

Role of Object of Invention in Claim Construction

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In patent infringement litigation, when the description is used to construe the claims, the object of the invention described in the description plays an important role in claim construction. If the object of invention described in the description is not repudiated by other evidence, the claims should be construed in line with the object of invention as described in the description. If the object of invention described in the description is repudiated by other evidence, then it is necessary to re-determine, according to the corresponding evidence, the closest existing technology, and re-define the object of invention; the claim should be construed in line with the re-determined object of invention.

The Implementing Regulations of the Patent Law provides that in the part of “summary of invention” in the description of an application for a patent for invention or utility model should be specified the technical problem the invention or utility model is intended to solve. By the technical problem an invention or utility model is intended to solve is meant a technical problem existing in the prior art an invention or utility model is intended to solve. Under the Guidelines for Patent Examination, it is required that in the description of a patent for invention or utility model, the technical problem that the invention or utility model aims to solve should be described in accordance with the following requirements: directing against the defect or deficiency existing in the prior art; and describing objectively, in positive and concise words and with good grounds, the technical problem which the invention or utility model aims to solve¹. The technical problem the invention or utility model is intended to solve as set forth in the description is an important part of the description. When the claims are construed according to the description, what role does the technical problem the invention or utility model is intended to solve as set forth in the description (namely, object of invention)² play in claim construction?

I. Claims should be construed in line with the object of invention as described in the description

The role of the object of invention described in the description in claim construction lies in the fact that the claims should be construed in line with the object of invention as is described in the description. If the interpretation of a technical term used in the claims renders it impossible for the technical solution defined by the claim containing said technical term to achieve the object of invention as described in the description, then the interpretation of the technical term used in the claims is inappropriate.

In *Wang Qun v. French Exhibition Hall at the Shanghai Word Expo*, a case of dispute over infringement of an invention patent³, the court noted that the object of invention of the “elevated three-dimensional building” clearly presented in the description of the patent in suit was to save land area to make it possible to construct more buildings on a unit of the building lot and to improve dwelling exchangeability and comfort. According to the general content of the claims, the description of the description and the observations the patentee made in the patent prosecution history, interpreting “a number of housing units are arranged in the space around the space support and the surface” as meaning that “a number of housing units are arranged in the around space and the surface outside the support top surface and extending upward to a reasonable height, and the main part of the housing units are not arranged in the space lying around the space support top surface and extending upward to a reasonable height” was in line with the description of the object of invention in the description of the patent in suit, which made it possible for the elevated three-dimensional building constructed according to the patented technical solution to construct more buildings on a unit of build-

ing lot to improve dwelling exchangeability and comfort. The description of the object of invention in the description of the patent in suit was one of the facts on the basis of which said technical feature in claim 1 in suit was construed.

The rooms inside the building of the French Hall were all arranged on the surface of the ramp, without extending to the space around the ramp. As was said in the patent in suit, the rooms inside the building of the French Hall were all arranged on the top surface of the ramp (to be more exact, on the top surface and the in the space extending upward), a part of the top surface of the space support was used to arrange the housing units, and a part was used as path. The way the French Hall was built might improve the dwelling exchangeability and comfort, but could not make it possible to build more buildings on a unit of the building lot (as no housing units were arranged on the top surface of the space support and in the around space and on the surface around it). For this reason, the technical feature of “the rooms inside the building of the French Hall were arranged on the top surface of the space, a part of the top surface of the space support was used to arrange the housing units, and a part was used as path” was neither identical with, nor equivalent to, the corresponding technical feature of claim 1, namely “a number of housing units are arranged in the space lying around the space support top surface and extending upward to a reasonable height, and the main part of the housing units are not arranged in the space lying around the space support top surface and extending upward to a reasonable height”, and the infringement claim was not tenable for this reason.

For the US courts, what an invention is intended to solve is also the object of invention, and a factor that may be considered in interpreting the technical terms used in the claims.

In *Praxair, Inc. v. ATMI, Inc.*⁴, the CAFC noted that the primary object of the invention as described in the specification of the patent in suit was to prevent the hazardous conditions caused by the uncontrolled discharged gas, and the claims should be construed according to the basic features of the invention constantly highlighted in the specification. In the present case, the specification taught that to achieve the general object of the invention, flow constraints must be sufficient. Accordingly, the CAFC concluded that the “flow throttle” recited in the claims was used to fully constrain the flow to prevent hazardous situation from happening. Therefore, the term “flow throttle” should be construed as “a device that could fully constrain the flow speed to prevent hazardous situation from happening”.

