United States Court of Appeals for the Federal Circuit

00-1269

SPACE SYSTEMS/LORAL, INC.,

Plaintiff-Appellant,

v.

LOCKHEED MARTIN CORPORATION,

Defendant-Appellee.

James H. Wallace, Jr., Wiley, Rein & Fielding, of Washington, DC, argued for plaintiff-appellant. With him on the brief were John B. Wyss and Gregory R. Lyons.

Edward V. Filardi, Skadden, Arps, Slate, Meagher & Flom LLP, of New York, New York, argued for defendant-appellee. With him on the brief were Robert B. Smith and David W. Hansen.

Appealed from: U.S. District Court for the Northern District of California

Judge Susan Illston

United States Court of Appeals for the Federal Circuit

00-1269

SPACE SYSTEMS/LORAL, INC.,

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v.

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DECIDED: November 13, 2001

Before NEWMAN, MICHEL, and SCHALL, Circuit Judges.

NEWMAN, Circuit Judge.

Space Systems/Loral, Inc. (herein "SSL") appeals the decision of the United States District Court for the Northern District of California,[1] granting summary judgment in favor of Lockheed Martin Corporation based on the court's ruling of invalidity of SSL's United States Patent No. 4,537,375. Because the district court misapplied the law of "on sale," 35 U.S.C. §102(b), we reverse the summary judgment and remand for further proceedings.

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1 Space Systems/Loral, Inc. v. Lockheed Martin Corp., C-96-3418 SI (N.D. Cal. Dec. 17, 1999).

BACKGROUND

The '375 patent is directed to an attitude control system for maintaining the position and orientation of a satellite. A satellite in orbit may drift out of position due to influences such as gravitational effects of the sun and moon and pressure from the solar wind, generally called "disturbance transients." To return the satellite to its correct orbit and orientation various on-board devices are employed, such as momentum/reaction wheels or thrusters, which are small rocket engines. Such corrective maneuvers are called "station keeping." Imbalances in thruster power or misalignments with respect to the satellite's center of mass, which may change as fuel is consumed, tend to introduce new errors in position or orientation during station keeping maneuvers. Such new errors require further correction after the primary correcting maneuver is made.

The novel method of station keeping described in the '375 patent is called the "prebias" technique. By this technique a correction for thruster imbalances is made before the primary station keeping maneuver is performed, using data stored from previous maneuvers. If any attitude inaccuracies remain they are subjected to a further correction, but as a result of the prebias step substantially less fuel is required overall than would be consumed without the prebias compensatory action. Conservation of on-board fuel prolongs the effective life of a satellite. Claim 1 of the '375 patent follows:

> 1. For use in a spacecraft during a change in velocity maneuver, the spacecraft employing a plurality of thrusters, at least a first thruster and a second thruster being disposed to develop mutually counteractive moment arms of thrust relative through at least one axis through a center of mass of the spacecraft, said first thruster and said second thruster being capable of developing unequal moment arms of force, a method of counteracting disturbance transients comprising the steps of:
>
> storing prior to said maneuver a value representative of an estimated disturbance torque;
>
> modulating in response to said stored value one of said first and second thrusters during said maneuver to counteract an actual disturbance torque a sufficient amount to compensate for said actual disturbance torque in order to

minimize a net position error without initially detecting said net position error; thereafter

detecting said net position error, said net position error being indicative of a difference between said estimated disturbance torque and said actual disturbance torque with respect to said axis; and thereafter

modulating in response to a sum of said stored value and said net maneuver to counteract said actual disturbance torque to further minimize said net position error.

The district court held that the invention claimed in the '375 patent was on sale more than one year before the patent application was filed, rendering the patent invalid pursuant to §102(b) (a patent is barred if the invention was "on sale in this country, more than one year prior to the date of the application for a patent in the United States"). Since the '375 application date is April 21, 1983, the "critical date" for the on sale bar is April 21, 1982.

The relevant events are not in dispute. Ford Aerospace and Communications Corp., a predecessor of SSL and the initial assignee of the '375 patent, entered into a contract with SociJtJ Nationale Industrielle Aerospatiale, a French company that had contracted with the Arab Satellite Communications Organization to develop the "Arabsat" satellite system. Ford was responsible for several aspects of the Arabsat system, including the \satellite attitude control system.

