United States Court of Appeals for the Federal Circuit

2006-1013, -1037

AUTOMOTIVE TECHNOLOGIES INTERNATIONAL, INC.,

Plaintiff/Counterclaim Defendant-Appellant,

v.

BMW OF NORTH AMERICA, INC., CK ELECTRONICS, INCORPORATED,
CONTI TEMIC MICROELECTRONIC, GMBH,
and TEMIC AUTOMOTIVE OF NORTH AMERICA, INCORPORATED,

Defendants,

and

DAIMLERCHRYSLER CORPORATION, FORD MOTOR COMPANY,
HONDA MOTOR COMPANY LIMITED,
AMERICAN HONDA MOTOR COMPANY, INCORPORATED,
HYUNDAI MOTOR COMPANY, HYUNDAI MOTOR AMERICA,
MAZDA MOTOR OF AMERICA, INC., SAAB CARS USA, INC.,
SIEMENS AUTOMOTIVE CORPORATION, and TOYOTA MOTOR SALES USA, INC.,

Defendants/Counterclaimants-Appellees,

and

GENERAL MOTORS CORPORATION,

Defendant/Counterclaimant-Appellee,

and

VOLKSWAGEN OF AMERICA, INC.,

Defendant/Counterclaimant,

and

NISSAN NORTH AMERICA, INC.,

Defendant/Counterclaimant-
Cross Appellant,

and

CALSONIC KANSEI CORPORATION,

Counterclaimant Defendant-
Cross Appellant,

and

SIEMENS AG, TK ELECTRONICS, INCORPORATED,
and TRW AUTOMOTIVE U.S., LLC,

Counterclaimants Defendants-
Appellees,

and

DELPHI AUTOMOTIVE SYSTEMS,

Counterclaimant Defendant-
Appellee,

and

KIA MOTORS AMERICA, INCORPORATED,
and BOSCH AUTOMOTIVE MOTORS SYSTEM CORPORATION,

Counterclaimants Defendants.

Michael H. Baniak, McDonnell Boehnen Hulbert & Berghoff LLP, of Chicago, Illinois, argued for plaintiff/counterclaim defendant-appellant. Of counsel on the brief was Andrew Kochanowski, Sommers Schwartz, P.C., of Southfield, Michigan. Of counsel was Michael D. Gannon.

Kenneth A. Gallo, Paul, Weiss, Rifkind, Wharton & Garrison LLP, of Washington, DC, argued for defendants/counterclaimants-appellees, Daimlerchrysler Corporation, et al., and counterclaimants defendants-appellees Siemens AG, et al. Of counsel on the brief were Drew M. Wintringham III and Mark W. Rueh, Clifford Chance US LLP, of New York, New York.

Charles W. Shifley, Banner & Witcoff, Ltd., of Chicago, Illinois, for counterclaimant defendant-appellee, Delphi Automotive Systems, and defendant/counterclaimant-appellee, General Motors Corporation. With him on the brief were Binal J. Patel and Theodore L. Field.

John J. Feldhaus, Foley & Lardner, LLP, of Washington, DC, argued for defendant/counterclaimant-cross appellant, Nissan North America, and counterclaimant defendant-cross appellant, Calsonic Kansei Corporation. With him on the brief were Pavan K. Agarwal and Mary M. Calkins.

Appealed from: United States District Court for the Eastern District of Michigan

Judge Robert H. Cleland

United States Court of Appeals for the Federal Circuit

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and BOSCH AUTOMOTIVE MOTORS SYSTEM CORPORATION,

Counterclaimants Defendants.

DECIDED: September 6, 2007

Before LOURIE, RADER, and PROST, Circuit Judges.

LOURIE, Circuit Judge.

