United States Court of Appeals for the Federal Circuit

01-1606

OPTICAL DISC CORPORATION,

Plaintiff-Appellant,

v.

DEL MAR AVIONICS and BRUCE DEL MAR,

Defendants-Appellees,

and

TOOLEX INTERNATIONAL N.V., TOOLEX USA, INC., and OPTICAL DISC MASTERING EQUIPMENT, INC.,

Defendants.

DECIDED: August 1, 2002

Before MICHEL, SCHALL, and LINN, Circuit Judges.

SCHALL, Circuit Judge.

DECISION

Optical Disc Corporation ("ODC") appeals the final decision of the United States District Court for the Central District of California that granted summary judgment of invalidity of ODC's U.S. Patent No. 5,297,129 ("the '129 patent") in favor of the defendants (collectively, "Del Mar") for failure to disclose the best mode. Optical Disc Corp. v. Del Mar Avionics, No. CV 97-00650 MRP (C.D. Cal. July 25, 2001). Because we conclude that there is a genuine issue of material fact as to whether the inventors of the '129 patent contemplated a best mode of their invention as of the filing date, we reverse and remand.

DISCUSSION

I.

The '129 patent relates to optical recording. Optical recording refers to storing information in a medium that is sensitive to light, such as a compact disc ("CD"). The first step in the production of a CD is the creation of a master CD with data on it. Data is written onto the master CD, or recorded on it, by making physical alterations in the surface of a disc. These alterations are known as "surface effects." Normally, laser beams are used to write data onto the surface of a master CD. "Pits" are the most common form of surface alteration used to write information onto a disc.

After a master CD with data on it has been created, a metal layer typically is deposited on top of the disc in order to make an inverse image of it. The metallized inverse copy of the master CD, called a "stamper," then is separated from the master disc. The stamper is used to mold multiple replicas of the original master CD for distribution and sale.

In order to make an optical recording, a "laser write signal" controls the laser light so that it will make marks of the right shape on the recording medium. A prior art method of optical recording used

simple rectangular waves as laser write signals. That is, the laser was turned on for a period of time in order to make a mark, and then turned off. An example of a rectangular laser write signal is shown in Line (A_1) in Fig. 3 of the '129 patent:

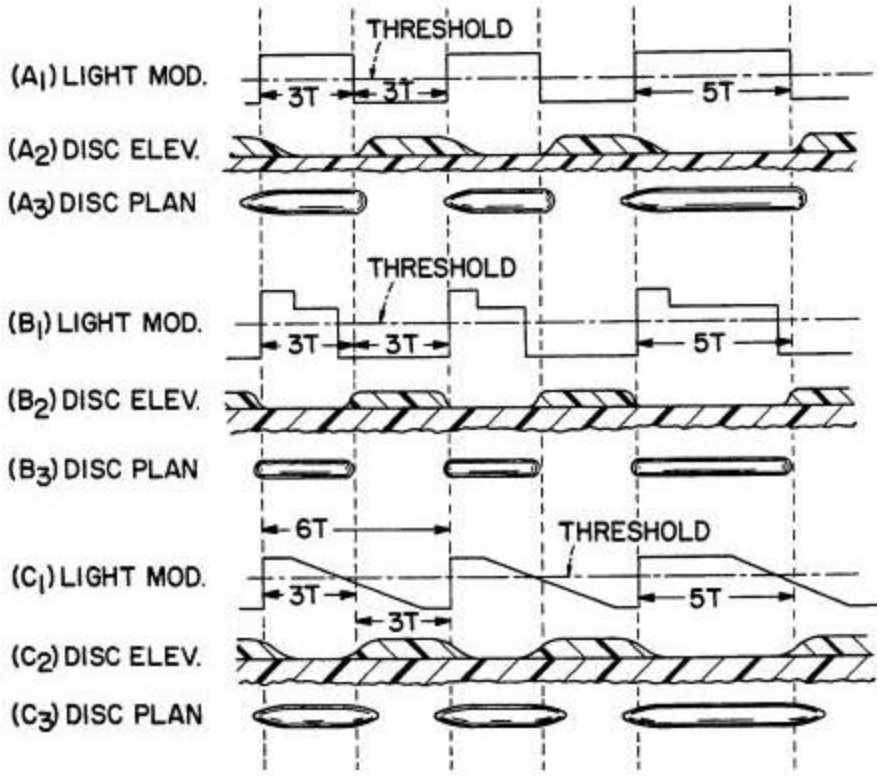


FIG. 3

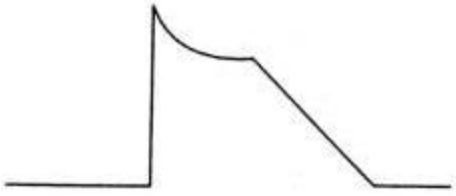
As explained in the '129 patent, the rectangular waveshape in Line (A_1) suffers from some disadvantages. When a laser beam hits the surface of the disc, it takes some time for the laser to heat up the disc. On the other hand, when the laser beam is turned off, the disc cools off almost immediately. This results in a pit in the disc with a shape that is not symmetrical. Specifically, a "pear-shaped" or "teardrop-shaped" surface effect will result at the leading edge of the pit, and a rounded or blunt edge will result at the trailing edge of the pit. This is illustrated in Line (A_3) in Fig. 3 of the '129 patent.

The lack of symmetry in the shape of the pit causes problems when reading the pits on the disc. If the front and back ends of the pit are non-symmetric, it can be difficult for a CD player to determine exactly where the pit begins and ends. The '129 patent explains that one prior art attempt to improve the

shape of the pit involved increasing the intensity of the laser beam at the beginning of the laser pulse. This produces symmetrical blunt ends on both ends of the pit. This is illustrated in Line (B_1) (laser pulse shape) and in Line (B_3) (resulting pit shape) in Fig. 3 of the '129 patent.

The '129 patent goes on to explain that "blunt ends on the pits make tracking difficult for some players." The invention of the '129 patent addresses this problem using a laser waveshape that produces tapered ends on both ends of the pit. The laser write signal that produces this effect uses what it called a "trapezoid" waveshape, illustrated in Line (C_1) of Fig. 3 of the '129 patent. The trapezoid waveshape has a steep leading edge followed by a flat plateau portion followed by a ramped trailing edge. The '129 patent describes and claims the use of the trapezoid waveshape for optical recording.

After its development of the trapezoid waveshape, ODC continued to conduct research geared towards further improving its laser write signal. Sometime in 1992, named inventors Richard Wilkinson and Li Shigang came up with the idea for a new waveshape, which ultimately became known at ODC as the "CDRET" waveshape.[1] ODC documents show the CDRET waveshape as follows:



3 - CDRET waveshape

As can be seen from the above figure, the trailing edge has the same ramped shape as the trapezoid waveshape. The CDRET waveshape differs from the trapezoid waveshape in that the leading edge has an overshoot which then exponentially decays to a lower level of intensity, followed by a ramped trailing edge.

II.

The parties agree that the CDRET waveshape is the best mode of the claimed invention. The major issue in dispute is whether the inventors of the '129 patent considered the CDRET waveshape to be the best mode of their invention as of the date of filing of the '129 patent application, December 24,

1992 (the "filing date"). ODC's position is that the CDRET circuit was not completely tested by the filing date, and that therefore the ODC inventors were not sure as of that date whether the CDRET waveshape was the best mode of the invention. Del Mar's position is that the CDRET waveshape had been fully tested as of the filing date, and that the testing showed such positive results that the ODC inventors knew by then that the CDRET waveshape was the best mode of the invention.

In the district court below, Del Mar moved for summary judgment of patent invalidity, arguing that the '129 patent was invalid by reason of the on-sale bar and for failure to meet the best mode requirement. The district court granted Del Mar's best mode motion, finding that the inventors considered CDRET to be the best mode of the invention before the filing date and that ODC did not adequately disclose this best mode in the patent. Optical Disc, slip op. at 4-5. The court rejected ODC's argument that the inventors did not know that CDRET was the best mode of the invention at filing because "beta" testing had not yet been performed. The court concluded that "[w]hether or not ODC had completed all of the beta testing required to perfect their commercial implementation of what later was called CDRET has no bearing on whether the inventors contemplated the new waveshape to be the best mode of practicing the invention for which they filed an application." Optical Disc, slip op. at 7 n.1 (emphasis in original). Having granted Del Mar's best mode motion, the district court denied the on-sale bar motion as moot.

