United States Court of Appeals for the Federal Circuit

99-1092

THE UPJOHN COMPANY,

Plaintiff-Appellant,

v.

MOVA PHARMACEUTICAL CORP.,

Defendant-Appellee.

Gerald Sobel, Kaye, Scholer, Fierman, Hays & Handler, LLP, of New York, New York, argued for plaintiff-appellant. With him on the brief were Steven J. Glassman and Steven D. Roth.

Ronald L. Grudziecki, Burns, Doane, Swecker & Mathis, L.L.P., of Alexandria, Virginia, argued for defendant-appellee. With him on the brief were Matthew P. Blischak, Susan M. Dadio, and Alan L. Whitehurst, of Alexandria, Virginia, and Allen R. Baum, of Durham, North Carolina.

Appealed from: U.S. District Court for the District of Puerto Rico

Judge Juan M. Perez-Gimenez

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v.

MOVA PHARMACEUTICAL CORP.,

Defendant-Appellee.

DECIDED: September 11, 2000

Before NEWMAN, Circuit Judge, SKELTON and ARCHER, Senior Circuit Judges.

NEWMAN, Circuit Judge.

In response to the filing by MOVA Pharmaceutical Corporation of an Abbreviated New Drug Application (ANDA) for a bioequivalent form of Upjohn's formulation of the anti-diabetic drug glyburide, in accordance with 21 U.S.C. §355(j) the Upjohn Company filed suit charging MOVA with infringement of United States Patent No. 4,916,163 (the '163 patent). The United States District Court for the District of Puerto Rico entered judgment in favor of MOVA on jury verdicts of patent invalidity, non-infringement, and unenforceability, and denied duly made post-trial motions. We affirm the judgment of non-infringement and reverse the judgments of invalidity and unenforceability.

I

INFRINGEMENT

The '163 patent is directed to an anti-diabetic pharmaceutical composition containing at least 70% by weight of spray-dried lactose as the preponderant excipient. Claims 1 and 3 of the >163 patent are in suit:

> 1. In a micronized glyburide anti-diabetic pharmaceutical composition as a unit dose, containing one or more pharmaceutically acceptable excipients, the improvement which comprises:
>
> spray-dried lactose as the preponderant excipient in said composition, being present therein at about not less than seventy percent (70%) by weight of the final composition.
>
> 3. The improvement according to claim 1 wherein the excipients comprise a glidant, lubricant and disintegrant.

The '163 specification states that the use of spray-dried lactose as the preponderant component by weight is "critical to the success of the present composition." The specification explains that each tablet contains a "unit dose" of about 1-6 mg of glyburide.

The MOVA product also contains micronized glyburide as the active ingredient and spray-dried lactose as an excipient. However, instead of the claimed amount of not less than about 70% by weight of spray-dried lactose, the MOVA formulation contains 49% by weight of spray-dried lactose and 46.3-49.1% of Starch 1500 (pregelatinized corn starch). The district court granted MOVA's motion for summary judgment in part, ruling that there was no literal infringement. No appeal is taken on that issue.

Upjohn also asserted that the MOVA formulation is equivalent to the patented formulation. When the accused product avoids literal infringement of the claims, that product may be found to infringe under the doctrine of equivalents if each element of the claim is met, literally or by an equivalent, in the accused product. See Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 21, 29, 41 USPQ2d 1865, 1868, 1871 (1997). Equivalency may be found if the differences between that which is claimed and its embodiment in the accused composition are insubstantial. The usual test of the substantiality of the differences is whether the element in the accused composition performs substantially the same function in substantially the same way to obtain substantially the same result as the claimed element. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608, 85 USPQ 328, 330 (1950). The determination of equivalency is a question of fact, Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1218, 36 USPQ2d 1225, 1229-30 (Fed. Cir. 1995), and was tried to a jury.