Automotive Technologies International, Inc. ("ATI") appeals from the decision of the United States District Court for the Eastern District of Michigan granting summary judgment of invalidity of claims 1-44 of U.S. Patent 5,231,253 (the "'253 patent") under 35 U.S.C. § 112, ¶ 1. ATI also appeals from the decision of the district court granting summary judgment of noninfringement in favor of various defendants. Auto. Tech. Int'l v. BMW of N. Am., Inc., No. 01-CV-71700-DT (E.D. Mich. July 21, 2005) (Invalidity Order); Auto. Tech. Int'l v. BMW of N. Am., Inc., No. 01-CV-71700-DT (E.D. Mich. Jan. 26, 2005) (Noninfringement Order). Defendants Calsonic Kansei Corporation and Nissan North America, Inc. cross-appeal from the decision of the district court denying their motion for summary judgment of noninfringement. Auto. Tech. Int'l v. BMW of N. Am., Inc., No. 01-CV-71700-DT (E.D. Mich. Oct. 27, 2004) (Denial of Noninfringement Order). Because we conclude that the asserted claims of the '253 patent are invalid for lack of enablement, we affirm the decision of the district court granting summary judgment of invalidity. Because of that conclusion, the infringement appeal and cross-appeal are moot.

BACKGROUND

The technology at issue involves crash sensing devices for deployment in an occupant protection apparatus, such as an airbag, during an impact or crash involving the side of a vehicle. ATI is the assignee of the '253 patent, entitled "Side Impact Sensors." The invention is directed to a velocity-type sensor placed in a position within a vehicle in order to sense a side impact. A velocity-type sensor is a sensor that

triggers when a velocity change sensed in a crash exceeds a threshold value. Representative claim 1 reads as follows:

> A side impact crash sensor for a vehicle having front and rear wheels, said sensor comprising:
> (a) a housing;
> (b) a mass within said housing movable relative to said housing in response to accelerations of said housing;
> (c) means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus; and
> (d) means for mounting said housing onto at least one of a side door of the vehicle and a side of the vehicle between the centers of the front and rear wheels, in such a position and a direction as to sense an impact into the side of said vehicle.

'253 patent, col.10 ll.59-col.11 ll.1-5.

The prior art sensors used for sensing side impacts were crush sensors—devices configured to trigger only when crushed or deformed, thereby closing a circuit. '253 patent, col.3 ll.29-33. Such sensors, however, are deficient in that they will not trigger during a crash in which a side door is not hit directly but the impact is severe enough such that the occupant would need the protection of an airbag. Id. Velocity-type sensors, on the other hand, can be adjusted to a desired sensitivity to detect a side impact and deploy an airbag, even though the side door is not directly hit. Id. at ll.37-42. According to ATI, conventional wisdom was that velocity-type sensors, which had been successfully used for sensing impacts to the front of a vehicle, would activate too slowly to deploy an airbag during a side impact crash. The inventors of the '253 patent discovered that velocity-type sensors when properly designed could successfully and timely operate to deploy an airbag in a side collision. An example of a velocity type sensor according to the invention is illustrated below:

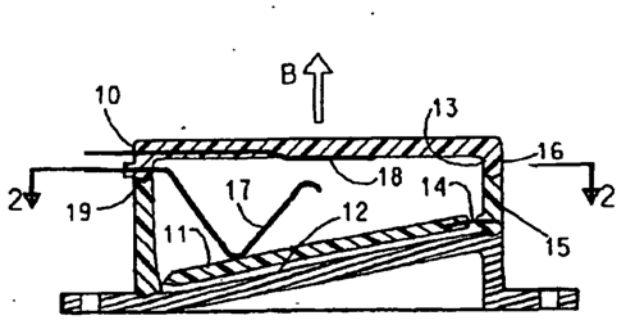

FIG. 1

When installed on a vehicle, the sensor faces the outside of the side door in the direction of the arrow B. '253 patent, col.6 ll.15-17. When the sensor is subjected to a crash pulse of sufficient magnitude and duration, the flapper 11 moves toward the second contact 18. Id. at ll.18-25. The first contact 17 engages with the second contact 18 and closes an electrical circuit to initiate deployment of an airbag. Id. Because side impact sensors require greater insensitivity for short, impulsive velocity changes, the specification discloses that an inertially damped sensor is the most suitable type of sensor for properly sensing side crashes. Id. at col.3 ll.63-68, col.8 ll.49-51. The specification states, however, that other sensors that are simpler and easier to manufacture, can be used to effectively sense a side impact. Such sensors include spring-mass sensors and viscously-damped sensors. Id. at ll.52-62.

