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BEST MODE DISCLOSURE: DOES THE INFORMATION IMPROVE THE OPERATION OR EFFECTIVENESS OF THE CLAIMED INVENTION?

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I. Introduction

In the past few years, the Federal Circuit has taken the opportunity to extensively analyze the best mode requirement in a number of cases. The cases have had a variety of fact patterns, making for a rich, if somewhat confusing, body of case law interpreting the statute. The district courts are now beginning to wrestle with the Federal Circuit's pronouncements, showing that the notions many patent lawyers had, for many years, about what disclosure was required in a patent application are no longer correct.

This paper is an updated and much shortened version of a paper delivered at the State Bar Of Texas Professional Development Program in March of 1992, analyzing the current treatment of the best mode issue.

A. The old "preferred embodiment" rule is, in practice, no longer valid

The purpose of the best mode requirement, according to the C.C.P.A.,[1] "is to restrain inventors from applying for patents while at the same time concealing from the public preferred embodiments of ***64** their inventions which they have in fact

conceived."[2] As to what type of information had to be disclosed, the C.C.P.A. said, "an inventor is in compliance [with the best mode requirement] if he does not conceal what he feels is a *preferred embodiment* of his invention."[3] This statement will be referred to later as the preferred embodiment rule.

The test for the adequacy of disclosure, also according to the C.C.P.A., was whether the specification "delineates the best mode in a manner sufficient to require only the application of routine skill."[4] The C.C.P.A. took a narrow view of what had to be disclosed in addition to that which made for an enabling disclosure. For example, in *In re Brebner,*[5] the claims addressed a combination of elements, and the best combination of the elements was disclosed. The C.C.P.A. held that examples of the ingredients of the elements did not need to be disclosed, if the ingredients were known to those of skill in the art.[6] In another case, the C.C.P.A. apparently focused not on the preferred embodiment of the claims, but on the "essence"[7] of the invention:

> It is our view that the error of failing to "analyze exactly what appellant's invention is in the instant case," has resulted in the additional error of requiring a best mode be set forth of details not relating to the essence of the invention. What would be sufficient as a best mode here cannot be determined until first the invention is discerned. . . . The Patent Office here does not advance any convincing reason for finding that *the invention* is so dependent on the amounts of [ingredients] that a best mode of the claimed process is not disclosed by the general teachings of the specification.[8]

Early Federal Circuit cases seemed to follow the C.C.P.A. direction. For example, in *DeGeorge v. Bernier,*[9] the Federal Circuit held that the best mode requirement regarding a computer related invention had not been violated, because the withheld information related to a component that was not a part of the claimed invention.[10] Focusing on whether the undisclosed information was part of the invention suggested that the Federal Circuit was to follow the preferred embodiment rule of the C.C.P.A. However, after *DeGeorge,* various panels of the Federal Circuit did not.

Perhaps it is because compliance with the best mode requirement is a fact intensive issue[11] that quoting general rules from the Federal Circuit does not give much comfort to those looking for a way of determining whether there has been a best mode violation or whether a particular class of information should be included in the application. For example, although not all Federal Circuit judges are in agreement,[12] the Federal Circuit has said that "exact duplication" of the best mode by those of skill in the art is not necessary.[13] However, simply referencing what the applicant considers to be his best mode may not be sufficient, in that "the quality of [[[the best mode] disclosure may be so poor as to effectively result in concealment."[14] Recent Federal Circuit opinions say that the quality of the best mode disclosure must be "enabling,"[15] a standard which the district courts seem to be following.[16]

***65** The concept of "concealment" of the best mode has also become a point of confusion. Some cases say that the "concealment" does not have to be intentional.[17] Other cases, in direct contradiction, say that the concealment must be intentional.[18]

Such statements, although quoted by courts by way of explaining what the statute requires, do little to help the practitioner apply the requirement to any particular set of facts. Although tedious, perhaps in this area of the law more than others, a detailed understanding to the facts of the cases is important to understand.

II. Federal Circuit Cases

A. Spectra-Physics, Inc. v. Coherent, Inc.[19]

In *Spectra-Physics,* one of the elements in the claims was a "means for attaching" copper cups to ceramic tubes. The specification identified the means as including moly-manganese brazing, low temperature pulse soldering, and TiCuSil (Titanium-Copper-Silicon) brazing. Coherent used only TiCuSil brazing. The court said:

> The appropriate question then is not whether the inventors disclosed TiCuSil brazing *at all*--they did--but whether TiCuSil brazing was *adequately* disclosed. Even though there may be a general reference to the best mode, the quality of the disclosure may be so poor as to effectively result in concealment.[20]

The Coherent brazing technique was a six step process which was unique to its ovens, and because the performance of industrial ovens varies considerably, the actual parameters would have been meaningless to someone who used a different oven.

The court held that Coherent had not satisfied best mode, even though they had disclosed TiCuSil brazing.[21] Apparently crucial to the *Spectra-Physics* panel was that the prior art did not show how to use the specific TiCuSil technique which Coherent used.[22] The Court also noted that the prior art actually taught away from using TiCuSil brazing in Coherent's

application.[23]

It can be argued that the preferred embodiment of what the inventor considered to be the invention was disclosed. TiCuSil brazing (the preferred method of making the preferred embodiment) was also disclosed. Only the specific oven parameters of Coherent's particular TiCuSil process were withheld. Therefore, under one argument, not only was the preferred embodiment disclosed, but the preferred method of making the preferred embodiment was generally mentioned. Apparently, therefore, it was the concealment of the preferred embodiment *of the preferred method of making* the claimed invention that turned the case. However, there may be another way of interpreting the case.

Note that the claim element was a "means for attaching." Another argument is that because the claimed invention included a functional limitation for making the structure, the preferred method of making was a mode of carrying out the invention.[24] Even so, many would have presumed that the ***66** disclosure of TiCuSil brazing would suffice, because the only additional information Coherent had to give would have been meaningless to those of skill in the art. Such a disclosure would not have further enabled the preferred method of making and provides more than a production specification, a depth of disclosure that is said to be unneeded.[25]

"Means for" language aside, *Spectra-Physics* shows that at least some judges on the Federal Circuit want to see the disclosure of something more than the preferred structure. The problem becomes where to stop. No client wants to pay a patent lawyer to write a production specification, but disclosing only the preferred embodiment along with enablement of a generally claimed invention may not be enough.

Looking for some guidance from the cases, in *W.L. Gore & Associates, Inc. v. Garlock, Inc.,*[26] the Federal Circuit said that there was no best mode violation where the inventor did not disclose the only mode of calculating the stretch rate that he used, because "[that] mode would have been employed by those of ordinary skill in the art at the time the application was filed. As indicated, Dr. Gore's disclosure must be examined for § 112 compliance in light of knowledge extant in the art on his application filing date."[27]

Therefore, one might argue that *Spectra-Physics,* when read in light of *W.L. Gore,* teaches that, as long as the preferred technique for making the preferred structure is actually known by those of skill in the art, then the "best mode" would be satisfied by general reference to that technique.

Problem: *Dana Corporation v. IPC Limited Partnership*[28] appears to hold otherwise.

B. Dana Corp. v. IPC Limited Partnership

Dana involved a patent claiming a valve stem seal for internal combustion engines. IPC, the alleged infringer, claimed that fluoride treatment of the rubber for the seal was needed for the valves to seal satisfactorily. According to IPC, since Dana's patent did not state that requirement, the best mode requirement was not satisfied.