Upjohn challenges the jury verdict of non-infringement, stating that it presented undisputed evidence that MOVA's excipient containing 49% spray-dried lactose and 46-49% Starch 1500 is substantially the same as an excipient containing 70% spray-dried lactose. Upjohn points to the uncontradicted evidence that the MOVA formulation is the bioequivalent of the patented formulation; that the MOVA formulation, like the patented formulation, provides uniformity of glyburide content; and that the MOVA formulation, like the patented formulation, permits manufacture through direct compression with

enhanced flow. Upjohn argues that MOVA's evidence related only to the differences between spray-dried lactose and Starch 1500 individually, and not to the differences between 70% spray-dried lactose and the spray-dried lactose-Starch 1500 combination that MOVA actually proposed in its ANDA. Upjohn argues that infringement under the doctrine of equivalents is not avoided by substituting part of one component with an equivalent component.

MOVA responds that whether one applies the "substantial differences" test or the "function-way-result" test of equivalency, there was ample evidence to support the jury verdict of non-infringement. MOVA's expert witness Dr. Rodriguez testified that there were differences between the excipient behavior of Starch 1500 and spray-dried lactose, particularly that Starch 1500 operates by disintegration instead of dissolution: "Starch 1500 disintegrates, breaks up the tablet and releases the active ingredient and the active ingredient is dissolved." Dr. Rodriguez compared this mechanism with the spray-dried lactose tablet wherein the drug is released as the lactose dissolves, and testified that Starch 1500 and spray-dried lactose are not interchangeable in a pharmaceutical formulation. Upjohn's expert testified that he had not previously known of the replacement of spray-dried lactose in a formulation with Starch 1500. Upjohn's expert also testified that spray-dried lactose is not considered a disintegrating agent and "is not used in the industry to add that property to other mixtures."

Although Upjohn presented a valid criticism that MOVA's evidence related to 100% Starch 1500 and not to the actual formulation in the ANDA, this criticism was before the jury, along with all of the evidence and arguments. Dr. Rodriguez' testimony about the differences between Starch 1500 and spray-dried lactose could have been taken to show that these excipients delivered the drug differently, and the jury could reasonably have found that the ANDA formulation delivered the drug differently from a 70% spray-dried lactose formulation. MOVA argued that the '163 patent states that use of spray-dried lactose as the "preponderant" component is "critical to the success of the present composition." MOVA states that there was substantial evidence upon which the jury could have concluded that the range of permissible equivalents was limited, and did not include MOVA's formulation.

We conclude that substantial evidence supports the jury verdict of non-infringement. The evidence of the different ways in which spray-dried lactose and Starch 1500 deliver the glyburide could have led a reasonable jury to find that MOVA's formulation of 49% spray-dried lactose and 46-49% Starch 1500 is not equivalent to a formulation of 70% spray-dried lactose. The jury verdict of non-infringement must be affirmed.

II

VALIDITY

The jury found the '163 patent to be invalid on the ground of obviousness. Upjohn argues that there was not substantial evidence to support a verdict of invalidity based on obviousness. MOVA in turn argues that the jury verdict is supported by substantial evidence and should be sustained.

When the issue of obviousness is submitted to the jury, the underlying factual findings, whether explicitly made or as necessary to support the verdict, are reviewed to ascertain whether they are supported by substantial evidence. The ultimate question of obviousness vel non is reviewed as a matter of law, viewing the evidence, when it is reasonably in dispute, in the manner most favorable to the verdict. See Mitsubishi Electric Corp. v. Ampex Corp., 190 F.3d 1300, 1309, 51 USPQ2d 1910, 1916 (Fed. Cir. 1999) ("We review [the jury] verdict for substantial evidence in support of any necessary findings of fact, and for correct application of the law to these findings."); Newell Co. v. Kenney Mfg. Co., 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed. Cir. 1988) ("Judges must accept the factual findings, presumed from a favorable jury verdict, which are supported under the substantial evidence/reasonable juror standard."). Thus the verdict of obviousness must be supported by facts of (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) any objective indicia such as commercial success or long-felt need. See Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

The Rothe and Simpson Patents

It was not disputed that spray-dried lactose was a known pharmaceutical excipient. During prosecution of the '163 patent, the examiner had rejected the claims as obvious over, among other references, the Rothe patents. These patents showed micronized glyburide and, as the pharmaceutical excipient, ordinary lactose. Presented at trial was the Simpson patent, which contains a specific example of spray-dried lactose as the excipient with a micronized anti-diabetic drug (2,6-di-*t*-butylamino-3-formyl-4-methyl-pyridine), in the following formulation:

