Chief Judge Howard T. Markey left an everlasting mark on the meaning of obviousness under 35 U.S.C. § 103. Chief Judge Markey viewed all inventions as combinations of old elements because, in his own words, "Only God works from nothing. Man must work with old elements." Chief Judge Markey's obviousness jurisprudence can be characterized by three fundamental principles. First, he looked at an invention as a whole. Second, he looked for real world evidence of nonobviousness because it was a reliable indicator of obviousness. Third, he avoided the dangers of hindsight bias by looking for a reason to combine a given set of references at the time an invention was conceived of. These principles are entirely consistent with the Supreme Court's recent decision in *KSR Int'l Co. v. Teleflex Inc.*
OBVIOUSNESS BEFORE AND AFTER JUDGE MARKEY

MARK J. ABATE*

I will be speaking about Judge Markey's obviousness cases. Before I begin, I would like to say to Chris Markey, your remarks were really tremendous. My talk will not be as entertaining and probably will not capture the essence of the man as much as yours did.

Judge Markey was a tremendous person. When people ask me what it was like to clerk for Judge Markey, I do not talk about the cases I worked on or the things I learned from him. I talk about the person and the opportunity to spend two years at the side of someone like Judge Markey, who was really a great individual. It was a tremendous experience that I will carry with me for the rest of my life. For the students in the room, I recommend that you consider a clerkship when you graduate from school. It's a wonderful opportunity. If you're lucky you will find someone like Judge Markey to work for.

I will be speaking about obviousness. I want to start with some Supreme Court cases and then turn to three of Judge Markey's cases from the early years of the Federal Circuit and then close with the recent Supreme Court KSR case.

There are three things that Judge Markey wanted everyone to know about obviousness. First, there were some cases that talked about combination patents and specifically said that combinations of old elements were not patentable. In some of the cases we will be discussing today Judge Markey said that every invention is in some sense a combination of old elements. Some combinations of old elements are patentable and some are not. Inventions have to be analyzed from the standpoint of whether they would have been obvious to a person of skill in the art and not by looking at whether the elements were old or whether they are new. The standard is whether the invention as a whole would have been obvious or not to a person of ordinary skill in the art. Judge Markey crystallized this in a way that only he could when he said, "Only God works from nothing. Man must work with old elements."

The second thing Judge Markey wanted us to know about obviousness, and I

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3 See, e.g., Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp., 340 U.S. 147, 151 (1950) ("The mere aggregation of a number of old parts or elements which, in the aggregation, perform or produce no new or different function or operation than that theretofore performed or produced by them, is not patentable invention." (quoting Lincoln Eng'g Co. v. Stewart-Warner Corp., 303 U.S. 545, 549 (1938))).
4 See, e.g., Raytheon Co. v. Roper Corp., 724 F.2d 951, 961 (Fed. Cir. 1983) (Markey, C.J.) ("[V]irtually every claimed invention is a combination of old elements ...." (quoting Medtronic, Inc. v. Cardiac Pacemakers, Inc., 721 F.2d 1563, 1566 (Fed. Cir. 1983))); Medtronic, 721 F.2d at 1566 (Markey, C.J.) ("[V]irtually every patent can be described as a 'combination patent.'").
7 KSR, 127 S. Ct. at 1742 ("The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art.").
8 Markey, supra note 5, at 334.
think this was his great contribution in the area and probably one of his great contributions in patent law generally, was the importance of real world evidence of nonobviousness. What he meant by real world evidence is what are sometimes called secondary considerations or objective indicia of nonobviousness. This includes things like commercial success, long felt need, failures of others, industry praise, and skepticism by people skilled in the art when learning of the invention. Some of this type of evidence had been mentioned in Supreme Court cases, but Judge Markey elevated them, gave them life, and demonstrated how those factors and considerations could be used to affirmatively prove an invention to be nonobvious.