The specification also states that an electronic sensor assembly can be used to sense side impacts. '253 patent, col.10 ll.1-15. The following figure, Figure 11, depicts such an electronic sensor assembly:

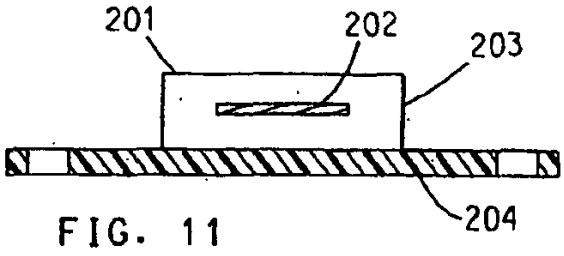

FIG. 11

The accompanying text states that Figure 11 is a "conceptional view of an electronic sensor assembly 201 built according to the teachings of this invention. This sensor contains a sensing mass 202 which moves relative to housing 203 in response to the acceleration of housing 203 which accompanies a side impact crash." Id. at ll.3-8. The specification further states that the motion of the sensing mass "can be sensed by a variety of technologies using, for example, optics, resistance change, capacitance change or magnetic reluctance change." Id. at ll.9-11. The enablement of this electronic side impact sensor is at issue in this appeal.

In May 2001, ATI filed a complaint against numerous defendants in the automotive industry, alleging infringement of the '253 patent. In September 2003, the district court conducted a Markman hearing, and, in March 2004, the court issued an order construing the relevant claims. Auto. Tech. Int'l v. BMW of N. Am., Inc., No. 01-CV-71700-DT (E.D. Mich. Mar. 31, 2004) (Claim Construction Order). Relevant to this appeal, the court construed the phrase, "means responsive to the motion of said mass upon acceleration of said housing in excess of a predetermined threshold value, for initiating an occupant protection apparatus." The parties agreed, and the court found, that the limitation was in means-plus-function format and that the stated function is initiating an occupant protection apparatus. The parties disagreed as to the structure corresponding to the claimed function. ATI contended that the corresponding structure

included not only mechanical switch assemblies, but also electronic switch assemblies, as identified in the specification. The defendants countered that the only clearly linked structure identified in the specification is a mechanical switch assembly.

The district court agreed with ATI that the specification contains structure corresponding to the claimed function in the form of mechanical and electronic means. The court noted that the specification includes several descriptions of mechanical switches as preferred embodiments that would perform the intended function of initiating an occupant protection apparatus. The court also observed that Figure 11 and its accompanying textual description in column 10, lines 3-14, describe, albeit in vague detail, an alternative structure for initiating the occupant protection apparatus in the form of an electronic switch. The court concluded:

> Corresponding structure includes mechanical switches with two contacts that engage in response to a force of sufficient magnitude and duration, and their equivalents. The specification identifies such mechanical switches in Figures 1 and 2 at column 6, lines 7-32; Figure 5 at column 8, lines 53-60; Figure 6 at column 8, lines 61-66; and Figures 8 and 9, lines 30-60.
>
> Corresponding structure also includes an electronic switch or assembly as described in Figure 11 at column 10, lines 3-14 of the patent specification and its equivalents. The electronic switch or assembly contains a sensing mass that moves relative to the housing in response to the acceleration of the housing caused by a side impact crash.

Claim Construction Order, slip op. at 6.

The district court also construed the phrase "means for mounting said housing onto at least one of a side door of a vehicle and a side of the vehicle between the centers of the front and rear wheels." Id., slip op. at 22. The parties disputed the construction of the "onto at least one of a side door of a vehicle and a side of the vehicle between the centers of the front and rear wheels." Id. at 24. The court construed that

phrase to require that the housing be capable of being mounted at both locations, not that the housing must be located at both locations at the same time. Id. at 29. The court also construed the phrase "side of the vehicle" to mean "the side perimeter structure of the vehicle and not the top or bottom of the vehicle." Id. at 31.

After the district court issued its claim construction order, several defendants, including Siemens Automotive Corps., Ford Motor Co., and Hyundai Motor Co., filed a motion for partial summary judgment of noninfringement, arguing that their accused sensors did not infringe because they are mounted on the floor of the vehicles, not on the "side of the vehicle." The district court granted the motion, concluding that, pursuant to its claim construction, sensors mounted in locations other than the "side perimeter structure" of the vehicle could not infringe. Infringement Order, slip op. at 11. Because the accused products include sensors mounted on the floor of the vehicles and not on the "side perimeter structure," the court found that there could be no literal infringement. Id. The court also found that there could be no infringement under the doctrine of equivalents because allowing floor sensors to be equivalent to side sensors would vitiate the "side of the vehicle" limitation. Id. at 14.