The specification said:

> In some instances, the sliding sealing surfaces, such as the internal wall, may be coated with a lubricating material, such as molybdenum disulfide, graphite, or the like, to provide a more slippery surface on the elastomeric material and decrease friction between the seal and the valve stem. The methods of applying such surface coatings are well known and widely used for elastomeric seals.[29]

In litigation, Dana submitted an article evidencing that fluoride treatment of such seals was known to those of skill in the art. Therefore, Dana argued, the phrase "a lubricating material such as molybdenum disulfide, graphite, or the like" should suffice. Presumably, there was no need to make a more specific disclosure of the preferred method of making one of the structural elements recited in the claims, because lubrication was mentioned, and the art was aware of the importance of fluoride treatment.

The Federal Circuit disagreed saying that Dana had confused the § 112 "enablement" and "best mode" requirements:

> The best mode requirement is not satisfied by reference to the level of skill in the art, but entails a comparison of the facts known to the inventor regarding the invention at the time the application was filed and the disclosure in the specification. *Spectra-Physics, Inc. v. Coherent, Inc.,* 827 F.2d at 1535, 3 USPQ2d at 1745. Indeed, in expressing this requirement, 35 U.S.C. § 112 states explicitly that disclosure

> must be made of the best mode "contemplated by the inventor." Accordingly, Dana's argument that the best mode requirement may be met solely ***67** by reference to what was known in the prior art is incorrect.[30]

The *Dana* panel held that the best mode requirement was not satisfied, because the inventor did not disclose the fluoride treatment.[31]

Note that the claim recited "[i]n an internal combustion engine having a valve guide and a poppet valve stem, . . . a valve stem seal for sealing between said valve stem and said valve guide, comprising a transversely extending portion of elastomeric material positioned atop said valve guide . . . . "[32]

The claim did not recite a process for making the elastomeric material; and, therefore, the preferred embodiment of the claimed invention did not have to do with treatment of rubber. It was in the method of making the "elastomeric material" that Dana was held to have concealed the best mode of the claimed valve stem seal.

Note that here, unlike *Spectra-Physics,* the claim language was structural, not a "means for" limitation, so there can be no argument that the method of making the elastomeric material was part of the preferred embodiment of the claimed invention. Therefore, with *Dana,* the Federal Circuit appears to have rejected the preferred embodiment rule of the C.C.P.A.,[33] and a production specification (including operating parameters that may have meaning to only one group of operators)[34] seems to be the only way a patent drafter can avoid a best mode problem.

However, there is not uniformity in the opinions of the various panels of the Federal Circuit. At times, the Federal Circuit has seemed to follow the C.C.P.A.'s preferred embodiment rule by focusing on the claimed subject matter.

***C. Randomex, Inc. v. Scopus Corp.*[35]**

In *Randomex,* the Federal Circuit held that the formula for the preferred solution for use with the claimed device did not have to be disclosed to comply with the best mode requirement:

> Although a trade name alone may be inappropriate in a best mode disclosure when suitable substitutes are unavailable, see *White Consolidated Indus, Inc. v. Vego Servo-Control, Inc.,* 713 F.2d 788, 791, 218 USPQ 961, 963 (Fed. Cir. 1983), here, commercial substitutes were readily available in the prior art and the trade name is mere surplusage--an addition to the generic description. Contrary to the district court's conclusion, Randomex's disclosure was not an attempt to conceal its cleaning fluid formula; it disclosed the contents of the fluid as "a non-residue detergent solution," the same solution as the surgical detergent solution used in the prior art. The failure to disclose its cleaning fluid formula was, as the inventor and president of Randomex admitted, merely a public relations attempt to generate sales for its cleaning fluid; it disclosed the best mode of practicing its claimed invention using [the invention] in conjunction with it a non-residue detergent solution.[36]

According to the *Randomex* panel, the disclosure was "adequate" in disclosing the preferred cleaning solution for use with the claimed device by stating, "[t]he cleaning solution employed should be of a type adequate to clean grease and oil from the disc surfaces, such as a 91 percent alcohol solution or a non-residue detergent solution such as Randomex Cleaner No. 50281."[37]

This disclosure was enough, even though there was uncontroverted evidence that the inventor knew some alcohol solutions produced dangerous fumes, and the inventor had abandoned alcohol after one ***68** try.[38] So, given that the inventor disclosed the trade name of an acceptable solution, but did not disclose the fact that there were other solutions of a similar type that were not acceptable, the *Randomex* panel appears to follow the C.C.P.A. preferred embodiment rule. However, it does not.

The quoted portion seems to say that the solution was not part of the invention. If *Randomex* was following the preferred embodiment rule, there should have been no need to discuss the adequacy of the disclosure of the solution. Apparently, the *Randomex* panel considered the solution to be a "mode of carrying out the invention." Therefore, according to *Randomex,* the "best mode" that had to be disclosed was the method of use of the claimed structure with a useful solution. Nevertheless, since the solution was not part of the invention, the preferred embodiment *of the solution* was not required, only a generic description.

So, with *Randomex,* there appears to be at least two classes of information covered by the best mode: the preferred

embodiment, which apparently must be "enabled", and those things for use with the claimed invention which are not "part of" the invention, which, if disclosed generically, do not necessarily need to be enabled.

However, there are some additional twists to the case. For example, the quoted passage leaves the reader with the idea that the claimed invention in *Randomex* was a device for cleaning computer discs, and that the cleaning fluid was not mentioned in the claims. Yet, "a fluid"[39] and "a cleaning solution"[40] are recited in the body of the claims. Some C.C.P.A. cases suggest that the preferred ingredient of the claimed combination of the elements need not be disclosed,[41] and that, if the "essence" of the invention does not include the fluid, then the preferred formula for the solution need not be disclosed.[42] However, if the claims recite "a fluid" or "a cleaning solution," then, under *Spectra-Physics,* wouldn't disclosure of the preferred embodiment of the fluid or cleaning solution be appropriate? There are a few lawyers who would argue that to infringe the claims as written, a defendant would have to make, use, or sell the fluid in combination with the structure. Why not require disclosure of the preferred embodiment of the solution (an element which would arguably be required for literal infringement)?

The *Randomex* panel treated the cleaning solution as a fluid for use with the claimed invention--not as a limiting feature of the claims. In other words, the cleaning solution was not a part of the "essence" of the invention. Therefore, there must have been something in the claims to lead the *Randomex* panel to believe that the solution was not part of the invention, but only a separate item for use with the claimed invention.

