

# UNDERSTANDING THE DOCTRINES OF “REASON, SUGGESTION, OR MOTIVATION TO COMBINE” AND “REASON, SUGGESTION, OR MOTIVATION TO MODIFY”

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## INTRODUCTION

This article concerns the patentability requirement of non-obviousness, and the related doctrines of “reason, suggestion or motivation to combine,” and “reason, suggestion or motivation to modify.”

The first doctrine states that if an examiner can find every limitation of a particular claim in two or more prior art references, that claim may be obvious if there is a reason, suggestion or motivation to combine the references.<sup>1</sup>

The second doctrine states that if an examiner cannot find every limitation of a particular claim in a prior art reference, that claim may still be obvious if there is a reason, suggestion or motivation to modify the reference.<sup>2</sup>

The first doctrine has come under scrutiny after a recent Court of Appeals for the Federal Circuit (CAFC) case, *In re Lee*,<sup>3</sup> because at least one commentator has concluded from that case that a patent examiner, when faced with two references that contain all the limitations of a claimed invention, cannot combine the references to render an invention obvious

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<sup>1</sup> *Pro-Mold & Tool Co. v. Great Lakes Plastic, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

<sup>2</sup> *Sibia Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000).

<sup>3</sup> 277 F.3d 1338 (Fed. Cir. 2002).

unless he can find an *explicit* suggestion to combine in the references.<sup>4</sup> That is, the references must refer to possible combination *on their face*.

I disagree with this conclusion.

This article will explain why.

In Part I, this work will discuss “addition” inventions and “substitution” inventions. Next, it will discuss the doctrine of “reason, suggestion or motivation to combine.” Then it will examine *Pro-Mold & Tool Co. v. Great Lakes Plastic Inc.*,<sup>5</sup> where a CAFC panel changed the doctrine of “reason, suggestion or motivation to combine.” In considering the *Pro-Mold* case, this work will turn to *In re Lee*, and explain why that case does not support the conclusion that an explicit suggestion is required to combine references. Next, this work will focus on cases finding an *implicit* suggestion to combine in the references, and explain why these cases have support in Supreme Court dogma. Finally, this work will focus on cases, such as *Ruiz v. A. B. Chance Co.*,<sup>6</sup> finding a reason to combine in the nature of the problem to be solved, and explain why these cases do not have support in Supreme Court dogma.

In Part II, this work will discuss “modification” inventions. Next, it will discuss the doctrine of “reason, suggestion or motivation to modify.” Then it will discuss how, unlike the CAFC, the Patent and Trademark Office (PTO) uses legal precedent established by case law as a reason to modify a reference. Finally, this work will review the nonprecedential Board of Patent Appeals and Interferences (the Board) opinion, *Ex parte Granneman*,<sup>7</sup> criticizing this practice.

## I. REASON, SUGGESTION OR MOTIVATION TO COMBINE

Section 103 of the Patent Act sets the dividing line between patentability and unpatentability at what would have been obvious to the ordinary artisan.<sup>8</sup> If a single prior art reference describes the claimed invention, the invention is worse than obvious in terms of patentability—it lacks novelty.<sup>9</sup>

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<sup>4</sup> See e.g. John S. Goetz, *An “Obvious” Misunderstanding: Zurko, Lee and the Death of Official Notice*, 86 J. Pat. & Trademark Off. Socy. 150 (2004) (Part I) and 86 J. Pat. & Trademark Off. Socy. 183 (2004) (Part II).

<sup>5</sup> 75 F.3d 1568.

<sup>6</sup> 357 F.3d 1270 (Fed. Cir. 2004).

<sup>7</sup> 68 U.S.P.Q.2d 1219 (B.P.A.I. 2003) (nonprecedential).

<sup>8</sup> 35 U.S.C. § 103(a) (2000).

<sup>9</sup> *Id.* at § 102.

If the invention is different from a device disclosed in a single reference, it may still be obvious if the differences are such that combination with another reference would lead to what is claimed.<sup>10</sup>

There are two subclasses of this class of inventions which are very familiar to every patent examiner. One subclass consists of what I call “addition” inventions, and the other subclass consists of what I call “substitution” inventions.

In an addition invention, the primary reference shows a device that differs from the invention by the omission of one of the elements of the invention, and the secondary reference shows the missing element. Combination of the references (adding the missing element to the device) would lead to what is claimed.

In a substitution invention, the primary reference shows a device that differs from the invention by the replacement of one of the elements of the invention by another element, and the secondary reference shows the missing element. Combination of the references (substituting the missing element for its replacement in the device) would lead to what is claimed.

Once it is demonstrated that combination with another reference will lead to what is claimed, the obviousness question according to the CAFC then requires inquiry into whether there is a reason, suggestion, or motivation to combine the references or their teachings.<sup>11</sup> The CAFC bases this doctrine on the language of Section 103 requiring assessment of the invention “as a whole.”<sup>12</sup> It has explained that without this instruction, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis declare the invention obvious.<sup>13</sup> The CAFC has explained that this form of hindsight reasoning discounts the value of combining various old features or principles in a new way to achieve a new result—which it says is often the very definition of a patentable invention.<sup>14</sup>

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<sup>10</sup> *Pro-Mold*, 75 F.3d at 1573.

<sup>11</sup> *Id.*

<sup>12</sup> *Ruiz*, 357 F.3d at 1275.

<sup>13</sup> *Id.*

<sup>14</sup> *Id. Compare In re Wright*, 848 F.2d 1216, 1220 (Fed. Cir. 1988) (“Applicant Wright agrees that he has combined old elements. The Commissioner agrees that Wright has achieved a new combination, and that the result obtained thereby is not suggested in the references. The patentability of such combinations is of ancient authority.”). According to the Supreme Court, when old features or principles are combined in an old way to achieve an old result, this is the definition of an unpatentable invention. *See infra* text accompanying n. 54.

Until recently, the CAFC has required the suggestion to come from the references themselves, and only from the references themselves.<sup>15</sup> Finding an *explicit* suggestion in the references is a rare occurrence. Finding an *implicit* suggestion is more common.<sup>16</sup>

While the CAFC has not laid down rules to guide it in finding an *implicit* suggestion, the cases have followed a certain pattern which suggests that the CAFC has been applying a set of unwritten rules.

In the case of addition inventions, the CAFC has seemed to follow the following rule: If the secondary reference shows that it was known to use the missing element to perform a particular function, the references would have *implicitly* suggested adding that element to the device shown in the primary reference for the same purpose.<sup>17</sup>

In the case of substitution inventions, the CAFC has seemed to follow the following rule: If an *implicit* suggestion were needed to substitute the missing element for its replacement, it would manifest itself in the secondary reference's use of the missing element to perform the same function in a similar device.<sup>18</sup>

These rules will be discussed in greater detail later in this work.

However, in 1996 a CAFC panel went outside the references to find a suggestion to combine. *Pro-Mold* held that since an invention may solve a problem, it follows that the reason to combine references may come from the nature of the problem itself, instead of from the references.<sup>19</sup> Its holding has been followed by other panels even though it is not binding precedent under the CAFC's rules which state that when confronted with conflicting panel opinions, the earlier opinion remains as precedent.<sup>20</sup> The *Pro-Mold* case is

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<sup>15</sup> See *In re Sernaker*, 702 F.2d 989, 994 (Fed. Cir. 1983).

<sup>16</sup> Cf. *In re Nilssen*, 851 F.2d 1401, 1403 (Fed. Cir. 1988) ("We reject that recommendation as contrary to our precedent which holds that for the purpose of combining references, those references need not *explicitly* suggest combining teachings, much less specific references.") (emphasis added).

<sup>17</sup> As explained below, the source of this rule is the CCPA. More specifically, its source is *In re McLaughlin*, 443 F.2d 1392 (C.C.P.A. 1971). See *South Corp. v. U.S.*, 690 F.2d 1368, 1370 (Fed. Cir. 1982) (*en banc*) (explaining that the Federal Circuit adopted as precedent the decisions of the CCPA and the Court of Claims).

