

A Study on Supreme Court Decision for Case No.: 2020Hu10292

1. Overview of the Case

Case No.: 2020Hu10292 Registration Invalidation

Patent at Issue: Korean Patent No. 1356678, titled "PROCESS FOR PRODUCTION OF POLYCRYSTALLINE SILICON"

Announced Date: 11 January 2024

2. Summary of the Case

When it comes to an invention of a method for producing an article, the 'practice' of the invention refers to the act of using the method for producing the article, and therefore, the description of the invention must be described clearly and in detail so that the method of the production can be used, and if there is no such description regarding the use of the entire method specified in the claim, it cannot be considered to fulfill the description requirements set forth in Article 42(3)(i) of the Patent Act.

If the invention of a method for producing an article is a parameter invention that utilizes newly created physical, chemical or biological characteristic values or correlations between a plurality of variables to specify the elements of the invention, and if, at the time of filing the patent application, a person of ordinary skill in the art is unable to use the production method specified by the parameters according to the description of the invention in light of the definition or technical meaning of the parameters, the means of verifying the parameters, such as the method of measuring the characteristic values or variables and the conditions for measuring the parameters without performing undue experimentation or adding specialized knowledge, the description requirements set forth in Article 42(3)(i) of the Patent Act are not met.

3. Details of the Case

(1) Facts

The plaintiff filed a petition for invalidation, claiming that the detailed description of the invention of the patented invention in this case was not sufficiently clear and detailed to enable a person of ordinary skill in the art to easily practice the invention, that claims were not recited clearly and concisely, and that inventive step should be denied over prior inventions 1 to 4 (2017Dang2655). The Korean Intellectual Property Trial and Appeals Board issued a decision in favor of the plaintiff, and the defendant filed an appeal against the decision (2018Heo9152). The Patent Court held that the patented invention in this case did not meet the specification requirements set forth in Articles 42(3)(i) and 42(4)(ii) of the Patent Act, and accordingly, rejected the appeal, upholding the IPTAB's decision. The plaintiff appealed to the Supreme Court, arguing that the Patent Court erred in

misunderstanding the law regarding the description requirements.

(2) The Patent Court's Decision

1) When it comes to an invention of a method for producing an article, the term "practice" of the invention refers to the act of using the method, and therefore, if the description is not to the same extent as above regarding the use of the entire method specified in the claim, it cannot be considered to fulfill the description requirements. Therefore, even in the case of an 'invention of a method for producing an article' that expresses the scopes of elements in numerical ranges, the invention may not be necessary to provide embodiments that cover the entire numerical ranges specified in the patent claim, but if a person of ordinary skill in the art cannot use the production method across the entire numerical ranges based only on the description in the specification in light of the technical level at the time of filing without performing excessive experimentation or adding special knowledge, the description requirements set forth in the above provision are not satisfied (see the Supreme Court's judgment of September 24, 2015, 2013Hu525). Furthermore, the above rules and principles also apply to so-called parameter inventions, which are inventions that include descriptions that attempt to characterize a product or its production method by properties or characteristics that have not been used in the past, and a person of ordinary skill in the art, at the time of filing, must be able to accurately understand the constitution and effect of the invention as a whole, including the meaning of the new parameter, the method of measuring it, etc., without performing excessive experimentation or adding special knowledge.

2) Whether the method of production according to the invention of claim 1 can be easily practiced will depend on whether Features 4 and 5 can be understood and reproduced by a person of ordinary skill in the art, specifically, whether a person of ordinary skill in the art can accurately understand what the process variables of Features 4 and 5 mean and how to measure them according to what criteria, and reproduce them, based on the description, drawings and technical common knowledge of the art at the time of filing.

In the specification of the case, Feature 4, a fill level (FL), is defined as 'a ratio of a rod volume (V_{rods}) to an empty reactor volume (V_{reactor})', but there is no particular description of how to measure the volume (V_{rods}) of a silicon rod and how to measure the fill level (FL) calculated from it. Furthermore, it cannot be said that it is a matter of generally recognized technical knowledge that a person of ordinary skill in the art would consider a silicon rod as a column and estimate its volume by a usual method of calculating the volume of a column when measuring the volume of a silicon rod during a reaction. It is clear that in measuring the V_{rods} of the invention of claim 1, without specific descriptions in the specification, a person of ordinary skill in the art would not be expected to consider the silicone rod as a column during the reaction and then estimate its volume by a usual method of calculating the volume of a column and use that estimate as the V_{rods} .

As for the temperature wall (T_{wall}) included in Feature 5 (the Archimedes number), it is unlikely that, in using the production method of claim 1, a person of ordinary

skill in the art would recognize it as a proper implementation of the constitution of the invention of claim 1 even if T_{wall} is applied as an estimate during a reaction rather than an actual measurement. The specification does not clearly describe the method of measuring each of the rod volume (V_{rod}), wall temperature (T_{wall}), and volumetric flow rate (Q) of Features 4 and 5 to the extent that they can be easily practiced; as such, a person of ordinary skill in the art would not be able to use the features of the invention of claim 1 based on the descriptions in the specification in light of the technical level at the time of filing.