In *Cultor Corp. v. A.E. Staley Mfg. Co.*⁵, the Cultor Corp., patentee of the patent in suit, accused Staley of infringing its patent with the polysaccharide it made and marketed. Polysaccharide is a low-calorie substitute of flour and sugar used in cake and other similar products. Commercial manufacture of edible polysaccharide has its origin in the method developed by Hans H. Rennhard, which comprises a process for heating glucose under the condition of citric acid as a catalyst, and the polysaccharide made this way is somewhat bitter. The patented technology in suit used an ion exchange columnar object to filter the polysaccharide to remove this bitter flavor.

Staley's method for preparing polysaccharide also comprised a process for heating polysaccharide, and the end polysaccharide product was made by using an ion exchange columnar object. But Staley used phosphoric acid instead of citric acid used in Rennhard's method. Cultor Corp. accused that Staley's method and products constituted literal infringement of its patent. Staley argued that the claims in suit must be construed as using citric acid to make polysaccharide products as the specification of the patent described as the following:

Here the words “water-soluble polysaccharide” is specifically related to the water-soluble polysaccharide made by melting and heating glucose in the presence of addition of 5-15% sorbitol and citric acid (about 0.5-3.0%) as a catalyst.

Agreeing with Staley, the court decided that the definition of “water soluble polysaccharide” in the specification defined it as one with citric acid as a catalyst in the claim, and found no infringement.

In the case, the patentee made it clear in the specification that the polysaccharide composition was prepared with citric acid and the object of invention was to remove the bitter flavor caused by citric acid; hence the word “polysaccharide” in the claims should be defined as polysaccharide composition with citric acid. Since the polysaccharide composition in the alleged infringing method was made of phosphoric acid and the polysaccharide composition made of such acid did not have the bitter flavor of polysaccharide made of citric acid, the allegedly infringing method did not achieve the identical object the patented invention was to achieve, and the “polysaccharide composition of phosphoric acid” made with the allegedly infringing method was not identical with the “polysaccharide composition made of citric acid; hence the allegedly infringing method was not infringing”.

ing.

Of course, the extent of protection of the claims is defined by the technical features recited in the claims, not by the object of invention expressed in the description. An allegedly infringing technical solution should not be found falling within the extent of protection of the claims of a patent just because the allegedly infringing technical solution is believed to have achieved the same object as one the patented technical solution presented in the description is to achieve. The object of invention presented in the description can be achieved with a variety of technical solutions. Only if an allegedly infringing technical solution falls within the extent of protection of the technical solution defined in the claims does it constitute an infringement. But if an allegedly infringing technical solution cannot achieve the object of invention described in the description, the allegedly infringing technical solution should not be found to have fallen within the extent of protection of the claims of the patent.

Perhaps, some may argue that the technical problem to be solved as presented in the description is the object of invention with a view to helping examiners identify the difference of a patent application from the prior art during the patent prosecution and to determine whether the patent application possesses novelty and inventiveness compared with the prior art. Indeed, the description presents the object of invention to this effect, but we cannot deny the role the object of invention described in the description plays in claim construction just because so.

II. If the object of invention described in the description is repudiated by other evidence, it is necessary to redefine, according to the corresponding evidence, the object of the invention; the claim should be construed in line with the re-defined object of invention

The object of invention described in the description is one described by the patent applicant himself, and is the object of invention the patent applicant identifies according to his own perception of the prior art and the difference of a patent application from the prior art. Under some circumstances, the patent applicant would even intentionally exag-

gerate the difference of a patent application from the prior art and the technical problem his patent is to solve. Regarding assessment of inventiveness of a patent application, the Guidelines for Patent Examination clearly provide that “during examination, the examiner shall objectively analyse and determine the technical problem actually solved by the invention. For this purpose, the examiner shall first analyse the distinguishing features of the claimed invention as compared with the closest prior art and then identify the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. ... In the course of examination, because the closest prior art identified by the examiner may be different from that asserted by the applicant in the description, the technical problem actually solved by the invention, which is re-determined on the basis of the closest prior art, may not be the same as that described in the description. Under such circumstance, the technical problem actually solved by the invention shall be re-determined on the basis of the closest prior art identified by the examiner.”⁶

If evidence shows that the object of invention described in the description is not the technical problem a patented technical solution is intended to solve and the patent applicant intentionally or unintentionally exaggerates or presents wrongly the technical problem the patent application is to solve, then during the patent prosecution, it is necessary to re-determine the technical problem the technical solution of the patent application is actually to solve on the basis of the re-determined closest prior art. Likewise, in patent infringement litigation, if evidence shows that the object of invention described in the description is not the technical problem a patented technical solution is intended to solve, then it is necessary to re-determine the technical problem the patented technical solution is actually to solve on the basis of the re-determined closest prior art. In case like this, the claims should be construed in line with the object of invention re-determined by the re-determined closest prior art, rather than in line with the object of invention the patent applicant determined himself in the description.

