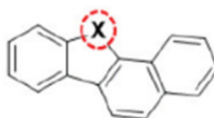
The prior invention does disclose that the heteroatom X of the parent structure may be -O-, -S-, -CR₁₂R₁₃-, or -NR₁₄-; however, all the compounds presented in the specific chemical formulas or described in its examples are OLED compounds in which X is N. Thus, whether "a compound for an organic optoelectronic device in which X is O or S" can be easily derived from the prior invention is the main issue here.

(2) Judgment by the Intellectual Property Tribunal

- A. The inventive step of the invention for a chemical substance shall be evaluated on the basis of the specificity of its chemical structure, properties, or use, and in the case of the invention for a chemical substance having a chemical structure significantly different from that of a known chemical substance, or in the case of a chemical substance having a unique property that is not predictable from a known chemical substance even though the chemical structure thereof is similar to the known chemical substance, or in the case of the invention for a

chemical substance having a property that is predictable from a known chemical substance having a similar chemical structure but is remarkable, it would be deemed that a person of ordinary skill in the art could not easily invent and thus the inventive step would be recognized; however, if this is not satisfied, the inventive step will not be recognized. (Patent Court Decision 2005Her10145 of Nov. 1, 2006).

- B. The corrected invention differs from the prior invention in that the X of the

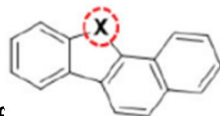


parent structure of the heteroaryl ring is specified as O or S.

However, the specification of the corrected invention lacks concrete and detailed descriptions of how the compound for organic electronic device having X as O or S as disclosed in the claims differs in its properties from the compounds for organic electronic devices where X is CR^aR^b or other known compounds comprising a heteroaryl nucleus and how selecting a particular atom as X in this heteroaryl nucleus structure yields special effects that a skilled person in the art cannot easily predict.

Thus selecting the X group of the nucleus structure as specified in the claims seems to bear no technical significance.

- C. The prior invention not only discloses in detail a compound that shares the same backbone and substituents with the compound described in the corrected invention but also lists the types of X that can be selected from the parent structure. Thus it can be deemed that a skilled person in the art encountering prior invention would have no difficulty deriving the compound described in the corrected invention by appropriately replacing X in the parent structure from N to O or S without difficulty.
- D. With regard to the effect, the specification of the corrected invention describes only the efficiency and lifetime of the organic light emitting device depending on the position of a specific heteroaryl substituent in a compound having a



nucleus structure of , and there are no descriptions about the

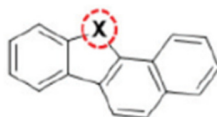
luminous efficiency and lifetime of the organic light emitting device including the compound depending on the type of X of the parent structure.

In addition, the specification of the corrected invention does not include specific comparative experimental data showing that the efficiency and lifetime are significantly increased when the compounds of the corrected invention are employed in place of the compounds specifically disclosed in the prior invention, particularly compounds in which X is nitrogen. Therefore, there is no basis to assume that the compounds of the corrected invention demonstrate qualitatively different effects compared to the prior invention, or that there is a significant difference in quantity even if there is no qualitative difference.

(3) Patent Court's Decision

However, the Patent Court canceled the Intellectual Property Tribunal's decision to cancel registration for the following reasons.

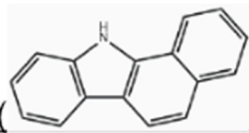
- A. The compound of [Chemical Formula 1A] of the corrected invention and the compounds of B-44, B-45, B-46, B-50 of the prior invention have the same parent structures and substituents and differ only in that in the corrected



invention X of the parent structure is O or S while in the prior invention it's N. In addition, considering that the specification of the prior invention states that X is -O-, -S-, -CR₁₂R₁₃-, or -NR₁₄-, changing X to O or S from the compound of the prior inventions seems very probable.

However, unlike inventions in other fields, it is not easy to predict the results of chemical reactions only with theories and common sense without direct experimentation, confirmation, and analysis.