Lastly, Judge Markey was very concerned about the use of hindsight in evaluating inventions for obviousness. Hindsight is just another way of saying that the claims and teachings of the patent are used as a guide to pick and choose from the prior art to find that an invention was obvious. Judge Markey was very critical of the use of hindsight and criticized district courts for engaging in it. He said that there must be some reason apart from the inventor's own teachings why a person of ordinary skill in the art would have selected elements from the prior art and put them together in the way the inventor did. It is improper for courts to use the inventor's teachings against him. When a court is looking for that type of reason, the fact finder really has to cast himself back in time to the date of the invention and ask whether a person of ordinary skill in the art would have found a reason to make the combination.

With that as background, I am going to go through some cases. The first one is Hotchkiss v. Greenwood. This is the case that really started it all 150 years ago. The invention was an improvement in a doorknob by making it out of clay or porcelain instead of wood or metal as was used in the prior art. The Supreme Court

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11 See, e.g., KSR, 127 S. Ct. at 1730; Graham, 383 U.S. at 17.


15 See, e.g., In re Nomiya, 509 F.2d 566, 573 (C.C.P.A. 1975); In re Spiller, 500 F.2d 1170, 1179 (C.C.P.A. 1974); In re Glass, 479 F.2d 1050, 1051 (C.C.P.A. 1973) (Markey, C.J.).

16 Gore, 721 F.2d at 1553.

To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Id.


18 52 U.S. (11 How.) 248 (1851).

19 Id. at 264.
set forth a test for determining obviousness. The idea was to look at the ingenuity and skill possessed by an ordinary mechanic in the art, which sounds like a person of ordinary skill in the art. The test set forth by the Court asked whether a person of ordinary skill would have looked at the prior art and been able to bridge the gap between the prior art and the claimed invention. If a person of skill in the art could do that then the invention was just ordinary skill and not patentable. If a person of skill in the art could not bridge that gap between the prior art and the claimed invention then the invention was patentable. This test was called the general condition of patentability in later cases.

The second case that I want to spend time on is Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp. I will spend more time on it later, but this is an example of a case that talks about combination patent claims in a disparaging way. It said that a mere aggregation of old parts or elements that produce no new or different function or operation in the aggregate is not patentable. Judge Markey was critical of this and I will get to that.

Last among these early Supreme Court cases, I want to mention Graham v. John Deere Co. The interesting, intervening event between this case and the prior cases is the enactment of the 1952 patent statute in which § 103 was included. In Graham, the Court said there are several basic factual inquiries in determining obviousness: the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of skill in the art. Those inquiries are very similar to the language of the Hotchkiss case. Both cases looked at the prior art, the level of skill, and what the claims cover in asking whether the gap can be bridged.

The Court also mentioned in Graham that secondary considerations can give light to the circumstances surrounding the invention. Secondary considerations include things like commercial success and long-felt needs. They can guard against hindsight bias, where the claims are used to pick and choose from the art.

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20 Id. at 267.
21 Id.
22 Id.
23 Id.
24 Id.
27 Id. at 151.
31 Graham, 383 U.S. at 17.
32 Compare id. (determining nonobviousness in light of "the scope and content of the prior art," "differences between the prior art and the claims at issue," and "the level of ordinary skill in the pertinent art"), with Hotchkiss v. Greenwood, 52 U.S. (11 How.) 248, 267 (1851) (requiring a degree of "ingenuity and skill" that exceeds the level "possessed by an ordinary mechanic acquainted with the business" for an invention to be nonobvious).
33 Graham, 383 U.S. at 17.
Interestingly, in this case the Supreme Court talked about secondary considerations as being important because it is easier for a generalist trial judge, who is not familiar with all the technology, to look at some of these surrounding circumstances in order to get a sense for whether the invention may have been obvious or not. With that as background, I want to talk about *W.L. Gore & Associates, Inc. v. Garlock, Inc.* This case is from 1983, about a year after the Federal Circuit was created. It is one of the first blockbuster cases out of the Court. At the time it was the most important case on obviousness. Even today it may be one of the most important cases on obviousness. At issue in the case was highly crystalline PTFE, a process for stretching it, and products obtained from it. PTFE is marketed commercially as Teflon. It is typically a rigid material. What the inventor in this case discovered is that by stretching it extremely rapidly it became a fabric. The fabric is one that many of you probably wear. It is sold as Gortex. The beauty of this fabric is that it is breathable from one side, meaning it lets water vapor out, but it is water repellant, so it protects from rain. These properties make it good for outerwear.

