Keywords: 35 U.S.C. § 103, obviousness, inherency, motivation to combine elements and reasonable expectation of success

General: At least some evidence should be presented to support a motivation to combine references with a reasonable expectation of success.

Honeywell International, Inc. v. Mexichem Amanco Holding S.A.
United States Court of Appeals for the Federal Circuit
No. 2016-1996
Decided: August 1, 2017

I. Background

Honeywell International, Inc. ("Honeywell") was issued the U.S. Patent No. 7,534,366 ("the '366 patent") directed to a compound composition comprising 1,1,1,2-tetrafluoropropene ("HFO-1234yf"), an unsaturated hydrofluorocarbon ("HFC") and a polyalkylene glycol ("PAG") lubricant. Claim 1 of the '366 patent reads:

> A heat transfer composition for use in an air conditioning system comprising:
> (a) at least about 50% by weight of 1,1,1,2-tetrafluoropropene (*HFO-1234yf*) having no substantial acute toxicity; and
> (b) at least one *poly alkylene glycol lubricant* in the form of a homopolymer or co-polymer consisting of 2 or more oxypropylene groups and having a viscosity of from about 10 to about 200 centistokes at about 37 °C.

Mexichem Amanco Holding S.A. DE C.V. ("Mexichem Amanco") and Daikin Industries, Ltd. ("Daikin") (together, "Mexichem") filed requests for *inter partes* reexamination of the '366 patent. During *inter partes* reexamination, the Examiner found that claims 1-26, 31-37, 46-49, 58, 59, 61-68, 70-75, 80, and 81 of the '366 patent would have been obvious over Japanese Patent H04-110388 ("Inagaki") in view of any one of three secondary references. More specifically, the Examiner found that Inagaki describes the use of HFO-1234yf, and though Inagaki does not explicitly teach the use of a PAG lubricant, the Examiner found that each of the secondary references discloses the use of PAG lubricants with HFC refrigerants.

Honeywell appealed the Examiner's decision to the Patent Trial and Appeal Board ("the Board"), and the Board affirmed the Examiner's decision. More specifically, the Board found that because PAGs were known lubricants for HFC-based refrigerant systems, as evidenced by the secondary references, and because Inagaki teaches that HFO-1234yf "[does] not have any problem with respect to [its] general characteristics (e.g., compatibility with lubricants . . .)", it would have been obvious to combine HFO-1234yf with a PAG lubricant. Additionally, the Board found that the stability and miscibility of HFO-1234yf with PAG lubricants are "inherent properties of an otherwise known refrigerant" that could not confer patentability to the claimed combination, and in doing so, the Board rejected Honeywell's argument that the claimed combination would not have been obvious due to the unexpected stability and miscibility of the composition. The Board concluded that while Honeywell persuasively showed the unpredictability of how various refrigerants react with various lubricants, one of ordinary skill in the art would have no more expected failure than success with respect to the stability of combining HFO-1234yf with PAG lubricants and, accordingly, due to the overall unpredictability with respect to the stability of the

claimed composition, one of ordinary skill would have arrived at the claimed composition by mere routine testing. Honeywell proceeded to appeal the Board's decision to the Federal Circuit.

II. Issue

Did the Board err in finding a motivation to combine the references with a reasonable expectation of success?

III. Discussion

Yes, the Federal Circuit determined that the Board improperly relied on inherency to dismiss evidence showing unpredictability of the art in order to reject Honeywell's argument that one of ordinary skill would not have been motivated to combine the references with a reasonable expectation of success. More specifically, the Board held that "[I]nherent properties of refrigerants include their specific toxicity [and] miscibility, . . . whether or not these properties are predictable." The Federal Circuit found that here, the Board erred in dismissing properties of the claimed invention as merely inherent without further consideration of unpredictability and unexpectedness. The Federal Circuit emphasized, "[t]hat which may be inherent is not necessarily known" and that which is unknown cannot be obvious.[1] Further, what is important regarding properties that may be inherent, but unknown, is whether they are unexpected, as unexpected properties may cause what may appear to be an obvious composition to be nonobvious.

The Federal Circuit further determined that the Board incorrectly dismissed Honeywell's evidence of unpredictability in the art when it stated that one of ordinary skill would no more have expected failure than success in combining the references. To establish obviousness, the standard is not whether the patent owner can persuasively show that one of ordinary skill in the art would have expected failure; rather, the burden is on the Examiner to show that one of ordinary skill in the art would have had a motivation to combine the references with a reasonable expectation of success.[2] As such, the Federal Circuit found that the Board erred in holding that no more expecting failure than success was a valid ground for holding an invention to be obvious.

Further, the Federal Circuit that the Board erred in rejecting Honeywell's evidence based on the conclusion that because there would have been no reasonable expectation of success, one of ordinary skill would have arrived at the claimed combination by mere "routine testing." In coming to this conclusion, the Federal Circuit concluded that the unpredictability the Board used to justify the routine testing equates more with nonobviousness rather than obviousness. Additionally, the Federal Circuit determined that "[p]atentatbility shall not be negated by the manner in which the invention was made,"[3] and as such, the Federal Circuit emphasized that routine experimentation does not necessarily preclude patentability.

IV. Conclusion

The Federal Circuit found that the Board did not provide sufficient evidence to establish a *prima facie* case of obviousness, incorrectly relied on inherency without further consideration of unpredictability, and mistakenly concluded that unpredictability indicates obviousness. Additionally, the Federal Circuit determined that the Board erred in rejecting the objective evidence after placing the burden to show that one of ordinary skill would have expected failure on the patent owner.

[1] *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993)
[2] *See, e.g., Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir.2015)
[3] 35 U.S.C. § 103 (2012)