Perhaps the court focused on the fact that the fluid recitations were subordinate clauses to means plus function limitations, a fact which gives the reader the impression that the recited "means" is the limitation of the scope of the claim, not the fluid upon which the means acts. If that was the focus, then a claim drafter might be tempted (in spite of *Spectra-Physics*) to draft claims by leaving the preamble bare and drafting in a means plus function format. However, there are situations where focusing only on the "means for *** ing" portion of the claim leads to absurd results (not to mention affecting the range of equivalents). For example, if a claim is written, "A device comprising: means for supporting a planar member in proximity with a circular member. . . ", are the planar and circular members required to be in an infringing device? Is a piece of prior art appropriate as a § 102 rejection if that art does not include both the planar and the circular members?[43]

***69** Perhaps the *Randomex* panel felt that, even though the solution was recited in the body of the claim, under a fair claim interpretation analysis[44] the inventor considered his invention to be the structure, not the solution. No doubt, a hypothetical claim (to borrow a popular phrase) could be drafted in which the preamble of the claim recited "An apparatus for cleaning recording surfaces with a fluid, the apparatus comprising . . . ," and it would be more difficult to argue[45] that to infringe the claim a defendant would have to make, use, or sell the fluid in combination with the mechanical structure. So, following this logic, if one does not need to make, use, or sell the fluid to practice the invention, then the patentee need not disclose the preferred formula for the fluid.

Perhaps the *Randomex* panel felt that the solution was akin to an environment for use of the essence of the invention. In other words, the solution was a part of a preferred process for use of the claimed invention. Following this logic, the solution should have been disclosed as a part of a "mode of carrying out the invention" (certainly, one can make the argument that a method of use is a "mode of carrying out"). And, following C.C.P.A. policy statements, if the preferred embodiment of the claimed invention is disclosed, then a generic disclosure of a solution for use in a process for using the essence of the invention might be enough. If this was the *Randomex* panel's rationale, then there is yet another conflict between panels of the Federal Circuit; for recently, yet another panel stated, "The various applications to which an invention can be put are not the focus of the best mode requirement."[46]

Unfortunately, the *Randomex* panel did not explain why the location of the fluid feature in the body of the claim was ignored. Apparently recognizing the lack of clarity in the cases, more recent Federal Circuit opinions have tried to develop a general rule for what must be disclosed.

D. Chemcast Corp. v. ARCO Industries Corp.[47]

In *Chemcast,* a different panel of the Federal Circuit said (in apparent contradiction to the *Dana* panel) that because the disclosure was directed to those skilled in the art, one must consider the level of skill in the relevant art in determining whether a specification discloses the best mode.[48] The court went on to say:

The best mode inquiry focuses on the inventor's state of mind as of the time he filed his application--a subjective, factual question. But this focus is not exclusive. Our statements that "there is no objective standard by which to judge the adequacy of a best mode disclosure," and that "only evidence of concealment (accidental or intentional) is to be considered," assumed that both the level of skill in the art and the scope of the claimed invention were additional, objective metes and bounds of a best mode disclosure.[49]

The problem with the case is that in the same paragraph in which the *Chemcast* panel says that the level of skill is an appropriate consideration, *Dana* is cited:

> We have consistently recognized that whether a best mode disclosure is adequate, that is whether the inventor concealed a better mode of practicing his invention than he disclosed, is a function of not only what the inventor knew but also how one skilled in the art would have understood his disclosure. *See, e.g., Dana Corp.,* 860 F.2d at 418, 8 USPQ2d at 1696 (best mode requirement violated because inventor failed to disclose whether to use specific surface treatment that he knew was necessary to the satisfactory performance of his invention, even though how to perform the treatment itself was known in the art. Dana's argument that the best mode requirement may be met *solely* by reference to what was known in the prior art is incorrect.) . . . Thus, the level of skill in the art is a relevant and necessary consideration in assessing the adequacy of a best mode disclosure.[50]

***70** So, *Chemcast* when read with *Dana* apparently allows reference to the level of skill in the art, as long as that is not the only means by which the inventor attempts to satisfy the best mode requirement. Therefore, *Chemcast* said:

> In short, a proper best mode analysis has two components. The first is whether, at the time the inventor filed his patent application, he knew of a mode of practicing his claimed invention that he considered to be better than any other. This part of the inquiry is wholly subjective, and resolves whether the inventor must disclose any facts in addition to those sufficient for enablement. If the inventor in fact contemplated such a preferred mode, the second part of the analysis compares what he knew with what he disclosed -- is the disclosure adequate to enable one skilled in the art to practice the best mode or, in other words, has the inventor "concealed" his preferred mode from the "public"? Assessing the adequacy of the disclosure, as opposed to its necessity, is largely an objective inquiry that depends upon the scope of the claimed invention and the level of skill in the art.[51]

Note that there are really three inquiries. First, is the mode alleged to be best a "mode . . . of carrying out the invention" at all? Second, if so, did the inventor know of a preferred version of that mode? Third, the "objective" portion of the *Chemcast* test is whether the inventor's preferred version was adequately disclosed (i.e., was the best mode "enabled"?).

For example, is the mode asserted to be the concealed best mode an embodiment of the claimed invention? If it is only the preferred embodiment which must be disclosed under the C.C.P.A. precedent, and the infringer is arguing that the preferred environment for using the claimed invention has been concealed, (even though the invention has been enabled)[52] then the sufficiency of the disclosure does not have to be addressed, because the preferred environment of using the claimed device is not required to be disclosed (under the C.C.P.A. interpretation of the best mode requirement).[53] However, if the mode alleged to be the best mode by the infringer is a mode which must be disclosed (for example, an embodiment of the invention), then the adequacy of the disclosure, as seen by a person of ordinary skill in the art, must be determined.[54]

The claims in *Chemcast* were addressed to a grommet for sealing an opening in a panel, having a base portion and a locking portion, wherein the base portion has a durometer hardness reading of less than "60 Shore A", and the locking portion has a durometer hardness reading of more than "70 Shore A."[55]

The inventor knew that the preferred material for the locking portion was a rigid polyvinyl chloride plastisol composition, having a "75 +/-5 Shore D"[56] hardness. The only material meeting the preferred specifications known to the inventor at the time of filing was Reynosol Corp. R-4467--a composition that Reynosol Corp. had spent 750 man-hours developing specifically for Chemcast. The specification of the patent disclosed:

> The annular locking portion [ ] of the sealing member [ ] is preferably comprised of a rigid castable material, such as a castable resinous material, either a thermoplastic or thermosetting resin, or any mixtures thereof, for example, polyurethane or polyvinyl chloride. The [locking] portion [ ] also should be made of a material that is sufficiently hard and rigid so that it cannot be radially compressed, such as when it is inserted in the opening [[[ ] in the panel [ ]. Materials having a durometer hardness reading of 70 Shore A or harder are suitable in this ***71** regard.[57]

The Federal Circuit labeled the quoted disclosure as "manifestly deficient",[58] because the 75 Shore D hardness and the

supplier/trade name Reynosol R-4467 were not disclosed in the specification.[59] 75 Shore D was found to be recognized by those of skill in the art as a type of material which is different (although translatable) from a Shore A material. Therefore, "70 Shore A or harder" was found to conceal the preferred hardness of 75 Shore D.[60] The tenor of the opinion leads the reader to believe that if either the supplier/trade name or the 75 Shore D hardness had been disclosed, there would have been no holding of best mode concealment.