[micronized anti-diabetic drug]	100 mg
Gum tragacanth	10 mg
Lactose (sprayed-dried)	197.5 mg
Corn starch	25 mg
Talc	15 mg
Magnesium stearate	2.5 mg

This formulation contains 56.4% spray-dried lactose. MOVA's expert witness Dr. Rodriguez testified that the formulation, if modified to contain less of the micronized drug, as contemplated by Simpson, could contain over 70% spray-dried lactose. Upjohn challenges this hindsight manipulation of the Simpson formulation. MOVA responds that there was substantial evidence to support jury acceptance of Dr. Rodriguez's testimony that Simpson discloses a formulation containing 70% spray-dried lactose, citing the statements in Simpson that the dosage of anti-diabetic drug included in the formulation can vary, and that "[a] typical dosage unit may contain 25 to 1000 mg of a compound of Formula I, or a pharmaceutically acceptable acid addition salt thereof, more typically 25-500 mg." Simpson patent, col. 9, lines 1-4. Relying on this range, Dr. Rodriguez substituted 25 mg for the 100 mg in the Simpson example, keeping all other ingredients

constant. This change produces a formulation containing 72% spray-dried lactose.

Upjohn states that Simpson does not teach reducing the amount of glyburide to 25 mg, the concentration that would produce a formulation containing 72% spray-dried lactose when the amount of the other ingredients is unchanged. MOVA responds that Dr. Rodriguez testified that one skilled in the art would use the same amount of filler with a lower dosage of active ingredient, citing pages A1826-1830 of the Appendix. These Appendix pages do not contain such testimony, and we can not find it in the record provided.

The record does not contain substantial evidence in support of Dr. Rodriguez' conclusion that it would have been obvious to make this change when the formulation contains glyburide, a product that is not shown in the Simpson reference, by greatly reducing the amount of active ingredient. At this critical point in the determination of obviousness, there must be factual support for an expert's conclusory opinion. See Motorola, Inc. v. Interdigital Technology Corp., 121 F.3d 1461, 1473, 43 USPQ2d 1481, 1490 (Fed. Cir. 1997) ("An expert's conclusory testimony, unsupported by the documentary evidence, cannot supplant the requirement of anticipatory disclosure in the prior art reference itself."); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 294, 227 USPQ 657, 665 (Fed. Cir. 1985) ("Lack of factual support for expert opinion going to factual determinations, however, may render the testimony of little probative value in a validity determination.").

The L&L Textbook

MOVA also relied on a textbook by Lieberman & Lachman ("L&L"), citing the statement from the 1980 edition that "[s]prayed-dried lactose is an effective direct compression filler when it makes up the major portion of the tablet (more than 80 percent)." Upjohn states that L&L also teaches that segregation and aggregation problems arise during direct compression of formulations containing micronized drugs. Upjohn also states that L&L teaches away from direct compression by suggesting use of wet granulation to avoid these problems.

MOVA states that L&L teaches that low dose drugs should be combined with 80% or more spray-dried lactose, making it obvious to use 70% or more spray-dried lactose. MOVA states that micronized glyburide is a low-dose drug, and that spray-dried lactose is the excipient of choice for all drugs. Upjohn points to the teaching in L&L that flow problems usually occur as particles become smaller:

> As the particle size approaches 10µm and below, weak polarizing electrical forces called van der Waals forces or cohesive forces also begin to affect the flow of the powder. Both van der Waals and electrostatic forces usually inhibit powder flow through particle agglomeration . . . .

L&L (1981 edition), page 26. MOVA's expert Dr. Rodriguez agreed that because of agglomeration, micronized drugs (2-10µm) exhibit flow problems, a that it was known that aggregation was a problem with "reduced particle size" drugs. Dr. Rodriguez testified that it was "widely known" when she was in graduate school that micronized

drugs could be blended with spray-dried lactose to achieve good content uniformity and good dissolution; no documentary support is shown for this statement. Such recollections by an expert witness, when challenged, particularly of asserted general scientific knowledge, require support by documentary evidence in order to receive probative weight. See Carella v. Starlight Archery, 804 F.2d 135, 138, 231 USPQ 644, 646 (Fed. Cir. 1986) ("Although in some circumstances unsupported oral testimony can be sufficient to prove prior knowledge or use, it must be regarded with suspicion and subjected to close scrutiny."); Lockheed Aircraft Corp. v. United States, 553 F.2d 69, 75, 193 USPQ 449, 454 (Ct. Cl. 1977) ("the oral testimony of witnesses, speaking only from memory in regard to past transactions has, in the absence of contemporaneous documentary or physical evidence, consistently been found to be of little probative value.")