Dr. Fred Chan, a Ford employee, conceived of the prebias method of satellite station keeping as a potential improvement over the design that was originally intended to be used. On March 19, 1982 Ford sent Aerospatiale a document entitled "Engineering Change Proposal" (ECP) which described the prebiasing idea and how Dr. Chan proposed to achieve it, by the steps of storing an estimated disturbance torque, performing a first thruster modulation in response to the stored value, detecting the net position error, and then performing a second modulation in response to the net position error and the stored value. Included were Dr. Chan's rough drawings, along with an estimate of the cost of developing the system. The district court held that this submission was an invalidating on sale event.

Applying Pfaff v. Wells Electronics, Inc., 525 U.S. 55, 48 USPQ2d 1641 (1998), the court ruled that the ECP was a commercial offer of sale, and that the invention was ready for patenting because "SSL admitt[ed] that Dr. Chan had legal conception of every element of every claim of the '375 patent at the time the ECP was submitted to Aerospatiale." The court held that it was irrelevant that the inventor was uncertain whether the system could be made to work.

DISCUSSION

Summary judgment is appropriate when "there is no genuine issue as to any material fact and . . . the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). In this case there was no dispute as to what transpired; the issue was whether the criteria of the on sale bar were met. In Pfaff, supra, the Supreme Court held that the on sale bar arises when the invention is both (1) ready for patenting and (2) the subject of a commercial offer for sale. SSL states that neither of these criteria was met.

SSL states that at the time the engineering proposal was sent to Aerospatiale and for many months thereafter, Dr. Chan's idea was not ready for patenting for its feasibility was not yet known and it had not been enabled. Dr. Chan testified that at the time he sent the proposal to Aerospatiale he had conceived of the idea but he did not know whether he could make it work. He testified that the method for generating a value had to be developed, and that he was not sure he could establish a stable control loop. He stated that it was not until many months later, after development and testing of an engineering model, that he determined that the idea would work.

Lockheed presented no evidence disputing Dr. Chan's testimony, and does not assign error to the district court's statement that it could not conclude as a matter of law that the engineering proposal was an "enabling disclosure." Instead, Lockheed states that the bar arises, as a matter of law, "if an inventor offers for sale a product which has reached the

'conception stage.'" Lockheed Brief at 18. Lockheed stresses that "Because SSL had conceived the invention as of March 19, 1982, it could have filed a patent application -- the invention was ready for patenting." Brief at 24. Lockheed states that conception embraces enablement, and since SSL conceded conception at the time of the Engineering Change Proposal, it also conceded enablement. Thus Lockheed led the district court into error, for the district court ruled that all that is required for an invention to be ready for patenting is "legal conception of every element of every claim." The court described "legal conception" as a mental act, and held that it is not necessary to enable an invention that is fully conceived, in order for the invention to be ready for patenting. Lockheed states that this is the law of Pfaff. That is incorrect.

In Pfaff the Court explained that two ways to show that an invention is ready for patenting are if it has been actually reduced to practice, or if "prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." 525 U.S. at 67-68, 48 USPQ2d at 1646-47. The Court noted that it must be "clear that no aspect of the invention was developed after the critical date." Id. at 68 n.14, 48 USPQ2d at 1647 n.14.

The Pfaff criteria have been applied in a variety of factual situations. See, e.g., Zacharin v. United States, 213 F.3d 1366, 1370, 55 USPQ2d 1047, 1050 (Fed. Cir. 2000) (invention had been reduced to practice before the contract for sale was entered into, before the critical date); STX, LLC v. Brine, Inc., 211 F.3d 588, 591, 54 USPQ2d 1347, 1357 (Fed. Cir. 2000) (a model had been made of the invention and offered for sale before the critical date); Vanmoor v. Wal-Mart Stores, Inc. 201 F.3d 1363, 1366-67, 53 USPQ2d 1377, 1380 (Fed. Cir. 2000) ("the pre-critical date sales were of completed cartridges made to specifications that remain unchanged to the present day" and the detailed drawings were