Defendants Calsonic and Nissan filed a separate motion for summary judgment of noninfringement alleging that their accused sensors are located on the structure between the front and rear doors of a vehicle, but are not "capable of being mounted" on a "side door" without modifying the sensor. The district court denied their motion for summary judgment, concluding that there was still a triable issue of material fact as to whether the accused sensors were capable of being mounted into a side door. Denial of Noninfringement Order, slip op. at 13.

After the district court issued its claim construction order, various defendants including Honda Motor Co., DaimlerChrysler Co., Ford Motor Co., Hyundai Motor Co., Mazda Motor Co., and Saab Cars Sales USA, Inc., filed a motion for summary judgment that claims 1-44 are invalid for failing to comply with the written description requirement under 35 U.S.C. § 112, ¶ 1. Delphi Corporation also filed a motion for summary judgment that the claims that cover an electronic side impact sensor are invalid for lack of enablement. The court addressed and granted both motions in its Invalidity Order.

The district court first granted defendants' motion for summary judgment of invalidity for failing to satisfy the written description requirement. The defendants argued that the asserted claims failed to satisfy the written description requirement because the claim limitation "means for mounting" the housing at a location "between the centers of the front and rear wheels" is not adequately described in the specification. Defendants also asserted that the claims failed to satisfy the written description requirement because they include side impact sensors mounted at locations other than the side door, and the specification clearly states that the side impact sensor must be placed on the side door to be effective.

The district court next granted Delphi's motion for summary judgment of invalidity for lack of enablement. Delphi argued that the claims of the '253 patent that cover an electronic sensor were invalid for failing to teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation. The court noted that the corresponding structure for the "means responsive" claim limitation included both mechanical means and electronic means and therefore the full scope of the claims included both types of sensors. The court determined, however, that the

specification failed to enable electronic sensors for sensing side impacts. The court reasoned that the specification failed to provide sufficient details to teach a person of ordinary skill in the art how to make and use an electronic sensor. The court observed that not only did ATI's representative admit that the specification failed to disclose structure for the general references to sensing technology, but that Figure 11, the only depiction of an electronic sensor in the '253 patent, was not meant to represent any specific design of an electronic sensor. Moreover, the court determined that the text describing Figure 11 was "vague" and that the specification "fails to disclose reasonable basic enabling structure to show how one skilled in the art would use existing electronic sensing technologies to achieve the desired novel characteristics of an electronic acceleration sensor." Invalidity Order, slip op. at 58.

The district court also considered the factors set forth in In re Wands, 858 F.2d 731 (Fed. Cir. 1988), and concluded that they weighed in favor of a finding that undue experimentation would have been necessary to make or use an electronic side impact sensor based upon the disclosure. Relying on testimony from Delphi's expert and ATI's expert, the court found that the factors of quantity of experimentation necessary, the amount of direction or guidance presented in the specification, and the absence of a working example favored a finding of lack of enablement.

The district court finally considered and rejected ATI's argument that the claims are enabled because one embodiment or mode of practicing the invention, viz., a mechanical means, is enabled. The court noted that ATI "vigorously advocated" for and obtained a broad claim construction that both mechanical and electrical sensors be included within the scope of the claims. Invalidity Order, slip op. at 66. Because the

specification does not enable both the mechanical and electronic side impact sensors, the court concluded that the full scope of the claims was not enabled and that the claims are invalid for lack of enablement.

DISCUSSION

We review a district court's grant of summary judgment de novo, reapplying the standard applicable at the district court. See Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1301 (Fed. Cir. 1999). Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). In addition, in deciding a motion for summary judgment, "[t]he evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986). Whether the subject matter of a patent claim satisfies the enablement requirement under 35 U.S.C. § 112, ¶ 1 is a question of law, reviewed de novo, based on underlying facts, reviewed for clear error. AK Steel Corp. v. Sollac & Ugine, 344 F.3d 1234, 1238-39 (Fed. Cir. 2003). Because a patent is presumed to be valid, the evidentiary burden to show facts supporting a conclusion of invalidity is one of clear and convincing evidence. Id.