III.

We independently review the district court's grant of summary judgment. N. Telecom Ltd. v. Samsung Electronics Co., Ltd., 215 F.3d 1281, 1286 (Fed. Cir. 2000). Summary judgment is appropriate only if there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. See Fed. R. Civ. P. 56(c). To this end, the court must draw all reasonable factual inferences in favor of the nonmovant. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986).

The best mode requirement appears in the patent statutes at 35 U.S.C. § 112, first paragraph: "The specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention." The purpose of the best mode requirement is to restrain inventors from applying for patents

while at the same time concealing from the public preferred embodiments of the inventions that they have in fact conceived. Teleflex, Inc. v. Ficosa North America Corp., -- F.3d --, 63 USPQ2d 1374, 1384 (Fed. Cir. 2002). A holding of invalidity for failure to disclose the best mode requires clear and convincing evidence that the inventor both knew of and concealed a better mode of carrying out the claimed invention than that set forth in the specification. Id.

Compliance with the best mode requirement is a question of fact, which involves a two-pronged inquiry. Id. The first prong is subjective, focusing on the inventor's state of mind at the time he filed the patent application, and asks whether the inventor considered a particular mode of practicing the invention to be superior to all other modes at the time of filing. Id. The second prong is objective and asks whether the inventor adequately disclosed the mode he considered to be superior. Id. at 1384-85; The second prong depends upon the scope of the claimed invention and the level of skill in the relevant art. N. Telecom Ltd., 215 F.3d at 1286 (Fed. Cir. 2001). With respect to both the first and second prongs, the best mode inquiry is directed to what the applicant regards as the invention, which in turn is measured by the claims. Teleflex, 63 USPQ2d at 1385.

ODC argues that there is a genuine issue of material fact as to whether the inventors of the '129 patent knew that CDRET was the best mode of practicing the invention as of the filing date, because they were still evaluating and testing CDRET as of that date. Del Mar responds that the undisputed facts show that the inventors knew of the best way of practicing the claimed invention and that they failed to disclose it. Del Mar further contends that ODC's testing argument is without merit.

IV.

We conclude that there is a genuine issue of material fact as to whether the inventors of the '129 patent considered the CDRET waveshape to be the best mode of their invention as of the filing date. In early December of 1992, ODC conducted testing at its own facility of CD masters manufactured using the CDRET waveshape, and it also tested replicas that were made from those CD masters. After it completed this in-house testing, ODC asserts that it proceeded to what it refers to as "beta" or "field" testing. Beta testing took place at a customer's facility beginning on December 17, 1992, and involved

the following steps: (i) a breadboard CDRET prototype circuit was installed in a CD mastering machine at the customer's facility; (ii) CD masters were produced on the customer's CD mastering machine using the CDRET waveshape; (iii) CD replicas were then made from those CD masters; and (iv) the CD replicas were tested using various pieces of test equipment. Although ODC expected the beta testing to take only three days, it in fact continued for several weeks, due to problems with the customer's test equipment. After those problems were resolved, the customer made replicas from the CD masters on December 28-30, 1992. Shortly thereafter, those replicas were tested, showing good results.

ODC presented the testimony of two named inventors, an engineering manager, and an optical recording expert, all who testified that they could not be sure that CDRET would work for its intended purpose until it was subjected to beta testing. Specifically, named inventor Li Shigang testified as follows:

> When my co-inventors and I filed the application for the '129 patent, we did not believe that the leading edge decay was the best mode of practicing our invention. In fact, until Beta testing occurred in 1993, we were not even sure if that modification would work in the real-world environment of a customer facility under actual production conditions. Until the circuit operated satisfactorily under those conditions, as established by actual Beta testing, it would not have been shown to serve the purpose for which it was intended, and could not possibly have been considered to be the best mode of practicing any invention at all.