A skilled person in the art reading the specification of the prior invention will



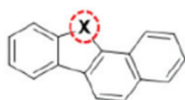
recognize that benzocarbazole () used as the scaffold will have a relatively excellent effect of action and will subsequently believe that changing X to O or S in the compounds of B-44, B-45, B-46, and B-50 of the

prior invention will result in the loss of technical significance of the prior invention.

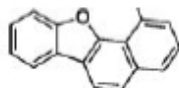
Thus it can be deemed that it would be hard for a skilled person in the art to make such changes without *ex post facto* analysis after reading the corrected invention.

- B. The defendant claims that since the prior invention discloses compounds of B-44, B-45, B-46, and B-50 and its specification discloses, in parallel and selectively, that X is -O-, -S-, -CR₁₂R₁₃-, or -NR₁₄-, a skilled person in the art can easily change X to O or S in the compounds of B-44, B-45, B-46, and B-50 of the prior invention.

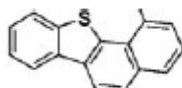
However, considering that the compounds of B-44, B-45, B-46, and B-50 of the prior invention are compounds for organic electronic materials in which the



parent structure is and X is NR₁₄, it is hard to say that the prior invention provide any motivation or indication to prompt a skilled person in the art to change the X of parent structure to O in order to obtain

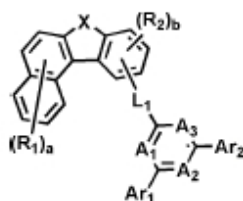


Benzodibenzofuran structure (



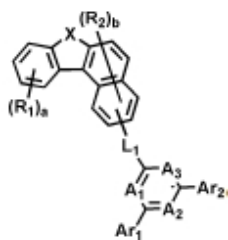
obtain Benzodibenzothiophene (, especially when it is much easier to change the substituents of the compounds B-44, B-45, B46, and B-50 of the prior invention.

In addition, the prior invention mentions certain 106 compounds as representative of organic electronic materials. Considering that most of these

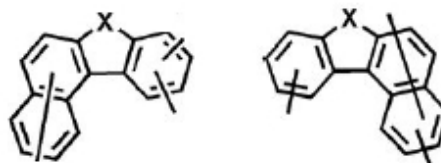


belong to [Chemical Formula 4]

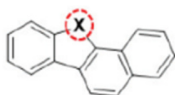
or [Chemical Formula 7]



, it is probable that a skilled person in the art would focus on the



compounds with parent structure or and try to change the chemical structure first. It seems improbable that a skilled person in the art would choose to focus on the compound with parent structure

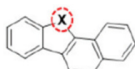


and then choose to focus on X and then subsequently make attempts to change X to O or S.

- C. The defendant claims that it is easy to derive the compounds corresponding to those in the corrected invention, because several prior inventions published before the filing of the present invention already disclosed, in parallel and selectively, O, S, C, N, and etc. as elements bonded to the X position of the heteroaryl ring.

However, determining whether the inventive step of Claim 1 of the corrected invention is denied based on the prior invention requires making judgments based on the entire prior invention that can be reasonably understood by a skilled person in the art.

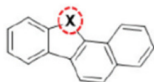
Therefore, even if the prior inventions list, in parallel and selectively, that elements such as O, S, C, N, and etc. can be bonded to the X position of the heteroaryl ring in the compounds for an organic optoelectric device of defendant evidences 4 to 17, it is hard to say that the above listing provides any

motivation or implication to change X of the parent structure  to O or S, either preferentially or easily, because each prior invention focuses on different compounds and structures.

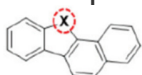
Therefore, it seems that the skilled person in the art will have to go through repeated trial and error while combining numerous options to reach the

compounds of the corrected invention from the compounds of the prior invention.

- D. Even if the effects of action for all compounds that have parent structure



and X is O are not disclosed in the specification of the corrected invention, a skilled person in the art can recognize or infer from the above description of the invention that in the case X is O in the parent structure



there is a remarkability in effect compared to the prior invention; and it will be allowed to specifically assert and prove the effect by submitting additional experimental data after the filing date to the extent that it does not exceed the scope of the description of the specification of the corrected invention, which states that the corrected invention has the effect of obtaining an organic optoelectronic device with high efficiency and long life.