The case of dispute over infringement of a patent for the utility model of a foldable embroidery bamboo-strip⁷ mat may help elaborate the above point. In the case, the claim in suit read: “a foldable embroidery bamboo-strip mat, comprising bamboo-strip mat with edging, characterised in that said bamboo-strip mat includes at least two bamboo-strip mat units, each of which was sewn together by stitching along the

two connected edging on one side thereof; on said bamboo-strip mat has embroidery pattern.”

According to the expression of the description of the patent in suit, directed to the defect of bamboo-strip mats, “to put it away, the mat can be rolled up or folded up only in the direction parallel with the bamboo strips, but it cannot be folded in a direction vertical to the bamboo strips; it would break if folded this way; and for this reason, it can be rolled up into tube shape of a large size, takes up large space, and it is not easy to carry and put it away”.

The technical problem the patent in suit was intended to solve (the object of invention) was to provide a whole bamboo-strip mat consisting of at least two bamboo-strip mat units to allow horizontal folding of it and vertical rolling up to be put away after use, so that said mat would take up small space and be easy to carry and put away. But the technical problem the patent in suit was to solve as presented in the description of the patent in suit was repudiated by the Patent Reexamination Board (PRB) in its Invalidation Decision No. 13446. According to the Decision that took effect, the technical problem of a whole bamboo-strip mat consisting of at least two bamboo-strip mat units to allow horizontal folding of it and vertical rolling up to be put away after use had already been solved in the prior art (namely the mat disclosed in the description of patent (92212505.8) for the utility model of ‘bamboo-cloth foldable mat’). Relative to the technical solution disclosed in the description of the utility model patent of the ‘bamboo-cloth foldable mat’, the technical problem the patent in suit actually was intended to solve was that each of the mat units sewn together by stitching along the two connected edging on one side thereof to make two adjacent bamboo-strip mat units more closely joined together, with smaller folding chink and smoother surface of the whole mat.

According to the description of the patent in suit and the re-determined technical problem the patent in suit was actually intended to solve, the technical feature of said patent “each of which sewn together by stitching along the two connected edging on one side thereof” should be interpreted as meaning “one side of the two parallel mat surface ends was wrapped with cloth, and the edging cloth and the mat surface ends were closely connected, without any chink in between, one side of the two parallel mat surface ends wrapped with cloth joined together, almost without any chink between them, and the two mat surface ends wrapped with cloth were stitched together into a one piece”. This interpre-

tation is consistent with the technical problem the patent in suit is actually intended to solve, and with the contribution the patent in suit has made to the prior art, namely, compared with the prior art, the two adjacent bamboo mat units are more closely joined together, with smaller folding chink and smoother surface of the whole mat.

The corresponding technical feature of the allegedly infringing mat, “one side of the two parallel mat surface ends was wrapped with cloth, but the edging cloth and the mat surface ends were not closely connected, with a gap in between; the parallel edging cloth was stitched together from the upper part downward after overlaid in the extensional part at the back of the two mat surface ends, so that the two parallel mat surfaces were connected with each other, with a gap of about 5mm between the parallel mat surface ends”, and the allegedly infringing mat containing the technical feature could not achieve the object of invention of the patent in suit, so the technical feature of the allegedly infringing mat was neither identical with, nor equivalent to, the corresponding technical feature of the patent in suit; hence the infringement claim was not tenable.