adequate to produce the device); Abbott Labs. v. Geneva Pharmaceuticals, Inc., 182 F.3d 1315, 1318, 51 USPQ2d 1307, 1309 (Fed. Cir. 1999) (invention had been produced by at least two foreign manufacturers before the critical date); Brasseler, U.S.A. I, L.P. v. Stryker Sales Corp., 182 F.3d 888, 891, 51 USPQ2d 1470, 1473 (Fed. Cir. 1999) (invention had been produced and sold in large quantity before the critical date); Weatherchem Corp. v. J.L. Clark, Inc. 163 F.3d 1326, 1334, 49 USPQ2d 1001, 1007 (Fed. Cir. 1998) (commercial quantity was produced from pre-critical date drawings).

Lockheed argues that Dr. Chan's rough drawings showed the essential principles of the invention, although in lesser detail than was later available and included in the patent application. SSL responds that many months of development were required in order to learn the information that was essential to an operable invention, and that the drawings do not show an enabled invention. Lockheed states that its position that conception alone suffices in order to satisfy the Pfaff requirement of ready for patenting is supported by the Court's statements in Pfaff that "invention . . . refers to the inventor's conception rather than to a physical embodiment of [the] idea," 526 U.S. at 60, 48 USPQ2d at 1644. However, the Court in defining "invention" was not saying that conception alone equals "ready for patenting." The Court later explained that "The word 'invention' must refer to a concept that is complete, rather than merely one that is 'substantially complete.' It is true that reduction to practice ordinarily provides the best evidence that an invention is complete . . . it does not follow that proof of reduction to practice is necessary in every case." 526 U.S. at 66, 48 USPQ2d at 1646.

The Court thus held that reduction to practice was not necessary in every case; but the Court did not hold that a conception, having neither a reduction to practice nor an enabling description, is ready for patenting as a matter of law. To be "ready for patenting" the inventor must be able to prepare a patent application, that is, to provide an enabling disclosure as

required by 35 U.S.C. §112. See Robotic Vision Systems, Inc. v. View Engineering, Inc., 249 F.3d 1307, 1313, 58 USPQ2d 1723, 1727-28 (Fed. Cir. 2001). For a complex concept such as the prebias technique, wherein the inventor himself was uncertain whether it could be made to work, a bare conception that has not been enabled is not a completed invention ready for patenting. Although conception can occur before the inventor has verified that his idea will work, see Burroughs Wellcome Co. v Barr Labs., Inc., 40 F.3d 1223, 1228, 32 USPQ2d 1915, 1919 (Fed. Cir. 1994), when development and verification are needed in order to prepare a patent application that complies with §112, the invention is not yet ready for patenting.

Lockheed argues that since Dr. Chan's proposal included the system's four steps that are set forth in the claim, the idea was "ready for patenting" as a matter of law, even if it were not then enabled. However, the patent statute requires an enabling disclosure of how to make and use the invention. See Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365, 42 USPQ 2d 1001, 1004 (Fed. Cir. 1997) ("To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'"). The fact that a concept is eventually shown to be workable does not retrospectively convert the concept into one that was "ready for patenting" at the time of conception. As we have observed, the Court recognized this distinction when it stated in Pfaff that the on sale bar does not arise when there is "additional development after the offer for sale." 526 U.S. at 68 n.14, 48 USPQ2d at 1647 n.14. The district court erred in ruling that the prebias invention was ready for patenting upon conception as communicated in the engineering proposal. The judgment based thereon can not stand; thus we need not reach the question of whether a commercial offer of sale was made.

The judgment of invalidity for violation of the on sale bar is reversed, and the case is

remanded for further proceedings.[2]

REVERSED AND REMANDED

2 The district court had construed the claims of the '375 patent, and on Nov. 12, 1999 had granted a request by SSL to file a motion to reconsider part of the claim construction. However, on December 17, 1999 the court issued the summary judgment of this appeal, and dismissed the claim construction as moot. Although SSL asks us to review the claim construction, the district court had decided to reconsider its claim construction, and it is not before us for review. It may be reconsidered on remand.