<sup>18</sup> As explained below, the source of this rule is the CCPA. More specifically, its source is *In re Conrad*, 439 F.2d 201 (C.C.P.A. 1971). See *South Corp.*, 690 F.2d at 1370 (explaining that the Federal Circuit adopted as precedent the decisions of the CCPA and the Court of Claims).

<sup>19</sup> *Pro-Mold*, 75 F.3d at 1573.

<sup>20</sup> See *Johnston v. IVAC Corp.*, 855 F.2d 1574, 1579 (Fed. Cir. 1989) (stating "the panel is obligated to follow the earlier case law which is the binding precedent.").

worth discussing because it allows us to trace the history of the doctrine of “reason, suggestion or motivation to combine.”

### A. *The Pro-Mold Case*

*Pro-Mold* was an appeal to the CAFC from a summary judgment of a district court holding *Pro-Mold*’s patent invalid under 35 U.S.C. § 103 and dismissing its infringement claim.<sup>21</sup>

The invention was a sports trading card holder consisting of a base and a friction fit cover.<sup>22</sup> The card holder was designed to be only slightly larger than a stored card so that the card holder could be stored in a conventional card set storage box with cards that were not in individual holders.<sup>23</sup> The district court regarded the card holder as an “addition invention,” and determined that it was obvious.<sup>24</sup> The primary reference was a card holder *larger* than the stored card and consisting of a base and a friction fit cover like the invention.<sup>25</sup> The secondary reference was a card holder *only slightly larger* than the stored card and consisting of a base and a slide cover.<sup>26</sup> The district court called the size an “element” of the invention.<sup>27</sup> Normally the term “elements” is used to refer to the structural parts of a device, not to descriptive terms in a claim such as “slightly larger than a stored card.”<sup>28</sup> The district court combined the size of the device in the secondary reference with the base and the friction fit cover of the primary reference, and held this combination of “elements” to have been obvious.<sup>29</sup>

*Pro-Mold* argued that there was no reason to combine.<sup>30</sup> Judge Lourie, writing for the CAFC panel, listed three possible sources for the suggestion to combine: (1) the suggestion to combine may come expressly from the references themselves; (2) the suggestion to combine may come from the knowledge of those skilled in the art that certain references, or disclosures in the references, are known to be of special interest or

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<sup>21</sup> *Pro-Mold*, 75 F.3d at 1568.

<sup>22</sup> *Id.* at 1570.

<sup>23</sup> *Id.* at 1571.

<sup>24</sup> *Id.* at 1572.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at 1573.

importance in the particular field; and (3) the suggestion to combine may come from the nature of a problem to be solved, leading inventors to look to references relating to possible solutions to that problem.<sup>31</sup>

The CAFC panel relied on the third source (“the nature of the problem to be solved”) for its suggestion to combine. It held that:

[T]he reason to combine arose from the very nature of the subject matter involved, the size of the card intended to be enclosed. . . . [A] card holder no larger than necessary clearly was desirable in order to enable the card holders to fit in a set box. It would also avoid having the cards bang around in a holder larger than needed. Accordingly, the size of the card provided the motivation to combine the features of the prior art card holders and hence modify the size of the [card holder shown in the primary reference] so that it was not larger or smaller than the card, but rather substantially the size of the card.<sup>32</sup>

The curious thing about this opinion is that the district court and the CAFC could have held the patent invalid without combining references. Several Court of Customs and Patent Appeals (CCPA) precedents had found that “size is not ordinarily a matter of invention.”<sup>33</sup> The CAFC could have rejected the claimed invention simply as an obvious modification of the card holder shown in the primary reference without relying on a secondary reference.

Judge Lourie’s opinion changed the doctrine of “reason, suggestion or motivation to combine.” It is instructive to consider his rationales.

### **B. Suggestion From the References Themselves**

Judge Lourie’s cited authority for the proposition that the suggestion to combine may come expressly from the references themselves is *In re Sernaker*,<sup>34</sup> a 1983 decision of a panel of the newly constituted CAFC attempting to reconcile decisions of the former CCPA reviewing decisions of the Board denying patentability under Section 103 on obviousness grounds. This was the law prior to the *Pro-Mold* case. To the extent that *Pro-Mold* conflicts with *Sernaker*, the earlier opinion (*Sernaker*) remains as precedent

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<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> See e.g. *In re Rose*, 220 F.2d 459 (C.C.P.A. 1955) (Appellant argued that the claimed package was of appreciable size and weight so as to require handling by lift truck, whereas prior art packages could be lifted by hand.). The 1952 Patent Act replaced the requirement for “invention” with the concept of non-obviousness. See also Man. of Pat. Examining Proc., § 2144.04 (Pat. & Trademark Off. 2003) (giving examples directed to various common practices which the court has held normally require only ordinary skill in the art and hence are considered routine expedients) [hereinafter MPEP].

<sup>34</sup> 702 F.2d 989.

under the CAFC's rules which state that when confronted with conflicting panel opinions, the earlier opinion remains as precedent.<sup>35</sup> Nevertheless, it is *Pro-Mold* which has been followed by recent CAFC panels, and not *Sernaker*.

Judge Nichols, writing for the *Sernaker* court, cited three CCPA cases reviewing decisions of the Board denying patentability under Section 103 on obviousness grounds and *affirming* the Board (*In re McLaughlin*,<sup>36</sup> *In re Conrad*,<sup>37</sup> and *In re Sheckler*<sup>38</sup>), and three CCPA cases reviewing decisions of the Board denying patentability under Section 103 on obviousness grounds and *reversing* the Board (*In re Rinehart*<sup>39</sup>, *In re Imperato*,<sup>40</sup> and *In re Adams*<sup>41</sup>), and concluded that these cases indicated that two related tests were appropriate standards against which to make an obviousness determination.<sup>42</sup> In addition, Judge Nichols concluded that the "secondary considerations" that the Supreme Court stated might be of possible utility in an obviousness determination also require a finding of non-obviousness if the matter is doubtful.<sup>43</sup>

The two tests are stated in the conjunctive.

The first test asks "whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings?"<sup>44</sup> This test was interpreted by other courts as requiring that the prior art suggest the desirability of making the combination as the first step in establishing *prima facie* obviousness.<sup>45</sup>

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<sup>35</sup> See *Johnston*, 855 F.2d at 1579 (stating "the panel is obligated to follow the earlier case law which is the binding precedent.").

<sup>36</sup> 443 F.2d 1392.

<sup>37</sup> 439 F.2d 201.

<sup>38</sup> 438 F.2d 999 (C.C.P.A. 1971).

<sup>39</sup> 531 F.2d 1048 (C.C.P.A. 1976).

<sup>40</sup> 486 F.2d 585 (C.C.P.A. 1973).

<sup>41</sup> 356 F.2d 998 (C.C.P.A. 1966).

<sup>42</sup> *Sernaker*, 702 F.2d at 994.

<sup>43</sup> *Id.* at 996.

<sup>44</sup> *Id.* at 994.