Conventional wisdom in the art taught that breakage could only be avoided by slowing the stretching rate of this material or decreasing the crystallinity by increasing the temperature. But the inventor did the exact opposite by rapidly stretching the material. This was actually demonstrated on a table at the appellate argument. Judge Markey recounted this to me as one of the great moments of the early Federal Circuit. They put a hard rod in a machine and tried to stretch it slowly but it cracked. Then they stretched a hard rod extremely rapidly and it magically turned from a hard rod into a flexible material that was both breathable and water repellant.

The inventor acted contrary to the teaching of the art. He fulfilled a long-felt need, had remarkable commercial success, and experts in the industry greeted this product as remarkable, bewitching, and magical. At least one expert from DuPont

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37 *Gore*, 721 F.2d at 1540 (Markey, C.J.).
40 See id.
41 *Gore*, 721 F.2d at 1544-45.
42 Id.
43 Id. at 1545.
44 Id.
45 Id.
46 Id.
47 Id.
48 Id. at 1551.
49 Id. at 1552.
50 Id. at 1545, 1555, 1556.
expressed total disbelief when he first learned of the invention. With that as background, Judge Markey said that the fact that the inventor went contrary to the conventional wisdom of the art was a strong fact in favor of nonobviousness.

This is an example of Judge Markey elevating real-world evidence. He took a real-world situation where the inventor went contrary to the accepted teachings in the art and used it to show that the invention was nonobviousness. In other cases this is sometimes called teaching away. The art was teaching away from the direction taken by the inventors.

Judge Markey was also critical of the district court for what he perceived as hindsight bias where the claims were used as a reference point and individual teachings from the prior art were pieced together like a mosaic using the claims. In particular, he said that “[a]t no point did the district court...explain why that mosaic would have been obvious to one skilled in the art in 1969.” Judge Markey was looking for was some reason to combine the prior art as a way of overcoming his concern about hindsight bias.

Judge Markey also criticized the district court for falling victim to hindsight bias by using what the inventor taught against him. He said that to avoid hindsight bias, the decision-maker has to forget what he has learned about the invention at trial and put himself back in time with the inventor and ask if the invention would have been obvious to a person of skill in the art in view of the conventional and general accepted wisdom at the time.

Judge Markey also criticized the district court regarding its use of objective evidence of nonobviousness or secondary considerations. The district court first looked at the technical evidence and found the invention to be obvious. Then the district court viewed the evidence of commercial success and found that no amount of commercial success could make the invention nonobvious. Judge Markey held that the district court’s method was wrong. He viewed the secondary considerations as critical and said that they have to be considered in an integrated fashion with all of the other the evidence before any legal conclusion of obviousness is reached. He said, in a very important statement that is carried in a number of Federal Circuit cases, that objective evidence of obviousness may be “the most pertinent, probative, and revealing evidence available” to aid a court.

In his opinion Judge Markey recounted some of the objective evidence of

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51 Id. at 1545.
52 Id. at 1552.
54 Gore, 721 F.2d at 1552.
55 Id. at 1553.
56 Id.
57 Id. at 1555.
58 Id.
59 Id.
60 Id.
61 Id. (“[The objective evidence of nonobviousness] may be the most pertinent, probative, and revealing evidence available to aid in reaching a conclusion on the obvious/nonobvious issue.”); Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538 (Fed. Cir. 1983) (Markey, C.J.); see Simmons Fastener Corp. v. Ill. Tool Works, Inc., 739 F.2d 1573, 1575 (Fed. Cir. 1984) (citing separately the language of Chief Justice Markey in Gore and Stratoflex).
nonobviousness. He wrote about the long-felt need for weatherproof fabrics and that the Army needed it as well. He also wrote that Gortex was very popular and successful in the field of vascular surgery where it was used for artificial veins and arteries. The commercial success was really dramatic in this invention. In view of all those factors Judge Markey reversed the district court's finding of obviousness.