Shigang Decl. at ¶ 9 (emphasis added). Co-inventor Richard Wilkinson testified that:

> Based on my extensive experience in the highly technical area of optical data disc recording, . . . Beta testing . . . is commonly undertaken in the industry prior to offering a product or innovation for sale. Certainly, given the limitations of . . . preliminary testing, including the difficulty and expense that would be entailed in creating a real world production environment at ODC, the limited access to samples and testing equipment (in the early 1990's, ODC did not have an automated analyzer), and the lack of stamper-production and replication facilities at ODC (which are expensive to acquire and operate), Beta testing is essential. Given the highly technical nature and sensitivity of laser optical recording, and the dynamics of and differences in production environments of ODC mastering equipment end-users, such as different levels of operator expertise, production requirements, and types of stamper-production and replication equipment, no amount of preliminary, in-house testing can assure that a particular innovation will work suitably for its intended purpose in practice. In addition, given the purpose of Beta testing, such testing almost never occurs with new customers who are just setting up their ODC mastering and production environments. Rather, Beta testing occurs in established production environments, where

test results can be compared with earlier data.

Wilkinson Decl. at ¶ 31 (emphasis added). Mr. Wilkinson further testified:

I was not able to determine if CD RET worked in practice until after reviewing test replicas generated at [the customer] on December 30, 1992, at the earliest.

Wilkerson Decl. at ¶ 51. Marc Parveneh, an ODC engineering manager, testified that

upon completion of preliminary testing of appropriate content and duration, the new design is Beta tested in an established customer facility (or often in several of them) to verify whether it will solve the problem for which it was designed, in a real-world environment, under actual production conditions. In Beta testing, the entire production process is conducted with that new component in place. This is the only sure way to verify that the design will actually achieve the result for which it was designed. Without such Beta testing, the design cannot be validated sufficiently to add it to the product line offered by ODC to customers on a non-experimental basis.

Naturally, this process can be terminated at any point, if, for example, the design proves to be deficient or if a better design is found or if ODC simply decides that the problem is no longer worth pursuing and wishes to apply its resources to other, more important, tasks.

Parveneh Decl. at ¶¶ 13-14 (emphasis added). Finally, ODC's expert, Dr. Howe, testified:

> Due to certain non-linearities which may exist in the process of forming a metal stamper (from the master disc) and the subsequent molding of plastic replica discs (from the stamper), the requisite dimensions and morphology of pits on the master dics will in general be different from the desired dimensions and morphology of the pits in the replica discs.
>
> The modulation circuit and methodology that are the subject of the '129 patent provide important elements of a process that offers improved control of the pit-forming medium's exposure, which ultimately provides improved control of the dimensions and morphology of the recorded pits, not only in the master disc but more importantly in the replicated discs. Because the stamper generation and replication processes will introduce changes in the ultimate pit morphology that are impossible to predict with 100% accuracy, the effectiveness of a particular master disc exposure profile can only be determined by analyzing replicated discs. Therefore, in order to validate a mastering control mechanism and to qualify a product or subsystem implementing it, that product or subsystem would have to undergo preliminary testing to assess its likelihood of success, followed by beta testing under true production conditions. Only upon beta testing in a

> production environment could the effectiveness of mastering control procedures be verified, by studying the effect of changes in the mastering parameters on the playback performance of the replicated discs.

Howe Decl. at ¶¶ 5-6 (emphasis added).

Finally, ODC points to a service report dated December 18, 1992, which describes the installation of the CDRET breadboard circuit at ODC's customer. The service report is labeled "Experiment" and describes the work done on that day as: "Installed experimental board."

The district court found that "[b]eta testing is simply the field testing a product undergoes after it has been decided that is a viable product – beta testing works out bugs, it is not a prerequisite to a determination that a product will work." Optical Disc, slip op. at 7 n.2. We agree with the district court that there is evidence in the record that supports its conclusion. We hold, however, that the evidence to the contrary described above, when viewed in the light most favorable to ODC, presents a genuine issue of material fact as to whether the inventors considered completion of beta testing to be necessary to determine whether the CDRET waveshape worked for its intended purpose. Furthermore, Del Mar has the burden of proof by clear and convincing evidence to demonstrate that the patent is invalid for failure to disclose the best mode. We think there is a genuine issue of material fact as to whether Del Mar has carried that burden.

Del Mar also argues that the invention claimed in the '129 patent is directed to optical recording generally, and not limited to the manufacture of CD replicas.[2] Del Mar therefore contends that the inventors knew that the CDRET waveshape was the best mode immediately after they successfully tested CD masters at ODC's facility in early December of 1992. We disagree.