<sup>45</sup> See e.g. *Wright*, 848 F.2d at 1218 (stating "the Commissioner on appeal argued that the Bishop and Vaida references presented, in combination, a *prima facie* case of unpatentability, stating: 'a claimed invention may be unpatentable if it would have been obvious for reasons suggested by the prior art.'"); see also *In re Newell*, 891 F.2d 899, 901-02 (Fed. Cir. 1989) (quoting *Fromson v. Advance Offset Plate*, 755 F.2d 1549, 1556 (Fed. Cir. 1985) (reasoning that "the critical inquiry is whether there is something in the

The second test asks “whether the claimed invention achieved more than a combination which any or all of the prior art references suggested, expressly or by reasonable implication?”<sup>46</sup> This test was interpreted by other courts as requiring that the prior art show or suggest the results following from the invention as the second step in establishing *prima facie* obviousness.<sup>47</sup> This part of the *Sernaker* decision was overruled by implication by the CAFC, sitting en banc, in *In re Dillon*,<sup>48</sup> because *In re Wright*,<sup>49</sup> a CAFC panel decision, applied both tests, and *Dillon* expressly overruled *Wright*. In particular, Judge Newman, writing for the *Wright* panel, said that the PTO position that the claimed invention was *prima facie* obvious was not supported by the cited references because no reference showed or suggested the results of Wright’s claimed structure.<sup>50</sup> Judge Lourie, writing for the *Dillon* majority, declared that this statement was not the law.<sup>51</sup> After *Dillon*, the answer to the first test alone (whether the prior art suggests the desirability of making the combination) will determine whether a case for *prima facie* obviousness has been made out.<sup>52</sup> The failure of the prior art to show or suggest the results following from the invention (“unexpected results”) has become a secondary consideration.<sup>53</sup> If a case for *prima facie* obviousness is made out, it may be rebutted by secondary considerations. If a *prima facie* case is not made out, no rebuttal is necessary.

*McLaughlin*, *Conrad* and *Sheckler* support *Sernaker*’s first test. As explained below, *McLaughlin* and *Conrad* are the sources of the unwritten

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prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.”) (emphasis added).

<sup>46</sup> *Sernaker*, 702 F.2d at 994.

<sup>47</sup> See e.g. *Wright*, 848 F.2d at 1220 (holding that “[t]he PTO position that the claimed structure is *prima facie* obvious is not supported by the cited references. No reference shows or suggests the properties and results of Wright’s claimed structure, or suggests the claimed combination as a solution to the problem of increasing pitch measurement capacity.”); see also *Newell*, 891 F.2d at 902 (determining that “[t]here is no teaching or suggestion in the prior art that the belt drive of Weiss should be applied to the capstan of an ANSI type of tape cartridge in the manner done by Newell, in order to achieve the significant advantageous property obtained by Newell.”).

<sup>48</sup> 919 F.2d 688 (Fed. Cir. 1990) (*en banc*).

<sup>49</sup> 848 F.2d 1216.

<sup>50</sup> *Id.* at 1220.

<sup>51</sup> 919 F.2d at 693.

<sup>52</sup> *Id.*

<sup>53</sup> See e.g. *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 884 (Fed. Cir. 1998).

rules that the CAFC has seemed to follow when it finds an *implicit* suggestion to combine.

Actually, these rules are rooted in a doctrine of the Supreme Court—the aggregation doctrine.<sup>54</sup> That doctrine states that combining old elements without changing their functions is an obvious thing to do, and it will not support patentability.<sup>55</sup> The doctrine has been expressed in various ways by the Supreme Court. The Court has said that it is within the skill of the ordinary artisan to combine old elements to take advantage of their known functions.<sup>56</sup> The Court has also said that the prior art would suggest to the ordinary artisan the desirability of combining old elements to take advantage of their known functions.<sup>57</sup> In some cases, the Court has made use of both expressions of the doctrine.<sup>58</sup>

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<sup>54</sup> In its 1964 decision, *In re Gustafson*, 331 F.2d 905 (C.C.P.A. 1964), the CCPA abolished the aggregation doctrine. See Mary Helen Sears, *Combination Patents and 35 USC § 103*, 1977 Det. C. L. Rev. 83 (1977), reprinted in 9 Pat. L. Rev. 93 (1977).

<sup>55</sup> *Id.*

<sup>56</sup> I refer to this statement of the doctrine as the mechanical skill test. The mechanical skill test was last used by the Supreme Court in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 279 (1976) where the Supreme Court invalidated a patent for a waterflush system to remove cow manure from the floor of a dairy barn. The waterflush system was a combination invention composed of thirteen separate items which were not new and had been used in the dairy business prior to the time of the patent. Since the old elements had no new function in the combination, the Supreme Court applied the mechanical skill test, stating “this assembly of old elements . . . falls under the head of ‘the work of the skillful mechanic [emphasis added], not that of the inventor’ . . . [T]his particular use of the assembly of old elements would be obvious.”

<sup>57</sup> I refer to this statement of the doctrine as the suggestion test. The suggestion test was last used by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), where the Supreme Court invalidated a patent for a finger-operated pump sprayer with a plastic over-cap. The sprayer was adapted to be mounted in a container of liquid by means of a container cap, and the over-cap screwed over the top of the sprayer and held it down so as to prevent leakage and breakage while being shipped from the processor. A prior art device was designed to perform the same function as the patented device, and taught everything but the sealing arrangement. The Supreme Court found the sealing arrangement disclosed in the related art of pouring spouts. Since the old elements had no new function in the combination, the Supreme Court applied the suggestion test, stating “[t]o us, the limited claims of the Scoggin patent are *clearly evident from the prior art* [emphasis added] as it stood at the time of the invention. We conclude that the claims in issue . . . must fail as not meeting the test of § 103, since the differences between them and the pertinent prior art would have been obvious.”

<sup>58</sup> See e.g. *Cuno Engr. v. Automatic Devices Corp.*, 314 U.S. 84, 88 (1941). The Supreme Court applied both tests and obtained the same result. This was an action for infringement of a Mead patent for an automobile cigarette lighter. Mead’s invention consisted of adding a known thermostatic control to the prior art Morris lighter. Since the old elements had no new function in the combination, the Supreme Court stated “it is

In the next few paragraphs I will summarize the *McLaughlin*, *Conrad* and *Sheckler* cases and show that they support *Sernaker*'s first test. In addition, I will explain how the rules they provide are derived from this Supreme Court doctrine.

In *McLaughlin*, the invention was a boxcar having adjustable side panels and bulkheads.<sup>59</sup> The primary reference showed the boxcar.<sup>60</sup> The secondary references showed a railway car with adjustable side panels and bulkheads to confine a load.<sup>61</sup> The CCPA added the panels and bulkheads of the secondary references to the boxcar of the primary reference in order to obtain what was claimed.<sup>62</sup> The CCPA said that since the secondary references showed that it was known to use side panels and bulkheads to confine a load, the references would have implicitly suggested adding the panels and bulkheads to the boxcar for the same purpose.<sup>63</sup> (As explained above, this is the rule that the CAFC has seemed to follow for addition inventions.) Patentability was denied on obviousness grounds.<sup>64</sup>

Explanation: The invention is an addition invention. The side panels and bulkheads shown in the secondary references confine a load. The boxcar of the primary reference carries cargo. Combination of the references (adding the side panels and bulkheads to the boxcar) leads to what is claimed. In the new combination, the side panels and bulkheads still confine a load, and the boxcar still carries cargo. Combining old elements without changing their functions is an obvious thing to do, and it will not support patentability. The prior art would have implicitly suggested it.

In *Conrad*, the invention was a four-wheel vehicle steering system having a two-position valve connecting front and rear wheel actuators to a source of pressurized fluid in one position, and bypassing the rear wheel actuators in the other position.<sup>65</sup> The primary reference showed a device that differed from the invention by the replacement of the two-position valve with a three-position valve using two of its three positions to perform the same functions as the two-position valve of the invention and its other position to

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our opinion that the Mead device was not the result of invention but a 'mere exercise of the skill of the calling [the mechanical skill test],' an advance 'plainly indicated by the prior art' [the suggestion test]."

<sup>59</sup> 443 F.2d at 1393.

<sup>60</sup> *Id.* at 1394-95.

<sup>61</sup> *Id.* at 1395.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at 1394, 1397.