If the Invalidation Decision No. 13446 of the TRAB had not been made and the object of invention described in the description of the patent in suit not repudiated, the corresponding object of invention of the utility model patent in suit would have still been determined as “provide a whole bamboo-strip mat consisting of at least two bamboo-strip mat units to allow horizontal folding of it and vertical rolling up to be put away after use, so that said mat would take up small space and be easy to carry and put away”. In case like this, the above-mentioned limited interpretation that was compatible with the re-identified object of invention “each of which sewn together by stitching along the two connected edging on one side thereof” should not have been made; the corresponding technical feature of the allegedly infringing mat could have achieved the object of invention “to allow horizontal folding of it and vertical rolling up to be put away after use, so that said mat would take up small space and be easy to carry and put away”; such technical feature would be viewed as a technical feature identical with the technical feature of the claim in suit “each of which sewn together by stitching along the two connected edging on one side of it”; hence the infringement claim would be tenable. However, as the object of invention as presented in the description of the patent in suit has been repudiated by the corresponding evidence, it is necessary to re-determine, according to the cor-

responding evidence, the object of the invention of the utility model patent in suit; the claim should be construed in line with the re-determined object of invention.

III. How to construe claims when description describes several objects of invention

In *Honeywell Inc. v. Victor Co. of Japan, Ltd.*⁸, the inventor confirmed that the company had discovered the two technical problems its invention was to solve. A structural arrangement of the invention component could solve the two technical problems. As the inventor pointed out, however, another structural arrangement of the invention component could solve only one, not two, of the technical problems. The US CAFC took the view that claim 1 clearly showed that said invention was not limited to solving the two technical problems existing in the prior art as determined in the background of technology in the specification of the patent. In fact, the patentee chose to use, in the claims, the language that was related to one of the two technical problems existing in the prior art, not to solve the two technical problems.

But in *ResQNet.com, Inc. v. Lansa, Inc.*⁹, in the specification was described three technical problems to be solved by the prior invention. Interpreting the terms “each field” restrictively as meaning “each and every field” would enable the invention to solve said three technical problems, including “properly updating the screen identity information”; a broader interpretation of “each” might have the meaning “any”, which would render the invention capable of resolving two of the three technical problems, not the technical problem of “properly updating the screen identity information”. But the invention was different from the prior technology in properly updating the screen identity information. Accordingly, the US CAFC concluded that construing the claims as being capable of solving the three technical problems only confirmed the meaning the corresponding terms should have in the claims.

The US court’s preceding view applies to our claim construction, and is jurisprudentially compatible. Under a lot of circumstances, the description of a patent describes only one, not several, object of invention. In case like this, should claim construction make the technical solution defined in the claims achieve all the objects of invention in the description, and solve all the technical problems described in the de-

scription? One cannot make a wild generalisation. We should construe the claims according to the claims in combination with the description. While the description describes several technical problems a patent is to solve, if the technical solution defined in a claim solves only one or two, not all, of the technical problems, the claim construction should be compatible with the one or two technical problems, not to such extent as to solve all the technical problems. Of course, it may be concluded from the claims in combination with the description that the technical solution defined in a claim is to solve all the technical problems described in the description, the claim should be construed as that the technical solution defined in the claim is to solve all the technical problems described in the description. ■

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¹ The SIPO (compiled), the Guidelines for Patent Examination, 2010, Section 2.2.4, Chapter 2 of Part 2, the Publishing House of Intellectual Property.

² The technical problems an invention or a utility model aims to solve were all referred to as object of invention in the Implementing Regulations of the Patent Law before the amendment made in 2001. For clarity, the two terms of technical problem and object of invention are used in this article as that an invention or utility model is to solve or achieve, and the two terms are of the same meaning.

³ See the Shanghai Higher People’s Court’s Civil Judgment No. Hugaominsan(zhi)zhongzi 83/2010.

⁴ *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1324, (Fed. Cir. 2008).

⁵ *Cultor Corp. v. A.E. Staley Mfg. Co.*, 224 F.3d 1328, 1331, 56 U.S.P.Q.2d (BNA) 1208, 1210 (Fed. Cir. 2000).

⁶ The SIPO (compiled), the Guidelines for Patent Examination, 2010, Section 3.2.1.1, Chapter 4 of Part 2, the Publishing House of Intellectual Property.

⁷ The second instance was settled, with no effective decision rendered. The issue of law arising from the case is discussed here.

⁸ *Honeywell Inc. v. Victor Co. of Japan, Ltd.*, 298 F.3d 1317, 1323, 63 U.S.P.Q.2d (BNA) 1904 (Fed. Cir. 2002).

⁹ *ResQNet.com, Inc. v. Lansa, Inc.*, 346 F.3d 1374, 1380, 68 U.S.P.Q.2d 1619 (Fed. Cir. 2003).