Note that the concealed information in *Chemcast* was the preferred ingredient for making a structural element of the claimed invention-- information which the C.C.P.A. has at least suggested is not required to be disclosed.[61] However, the preferred material for making a claim element could be argued to be part of the preferred embodiment of the invention, and thus, under other C.C.P.A. precedent,[62] appropriate for disclosure. Therefore, on the basis of the record, *Chemcast* can be argued to be following the preferred embodiment rule. However, in dicta, the *Chemcast* panel specifically repudiates the preferred embodiment rule, seeming to adopt a rule that any information *necessary to practice the best mode of carrying out the claimed invention* must be disclosed: "[M]ost of the cases in which [the Federal Circuit has] said that the best mode requirement was violated addressed situations where an inventor failed to disclose non-claimed elements that were nevertheless necessary to practice the best mode of carrying out the claimed invention."[63]

A "necessary to practice the best mode of the claimed invention" requirement definitely requires more than the statute, which only requires disclosure of the best mode of carrying out the invention; but, whether or not the best mode is enabled is another question. The best mode may be enabled, or not, depending on the level of skill in the art.[64] The inventor might fail to disclose information "necessary to practice the best mode of carrying out the claimed invention," but if that information is known to those of skill in the art, should the patent be held invalid?

If read expansively, such a rule would require disclosure of preferred methods of making, preferred non-claimed devices or compositions for use with the claimed structure, as well as preferred ingredients--and reference to what one of ordinary skill in the art would understand might not be enough. If the quoted phrase is read restrictively, then, in addition to the preferred embodiment, *only* that information *necessary* to enable a person of ordinary skill to practice the preferred embodiment of the claimed invention is needed. The preferred method of making and preferred ingredients of claim elements would not be required, *unless* a person of ordinary skill in the art would not be able to practice the preferred embodiment without such a disclosure.

Given that the *Chemcast* panel believes that the quality of the disclosure is to be viewed through the eyes of one of ordinary skill in the art,[65] it appears that the restrictive reading is what the panel intended, making *Chemcast* contradictory to *Dana* and *Spectra-Physics.* Consider then *Christianson v. Colt Industries,*[66] which sets forth yet another rule of thumb for the best mode.

*72 *E. Christianson v. Colt Industries*

Christianson accused Colt of violating the best mode requirement because Colt failed to disclose the tolerances and mass production data necessary to make the claimed invention (a part for a rifle) interchangeable in a particular use (the M-16 rifle). Speaking through Judge Markey, the Federal Circuit said:

> The best mode requirement assures that inventors do not conceal the best mode known to them when they file a patent application, but the "best mode" is that of practicing the *claimed* invention. . . . In this case, interchangeability with M-16 parts appears nowhere as a limitation in any claim, and as Christianson concedes, the patents make no reference whatever to the M-16 rifle. Thus the best mode for making and using and carrying out the *claimed inventions* does not entail or involve either the M-16 rifle or interchangeability. The "best mode" for making and using the claimed parts relates to their use in *a* rifle, any rifle. There is nothing anywhere in the present record indicating that any of the patents fail to meet that requirement.[67]

Note that Judge Markey added language that is not in the statute--"the best mode for *making and using* and carrying out . . . . "[68] The making and using language may have come from the enablement requirement of § 112, which requires enough disclosure to enable one of ordinary skill to make and use the invention. Interestingly, although the "make and use" portion of the statute is in the same sentence as the best mode requirement, it is in a different clause, suggesting that the mode referred to in the best mode clause is something other than the mode of making or using the claimed invention.[69]

Perhaps Judge Markey looked to the enablement clause as suggesting additional modes, besides the preferred structure, to find some statutory basis for the earlier Federal Circuit cases which stray from the C.C.P.A.'s preferred embodiment rule. Perhaps the extra language in Judge Markey's quote was not intended as a new rule. However, the case is silent as to what was intended.

What is clear, at least with the Federal Circuit precedent up through *Christianson,* is that there is definitely something more than the preferred embodiment of the claimed invention that the Federal Circuit considers to be the "mode" referred to in the statute. In a more recent case, the Federal Circuit set forth yet another non-statutory rule of thumb for complying with the best mode requirement.

***F. Engle Industries, Inc. v. Lockformer Co.*[70]**

In *Engle,* the Federal Circuit said:

> The best mode inquiry is directed to what the applicant regards as the invention, which in turn is measured by the claims. Unclaimed subject matter is not subject to the disclosure requirements of § 112; the reasons are pragmatic: the disclosure would be boundless, and the pitfalls endless. See *Randomex, Inc.* It has been explained that a patent disclosure is not a "production specification", and that technical details apparent to a person of ordinary skill need not be included in the patent specification.[71]

Note, the *Engle* panel's comments about "what the applicant regards as the invention" does not spell out what mode is required by the best mode clause. The panel merely says that unclaimed subject matter is not subject to the *requirements* of § 112. So, if § 112 requires disclosure of the preferred method of making an element of the claimed invention, then it is still "claimed subject matter" that is "subject to ***73** the disclosure requirements of § 112."

The allegedly concealed best mode in *Engle* was the method of assembling the claimed structure--crimping of the corners of claimed duct work. The crimping was to prevent vibration (which occurred during transportation of the claimed duct work) from shaking the pieces apart. Although the *Engle* panel noted a failure to prove that crimping was preferred before the filing of the application,[72] *Engle* implies that even if crimping had been preferred before the filing date, crimping did not need to be disclosed.

The evidence was generally undisputed that the inventors' concept, and their preferred mode, was to snap in the corners without the need for any other fastening step, and to avoid the rivets or other procedures that were previously needed. . . . There was testimony that after the system was commercialized problems arose in the handling and transportation to the job site of duct sections to which corners had been connected, and that crimping of the corners avoided these problems. . . . In printed instructions issued in 1983, some nine months after the '641 patent application was filed, Lockformer showed a crimping step, and sold tools for this purpose. The unrebutted evidence shows, however, that this step or precaution was not part of the claimed invention, but was taken to facilitate transport and handling. Disclosure was not required by § 112; just as there is no requirement, for example, to disclose the preferred packing material in which to ship the invention. The district court found that crimping is "necessary", "essential", and "very important". These findings do not relate to the time the patent application was filed, and are clearly erroneous with respect to the claimed invention.[73]

Engle panel's analysis seems to be that the claimed invention was the duct work structure, so the preferred method of assembly of the claimed structure need not be disclosed. As to the structure claims,[74] this makes sense. However, there is one loose end. There were also method claims in the patent addressing, "A method for connecting the ends of sheet metal ducts wherein a frame is provided . . . the improvement comprising the steps of . . . introducing the arms of the corner connectors between respective second portions and end portions, . . . said retainer means assisting in the holding by said second portion, ..."[75]

Assuming that the crimping was considered to be the preferred way to assemble the ducts at the time the invention was filed, it would seem that the preferred embodiment of the method claims would be crimping.[76] The case does not so state. The district court had held all claims of the patent invalid for failure to disclose the best mode,[77] and the Federal Circuit reversed as to all of the claims.[78]

The method claims aside, *Engle* does provide authority that, at least in some cases, preferred methods of assembling a claimed structure solely for the purpose of transportation do not need to be disclosed to satisfy the best mode requirement--a foreshadowing of the next panel's "non-best mode" reasons for choosing a particular mode as best.[79]

***G. Wahl Instruments, Inc. v. Acvious, Inc.*[80]**

The court in *Wahl* quoted the C.C.P.A. in stating that the policy behind the best mode requirement ***74** "is to restrain inventors from applying for a patent while at the same time concealing from the public preferred embodiments of their

inventions which they have in fact conceived."[81] However, the *Wahl* panel did not return to the rule that the inventor was in compliance with the best mode requirement if the preferred embodiment is disclosed. No explanation was given for the apparent inconsistency of the *Wahl* panel's decision that the best mode section of the statute requires a disclosure greater than that needed to fulfill the policy behind the statute.