The evidence of record indicates that there are a number of ways that the efficacy of the CDRET method of optical recording could be tested and verified. One way is to create masters and test those masters with an oscilloscope, a CD analyzer, a microscope, or a "Marantz" player. Another way is to create replicas from those masters and test those replicas. The declarations of the three ODC engineers, the declaration of Dr. Howe, and the service report labeled "Experiment," all support ODC's argument that the inventors of the '129 patent did not consider the CDRET method of optical recording to work for its intended purpose until beta testing was completed. Although Del Mar argues that "[t]he claims would cover other types of optical recording systems, including those that directly record discs that are not

used for replication, such as the recordable CD drives found in many personal computer systems," we see no evidence in the record that such systems existed in December of 1992 or that the inventors of the '129 patent subjectively considered those systems to be an application of their invention.

Furthermore, the '129 patent specification lends support to ODC's argument that the inventors considered the manufacture of CD replicas to be the intended application of their invention. Specifically, the patent states that the invention provides flexibility in controlling waveshape parameters to "tak[e] into account the differences in chemicals, surface thicknesses on the disc, molding machines, and mastering machines." '129 patent: col. 6, ll. 45-54 (emphasis added). Thus, the patent contemplates the use of molding machines to manufacture replicas.

"The best mode inquiry focuses on the inventor's state of mind as of the time he filed his application—a subjective, factual question." Chemcast Corp. v. Arco Indus. Corp., 913 F.2d 923, 926, 16 USPQ2d 1033, 1035 (Fed. Cir. 1990). In this case, summary judgment was inappropriate because there is evidence that casts doubt on whether the inventors subjectively considered CDRET to be the best mode of their invention as of the filing date.

V.

The district court decided to give no credence to Mr. Wilkinson's declaration testimony because it conflicted with his earlier deposition testimony. Optical Disc, slip op. at 8. In his May 21, 1998 deposition, Mr. Wilkinson testified as follows:

> Q: So do you have any recollection of when it was you had the idea [for the CDRET waveshape?]
>
> A: I would say that was probably around mid '92 that we began work on [CDRET].

Q. Okay. Did you find that that – [CDRET] was effective in creating a better product?

> A: Yes. It actually gave us still more means of adjusting and tailoring the shape of the pits than we had before.
>
> *****
>
> Q. When did you decide, through experimentation, or testing, or whatever, that [the CDRET waveshape] would be a good thing to do for the product and create a better

product?

A: That had to be in the last half of 1992.

Q: Does that mean that you were probably doing experiments regarding – with this sort of wave form in the last half of 1992?

A: Yes. All of these decisions are based on doing some work measuring the results and deciding, yes, that's better, or worse, or is it worth pursuing.

(emphasis added).

In his later declaration, dated January 18, 2001, Mr. Wilkinson stated that the inventors of the '192 patent were not sure that CDRET was the best mode of the invention until December 30, 1992, at the earliest, when ODC generated replicas for beta testing. In this declaration, he explained that, at the time he was deposed, he had not had the benefit of reviewing the relevant documents beforehand and that he was just offering his "best guess."

We agree with ODC that Mr. Wilkinson's declaration statements do not merit exclusion. First of all, his declaration comments are not really contradictory to his deposition statements, because December 30, 1992 is in the "last half of 1992." Furthermore, at several points during Mr. Wilkinson's 1998 deposition, he indicated that he was just giving ballpark estimates of the dates of events that had occurred six years earlier. For example, he stated:

Q: So your best estimate is that you began working on [CDRET], say, June of '92 to fall of '92, somewhere in that range?

A: Yeah. That's my best guess at the moment.

As the Ninth Circuit has noted, a witness may submit an affidavit that simply explains or clarifies the earlier deposition testimony when, as in this case, the witness appeared confused or simply lacked access to the information requested at the deposition. See Kennedy v. Allied Mutual Ins. Co., 952 F.2d

262, 266 (9th Cir. 1991). Moreover, even if we were to agree with Del Mar that Mr. Wilkinson's declaration should be given no weight, other evidence, such as the declaration testimony of Mr. Shigang, is sufficient to create a genuine issue of material fact as to whether the inventors considered CDRET to be the best mode of the invention as of the filing date.

VI.

