

Keywords: patents; error; typo; typographical; disclosure; specification; prior art; reference; obviousness

General: A reference that contains an obvious typographical error that would have been apparent to a person of ordinary skill in the art such that the person would disregard or correct the error does not disclose the subject matter contained in that error.

LG Electronics Inc. v. ImmerVision, Inc.,
United States Court of Appeals for the Federal Circuit
Nos. 2021-2037, 2021-2038
Decided: July 11, 2022

I. Background & Facts

Panoramic objective lenses are used to capture panoramic images and usually have linear image point distribution functions (i.e., there is a linear relationship between the distance of an image point from the image’s center and the corresponding relative angle of the object point to the image’s center). While this allows for ease of manipulation (e.g., rotation, shifting, or resizing) of digital panoramic images, it also limits the image quality to the resolution of the image sensor used when taking the original image. U.S. Patent No. 6844,990 (“the ’990 patent”), is owned by ImmerVision and attempts to improve resolution of panoramic images by capturing the initial image using an objective lens having a non-linear image point distribution function that expands certain zones of the image and compresses other zones of the image. The claims specify that the lens “compresses the center of the image and the edges of the image and expands an intermediate zone of the image located between the center and the edges of the image.”

LG filed two petitions for inter partes review (“IPR”) of the ’990 patent, separately challenging dependent claim 5 and dependent claim 21 thereof. Both IPRs argued that the respective claims were unpatentable as obvious in view of U.S. Patent No. 5,861, 999 (“Tada”). Tada, which claims priority from and expressly incorporates by reference Japanese Patent Application No. 09-201903, entitled “Super Wide Angle Lens System Using an Aspherical Lens” having four embodiments described therein. Relevant to the IPR was the third embodiment. LG argued that Tada discloses a panoramic objective lens having a non-linear image point distribution that compresses the center and edges of the image. Tada does not explicitly discuss the image point distribution functions of the lenses; however, LG relied on a declaration by their expert, Dr. Russel Chipman, who asserted that the third embodiment in Tada has a distribution function that produces a compressed center and edges of an image and an expanded intermediate zone of the image between the center and the edges of the image (mirroring the claim language of claims 5 and 21 in the ’990 patent). Dr. Chipman reconstructed the lens of the third embodiment of Tada

utilizing the information from Table 5 of Tada inputted in to an optical design program, plotted the image point distribution function for the lens system at six wavelengths and found that the function was not linear for any of the tested wavelengths.

In response, ImmerVision employed their own expert, David Aikens, to verify Dr. Chipman's work. Aikens, in recreating Dr. Chipman's process, noticed an error; the physical surface of the lens reconstructed in the based on Table 5 of Tada did not match the example lens depicted in Figure 11 of Tada. Due to this discrepancy, Aikens compared the sag table (a table of heights of a lens surface with respect to the optical axis) from the reconstructed lens to the sag table listed in Table 6 of Tada and found that they also did not match. Thereafter, Aikens reviewed the image plane of the reconstructed lens and found that the output image was distorted and unusable due to precisely the kind of uncorrected field curvature that Tada was trying to prevent. Moreover, Aikens reviewed Japanese Patent Application No. 09-201903 and found that Table 5 of Tada did not match the corresponding Table 5 in the Japanese Patent Application from which it claimed priority. Ultimately, Aikens concluded that there had been a transcription (or a copy-and-paste) error and that the values of Table 3 corresponding to the second embodiment of Tada were erroneously placed in Table 5 corresponding to the third embodiment of Tada.

Based on this evidence, the Board found that the values in Table 5 of Tada were an obvious error that a person of ordinary skill in the art would have recognized and corrected. The Board further found that, because the corrected aspheric coefficients of Table 5 of Tada do not satisfy the non-linear claim limitation of the challenged claims, LG had failed to meet its burden to prove the challenged claims were unpatentable as obvious. LG appealed the decision.

II. Issues

- 1) Whether substantial evidence supports the Board's finding of fact that a copy-and-paste error would have been apparent to a person of ordinary skill in the art such that the person would have disregarded or corrected the error.