<sup>65</sup> 439 F.2d at 202.

perform a different function.<sup>66</sup> The secondary reference showed a four-track vehicle steering system with a two-position valve connecting front and rear hydraulic rams to a source of pressurized fluid in one position and bypassing the rear hydraulic ram in the other position.<sup>67</sup> The CCPA substituted the two-position valve of the secondary reference for the three-position valve using only two of the three positions of the primary reference in order to obtain what was claimed.<sup>68</sup> The CCPA said that if an *implicit* suggestion were needed to combine the references (substitute the two-position valve for the three-position valve using only two of its three positions) it would manifest itself in the secondary reference's use of a two-position valve in a similar fluid steering system.<sup>69</sup> (As explained above, this is the rule the CAFC has seemed to follow for substitution inventions.) Patentability was denied on obviousness grounds.<sup>70</sup>

Explanation: The invention is a substitution invention. The two-position valve functions in the secondary reference like the three-position valve in the primary reference using only two of its three positions. It connects front and rear hydraulic rams to a source of pressurized fluid in one position, and bypasses the rear hydraulic ram in the other position. Combination of the references (substituting the two-position valve for the three-position valve using only two of its three positions) leads to what is claimed. When substituted in the primary reference, the two-position valve continues to function like the element it replaces and does not co-act with the other elements of the system of the primary reference and change their functions. Therefore, the functions of the other elements of the primary reference are also unchanged. Combining old elements without changing their functions is an obvious thing to do, and it will not support patentability. The prior art would have implicitly suggested it.<sup>71</sup>

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<sup>66</sup> *Id.* at 203-04.

<sup>67</sup> *Id.* at 204.

<sup>68</sup> *Id.* at 205.

<sup>69</sup> *Id.*

<sup>70</sup> *Id.* at 206.

<sup>71</sup> *Compare Thatcher Heating Co. v. Burtis*, 121 U.S. 286, 294 (1887) (taking out the fuel chamber or pot of the Bibb & Auger device and substituting therefor a magazine of the kind shown in the Thatcher patent. When the fuel magazine was transferred from one kind of stove to another, in its new situation it performed precisely the same function with respect to the fuel and fire, as it had always been accustomed to perform in its old place, and the fireplace heater into which it was thus newly placed so far as the generation and transmission of heat and heated air are concerned, operated precisely as it had habitually done before. The court held there was "no patentable novelty in the aggregation of several elements, considered in itself.").

In *Scheckler*, the invention was a masonry block in which insulating foam was sandwiched between two load-bearing outer concrete layers.<sup>72</sup> The primary reference showed a building block in which insulating foam was sandwiched between two outer glass layers.<sup>73</sup> The secondary reference showed a beam in which insulating foam was sandwiched between two outer concrete layers.<sup>74</sup> The CCPA substituted the concrete layers of the secondary reference for the glass layers of the primary reference in order to obtain what was claimed.<sup>75</sup> The CCPA said that it was not necessary that the references actually suggest expressly or in so many words, the changes or improvements the appellant made.<sup>76</sup> Patentability was denied on obviousness grounds.<sup>77</sup>

Explanation: The invention is a substitution invention. The concrete layers function in the secondary reference like the glass layers in the primary reference. They bear a load. Combination of the references (substituting the concrete layers for the glass layers) leads to what is claimed. When substituted in the primary reference, the concrete layers continue to function like the elements they replace and do not co-act with the foam core of the primary reference and change its function of insulating against transfer of heat. Therefore, the function of the foam core is also unchanged. Combining old elements without changing their functions is an obvious thing to do, and it will not support patentability. The prior art would have implicitly suggested it.

*Rinehart, Imperato, and Adams* support *Sernaker*'s second test.

In *Rinehart*, the invention was a method for commercial scale production of polyesters whose initial step was conducted above atmospheric pressure using a preformed polyester solvent.<sup>78</sup> The Pengilly reference differed from the invention in using atmospheric pressures.<sup>79</sup> The Munro reference differed from the invention in omitting the polyester solvent.<sup>80</sup> The Board said it would be obvious to use Munro's higher pressures in scaling up the Pengilly process, or to use Pengilly's preformed polyester in scaling up

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<sup>72</sup> 438 F.2d at 999.

<sup>73</sup> *Id.* at 1000.

<sup>74</sup> *Id.*

<sup>75</sup> *Id.*

<sup>76</sup> *Id.* at 1001.

<sup>77</sup> *Id.*

<sup>78</sup> 531 F.2d at 1049.

<sup>79</sup> *Id.* at 1050.

<sup>80</sup> *Id.*

the Munro process.<sup>81</sup> The CCPA reversed the Board's conclusion of obviousness because no prior art showed or suggested the invention's result of eliminating lumps of frozen polymer (the solution to the inventor's problem).<sup>82</sup>

In *Imperato*, the invention was a process and product in which free sulfur and alkaline earth carbonates are used as bonding agents in metal containing ore aggregates.<sup>83</sup> The primary references taught the process and product without the use of free sulfur as a bonding agent ("the carbonate bond process").<sup>84</sup> The secondary reference taught the use of free sulfur as a bonding agent in metal containing ore aggregates.<sup>85</sup> The Board said it would be obvious to combine sulfur with the carbonate bond process.<sup>86</sup> The CCPA reversed the Board because no prior art showed or suggested the invention's result of high strength at elevated temperatures.<sup>87</sup>

In *Adams*, the invention was a method of cooling containers in which water aerators are used for cooling.<sup>88</sup> The primary reference taught the process using fan spray nozzles for cooling.<sup>89</sup> The secondary reference taught water aerators for faucets.<sup>90</sup> The Board held it would be obvious to substitute the water aerators for the fan spray nozzles.<sup>91</sup> The CCPA reversed the Board's conclusion of obviousness because no prior art showed or suggested the invention's result of increasing the efficiency of the coolers.<sup>92</sup>

### C. *Knowledge of Those Skilled in the Art*

*Pro-Mold's* cited authority for the proposition that the suggestion to combine may come from the knowledge of those skilled in the art that certain references, or disclosures in the references, are known to be of special interest or importance in the particular field, is *Ashland Oil, Inc. v. Delta*

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<sup>81</sup> *Id.*

<sup>82</sup> *Id.* at 1054.

<sup>83</sup> 486 F.2d at 585.

<sup>84</sup> *Id.* at 586.

<sup>85</sup> *Id.*

<sup>86</sup> *Id.* at 587.

<sup>87</sup> *Id.*

<sup>88</sup> 356 F.2d at 999.

<sup>89</sup> *Id.*

<sup>90</sup> *Id.* at 1000.

<sup>91</sup> *Id.* at 1001.

<sup>92</sup> *Id.* at 1002.

*Resins & Refractories, Inc.*, a decision of a CAFC panel.<sup>93</sup> According to *Pro-Mold*, *Ashland Oil* supports a different proposition, but one sufficiently analogous to lend support. *Pro Mold*'s parenthetical explanation is that *Ashland Oil* "stat[es] that the knowledge of one skilled in the art may provide the 'teaching, suggestion, or inference' to combine references."<sup>94</sup> *Ashland Oil*, in turn, cites as authority for its proposition the CAFC cases of *ACS Hospital Systems, Inc. v. Montefiore Hospital, W.L. Gore & Associates, Inc. v. Garlock, Inc.*, and *In re Sernaker*.<sup>95</sup> However, none of these cases stands for this proposition.

*ACS Hospital Systems* concluded that none of the references, either alone or in combination, would have disclosed or suggested to one of ordinary skill in the art the use of override switching means in a television rental system.<sup>96</sup> *W.L. Gore* stated that, in concluding obviousness was established by the teachings of various pairs of references, the district court lost sight of the principle that there must have been something present in those teachings to suggest to one skilled in the art that the claimed invention before the court would have been obvious.<sup>97</sup> *Sernaker* was concerned with the issue of whether the Board correctly deduced obviousness from the prior art.<sup>98</sup>

Thus, it would appear that *Ashland Oil* stands alone as an authority for the rule that the knowledge of one skilled in the art may provide the suggestion to combine. Furthermore, since this rule was not essential to that case (it was only stated in a footnote), it was mere dictum.<sup>99</sup>

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<sup>93</sup> 776 F.2d 281 (Fed. Cir. 1985).

<sup>94</sup> 75 F.3d at 1573.