On appeal, ATI argues that because one embodiment of the invention is enabled, viz., a mechanical side impact sensor, the enablement requirement is satisfied.[1] According to ATI, there is a dichotomy in our case law—some of our cases hold that the enablement requirement is satisfied when one mode of practicing the invention is

[1] Because we decide invalidity on the enablement ground, we only include the parties' arguments pertaining to enablement.

enabled, while others hold that every embodiment of the invention must be enabled in order for the enablement requirement to be met. According to ATI, the district court chose to follow the wrong line of cases. ATI further argues that, in any event, the specification does enable an electronic side impact sensor assembly. According to ATI, the specification discusses specific structure for an electronic side impact sensor and depicts such a structure in Figure 11. ATI contends that Delphi's expert never addressed whether making an electronic side impact sensor based on the disclosure would require undue experimentation. ATI also contends that electronic sensors, albeit for sensing frontal impacts, were widely known at the time of filing and therefore there was no need for the specification to describe them in detail.

Delphi and General Motors (hereinafter collectively "Delphi") respond that it is well established that the specification must enable the full scope of the claims as construed by the court, and the full scope of the claims includes mechanical side impact sensors and electronic side impact sensors. According to Delphi, providing an enabling disclosure of only mechanical side impact sensors is insufficient to satisfy the enablement requirement because the full scope of the claims is not enabled. Delphi further responds that the short recitation of an electronic sensor in the specification does not in fact enable an electronic side impact sensor because it does not teach one skilled in the art how to make and use such a sensor without undue experimentation. Delphi further responds that the specification expressly states that side impact sensing is a new field and hence ATI could not rely on the knowledge of one of ordinary skill in the art to supply the missing details. Moreover, Delphi asserts that the district court correctly found that the Wands factors, viz., the quantity of experimentation, the lack of

direction or guidance presented, and the nature of the prior art, favor a conclusion of invalidity for lack of enablement.

We agree with Delphi that the district court correctly granted summary judgment that the asserted claims are invalid for lack of enablement.[2] The enablement requirement is set forth in 35 U.S.C. § 112, ¶ 1 and provides in pertinent part that the specification shall describe "the manner and process of making and using [the invention], in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use

[2] In Delphi's motion for summary judgment, it asserted that claims 1-28 and 30-44 were invalid for lack of enablement. In the Invalidity Order, the district stated that Delphi had argued that claims 1-7, 11-14, 16, 18, 20, 22-25, 27, and 30-36 were invalid for lack of enablement. In the judgment order, the court stated that for the reasons stated in the Invalidity Order, claims 1-44 are declared invalid, without specifying which claims were invalid on which grounds. Thus, it is not entirely clear from these facts which claims the court invalidated on the ground of lack of enablement. In the motion for summary judgment of invalidity for failure to satisfy the written description requirement, defendants did assert that claims 1-44 were invalid on that ground. In the Invalidity Order, the court did not specify which claims were at issue under the written description motion, but it did grant defendants' motion for summary judgment of invalidity for failure to satisfy the written description requirement, stating that the "'253 patent is invalid." Thus, it appears that all asserted claims 1-44 were invalidated for failure to fulfill the written description requirement.

From the motions and the district court's Invalidity Order, it would also seem that those same claims, except claim 29, were invalidated on the enablement ground, although that is less than clear. ATI, however, stated during oral argument that affirming on either the enablement ground or the written description ground would invalidate the same asserted claims. That is consistent with statements in ATI's opening and reply brief, which use the same term, "asserted claims," when addressing both the enablement and written description issues. Thus, we consider the same claims to be at issue under the written description and enablement grounds.

Because we conclude that the claims are invalid for lack of enablement, we do not discuss whether the claims are invalid on the alternative ground, for failing to satisfy the written description requirement. In any event, even if different claims were said at times to be implicated on different grounds, we conclude that all asserted claims 1-44 are invalid for lack of enablement because they all recite a sensor, and the full scope of the claims includes mechanical and electronic sensors, the latter of which has not been enabled.

the [invention]." We have stated that the "enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation." AK Steel, 344 F.3d at 1244; see also Wands, 858 F.2d at 736-37.

The district court construed the relevant phrase "means responsive to the motion of said mass" to include both mechanical side impact sensors and electronic side impact sensors for performing the function of initiating an occupant protection apparatus. The parties do not dispute that construction; nor do they dispute that the specification enables mechanical side impact sensors. Under the district court's construction, however, that full scope must be enabled, and the district court was correct that the specification did not enable the full scope of the invention because it did not enable electronic side impact sensors.