III. Discussion

The court found that substantial evidence supported the Board's finding. The court discussed the legal precedent for this case, *In re Yale*. *In re Yale*, 434 F.2d 666 (C.C.P.A. 1970). In *Yale*, the United States Court of Customs and Patent Appeals (CCPA) reversed a decision of the Board of Patent Appeals and Interferences affirming the rejection of claims directed to a specific compound of inhalation anesthetic $CF_3CF_2CHClBr$ as obvious. *Id.* The obviousness rejection was based on an alleged disclosure of the chemical compound in an article that contained a plot with the aforementioned compound. *Id.* at 667. However, that compound was not known at that time and was erroneously added to the plot because of a typographical error. The authors instead intended to include a different compound, $CF_3CHClBr$ in the plot. *Id.* The court in *Yale* determined that it was an obvious typographical error and explained "any number" of the following reasons "individually or cumulatively would . . . alert one of ordinary skill in the art to the existence" of the error: (1) the inconsistency between the articles figures, (2) the erroneous compound was assigned the same chemical property value in the plot as other compounds which would not be likely, and (3) one of the authors responded to a letter from a reader alerting the authors to the error "of course. . . $CF_3CF_2CHClBr$ should be read as $CF_3CHClBr$." *Id.* at 667-69. The CCPA therefore set a standard for erroneous disclosures by prior art references whereby when a prior art reference includes an obvious typographical or similar error that would be

apparent to a person of ordinary skill in the art such that the person would disregard or correct the information, the reference does not disclose the erroneous subject matter, though the remainder of the reference remains part of the patentability inquiry. *Id.* at 669.

Turning to the facts at hand, the court looked to what evidence the Board relied upon to conclude there was obvious error. First, the Board relied upon the fact that Table 5 of the Japanese Patent Application that Tada claimed priority to contained different values than Table 5 of Tada. Second, the Board relied upon the fact that the aspheric coefficients in Table 5 of Tada should match the conditions in Table 9 of Tada but they do not. Finally, the Board relied upon the fact that Table 3 of Tada corresponding to the second embodiment of Tada and Table 5 of Tada corresponding to the third embodiment of Tada contained identical aspheric coefficients, which would be unusual (this is “never true” according to Aikens).

The court also addressed the two arguments that LG raised in response. LG first argued that the *Yale* standard has a temporal aspect to the discovery of the error before the error can be considered obvious to a skilled artisan. LG argued that the fact that it took Aikens ten to twelve hours to determine that the values of Table 5 were erroneous clearly shows that the error was not obvious. However, the court agreed with the Board that the length of time and the particular manner in which the error was actually discovered does not diminish that there is an obvious error in Tada within the meaning of *Yale*. The court noted that while the amount of time required for a skilled artisan to detect an error may be relevant to whether an error is an apparent error under *Yale*, in the present instance, the Board considered the totality of circumstances and found that the disclosure in Table 5 of Tada was an obvious error of a typographical or similar nature, notwithstanding the amount of time that preceded the detection of the obvious error. The court found that this holding by the Board was supported by substantial evidence. LG also argued that the *Yale* standard is limited to typographical errors such as spelling mistakes. The court disagreed and noted that the distinction between the typographical error of *Yale* and the Board’s finding that there was a copy-and-paste type error is a distinction without difference.

The court ultimately affirmed the Board’s decision, holding that there was substantial evidence supporting the Board’s finding that the error would have been apparent to a person of ordinary skill in the art such that the person would have disregarded it or corrected it.

The dissent agreed with the standard applied by the majority, but argued that the ten to twelve hours of experimentation and calculation required to realize and correct an error distinguishes the present case from the typographical error of *Yale* that turned a well-known compound into one not known at the time.

IV. Conclusion and Takeaways

1) The *Yale* standard is good law: When a prior art reference includes an obvious typographical or similar error that would be apparent to a person of ordinary skill in the art such that the person would disregard or correct the information, it does not disclose the erroneous subject matter. However, the remainder of the reference remains part of the patentability inquiry.

2) There is no temporal requirement under *Yale*. The length of time taken to find the error and the manner in which the error is found are not dispositive; they are instead factors for a fact-finder to consider.

3) A copy-and-paste type or transcription type error can be a typographical error under *Yale*.