<sup>95</sup> *Ashland Oil, Inc.*, 776 F.2d at 297 n. 24; *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984); *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551 (Fed. Cir. 1983); *Sernaker*, 702 F.2d at 994.

<sup>96</sup> 732 F.2d at 1577.

<sup>97</sup> 721 F.2d at 1551. *W.L. Gore* states that the decision-maker must "occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *Id.* at 1553.

<sup>98</sup> 702 F.2d at 994. *Sernaker* states that "it was not necessary that the prior art suggest expressly or in so many words, the 'changes or possible improvements' the inventor made. It was only necessary that he apply 'knowledge clearly present in the prior art.'" *Id.* at 995.

<sup>99</sup> *Ashland Oil, Inc.*, 776 F.2d at 297 n. 24. Even so, the rule has been followed as recently as the past year in *National Steel Car, Ltd. v. Canadian Pacific Railway, Ltd.*, 357 F.3d 1319, 1337 (Fed. Cir. 2004) (holding prior art status of two sources used to demonstrate the requisite motivation to combine was not dispositive, since motivation need not be found in prior art references, but equally can be found in the knowledge generally available to one of ordinary skill in the art).

A later CAFC case, *In re Lee*, contradicts *Ashland Oil*. In that case, a CAFC panel vacated an obviousness ruling of the Board which had held that it was not necessary to present a source of a teaching, suggestion or motivation to combine references or their teachings, and that “[t]he conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference.”<sup>100</sup> The court held that the factual inquiry whether to combine references must be based on objective evidence of record.<sup>101</sup>

At least one commentator has concluded that after *In re Lee*, a patent examiner when faced with two references that contain all the limitations of a claimed invention cannot combine the references to render an invention obvious unless she can find an *explicit* suggestion to combine in the references.<sup>102</sup> This is contradicted by the holding in a more recent CAFC case, discussed immediately below, in which an *implicit* suggestion to combine was sufficient to render an invention obvious despite the holding in *In re Lee*. I therefore disagree with this conclusion.

In *In re Thrift*, the invention was a hypermedia system having a voice-activated interface.<sup>103</sup> The primary reference showed a hypermedia expert system having a manual keyboard and mouse click inputs for accessing information.<sup>104</sup> The secondary reference showed a voice-activated interface for accessing information in a windows system.<sup>105</sup> The secondary reference used the missing element (the voice-activated interface) to perform the same function (accessing information) in a similar device.<sup>106</sup> The Board substituted the voice-activated interface in the secondary reference for the manual keyboard and mouse click inputs of the primary reference in order to obtain what was claimed.<sup>107</sup> The Board found an *implicit* suggestion to combine from the references themselves.<sup>108</sup> It stated that the skilled artisan would have “found it obvious to incorporate the speech input and speech recognition techniques [i.e., the voice-activated interface] taught by the secondary reference into the expert system of the primary reference in order

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<sup>100</sup> 277 F.3d at 1341.

<sup>101</sup> *Id.* at 1343.

<sup>102</sup> See e.g. Goetz, *supra* n. 4, at 218.

<sup>103</sup> 298 F.3d 1357, 1360 (Fed. Cir. 2002).

<sup>104</sup> *Id.* at 1361.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* at 1362.

<sup>108</sup> *Id.*

to reduce the need for less user-friendly manual keyboard and mouse click inputs” [i.e., to perform the same function of accessing information as it performed in the similar windows system].<sup>109</sup> The CAFC affirmed the Board.<sup>110</sup>

The appellants argued that there was no suggestion or motivation to combine.<sup>111</sup> The CAFC replied that the reasoning articulated by the Board supporting an *implicit* suggestion to combine was exactly the type of reasoning required by *In re Lee*.<sup>112</sup>

#### ***D. Nature of the Problem to be Solved***

*Pro-Mold*'s cited authority for the proposition that the suggestion to combine may come from the nature of the problem to be solved, leading inventors to possible solutions to that problem, is *In re Rinehart*,<sup>113</sup> a case that has been discussed above in connection with *Sernaker*'s second test. *Pro-Mold*'s parenthetical explanation is that *Rinehart* “consider[s] the problem to be solved in a determination of obviousness.”<sup>114</sup> As is clear from the discussion above, *Rinehart* does not state *Pro-Mold*'s proposition that the suggestion to combine may come from the nature of the problem to be solved, leading inventors to possible solutions to that problem. *Rinehart* merely supports the proposition that the nature of the problem is a factor in deciding whether the prior art shows or suggests the results following from the invention.<sup>115</sup> In *Rinehart*, the CCPA reversed the Board's conclusion of obviousness because no prior art showed or suggested the invention's result of eliminating lumps of frozen polymer (the solution to the inventor's problem).<sup>116</sup> Therefore, *Pro-Mold* stands alone as authority for the rule that the suggestion to combine may come from the nature of the problem to be solved. Furthermore, the rule has no support in Supreme Court dogma.

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<sup>109</sup> *Id.*

<sup>110</sup> *Id.* at 1367.

<sup>111</sup> *Id.* at 1364.

<sup>112</sup> *Id.* The CAFC buttressed the Board's conclusion of obviousness based on an implicit suggestion by also pointing to express suggestions in the references.

<sup>113</sup> 531 F.2d 1048.

<sup>114</sup> 75 F.3d at 1573.

<sup>115</sup> 531 F.2d at 1054.

<sup>116</sup> *Id.*

### E. Cases Before *Pro-Mold*

As explained above, before the *Pro-Mold* case, the CAFC followed *Sernaker* as modified by *Dillon* and required the suggestion to combine to come from the references themselves. Some examples are discussed below.

In *Ryco Inc. v. Ag-Bag Corp.*,<sup>117</sup> the invention was an agricultural bagging machine for compressing silage into large air-tight bags.<sup>118</sup> Claim 35 read on the prior art Silopress machine except for the provision of stripper bars in place of a curved stripper basket.<sup>119</sup> The primary reference was the Silopress machine.<sup>120</sup> The secondary reference showed stripper bars for stripping hay from a toothed rotor in the same way as the curved stripper basket.<sup>121</sup> The CAFC substituted the stripper bars of the secondary reference for the curved stripper basket of the primary reference in order to obtain what was claimed.<sup>122</sup> Applying the CCPA's rule for substitution inventions, ("If a suggestion were needed to substitute the missing element for its replacement, it would manifest itself in the secondary reference's use of the missing element to perform the same function in a similar device") the CAFC found an *implicit* suggestion to combine from the references themselves.<sup>123</sup> It affirmed the district court's decision of obviousness.<sup>124</sup>

In *In re Gorman*,<sup>125</sup> the invention was a composite food product combining various elements: a molded lollipop with chewing gum plug, with the mold serving as a product wrapper, and candy in the shape of a thumb.<sup>126</sup> The primary references showed candy molded in a mold. The secondary references showed the other elements in the same configurations serving the

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<sup>117</sup> 857 F.2d 1418, 1425 (Fed. Cir. 1988) ("This teaching of the Nikkel patent, when considered with the Silopress machine, clearly suggests the substitution of the curved stripper bars for the stripper basket. The function performed is identical.")

<sup>118</sup> *Id.* at 1420.

<sup>119</sup> *Id.* at 1424.

<sup>120</sup> *Id.* at 1423.

<sup>121</sup> *Id.* at 1425.

<sup>122</sup> *Id.*

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> 933 F.2d 982, 987 (Fed. Cir. 1991) ("The large number of cited references does not negate the obviousness of the combination, for the prior art uses the various elements for the same purposes as they are used by appellants, making the claimed invention as a whole obvious in terms of 35 USC § 103.")