The second case by Judge Markey that I want to mention is Raytheon Co. v. Roper Corp. The case involves a different type of invention but repeats some of the same themes as in Gore. The invention was an oven capable of three modes of operation: conventional thermal cooking, microwave cooking, and self-cleaning. These three modes of operation were not viewed as compatible in the prior art. Thermal cooking is a normal oven in which the inside of the oven is being heated. With thermal cooking the oven should not be ventilated because the heat needs to stay in the oven. It is the opposite with microwave cooking. Microwave cooking produces humidity. A fan unit is needed inside to reduce that humidity. Finally, self-cleaning is where the inside of the oven is heated to a very high temperature to clean all the food particles off the surfaces. If the oven is ventilated during that process it can produce an explosion or fire. These three modes were viewed by people of ordinary skill in the art as being incompatible in the prior art.

The inventor unexpectedly found that he could combine these three modes of operation in one oven. That fact, in conjunction with the commercial success and the prior art teaching away, was the foundation upon which the legal conclusion of nonobviousness was found by the Federal Circuit. This is another case where Judge Markey was elevating real-world evidence. There were teachings in the art that taught that these three modes could not work together and also objective evidence of nonobviousness in terms of unexpected results and also the great commercial success of the invention.

In this case an argument was made that the invention was just a combination of well-known elements in the art and therefore invalid under Great Atlantic & Pacific Tea Co. Great Atlantic & Pacific Tea Co. said that combinations should be scrutinized because combinations of old elements, particularly in mechanical-type fields, are likely to be obvious. Judge Markey said that this was not a rule of broad application to every case. He wrote that the Supreme Court itself had held combinations of old elements patentable in United States v. Adams. He wrote that

63 Id. at 953.
64 Id.
65 Id.
66 Id.
67 Id.
68 Id.
69 Id.
70 Id.
71 Id.
72 Id. at 953–54, 961.
73 Id. at 954, 960, 961.
74 Id. at 961.
76 Raytheon, 724 F.2d at 961 (citing United States v. Adams, 383 U.S. 39, 51–52 (1966)).
some combinations of old elements are patentable and some aren’t.\textsuperscript{77} He held that it was not correct for there to be some separate test for combinations.\textsuperscript{78}

In an article from that same year, Judge Markey summed it up nicely. He said, “Only God works from nothing. Man must work with old elements.”\textsuperscript{79} This is an interesting article because it is called \textit{Why Not the Statute?}\textsuperscript{\textsuperscript{77}} and he points out that courts have historically disregarded the patent statute in a number of areas.\textsuperscript{80} He goes through about ten or twenty different areas where the patent statute has been disregarded by courts in making decisions and says that it is interesting because there is no common law of patents.\textsuperscript{81} Patent law is statutory so it is odd that the statute would be disregarded.\textsuperscript{82} He concluded that when all else fails courts should just read the statute and go from there.\textsuperscript{83} That is what Judge Markey was doing in the \textit{Raytheon}\textsuperscript{\textsuperscript{81}} case.

The last case by Judge Markey that I want to mention is \textit{Lindemann Maschinenfabrik Gmbh v. Am. Hoist & Derrick Co.}\textsuperscript{84} The invention in this case involved hydraulic shears for processing scrap metals.\textsuperscript{85} The district court viewed the claimed invention as an aggregation of different sized rams, which were some of the elements used in the process.\textsuperscript{86} The district court said that the patentee merely put two existing elements together and connected them in an appropriate way.\textsuperscript{87} But Judge Markey found that the fact that the invention consisted of old elements was not fatal.\textsuperscript{88} What was important according to him was the invention considered as a whole. He stressed that there had to be something in the art as a whole to suggest the desirability and thus the obviousness of making a combination.\textsuperscript{89} In this case there was nothing in the references that would suggest the combination.\textsuperscript{90} In fact, there was secondary evidence, objective indicia of nonobviousness, in the form of commercial success.\textsuperscript{91} In this case, like the last one, the district court looked first at the technical evidence and said that the invention was obvious and only then looked at the commercial success evidence and determined that it could not overcome the other evidence of obviousness.\textsuperscript{92} But Judge Markey said that the court has to look at all of the evidence in one integrated analysis so that it is given fair treatment.\textsuperscript{93}