Considering first the specification, although two full columns and five figures of the '253 patent detail mechanical side impact sensors, only one short paragraph and one figure relate to an electronic sensor. Importantly, that paragraph and figure do little more than provide an overview of an electronic sensor without providing any details of how the electronic sensor operates. Figure 11 shows a very general view of an electronic side impact sensor. See supra. That figure only shows a boxed housing and a sensing mass. In contrast, Figure 1 shows a mechanical sensor in much more detail, making it clear from the figure how the sensor operates. The specification even states that Figure 11 is a "conceptional view" of an electronic sensor. This is supported by the statement of one of the inventors that Figure 11 "is not meant to represent any specific design or sensor or anything, just a concept." Figure 11 represents a concept of an

electronic sensor, not a figure providing details that would show one skilled in the art how to make or use an electronic side impact sensor.

Moreover, the textual description of Figure 11, which is the only description of an electronic sensor in the patent, provides little detail concerning how the electronic sensor is built or operated. The specification states the following:

> FIG. 11 is a conceptional view of an electronic sensor assembly 201 built according to the teachings of this invention. This sensor contains a sensing mass 202 which moves relative to housing 203 in response to the acceleration of housing 203 which accompanies a side impact crash. The motion of the sensing mass 202 can be sensed by a variety of technologies using, for example, optics, resistance change, capacitance change or magnetic reluctance change. Output from the sensing circuitry can be further processed to achieve a variety of sensor response characteristics as desired by the sensor designer.

'253 patent, col.10 ll.3-14. That general description, however, fails to provide a structure or description of how a person having ordinary skill in the art would make or use an electronic side impact sensor. Indeed, inventor Breed admitted that the specification fails to disclose structure for any of the technologies mentioned. Noticeably absent is any discussion of the circuitry involved in the electronic side impact sensor that would provide more detail on how the sensor operates. The mere boxed figure of the electronic sensor and the few lines of description fail to apprise one of ordinary skill how to make and use the electronic sensor.

ATI argues that despite this limited disclosure, the knowledge of one skilled in the art was sufficient to supply the missing information. We do not agree. In Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1366 (Fed. Cir. 1997), we stated: "It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement." Although the

knowledge of one skilled in the art is indeed relevant, the novel aspect of an invention must be enabled in the patent. The novel aspect of this invention is using a velocity-type sensor for side impact sensing. During prosecution, ATI stated that prior to its invention, "it was assumed that [conventional] inertial sensors would actuate too slowly to deploy an air bag in a side impact situation" and also that it "was unexpected that frontal impact sensors, properly designed, would work in sensing side impacts." ATI further stated that the "essential concept of the invention" is to use "an inertial or acceleration sensor on a motor vehicle for sensing side impacts." Thus, according to ATI, using inertial or acceleration sensors to sense side impacts represented a "breakthrough" in side impact crash sensing. Given that the novel aspect of the invention is side impact sensors, it is insufficient to merely state that known technologies can be used to create an electronic sensor. As we stated in Genentech, the rule that a specification need not disclose what is well known in the art is "merely a rule of supplementation, not a substitute for a basic enabling disclosure." 108 F.3d at 1366. We further stated that the "omission of minor details does not cause a specification to fail to meet the enablement requirement. However, when there is no disclosure of any specific starting material or of any of the conditions under which a process can be carried out, undue experimentation is required." Id.

Moreover, the specification states that: "Side impact sensing is a new field. The only prior art in the literature utilizes a crush sensing switch as a discriminating sensor to detect a side crash." '253 patent, col.8 ll. 45-47. In fact, ATI stated that at the time it filed the application for the '253 patent, it did not know of any electronic sensors used to sense side impact crashes. Given that side impact sensing was a new field and that

there were no electronic sensors in existence that would detect side impact crashes, it was especially important for the specification to discuss how an electronic sensor would operate to detect side impacts and to provide details of its construction. As was the case in Genentech, the specification provides "only a starting point, a direction for further research" on using electronic sensors for sensing side impact crashes; it does not provide guidance to a person of ordinary skill in the art on how to make or use an electronic side impact sensor. 108 F.3d at 1366. The specification fails to provide "reasonable detail" sufficient to enable use of electronic side impact sensors. Id.