<sup>126</sup> *Id.* at 983.

same functions.<sup>127</sup> The CAFC added the other elements of the secondary references to the candy molded in a mold of the primary reference in order to obtain what was claimed.<sup>128</sup> Applying the CCPA's rule for addition inventions ("If a secondary reference shows that it was known to use the missing element to perform a particular function, the references would have suggested adding that element to the device shown in the primary reference for the same purpose"), the CAFC found an *implicit* suggestion to combine from the references themselves. It affirmed the Board's decision of obviousness.<sup>129</sup>

In *Ryko Manufacturing Co. v. Nu Star Inc.*,<sup>130</sup> the invention was a car washing system which is activated by a keypad entry system.<sup>131</sup> The primary references showed automatic car wash systems which were activated by a mechanical insertion device (i.e., coins, credit card, etc.).<sup>132</sup> The secondary references showed keypad code devices that opened garage doors.<sup>133</sup> The CAFC substituted the keypad code device of the secondary reference for the mechanical insertion device of the primary reference in order to obtain what was claimed.<sup>134</sup> Applying the CCPA's rule for substitution inventions, ("If a suggestion were needed to substitute the missing element for its replacement, it would manifest itself in the secondary reference's use of the missing element to perform the same function in a similar device") the CAFC found an *implicit* suggestion to combine from the references themselves.<sup>135</sup> It affirmed the district court's decision of obviousness.<sup>136</sup>

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<sup>127</sup> *Id.* at 984-85.

<sup>128</sup> *Id.* at 987.

<sup>129</sup> *Id.*

<sup>130</sup> 950 F.2d 714, 719 (Fed. Cir. 1991) ("The principal difference between the prior art and the claimed invention is the use of an electronic keypad device, instead of a mechanical insertion device, for the specific purpose of selectively activating an automatic car wash system. We agree with the district court that the desirability of the claimed combination was suggested by the prior art.").

<sup>131</sup> *Id.* at 715.

<sup>132</sup> *Id.* at 717.

<sup>133</sup> *Id.*

<sup>134</sup> *Id.* at 719.

<sup>135</sup> *Id.* at 720.

<sup>136</sup> *Id.* at 719.

In *In re Raynes*,<sup>137</sup> the invention was an interactive automobile servicing system consisting of a plurality of fuel pumps equipped with a CRT display of quantity and price of gasoline.<sup>138</sup> The primary reference showed an automatic servicing system consisting of a plurality of fuel pumps equipped with a flat panel display (LED or LCD).<sup>139</sup> The secondary reference stated that flat panel displays may eventually displace the CRT in television and computer applications.<sup>140</sup> The CAFC substituted the CRT of the secondary reference for the flat panel display of the primary reference in order to obtain what was claimed.<sup>141</sup> Applying the CCPA's rule for substitution inventions, ("If a suggestion were needed to substitute the missing element for its replacement, it would manifest itself in the secondary reference's use of the missing element to perform the same function in a similar device") the CAFC panel majority found an *implicit* suggestion to combine from the references themselves.<sup>142</sup> It affirmed the Board's decision of obviousness.<sup>143</sup>

#### F. Cases After *Pro-Mold*

After the *Pro-Mold* decision, panels of the CAFC deviated from *Sernaker* (and Supreme Court authority) and began to find the suggestion to combine in the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem. The result is that the CAFC has handed down a number of anomalous decisions, which I will discuss below. I do not discuss here the unpublished decisions that are also of interest.

In *In re Huang*, the invention was a shock-absorbing tennis racket grip consisting of a strip comprised of a textile layer and a polyurethane layer in polyurethane/textile ratios equal to or larger than 0.18.<sup>144</sup> The admitted

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<sup>137</sup> 7 F.3d 1037, 1040 (Fed. Cir. 1993) ("Raynes' display at the fuel pump performs the known functions of video display of price/quantity data, in combination with the known functions of video programming. The Board correctly held that the combination of video display with the display of other information at the fuel pump would have been obvious to a person of ordinary skill in the art.").

<sup>138</sup> *Id.* at 1038.

<sup>139</sup> *Id.* at 1039.

<sup>140</sup> *Id.*

<sup>141</sup> *Id.* at 1040.

<sup>142</sup> *Id.*

<sup>143</sup> *Id.*

<sup>144</sup> 100 F.3d 135, 136-37 (Fed. Cir. 1996).

prior art employed the same two layers in polyurethane/textile ratios from 0.111 to 0.142.<sup>145</sup> The Lau secondary reference taught that shock absorption derives in part from the compressible nature of the polyurethane layer.<sup>146</sup> The CAFC said that in view of this teaching, it would be obvious in the absence of unexpected results to increase the amount of polyurethane to obtain an optimum range of shock absorption.<sup>147</sup> Huang contended there was no suggestion to modify the admitted prior art by the teachings in Lau.<sup>148</sup> The CAFC said Huang acknowledged that shock generated by impact is a well known problem in the prior art and it would have directed the skilled artisan to Lau which is entitled “Shock Absorbing Sheet Material.”<sup>149</sup>

In *Winner International Royalty Corp. v. Wang*, the invention was a steering wheel anti-theft device comprising two telescoping rods with hooks at each end to attach to the steering wheel and a self-locking ratcheting mechanism.<sup>150</sup> The device prevents theft by having one of the rods extend well beyond its hook portion such that when locked in place, it prevents full rotation of the steering wheel.<sup>151</sup> The primary reference, the original steering wheel anti-theft device known as “The Club,” showed the two telescoping rods and a key-operated dead-bolt style locking mechanism.<sup>152</sup> The secondary reference showed a steering wheel lock that unfolds into a “Y” shape and uses a self-locking ratcheting mechanism, which does not require a key.<sup>153</sup> The CAFC said there was no motivation to combine the references because there was no apparent disadvantage to the dead-bolt mechanism, and therefore the motivation to combine would not stem from the nature of the problem facing the ordinary artisan because no problem was perceived.<sup>154</sup>

Comment: The invention is a substitution invention. The conclusion that there was no motivation to combine contradicts the law before *Pro-Mold*. There is an *implicit* suggestion to combine coming expressly from the references themselves. The primary reference is “The Club.” The secondary reference uses a self-locking ratcheting mechanism to accomplish locking in a similar device. Combination of the references (substituting the self-locking

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<sup>145</sup> *Id.* at 136.

<sup>146</sup> *Id.* at 137.

<sup>147</sup> *Id.* at 139.

<sup>148</sup> *Id.* at 139 n. 5.

<sup>149</sup> *Id.*

<sup>150</sup> 202 F.3d 1340, 1343 (Fed. Cir. 2000).

<sup>151</sup> *Id.*

<sup>152</sup> *Id.* at 1344.

<sup>153</sup> *Id.*

<sup>154</sup> *Id.* at 1349, 1350.

ratcheting mechanism of the secondary reference for the key-operated dead-bolt style locking mechanism of the primary reference) would lead to what is claimed. If a suggestion were needed to substitute the missing element for its replacement, it would manifest itself in the secondary reference's use of the missing element to perform the same function in a similar device.

In *In re Gartside*, the invention was a catalytic cracking process comprising the steps of catalytically cracking hydrocarbon feed oil, separating the catalyst and quenching the upgraded oil.<sup>155</sup> The primary reference taught the process except that cracking was accomplished by a thermal rather than a catalytic mechanism.<sup>156</sup> The secondary reference taught a thermal cracking process but said its apparatus could be used in catalytic cracking processes involving quenching and separating steps.<sup>157</sup> The CAFC affirmed the Commissioner's argument that a skilled artisan would have been motivated to combine the patents, as they both attempt to solve the same problem of continued cracking of the cracked product.<sup>158</sup>

In *In re Inland Steel Co.*, the invention was a method of producing cold-rolled electrical steel with improved magnetic properties by adding antimony during preparation.<sup>159</sup> The primary reference taught all of the process and compositional limitations with the exception of adding antimony.<sup>160</sup> The secondary reference taught the addition of antimony to improve magnetic properties.<sup>161</sup> The CAFC said there was motivation to combine the references because both references focus on the same problem that the patent addresses (enhancing the magnetic properties of electrical steel), they come from the same field of art (the composition of steel with good magnetic properties), and the solutions to the identified problem found in the two references correspond well.<sup>162</sup>

In *Ruiz v. A.B. Chance Co.*, the invention was a method of underpinning a slumping foundation using screw anchors for supporting an existing structural foundation and a metal bracket to transfer the load of the foundation to the screw anchor.<sup>163</sup> One reference differed from the invention

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<sup>155</sup> 203 F.3d 1305, 1308 (Fed. Cir. 2000).