Upjohn points out that although L&L teaches the use of more than 80% spray-dried lactose it does not teach using this high percentage of spray-dried lactose with a micronized active ingredient, the L&L textbook pointing out that as particle size decreases flow problems arise. The L&L teachings, alone or in combination with the other references, do not make obvious the specific subject matter claimed in the Upjohn patent.

The Johnson Article

MOVA also cites an article by Johnson, stating that Johnson teaches the blending with spray-dried lactose of a partly micronized, partly non-micronized drug. The Johnson reference is directed specifically to tetracycline, a different compound with different characteristics. Upjohn states that the tetracycline in the article is not micronized. MOVA responds that the article describes an average tetracycline size of 10µm, meaning, according to MOVA, that a significant portion of the tetracycline was smaller than 10µm and thus was micronized. Dr. Rodriguez admitted at trial that she could not tell from the reference whether any of the tetracycline was smaller than 10µm.

There is no evidentiary support for the MOVA argument that a significant portion of the tetracycline was micronized. MOVA does not suggest that either the pharmacologic effect or the physical properties of tetracycline is similar to glyburide. Johnson does not provide evidence to support the verdict of obviousness.

Conclusion

The invention in suit is narrowly claimed. MOVA presented no evidence of any teaching or suggestion in the prior art to use at least about 70% of spray-dried lactose in the formulation containing micronized glyburide. There was not substantial evidence to support the findings necessary to sustain a verdict of obviousness of the specific composition that is claimed. The verdict of invalidity is reversed.

INEQUITABLE CONDUCT

Inequitable conduct requires that the patentee withheld material information from the patent examiner or submitted false material information, with the intent to deceive or mislead the examiner into granting the patent. Kingsdown Medical Consultants, Ltd. v.

Hollister Inc., 863 F.2d 867, 872, 9 USPQ2d 1384, 1389 (Fed. Cir. 1988). Both materiality and intent to deceive must be proven by clear and convincing evidence. Id. "[M]ateriality does not presume intent, which is a separate and essential component of inequitable conduct." Manville Sales Corp. v. Paramount Sys., Inc., 917 F.2d 544, 552, 16 USPQ2d 1587, 1593 (Fed. Cir. 1990).

"[I]nformation is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent." 37 C.F.R. §1.56 (1988) (before 1992 amendment); see, e.g., Molins PLC v. Textron, Inc., 48 F.3d 1172, 1179, 33 USPQ2d 1823, 1827 (Fed. Cir. 1995). However, a reference need not be provided to the examiner if it is merely cumulative to or less material than other references before the examiner. See, e.g., Baxter Int'l, Inc. v. McGaw, Inc., 149 F.3d 1321, 1328, 47 USPQ2d 1225, 1229 (Fed. Cir. 1998). "Intent to deceive can not be inferred solely from the fact that information was not disclosed; there must be a factual basis for a finding of deceptive intent." Hebert v. Lisle Corp., 99 F.3d 1109, 1116, 40 USPQ2d 1611, 1615 (Fed. Cir. 1996).

Upjohn states that no reasonable jury could have found the facts of materiality and intent that were needed to support the verdict of inequitable conduct. MOVA responds that it presented several grounds on which the jury could have found that there was inequitable conduct. MOVA states that Upjohn misrepresented certain facts relating to experiments reported in the declarations of Dr. Philip Ni. MOVA also states that Upjohn withheld "adverse contrary test data" from the PTO, specifically, test results obtained three years earlier than the work contained in the Ni declarations. MOVA also states that in connection with a petition to add inventors, Upjohn’s attorney did not ask the added inventors whether they were aware of any information material to patentability, although they were so aware. We review these grounds for their support of the jury's verdicts of inequitable conduct and unenforceability.