The inadequacy of the description of an electronic side impact sensor is highlighted by comparison with the extensive disclosure of how to make and use a mechanical side impact sensor, consisting of two full columns. If such a disclosure is needed to enable making and using a mechanical side impact sensor, why is not a similar disclosure needed to enable making and using an electronic side impact sensor, which is an essential aspect of the invention?

In determining that undue experimentation would have been required to make and use an electronic side impact sensor, the district court properly relied on testimony from Delphi's expert. Delphi's expert discussed at length how a "great deal of experimentation" would have been necessary to make an electronic side impact sensor after reading the specification of the '253 patent. He identified and discussed two distinct problems in developing an electronic side impact sensor: how to sense the motion of the mass in order to properly output a stream of data, and how to appropriately process the data. Moreover, Breed stated that based on his experience, electronic sensors for detecting side impact crashes could not be obtained commercially

in 1990 and would have had to be developed. Inventor Breed admitted that he had never built an electronic sensor for side impact. The testimony from Delphi's expert and the inventor's own testimony provide additional support for the conclusion of a lack of enablement.

ATI argues that its expert, Dr. Dix, testified that one skilled in the art would know how to adapt then-existing technology to create an electronic side impact sensor and that his testimony creates a genuine issue of material fact. Dix's declaration states that electronic sensors were commercially available before the filing of the '253 patent and that, based on engineering texts in 1989, one would have known how to select a commercial accelerometer, how to use analog circuits, and how to program and interface a microprocessor to process the signal using the existing prior art. Dix's testimony, however, fails to discuss what types of tests would need to have been conducted to adapt existing electronic sensors for side impact sensing and does not provide any detail on how to adapt the existing technology. The testimony concludes that no undue experimentation was required to make an electronic side impact sensor, but, having failed to provide any detail regarding why no experimentation was necessary, the declaration does not create a genuine issue of material fact as to enablement.

We also reject ATI's argument that because the specification enables one mode of practicing the invention, viz., mechanical side impact sensors, the enablement requirement is satisfied. We addressed and rejected a similar argument made in Liebel-Flarsheim Co. v. Medrad, Inc., 481 F.3d 1371 (Fed. Cir. 2007). In that case, the invention was a front-loading fluid injector system with a replaceable syringe capable of

withstanding high pressure for delivering a contrast agent to a patient. Id. at 1373. We construed the asserted claims, as urged by the patentee, to include an injector with and without a pressure jacket. Although the specification clearly enabled an injector with a pressure jacket, we concluded that it did not enable an injector without such a jacket and that the claims were invalid for lack of enablement. Id. at 1379. We stated that there "must be 'reasonable enablement of the scope of the range' which, in this case, includes both injector systems with and without a pressure jacket." Id. at 1380 (internal citation omitted).

Similarly, in this case, the claim construction of the relevant claim limitation resulted in the scope of the claims including both mechanical and electronic side impact sensors. Disclosure of only mechanical side impact sensors does not permit one skilled in the art to make and use the invention as broadly as it was claimed, which includes electronic side impact sensors. Electronic side impact sensors are not just another known species of a genus consisting of sensors, but are a distinctly different sensor compared with the well-enabled mechanical side impact sensor that is fully discussed in the specification. Thus, in order to fulfill the enablement requirement, the specification must enable the full scope of the claims that includes both electronic and mechanical side impact sensors, which the specification fails to do.

We stated in Liebel: "The irony of this situation is that Liebel successfully pressed to have its claims include a jacketless system, but, having won that battle, it then had to show that such a claim was fully enabled, a challenge it could not meet." Id. at 1380. ATI sought to have the scope of the claims of the '253 patent include both mechanical

and electronic side impact sensors. It succeeded, but then was unable to demonstrate that the claim was fully enabled. Claims must be enabled to correspond to their scope.

Because we affirm the judgment that the claims are invalid, we need not reach ATI's appeal or Calsonic and Nissan's cross-appeal relating to infringement. See Sandt Tech., Ltd. v. Resco Metal Plastics Corp., 264 F.3d 1344, 1356 (Fed. Cir. 2001).

CONCLUSION

Because the district court correctly granted summary judgment that the '253 patent is invalid for lack of enablement, we affirm.

AFFIRMED