The invention in *Wahl* addressed temperature indicating devices. Some of the embodiments were useful as egg timers, and some embodiments were for other applications.[82] Therefore, according to the *Wahl* panel, "which embodiment was the 'best mode' . . . would depend on the use to which a device was put."[83] Because a later case says that the "various applications to which an invention can be put are not the focus of the best mode requirement,"[84] the case law would seem to have come full circle. If the purpose of the statute is to encourage disclosure of the preferred embodiment, then failure to disclose a method of making a preferred environment, or a preferred device or composition for use with the claimed invention, should not be a violation of the best mode requirement. However, *Wahl* is not so simple.

The claims of the patent, as originally filed,[85] claimed both the structure[86] and a method "for indicating attainment of predetermined internal temperature of an object."[87] No method of making was claimed. The allegedly concealed best mode was a method of making an embodiment of the structure claims. That method was "embedment molding." The district court had said (trying to follow *Dana*):

> The mandate of *Dana Corp.* is clear. If the best mode known to, and contemplated by, the inventor is not set forth in the patent, a judgment of patent invalidity is appropriate. This is precisely the situation in the case at bar. Plaintiffs have failed to disclose the best mode and seek to assert that the failure to disclose can be supplemented by a reference to the expertise of one skilled in the art. Such a reference to satisfy the best mode requirement of 35 U.S.C. § 112 is not appropriate under *Dana Corp.*[88]

Remember, in *Dana,* the claim was to a valve guide and a valve stem, and one of the claim elements was an "elastomeric material." Even though those of ordinary skill in the art would have known the preferred method of making the elastomeric material, the best mode was held to have been violated. In other words, in *Dana* the patentee had failed to disclose a preferred method of making an element of the claim, while in *Wahl* the patentee had failed to disclose a preferred method of making one of the embodiments of the claimed invention. So, the district judge read *Dana* as requiring a holding of invalidity.

The Federal Circuit held that such a reading of *Dana* was "overly broad."[89] In distinguishing *Dana,* the *Wahl* panel said:
***75** In *Dana,* this court overturned the denial of a JNOV motion on the ground that the district court erred in its understanding of the best mode principles of law in ruling that "the best mode requirement could be satisfied by reference to what the prior art discloses." 860 F.2d at 419, 8 USPQ2d at 1695-96. In *Dana,* however, the inventor stated in a report based on tests that a particular *old* technique, namely fluoride surface treatment of rubber seals, "is necessary to satisfactory performance of seal [[[to control leakage]." 860 F.2d at 418, 8 USPQ2d at 1695. The inventor himself also questioned why the patent application made "no reference . . . to fluoride treated rubber." *Id.* Thus, the evidence showed that the inventor, in the words of the statute, "contemplated" a particular undisclosed method of manufacture to obtain a satisfactory seal.[90]

The *Wahl* panel recognized that a *per se* requirement that routine details must be disclosed, just because they were selected as the "best" for manufacturing or fabrication, is unworkable in any case where a device has been made prior to filing for the patent. This is because the defendant's attorney would interrogate the inventor, detail by detail, about manufacturing processes or material selected as "best": "*A fortiori,* [the inventor] could hardly say the choice is not what he thought was 'best' in some way. Thus, at the point he would testify respecting a step or material or source or detail which is not in the patent, a failure to disclose the best mode would, *ipso facto,* be established."[91]

So, the *Wahl* panel focused on whether the old, known technique was "necessary to satisfactory performance" of the claimed invention. The *Wahl* panel failed to hold that methods of making the claimed structure are not modes which need to be disclosed. Rather, the court held that embedment molding did not have to be disclosed in that particular case. In so holding, the *Wahl* panel noted the following factors:
1) The specification described a two piece device, held together by ultrasonically welding, adhesive, clamping, or "any other suitable or desirable means for incorporating a layer of temperature indicating material . . . . "[92]

2) There was no evidence that the working of all embodiments was effected by the way the pieces were joined, unlike *Dana,* where there was evidence that all embodiments should have an element of the claim manufactured by a particular process for optimum performance.[93]

3) The preferred method of making was preferred for only one embodiment of the structure claims.[94]

4) The embedment molding was preferred, apparently, only due to cost considerations.[95]

5) Embedment molding would be used if one in the business of fabricating solid plastic articles was asked to make the embodiment shown in the drawings.[96]

6) Embedment molding was well known at the time the application was filed.[97]

The *Wahl* panel was unmoved by the admitted fact that embedment molding was the preferred method of making the claimed invention at the time the application was filed, saying, "Any process of manufacture requires the selection of specific steps and materials over others. The best mode does not necessarily cover each of these selections. To so hold would turn a patent specification into a detailed production schedule, which is not its function."[98]

Aside from the general technique of embedment molding, the District Court had also found that the specific embedment molding process favored by the patentee was insufficiently disclosed, saying,
Parker also admitted that the best technique at the time of the invention for causing the layer of thermochromic material to be embedded in ***76** the transparent plastic egg timer was by silk-screening a thermochromic paint or ink onto one side of a thin substrate, such as transparent MYLAR film, and then die-cutting oval-shaped pieces from the substrate for use as inserts in the embedment molding process. It is also undisputed that the best thermochromic paints or inks known to Parker at the time for the silk-screening process were those made by the Japanese company, Tieka, or by the New Jersey company, Tempil.[99]

Remember, the *Wahl* panel held that embedment molding was not a best mode of carrying out the invention. Therefore, one would assume that the court would summarily hold that the particulars of the embedment molding technique used would not be a mode that needed to be disclosed. However, the *Wahl* panel did not do so. It did not discuss whether such information was, as a matter of law, a mode that could be a best mode of carrying out the invention. Rather, the *Wahl* panel assumed that the particular technique was a mode requiring disclosure, at best, and is unclear on what basis the district court's decision was overruled, because the *Wahl* panel focused on the evidence relating to the adequacy of disclosure for summary judgment purposes. The Court seemed, therefore, to presume that such information might be a "mode of carrying out the invention":

> Even assuming, however, that the thermochromic MYLAR insert was the best mode for carrying out the invention, instead of *only* a preferred method of mass producing one embodiment of the invention, the district court erred in refusing to consider evidence that this form of insert was so known to those skilled in the art that they would understand to use it, know how to make it, know it was a standard product, and know the sources of supply for the paints, inks or entire inserts, or could easily obtain their names from standard directories. . . . The court apparently construed Parker's decision to make thermochromic inserts himself as a best mode decision. However, it was Parker's choice to make inserts rather than buy them merely because of the reduced cost. That choice had nothing to do with a best mode for the invention itself.[100]

Why the general method of embedment molding is not a mode of carrying out the invention, but the specifics of the method used could be such a mode, is not explained.