Prior to beta testing, ODC sent CD masters out to at least one customer to have replicas made. It then tested those replicas at its own facility. This testing was completed by December 17, 1992. ODC argues that the results from this in-house replica testing were "decidedly mixed." To support this argument, ODC points to Mr. Wilkinson's lab notebook, on a page dated December 16, 1992, where he wrote that the "eye pattern looks very bad on replicated discs cut at 1.2 M/sec."

Del Mar responds that we should not consider the lab notebook entry because ODC did not present this "mixed-results argument" to the district court below. In addition, Del Mar argues that we should allow it to rebut the lab notebook statement by supplementing the record with four additional pages from Mr. Wilkinson's deposition which were not part of the record below. In these four pages, Mr. Wilkinson testified as follows:

> Q: Let's look at the first page [of the lab notebook]. It is dated 12-16-92. Does what is on this page have anything to do with the prototype CDRET board that was apparently being tested at that time period?
>
> A: This page is a recap of observations made over the last few years just to document observations.
>
> Q: So this doesn't directly relate to anything you did right around the date 12-16-92?

A: No, it doesn't describe specifically anything done on that date.

* * *

> Q: Were these three pages [of the lab notebook] that I referred to . . . related in some way to the testing of the CD RET prototype board . . .?

> A. There's a little bit of data here that does come from the prototype CDRET board. However, this testing was not specifically to qualify the CDRET board itself. That had already been done. This was principally to investigate and be able to compare all the sources of jitter in the recording process.
>
> Q: So was the qualifying of the CDRET board done before 12-18-92?
>
> A. Yes.
>
> Q. What do you mean by "qualify the CDRET board"?
>
> A. That we had indeed made masters, made replicas, and confirmed that we could get excellent quality replicas using that board on our machine. . . .

ODC seeks to exclude the four additional pages of Mr. Wilkinson's deposition testimony because they were not part of the record below. ODC notes that Del Mar first brought Mr. Wilkinson's lab notebook entries to the attention of the district court in its reply brief in connection with its motion for summary judgment on the best mode issue, and it points out that the district court cited one of the lab notebook pages in its decision. See Optical Disc, slip op. at 6.

We reject Del Mar's contention that we should not consider the lab notebook because ODC failed to raise the "mixed results" argument below. ODC argued below that the inventors did not consider CDRET to be the best mode of the invention at the date of filing because beta testing had not yet been completed at that time. Mr. Wilkinson's lab notebook is simply further evidence that supports this argument. Furthermore, as ODC correctly points out, Del Mar itself brought the lab notebook pages at issue to the attention of the district court, and the district court cited those pages in its opinion.

The lab notebook statement further buttresses our conclusion that there is a genuine issue of material fact as to whether the inventors considered the CDRET waveshape to be the best mode of the invention as of the filing date. We do not need to decide whether ODC should be allowed to introduce four additional pages of Mr. Wilkinson's deposition which were not part of the record below, because even considering those deposition pages, there is still a factual dispute concerning whether the eye pattern problem mentioned in the lab notebook had actually been resolved by December 16, 1992, the date of the lab notebook. Thus, Mr. Wilkinson's lab notebook further supports our conclusion that a remand on the best mode issue is required.

VII.

Addressing the second prong of the best mode inquiry, ODC argues that although CDRET is not expressly disclosed in the '129 patent, it is implicitly disclosed. ODC relies on the declaration of its expert, Dr. Howe, who opined that one of ordinary skill in the art of master disc recording in the late 1980's and early 1990's, upon reading the technical description given in the '129 patent specification, would have "easily appreciated" that the trapezoid waveshape depicted in the patent "could be augmented" with a leading edge overshoot and an exponential decay. We are not persuaded by ODC's argument.

It is true that "[w]e have consistently recognized that whether a best mode disclosure is adequate, that is, whether the inventor concealed a better mode of practicing his invention than he disclosed, is a function of not only what the inventor knew but also how one skilled in the art would have understood his disclosure." Chemcast, 913 F.2d at 927, 16 USPQ2d at 1036 (Fed. Cir. 1990). However, we have also warned that "[w]hile a disclosure necessary to meet a statutory requirement is to be understood from the standpoint of one skilled in the relevant art, a certain basic disclosure is needed of the best mode." Robotic Vision Sys., Inc. v. View Eng'g, Inc., 112 F.3d 1163, 1165, 42 USPQ2d 1619, 1622 (Fed. Cir. 1997). The '129 patent only discloses a single waveshape corresponding to the claimed invention: the trapezoid waveshape. There is no disclosure or suggestion to use a leading edge overshoot followed by an exponential decay and a ramped trailing edge. Although ODC argues that Line (B_1) in Fig. 3 of the '129 patent suggests the use of a leading edge overshoot, Line (B_1) merely depicts the prior art, not the claimed invention.