The Ni Declarations

The patent examiner initially rejected the claims under 35 U.S.C. §103, relying, inter alia, on certain Rothe et al. patents as teaching the use of ordinary lactose as an excipient for anti-diabetic agents, and on the fact that micronized glyburide was a known product. The examiner stated that it would have been obvious "in the absence of demonstrated unexpected results" to use spray-dried lactose in place of ordinary lactose. Upjohn responded that "[u]sing lactose which is not spray-dried does not yield a formulation which is easily and readily manufacturable," and provided experimental data to show "a side-by-side comparison of the use of ordinary or non-spray-dried lactose in place of spray-dried lactose." These data were contained in a declaration filed in June 1986 by Dr. Ni, showing the flow of various excipients through an hourglass. Dr. Ni explained that the hourglass was representative of a hopper that might be used to transfer a formulated powder into a conventional tablet compressing machine, and provided photographs which bore the label "Comparison of flow/no flow behavior created by differences in particle size distribution in glyburide/lactose formulations." The examiner deemed the evidence inadequate, stating, among other things, that the ingredients and amounts used in the experiments had not been set forth. The examiner continued to reject all of the claims.

Dr. Ni filed a second declaration in October 1986, accompanied by copies of the laboratory notebook pages which he stated described "the constituents of the powders which were used in experiments performed in connection with my previous declaration." A notebook page contained the statement that a "placebo" was used in the experiments. The examiner adhered to his rejection, stating that although the declaration referred to manufacturing advantages, the claims were not directed to a manufacturing process.

Upjohn appealed to the Board of Patent Appeals and Interferences. The Board reversed the examiner. The Board noted that Upjohn did "not dispute that the references relied upon by the examiner establish that it would have been prima facie obvious to one of ordinary skill in the art" to make the invention as claimed. The Board then found that the Ni declarations constituted sufficient evidence to shift the burden to the examiner to come forward with prior art to show that substituting spray-dried lactose for non-spray-dried lactose would have resulted in a more free-flowing composition, a burden that the Board found had not been met.

MOVA states that the Ni declarations establish inequitable conduct, arguing that Upjohn intentionally misrepresented, in the first Ni declaration, that glyburide was present in the compositions used in the experiments, although these compositions contained no such ingredient. Upjohn denies both misrepresentation and intent, argues that the second Ni declaration remedied any ambiguity in the first declaration, and states that the flow characteristics were the purpose of the demonstration. Ni testified that it was not necessary to include micronized glyburide, a toxic substance, in the demonstrations. The Ni declaration described the hourglass tests as a comparison of the "use of ordinary or non-spray-dried lactose in place of spray-dried lactose," and that the hourglass on the left-hand side of the exhibit "represents a spray-dried lactose formulation in accordance with the claims in the present invention." MOVA states that this was a misrepresentation with intent to deceive; Upjohn states that the notebook page made clear that a placebo was used. Upjohn points out that the patent examiner rejected the claims both before and after Upjohn clarified the ingredients used in the hourglass demonstration.

There was no evidence that the content of the formulations was intentionally withheld. The evidence before the jury was not clear and convincing evidence of material withholding with culpable intent based on the composition of the hourglass tests and the Ni declarations describing these tests.

The Earlier Tests

In 1983, about three years before the Ni declarations discussed supra, Upjohn had conducted flow tests of formulations containing spray-dried lactose and 10.5 mg of micronized glyburide, with "no-flow" results. Dr. Ni testified at trial that by 1986 Upjohn was not interested in 10 mg concentrations, and that he "did not even think of informing the patent office" of the 10.5 mg studies done three years earlier.

MOVA states that these earlier test results contradicted those in the Ni declarations, and should have been disclosed to the PTO. On the question of intent to deceive,

MOVA states that Dr. Ni did not deny having knowledge of the earlier adverse 10.5 mg test results, that the Ni declarations were essential to the grant of the '163 patent, and that the jury could reasonably have concluded that Dr. Ni did not inform the PTO of the 10.5 mg test results because he knew it would be "fatal to patentability." MOVA states that it is irrelevant that these early tests were run at a relatively high concentration of micronized glyburide (10.5 mg) because claim 1 does not limit a "unit dose" to the 6 mg maximum stated in the specification as preferred.