Note also that, with this *dicta,* the *Wahl* panel appears willing to expand the *Christianson* rule that tolerances to allow the claimed invention to be used in the mass production of an unclaimed product are not modes of carrying out the invention. *Wahl* at least implies that information that can be described as "*only* a preferred method of mass producing one embodiment of the invention" is not a "mode of carrying out the invention," the best of which must be disclosed. However, the *Wahl* court also presumes that, at least in some cases, disclosure of sources of materials may be required: "Contrary to the district court's view, there is no *per se* requirement to provide names for sources of materials absent evidence that the name of the source would not be known or easily available."[101] The *Wahl* panel also recognized that there are some *non*-best mode reasons for selecting particular materials or methods of manufacture of the claimed invention, citing as examples:
1) the particular manufacturing equipment was on hand,

2) the particular materials were available,

3) use of a long-term supplier's materials, over an untried supplier, and

4) "other reasons having nothing to do with development of the invention"[102] (most important for litigators).

So, how does one determine when *the* best mode has been concealed? Interestingly, *Wahl* is the first case to recognize the lack of clarity of the statute, stating that "mode" and "carrying out the invention" are incapable of a precise definition.[103] Remember, the allegedly concealed best mode was the ***77** manufacturing technique of the egg timer embodiment, as well as the materials and sources of supply for the materials used in the egg timer. Therefore, according to the panel, the defense was an attack "on the nondisclosure of a mode of a mode."[104] However, rather than holding that failure to disclose the best mode of a mode is not required, the court created a new "totality of the circumstances" test:

> Under our case law, there is no mechanical rule that a best mode violation occurs because the inventor failed to disclose particular manufacturing procedures beyond the information sufficient for enablement. One must look at the scope of the invention, the skill in the art, the evidence as to the inventor's belief, and all of the circumstances in order to evaluate whether the inventor's failure to disclose particulars of manufacture gives rise to an inference that he concealed information which one of ordinary skill in the art would not know.[105]

Therefore, according to the *Wahl* panel, a description of particular materials or sources may or may not be required.[106] Likewise, a description of a particular method or technique for manufacture may or may not be required.[107] Nevertheless, in *dicta,* the *Wahl* panel does give some guidance for when a best mode problem may exist, saying:

> Thus, the particulars of making a prototype or even a commercial embodiment do not necessarily equate with the "best mode" of "carrying out" an invention. Indeed, the inventor's manufacturing materials or sources or techniques used to make a device may vary from wholly irrelevant to critical. For example, if the inventor develops or knows of a particular method of making which substantially improves the operation or effectiveness of his invention, failure to disclose such peripheral development may well lead to invalidation.[108]

So, while the *Wahl* panel distinguishes *Dana* on the ground that the information excluded from the patent in *Dana* was a method of making, which was "necessary to satisfactory performance" of the claimed invention, the *Wahl* panel suggests that there may be a best mode violation if the undisclosed information "substantially improves the operation or effectiveness" of the claimed invention.[109] Neither was the case in *Wahl,* so there was no best mode violation.

Note that a method of making a claimed invention could very well substantially improve the operation or effectiveness of a structurally claimed invention. For example, consider a piston/cylinder head invention, where the head shape causes efficient energy transfer due to more complete burning of the fuel. The trade secret method of machining the piston and the cylinder is used on all pistons and cylinders whether they include the specially-shaped heads, or not. That trade secret method is so accurate that the resulting engine can run at a higher r.p.m., with less friction, and with more fuel efficiency than engines made with publicly known methods of machining. While perhaps not "necessary to satisfactory performance," such information would substantially improve the operation, and the effectiveness, of the claimed invention (the piston/cylinder head shape), even though the information is not a preferred embodiment of the claimed invention.

How many patent lawyers would advise their clients to disclose the machining technique? One argument is that, because the method of manufacture is not an embodiment, the information is not a "mode . . . of carrying out the invention"; and, therefore, there is no duty to disclose the information, even though it may be the best mode of manufacture of the claimed invention. After all, the method was not itself invented as a part of the claimed structure, so who would think it should be disclosed? One can ***78** make a compelling argument, based on the policy statements of both the Federal Circuit and the C.C.P.A. that disclosure of such a process should not be required.

However, the trend of the Federal Circuit case law suggests that such a course might be risky. The patent draftsman following this course might find that it would be in just such a case that the Federal Circuit would reject its previous policy statements that one is in compliance if the preferred embodiment is disclosed.

Now assume that the trade secret machining process does not make a difference to the effectiveness or operation of the

piston/cylinder arrangement. It is still a trade secret and considered very valuable, because it is the cheapest way by a factor of twenty to make any piston/cylinder arrangement, but the information is neither "necessary to satisfactory performance," nor would the information "substantially improve the operation or effectiveness." The information is a "particular" of manufacture that one of ordinary skill in the art would not know. However, it is not a "particular" which has to do with the technical aspects of the invention. Therefore, *Wahl* suggests that no disclosure is required.

H. Summary of the Federal Circuit Cases

The Federal Circuit tests of "necessary to satisfactory performance"[110] and "substantially improve the operation or effectiveness" allows both sides in litigation to argue vigorously. In any close case, the defendant will argue that the withheld information at least substantially improved the operation or effectiveness, and the patentee will have experts who will testify that, operation and effectiveness aside, the information would be understood by the person of ordinary skill, and the best mode was enabled.[111]

Therefore, at least until the Federal Circuit makes another pronouncement, the patent drafter will be at risk by trying to hold back information that has any effect on the performance of the claimed invention. Some of the problems can be avoided by careful choice of claim format, but some of the problems cannot. Therefore, the prudent course is to disclose all that is known that makes any difference to performance. Even so, there are times when a line must be walked between disclosure of a trade secret and a disclosure that satisfies § 112. Extreme care must be taken to claim the invention so as to avoid the argument that the trade secret is a "mode of carrying out" the invention.

III. Conclusion

In recent years, the Federal Circuit has departed from the preferred embodiment rule of the C.C.P.A. The Federal Circuit cases now include statements which appear to require, in addition to the preferred embodiment of the claimed invention, disclosure of information which, from a technical standpoint, "substantially improves the operation or effectiveness of the claimed invention," in view of what a person of ordinary skill in the art would understand. Apparently, economic-driven decisions on how to make or use the invention are now considered not to be "best mode" information.

Footnotes

[a1] Jenkens & Gilchrist, P.C., Houston, TX.

[1] Court of Customs and Patent Appeals.

[2] In re Gay, 309 F.2d 769, 772 (C.C.P.A. 1962).

[3] *Id.* at 772 (emphasis added).

[4] In re Sherwood, 613 F.2d 809, 817 (C.C.P.A. 1980), *cert. denied,* 450 U.S. 994 (1981).

[5] 455 F.2d 1402 (C.C.P.A. 1972).

[6] It has been recognized that the difference between whether an invention is claimed by recitation of "elements" (suggesting a structure), "ingredients" (suggesting a composition of matter), or "limitations" (suggesting a functional language) can have a drastic effect on definition of the invention, and that the lines between the three are not always clear. Waldbaum, et al, "Pennwalt Redux --Judicial Uncertainty v. Procrustean Bed," 19 AIPLA Q. J. 237 (1991).

[7] What is exactly meant by "essence" is unclear. Perhaps it is synonymous with the "gist and heart" of the invention used in infringement analysis under the doctrine of equivalents. *See, e.g.,* Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 871 (Fed. Cir. 1985); Medtronic, Inc. v. Cardiac Pacemakers, 721 F.2d 1563, 1567 (Fed. Cir. 1983).

[8] In re Bosy, 360 F.2d 972, 976 (C.C.P.A. 1966) (citation omitted).