The two cases relied on by ODC, Robotic Vision Systems and In re Sherwood, 613 F.2d 809, 204 USPQ 537 (Fed. Cir. 1990), are inapposite. In Robotic Vision Systems, the claimed invention related to a method of using a three-dimensional sensor to scan and inspect the leads of integrated circuit chips. 112 F.3d at 1164, 42 USPQ2d at 1620. Although the specification disclosed motors for moving the sensor and encoders for indicating the position of the sensor, the specification did not disclose a mechanism for controlling the motors or for receiving positional information from the encoders. Id. We held that the patent was not invalid for failure to disclose that software was the best mode of the invention. We noted:

> [T]he inventors in this case disclosed a device for carrying out their method, and it is plainly apparent that a computer, operating under software control, is to be interfaced to the device for controlling the movement of the sensor. Something must be connected to the device for providing control signals to the motors and for receiving information from the linear encoders concerning a position of the sensor, and there is no dispute that that something is a computer.

Id. at 1166, 42 USPQ2d at 1622. The court further stated that "[f]rom the record before us, it is clear that a software program was involved in the carrying out of the invention and that no other mode existed." Id.

Essentially, the patent in Robotic Vision Systems contained a gap in the disclosure regarding how the motors were operated—a gap which one of skill in the art would clearly understand was filled by a computer software program. In contrast, the '129 patent has no gap. To the contrary, it explicitly discloses a single waveshape that comprises the invention, the trapezoid waveshape. It would not be apparent to one of skill in the art to disregard the waveshape explicitly disclosed in the patent, and use a different waveshape instead.

In re Sherwood is similarly inapposite. There, the specification disclosed the general mathematical equations comprising the invention and stated that the best mode for practicing the invention involved performing the processing steps on a digital computer. 613 F.2d at 817, 204 USPQ at 544. We held that the disclosure of the mathematical algorithms was sufficient to satisfy the best mode requirement because it would require only the application of routine skill to produce a workable computer program. Id. In this case, however, the '129 patent does not disclose the CDRET concept, nor does it disclose any guidelines that would enable one of skill in the art to produce the CDRET waveshape by application of routine skill.

To summarize, we hold that there is a genuine issue of material fact as to whether the inventors of the '129 patent considered CDRET to be the best mode of the invention as of the filing date, the first prong of the best mode inquiry. We agree with the district court, however, that there is not a genuine issue of material fact on the question of whether CDRET was disclosed in the '129 patent, the second prong of the best mode inquiry. CDRET was not disclosed in the patent, either implicitly or explicitly.

The decision of the district court granting summary judgment of invalidity in favor of Del Mar is reversed. The case is remanded to the district court for further proceedings consistent with this opinion.

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[1] "CDRET" stands for "CD Record Equalization Technology."

[2] Claim 1 is representative of the claims in suit:

1. A waveform shaping circuit for use in an optical recording apparatus which includes a writing light beam source and an optical modulator for modulating the intensity of the writing beam of light above and below a threshold level of a moving recording medium in response to a modulator drive signal for recording information on the medium, the light beam being capable of forming a track of surface effects in the moving recording medium when the writing beam is above the threshold and incapable of forming said track of surface effects in the moving recording medium when the writing beam is below the threshold, said waveform shaping circuit comprising:

delay means for receiving a substantially rectangular waveform having leading and trailing edges, provided as said modulator drive signal to modulate the writing beam, and for delaying said leading edges while passing said trailing edges undelayed; and

waveform shaping means coupled to said delay means for producing a shaped modulator drive signal having steep leading edges reaching a first level sufficient to cause said writing beam to have an intensity above the threshold of the movi-ng medium, and having ramped trailing edges changing amplitude at a prescribed rate to reach a second level sufficient to cause said writing beam to have an intensity below the threshold of the moving medium prior in time to the occurrence of the respective next leading edges of the received rectangular waveform.