The plaintiff confirmed that A6, A7, A8, and A9 compounds of [Chemical Formula 1A] of Claim 1 of the corrected invention had an improved effect compared to the compounds of B-44, B-45, B-46, and B-50 of the prior invention by yielding 49% or more in efficiency and 140% or more in lifespan; and also confirmed that the compound in which X is S among the compounds of [Chemical Formula 1A] of Claim 1 of the corrected invention showed an effect of improving efficiency and lifespan compared to the compound in which X is N by submitting an additional experimental data. Thus, the corrected invention has a remarkable effect.

- E. Considering the above circumstances altogether, it can be deemed that a skilled person in the art cannot easily derive the features of the corrected invention from the prior invention and that the corrected invention proves to have an improved effect; so the inventive step of the corrected invention is not denied by the prior invention.

4. Comments

The main issue here is whether the compound for an organic optoelectronic device in which X is O or S can be easily derived from the prior invention, considering that the compounds of the prior invention and corrected invention



share the same parent structure and substituents and that there is a literal description in the prior invention stating that heteroatom X of the parent

structure may be -O-, -S-, -CR₁₂R₁₃-, or -NR₁₄-, while the compounds presented in specific chemical formulas or described in examples are all compounds with X as N. Moreover, the corrected invention in which X is O or S can be seen as selected from the features of X that were listed as Markush format in the prior invention, and this leads to the possible interpretation that the corrected invention is a kind of selective invention.

In determining whether an invention that belongs to the category of a selective invention has an inventive step or not, the Korean patent examination practice has hitherto made judgments based on the remarkability in effect and not on the difficulty of feature, in light of the Supreme Court Decision 2008Hu736, 743 of October 15, 2009, which states, "In order for the inventive step of the so-called selective invention to not be denied of its inventive step, all of the sub-concepts included in the selective invention must have effects qualitatively different from those of the prior invention, or even if there is no qualitative difference there must be a quantitative significant difference, and in this case, the detailed description of the invention of the selective invention must clearly state said effects in comparison to the prior invention."

On the other hand, the recent Supreme Court Decision 2019Hu10609 of April 8th, 2021 has ruled that the conventional method of evaluating inventive step should be applied to selective inventions as well, stating, "This means that an inventive step of an invention is not denied if there is a remarkable effect in a case where difficulty in features is difficult to be recognized. Therefore, the inventive step of a selective invention should not be judged solely based on the remarkability of its effect without considering the difficulty of its feature, although the superior concepts of the invention are disclosed in the prior invention."

The Patent Court decision discussed here also meticulously judges whether the difficulty of feature of the corrected invention is recognized or not and states that, "If the difficulty in changing the structure of a specific compound of the prior invention is recognized in terms of the compound invention, then inventive step is recognized in itself." This decision seems to reflect the attitude of the Supreme Court Decision 2019 Hu1060.

In addition, the Patent Court of Korea assessed difficulty of feature based on the Supreme Court Decision 2019Hu12094 of January 13, 2022, which states "In order to determine whether the inventive step of the invention is denied based on the presented prior document, it is necessary to compare and judge the entire prior document that can be reasonably recognized by the skilled person in

the art and not to base the judgement solely on the selective descriptions that may serve to deny the inventive step of the invention."

In short, if it is shown that the entire content of the prior invention focuses on a benzocarbazole compound in which X is N and that the prior invention solves problems using this concept, a skilled person in the art encountering the prior invention will believe that the benzocarbazole compound exhibits an excellent effect, even if some parts of the prior invention describe that X may be O or S.

Thus it was judged that it is not easy for a skilled person in the art to decide to change X to O or S without *ex post facto* analysis after reading the corrected invention, since the decision causes the prior invention to lose its technical significance.

In summary, the Patent Court decision discussed in this paper proves to be a meaningful precedent in that it has ruled in favor of recognizing the inventive step of the corrected invention, which can be regarded as a selective invention, and that it reaffirms the legal principles upheld in the recent Supreme Court decision, which shows relaxed criteria for determining the inventive step of a selective invention and states that the inventive step should be determined based on the entire prior document that can be reasonably recognized by the skilled person in the art.