[9] 768 F.2d 1318 (Fed. Cir. 1985).

[10] DeGeorge v. Berner, 768 F.2d 1318, 1325 (Fed. Cir. 1985) ("Because the properly construed count does not include a word processor, failure to meet the best mode requirement here should not arise from an absence of information on the word processor.").

[11] Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1578 (Fed. Cir. 1991) (holding that best mode is an issue of fact); Northern Telecom v. Datapoint Corp., 908 F.2d 931, 940 (Fed. Cir. 1990).

[12] Randomex, Inc. v. Scopus Corp., 849 F.2d 585, 591 (Fed. Cir. 1988) (Mayer, J., dissenting).

[13] Amgen, Inc. v. Chugai Pharmaceutical, 927 F.2d 1200, 1212 (Fed. Cir. 1991).

[14] Spectra-Physics v. Coherent Inc., 827 F.2d 1524, 1536 (Fed. Cir. 1987), *accord* Randomex, Inc. v. Scopus Corp., 849 F.2d 585 (Fed. Cir. 1988).

[15] *Amgen,* 927 F.2d at 1212; *See also Spectra-Physics,* 827 F.2d at 1534 ("In practical terms, where only an alternative embodiment is enabled, the disclosure of the best mode may be inadequate.").

[16] Zumbro, Inc. v. Merck and Co., No. 90-C-2507, 1992 U.S. Dist. LEXIS 17803, at *21-22 (E.D. Ill. Nov 13, 1992).

[17] In re Sherwood, 613 F.2d 809, 816 (C.C.P.A. 1980), *cert. denied,* 450 U.S. 994, 210 USPQ 776 (1981); *see also* Acme Resin v. Ashland Oil, 954 F.2d 735 (Fed. Cir. 1992) (text in Westlaw).

[18] Brooktree Corp. v. Advanced Micro Devices, 977 F.2d 1555, 1575 (Fed. Cir. 1992).

[19] 827 F.2d 1524 (Fed. Cir. 1987), *cert. denied,* 484 U.S. 954 (1987).

[20] Spectra-Physics v. Coherent, Inc., 827 F.2d 1524, 1536 (Fed. Cir. 1987) (citation omitted). Another panel of the Federal Circuit has held that the best mode requirement is not necessarily violated, if those of ordinary skill in the art can produce some embodiment that performs as well as the best mode. Interestingly, in that case there was even a finding of fact that "no scientist could ever duplicate exactly the best mode used by [the patentee]." Amgen, Inc. v. Chugai Pharmaceutical, 927 F.2d 1200, 1212 (Fed. Cir. 1991).

[21] *Spectra-Physics,* 827 F.2d at 1536-37.

[22] *Id.* at 1536.

[23] *Id.*

[24] Like the doctrine of equivalence, the best mode issue should give pause to those using functional limitations in claims. They have effects different from structural elements. For example, the *Spectra-Physics* claim could have

recited that the copper cups were attached to the ceramic tubes without "means for" language. Then there would be no argument about whether the brazing process was part of the preferred embodiment.

[25] *Spectra-Physics,* 827 F.2d at 1536.

[26] 721 F.2d 1540 (Fed. Cir. 1983).

[27] W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1556-57 (Fed. Cir. 1983).

[28] 860 F.2d 415 (Fed. Cir. 1988).

[29] Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415, 420 (Fed. Cir. 1988).

[30] *Id.* at 419.

[31] *Id.* at 420.

[32] *Id.* at 416.

[33] In Chemcast Corp. v. Arco Ind., 913 F.2d 923, 928 (Fed. Cir. 1990), discussed *infra,* another panel of the Federal Circuit said, "most of the cases in which we have said that the best mode requirement was violated addressed situations where an inventor failed to disclose non-claimed elements that were nevertheless necessary to practice the best mode of carrying out the claimed invention." (citing *Dana,* and Spectra-Physics v. Coherent, Inc., 827 F.2d 1524 (Fed. Cir. 1987)).

[34] *See* Spectra-Physics v. Coherent, Inc., 827 F.2d 1524 (Fed. Cir. 1987).

[35] 849 F.2d 585 (Fed. Cir. 1988).

[36] Randomex v. Scopus Corp., 849 F.2d 585, 589-90 (Fed. Cir. 1988).

[37] *Id.* at 586.

[38] *Id.* at 591.

[39] Claims 1 and 2 of U.S. Patent No. 3,803,660 recite "means for spraying *a fluid.*" (emphasis added).

[40] Claim 3 of U.S. Patent No. 3,803,660 recites "a spray bar having a plurality of apertures for directing *a spray of filtered cleaning solution* . . . . " (emphasis added).

[41] In re Brebner, 455 F.2d 1402 (C.C.P.A. 1972).

[42] In re Bosy, 360 F.2d 972, 976 (C.C.P.A. 1966).

[43] The preferred practice is to recite the environment of the invention in the preamble, and the elements and limitations that describe the invention in the body of the claim. Then the *Randomex* analysis will be more readily available to defeat a best mode challenge.

[44] An issue which is a matter of law, and which is, itself, the subject of intense debate.

[45] Such an argument would not be impossible, because language in the preamble may be used as a limitation.

[46] Brooktree Corp. v. Advance Micro Devices, 977 F.2d 1555, 1575 (Fed. Cir. 1992).

[47] 913 F.2d 923 (Fed. Cir. 1990).

[48] Chemcast Corp. v. Arco Ind., 913 F.2d 923, 926-27 (Fed. Cir. 1990) (*citing,* Randomex v. Scopus Corp., 849 F.2d 585, 587, (Fed. Cir. 1988)). *See also,* W.L. Gore & Assoc. v. Garlock, Inc., 721 F.2d 1540, 1556 (Fed. Cir. 1983).

[49] *Chemcast,* 913 F.2d at 926 (quoting In re Sherwood, 613 F.2d 809, 816 (C.C.P.A. 1980)).

[50] *Id.* (emphasis added) (quoting Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415, 419 (Fed. Cir. 1988)). It should be noted that the *Dana* panel also said, "The best mode requirement is not satisfied by reference to the level of skill in the art, but entails a comparison of the facts known to the inventor regarding the invention at the time the application was filed and the disclosure in the specification." *Dana Corp.,* 860 F.2d at 419.

[51] *Chemcast,* 913 F.2d at 927-928.

[52] The enablement requirement of Section 112 says: "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, ... " 35 U.S.C. § 112 (1988).

[53] *See also,* Brooktree Corp. v. Advanced Micro Devices, 977 F.2d 1555, 1575 (Fed. Cir. 1992) ("applications to which an invention can be put are not the focus of the best mode requirement.").

[54] The case law refers to the best mode as a factual inquiry. *Chemcast,* 913 F.2d at 927. As to whether the inventor disclosed a mode, and whether the disclosure of a mode is sufficient for a person of ordinary skill, maybe those are factual inquiries; however, I suggest that the determination of whether a particular type of mode (i.e., the preferred method of making the claimed invention, the preferred environment for use of the claimed invention, the preferred embodiment of the invention) should be disclosed is a matter of law. Therefore, depending on how depositions and other discovery go in a case, summary judgment for the patentee or the infringer may still be available on the best mode issue.

[55] For the actual wording of the claims, *see Id.* at 924-25.