3) In light of the nature of the invention of claim 1, the claimed, wide numerical ranges, and the level of specificity of the description, a person of ordinary skill in the art would only be able to predict the features of very limited ranges and their effects from the invention of claim 1, in addition to the three processes and their effects described as specific embodiments in the specification, even when the level of technical skill in the art at the time of filing is considered, and the features of the remaining ranges and their effects would be significantly less likely to be predictable or reproducible by a person of ordinary skill in the art without undue experimentation or an addition of special knowledge. Consequently, it is reasonable to conclude that the effect of the invention of claim 1 cannot be easily predicted by a person of ordinary skill in the art on the entire numerical ranges, even with the addition of the technical skill at the time of filing. If so, the effect of the invention of claim 1 is not sufficiently described on the entire claimed numerical ranges in the specification to be predictable by a person of ordinary skill in the art.

(3) The Supreme Court's Decision

1) If the invention of a method for producing an article is a parameter invention that utilizes newly created physical, chemical or biological characteristic values or correlations between a plurality of variables to specify the elements of the invention, and if, at the time of filing the patent application, a person of ordinary skill in the art is unable to use the production method specified by the parameters according to the description of the invention in light of the definition or technical meaning of the parameters, the means of verifying the parameters, such as the method of measuring the characteristic values or variables and the conditions for measuring the parameters without performing undue experimentation or adding special knowledge, the description requirements set forth in Article 42(3)(i) of the Patent Act are not met.

2) The technical characteristic of the invention of claim 1 of the present case lies in the effect of optimizing a silicon deposition process in a reactor by performing the process such that the Archimedes number that is the flow condition in the reactor is within a defined range through the coordinated regulation of each of the process variables that closely affect one another during the Siemens reaction; thus, the values of the process variables during the reaction are of technical significance for the practice of the invention of claim 1.

However, the specification of the patented invention at issue does not disclose how

to measure a rod volume (V_{rod}), which is the process variable that determines a fill level, the wall temperature (T_{wall}) of a reactor, which is the process variable that determines the Archimedes number at issue, and a volume flow rate (Q). Based on the materials submitted in this case, it would be difficult for a person of ordinary skill in the art to easily understand how to measure these process variables with respect to the Siemens reactor and their values in light of the technical level as of the priority date of the claimed invention (the "priority date").

Therefore, since a person of ordinary skill in the art could not use the production method specified by parameters according to the description of the invention at the time of the priority date without performing undue experimentation or adding special knowledge, the description of the invention in the specification of the patent cannot be said to be clear and detailed enough to enable the practice of the invention of claim 1.

4. Our Comment

A parameter invention refers to an invention in which the applicant arbitrarily creates parameters for the values of physical and chemical properties that are not standard or commonly used in the relevant technical field, or parameterizes them with an expression using a correlation between a plurality of variables, and then includes them as part of the elements of the invention. Here, the invention of claim 1 is a parameter invention, as it uses the correlation between an Archimedes number that is newly defined in the specification and a fill level, in order to characterize the features of the invention.

The Patent Court's ruling in this case is significant in that it clearly sets forth the enablement requirement for a parameter invention, and the Patent Utility Model Examination Guidelines refers to the 2018Heo9152 ruling as the criteria for determining the enablement requirements for a parameter invention.

The Patent Utility Model Examination Guidelines at page 2305, as revised on 22 March 2023

In order for an invention specified by parameters to fulfill the requirements for the description of the invention, a person of ordinary skill in the art must be able to understand and use all the features of the invention, including the new parameters, across the numerical ranges limited by the claims of the patent, in light of the technical level at the time of filing, without undue experimentation or the addition of special knowledge, and the effects obtained from the features must also be demonstrated, across the numerical ranges, by specific experiments, embodiments, etc. in the specification or be easily predictable by a person of ordinary skill in light of the technical level at the time of filing. [2018Heo9152].

In addition, regarding the enablement requirements for an invention of a method for

producing an article that is a parameter invention, the Supreme Court held that, considering the definition or technical meaning of parameters, the means of identifying parameters, such as the method of measuring values or variables, and the conditions of measurement, a person of ordinary skill in the art must be able to use the production method specified by the parameters from the description of the invention at the time of filing the patent application without undue experimentation or special knowledge.

In light of the Patent Court's and the Supreme Court's rulings in this case, it seems that in the case of parameter inventions, if the patent specification does not contain specific technical contents such as the definitions or technical meanings of its parameters, their measurement methods and conditions, embodiments and comparative examples, etc., a reason for rejection may be issued or the patent registration may be invalidated for violation of the enablement requirements. Applications should be drafted with this in mind.