Upjohn states that the results of the 10.5 mg experiments were not material to patentability, and that their omission was neither relevant nor with intent to deceive. Upjohn states that the hourglass tests of the Ni declarations demonstrated the superiority of spray-dried lactose over ordinary lactose, and that the 10.5 mg experiments three years earlier, using a concentration well outside the scope of the claims, were not relevant to the issue of patentability. Upjohn also states that the invention is directed to manufacturability in machines, and the 10.5 mg experiments showed adequate flow for that purpose. Upjohn states that there was no evidence of an intent to deceive, arguing essentially that the 10.5mg tests were obsolete because they involved an abandoned formulation.

Although MOVA states that the term "unit dose" in claim 1 does not exclude 10.5 mg, the disclosure and examples in the specification are all within the 1 to 6 mg range. Indeed, in a 1994 opinion MOVA's patent attorney concluded that: "All examples of glyburide (both in the specification and submitted during prosecution) fall within this range, as do all commercial formulations as far as we are aware. Thus, 'about 6 mg' appears to be the normal maximum amount of glyburide."

We must agree with Upjohn that the failure to include these 1983 tests of an abandoned formulation, in the 1986 declaration to the PTO, did not establish intent to deceive, and that a reasonable jury's verdict could not have been based thereon.

The Inventorship Issue

An issue of inventorship arose at Upjohn when in 1992 an Upjohn employee, A. Shah, stated that he should have been named as the inventor of the '163 patent, which had issued in 1990. Sidney Williams, an Upjohn in-house attorney, conducted an investigation; he concluded that Shah should have been named with respect to claims 1, 3, and 4, and that Dr. Ni was correctly named for claim 2. Williams concluded that the inventorship should be corrected. Shah continued to assert that he was the sole inventor of all claims; Upjohn then retained outside counsel to conduct further investigation. Outside counsel determined that there were four inventors: Ni, Shah, Poska, and Glasscock. Shortly thereafter Upjohn filed a petition with the PTO to correct the inventorship by adding Shah, Poska, and Glasscock.

MOVA does not challenge the correctness of the changed inventorship. MOVA's argument is that "Upjohn's attorney at the time did not inquire of the three new inventors as to whether they were aware of any material prior art." MOVA states that two of the newly named inventors had knowledge of the known properties of spray-dried lactose, and that Upjohn was required to inform the PTO of this knowledge. Glasscock testified,

for example, that in the late 1950s or early 1960s salesmen of spray-dried lactose were stating that it was a flow enhancer and a direct compression agent. Poska testified that he knew in the 1970s that lactose was a direct compression excipient that helped powder flow. Upjohn responds that the patent application disclosed that spray-dried lactose was a known product, known in the prior art to be free-flowing, and commercially available.

We have been directed to no evidence of withholding prior art with intent to deceive. The specification contained the information that MOVA states Poska and Glasscock should have told the examiner, viz., the known use of commercially available spray-dried lactose to make the composition free-flowing. The specification stated:

> Spray-dried lactose can be employed as commercially available. For example, Foremost Spray-dried Lactose #315 or #316 is highly useful in the manufacture of compositions in accordance with the present invention. The particle size of the lactose must be sufficiently large to permit a mixture of the lactose and the glyburide to be free flowing.

'163 patent, col. 2, lines 26-37.

To require the inventor to describe his entire personal knowledge in the field of the invention, however the knowledge was obtained, would be an unmanageable assignment. It is prior art that must be disclosed, prior art that is material to patentability. See 37 C.F.R. §1.56 (1988). A reasonable jury, applying the law correctly, could not have found material withholding with intent to deceive on this ground.

MOVA states that "it offered evidence of other conduct of Upjohn that supported the verdict of unenforceability," citing Upjohn's attempts to ascertain and correct the inventorship. MOVA does not elaborate on this point, and does not dispute the resolution of the inventorship issue. Upjohn points out that Upjohn was the assignee of all persons involved, and that the naming of inventors had no effect on patent ownership. MOVA's unsupported argument of generalized wrongdoing can not contribute substantial evidence that could support findings of materiality and intent to deceive on the issue of inventorship.

Conclusion

The judgment of non-infringement is supported by substantial evidence, and is affirmed. The judgments of invalidity and unenforceability are without adequate evidentiary support, and are reversed.

No costs.

AFFIRMED IN PART AND REVERSED IN PART