[56] The Shore D and Shore A scales were found to be translatable, at this degree of hardness, by those of skill in the art. *Id.* at 925, n. 1.

[57] *Id.* at 929-30.

[58] *Id.* at 929.

[59] *Id.*

[60] *Id.*

[61] In re Brebner, 455 F.2d 1402 (C.C.P.A. 1972).

[62] *In re Gay,* 309 F.2d at 772.

[63] *Chemcast,* 913 F.2d at 928.

[64] *Compare* Dana Corp. v. IPC Ltd. Partnership, 860 F.2d 415 (Fed. Cir. 1988), Spectra-Physics v. Coherent, Inc., 827 F.2d 1524 (Fed. Cir. 1987), and Randomex v. Scopus, Corp., 849 F.2d 585 (Fed. Cir. 1988).

[65] *Chemcast,* 913 F.2d at 927.

[66] 822 F.2d at 1544 (Fed. Cir. 1987), *rev'd on other grounds,* 484 U.S. 985 (1987).

[67] Christianson v. Colt Ind., 822 F.2d 1594, 1563 (Fed. Cir. 1987).

[68] *Id.* (Emphasis added).

[69] The relevant portion of the statute, reads: "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention." 35 U.S.C. § 112 (1988).

[70] 946 F.2d 1528 (Fed. Cir. 1991).

[71] Engle Ind. v. Lockformer Co., 946 F.2d 1528, 1531-32 (Fed. Cir. 1991) (citations omitted).

[72] *Id.* at 1533.

[73] *Id.* at 1532-33.

[74] An example of the structure claim is: "1: In a system for connecting the ends of sheet metal ducts wherein a frame is provided for each duct end, corner connectors defining perpendicularly extending arms are associated with the frames, and means are provided to interconnect the frames of adjacent duct ends, the improvement wherein the sheet metal used for the ducts is also employed for forming said frames,
each said frame specifically comprising a roll-formed section consisting of an integral part of a duct wall,
each said section comprising a first portion extending perpendicularly outwardly from a duct wall, and a second portion bent rearwardly into a position opposite an end portion of the duct wall, the distance between said second portion and said end portion substantially corresponding to the width of an arm of a corner connector, the side edges of each such arm being received in engagement with the respective surfaces of a second portion and end portion whereby the corner connectors are held in position relative to a frame,

and including retainer means defined by said second portion for receiving a side edge of an arm for thereby securely holding the arm in position." *Id.* at 1530.

75 *Id.* at 1530-31.

76 "Each claim must be considered individually for compliance with the best mode requirement." *Id.* at 1531 (*citing,* Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 940 (Fed. Cir. 1990), *cert. denied,* 111 S. Ct. 296 (1990)).

77 *Id.* at 1529.

78 *Id.*

79 *Id.* at 1532-33.

80 950 F.2d 1575 (Fed. Cir. 1991), *cert. denied,* 484 U.S. 954 (1987).

81 Wahl Instruments v. Acvious, Inc., 950 F.2d 1575, 1579 (Fed. Cir. 1991).

82 *Id.*

83 *Id.*

84 Brooktree Corp. v. Advanced Micro Devices, 977 F.2d 1555, 1575 (Fed. Cir. 1992).

85 The patent-in-suit, U.S. Pat No. 4,137,769, was reissued in 1988, limiting the claims to a structure which could be reused including a limitation to thermochromic devices, and the method claims described *infra* were cancelled. The reexamination had no effect on the court's decision, as the focus of the best mode inquiry is on the time of filing of the application. *Wahl,* 950 F.2d at 1579.

86 Claim 1 of U.S. Pat. No. 4,137,769, as filed, read: "A time-temperature indicator for visually determining the internal temperature of an object being externally exposed to a temperature change, said indicator comprising a solid body of transparent material having visible temperature indicating means incorporated therein in thermal contact with said solid body, said body having a physical geometry simulating the physical geometry of the object and a coefficient of conductivity such that heat will diffuse through the body in a time period substantially equal to the time period in which heat will diffuse through the object when the object and the indicator are exposed to identical ambient conditions."

87 Claim 13 of U.S. Patent No. 4,137,769 reads: "A method for indicating attainment of predetermined internal temperature of an object having its surface exposed to an ambient temperature change by use of an analog time-temperature indicator comprising a body of transparent plastic material having thermochromic material incorporated therein, said body having a diffusivity coefficient relative to the diffusivity coefficient of the object and to the thermochromic material such that color transition occurs in the thermochromic material in a time equivalent to the rate of diffusion of heat through the object necessary to reach said predetermined temperature which method comprises the steps of exposing said object to change in ambient temperature, simultaneously exposing said analog time-temperature indicator to identical changes in ambient temperature, maintaining said object and said time-temperature indicator subject to identical change in ambient temperature until said thermochromic material exhibits a color transition."

[88] Wahl Instruments v. Acvious, Inc., 12 U.S.P.Q.2d (BNA) 1143, 1145 (D.N.J. 1989).

[89] Wahl Instruments v. Acvious, Inc., 950 F.2d 1575, 1580 (Fed. Cir. 1991).

[90] *Id.*

[91] *Id.* at 1581.

[92] *Id.* at 1580.

[93] *Id.*

[94] *Id.* at 1580-81.

[95] *Id.* at 1581.

[96] *Id.*

[97] *Id.* The court does distinguish between those of skill in the art of the claimed invention, noting that "one of skill in the art of temperature indicating devices would not be expected to be skilled in commercial fabrication of plastics." *Id.*

[98] *Id.*

[99] *Id.* at 1578 (*quoting,* Wahl Instruments v. Acvious, Inc., 12 U.S.P.Q.2d (BNA) 1143, 1144 (D.N.J. 1989)).

[100] *Id.* at 1583.

[101] *Id.* at 1583, n.4.

[102] *Id.* at 1581.

[103] *Id.* at 1579.

[104] *Id.* at 1579, 21 U.S.P.Q.2d (BNA) 1123, 1127 (Fed. Cir. 1991). It should be noted that the West Reporter does not include the phrase "mode of a mode," but it is included in the U.S.P.Q.2d, and the original slip opinion. *Compare Wahl* to Spectra-Physics v. Coherent, Inc., 827 F.2d 1524 (Fed. Cir. 1987), where a method of making an element of the claimed invention was a "mode" which required disclosure.

[105] *Wahl,* 950 F.2d at 1580 (citing Engel Ind. v. Lockformer Co., 946 F.2d 1528, 1531-32 (Fed. Cir. 1991) and Randomex v. Scopus Corp., 849 F.2d 585, 587 (Fed. Cir. 1988)).

[106] *Id.* at 1579.

[107] *Id.*

[108] *Id.*

[109] A very good argument can be made that the court has confused the enablement requirement with the best mode requirement, because if any undisclosed information is "necessary" to make, use, or sell the claimed invention, then the claimed invention has not been enabled--best mode issues aside.

[110] I suggest that if a litigator finds undisclosed information known to the inventor at the time the cath was signed which is "necessary to satisfactory performance" of the invention, then "best mode" best not be the only defense. Try pleading enablement, and, if you have intent, inequitable conduct, too.

[111] From a persuasive standpoint, consider the difference between the patentee proving that the person of ordinary skill would *know of* the undisclosed information, and the patentee proving that the person of ordinary skill would understand the *importance* of the undisclosed information to the practice of the invention.