<sup>156</sup> *Id.* at 1309.

<sup>157</sup> *Id.*

<sup>158</sup> *Id.* at 1320-21.

<sup>159</sup> 265 F.3d 1354, 1356 (Fed. Cir. 2001).

<sup>160</sup> *Id.* at 1358.

<sup>161</sup> *Id.*

<sup>162</sup> *Id.* at 1362.

<sup>163</sup> 357 F.3d at 1272.

in using push piers instead of screw anchors for supporting the foundation.<sup>164</sup> The other reference differed from the invention in using a concrete haunch instead of a metal bracket to transfer the load.<sup>165</sup> The district court said that it would be obvious to replace the push piers of the first reference with the screw anchors of the second reference, or to replace the concrete haunch of the second reference with the metal bracket of the first reference.<sup>166</sup> The CAFC said that the district court properly found a motivation to combine because the two references address precisely the same problem of underpinning existing structural foundations.<sup>167</sup>

### G. Summary of Part I

Until recently, it was black letter law that prior art references and their teachings could not be combined to negate the patentability of a claim to an invention unless the references themselves suggested the desirability of the combination, either explicitly or implicitly. However, a new trend has become apparent. A CAFC panel (*Pro-Mold*) has held that since an invention may solve a problem, it follows that the reason to combine the references may come from the nature of the problem itself, instead of from the references.<sup>168</sup> This holding has been followed in published opinions by four other panels, most notably by a panel (*Ruiz*) early this year. In the most recent opinions, the fact that the references addressed the same problem as the invention was sufficient reason to combine the references. Taking the questionable conclusion, that the reason to combine the references may come from the nature of the problem itself, one step further, another CAFC panel (*Winner International*) has held that references cannot be combined at all in the absence of a perceived problem.<sup>169</sup>

## II. REASON, SUGGESTION OR MOTIVATION TO MODIFY

Section 103 of the Patent Act sets the dividing line between patentability and unpatentability at what would have been obvious to the ordinary artisan.<sup>170</sup> If a prior art reference describes the claimed invention,

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<sup>164</sup> *Id.* at 1274.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

<sup>167</sup> *Id.* at 1276.

<sup>168</sup> 75 F.3d at 1573.

<sup>169</sup> 202 F.3d at 1350.

<sup>170</sup> 35 U.S.C. § 103(a).

the invention is worse than obvious in terms of patentability—it lacks novelty.<sup>171</sup>

If the invention is different from a device disclosed in a prior art reference, it may still be obvious if *modifying* the reference would lead to what is claimed. I refer to such an invention as a “modification” invention.

In an early panel decision shortly after its creation, the CAFC said that under Section 103, a reference can only be modified if there is some suggestion to do so.<sup>172</sup> The CAFC panel did not cite any CCPA precedent directly stating this proposition. The CAFC panel inferred it from the holding in a CCPA case which stated that references can only be *combined* if there is a suggestion to do it.<sup>173</sup> In a later panel decision, the CAFC said that “although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious ‘modification’ of the prior art.”<sup>174</sup> The CAFC has broadened the holding in the CCPA case, and now takes the position that references can only be combined if there is a reason, suggestion, or motivation to lead an inventor to do it.<sup>175</sup> The CAFC recognizes three possible sources of a reason, suggestion, or motivation to combine: (1) the teachings of the prior art references; (2) the knowledge of persons of ordinary skill in the art; and (3) the nature of the problem solved.<sup>176</sup> By implication, references can only be *modified* if there is a reason, suggestion or motivation to do it. In a year 2000 panel opinion, the CAFC said:

[i]n appropriate circumstances, a single prior art reference can render a claim obvious [citation omitted]. However, there must be a showing of a suggestion or motivation to modify the teachings of that reference to the claimed invention in order to support the obviousness conclusion. This suggestion or motivation may be derived from the prior art reference itself [citation omitted], from the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved.<sup>177</sup>

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<sup>171</sup> *Id.* at § 102.

<sup>172</sup> *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (“The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.”).

<sup>173</sup> *Imperato*, 486 F.2d at 587 (indirectly cited in *Gordon* as authority for its proposition; only stands for the proposition that there must be a suggestion to combine).

<sup>174</sup> *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992).

<sup>175</sup> *Pro-Mold*, 75 F.3d at 1573.

<sup>176</sup> *Id.*

<sup>177</sup> *Sibia Neurosciences*, 225 F.3d at 1356.

### A. *In the CAFC*

In practice, when the argument is made by appellants that a reason, suggestion or motivation to make a modification is present, it has had a poor success rate at the CAFC.

I performed a LEXIS<sup>®</sup> search of all decisions of the CAFC from its inception in 1982. I used a variety of terms to search for all possible references to the suggestion to modify requirement. I found only a small number of cases in which the CAFC decided that a suggestion to modify the cited reference was present. They are summarized below.

In *In re O'Farrell*, the claimed invention was a method of producing predetermined protein in stable form in host species of bacteria through genetic engineering.<sup>178</sup> The invention substituted the protein's gene for the ribosomal gene used in the reference.<sup>179</sup> The CAFC held that the reference explicitly suggested the substitution and presented preliminary evidence suggesting that the method could be used to make proteins.<sup>180</sup> The CAFC concluded the claimed invention was obvious.<sup>181</sup>

In *In re Napier*, the claimed invention was an aircraft auxiliary power unit that redirected noise.<sup>182</sup> The invention substituted a non-propulsion auxiliary power unit for the aircraft propulsion engine used in the reference.<sup>183</sup> The CAFC held that the goal of the reference to achieve significant noise reduction would have motivated the ordinary artisan to make the substitution.<sup>184</sup> The CAFC concluded the claimed invention was obvious.<sup>185</sup>

In *B.F. Goodrich Co. v. Aircraft Braking Systems Corp.*, the claimed invention was a method of overhauling a carbon disk brake assembly.<sup>186</sup> The invention substituted an initial assembly of alternating thick and thin disks for the initial assembly of disks of uniform thickness used in the reference.<sup>187</sup> The CAFC held that the overhaul schedule in the reference provided the

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<sup>178</sup> 853 F.2d 894, 895 (Fed. Cir. 1988).

<sup>179</sup> *Id.* at 901.

<sup>180</sup> *Id.*

<sup>181</sup> *Id.* at 904.

<sup>182</sup> 55 F.3d 610, 612 (Fed. Cir. 1995).

<sup>183</sup> *Id.* at 613.

<sup>184</sup> *Id.*

<sup>185</sup> *Id.* at 614.

<sup>186</sup> 72 F.3d 1577, 1579 (Fed. Cir. 1996).

<sup>187</sup> *Id.*

suggestion for an initial thick/thin disk assembly.<sup>188</sup> The CAFC concluded the claimed invention was obvious.<sup>189</sup>

In *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, the claimed invention was a cell-based screening method for identification of compounds that exhibit agonist and antagonist activity with respect to particular cell surface proteins.<sup>190</sup> The invention substituted compounds that were not known to interact with the recombinant cells described in the reference for the compounds used in the reference that were known to interact with them.<sup>191</sup> The CAFC majority said that express teachings in the prior art “as filtered through the knowledge of one skilled in the art,” as well as the nature of the problem to be solved, provided a suggestion and motivation to make the substitution.<sup>192</sup>

### **B. In the PTO**

While the PTO agrees with the CAFC that there must be a reason, suggestion or motivation to modify a reference (The Manual of Patent Examining Procedures (MPEP) incorporates the requirement in its explicit procedural requirements for establishing a *prima facie* case of obviousness<sup>193</sup>), it does not agree with the CAFC that there are only three possible sources of such a reason, suggestion or motivation. The PTO recognizes another source of a rationale to modify a reference—legal precedent established by case law.<sup>194</sup> It has said that if the facts in a prior legal decision supporting an obviousness rejection are sufficiently similar to those in the patent application under examination, the examiner may use the rationale of the court to modify the reference.<sup>195</sup> The PTO provides the following quote from *In re Lilly & Co.*,<sup>196</sup> a CAFC panel opinion, in support of this proposition:

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<sup>188</sup> *Id.* at 1583.