In deciding this case, Judge Markey looked at several different types of objective evidence. He talked about unexpected results, surprise and amazement by people skilled in the art, and new and unexpected results nowhere suggested in the prior

\textsuperscript{77} Markey, \textit{supra} note 5, at 334.
\textsuperscript{78} \textit{Raytheon}, 724 F.2d at 961.
\textsuperscript{79} Markey, \textit{supra} note 5, at 334.
\textsuperscript{80} \textit{Id.} at 331.
\textsuperscript{81} \textit{Id.}
\textsuperscript{82} \textit{Id.}
\textsuperscript{83} \textit{Id.}
\textsuperscript{84} \textit{Id.} at 340.
\textsuperscript{85} 730 F.2d 1452 (Fed. Cir. 1984) (Markey, C.J.).
\textsuperscript{86} \textit{Id.} at 1455.
\textsuperscript{87} \textit{Id.} at 1457, 1462.
\textsuperscript{88} \textit{Id.}
\textsuperscript{89} \textit{Id.}
Again, in this third case, Judge Markey was elevating the real world evidence of obviousness. He was looking for a reason why the prior art might be combined in order to come to a conclusion of obviousness or nonobviousness.

I want to close by talking about the *KSR* case. In this case, the Supreme Court considered the Federal Circuit’s teaching, suggestion, or motivation test for obviousness and reversed the Federal Circuit. In recent years, the Federal Circuit had been looking for an explicit teaching, suggestion, or motivation in the art to combine two references. The Supreme Court said that the Federal Circuit’s application of this test as a rigid and mandatory formula was inconsistent with the Supreme Court’s precedent. Instead, the *Graham* approach, with the broad factual inquires and secondary considerations, was a fairly expansive and flexible approach. It allowed lots of evidence to come in, and the rigid approach that was being used by the Federal Circuit under its teaching, suggestion, or motivation test was inappropriate.

With respect to teachings in multiple references and how they might be combined, the Court pointed out that the key to determining obviousness is to ask whether there was an apparent reason to combine the known elements in the fashion claimed by the patent. I suggest that the test that the Supreme Court announced in *KSR* is really very similar to what Judge Markey had announced in his early cases. The reason to combine references does not have to be an explicit teaching, suggestion, or motivation. In fact, the Federal Circuit’s recent case law had been criticized as looking for anticipation in two references as opposed to analyzing inventions in terms of an obviousness analysis. I suggest that this new analysis from *KSR* about finding some apparent reason to combine references is very similar to what is in Judge Markey’s cases.

In *KSR*, the Supreme Court talked about its earlier law on combinations of old elements. It said that a patent that is no more than a combination of old elements would likely be obvious when it does no more than yield predictable results. But the Court then went on and said that a patent is not proved obvious merely by demonstrating that each of the elements was independently known in the prior art. It remains important to identify a reason why a person would have made the combination. In most, if not all, instances, inventions rely on building blocks that have long since been known and are part of the prior art. The Supreme Court was really mimicking what Judge Markey said in his article and his cases.

In conclusion, there are three things that Judge Markey wanted us to take away on obviousness. First, look at the invention as a whole. It is not appropriate to

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94 Id. at 1461–62.
96 Id. at 1730, 1746.
97 See id. at 1730.
98 Id. at 1731, 1739, 1743.
99 Id. at 1731, 1739.
100 Id. at 1731.
101 Id.
102 See id. at 1743.
103 Id. at 1731.
104 Id.
105 Id.
brand certain inventions as combinations and then just toss them aside. Instead one has to ask, looking at the invention as a whole, are the elements as combined obvious or nonobvious? Second, what I think is Judge Markey's great contribution to this area, is the elevation of real world evidence. It was stated by the Supreme Court in *Graham*, but Judge Markey really brought it to life in the *Gore* and *Raytheon* cases. Finally, in criticizing the use of hindsight by district courts to reconstruct inventions out of the prior art, Judge Markey emphasized the need to look for a reason to combine references while putting yourself back in time.

Thank you.