<sup>189</sup> *Id.* at 1586.

<sup>190</sup> 225 F.3d at 1352.

<sup>191</sup> *Id.* at 1356.

<sup>192</sup> *Id.* at 1358.

<sup>193</sup> *Basic Requirements of a Prima Facie Case of Obviousness*, MPEP § 2143.

<sup>194</sup> *Sources of Rationale Supporting a Rejection Under 35 U.S.C. § 103*, MPEP § 2144 (“Rationale may be in a reference, or reasoned from common knowledge in the art, scientific principles, art-recognized equivalents, or legal precedent.”).

<sup>195</sup> *Id.*

<sup>196</sup> 902 F.2d 943, 947 (Fed. Cir. 1990).

The value of the exceedingly large body of precedent wherein our predecessor courts and this court have applied the law of obviousness to particular facts, is that there has been built a wide spectrum of illustrations and accompanying reasoning, that have been melded into a fairly consistent application of law to a great variety of facts.<sup>197</sup>

The MPEP provides illustrations of factual situations in which an examiner may use the rationale of the court to modify the reference.<sup>198</sup> The “court” in the majority of cases is the CCPA.<sup>199</sup> These factual situations include aesthetic design changes; elimination of a step or an element and its function; automating a manual activity; changes in size, shape, or sequence of adding ingredients; making portable, integral, separable, adjustable, or continuous; reversal, duplication, or rearrangement of parts; and purifying an old product.<sup>200</sup> With regard to elimination of a step or an element and its function, the MPEP further states that: “(A) omission of an element and its function is obvious if the function of the element is not desired; [and] (B) omission of an element with retention of the element’s function is an indicia of unobviousness.”<sup>201</sup>

### C. The Granneman Case

The use of legal precedent established by case law as another source of a rationale to modify a reference has recently been questioned by the Board in a nonprecedential opinion. At issue in *Ex parte Granneman*,<sup>202</sup> was

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<sup>197</sup> *Sources of Rationale Supporting a Rejection Under 35 U.S.C. § 103*, MPEP § 2144 (“Legal precedent can provide the rationale supporting obviousness only if the facts in the case are sufficiently similar to those in the application.”).

<sup>198</sup> *Legal Precedent as a Source of Supporting Rationale*, MPEP § 2144.04.

<sup>199</sup> *Id.*

<sup>200</sup> *Id.*

<sup>201</sup> *Id.* These rules are rooted in a doctrine of the Supreme Court—the aggregation doctrine. That doctrine states that combining old elements without changing their functions is an obvious thing to do, and it will not support patentability. In case (A), the remaining old elements have been combined without changing their functions. Therefore, the new combination is obvious. In case (B), the remaining elements have been combined with a change in their functions. Therefore, the new combination is unobvious. The aggregation doctrine was last used by the Supreme Court in *Sakraida*, where the Supreme Court invalidated a patent for a waterflush system to remove cow manure from the floor of a dairy barn. 425 U.S. at 282. The waterflush system was a combination invention composed of thirteen separate items which were not new and had been used in the dairy business prior to the time of the patent. Since the old elements had no new function in the combination, the Supreme Court applied the aggregation doctrine, stating “this particular use of the assembly of old elements would be obvious.” *Id.*

<sup>202</sup> 68 U.S.P.Q.2d 1219.

the obviousness of the appellant's claimed semiconductor processing apparatus that differed from that disclosed in a Zinger prior art reference, in that claim 8 required a processing chamber containing two reactors whereas Zinger's processing chambers each contain only one reactor. Thus, "to arrive at the appellant's claimed apparatus, Zinger's apparatus must be modified by including a second reactor in the reactor compartment."<sup>203</sup> The examiner argued, in reliance upon *In re Harza*,<sup>204</sup> that an additional reactor in Zinger's processing chamber would be a mere duplication of parts and, therefore, would have been obvious to one of ordinary skill in the art.<sup>205</sup>

The Board noted that the court in *In re Harza* had stated that the only difference between the reference's structure for sealing concrete and that of Harza's claim 1 was that the reference structure had only a single rib (i.e., arm) on each side of a web, whereas the claim required a plurality of such ribs, and that the court in *In re Harza* had held "[i]t is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced, and we are of the opinion that such is not the case here."<sup>206</sup> The Board pointed out that the examiner had not compared the facts in *In re Harza* with those in the present case and explained why, based upon this comparison, the legal conclusion in the present case should be the same.<sup>207</sup> Instead, the Board said, the examiner had relied upon *In re Harza* as establishing a *per se* rule that duplication of parts is obvious.<sup>208</sup>

The Board noted that the CAFC had said in *In re Ochai* that reliance on *per se* rules of obviousness is legally incorrect and must cease.<sup>209</sup> In that case, the examiner had drawn from a precedent case, *In re Durden*, the rule

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<sup>203</sup> *Id.*

<sup>204</sup> 274 F.2d 669, 671 (C.C.P.A. 1960).

<sup>205</sup> *Granneman*, 68 U.S.P.Q.2d at 1219.

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

<sup>208</sup> *Id.* This practice of relying upon case law as establishing *per se* rules of obviousness was common in the days before the 1952 Patent Act. For example, INVENTION—A DISCUSSION OF THE SUBJECT FOR NEW EXAMINERS, CLASS PAPER No. 12 (U.S. Dept. of Com., U.S. Pat. Office, Sept. 1, 1939) informed the examiners that there had been evolved a classification of situations which recur with regularity, where the holdings of the courts are quite uniform that invention is absent, and brought together under twenty-four headings of generalizations where there had been uniformity of holdings as to a given situation. It explained that the Patent Office, meeting the question of obviousness in an earlier stage than the courts, must work by "rule" rather than in accordance with the ample evidence which a trial court would have, and that any given case should be assumed to represent an invention unless it falls under one of the decided cases of what was not invention.

<sup>209</sup> 71 F.3d 1565, 1572 (Fed. Cir. 1995).

that a process claim is obvious if the prior art references disclose the same general process using "similar" materials.<sup>210</sup>

The Board reversed the examiner.<sup>211</sup> It held that the examiner had not explained why the prior art would have suggested to one of ordinary skill in the art the desirability of the modification, and therefore he had not established a *prima facie* case of obviousness of the appellant's claimed invention.<sup>212</sup>

#### D. Summary of Part II

As stated above, the CAFC recognizes only three sources of a reason, suggestion or motivation to modify a reference—the teachings of the prior art reference, the knowledge of persons of ordinary skill in the art, and the nature of the problem to be solved. The PTO recognizes legal precedent established by case law as another source of a rationale to modify a reference. As a practical matter, it is extremely difficult to make a case for a suggestion to modify a reference otherwise, as the reported cases at the CAFC indicate.

### III. CONCLUSION

The doctrine of "reason, suggestion or motivation to combine" states that if a patent examiner can find every limitation of a particular claim in two or more prior art references, that claim may be obvious if there is a reason, suggestion or motivation to combine the references.

The doctrine of "reason, suggestion or motivation to modify" states that if a patent examiner cannot find every limitation of a particular claim in a prior art reference, that claim may still be obvious if there is a reason, suggestion or motivation to modify the reference.

Yet to be finally resolved is whether the reason, suggestion or motivation can come only from the references, and whether it must be explicit.

The CAFC needs to shed more light on this problem.

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<sup>210</sup> *Id.*

<sup>211</sup> *Granneman*, 68 U.S.P.Q.2d at 1219.

<sup>212</sup> *Id.*